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From the Desk of the Editor

It is my great pleasure to bring forth the 4th edition of the PS-I Chronicles. This edition features over 1336 articles from PS-I students sharing their experiences during summer 2022.

The basic premise behind the release of PS-I Chronicles is to document the PS-I learning experience of students keeping the below objectives in view.

- To provide more information on the learning experiences by immediate senior students and PS-I faculty about stations, and thereby enlightening the learning opportunity among the student community.
- To provide the faculty with the enhanced information about the type and nature of work carried out at the organization.
- To transform the knowledge gained at the organization into class room teaching and also to identify the scope of deepening the collaborations with organization.

The articles have been classified into five categories based on the industry domain.

- Chronicle 1: Information Technology
- Chronicle 2: Electronics
- Chronicle 3: Chemical, Mechanical, Cement, Textile, Steel, Infrastructure
- Chronicle 4; Health Care and other
- Chronicle 5: Finance and Management

I also would like to place my sincere thanks to Prof. Anil Gaikwad, who actually spearheaded this entire exercise since 2019 including the current edition. I would like to thank students & faculty for sharing their experiences during their stint at the organization. I would also like to thank Prof. Arun Maity, Prof. M. K. Hamirwasia, and Prof. S. Murugesan for reviewing the articles and providing us the feedback. I would also like to extend my thanks to Mr. Om Prakash Singh Shekhawat and Mr. Varun Singh of the Practice School Division, of BITS, Pilani – Pilani Campus for their help in bringing out this edition of PS-I Chronicles.

I would be happy to receive any feedback regarding the Chronicles. Please feel free to email me at associatedeanpsd@pilani.bits-pilani.ac.in.

Associate Dean

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Domain: Information Technology

PS-I station: ABC Consultants Pvt. Ltd. , Delhi

Student

Name: TANISHQ JOSHI . (2020B4AA1679G)

Student Write-up

PS-I Project Title: MARKET RESEARCH AND DATA ANALYTICS OF TECHNOLOGY CAPTIVES & GICs IN INDIA

Short Summary of work done: I worked as a Research Analyst, where I made a database for the Technology Captives & GICs segments in ABC Consultants. This database includes the name of captives, sector they are operating, year of establishment in India, Size of captive, and Names & LinkedIn IDs of the Head of HR, Head of Operations, and Chief Talent Acquisition Offer. Later, I analyzed all the data collected throughout and suggested some approaches to ABC Consultants in their Technology Captive segment through which they can get more output in the captive segment.

PS-I experience: The overall experience I would describe it as fruitful because I got to learn a lot of skills and understood the ways to interact in a corporate setting also a major learning was how it is possible to work in a team and still function smoothly and work along with inclusivity and take up and work upon opinions of all the members of the team. This was my first exposure to the corporate world although online but this made me grow and I felt at the end of the PS program that I took my first steps towards becoming an efficient and productive individual in the corporate world.

Learning Outcome: Understanding of Technology Captives segment
Learned about various tools, resources, and Platforms like - Indeed, LinkedIn, Glassdoor, etc.
How the Recruitment process works and how to find opportunity.
Learned about the backend working of Consultancy and about Corporate communication.
Learned more about excel and operations.

Name: DEVANSH SHARMA . (2020B4AA1991P)

Student Write-up

PS-I Project Title: ANALYZING LEADERSHIP AND ORGANIZATIONAL STRUCTURE

Short Summary of work done: The objective of this project is to map the existing leadership positions across the
financial service industry to provide potential business insights. The project helps the company keep updated with industry trends while dealing with clients.

PS-I experience: These 8 weeks were great. I learnt a lot through the project. The working hours were flexible, that made it even better. The company mentors and faculty mentor were also very helpful, they guided me each time I faced any problem. Overall, it was a nice experience.

Learning Outcome: The projects helped me to understand the structure of several organizations. It also helped me to learn the way we can use LinkedIn to find personal contact of people at top level posts. I also learnt a lot about using Excel. I were able to draw some insights through the data we gathered. I got to know in depth about several industries like insurance, banking,
management consulting, PE, VC.

Name: DRISTANT KASHYAP KALITA . (2020B5A42322H)

Student Write-up

PS-I Project Title: Mapping of EV industry in India

Short Summary of work done: The project mainly focused on carrying out an exhaustive research of companies and startups in the EV space. For this, the work mainly was to carry out market mapping, i.e, doing research on EV companies and startups in India and prepare documents regarding the same(word or excel). These documents included a brief introduction to the company, location of its head offices and plants, turnover, its valuation, year of incorporation, no. of employees, employee structure, its product and services, funding, investors, organisation charts, competitors and the latest news and updates regarding the company. The report of companies that are in different phases was prepared to get an overview of the industry. . Along with this, a tracker was prepared, which contained a list of 70 companies/startups in the EV sector with their fundings,

investments and CXOs. The main objective of these reports was to increase the company database of this industry and help existing or future clients of this industry with the data provided.

PS-I experience:
I had a great experience working with the team and learning more about how a recruitment firm functions from the inside. I gained a lot of knowledge through my interactions with the mentors, this gave me an insight into the industry and the type of work the industry demands. This made me grow as a person and helped me learn a lot. I hope to implement my knowledge and learnings from this PS-I course in my remaining student and upcoming professional life.

Learning Outcome: The scenario of EV sector in India.The amount and the nature of in-depth nature done by the consultancy firms.Using various new Excel functions, merging data from multiple different lists and getting rid of redundant and useless data.How to use websites like crunchbase, traxcn and apollo.io, linkedin .How to conduct indepth research on the internet using Key Words

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PS-I station: Agnext Technologies Pvt Ltd (onsite) , Sahibzada Ajit Singh Nagar

Student

Name: PRATINAV MONGIA . (2020ABPS1575P)

Student Write-up

PS-I Project Title: Agnext Products

Short Summary of work done: The project started with the HR department giving me and my fellow mentors a brief introduction to the product line of the company. Then I was assigned to work on a device being developed by the company. I was explained the proposed working of the device. According to the need of the product I was given various tasks. I learnt SQL and performed various operations like insertion, deletion and modification on the database. I was also introduced to the importance of logging in the development of a software for effective debugging. I got to know about python bindings and the power it gives to the

developer. I also got the opportunity to work with AWS. I was also given a minor task to generate a qrcode in python and pass data into the qr code. Finally, I got to work with the OpenCV library. I also got to work intensively with Raspberry Pi and Linux operating systems.

PS-I experience: I had a great PS-1 experience, I got to learn a lot about software development. I was introduced to various new technologies and libraries. I also got a good grip on my C++ skills. I also got experience in working with electronic development boards like Arduino and Raspberry Pi. Moreover, I also got to network with a lot of people.

Learning Outcome: I got to learn a lot about software development. I was introduced to various new technologies and libraries. I also got a good grip on my C++ skills. I also got experience in working with electronic development boards like Arduino and Raspberry Pi. Moreover, I also got to network with a lot of people.

PS-I station: Agrix Agrotech Private Limited - Electronics , New Delhi

Faculty Name: Asish Bera

Faculty write-up
Agrix Agrotech Private Limited: works on the AI/ML applications for Agriculture and our students have done projects in these direction based on Tractor movement, GIS data, using MongoDB, etc.

Industry looking for in a -I intern

They focus on real world projects where an intern can quickly adapt and learn the latest technology to work in the project as a team in a timely manner.

Student

Name: RISHABH SANDEEP KHANDELWAL . (2020A4PS0166P)

Student Write-up

PS-I Project Title: Data extraction, processing, and storing for a GPS based fleet management system using API (Python).

Short Summary of work done: The essence of our project was to create a system to extract and store certain aspects of the tractors and harvesters employed by Agrix Agrotech like run- time, idle-time, distances covered, plot harvested, etc as data, so that we can use this data to prepare a model and, predict the demand pattern and accordingly the respective changes to be brought in by the owners to meet the demands like the peak months, number of extra vehicles required, etc.
Firstly, we had to sort out the important data from the GPS Tracking Server on Acumen Track and figure out which data fields are relevant for us and will help us make the demand prediction model.
Then we had to extract it from the API using python requests and transform it into a more readable format (JSON). Lastly we needed to store this data into our MongoDB database in the same format of tables that is present on the 3rd party software - Acumen Track.
Hence, in a nutshell, we needed to sort out the relevant data for our model, extract it from the API using python requests, transform it to a suitable readable type(JSON) and store it in our database (MongoDB). Also we had to make sure that this process of extracting and storing data kept happening after the ping duration of 60 seconds between two requests without running manual loops and instead using javascript/web scraping.

PS-I experience: My PS-I experience can be divided into three parts - first one being learning new languages and platforms, second being completing tasks in web development, and last being getting started with MongoDB. The first two weeks were spent on learning new languages like python and, getting familiar with the GPS Tracking Server on Acumen Track. This helped me figure out which data fields were relevant for us in making a demand prediction model. The next two weeks were spent in figuring out how to work with APIs. It involved extracting data from API using python requests and converting the extracted data into a more readable format(JSON). Although I struggled with this part, I am happy for the experience I gained on these topics. The next two weeks were spent in figuring out which database would be best for storing our data (MongoDB database), replicating the tables from the server in the database and storing the data. We also worked on mongodb in javascript to find a way to use a trigger the API instead of running loops.
The last week was spent in trying to use the data extracted to make a demand prediction model, using velocity as the differentiating factor to find cultivation time over total run time of the tractors.

Learning Outcome: While working on the project I learned new languages like Python and Javascript. We also learned more about API development(data extraction) and MongoDB database(data storage).

Name: ABHIMANYU GAUTAM . (2020A4PS0973H)

Student Write-up

PS-I Project Title: Creating an algorithm in python to extract plots and get area, shape, location, and time of cultivation using a set of coordinates generated by a GPS tracking device.

Short Summary of work done:
We were given the GPS coordinates of the movement of tractor. For the first step we had to find the points when the tractor is cultivating and when it is not. We started by plotting out the coordinates using matplotlib to visualize the path of tractor. Seeing the plot we found out that the points where the tractor is cultivating the field appear in relatively dense clusters, So we decided to use a clustering algorithm to separate out the fields. We ended up using the DBSCAN algorithm for clustering as it had certain features which were suitable for clustering in our Dataset. Once we separated out the fields, for each separated field we found out the convex hull in order to generate the shape of the plot. Then using the points belonging to the convex hull of each separated field we found out the area enclosed by those points. We found the convex hull using Monotone Chain Algorithm and area using Girard's theorem. To improve our clustering algorithm we used time from the GPS data.
There were also some small clusters which didn't correspond to a field which were removed by setting a minimum area threshold. Although our algorithm worked fine for certain Datasets we couldn't generalize it perfectly. The algorithm needed some tweaks in the parameters for new Datasets. However we were told that we set up a good base model which can be improved upon in the future.

PS-I experience: My overall experience in PS1 was good, worked with team, mentors and company officials. The work assigned was interesting.

Learning Outcome: Learned to implement algorithms on a real life problem. Also leant that a lot of research is required to choose an appropriate algorithm, working in a team helped a lot in this regard and we could easily eliminate the use of some other inefficient algorithms with continuous discussion.
Also learnt that feedback regarding the work should always be taken from the mentor as they have a lot more experience and can guide us in the right direction if we are stuck or are making a major mistake.

Name: SARTHAK AGARWAL . (2020A7PS0112P)

Student Write-up

PS-I Project Title: Data extraction, processing, and storing for a GPS based fleet management system using API (Python).

Short Summary of work done: Extracted data from Acumen track using python API and divided it into tables

PS-I experience: Good experience, adequate work and supportive mentors

Learning Outcome: pip requests and pandas

Name: ARNAV MISHRA (2020AAPS1237G)

Student Write-up

PS-I Project Title: Creating an algorithm in python to extract plots and get area, shape, location, and time of cultivation using a set of coordinates generated by a GPS tracking device.

Short Summary of work done: The task assigned was to create an algorithm/model in python to find the area and shape of field plots cultivated by the tractor. The project consisted of usage of many python libraries such as NumPy, Pandas, GeoPandas. Several excel sheets were provided, which consisted of collection of data received via a GPS tracking device every 5 seconds placed on the tractor, of an entire day. The data consisted of latitudes and longitudes, speed of the vehicle, time of data being sent and received. The data provided in the excel sheet was first extracted and separated to be further used for the calculations. In order to separate the road from the field plots a clustering algorithm "(DBSCAN)" was used. The clustering algorithm gave several clusters which were then iterated through one by one and the convex hull and area was calculated for those clusters using "spherical trigonometry". And in the end the shape of the plots were displayed using the results of the convex hull algorithm.

PS-I experience: Working with 'Agrix Agrotech Pvt. Ltd.' provided significant insights on what kind of work is going on and is expected in companies as well as new upcoming startups. The overall experience was really a fruitful one as the mentors under whose guidance I worked, were really helpful and considerate. They helped from time to time along the entire course of the project. And I also learned very valuable skills and technologies in the field of Machine Learning and Python.

Learning Outcome: The project was to develop an algorithm/model in python, and was very closely related to Machine Learning and it helped me to learn about different modules of python which are helpful in the area of machine learning like NumPy, Pandas etc. I also learned about different clustering algorithms such as K-Means clustering, DBSCAN clustering, Gaussian Mixture Model. And apart from that I learned about the real world applications of spherical trigonometry and also created and applied several algorithms in the project.

PS-I station: APA Creations - IT , Pune

Faculty Name: Arnab Kumar Paul

Faculty write-up

APA Creations - IT: This station had 3 students and all the students got devoted attention from the industry mentors. They would hold training sessions everyday on different aspects of ReactJS and Go Language. The students at the end of the PS know about these two technologies in great details and are able to apply the knowledge in building an expense tracker. This time PS being held in an online manner had some troubles in syncing up initially but the station contact was very responsive which helped in the initial on-boarding process for the students.

Industry looking for in a -I intern

The industry is looking for some technical knowledge on which they can assign projects initially. For example, for web-development projects, they want students who at least have a basic knowledge of NodeJS. After the project allotment, the industry mentors will give the required training to students to build on that basic knowledge. Another important aspect that the industry looks for is the appetite in students towards the project as well as a good attitude and a hunger to know more.

Student

Name: BALGOVIND S . (2020B3A70418G)

Student Write-up

PS-I Project Title: Developing a framework for an expense tracker application

Short Summary of work done: Designed and developed an expense tracker web application. Learned ReactJs for frontend, Golang for backend and used PostgreSQL for the database.

PS-I experience: It was very good and productive internship.

Learning Outcome: To learn how to design and develop a fully functioning website.

Name: KABRA VIDHI SURENDRA . (2020B3A70568G)

Student Write-up

PS-I Project Title: Developing a framework for an expense tracker application.

Short Summary of work done: During the first half, we were mostly focused on developing skills. I learned about ReactJs, React Router, and API integration in React in depth during this time. I was given tasks related to the topics that were discussed. In the second half, we were introduced to basics of Golang and how it is used in backend development. We also started working on the project. The whole project could not be completed due to time constraints.

PS-I experience: During the PS-1, I got to develop soft skills like communication, and report writing. Through PS1, i got to enter and experience the arena of full stack development. The industry mentors were very helpful, but sometimes took time in responding to doubts. Due to time constraints, i could not learn a lot about backend development. Apart from this, some of the webinars were very insightful.

Learning Outcome: I learned ReactJs in quite some depth, some basics of Golang and basics of Figma.

PS-I station: APA Creations - Non Tech , Pune

Student

Name: GOEL AKSHAT SANDEEP . (2020B3A70283G)

Student Write-up

PS-I Project Title: Market Research Analysis Head; Sales and Marketing Team

Short Summary of work done: I started with market research and analysis for the apparel sector of APA Creations known as Weeboo that deals with mainly anime merchandise and was looking to expand their domain. After my work there I was made a part of the Sales, Marketing and Outreach team of another new brand called Merchazzo where I called potential clients to try to get them to be a part of our community in exchange for Merchandise, Sponsorships, Publicity and PR for their fests and events.

PS-I experience: Working for APA Creations gave me the opportunity to experience how the corporate world works and learn how to grow in the same.
I learnt with example that the Corporate world runs on demand-supply basis: Consumer has a demand for a particular product or service and a Company supplies them their requirements, keeping profit in mind as their main agenda.
With Weeboo I learnt how the apparel industry has demand for “in-style” fashion and individual specifications when it came to prints and designs on the clothing items. This demand for apparels (both business and individual) was met by Weeboo who provides up-to date fashion goods along with custom prints so that people could decide what kind of hoodie, t-shirt, etc. the want to purchase.
Similarly with Merchazzo, there has been an increasing demand for merchandise and sponsors when it comes to college fests and events over the past few years. Merchazzo thus meets this demand and promises to supply good quality merchandise for low prices. Along with this, for higher merchandise orders they also provide free Sponsorship, Publicity and PR for the colleges that join their community with the sponsorship coming from big brands that have ties with them.
The reason these big companies have ties with Merchazzo is because providing sponsorship to colleges (let it be in-kind, financial or cash) helps with their publicity among the younger generation, thus giving them a prospect of further profits.
Moreover since Merchazzo handles almost all fields of hosting an event/ fest for the college students, they readily agree to be a part of the community as their entire work is done for them and they still get the credit for the same.
Thus, the corporate world works on demand-supply and making huge profit margins along with maximising sales. APA Creations helped a lot in understanding this aspect of the corporate world in great detail and I am grateful for these experiences.

Learning Outcome: Working for APA Creations, Weeboo and Merchazzo, I have learnt and experienced several things that will help me in the future.

Under Weeboo I learnt how to study Market Trends, gather and analyze the data, found out the platforms where major consumer market lies, communicated with them to find out about their likes and dislikes and found different ways Weeboo could expand in the market. Along with this I also analyzed the strategies and performances of the competitors, to build a plan that would help Weeboo grow.
In my second and third week I contacted several Lead Generation Companies to make deals between them and APA Creations so that they could provide different sources for APA Creations and different funnels and consumers it could expand it.
Along with this I also learnt how to get Sponsors for our Company along with studying marketing strategies, social media campaigns, bestseller lists, etc. of other competitors in the youth fashion market to help APA Creations grow further and faster.
Under Merchazzo I learnt how to better handle customers, irrespective of the crowd you are dealing with. I learnt the right way to go about marketing products and brands, along with how to make a sale in a convincing manner. In the end through Merchazzo I learnt how you can connect with your customers, build a rapo with confidence and be a good Marketing Head - something that is very important in the corporate world.

Name: NAKULL MAHAJAN . (2020B3AA1177G)

Student Write-up

PS-I Project Title: Non Tech Role

Short Summary of work done: My corporate experience was amazing. APA Creations had an organic organizational structure.
As I was given the management role, in the first half of PS1 till Midsem, I revised startegies to gain overall reach of the Weeboo(B2C) Website, social media handles & curated ideas for giveaways ,engagement contests/events, Trivia, FAQs, etc.
I along with my team member contacted digital marketing agencies and fashion influencers from different parts of India.
I used to have regular conversations with the company. They were very supportive and helped me in my difficulties.
In the Second Half of PS1, I was working for Merchazzo, APA Creations B2B Brand which caters to all the merchandising needs of students during their cultural , sports, tech fests and events.
I along with other two team members found out around 550 contact no.s of various cultural heads of colleges and did Business Pitching.

PS-I experience:

My corporate experience was amazing. APA Creations had an organic organizational structure.
As I was given the management role, in the first half of PS1 till Midsem, I revised startegies to gain overall reach of the Weeboo(B2C) Website, social media handles & curated ideas for giveaways ,engagement contests/events, Trivia, FAQs, etc.
I along with my team member contacted digital marketing agencies and fashion influencers from different parts of India.
I used to have regular conversations with the company. They were very supportive and helped me in my difficulties.

Learning Outcome:
Before PS1, I was just a student at BPGC with no corporate knowledge. After working with APA Creations, I got corporate exposure and learnt the discipline of working on a daily basis which included making aim for the day and then giving update of the things achieved in the end of the day. Being in the management role, I was feeling more responsible and hence I did my work with more maturity.
I learnt how to work in a team and get the work done with efficiency. I did business pitching and learnt how to convince clients through which I was able to improve my communication skills.

PS-I station: Arbunize digital media- Alternate career prediction , Delhi

Faculty Name: Arnab Kumar Paul

Arbunize digital media- Alternate career prediction: This station had 15 students. The initial onboarding took around 2-3 weeks to complete. After that, all students were divided into groups and allotted different real-world industry projects. This hands-on experience has really helped the students and they are more knowledgeable about the workings of the industry.

Industry looking for in a -I intern

The industry is looking for some technical knowledge on which they can assign projects initially. For example, for web-development projects, they want students who at least have a basic knowledge of NodeJS. After the project allotment, the industry mentors will give the required training to students to build on that basic knowledge. Another important aspect that the industry looks for is the appetite in students towards the project as well as a good attitude and a hunger to know more.

Student

Name: TIGMANSHU . (2020A1PS2105G)

Student Write-up

PS-I Project Title: Modifying the content in the development charter for the GetBoarded website

Short Summary of work done: The project was to modify the training library for DevelopmentCharter of GetBoarded website by adding content both manually and automatically. For manually adding the content information I had to fill a form with the information given to me. For automatically scraping the information of a course I used web-scraping with Selenium in Python. I scraped the courses information from Coursera website and stored it in a dataframe using Pandas.

PS-I experience: This PS was a wonderful learning experience for me. We had regular meets with our faculty mentor. In this we told about updates on our work and can also ask for doubts on a topic. We also had regular meetings with our company mentor. In this we updated him about our project works and ask doubts in case we are stuck anywhere in the project .

Learning Outcome: There are a lot of technical skills I gained while working on this project. To work on this
project, I had to brush up my knowledge of Python. After this I learned about web-scraping and how Selenium can be used in Python for automatically scraping information from a web
page. I also learned to use Pandas library in Python for data manipulation and storing data in different formats. This PS-1 also gave me a valuable work experience. I had the experience of working with groups. From this I learned to work well with other people and value each other's strengths and contributions. I learned to communicate clearly and succinctly both in writing and orally to my project supervisor, in this case my company mentor.

Name: PAGE TEJAS HEMANT . (2020A3PS1446G)

Student Write-up

PS-I Project Title: Fixing the front end of the VideoWiki website.

Short Summary of work done: The project that was assigned to me is an event management service which also allows the audience to interact with the hosts. I have worked on the front end development of this project. Most of my work on the project was debugging and improving the user experience.

PS-I experience: It was a very good learning experience overall. The weekly diaries that we submitted every week were very helpful to plan out the next week and reflect on what we had done in the previous week. It made all the work during the PS extremely structured.
The group discussions that were taken were helpful to improve my communication skills and thinking on the fly. Also the seminars organized by PSD provided valuable information from experienced industry professionals.

Learning Outcome: I got to learn about new technical skills (primarily JavaScript and Vue JS), as well as some things which are very useful in the industry process. In the future I would like to apply the skills that I have gained, to build more projects which will add to my resume.

Name: NEHA GUNTA . (2020A7PS0073H)

Student Write-up

PS-I Project Title: IMPLEMENTING THE PROOF OF ATTENDANCE PROTOCOL (POAP) IN VIDEOWIKI

Short Summary of work done: During my PS, I explored and learnt various technologies of web development and blockchain. I also explored the POAP feature and NFTs in great detail.

PS-I experience: PS-1 was great learning experience. The regular scrum meetings kept me on my toes to complete my work on time. Overall, it was an unique experience.

Learning Outcome: Not only was I able to gain many technical skills, I also learnt to manage my time, participate effectively in group discussions, give seminars and much more.

Name: OJAS KANTH . (2020A7PS1391G)

Student Write-up

PS-I Project Title: Modifying Content for the Development charter of the getboarded website

Short Summary of work done: The first objective was to manually get and fill the information for learning content for different skills. This was done by entering details regarding course content into a TypeForm. The second objective of the project was to automatically fill in the details of courses available on Coursera/SkillShare/Great Learning using web-scraping and store them in a data set.

PS-I experience: This 8 weeks internship was a great experience for all of us. It provided us the opportunity to explore several domains of machine learning and web scraping methods. This PS-1 project also gave us valuable work experience. This taught us how to work with others and appreciate each other's skills and efforts. Working on a project as part of a team was both enjoyable and informative for us. We learned a lot throughout the duration of PS-1, both technically and in terms of gaining professional experience.

Learning Outcome: Read several articles regarding how content-based recommendation systems work, and explored a bit about the machine learning algorithms involved in them. Revised python through YouTube tutorials. Learned about web scraping using Selenium with the help of YouTube videos. Learned about other technical aspects like android development, IoT, ANN, etc. from the webinars conducted regularly.

Name: VAIBHAV NEMANI . (2020A7PS2195H)

Student Write-up

PS-I Project Title: VideoWiki

Short Summary of work done: I worked on the frontend part of the project. We were alloted bugs everyday and I had to fix it. It ranged from fixing the navigation bars to adding

the help texts everywhere, from generating error messages to adding drag and drop features.

PS-I experience: It was a pretty decent experience. It was fun to work and I got to learn a lot of things.

Learning Outcome: I learnt a new framework called VueJS. I got to experience a proper work experience with regular stand-up meets.

Name: SHREYANS SONI . (2020A8PS2155H)

Student Write-up

PS-I Project Title: Modification of VideoWiki Class for the VideoWiki Website

Short Summary of work done: VideoWiki, with its products, aims to transform the current education system by promoting
the digitization of content and imparting practical knowledge online. VideoWiki Class, the project allotted to our team, is one of the innovations developed by the VideoWiki team. Class supports the company's cause by providing an online classroom that makes lectures more engaging and promotes knowledge sharing for better understanding. Our main objective for the complete project was to make the VideoWiki Class website error-free and modify its new UI. During this internship, I worked on updating the user profile icon in breakout rooms and adding a component, 'UserAvatar,' that includes the code for modifying the background color and changes the shape of icon to square if the user is a moderator. I even worked on reforming the shared notes section resizable.

PS-I experience: GetBoarded assigned us to work with it's affiliated company VideoWiki. It was a great learning experience. We made use of React for updating the website and had stand-ups everyday. The managers were quite helping as well and gave us enough time to learn and implement.

Learning Outcome: During the PS1 journey, I learned about practical applications of technical skills like React and Node.js. It was a great opportunity to learn about how corporates function, the delegation that happens and process of agile software development. Working on corporate project was a really different experience than developing personal projects and taught me learnings not only in technical terms, but also professionally.

Name: JINIL BHAVIN SHAH . (2020AAPS1750H)

Student Write-up

PS-I Project Title: Designing the landing tour for the video wiki website

Short Summary of work done: I worked in an affiliate company of Arbunize called Videowiki. I worked here as a blockchain developer. Initially I explored the Videowiki platform and learned how it works. Then I had given a task to integrate crypto wallets like Metamask to the platform. Once this task was completed, I was asked to find a way to study and integrate how POAP NFTs could be integrated to platform, so that the participants taking part in events hosted by creators can claim them as a proof of attendance at that event. My major task was to design a help tour for the users. It was designing and making web pages along with wallet integration on suitable pages too.

PS-I experience: PS-1 was a great opportunity for me because I got a role of blockchain developer. I not only worked in blockchain domain but UI/UX and web development too. All the team members used to have daily meets where we had to discuss our work progress and get reviews for my work. It was very interactive work culture here. Me along with 2 of my friends were allotted a team and a team lead. She guided us on concepts and worked along with us. We were encouraged to learn new technologies and most importantly we were never forced to submit the work at a specific date and time. Time lines were flexible and we got enough time to learn and implement stuff. If i would conclude my PS-1 experience at Videowiki, it was great learning experience.

Learning Outcome: I learned not only about various technologies like POAP , JavaScript , node.js , react.js , solidity , express.js and more but also learned how things are managed in a company working in IT domain. I got a taste of work culture, which I think is the most valuable experience I got from PS-1.

Name: JAGTAP RAJ JAGDISH . (2020AAPS2113H)

Student Write-up

PS-I Project Title: Implementing wallets for login in the video wiki website.

Short Summary of work done: There were 3 login methods in the website. First two being manual login and third party login, the third was to login with a cryptocurrency wallet to facilitate crypto transactions. It already had metamask as a viable option. I was assigned with the task to integrate another popular wallet to the login method. I had to research many different wallets and came to the conclusion of adding walletconnect to the website. The integration method was specified in the documentation. I had to import the web3 and ether.js library and initiate walletconnect as the web3 provider. Then used Infura as our blockchain client to run the app. Then included all the necessary functions required for a steady functioning of the wallet. Then coordinated with my mentor who helped integrate the wallet button to the website.

PS-I experience: The experience was quite good, the mentors were ready to help. We were also give a freedom to give our inputs and take some elementary decisions.

Learning Outcome: I learned a lot about the professional working environment and how does a company work together on the same code. I also understood how to get things done and improved my technical knowledge.

Name: SOURAV PANIGRAHY . (2020B5A32175H)

Student Write-up

PS-I Project Title: Testing the Cast Platform of VideoWiki Website

Short Summary of work done: The main work done was to test their website before being finally deployed. The testing included three types of testing:
Functional Testing: Where we tested for for different functionalities on the site like validating user input etc.
UI/UX Testing: Then we tested for different design issues when using different devices with different screen sizes.
Cross Browser Testing: Then we tested the site in different browsers.

PS-I experience: The experience was decent. PS faculty was very good and supportive. The communication with the company could have been more smooth because there were many moderators in between with whom we had to communicate first before getting the final project.The testing process was manual. Would have been better if the company used some software like Selenium etc.

Learning Outcome: Learnt how to work in a group, having meetings daily motivated to work harder so that we can update our status to people, learnt to cope with pressure of deadlines.

PS-I station: Asanify Technologies Pvt Ltd , Kolkata

Student

Name: MANDALA PRANAV KUMAR . (2020A5PS2545H)

Student Write-up

PS-I Project Title: DATA CONSOLIDATION

Short Summary of work done: PROJECT 1:

- Collect list of Startups started/founded by BITSIANS
- To find LinkedIn profiles of the respective founders

PROJECT 2:

- Send connection requests to these individuals along with a note detailing about the services offered by ASANIFY TECHNOLOGIES.

PROJECT 3:

- Once connection requests were accepted, I had to send out a message to setup meetings with the co-founder of ASANIFY TECHNOLOGIES.

PROJECT 4:

- Collect the profiles of EX-BITSIANS working in these startups
- Send connection requests to expand further

PROJECT 5:

- Send a note to these profiles regarding the services of ASANIFY TECHNOLOGIES and setup a meet with the co-founder of ASANIFY TECHNOLOGIES.

WORK DONE :-

PROJECT 1:-

- Gathered a list of 300 Startups and their founder profiles on LINKEDIN.
- Did research around their company domain, services offered and founders/co-investors of these startups.
- Took help of public forums on GOOGLE and updated details in a google sheet.

PROJECT 2:-

- My manager and I had a meet before sending out the requests as we had to discuss about what the note should consist of

- Once template was finalized, connection requests were sent to all the 300 profiles
- Template consisted about the services ASANIIFY TECHNOLOGIES provides
- Requests were sent to all the 300 Profiles out of which 130 of them had accepted the requests.

PROJECT 3:-

- Another follow up message regarding the services ASANIFY was sent to these profiles and this message additionally consisted about the meet .
- This meet was to be setup as per the customers convenience .

PROJECT 4:-

- Gathered 15 profiles of employees working in Statrups and updated them in a google sheet.

PS-I experience: Provided the company with 300 contacts of founders of many companies which were started by BITSIAN.
SETUP a partnership meet .
Helped the organisation to make connections with prominent companies.
Founders of 5 companies have accepted the meet invite .

Learning Outcome:
1.Learnt data consolidation tools like Excel.
Data consolidation refers to the collection and integration of data from multiple sources into a single destination. During this process, different data sources are put together, or consolidated, into a single data store.
2.Understood HR domain such as pay-roll
Payroll software is an all-inclusive tool designed to manage employee payroll, taxation, and time management. It greatly helps in payroll work by maintaining a complete record of the amounts to be paid for each hour worked.
3. Made many prominent connections on LINKEDIN
This project helped me to update my LINKEDIN account and get connections with industry experts and BITS alumni who have their own companies.
4. Understood the working processes of a company/firm
We had regular interactions with the manager and time management skills have improved.

Name: TOSHIT JAIN . (2020A7PS0146P)

Student Write-up

PS-I Project Title: Module Testing Automation, Modeling an OKR model on a graph database

Short Summary of work done: I tested several functions from their website's backend code, including writing the test cases for some, using unit testing method. Then I modeled an OKR relationship on a graph database based on the input provided to me and wrote some queries to calculate number of goals and progress for any goal node in the graph. I also wrote the code for a basic local search engine which searches across all the documents present in Asanify's database and returns the match.

PS-I experience: It was a great learning experience at Asanify. I worked on different projects from different domains and learnt something different in each. We had two meets daily with the team, the morning catch for discussing the work to be done and the evening catch up for what has been done throughout the day. The team was very helpful and helped me when I was stuck.

Learning Outcome: I learnt a whole new programming language, Python and worked with two new softwares, PyCharm and Neo4j. I also learnt about unit testing, graph databases, mocking function calls and elastic search. I was new to all of these and learnt everything from scratch.

Name: DHARMESH VARSHNEY . (2020B3A80906H)

Student Write-up

PS-I Project Title: Competitive Analysis in HR and Payroll Automation segment

Short Summary of work done: My project was to do competitive analysis for Asanify. So first, I gathered the names of top competitors of Asanify and created an excel sheet in which I added basic information about them like their headquarters location, their pricing, etc. And then I signed up on the websites. And then, the companies started contacting me. I have attended their live demo sessions and noted down how every feature works on their portal and made a word document for that. Then, I made two detailed analysis reports – for RazorpayX and for greytHR. So, first I have done a detailed analysis for RazorpayX payroll as I attended their demo session earlier and have their free trial account, so I gathered all the information about its services and created a word document of it. Then I added customer reviews in the form of pros and cons which I read on capterra.com and softwaresuggest.com. Then I analyzed their social media accounts and added the information to the report. Apart from this project, I have sent connection

requests on LinkedIn accounts of bitsian founders. The excel sheet provided by my PS mentor Gaurav Prasad contains the link to their accounts. After that, I sent a follow-up message to those who have accepted the invitation asking them whether they are interested in trying Asanify or not. I kept a record of how many have accepted the invitation and how many have responded in the excel sheet.

PS-I experience: Overall, it was a nice experience to work on a non-technical project and to think differently about the markets.

Learning Outcome: I got to learn a lot about how the HR and payroll automation works, how to do competitive analysis, what product benchmarking is, why customer reviews are important, how to properly to social media analysis and much more.

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Name: GHAG PRANAV PRADEEP . (2020B4A32060G)

Student Write-up

PS-I Project Title: Growth Marketing by Market Segmentation and Identifying Customer Niche

Short Summary of work done: 1) Made a database of over 2000 software companies.
2) Looked into how to get data from online market places
3) Attended status update meets

PS-I experience: The company seems nice.

Learning Outcome: Learning the basics of marketing and trying to figure out if it is a viable career path for me.

PS-I station: Autoven Pvt. Ltd. (onsite) , Pune

Student

Name: RISHI HEMANT SHAH . (2020A8PS1043P)

Student Write-up

PS-I Project Title: Development and testing of a modular Battery Management System (BMS) for Electric Vehicles.

Short Summary of work done: The work done was mainly related to the programming of a microcontroller (NXP S32K1XX), which acts as the control block of the BMS. The BMS is responsible for ensuring that the battery pack of an electric vehicle acts under safe conditions throughout its time of operation, it checks for anomalies in the parameters (such as temperature, voltage, current etc.) and behaviour of the battery pack, storing and logging diagnostic information that helps fix any issues within the battery. It also communicates with other Electronic Control Units (ECUs) in the vehicle to ensure its smooth running.
The microcontroller (MCU) is used to facilitate such functions. It was programmed using the S32 Design Studio IDE and its software development kit. The work I did involved writing a function to identify if any of the cells of a battery pack were operating over/under the voltage threshold levels and if so, which cells were those. Apart from this, I explained the benefits of DMA (direct memory access) as a method of transferring data between the memory and the input/output devices of the MCU to my PS-1 experts. Lastly, I found out how to setup the CAN (Control Area Network) module for communication between the BMS' MCU and the ECUs of a vehicle.

PS-I experience: It was a good experience. The working hours were flexible and the mentors were extremely friendly as well. The learning curve related to the project was also not very steep, as enough time was given to understand and learn about the concepts and software to be used for it.

Learning Outcome: -Learnt how the BMS of an EV functions.
-Improved C programming skills.
-Learnt about the basics of programming the modules (CAN etc.) of a microcontroller.
-Learnt how to use the S32DS IDE and its SDK.

Name: AAYUSH NAYAK . (2020A8PS1301G)

Student Write-up

PS-I Project Title: Python Implementation of Open Charge Point

Short Summary of work done: I was tasked with implementation of OCPP in Python. I had to follow the schemas set by the OCA and write a code to follow these schemas.

PS-I experience: My PS1 experience was great. The CEO of the company was very welcoming and ensured that we worked in a field of our interest. My mentor was very helpful who guided me wherever I got stuck.

Learning Outcome: I learnt how a company functions. I learnt about the work ethic, the functioning and the environment of a startup.

PS-I station: Avidia Labs , Bengaluru

Faculty Name: Asish Bera

Faculty write-up
Avidia Labs: works in game developing for the kids and teenagers for learning and marketing. Our students have learned in this direction using Block-coding for simple game development like germ evading, ball bouncing, and marketing analysis from web-based data.

Industry looking for in a -I intern

They focus on real world projects where an intern can quickly adapt and learn the latest technology to work in the project as a team in a timely manner.

Student

Name: BALASUBRAMANIAN SRIRAM . (2020A7PS0002H)

Student Write-up

PS-I Project Title: Curriculum Designing using QwikXR

Short Summary of work done: We developed some fun, interactive games using Avidia Labs' 3D block coding platform, QwikXR. The games were primarily focused on teaching children the basic concepts of programming, so as to make their learning experience of text-based coding languages much easier and simpler.

PS-I experience: My PS-I experience was pleasant. I and my team members brainstormed effectively amongst ourselves and with our industry mentor, fixing bugs and creating various possible storylines for the games.

Learning Outcome: Learnt how to create games using block coding, some useful concepts of 3D objects and had a brief introduction to game development.

Name: HARSHIT THAKKAR . (2020A7PS2084H)

Student Write-up

PS-I Project Title: Curriculum Designing using QwikXR

Short Summary of work done: EssentialS modelling platform in our hands, is essential to develop a curated curriculum for young minds to maximise their learning by using the platform efficiently. As curriculum designers, we prepared a curriculum for students that is easy to understand and follow, interactive and teaches programming concepts efficiently.

PS-I experience: I worked at Avidia Labs as a Curriculum Designer. We actively interacted with our faculty and the company mentor in the process of completing our tasks and moving the project forward. We thoroughly enjoyed making the fun games and brainstorming amongst ourselves and our project mentor. We look forward to creating more interesting games like these for the benefit of young children, easing their progress into the vast world of programming and gaining crucial skills and knowledge.

Learning Outcome: The internship opportunity provided me with invaluable experience. I learned different aspects of working as a team member. Technically, I learned basics of Game Development, scratch, block coding.

Name: SYED MOHAMMAD OMER ALI . (2020B1A32317H)

Student Write-up

PS-I Project Title: Social Networking Services

Short Summary of work done: I made a competitive analysis for the company and analysed what are the drawbacks, marketing gaps. Then I planned a content strategy, created Social media collaterals. Then I posted these on social media handles. I analysed audience interaction. Made a report based on the audience interaction. Further I modified the content. This helped Avidia Labs in increasing its social media outreach

PS-I experience: It was very interesting experience. My PS instructor was a Bits Alumni.It was very inspiring to learn from him.I got a lot to learn about marketing.

Learning Outcome: I learnt to make Competitive analysis, Content creation, Game creation, Marketing.

PS-I station: Blu Feather Innovations Pvt. Ltd - Data Analytics , Bengaluru

Student

Name: MOHAMMED AMAN . (2020B3A70607G)

Student Write-up

PS-I Project Title: DATA ANALYTICS

Short Summary of work done: Learnt basics of python, data analytics, kaggle, jupyter notebooks, libraries in python, pandas, matplotlib.

PS-I experience: Working in a startup was amazing. The team was very supportive. It was more of self learning rather than someone helping me. And it was learning oriented rather than any work oriented.

Learning Outcome: Team work, consistency, inclination towards data science.

Name: MADHAV NATH KHANNA . (2020B4A71325P)

Student Write-up

PS-I Project Title: Titanic machine learning

Short Summary of work done: Created a machine learning model using python that predicted whether a passenger would sirvive the sinking of titanic with a whopping 83.72% accuracy

PS-I experience: My PS-1 experience was informative and enriching.

Learning Outcome: Learned more about data analytics amd python

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PS-I station: Blu Feather Innovations Pvt. Ltd - Graphic Designing , Bengaluru

Student

Name: YERASANI SREERAM REDDY . (2020A7PS0052H)

Student Write-up

PS-I Project Title: Stage-2 of Dino App

Short Summary of work done: My time as a web development intern at Blufeather Innovations pvt ltd was a really good experience as it put me in the work culture of a modern IT startup and led me to learn various skills to balance my work life habits. I worked a majority of my internship as a backend developer, providing various API endpoints and including various services such as Firebase, Openstreetmap, MongoDB etc. I was able to successfully deploy various features required by their company for their product, the Dino Tag. It was an all-purpose QR tag when scanned had various data being shared about the pet, to which the tag was attached by a collar, to the user who scanned it. Overall it was a very fun experience and I would love to work here again

PS-I experience: Overall, it was a very good experience for a student just starting his career from a Computer Science undergrad to an IT intern.

Learning Outcome: I was successfully able to coordinate with my fellow batchmates as well as the company staff and understand the key workings of a company and how it operates through all conditions

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PS-I station: Blu Feather Innovations Pvt. Ltd - Market Research , Bengaluru

Student

Name: PREETI SRIHARI . (2020A5PS2584H)

Student Write-up

PS-I Project Title: Developing Phase-2 of DINO

Short Summary of work done: The team was tasked with app development procedures to help launch DINO, a holistic pet welfare application. As a market research analyst in the team, I had to target various demographics, perform search engine optimization, and strategize a promotional event as well.
I worked closely with the Operations team to sort out logistics and various marketing strategies relevant to our tasks.

PS-I experience: The experience was smooth with the team lead allotting us daily tasks and holding us accountable by conducting daily stand-up meets. We were encouraged to understand the theory behind topics before we applied them leading to an educational experience.

Learning Outcome: Search Engine Optimization
Demographic Analysis
Competitor Analysis
Event Planning
Focused Research Work
Communication skills

Name: NISHANT SAHOO . (2020AAPS2097H)

Student Write-up

PS-I Project Title: Market research

Short Summary of work done: able to develop a strartup by improving product and by constant competitive analysis and improving work on social media platforms . conducting offline events and handling operations

PS-I experience: good enough , work was regular

Learning Outcome: SEO
The basic aim of SEO or " search engine optimization" is to gather audiences easily with an aim of converting them into possible customers.
SEO also helped the team to understand and develop the appropriate social media strategy and keywords to target
ANALYZING PRIMARY DATA
A major part of our work included finding information from sites and curating them to create meaningful content. This step is the most basic and important part for any company to build a working marketing strategy or while developing a product
It enhanced our ability to create conclusions and make decisions regarding them
Introduction to Marketing and Operations Management softwares Usage
The introduction of the industry standard software for the marketing and Operations Management
Introduction to marketing software like Marketo, Vocus were given to the marketing team members and Introduction to operations management software like TraQSuite and Maxpanda CMMS.
SWOT Analysis of Competitors
Learn't the way of taking note of a competitor's strengths, weaknesses, opportunities, and threats.
A SWOT analysis is always used as a useful tool for brainstorming and strategic planning.
The value from a SWOT analysis is more when conducting it with a specific objective or question in mind.
Social Media Engagement tracking Software
Using softwares like Social Blade SurveyMonkey, Buzzsumo and Crunchbase for the tracking of social media engagement.
An overall grade assignment was given to the competitor social media engagement to track and assist the analysis done.
The result from the analysis and research, helped the Dino's Social media to reach many audiences.

PS-I station: Blu Feather Innovations Pvt. Ltd - Operations , Bengaluru

Student

Name: RITU SANTOSH MALANI . (2020A5PS1662H)

Student Write-up

PS-I Project Title: Dino: Product Market Research

Short Summary of work done: The main focus of the team right now is Dino Food. This is a line they will be coming up with soon and their main target is Bangalore. We started by creating a sales funnel:- understanding where can we set up stalls in Bangalore of Dino, what cost will be incurred in setting up a stall either in a dog park or in a pet store or amazon, etc and what will be the effort required in setting up these stalls/ sales models. Then, our task was to look for animal friendly companies in Bangalore who will be willing to collaborate with the Dino Food and give Dino food to their employees as an employee benefit. While working on this we were asked to collaborate with the Market Research team. We were given a task of reporting on comparison of food that is being provided to the dogs right now and what is essential and not being provided. Along with this we were also asked to study about the events that are being conducted all around the world for the welfare of animals so that the team can curate a similar kind of event. One of our last tasks was along with the content writing team where we were supposed to study about SEO (Search Engine Optimization) and then we were asked to provide appropriate keywords for curation of better content.

PS-I experience: It was ana amazing experience. We would have loved to go to the offline PS but this experience was also great

Learning Outcome: Because of this PS we got to know the actual meaning of Operations and Market Research. Market research is not just copy, and pasting from google, we have to analyze the situation, data and reviews. Operations are not just sales but a lot more than that. We also learnt how to introduce a new product into the real world market and also got to know the factors that we should focus more for our product so that we can better reach for our product . We also learned how to do competition analysis ,marketing research for companies.

In this PS, We learned about ,

1) Retort packaging and its types

2) Dog diseases and its symptoms
3) Pet welfare events
4) SEO
5) Techniques in market research
6) Competition analysis

Name: MANJIRA ROYCHOWDHURY . (2020B1A31640H)

Student Write-up

PS-I Project Title: Phase II : Development of Dino App

Short Summary of work done: Under BluFeather Innovations Pvt. Ltd. our work was more geared towards developing features and planning a promotional event for DINO, a startup under BluFeather Innovations dealing with educating pet parents and solving their pets' day to day needs. I was part of the operations team, so we jointly worked with the market research team on most of our tasks. The first part of our project involved optimising new features of DINO, like its food line and symptom checker chart. Data was gathered to set up a symptom checker chart so that pet parents could identify at a base level what their pet is suffering from by matching the symptoms. We then developed a promotional event for DINO. Initially we used search engine optimization to optimise keywords specific to DINO and concuded the ares of interest when it came to content ideas. After that we researched in detail about past pet welfare events that we could possibly implement successfully. We analysed the logistics for all the ideas we came up with and also figured out how to advertise and on which platforms to reach out to. Finally we arranged the event to be a 2 part affair: An online talk by a certified vet followed by a fun cosplay competition to see if your pet wins. We created a poster and forms and tried to garner as many participants as possible.

PS-I experience: It was a very good experience. The company where we worked at had a small number of interns, so they were way more hands on and interactive. It felt like we were quite involved and a part of their company hence gained a lot of hands on experience. We were also given tasks in such a way that we learnt new things and then implemented it.

Learning Outcome: A lot of skills like management skills, organization skills and communication skills were acquired. I also learnt more about various techniques like search engine optimization, competition analysis and logistical analysis.

PS-I station: Blu Feather Innovations Pvt. Ltd - Social Media Management , Bengaluru

Student

Name: DHAPARE NEEL PRASHANT . (2020A7PS1223G)

Student Write-up

PS-I Project Title: Influencing Social Medial Algorithms

Short Summary of work done: My responsibilities primarily included administering the organisation's Instagram social handle and creating content pertaining to various aspects and pressing issues revolving around the pet industry. Additional responsibilities also included designing posters for Instagram and analysing user engagement statistics to improve upon existing social media advertising tactics.

PS-I experience: Overall, it was quite a positive experience. I enjoyed developing upon my communication and teamwork skills and learnt a lot from my mentors, my fellow interns, and my instructor as well.

Learning Outcome: I learnt the methodologies and strategies involved when attempting to advertise a product through various social media channels. I also learnt how to go about researching competitor data when analysing and revising said strategies to reach a larger audience with more relevant and appealing content.

Name: ASHISH YAKKALA . (2020B4AA0489H)

Student Write-up

PS-I Project Title: Influencing Social Media Algorithms

Short Summary of work done: Dino, a subsidiary of BluFeather Innovations, is a pet care related startup, with various unique features like Blood Bank and Pet Mate. As the

Social Media Management team, we were asked to reactivate Dino's social media accounts, particularly, Instagram and LinkedIn. As a result, we were asked to research various technicalities like Market Researching, learning about the algorithms of social media platforms, Click-Through-Rate, and Search Engine Optimization. We were also asked to refer to other top companies on the platforms(for instance, Amazon and Mars Petcare) to find out the type and frequency of content posting. I was asked to primarily manage content posting on Dino's LinkedIn account. The style of posts was formal and informative, with the being long articles, or short articles with appropriately made graphic/video, or infographics, or casual posts which can act as fillers. The optimal frequency of posting was found to be 5 times a week upon reviewing other top accounts and resarching. We also managed to reach out to over 50,000 people on LinkedIn alone, including renowned companies like Bajaj Allianz General Insurance. The overall follower count of the LinekdIn account also increased by a staggering 33%. We also collected hundreds of ideas to keep both the accounts engaged even after the conclusion of our internship.

PS-I experience: The overall experience was very enjoyable and informative. However, it would have been great had we been given more freedom, given that we were restricted to posting about general things on pet care instead of the actual product, owing to the lack of business model for Dino. As of now, Dino is only a welfare service, and is restricted to being so, until they release their much awaited 'Dino Food', which would introduce a business model to the company, in turn giving us more scope to post about.

Learning Outcome: I learnt a lot about effective market research, basics of marketing startegy, pressure of meeting deadline, collaboration, and most importantly, work experience.

PS-I station: Blu Feather Innovations Pvt. Ltd - Video Editing , Bengaluru

Student

Name: NIKHIL AGARWAL (2020B2A71611P)

Student Write-up

PS-I Project Title: Video editing

Short Summary of work done: We worked on extensively to boost the social media presence of Dino. Collecting the data of different social media users and analysing it to

post our content accordingly. The content was made after extensive research followed by designing and editing to make it eye catching.

PS-I experience: The experience was really good as both faculty and my mentor were really supportive and ready to help me anytime.

Learning Outcome: Learnt many new things on this 8 week long journey. Got to know about many new softwares, how the SEO works, developed new skills in data analytics, graphic designing, editing etc. Overall it was a decent experience.

PS-I station: Blu Feather Innovations Pvt. Ltd - Web Development , Bengaluru

Student

Name: SARTHAK SHAH . (2020A7PS0092P)

Student Write-up

PS-I Project Title: Web development

Short Summary of work done: We created few features of the website of company's current endeavour The Dino app. So we made 2 pages for the registered not registered pages and made a few configuration portals to make work of company members easier like adding notifications etc.

PS-I experience: Good experience, had opportunities to learn

Learning Outcome: So I learned firstly some technologies like react and node js and also how the code of a big project is done how to systemize it minimizing the code part, dividing the website into components such that they can be directly used on an another page, just awesome to know how the industry code is written.

Name: SHAH RUSHABH JIGNESH . (2020A7PS1004G)

Student Write-up

PS-I Project Title: Creating Different Websites for Dino

Short Summary of work done: BluFeather is a startup whose primary goal is to make products aimed towards improving the quality of life and pet owners. Their primary product is Dino and it has multiple features catering to pets including Pet GPS Tracker, Pet Blood Bank, find a pet mate, etc.
In the Web Dev group I started of with an introduction to the company and the space in which it works in. Performing research on the market and the various services their product, Dino, offers is a necessary step before working on the services themselves.
After this, an introduction to the various technologies used by the company in the web development process as well as creating a basic website using these tools in order to accustom and familiarize myself with the aforementioned technologies.
Once I was familiarized with the tools used, I begin working on the actual product starting with smaller tasks and moving on to better features. I worked on creating notifications, advertisement portals and a UI for their Pet Tag product.

PS-I experience: Learning how the development process takes place within a company is a very enriching experience and I have learned a lot about the workflows and practices which take place in a company and within the development process. I was exposed to the different frameworks and technologies used to create a web application and deploy it to a wider audience. Overall, it was a great learning experience as I was able to work with other developers on the same project and learn from them as well.

Learning Outcome: I learnt how companies operate and their workflow involved for deploying a web application. I was also able to learn about the different frameworks like Node.js and React.js as well as version control systems like Git and GitHub.

Name: SIDDHARTH BHATT . (2020B3A32157H)

Student Write-up

PS-I Project Title: Phase-2 for Dino App

Short Summary of work done: We worked on the frontend as well as the backend of the Dino application, refactored the current pet tag app, created an advertisement panel in the dino-experiment playground which will be used to show ads to the customer and also created a new notification panel which will be used to send notifications to the customers.

PS-I experience: I worked in the backend part which required the knowledge of node js with typescript, express, cors and uuid. I managed to learn a lot of new things.

Learning Outcome: I learned a lot of different languages and their libraries such as Javascript, Typescript, Node, Express and also got to know about Firebase Realtime Database which was used in the backend.

PS-I station: Caliber Interconnect Solutions Pvt Ltd , Coimbatore

Student

Name: MOHIT DILIP MAKWANA . (2020A7PS0048P)

Student Write-up

PS-I Project Title: Kivy Project - Developing a Responsive Dial App

Short Summary of work done: It involves an application to be made out of the Kivy framework, using python, consisting
of 2 Knobs along with labels displaying their current position. Changing the value of the position should rotate the knob to the desired angle.
Diverted on the feature of rotating the dial based on text input from the user to instead respond to “clicks” or “touches” on the dial screen to rotate to the angle at the point of contact, I implemented this to rotate immediately instead of having an animation.

PS-I experience: It has been nice to work on real - world project instead of always learning fundamentals.

Learning Outcome: I got to learn using the Python language, and also the Kivy framework to generate quick GUI Apps.

Name: AKSHAY NARESH PAINJANE . (2020A7PS0115G)

Student Write-up

PS-I Project Title: Number Plate Recognition

Short Summary of work done: I made a working Number Plate Detection system which can detect license plates as well as the number from license plates from images or real-time video by the camera. I used TensorFlow Object Detection API for detection of the number plate and EasyOCR for recognizing the number correctly. The detected Plates and their corresponding numbers are then saved to an external CSV file for an easy access thereafter.

PS-I experience: We were given 5 projects to choose from and I along with my group chose this project of Number Plate Detection. We have to submit Status Reports of the work we do to the mentors from our PS Station regularly. I am doing this project in a group of total 3 students and have been allotted an AI developer as a mentor. The company officials and mentor are very helpful as and when asked for help.

Learning Outcome: I learnt working on Jupyter notebooks and different python environments. I learnt to use different libraries of Computer Vision and technologies through this project. I learnt how to implement TensorFlow Object Detection API and EasyOCR and also making a workable model out of it. Overall it was a great learning experience for me in the Artificial Intelligence field.

Name: LINGUTLA SAI CHARAN (2020A7PS1296H)

Student Write-up

PS-I Project Title: Automatic Number Plate Recognition

Short Summary of work done: I worked in a team of three. we were asked to do ANPR using machine learning as this gives better results compared to traditional computer vison techniques. We sent reports to the station co-ordinator on a daily basis and had constant

communication with the project mentor to make it easy for us to solve any errors while installation or any other issues faced.

PS-I experience: I got to learn good amount of machine learning related stuff and got used to sending daily reports to the station. There were 5 projects to choose from for two teams, so it was pretty easy to pick one which interested me.

Learning Outcome: Machine Learning , Jupyter Notebook, Python libraries for dats science

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Name: STIVON BRIGHT (2020A7PS1705G)

Student Write-up

PS-I Project Title: Automatic Number Plate Recognition

Short Summary of work done: I was able to use object detection using ML and developed in python to detect license plates and isolate them, and use a third-party OCR library to extract text from the same. We used web camera footage as input for implementation and python using jupyter notebooks or base python executable

PS-I experience: It was inspiring and eye-opening to work on a project with real life implications and being able to do so under the supervision of professionals with years of experience and practical know-how on development.

Learning Outcome: I was able to dip my feet in the ocean of data science, machine learning and python frameworks.

PS-I station: Carscan , Pune

Student

Name: SARANG SRIDHAR . (2020A7PS0297P)

Student Write-up

PS-I Project Title: Frontend Web Developer

Short Summary of work done: As a frontend web developer worked on several tasks for the company

PS-I experience: Was a great learning experience

Learning Outcome: Learnt about how a startup works and got to brush up on my web development skills

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PS-I station: CDAC- Web Deveopment , Pune

Student

Name: TUSHAR BRIJESH CHENAN . (2020A7PS0253H)

Student Write-up

PS-I Project Title: Building a portal for the ease of deployment and access of containerized AI/ML applications on Supercomputer Systems

Short Summary of work done: The project I am working on is a unified portal for users to manage, deploy and access the various applications and resources available as part of the NSM-AI program on the supercomputers owned by the end-user. The application will feature a landing page that will provide users with various information about Param Shavak and the NSM-AI programs. It will also allow users to send in queries with the help of a form directly answered by the CDAC team. Once the users have logged in, they can access their admin dashboard. On this dashboard, the users will be able to access a variety of features such as:
1. Postman Endpoints for AI/ML APIs
2. Docker Image list for containers encapsulating programs built by C-DAC
3. Jupyter notebook sessions running directly on the Param Shavak system
4. A collection of research papers published by the team over at C-DAC, sorted in the form of a catalog.

PS-I experience: Throughout this project, I have learned various skills in full-stack web development. The features added are very prominent in modern-day websites. Thus, this project has given me a great chance to learn while practically applying my knowledge and recognizing my errors.

Learning Outcome: I wished to get my hands dirty with Full Stack development frameworks like React.js and Python-Django, and PS I was an excellent opportunity to accomplish that.

PS-I station: Centre for Development of Telemetics (CDot) (onsite) , New Delhi

Student

Name: AKSHAT KUMAR (2020A8PS1791G)

Student Write-up

PS-I Project Title: Embedded System Communication Protocols Implementation and Testing on PSoC

Short Summary of work done: The project 'Embedded System Communication Protocols Implementation and Testing on PSoC' involves the basic understanding of various communication protocols with special focus on the Inter Integrated Circuit (I2C). It included designing output pins on the Programmable System on a Chip (PSoC) configured to the LEDs on the PSoC hardware kit. I also designed a EZI2C slave which can be used to write into and read from by including various registers in the EZI2C slave. I contributed towards making C code for a I2C slave that is used along with the I2C master for various read and write operations according to the required specifications at C-DoT.

PS-I experience: It was good.

Learning Outcome: The project 'Embedded System Communication Protocols Implementation and Testing on PSoC' involves the basic understanding of various communication protocols with special focus on the Inter Integrated Circuit (I2C). It included designing output pins on the Programmable System on a Chip (PSoC) configured to the LEDs on the PSoC hardware kit. I also designed a EZI2C slave which

can be used to write into and read from by including various registers in the EZI2C slave. I contributed towards making C code for a I2C slave that is used along with the I2C master for various read and write operations according to the required specifications at C-DoT.

PS-I station: Centre for Railway Information Systems , New Delhi

Student

Name: GAURAV ANAND KUMAR . (2020A7PS0145P)

Student Write-up

PS-I Project Title: Running Rooms Application

Short Summary of work done: Worked on the Running Rooms Application which aimed at automating the process of booking running rooms based on the crew's preference. Spring Boot Maven and PostgreSQL was the tech stack used.

PS-I experience: It was a great learning experience. I was new to the tech stack being used so got to learn a lot from the project.

Learning Outcome: Learned about Spring Boot Maven and PostgreSQL database.

Name: OM KULKARNI . (2020A7PS0977G)

Student Write-up

PS-I Project Title: Running Room Application

Short Summary of work done: Web development : building APIs and testing them. Integrated in Running Room Application.

PS-I experience: Nice experience as we got to learn a lot from it.

Learning Outcome: Learned basics of web development and learned building APIs. Improved presentation and communication skills.

Name: ROHIT RAJ . (2020B3A70906P)

Student Write-up

PS-I Project Title: Running room application

Short Summary of work done: We contributed in the Running Room application which aimed at the automation of booking of bed based on the crew's (drivers and pilot) preference. It was Maven Project (Spring Boot). We were asked to develop APIs required for the web application. The APIs developed by me were bed under maintenance and bed under housekeeping. The softwares and skills which I mastered during PS-1 were PostgresSQL, STS, Maven, Spring boot and Postman.

PS-I experience: The overall work was divided into 6 tasks and it was monitored well by our industry mentor ,Mr. Gurbinder Singh. There were regular doubt solving sessions and it help me gain some industry exposure.

Learning Outcome: Through my PS-1 , I learnt spring boot , maven, postgreSQL , STS and postman. It also helped me a lot in developing my personality and getting professional skills.

Name: PRIYANSHU GUPTA . (2020B3A71640P)

Student Write-up

PS-I Project Title: FREIGHT OPERATIONS INFORMATION SYSTEM IN INDIAN RAILWAYS

Short Summary of work done: The project which was assigned, requires us to make a Mobile App to be used on both Android and iOS for capturing the Wagon number printed on the Freight Train Wagons and storing the image and wagon number in the database.
To make this app, the software required is Android Studio, and the framework will be Flutter.
Skills requirement includes:
J query, Dart Programming, Bootstrap, Technology Stack, Google ML kit for flutter.
The application that we have created contains 2 things:

1. Login Page
2. Text Recognition Window

Login Page:
1. This page allows the individual to login into the application using their credentials.
2. The integration of the authentication mechanism will be completed by CRIS officials as we were not given access to the required details.
Text Recognition Window:
1. The main feature of the app after login is Extracting the number written on the wagon.
2. We created a code that would identify the wagon number from an image taken by railway personnel using the Google ML kit. Additionally, they have the option of uploading the photo by either clicking through the camera or the gallery.
The code of the app is available at the GitHub repository: https://github.com/keshav278/FOIS_Wagon_Recognition

PS-I experience:
Given the time constraint, we have tried our best to come up with an app, with as much functionality as was realistically possible considering that we don't have access to the CRIS servers, and neither are we experienced app developers. Since starting out, we have self-taught ourselves the Dart programming language, flutter framework and Google ML kit for flutter, and have come up with a basic app.
Again, given the time constraint and the lack of access to the server(s), we weren't able to implement the authentication functionality during login, or the upload functionality after the text has been extracted, but we believe that this basic framework for the app would be found useful by you and your team at FOIS.

Learning Outcome: To develop this application, I have learnt Dart programming. I also learnt some Flutter Libraries like Getlt, Intro Slider, Google ML kit etc.
In addition to this, I also developed the following qualities:
1. Soft skills like corporate communication - collaboration skills, feedback and input, presentation skills.
2. Leadership, teamwork, punctuality, time management, etc.
3. Gained industry exposure, general and legal sense of the corporates.

Name: PHADKE MADHUMITA RAJEEVLOCHAN . (2020B3AA0441H)

Student Write-up

PS-I Project Title: App Development for FOIS

Short Summary of work done: Developed the partial front-end for a mobile app to be used by railway officials for freight train wagon number tracking and storage.

PS-I experience: The concept was good.

Learning Outcome: Learnt flutter and dart programming.

PS-I station: Clientell Technologies Pvt Ltd , Bengaluru

Student

Name: MUHAMMED JIBRAN FAIZ MALIM . (2020B3A70367G)

Student Write-up

PS-I Project Title: Email Topic Classification

Short Summary of work done: We used a set of keywords and phrases to filter emails received by few of the company's clients. An algorithm was developed to categorize these emails under various topics through semantic search using the S-BERT model. Furthermore, manual tagging was done to arrive at various results and to find erroneous predictions.

PS-I experience: Gave me good insight into Machine Learning applications in the industry.

Learning Outcome: Formed basis upon which I can build upon my ML enthusiasm and combine it with software development.

PS-I station: Contenterra Software Private Limited , Hyderabad

Faculty Name: Arnab Kumar Paul

Faculty write-up

Contenterra Software Private Limited: All 10 students allotted to this station were given some industry project and were given daily tasks to perform for those projects. They had daily interactions with their mentors. The mentors and the CEO was really friendly and responsive to my emails and the queries from the students. This helped a lot in conducting the online PS-1 in a successful manner.

Industry looking for in a -I intern

The industry is looking for some technical knowledge on which they can assign projects initially. For example, for web-development projects, they want students who at least have a basic knowledge of NodeJS. After the project allotment, the industry mentors will give the required training to students to build on that basic knowledge. Another important aspect that the industry looks for is the appetite in students towards the project as well as a good attitude and a hunger to know more.

Student

Name: SURI SAI VISWANADHA ADITYA . (2020A7PS0077P)

Student Write-up

PS-I Project Title: Implementing Single-Sign-On Authentication

Short Summary of work done: The project was in the backend domain and was allotted based on the interest form. I learnt
various technologies and frameworks including Javascript, Node.js, Express.js, SAML and
concepts of APIs, SSO and testing to make simple and seamless authentication systems using effcient code. The Single-Sign-On(SSO) application made with SAML can be integrated and used to access a wide array of applications with minimal effort and time.

PS-I experience: I am grateful for this fantastic opportunity of working on a practical project, which gave me

the first experience of corporate work culture and protocols. I learned and applied theoretical knowledge in a real-time working application under the guidance of very helpful mentors

Learning Outcome: Through constant guidance of my industry mentor and faculty in-charge,I was able to tackle any issues and complete this project. The group discussions taught the art of getting the most out of a discussion whereas maintaining a weekly diary allowed for reflection and improvement. The webinars conducted by Industry Experts on varied topics like Machine Learning, Cybersecurity, App and Web Development expanded our skillset exponentially in a very short amount of time

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Name: KSHITIJ TANDON (2020A7PS0972P)

Student Write-up

PS-I Project Title: Developing the Administrator Website for Fraghill

Short Summary of work done: I was a part of the web development team of Fraghill where I helped in building the frontend of the website using ReactJS, TypeScript, and also Material UI for stylling. The project also consisted of an app that was to be used for user interface and for that app only we built this website from where the admin could control what was visible in the app, perform other CRUD operations and also keep track of the orders.

PS-I experience: It was an overall good experience and I got to learn many new things from the PS. There was regular work at the station and we had daily standup calls also. Also, the other components like Group Discussion, presentations, etc. were fun experiences.

Learning Outcome: Learnt about Git, ReactJS, and TypeScript. Also learnt how to collaborate and work together in a team.

Name: PRANEET KARNA (2020A7PS1202P)

Student Write-up

PS-I Project Title: Developing the mobile application for fraghill

Short Summary of work done: My main task in the project was creating the mobile application from scratch using Flutter.

PS-I experience: My experience was very informative and I learnt a lot.

Learning Outcome: I learnt about flutter, figma, nodejs. I also explored topics like machine learning and big data through the webinars.

PS-I station: Convergent Technologies (Sequoia Fitness and Sports Technology Pvt Ltd) -Mobile App Development/Data Analytics , Gurugram

Student

Name: ANISHA GUPTA . (2020A2PS1748P)

Student Write-up

PS-I Project Title: ToT(Training of teachers)

Short Summary of work done: Created a web application using .net core and sql server for the tot(training of teachers) site of sequoia, convergent technologies

PS-I experience: It started with me knowing very basic and high view knowledge about coding. So i started learning C# and tried to make the login page with it and sql on .netcore. So overall it was very informative and I got to know about the corporate structure and how it functions.

Learning Outcome: I learned a new language C# and a new platform .net core, got to know how to apply sql in real life situations and mainly got to experience a corporate life.

Name: SRIDASYAM ADITYA . (2020A3PS0508H)

Student Write-up

PS-I Project Title: Native Android Application Development (Kotlin)

Short Summary of work done: We were asked to build few parts of the mobile android application for one of their clients, VarIndia and the name of the project was FaceOff which is a news application which enables the user to record and upload short videos (similar to reel on Instagram) and also access various types of news. We were also asked to create an application for riders/drivers which would caution them whenever they exceed the speed limit.

PS-I experience: All in all it was fairly okay, I got experienced working under a professional and delivering on deadlines set by them which got me accustomed to the corporate world but the tasks and the project was not challenging enough to widen my knowledge in the field of Android Development since it dealt with making very simple applications.

Learning Outcome: Prior to PS-1, I had experience only in Android Application development using Java but never Kotlin. In this PS, I was asked to develop all the projects in Kotlin only which forced me to pick up a new programming language and explore its benefits. I also explored some new layouts for transitioning between the screens smoothly. The quizzes and the group discussions helped us get more idea about entrepreneurship, startup and corporate culture, and also the gain an insight into some hot topics in the IT industry

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Name: AYUSH KHANDELWAL . (2020A7PS2076H)

Student Write-up

PS-I Project Title: Android Application Development

Short Summary of work done: My project involved Android Development and was technical in nature. I worked on two different tasks-

a) Implementing camera functionality and bottom navigation bar for an application called “FaceOff” by VarIndia.
b) Developing a Speed Alarm application to caution the users about the speed of their vehicle if it crosses the set limit.

PS-I experience: I got an overview of how Android Applications are developed and how they work. I got to work with industry experts which gave me an insight on how corporates work. It was a great learning experience overall.

Learning Outcome: Apart from technical skills, I also gained soft skills like project planning, teamwork, communication, presentation skills and decision making.

PS-I station: COUTURE AI PVT LTD. , Bengaluru

Student

Name: SOHAN S DESAI . (2020A7PS0061G)

Student Write-up

PS-I Project Title: Audio-Keyword-Spotter Inference

Short Summary of work done: I partook in Data preparation for the company. I helped compile a unique list of DL models. I was assigned one such model and asked a prepare an E2E inference notebook for it.

PS-I experience: It was a fairly engaging experience. The company culture was very encouraging and mentors are down to help without any consternation. That held regular stand up calls that they nudged us to take part in.

Learning Outcome: I learned a fair deal about Machine Learning and Deep Learning. While I didn't delve too deep in the theoretical aspects of the project, much of the work assigned to me required me to implement rather than acquire esoteric knowledge about one particular subject.

Name: NAISHADH SHETH . (2020A7PS0148G)

Student Write-up

PS-I Project Title: Violence Detection Model, ML models testing and Analysis

Short Summary of work done: So basically, I worked at Couture AI as a ML intern. Initially, I was told to go through the Andrew NG ML course on coursera in order to get familiar with the lingo of ML and also to gain basic knowledge and build basic concepts about Machine learning. Then, I was given the work of model training of the Violence Detection ML Model by annotating around 4500 video clips as being violent or non violent through an annotation tool. I also analyzed around 20 different ML/DL models to try and understand their working principle, their domain (eg: audio, text, image etc) and ML framework behind it. I also understood the code as well as the usecases of a model for testing it through it's inference code on Google Collab. Finally, I did the data preparation or data generation of the Violence Detection Model by collecting 100s of videos specific to certain classes like road accidents, gun shooting, mob violence, fights etc.

PS-I experience: My PS-1 experience was really good. I learnt a lot through it. My mentors in Couture AI were very helping and supportive whenever I wasn't able to understand anything. Also, the work that I did and the tasks that I performed were very interesting so I enjoyed it a lot. The working environment was also very good with regular meetings held to give an update about our work. Overall, I was very happy with the company as well as my performance in this internship.

Learning Outcome: I learnt a lot of stuff during my time working as a ML intern at Couture AI. I learnt the basics of ML, it's various types, various algorithms involved in it, various frameworks like neural networks through the Andrew NG ML course. I also learnt as to how to use a Python Script as an annotating Tool and annotate videos through it. I learnt Numpy and Pandas which are very important not only for ML but in general for any CS related field ahead. I also learnt how to use Jupyter Notebook and Google Collab. I learnt how to analyze a ML model, get the inference code of it and then how to run that model on Google Collab to get outputs for our inputs.

Name: MITHIL SHAH . (2020A7PS0980P)

Student Write-up

PS-I Project Title: Develop ML Recommendation Models

Short Summary of work done: My project was to create a recommendation models for Ajio site using item's description and user's transactions history. I worked on a variety of machine learning (ML) tasks, including exploratory data analysis (EDA) on the dataset, data preparation, modelling, and output visualization.

PS-I experience: Overall, my PS-1 experience was fairly good. Everyone at the company was always willing to assist and direct us as needed. I met with my project mentor every day. He was very helpful throughout the PS. It was an enjoyable and enriching experience.

Learning Outcome: Technical: Python (Data analytics related libraries and modules), NLP, PySpark, etc.
Non-Technical: Teamwork, Technical Report-Writing, Professional Ethics, Time Management and Discipline, etc.

Name: SHREYAS SESHAM . (2020A7PS1684P)

Student Write-up

PS-I Project Title: Ajio Search Engine Project

Short Summary of work done: During my tenure at Couture.ai during my PS-I I was allotted the Ajio search engine project. The team was working on improvising the search engine of Ajio.com. The project was divided into 2 phases - Phase 1 involved Query tokenization, query rewriting and query intent identification while Phase 2 involved looking at finding synonyms and substitutes, making predictions, translation from regional languages and other important components such as Autosuggest model. When I joined the company in May the Phase - 1 had been completed and the work on Phase -2 had just started with the main projects being category prediction and creating an Autosuggest model.
Initially we were given a task of analyzing the search history and catalog datasets using Numpy and Pandas . Followed by that , I was given a NLP specialization course to do to get acquainted with the NLP concepts that were being used in the project.
I was then assigned a project to develop an API for their category prediction model with endpoints for query correction, entity recognition , category prediction and a result combining all three components using FastAPI framework. I was then made to dockerize the application and deploy it on a remote server.

I was given another API development task for the Autosuggest model. Here, two models were created for a Rule Based (Template matching) model and a Context Based (ML based) Model and created API endpoints for both. The task in hand was to write a generalized server side code such that any new model can be plugged in and the result could be retrieved. I then created a React app to visualize the results with a simple textbox component that gives a dropdown of results for both the models along with the API response time for testing the APIs out. After this I deployed the application on their local server using docker-compose. It involved the use of basic networking concepts of ssh and scp.
The work largely helped me gain knowledge about NLP concepts and get hands on experience with data analysis and Full Stack Development and DevOps.

PS-I experience: My PS-1 experience at Couture.ai was a very enriching learning experience. The task at hand involved using a tech stack that was new to me but with the assistance and insights provided by my mentors, it was a smooth learning experience. We had daily scrum meets to stay updated about the work going on and update our mentors about our progress. The two months of PS-1 not just helped me develop my technical skills but also helped me build on my soft skills. With extremely supportive and responsive mentors, the work given at Couture.ai was engaging and interesting.

Learning Outcome: The learning outcome from the technical skills point of view involved learning about data analysis , cutting edge NLP concepts and tools, full stack and API development, DevOps using docker. Apart from the technical skills, there was a lot of learning from the soft skills side such as teamwork and collaboration and communication skills. The biggest learning outcome was that through this industry exposure we got a first hand experience of working of organizations in the technology industry, providing us with an exposure that would go a long way as we step into the industry in the near future.

Name: ANUBHAV SHARMA . (2020A7PS1892H)

Student Write-up

PS-I Project Title: Dtree

Short Summary of work done: I did a number of tasks during my PS-1 like
1. Made a Django app having rest framework and celery
2. Did profiling of an ongoing project of the company and optimized the code base
3. Used tools like cprofile and line_profiler to time functions and arranged the data obtained.
4. Used multiprocessing in python to speed up functions by parallelization

5. Wrote documentation explaining the profiling tools I used to help the employees
6. Implemented Continuous Integration using github actions
7. Found 20 different ML models and tested them against 5 inputs each, recorded the data obtained
8. Got assigned two models to extract and run their inference scripts on google colab, the models were bertseq2seq and PGAN model
9. Helped to make a dataset of videos having extreme violence and gore, to train a ML model which would be used to detect such incidents in CCTV footage.

PS-I experience: My experience at Couture.ai was pleasant, the mentors I was assigned were good and helped me whenever I needed. We were told to attend standup meetings daily to tell what we did the previous day and what we had to do on that day.

Learning Outcome: I learnt many different things during my PS-1, some of them include
1. Multiprocessing in python
2. Profiling tools in python
3. Using github actions
4. Google Colab
5. Running and testing a ML model

Name: MERCHANT DHRUV DEEPESH SHITAL . (2020A7PS2063H)

Student Write-up

PS-I Project Title: YOLOP Model

Short Summary of work done: Started by annotating a set of videos for a classification model. Later we were assigned with one model each to work upon. I had to run the inferences and train and test the model. Used several libraries such as opencv and Pillow for image processing and object detection.

PS-I experience: Got to learn how to train and understand ML and DL models by referring to several github repositories.

Learning Outcome: Learnt few python libraries

Name: SANJANA CHAWLA . (2020B1A71982G)

Student Write-up

PS-I Project Title: Data analysis and Recommendation System at User level using K-means algorithm for Ajio

Short Summary of work done: My project was divided into two phases.Phase-1 consisted of data pre-processing and exploratory data analysis of AJIO Data.We performed an overview of Ajio data-set to get a glimpse of the most demanded product attributes.The data set consisted of (parquet file) of product attributes of items on Ajio.com.We performed data pre-processing of Ajio Product data consisting of 34.75,948 rows and 312 columns using pyspark on google collab .Data visualisation was done to find out the most demanded product attributes (e.g., color, brand, price, etc.)
In phase-2 of our project, we had to select the best features for input into the cluster algorithm.We had four data sets with more than 400 features in total, and we had to select the best 5-10 features using machine learning techniques.These features were selected for clustering the users of Ajio and designing an efficient recommendation system using K-means algorithm.

PS-I experience: It was very helpful, and the team of couture.ai was very welcoming and helped us whenever required.I learnt the basics and slowly moved to advance concepts of data analysis , machine learning and clustering for unsupervised data.
My mentor was very understanding with the problems I faced, and helped me the issues I faced in learning new concepts in every way possible.

Learning Outcome: I successfully applied machine learning and data analysis techniques in the selection of features for building another improved model of clustering-based recommendation system at the user level for AJIO.Overall throughout the course of PS-1, I learnt the basics of Data analysis (data visualization, data processing, cleaning etc.) ,new languages (Scala, Python, Python libraries, SQL), learnt statistical methods to analyze data, improved my communication skills, by communicating regularly with mentor and team.Increased my critical and innovative thinking for solving problems or coming up with alternative solutions.I learnt many new concepts and techniques in data science as well like regression, neural networks, clustering etc.
Lastly,I learnt the Importance of teamwork and efficient time management.
My achievements include successfully learning the role and need of a data scientist in the E-commerce industry and a lot of upcoming opportunities for a data scientist, learning python from scratch, then moved on to python libraries, and finally using python in spark and working on a real-time project in the AI-ML industry.I have applied the data analysis skills on various datasets available online and started working on new projects of my own.

Name: HARSH POKARNA . (2020B3A70754P)

Student Write-up

PS-I Project Title: Designing a website for couture.ai

Short Summary of work done: I was given the task to make the website for couture.ai. I really learned a lot, before my PS-I I had only done UI designing for some time so I had some experience. But I got to learn a lot, especially about some advance level UI designing topics like design system etc. I also did prototyping of various workflows. I had to select a color scheme, typography and other components in an design.

PS-I experience: My experience at couture.ai was very enlightening especially in terms of the learning. Sometimes I felt that it was a bit hectic but at then I was also learning a lot.

Learning Outcome: Learnt advance level Figma concepts, prototyping, understood user flow and gained a product sense

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Name: SHREY MEHTA . (2020B3A71459G)

Student Write-up

PS-I Project Title: Similar Items Recommendation

Short Summary of work done: Our client was AJIO. The broader goal was to recommend similar items to users based on the product they are viewing. My job was to filter out relevant attributes specific to a category of products so that it is easier to recommend products. Then I had to give importance to each attribute so that the appropriate weightage could be given. I made use of platforms Jupyter Notebook and Google Colab and Python as a langauge.

PS-I experience: I learnt how a startup runs and how the members of it coordinate with each other to produce amazing results. I had the privilege of great mentors who guided me at every step. They provided me suggestions to improve my code and make it faster

and efficient. If I was stuck somewhere they advised me on how to proceed. Overall, it was a great learning experience for me and the time spent at Couture has indeed been very fruitful.

Learning Outcome: The two months at Couture AI has been an enriching experience. On the technical side, I became familiar with platforms like Google Colab, Jupyter Notebook and Citrix interface. I am now quite familiar with using a range of python in-built libraries like Numpy, Pandas,etc and various classifiers and functions. I feel more confident about my ML and Data Science skills.

Name: AASTHA BHARILL . (2020B3A71794G)

Student Write-up

PS-I Project Title: Performing Named Entity Recognition to spot named entities in an unstructured query and validating the machine learning model after optimizing it by hyperparameter tuning.

Short Summary of work done: Throughout my PS1, I learnt a variety of new concepts like ML Concepts, DL Frameworks, Hyperparameter Tuning, NLP and Data Cleaning and Analysis. I worked on two data analysis tasks on History and Catalogue Data which required knowledge of Pandas. To get started with Hyperparameter Tuning, I completed a course on Machine Learning concepts and got accustomed to Deep Learning Frameworks (mainly CNN) and layers (like dense, LSTM, etc). After getting a good hold on these concepts, I implemented Random Search and HyperBand Optimization on a Categorization Model. I also researched on NLP concepts in Spacey and learnt Word2Vec implementations. Then I got started with the Autocompletion Model which demanded knowledge in Pandas, Optimization, Semantic Search and more. The task was to better the suggested queries shown when a user types in an incomplete/partial query in a Search Engine like Ajio. I used pre trained models from SBERT to embed the corpus and query data and used Sentence Transformers to perform Semantic Search to get the top generated queries. I tried a variety of different methods and tuned parameters to optimize the results and succeeded in increasing the recall from 7% to around 19%, while also decreasing the large computational time to less than half of the original.

PS-I experience: My PS1 at couture.ai was an amazing and enlightening experience. It helped me grow my skillset and use my time during the summer efficiently. I had great mentors,who helped me out throughout the process and were always patient with me. couture.ai has an amazing work culture and I'm thankful that I got the opportunity to work

with them and learn from them. Attending stand up meets every morning and hear them discuss their models and problems helped me gain insight into how a team works.

Learning Outcome: I learnt a variety of concepts and languages. Here are a few: Python, Pandas, NumPy, RegExes, Machine Learning Concepts (completed Applied Machine Learning course from University of Michigan from Coursera), hyperparameter tuning (grid search, random search and HyperBand optimization), Word2Vec embedding (CBow and SkipGram), NLP concepts like NER and tokenization, Spacey, Deep Learning Frameworks (CNN, RNN) and it's layers (dense, LSTM, Attention, etc), Levenshtein Distance, BERT pretrained models, evaluation methods (like recall, etc) and data cleaning and analysis.

PS-I station: CSIR-Central Scientific Instruments Organization , Chandigarh

Student

Name: AMAY AVINASH PATIL . (2020A3PS0322P)

Student Write-up

PS-I Project Title: Fabrication of PCB

Short Summary of work done: I fabricated a PCB that was based on an amplifier circuit that was a part of pre processing board,
it is a circuit of a 4th order active bandpass butterworth filter which was first simulated then implemented on breadboard and then fabricated its pcb (printed circuit board)

PS-I experience: Something new that I really enjoyed and wanted to work more and helped me developed an interest in electronics

Learning Outcome: Since my PS was onsite I got a hands on experience and availability to electronic resources and workwise fabricated a complex PCB based on an amplifier circuit and also got to learn 3D printing
overall outcome - gained knowledge about analog electronics

Name: SAKSHAM GUPTA . (2020A3PS0361P)

Student Write-up

PS-I Project Title: FRONT-END WEB DEVELOPMENT

Short Summary of work done: I got the project of making multiple web pages for the company's official website in which the main concerns were responsiveness , adding the features which were earlier not available and also updating the obsolete information which was earlier present on the website .

PS-I experience: My PS experience was indeed a very enriching experience which just helped me perfectly to work on a project of my choice which very much increased my skills of the front end web development by providing me the opportunity to work on a project which was already deployed ,the PS - mentors were very helpful and hence they helped in each and every step .

Learning Outcome: I learnt a lot from the PS . Responsiveness , using bootstrap and exploring tailwind css along with the integration of the you tube videos and also how to copy the code from an already existing website for reference purposes using the google developer tools all helped me lots ...

Name: MITUL GARG . (2020A3PS0362P)

Student Write-up

PS-I Project Title: Water quality testing

Short Summary of work done: I determined PCA to be the best way to do the multivariate analysis of the data collected. I learnt the method of PCA in Unscramble X. I reviewed several ways to test fluoride and Nitrate and made suggestions accordingly. I reviewed and determined the electrode design and associated instrumentation of EC sensors and presented my conclusions to the mentor.

PS-I experience: The mentors were supportive and learning was fruitful.

Learning Outcome: I learnt interpersonal and presentation skills, i learnt the formal way of working in an organisation. I acquired research skills. I learnt machine learning techniques and learnt the methodology of electrode design and associated instrumentation in EC sensors

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Name: ARYAN KUMAR . (2020A3PS0521P)

Student Write-up

PS-I Project Title: Modelling and simulation of digital lock in amplifier (d-LIA) and laser multiplexing techniques for application in Tunable diode laser absorption spectroscopy for gas sensing (TDLAS) based on Simulink

Short Summary of work done: My work can be briefly split into two parts: First, it was reviewing literature about the topics and acquiring knowledge from various sources, namely old Course Materials, YouTube documentaries and suggested book. Second, is the work on the topic: Modelling and simulation of digital lock in amplifier (d-LIA) and laser multiplexing techniques for application in Tunable diode laser absorption spectroscopy for gas sensing (TDLAS) based on Simulink. The Lock-In Amplifier was digitally rendered on Simulink and used to review spectral data for different gases.

PS-I experience: Working with CSIR-CSIO was an interesting and fulfilling experience. This will certainly help me go a long way.

Learning Outcome: Several namely learning the course materials, acquiring proficiency in MATLAB and Simulink, and acquiring knowledge.

Name: ABHISHEK SHAH . (2020A3PS0536H)

Student Write-up

PS-I Project Title: DESIGN AND IMPLEMENTATION OF SYSTEM TO MEASURE FLASHING MODE INTENSITY OF A LED IN AN ANTI COLLISION LIGHTING SYSTEM FOR LCA TEJAS

Short Summary of work done: Research was conducted to determine the effective intensity of flashing light that incorporate light-emitting diodes (LEDs). LEDs require less power and have the ability to flash without the addition of moving parts. Compared with incandescent bulbs, however, LEDs yield a different spectral output and a different intensity profile when flashing. Effective intensity and flashing frequency of the two LEDs in visible and infrared regions is computed using a photodiode sensor with the help of a code.

PS-I experience: It was a wonderful Experience as I was able to work with one of the leading Government Scientific Institutes in India and I was able to learn how an Research is conducted on a large Scale . I got to learn and talk with many Great Scientists and Learnt a lot from them .

Learning Outcome: I got to learn a lot of things like about Arduino Microcontroller , Photodiodes , LDR Resistors and Most Importantly how a research is conducted on a large scale .

Name: VANSH MITTAL . (2020A3PS0997P)

Student Write-up

PS-I Project Title: To develop LoRa based sensor nodes

Short Summary of work done: I was asked to develop nodes which can communicate to the gateway the data for water quality sensors. Also i had to develop the gateway ahich can connect them to some server.

PS-I experience: As it was my first time doing an internship, i found the experience to be quite amazing. The project was good.i got to learn something new. Not only technically ,but it showed a glimpse on how the work is done in institutions like,how to give presentations and prepare report.

Learning Outcome: I got to learn a very new technology and improved my communication skills through GD and writing skills through ppts and reports.

Name: MANAN UPPADHYAY . (2020A3PS1749G)

Student Write-up

PS-I Project Title: Web dashboard for water quality monitoring data

Short Summary of work done: My work majorly revolved around building a web-app which had integrated data visualizations using JavaScript libraries. I also got to work on a small machine learning project with aim being water quality indices' predictions using various regression techniques.

PS-I experience: The PS-1 experience was great, especially given that I worked offline. I got to learn how research work is carried out, and got to learn a lot from the mentors allotted.

Learning Outcome: I learnt the usage of JS libraries like d3.js and dc.js, and their impacts on data visualization, and also implementing machine learning algorithms on real time datasets.

Name: SANCHIT KALRA . (2020B4A32298H)

Student Write-up

PS-I Project Title: OpenCV and App Development based data analysis and collection for food

Short Summary of work done: I worked on development of a desktop app using web technologies HTML, CSS, JS using the framework Electron. We swapped JavaScript (JS) for TypeScript for access to it's type system and code reliability. I also developed a backend for my application using ExpressJS, a library for developing web servers in NodeJS. I learnt how to develop scalable and reproducible deployments using tools like Docker.

PS-I experience: My PS 1 experience was really good. Being an on-site PS it really helped me see how to work in an offline office environment and it was really beneficial for

me. My mentors were great and always helped me out wherever I was stuck along with all of my colleagues at the office.

Learning Outcome: I learnt a new language - TypeScript, developing desktop apps using web technologies and building scalable backends using Docker.

Name: NIRMAL BHASKAR THAMATTOOR . (2020B4A81991G)

Student Write-up

PS-I Project Title: Hyperbolic neural networks

Short Summary of work done: Learned about machine learning. Hyperbolic neural networks. Identifying handwritten text and drug embeddings

PS-I experience: Was able to gain experience and knowledge in machine learning field

Learning Outcome: Positive.

Name: SUKRITI MATHUR . (2020B5A81399P)

Student Write-up

PS-I Project Title: Quiz Development for Jigyasa Programme

Short Summary of work done: The project requires a good knowledge of HTML, CSS and JavaScript to do the front-end development. The questions are selected from a database of questions and displayed randomly. On submitting the quiz, students are provided with quiz analytics to get an idea about their performance.

PS-I experience: It was a good experience. I learned a lot about front-end programming and about the working of websites.

Learning Outcome: This project requires the application of coding knowledge (C++, HTML etc) to develop a full program with a lot of features. It helps in understanding how visible features should be developed in coding. It helps in understanding how professional websites work and the amount of background work involved.

Name: SUYASH SINGH . (2020B5AA1991H)

Student Write-up

PS-I Project Title: Design of Hybrid Actuation mechanism for augmenting human Gait

Short Summary of work done: At the start, I was given a bunch of topics to study thoroughly like Ankle joint, Foot mechanics, Human Gait, Rehabilitation devices and a few research papers related to the topic. I studied about the various actuation mechanisms for human augmentation. I also learnt some new software- AnyBody and Mokka. I started by importing motion data and reconstructing motion on human skeleton model. I also learnt how to do force analysis of a specific muscle or a joint by applying inverse dynamics on the model.
During the process, I designed a hybrid actuator meeting all our expectations. I found its equations of motion and also saw the SEA simulation in MATLAB, which gave side by side analysis of reference torque and output torque & reference theta, output theta and external force. According to the graph we saw, we can prove the actuator's compliance.

PS-I experience: My project is application oriented as it is based on product development. I worked as a trainee in CSIR-CSIO in biomedical instruments department under Sr. Principal Scientist. I worked on the design of a hybrid actuator and used a software called AnyBody to run simulations which gave the applied muscle forces.
During the course, I not only sharpened my soft skills but all also worked on my research skills, time management as well as project planning skills.

Learning Outcome: Most importantly, I learnt a new software- AnyBody in which we can find the forces on muscles, bones, etc. Also, we can see the motion of the human body even if we do some changes as our requirement like add loads, remove a limb, change weight, etc. I also got an insight on the use of softwares like Mokka and Xsens. After comparing all the hybrid actuators, I concluded, in a table, which actuator is the best in each category, e.g., PAMs provide static torque whereas SEAs have servomotors which provide dynamic torque, and SEAs are better than PEAs, etc.

PS-I station: Dinero - Frontend Development of Dinero App , Hyderabad

Student

Name: SHIKHAR AGARWAL . (2020A7PS0117G)

Student Write-up

PS-I Project Title: Frontend development of Dinero Mobile App

Short Summary of work done: We had to develop the frontend of the the Dinero mobile app which is built using Flutter

PS-I experience: It was a good experience overall and I did not have that much work pressure and the work - life balance was also good

Learning Outcome: After the internship I could effectively develop mobile apps using Flutter

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Name: KUNCHALA SRI VATSAV REDDY . (2020A7PS0274H)

Student Write-up

PS-I Project Title: Frontend dev of Dinero mobile app

Short Summary of work done: Our Project to build the frontend UI/UX of the android Dinero application using flutter, dart and Bloc for state management.

PS-I experience: our mentors from Dinero are soo supportive during the first half of the practice school they helped us in learning the required skill set (flutter, dart , Bloc) through weekly tasks which helped a lot for the final project.

Learning Outcome: I learnt how to create mobile application using flutter and also understood how APIs works and how to link APIs to our application and learnt how to create good looking UIs for mobile applications

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Name: ANANYA GUPTA . (2020A7PS1693G)

Student Write-up

PS-I Project Title: Frontend Development using Flutter

Short Summary of work done: I was assigned 3 tasks for learning Flutter and all were of varying difficulty and allowed me to explore different attributes of Flutter.
In Task 1, I made a basic app layout using Flutter that involves inserting an image and how to use rows, columns and other widgets.
In Task 2, I built a wallet app with dynamic pages (Home and the Wallet page).
When you click on the wallet button at the bottom, it should open the second screen and learnt how to add SVG files using svg package in Flutter.
In Task 3, I built a weather app using Bloc pattern which makes API calls and fetches real-time data.

PS-I experience: I learnt about FinTechs and what Dinero does, their work culture and about its product in the first 2 week of this internship. We were given learning material about fintech companies such as Slice and OneCard. After this we had a session with the company mentor Mr.Anurag Reddy about Dinero as a fintech platform and its ISM certification.
In the 3rd and 4th week,
I learnt the basics of Dart, Flutter, Bloc and state management with the help of the reading material provided by our tech mentors with whom we had meetings twice in a week. Now, I can build apps on Flutter.

Learning Outcome: Through this project, I was able to effectively make functioning Flutter applications and thus, was able to design and contribute to the tasks assigned, in particular to the frontend development of the app and its UI/UX.

PS-I station: DLT Labs Pvt Ltd - Blockchain , Hyderabad

Student

Name: SWAPNIL SHIVAM . (2020A7PS0040P)

Student Write-up

PS-I Project Title: Test Driven Development

Short Summary of work done: I was responsible to write unit test cases for the various backend services used by the orgranization, such as the deployment pipeline, and their Blockchain Explorer Graph API and Transaction API.

PS-I experience: PS-1 was a great learning experience for me. I learnt a lot about how a large team functions and how tasks are divided internally. I connected with my mentors once every 2 days for reviews. The engineers were always eager to help me and review my code.

Learning Outcome: I learnt more about Javascript and the Jest testing framework, and a lot of soft skills on how to interact with other people in the workflow.

Name: KARTIK KUMAR PAWAR . (2020A7PS0054P)

Student Write-up

PS-I Project Title: Blockchain Analytics

Short Summary of work done: The project involved making ML prediction models on blockchain data.

PS-I experience: This was a new learning experience which was different from the typical course offered at BITS. This involved exposure to actual corporate culture and simulated a real-life job experience and was a test of how well we were able to solve the problems one would face in real life when starting a career with a company.

Learning Outcome: We got introduced corporate culture,Blockchain,Blockchain analytics , Pytorch,Machine Learning

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Name: S RAVI SANKER . (2020A7PS0142G)

Student Write-up

PS-I Project Title: DL Analytics

Short Summary of work done: The task we had been given was to develop an ML model that can accurately make prediction of the Average Gas Price of the Ethereum Blockchain. On top of this, we had to integrate it to an API so that the model can actually interact with the outside world/applications. We built a basic prototype using the ARIMA model after studying the data and used FastAPI for the backend web framework. Majority of our time was actually spent on studying different models so that we can choose one appropriately for the data we were dealing with. We pushed the code to bitbucket and DLT Labs can use the API endpoints to provide the predictions to the end user.

PS-I experience: With the experience at DLT Labs, I have some idea of how working in a corporate environment is like,, how multiple people work on a project using GIT and Bitbucket, and also some good coding practices. I also realised the importance of a good manager.

Learning Outcome: Python, Basic Machine Learning, Time Series Forecasting, FastAPI, GIT, Bitbucket

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Name: BHARATH SHRIDHAR HEGDE . (2020A7PS0143G)

Student Write-up

PS-I Project Title: DL Ethereum Explorer Unit Testing using Jest

Short Summary of work done: I was allotted the DL Unify service, a platform to deploy various DLT Labs services. I was tasked with writing unit tests for functions of DL Ethereum Explorer. The tech stack was NodeJS, ExpressJS and MongoDB. The first phase was the learning phase where time and resources where given for us to familiarise ourselves with the tech stack before moving onto development. Then, upon identifying "units" of the code to write tests for we used jest to mock the models and functions and then write test cases for the same. The service was then run against the tests and results were analysed for bugs. BitBucket was used for code collaaboration.

PS-I experience: Each project was allotted multiple mentors who were very helpful, both during the learning phase and the development phase. They held regular, alternate day meets, where progress was tracked and further tasks were given. This way the project went smoothly during the whole course of the PS. DLT labs also organised meets with the founders of their company and it was great to interact with industry experts. Not only this, we also had "friday funday" meets to break the ice and work week with a fun game, which helped in getting to know our co-interns better. The goodies that the company sent us, along with their laptop, was a added bonus.

Learning Outcome: Test driven development is an important tool for any developer to write bug free code. Hence, learning to write unit tests would be a great addition to my skill set. DLT Labs also held a weekly blockchain training session which was very informative. Collaboration with others over an online mode is also another important skill I could work on through this PS1 project.

Name: KISHAN KOUNDINYA . (2020A7PS0213H)

Student Write-up

PS-I Project Title: DL Unify Software Testing

Short Summary of work done: My project was to write unit test cases for the DL Unify backend in DL Eth Explorer product. We identified different modules, came up with test suites for each one. In each service, there are multiple functions which retrieve data, and we tested each of these functions for all possible working cases.

PS-I experience: Developing these test cases will help us diagnose and point out any possible problems with DL Unify. This may include optimization issues, syntactical or logical errors in the implementation of it, or potential security issues. This internship with DLT Labs has been a very educational and informative experience, and I got to learn a lot

about JavaScript usage, npm, Jest Framework, how software testing is done in the industry, and a better understanding of production software in general.

Learning Outcome: Usage of npm, Jest Framework, JavaScript, how to write unit test cases, how software testing is done, how production level software is developed and used, Industry exposure.

Name: OKE AKSHAT ASHUTOSH . (2020A7PS0284H)

Student Write-up

PS-I Project Title: BB11- Blockchain based app

Short Summary of work done: We learnt about Blockchain through the compnay wide training sessions organised over 2 months. Since we had to use a JavaScript library for connecting to the Blockchain, I learnt React Native and worked on the front-end app. It is a Dream11 clone.

PS-I experience: Our mentor gave us sufficient time to learn and implement the project and it was a refreshing experience with the company.

Learning Outcome: I got to learn new technologies (Blockchain and React Native) and worked with a team.

Name: SANYAM GARG . (2020A7PS1514P)

Student Write-up

PS-I Project Title: Blockchain Analytics

Short Summary of work done: I was part of the Blockchain Analytics team tasked with creating ML-based prediction models for Ethereum Blockchain statistics. This involved reading about time series analysis and reading and learning about the models usually used for this purpose. We looked into models such as ARIMA, SARIMAX, Prophet, and

more. After learning about these models, the next step was to analyze our data (Ethereum data from previous years) and decide which model would be the best fit for it. Observing trends in the data, we decided to go with the ARIMA model and tuned the parameters to get the prediction model.
The second phase involved developing REST APIs to expose the model to the clients, which provides the predicted statistics for the given timestamp.
All in all, the project was a great learning experience.

PS-I experience: PS1 is a program designed primarily to provide early insights into how the corporate world operates. Keeping that in mind, DLT Labs helped me learn a lot about corporate culture. The distinction between the company's divisions is well defined. The HR team gave us the orientation, the engineering team shared their experience, best practices, and guidance to perform better, and the co-founder himself talked with us on multiple occasions and gave us a chance to learn more. It was an enriching experience!

Learning Outcome: Insights into the corporate world, better communication, work etiquettes, working in a team, accountability

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Name: RAGUNANTHAN S . (2020A7PS1726G)

Student Write-up

PS-I Project Title: DLT Explorer

Short Summary of work done: Our project is centered around Ethereum Explorer which is an explorer software for real-time Ethereum Data. It transfers data from the Ethereum client. Ethereum clients are basically node service providers. Explorer uses API to fetch data from the client and transfer it into the database which is built using Mongo DB. Then the data is fetched from the database depending on the request from the users and is displayed on the explorer.

Ethereum developers have announced the update that is coming to the Ethereum network in the near future known as ETH2. ETH is the cryptocurrency of the Ethereum network. ETH2 is also the cryptocurrency of the Ethereum network. But the difference is ETH2 works based on the Proof of Stake consensus mechanism.

In the near future, both these chains(ETH and ETH2) will be merged into a single chain. As both these chains work differently, the code that fetches data from the old Ethereum network will not work anymore.

Our team needs to research all the changes that are coming with the update and incorporate these changes into our Explorer.

PS-I experience: My PS1 experience was great. The company provided us goodies. Regular fun sessions were also organized by the company in order to make us chill and not burn out. We had webinars about blockchain stuff. It was very helpful.

Learning Outcome: I learned about blockchain technologies.

Name: ANKUSH GARG . (2020A7PS1732G)

Student Write-up

PS-I Project Title: DL-Explorer

Short Summary of work done: The project was regarding data caching to accelerate and enhance the effectiveness of query resolution.

PS-I experience: PS1 experience was overall good .The quality of the project given was fine. It was a good experience for a web development project including blockchain.

Learning Outcome: As we worked on a large project, we had to first go through it's entire codebase. So it was a project which requires a lot of research before further development.
I also learnt some new languages like JavaScript, NodeJS, MongoDB, Redis etc.

Name: SAHOO KAMALJEET KRUSHAN . (2020A7PS1736G)

Student Write-up

PS-I Project Title: BB-11 - Mobile fantasy league app

Short Summary of work done: We worked on an app starting with deciding on a theme for the app. After that we planned a few scenes and the roles of those scenes. We worked on designing these scenes and also some other problems like improving the complexity of the structure to reduce the server load.

PS-I experience: My experience was really amazing. We had a time planned and fixed for a working day to have meet ups and catch up with the progress that everyone had made.

Learning Outcome: I learnt more about a few tech stacks and what it meant to be working on a team with other people. It was a great opportunity to learn about how a private company functions and about the responsibilities that one has while working in a team.

Name: AKARSH JAIN (2020A8PS1453H)

Student Write-up

PS-I Project Title: DL Unify

Short Summary of work done: DLT stands for distributed ledger technology which is the principle behind which blockchain works.The main project that I was assigned to was DL Unify. DL Unify is a platform that acts as an umbrella for various DL products. Our job was to work on the security part of it, to
improve the existing code quality and resolve the single login issue where users will log in once and get access to all the services. I had to write a unit test case for Block Service, which is one of the many services provided by the DL Fabric Explorer. We were instructed to learn various topics such as Javascript, NodeJS, MongoDB, and the jest library. My project was to be done by developing unit test cases for the different services that come under DL unify, such as DLOps, DL Eth Explorer, DL Fabric explorer, etc. The main code involves creating mock values and functions, which is an integral part of writing test cases. This is because we cannot use the actual values while testing, so we use mock values so that the actual values remain unaltered. Jest library was vital in this project because all mocking is done using this library. From the block service also, not all functions and values need to be mocked. It is only those functions that use the model files and use parameters that require
mocking.

PS-I experience: My PS-1 experience was really informative. I had opted for DLT Labs because it works in the Blockchain sector and I was really curious to know more about

this sector. The company started the internship by sending us various assets, such as a laptop, a t-shirt, a diary, a bottle, a pen stand. This encouraged all 22 interns of the company to work sincerely for the company. The communication from the company was excellent. Discord, Outlook, Teams were extensively used to make sure that we do not miss out on even the smallest of details. We were given 2 weeks to study in detail about our project areas. I personally had to learn a lot of web development which I feel helped me a lot.

Learning Outcome: I had chosen this internship because I knew I'd get to learn a lot of new things. First and foremost, I got a very brief idea about how the corporate world works. In the educational aspect, I got to learn about web development, languages like HTML, CSS, JavaScript, nodeJS, MongoDB, and jest. This really helped me enhance my skillset and also gave me a clearer understanding of how a website of a company works.

Name: VISWESWAR SIRISH PARUPUDI . (2020AAPS0330H)

Student Write-up

PS-I Project Title: BLOCKCHAIN ANALYTICS

Short Summary of work done: I worked on the project I got alloted which was blockchain analytics. So we learnt a lot about blockchain technology and mainly worked on the ethereum blockchain. We had training session and daily meets with our project manager to discuss updates regarding the project. It was divided into 2 Phases and the first phase was to obtain data through APIs and make sure there are no discrepancies in them. We had to compare the data available on the company website and make sure there is less that 10 percent difference when compared with other explorers like Etherscan.io. We also learnt basics of NodeJS and MongoDB.Once our data was ready we moved to Phase 2 which was implementation of AI/ML on the data to predict future values. Since we wanted to predict Avg Gas Price for ethereum, which is a time series data, we further looked into time series analysis. We decided we would learn ARIMA models and implement them to predict the data. We thus wrote the code for it and predicted future values although the accuracy wasn't too great. We then integrated the pickle file with an API and presented our project to the CEO.

PS-I experience: After I got alloted DLT LABS, we were contacted by the company and surprisingly they provided us with laptops to our home along with a goodies bag(bag, notebooks, water bottle, tshirt etc). They were very enthusiastic about us working and took training sessions also. We were introduced to the corporate world and we were treated in a friendly manner. Our project managers were also very informative and

resourceful and they taught us a lot. It took some time to get things going, but we learnt a lot in the end.

Learning Outcome: I got introduced to the world of blockchain technology and also learnt new ML models through my work.

Name: SARTHAK DHIMAN . (2020B1A72413H)

Student Write-up

PS-I Project Title: DLT EXPLORER- CACHING AND POW TO POS UPGRADATION

Short Summary of work done: DLT explorer was the project that was allotted to me by DLT labs ltd. The project had two parts, the first part was about upgrading the Ethereum browser of the company so that it can be used on the new upgraded Ethereum blockchain, known as Eth2. Ethereum will undergo an upgrade this year, where the Proof of work (POW) consensus mechanism will be replaced by Proof of stake (POS) consensus mechanism. With this change the structure, components as well as the working of Ethereum network will change. Thus, we are required to upgrade the company's Ethereum explorer so that it can run on eth2 and fetch relevant data for the user. We first had to find out the changes in the data fields taking place- new ones had to be included in the code, and the old ones which were not used anymore had to be removed. Afterwards we had to change the code responsible for fetching the data from the Ethereum chain so that it could be made compatible with the upgraded version of Ethereum.
The second part of the project was about optimisation of the eth browser of the company, by deploying caching protocols. Since, it takes a long time for a client's query to be solved as it uses accessing Database back and forth, caching of recent data seemed as a relevant option to optimize the browser.

PS-I experience: It was a nice experience working with DLT labs. I met some wonderful mentors who helped me learn relevant things for the project. Apart from just providing the resources, they also helped me to understand how the project worked and then assigned tasks to me.

Learning Outcome: This practice school was very helpful in providing information about the working of blockchain and blockchain technologies. In our project knowledge about JavaScript was required and because of that we got the opportunity to learn a new

language and also the platforms where it can be used like nodejs, angular, reactjs etc. We also learned about caching and how it is done.
We studied the official documentation of eth1 and eth2, from https://ethereum.org/ as adequate knowledge was required in the project. This introduced us to a number of terms and processes which were alien to us before, but our instructor was very helpful and he cleared our doubts whenever we were stuck.
We learned about ways in which we can communicate with the blockchain, both with and without using third party apps. We learned to set up an Ethereum beacon node and ways in which we can extract valuable information like- recent transactions, block number, slot, time, hashes of parent/root/Merkle blocks, amount transacted etc.
We were given access to the company's repositories and knowledge of git was also provided by the company to perform basic operations like cloning the repositories, creating repositories using with a git hosting tool like Bitbucket, adding a file to local repo and committing changes, pushing changes to main branch, Pulling the changes to local machine, creating a "branch" (version), making a change and committing the change.
We finally used the beacon node to find out the data fields present in the eth2 chain and then we found the data type of each field. We also found whether that field was essential or optional for the miner to report.
From the BOD core repository shared by the company, we recreated the schema of eth1, by editing the code- removing the unwanted fields and adding the new fields.
We also learned how to conduct ourselves in a corporate environment by our HR manager, how to communicate with the higher ups, how to share reports weekly and how to inform of leaves, if any.

Name: SATVIK JAIN . (2020B3A70791P)

Student Write-up

PS-I Project Title: Build play to earn game: Bahubali 11

Short Summary of work done: Me and my team were asked to develop a mobile application. The name of our application was Bahubali 11. Bahubali 11 is a web3 based fantasy cricket mobile application. It is the blockchain based version of Dream 11. We built the application from scratch. We designed the UI/UX of the application on Figma gaining inspiration from behance, dribbble, pinterest, etc. Then inspiration was gained from other blockchain based application and cryptocurrency applications like Stepn. We developed the frontend using flutter, NodeJS and MongoDB were used for backend and substrate was used for blockchain integration. We developed an in-built currency and cryptowallet for the application. The app runs on a blockchain of its own. The company

provided company laptops to all the interns. We had daily catch up meets with our domain manager and rest of the teammates. The codebase of the company was shared via bitbucket. We had the experience to work in a corporate work from home environment. We had to regularly stay active on Outlook and Microsoft Teams. It was a great learning experience altogether.

PS-I experience: The company manager was very cooperative and conducted weekly Friday funday activities to improve team bonding. DLT was the only company in PS-1 which provided company laptops and goodies to all the interns. We were asked to prepare weekly reports of whatever work was done by us. The midsem and endsem evaluatives comprised of a project report, a presentation and a group discussion each. The company conducted training sessions on every Saturday which were basically tutorials and interactive lectures on Solidity. Since I had prior experience in designing so the company actually provided me 2 projects instead of just one. I was the only candidate in my station and also probably the entire list of students to have worked on 2 projects. So, i had to coordinate with 2 different domain managers simultaneously and work on the the other project, Blockchain Explorer too. All in all, it was a different experience from any other PS station in my knowledge.

Learning Outcome: Through this Practice School-1 project, I was able to learn how to formally interact with my colleagues and seniors in a corporate setup.
I was able to improve my ability to work with a team and manage my time properly.
I improved my Figma skills and learnt several new tools on the software.
Towards the end of the internship, we were able to develop an application which is a fantasy cricket gaming application based completely on web3 and has its own blockchain and cryptocurrency.
During the internship, we had fun sessions once every week. These sessions really helped us stay connected even when we are not working. This felt important because of the online nature of the internship and less interaction with my colleagues.
I learnt about all the nitty gritties of what goes into developing a mobile application to be used by a large number of users.

Name: AARUSH SINHA . (2020B5A72231H)

Student Write-up

PS-I Project Title: Build Play to Earn Game - BB11

Short Summary of work done: DLT Labs is running an open-source initiative to build a Play to Earn

Gaming platform named BB11 which is a built on blockchain version of Dream11.

PS-I experience: I have had good experience in my PS station. All the people from DLT Labs are very approachable and are ready to help. My team mentor was a very understanding and knowledgeable person and I enjoyed working under his guidance.

Learning Outcome: I learnt about Blockchain technology, writing smart contracts and deploying, Making my own crypto currency.

Name: PARTH SANJAY KADHANE . (2020B5A72258H)

Student Write-up

PS-I Project Title: Blockchain Analytics

Short Summary of work done: The project revolves around analytics of the Ethereum blockchain data. It involves learning about the blockchain technology and to retrieve data from the Ethereum network and store it on the company's own explorer, DL Explorer. Further, use AI/ML models to predict metric stats related to the Blockchain. Some metrics like daily gas price, block count, daily transactions etc. We deal with backend data mainly for average gas price of Ethereum and implement ML models like ARIMA to predict future values of the time series data. The project utilizes knowledge of both blockchain technology and AI/ML.
We had training sessions on blockchain technologies.First, we retrieved data from online Ethereum explorers through APIs and then rectified the data already stored on the company's site. Then we explored many ML models like Pytorch, Tensorflow, VAR, ARIMA, SARIMA, Prophet etc. We then built a ARIMA based model and deployed it using FastAPI as a web framework.

PS-I experience: My PS-1 experience was great. The company mentors were very skilled and helpful. We had daily catch-up meets with my team. The company also conducted many training sessions on blockchain technology. We also had weekly chill sessions, where we all interns came together and played games. This helped in building personal relations with each other. Overall, the PS station is very friendly and provides a huge opportunity to learn new things

Learning Outcome: I learned a lot of things(hard coding as well as soft skills). Firstly, i learned a lot about blockchain technology especially Ethereum to the point that i can deploy my own smart contracts. Then, i learned AI/ML. Various models such as Pytorch,

Tensorflow, VAR, ARIMA, SARIMA, Prophet etc. and their pros and cons. I also learned FastAPIS and how to use them. I gained experience of working in an IT team and helped me gain insight on the workings of a IT company. I learned time management and team coordination. There's no point if you are a great coder but cant work/coordinate with you team.

PS-I station: E-Connect Solutions Pvt. Ltd , Udaipur

Student

Name: SAMYU KAMTAM . (2020A7PS1309H)

Student Write-up

PS-I Project Title: SES 2.0

Short Summary of work done: Used Languages/Websites or Applications
Html
Css
Bootstrap
JavaScript
React JS
Oracle using Toad
SQL
C#
Entity Framework
SVN (Version Control System)
REST and FETCH Api
created forms for the SES 2.0 project along with learning the above concepts and practising them through small projects and assignments.

PS-I experience: “Hands-on experience”, a very commonly used phrase especially amongst us engineers, has reached a different level of understanding with me. I have always known that just theoretical knowledge was not enough to properly understand anything, and after this project I got to experience why. As much as the theory and concepts are important and we did spend good amounts of time learning them, applying it was the key to gain full clarity on what was learnt. We had meetings pretty much everyday to track our progress and clarify our doubts. We were also connected through remote access to the company system for a goof work experience. A big thank you to

Technical lead for PS-1 at E-connect for giving us the all round web development experience. She's had a lot of patience with us, teaching us every concept and following up with us making sure we understood it and were able to implement it in our own projects as well as the main project.

Learning Outcome: I have had the entire web development experience from front end to backend, the database and connecting it all. When I first started I only knew a little bit of React.js but by now I have gotten some hands-on experience with various other web development languages.
As part of the technical languages or concepts I learnt, I got to learn bootstrap, css, html, Oracle using toad, SQL and some Api related concepts.
Apart from the technical aspect I got to experience what a corporate work environment is like, how to approach any difficulties and communicate with my colleagues and superiors. I also learnt how to get over the errors and difficulties I came across while working and figure out what's wrong.

Name: ATISHAY JAIN . (2020A8PS1814P)

Student Write-up

PS-I Project Title: SES 2.0 Ticket Management System

Short Summary of work done: We worked on SES 2.0 Ticket Managament System.
The purpose of this system is to log all the inputs, feedbacks and issues that are received from internal stakeholders and external stakeholders which requires small developement changes. It will follow the delivery cycle from functional analysis,technical analysis, development, testing and release.
We were all individually assigned 2 forms to work with in which we worked on their frontend and backend.

PS-I experience: Our project concluded with us learning multiple technical skills such as html, css, ReactJS, JavaScript, Oracle,SQL,C# etc..This PS provided me a valuable industrial experience.

Learning Outcome: I learnt a lot of skills like HTML,CSS,JavaScript,ReactJS,Oracle. I also came to learn the importance of team work and enhanced my inter personal skills.

Name: DIVYAM KUMAR . (2020AAPS2112H)

Student Write-up

PS-I Project Title: SES 2.0(Software Management System)

Short Summary of work done: The initial task was to learn concepts of HTML,CSS,JAVASCRIPT and REACT.
Next, we were given an assignment to make a react-based application 'Expense Tracker' using the concepts we learned.
In the later stage we were introduced to the database 'toad'. We were asked to practice some commands in the database.
Lastly, we were introduced to the project 'SES 2.0'(Software Management System).
We were asked to create forms on the website and link the data (collected in database) from backend to frontend.

PS-I experience: This was my first taste of the corporate world, and I did not know what to expect. However, my colleagues were extremely helpful and approachable, which made me feel comfortable working here. Although it was only a short two months, I have learnt a lot from this experience. Mentor was very helpful and invested in us and wanted all of us to get the best experience possible and to not to do much busy work. Although this internship is unpaid the experience was unbelievable and eye opening. It was a unique experience to see how the company is run

Learning Outcome: Throughout my internship, I was well trained and did receive a fruitful experience. The real working environment prepared me for future employment after my graduation. However, I did encounter some problems, which I gradually managed to deal with. During my time here, I learned how to communicate and build relationships with the people I worked with. I learned that every company or organization has its own culture. It's essential to observe others and learn how they engage and interact with co-workers or help them with projects and tasks. I quickly learned that whenever something is unclear for me, or I don't understand, it's fine to ask for clarification. As an intern, I discovered it's essential to be enthusiastic and open to learning new skills.

Name: RAYAVARAPU LOKESH . (2020B4AA0681H)

Student Write-up

PS-I Project Title: Ticket Management System

Short Summary of work done: Learned major concepts of JavaScript, React Js, and Ant Design which is a library used for React Js. Done an assignment based on react, learned basics of backend writing simple queries, creating databases, and how to use and create an API. The project we worked on is to create forms in ticket management system which involves creating API, and react components using ant design library.

PS-I experience: Overall it's a great experience

Learning Outcome: I've learned how to create responsive web applications with Javascript
and React JS and I've learned how back-end and front-end work and how they interact with each other by working on the project.

PS-I station: Efftronics Systems Pvt. Ltd. (onsite) , Vijayawada

Student

Name: U JANVI . (2020A8PS0901P)

Student Write-up

PS-I Project Title: Smart Keypad

Short Summary of work done: This was mentioned as an IT Company, but its a core electronics and manufacturing company, so choose accordingly. We had the flexibility to choose a project or fields, from the ones existing in the company. I was a part of the IoT team and worked on the smart keypad. All the projects mostly required knowledge about embedded systems/ microcontrollers, so you'd be reading the manual for most of the time. The project is mostly about understanding the smart keypad and the components used in it (LSP1769, ESP32 Module and Wiegand keypad) and testing it. We had to maintain a daily record of what we did in an excel sheet.

PS-I experience: It was a great learning experience. Apart from the fact that it required us to stay onsite for 9 hours a day, everything else was good. The timings were a bit too

much and they expected us to be very punctual. My mentor and most others were really cooperative and helpful.

Learning Outcome: I learnt about the real works applications of microcontrollers (MuP course helped a lot). I got to see many real world projects and the whole production cycle of my project.

PS-I station: Elucidata Data Consulting Pvt. Ltd. , New Delhi

Student

Name: SATYANAIK SIDDHANT PUNDALIK . (2020A7PS1009G)

Student Write-up

PS-I Project Title: Single-Cell RNA Sequencing and Analysis

Short Summary of work done: The company's primary product is an online cloud-based data repository named "Polly." Across the world, scientific advances in biomedical engineering are being made every day, with numerous scientists publishing research papers with their findings. However, different research papers publish their results and their data in different ways. The cellular data is processed to disparate levels, which creates confusion and hinders the process of cross-collaborative efforts. Polly aims to solve this problem. The product's long-term goal is to create the most extensive data lake of biomedical cellular data that is already processed and ready to be used in any Machine Learning application.
As a Data Science Intern, I had to take raw data from various publications across the world and process it up to a certain benchmark. After this, the processed data was uploaded to Polly and made available for all subscribers to use for their needs. Primarily, these subscribers are scientists using the data for drug discovery research.

PS-I experience: The BITS PS1 students were specifically assigned to datasets for "Single Cell RNA Sequencing". Initially, we were given material to learn about the biological processes behind scRNA-seq. We regularly met with the mentors, and they further explained the processes. After understanding the biology behind the data, we were then taught the procedure used to process the given data to the required benchmark. During this time, we learned how to handle such large datasets, use frameworks such as "pandas" and "NumPy", as well as learn numerous mathematical processes used in data analysis, such as Principal Component Analysis, Analysis of High Dimensional Data, etc.

Then we were assigned datasets to process using the pipeline we had learned. As I became more familiar with the pipeline, the workload was increased and we were assigned two datasets to process per day. Along with processing the two datasets, I met daily with my mentor for approval of the datasets.
Since we were not assigned a single project for the duration of PS1, but rather daily work of processing 2 datasets using the same coding pipeline given, the work became quite repetitive very quickly. After the first 2-3 weeks spent learning about the pipeline and frameworks, there was very little further learning. However, after the official end date of PS1, Elucidata will be writing a paper using the work we have completed during PS1. They have offered all students an opportunity to work on this paper after the end of PS1 as co-authors if interested.

Learning Outcome: Got to work on data curation and analysis.

Name: HARSH SHARMA . (2020A7PS1383G)

Student Write-up

PS-I Project Title: Single cell sequencing data analysis

Short Summary of work done: During the first week of our PS, I was required to go through learning resources and master the fundamentals of curation of single cell RNA sequencing datasets. Raw data processing, normalisation, quality control, data visualisation, marker identification, and cluster annotation were all part of the data analysis. The primary goal was to determine the cell types that were crowded together. A Python-based code sequence was used to analyze this data.

PS-I experience: I learnt a lot during my internship. I was introduced to single cell RNA sequence analysis during the first week of my internship. We were then asked to process 4 datasets a week initially. If we had some doubts those were cleared by our mentors. During this process we were in constant touch with company mentors who held daily meetings and doubt solving sessions either through slack channel or google meet. Our mentors were really helpful and supportive at every stage of the internship. Then after 2 weeks, the pace of our work was increased and we had to process 2 datasets per day. We had daily meeting with our mentor to get our datasets approved. Overall it was a great learning experience which not only taught us technical skills but also soft skills like but also taught us organizational skills, time management skills, communicational skills.

Learning Outcome: Opportunity to work in the field of data science. Solving some bio-medical problems with the help of ML techniques. I learned how to handle such large

datasets, use python libraries such as pandas , numpy and scanpy, as well as learn numerous mathematical processes used in data analysis, such as Leiden Clustering, Uniform Manifold Approximation and Projection, Principal Component Analysis, Analysis of High Dimensional Data, etc.

Name: SANIDHYA VIJAYVARGIYA . (2020A7PS2056H)

Student Write-up

PS-I Project Title: Data curation of single cell rna sequencing

Short Summary of work done: We used ML techniques to cluster bioinformatics data on single cell rna sequencing and we annotated these clusters to their cell types using U-maps, and dotplots for visualization.

PS-I experience: The PS-1 was very intense with daily meetings and checks to ensure the work was being done and done well. The learning stopped after the first couple of weeks and the process became repetitive.

Learning Outcome: I learnt how to annotate single cell rna sequencing data and learnt how to deal with new file formats such as h5ad. I understood how processing of biological data works and how to apply ML to the real world

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Name: ARJOO KUMARI . (2020B3A70770P)

Student Write-up

PS-I Project Title: Preprocessing, Visualising and Annotating Biological Datasets

Short Summary of work done: We imported raw biological RNA sequencing datasets into a Jupyter-like notebook and then cleaned and filtered that data to make it free of biases. We then, using dimensionality reduction techniques like PCA, plotted UMAPs and t-SNEs for better visualisation of data. Further, clustering was done using Leiden and the

clusters were annotated using a dot plot of markers expressed for different cell types. At last, we saved the annotated data in an h5ad file for future reference.

PS-I experience: This was our first experience with a company, especially one exploring the unchartered pathway of data-centric biological R&D. It gave me insights into the field of machine learning and well as it taught me the importance of work-life balance. I was also informed by my mentors that Elucidata is planning on publishing a paper using the work all of us have done during Practice School I. So hopefully, it will materialise soon.

Learning Outcome: I got to learn how to handle Python libraries NumPy, ScanPy, Pandas, Matplotlib and Liedenalg. I also got real-life experience dealing with the AnnData matrix (annotated data). We also learnt various dimensionality reduction techniques including PCA, t-SNEs and UMAPs. I also learnt how to cluster data using Leiden Clustering Algorithm.

Name: CHINMAY ANAND . (2020B3A70800P)

Student Write-up

PS-I Project Title: Single Cell Curation

Short Summary of work done: I have studied a variety of issues in the fields of biology and machine learning throughout my internship. To complete our work, we utilised Python and the Jupyter environment. Numerous well-known libraries, including Numpy, Pandas, and Matpotlib, were used. We also looked into scanpy, a library designed specifically for single cells. In addition, we made use of Elucidata's own library to make omix atlas queries.
We mainly concentrated on one specific algorithm that filtered and checked QC.Then, if any batch effects were found, we regressed them. The paper helped us to find the marker genes, how they are used to distinguish between different cell types, and how to choose significant markers. We discovered batch effects. When each sample had distinct cluster in the UMAP, batch effects are present, impacting the final clustering and introducing unnecessary bias . In order to eliminate these effects, we do regression on the data, which essentially eliminated any batch effects. To reduce the dimensions of the data, we scaled it down and applied normalisation. This was done to encapsulate the maximum variation in data and improve computation . Following pre-processing, we also learned about liden clustering of the provided data. How to correctly annotate data was taught to us. We initially attempted to automate the annotation, but soon learned that human annotation was still necessary since in some cases, we needed to consider the location and nearby clusters to determine which cell type a given cell belongs to. By the

end of the internship, I had a thorough understanding of the entire procedure, including its significance in terms of rerasearch in Biology

PS-I experience:
My primary responsibility as a data science intern was single cell data curation. We were initially given reading assignments to familiarize ourselves on the various biological processes and machine learning methods. We met with the mentors on a regular basis, and they further explained the procedures. We first learned about the biology underlying the data before being taught how to perform single cell RNA sequencing. We gained knowledge of handling such big datasets, using frameworks like "pandas" and "NumPy," and several mathematical techniques for data analysis, like Leiden Clustering, Uniform Manifold Approximation and Projection, Principal Component Analysis, Analysis of High Dimensional Data, etc.Additionally, I was able to pick up on fundamental machine learning principles like regression and PCA, as well as how to apply them.
The datasets was processed with the pipeline we had learned were then assigned to us. It initially took some time for me to become used to the new frameworks and the code which was now required to use on a regular basis. But as time went on, I grew accustomed to the procedure and gradually discovered the different nuances and important details I needed be aware of to perform good clustering . The workload rose as I gained more proficiency with the pipeline, and we were given two datasets every day to handle. This was a significant increase in work, and it required some time to adjust and function effectively. There were daily meets with the mentor to discuss our work

Learning Outcome: It was a great learning experience that taught us mathematical techniques for data analysis;Leiden Clustering, Uniform Manifold Approximation and Projection, Principal Component Analysis, Analysis of High Dimensional Data, etc .I was able to pick up on fundamental machine learning principles like regression and PCA, as well as how to apply them. I also learnt soft skills as well as organizational skills, time management skills, and communication skills.

Name: SARVESH PRASANNA SUTAONE . (2020B5A71947H)

Student Write-up

PS-I Project Title: Single Cell RNA sequencing technologies and bioinformatics pipelines

Short Summary of work done: We had to identify different cell types present in a dataset using some ML models. We received different datasets on a daily basis and we had one-on-one review meets at end of each day to approve them.

PS-I experience: The mentors were very helpful and assisted me along the way. It was mostly implementation of algorithms than learning them and hence i spent a lot of time understanding them on my own. The workload is pretty fine.

Learning Outcome: I got to learn different ML algorithms along with coding in Python

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PS-I station: Erasmith Technologies Pvt. Ltd. , Delhi

Student

Name: SALONI BHANDARI . (2020B1A71602P)

Student Write-up

PS-I Project Title: Warehouse Management System using Python

Short Summary of work done: We were asked to build a Warehouse Management System for Mitsubishi. First, we started with learning the basics of Python and Photoshop. We completed various tasks: posters using Photoshop, websites using CSS and HTML and few tasks including Bootstrap. Next, we started learning Django and made a basic form using Django CRUD Operations. There were 2 teams broadly: The Python team and the .NET team. I was a part of the python team, we were responsible to work on creating dashboards for Manager, Supervisor and Worker and Dock allocation, Item and Goods receive forms etc. for the WMS.

PS-I experience: Erasmith technologies and PS has given me the opportunity to learn more about databases and python language. The mentors guided us throughout the journey, but a lot of things were expected from us, given the limited time it sometimes became difficult to learn and implement immediately, also, we had daily meets.

Learning Outcome: I learnt Django and more about designing and UI.

PS-I station: Goavega Software India Pvt Ltd , Bengaluru

Student

Name: AKSHIT CHAUHAN . (2020A3PS1030P)

Student Write-up

PS-I Project Title: Olive | a low code no code platform

Short Summary of work done: I fixed some bugs and added further components in this project. We didn't build Olive from scratch but rather helped add some features in this project. The platform took information from the user of his needs (like if he want to use redux , implement a backend, GitHub/azure) and based on this generated code using Plop JS and created a template so that the developer don't have to work from scratch. I created components for collecting the data of user's need and created basic structure required to implement the task.

PS-I experience: It was a decent experience. I got a learn multiple new things. I also gained experience of working as a team.

Learning Outcome: 1. JavaScript
2. Plop JS
3. React JS
4. Teamwork

Name: ANMOL GOYAL . (2020A3PS2139H)

Student Write-up

PS-I Project Title: Cloud Native in Cargo

Short Summary of work done: Our mentor from the Goavega appointed 5 issues to our group respectively and we were expected to solve them by fixing the code and appending it. The groups have thoroughly analyzed the issues and pulled a request to merge the files into the main chunk of code. Issues were resolved to contribute to the development of the product.

PS-I experience: My PS experience was decent. Our mentor was enthusiastic about the project work, The things required to learn were new for me so it took me time to get comfortable. Overall, it was decent experience for me

Learning Outcome: Learnings: We learnt Golang from scratch and used it in the project work. We got hands-on experience for GitHub and Slack. We also learnt about dockers and containers.

Name: ANURAAG GANJI . (2020A7PS0114H)

Student Write-up

PS-I Project Title: Olive - a low code, no code platform

Short Summary of work done: In this internship at Goavega we have learned many latest technologies and software like React and PlopJS that will help us further throughout our careers.
We helped implement super-linter which builds guidelines for code layout and prevents broken code to be uploaded on Github. We added new features in Olive, created service files and implemented source control management.

PS-I experience: It was a great experience working at Goavega and this experience shall help me in our future endeavors. The internship may have come to and end but the learnings shall remain.

Learning Outcome: This project has made me familiar with using github in an organization. It has also exposed me to technologies like PlopJs which I would actually use in the future.

Name: EDWIN JOSEPH . (2020AAPS1438G)

Student Write-up

PS-I Project Title: Olive

Short Summary of work done: Olive is a no-code, low code platform which will help in creating reacting apps. It automatically create a framework depending on the user's need according to the answers he/she gives for the respective questions. The project is in the development stage.
I worked on building 3 features during PS1

Adding prompts: As a menu-driven program, several questions had to be asked and the flow depended on the user's response to every question. Using the inquirer class, I coded the functionality - calling respective functions for adding several components depending on the user's answer.

Creating service files: All components are added as a service. I wrote the code for the functionality - creating files with necessary names and data from a template using PlopJS.

Integrate Source Control Management: Olive mainly offers SCM through GitHub or Azure DevOp. I coded the functionality - using the locally existing special rules for measuring code quality, creating workflows which uses GitHub super-linter to prevent commit of code which does not meet required standards.

PS-I experience: PS1 was a very enriching experience. I got fine exposure to different frameworks and technology. I am excited to realise that my code will also be used in the official release of the product - Olive. I had a wonderful mentor who helped me through all my challenges. He provided me with adequate reference material and cleared doubts on online one-on-ones. I have learned a lot and the more importantly, I have learnt how to use what I have learned to make products which will help the community. I also got a good experience at collaborating and working as a team.

Learning Outcome: I got exposure to JavaScript, PlopJS, React, Automation.
I have understood much better how to use Github.

Name: CHANDA HRITIK RAJ . (2020B4AA0980H)

Student Write-up

PS-I Project Title: Cloud Native- Cargo

Short Summary of work done: For the upcoming batch, I'd like to suggest that don't hope PS-1 is gonna be as in "real-company" internship. It ain't like that . They are gonna

appoint few projects to us along with some tasks. We were assigned tasks through GITHUB like issues etc. Our project title was "Cloud Native - Cargo". I was dealt with the issue#2: ability to find the framework, database, language of the JSON file. Navigated through the "Parsing of JSON" files. It wasn't that intresting though unless you are into Cloud Native. They only teach us the basics and rest all you guys are aware of how ps works :)

PS-I experience: PS-1 experience was great. Our mentor from Goavega Sachin Nigam guided us through the processes and been very kind.

Learning Outcome: For the beginners who are oblivious about pull, merge other than push, commit in GITHUB, gonna educate thy a lot. Like we were proud of ourselves when our code got merged into an organization main file. Got a good notch using command line interface GITBASH. We were also taught about the basics of docker in the last days but I wonder if anything really got into my brain. Overall, it was a good experience .

PS-I station: Helix Techin Info Systems Pvt.Ltd , Goa

Student

Name: MADHUR SARAF JAIN . (2020A7PS1106H)

Student Write-up

PS-I Project Title: API development using CodeIgniter

Short Summary of work done: My task was to create Login and Sign-up API for one the companies' app using CodeIgniter's RESTful service and Postman

PS-I experience: It was an amazing experience practicing professionalism for the first time with an actual company. Here I learned about discipline ,work-life management and team work form mentors . How app development takes place and how things are managed between different teams. I learned various technologies like PHP, MySQL, CodeIgniter, Postman etc. and implemented various APIs

Learning Outcome: Very fruitful outcome. From working in a team , work under mentors and Group discussions , seminars to report making, everything had something to offer for my personal development

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PS-I station: Hyphen Supply Chain Solutions Pvt Ltd - Application Development , Noida

Student

Name: VANSH HITESH SHEJPAL . (2020A4PS1218P)

Student Write-up

PS-I Project Title: Application Development

Short Summary of work done: The work given by our PS Mentor and also Co-Founder of Hyphen SCS Mr Arun Pandit was exciting and equally challenging, we were briefed about the inefficiency in Supply Chain Management in India and how we could help the company. Our initial task was to create a dashboard using Power BI. We then had to build a Website starting from Wireframing to completing the entire website and some other sections. This helped us learn HTML CSS and Bootstrap to an extent. We also learnt about the financials of a company and comparing it with its competitors. Overall we learnt a lot of new technical skills like Excel, Power BI, HTML, CSS, Bootstrap and more.

PS-I experience: My experience working for Hyphen SCS was great as it helped me build on my technical skills and understand the functioning of a Supply Chain as well as making a website. We also learnt a lot of Financial Topics which helped us enhance our knowledge in different fields.

Learning Outcome: It mainly involves technical skills like Power BI, HTML, CSS and others but a very important part was to understand how a Supply Chain start up is established and know about its functioning

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Name: RUCHIT TARUN AGRAWAL . (2020A4PS1838G)

Student Write-up

PS-I Project Title: Financial Analysis

Short Summary of work done: The work involved using mainly two softwares - Excel and Power BI. Our projects included mainly using various formulas on Excel and creating dashboard on Power BI. One of our project included doing fundamental analysis of competitor of Hyphen SCS.

PS-I experience: The PS-1 experience was good. Our review meetings were very fruitful and the mentor had a lot of insightful suggestions.

Learning Outcome: I learnt how to use Power BI since I was new to the software. I also enhanced my concepts of fundamental analysis.

Name: PRAKHAR BHARGAVA . (2020A4PS2276H)

Student Write-up

PS-I Project Title: Financial Analysis

Short Summary of work done: I used software like MS Power BI and MS Excel for financial analysis and business data visualisation for Hyphen SCS. I also used financial ratios to perform fundamental analysis of a competitor in the same industry sector as Hyphen SCS.

PS-I experience: I had a fun learning experience at Hyphen SCS. The mentor provided guidance and valuable insights to help complete the project with the best quality.

Learning Outcome: I learned about India's warehousing and fulfilment industry and the gap that needs to be accommodated. I understood the various problems that arise at the industry level in a supply chain company and how to solve them per the consumers' requirements. The software learned during the practice station would be helpful in financial analysis and business data visualisation.

Name: SHAURY TRIVEDI (2020A7PS1690H)

Student Write-up

PS-I Project Title: Web development and app development

Short Summary of work done: We started off with finding bugs in the company's official website application. Then We were asked to make frontend for the Home and about Us page for the website. We had to learn the tech stack involved. The deadlines were lenient and focus was majorly upon the learning.

PS-I experience: My PS-I experience was wonderful. I got to learn about various tools and technologies during the course of my ps internship. I also got firsthand experience of industry and corporate culture. Everyone worked together for 2 months as a team which helped me develop some personal skills as well.

Learning Outcome: 1) Learnt various frontend tools and technologies such as HTML, CSS, Bootstrap, Javascript.
2) Experience of corporate culture.
3) Development of personal skills.
4) Understanding of industrial ecosystem.

Name: VISHESH MEHTA . (2020A7PS2194H)

Student Write-up

PS-I Project Title: Frontend Web Development

Short Summary of work done: We were assigned the task of creating a website for Hyphen SCS. They already had a website which was build using WordPress but they want us to build a website using HTML, CSS, JAVASCRIPT and BOOTSTRAP framework. We were asked to build frontend for two pages of the website, the home page and the about us page.

PS-I experience: Working for this startup was fun. The work load was average. Every week we had one or two meetings with a senior of our college who was also doing an internship at Hyphen. He guided us throughout the PS. We had to report our progress to him. Our mentor do not take meets too often due to his busy schedule but whenever there was a meeting with him, he always gave us valuable feedback regarding our work and

suggested us the ways how we can improve it. He is very genuine and friendly person and he shared some valuable tips to a good professional life with us. Under his mentorship I learned a lot.

Learning Outcome: I learned a lot about front end web development and understood how to work on a group project from planning phase to the final stage of delivery. I learned how to apply the theoretical knowledge which I gained from watching videos to practically build something useful.

Name: ISHAN SINGHAL . (2020A8PS1823H)

Student Write-up

PS-I Project Title: RECREATING COMPANY's WEBSITE

Short Summary of work done: Our project is divided into various parts which we have to solve together to get the job done . As a whole if we combine the parts ,our main aim is to recreate the website and application of the HYPHEN SCS and give it a modern and more cleaner looks and as a website is create d with the help of word press so we need to convert it into html css and js website .
The various part of our projects are as follows
• Find the various bugs in the web and app
• Create the prototype of the various pages for the website
• Code the prototypes
• Resolve the bugs in app
• Create the app for ios version
The project start with finding the bugs and think about there solution which create the basic
knowledge about the development area and give a better overview of app and website and the it goes
with creating the wireframes for the various pages to give a website better look.

PS-I experience: working here gives me insight of the company's tech team works actually on the big projects and how they maintain the coordination with everyone ,the ps also help to have the leadership quality as we are leading some section of a project.

Learning Outcome: Learn the various used languages and have the good in hand experience of working as a
team. Some of the languages I learned are as follows
HTML5:

● HTML (Hypertext Markup Language) is the primary building block of creating a website.
● HTML is a very basic markup language and requires implementation of a f HTML commands
that structure the look and layout of a web page, which I learned during the course of PS1.
CSS3: I also learned CSS which helped me in beautification and styling of the project. ● It
helped me improve Website Presentation.
● Made updates and filters easier and smoother.
JAVASCRIPT: We are using javascript in our project for:
● JavaScript helps to make web pages dynamic and interactive by implementing custom client side scripts
. ● At the same time, we can also use cross-platform runtime engines like Node.js to write server-side code in JavaScript.
● This helped me improve SSR and CSR to a great extent.

Name: VIKHYAT SINGH GAUR . (2020AAPS1765H)

Student Write-up

PS-I Project Title: Web and App Dev

Short Summary of work done: We were given a task to build the front end of the home page and
about us page of the Hyphen SCS website with the help of HTML, CSS,
JavaScript and other frameworks such as bootstrap and react.
The website had specific bugs that we discovered in the first week of
our practice school, and at the end of the project, we learned how to
use web development tools and software practically.

PS-I experience: The long-term objective of this PS is to assist Hyphen Supply Chain Solutions (HSCS) in developing a top-notch website and warehouse portal
so that it may compete and survive with the listed or established
businesses in the logistics or supply chain industry.
We examined the current website for flaws and faults, and found ideas for
improving its aesthetic appeal.
We decided which factors should receive the most attention, and tried to improve
the website's front end.

Learning Outcome: At the end of the project, we learned how to

use web development tools and software practically. We have also had industrial-type review meets which taught us about teamwork and cooperation

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Name: VEDANG CHOUDHARY . (2020ABPS1051P)

Student Write-up

PS-I Project Title: Consultancy, Finance and Analysis using MS Excel and MS Power BI for a Supply Chain Management firm

Short Summary of work done: As an intern at Hyphen SCS, I worked in the finance, consultancy and analytics team. We worked to gain knowledge in the same field. We got 6 projects to work on.
1. Bug finding
2. MS Power BI project to learn data visualization in professional format
3. Fundamental analysis of competing firms
4. Warehouse management: arranging all the listed warehouses in MS Excel to manage data properly.
5. Making a tutorial video for warehouse enlistment(English and Hindi)
6. Made a Power BI dashboard for warehouses spread across India

PS-I experience: This internship gave me a great exposure in the field of finance, operations and management in a supply chain and logistics firm.

Learning Outcome: I learnt multiple industry related softwares and languages such as advanced MS Excel, MS Power BI, Python, etc.
Apart from this, I also got a real exposure of working in a firm, properly. Team work, communicating in a team and with seniors, and leadership are some soft skills that I gained.

Name: CHADMIYA KUSHAL RAMESH . (2020B1A31680G)

Student Write-up

PS-I Project Title: 1) Rate master client side 2) Migration from WordPress to aws 3) Finding out bugs 4) Home page

Short Summary of work done: I knew React so they directly gave me a project to make client side for rate master website. So, basically rate master is a project in which user can input pincode/city of the location in to and from field and user get the cheapest transporter as the output. Also, I made another page in which employee of Hyphen can change the rates of the transporter. I also migrated the website of co-founder from WordPress to AWS using Lightsail and made a procedure guide on how to migrate website. I also worked on finding bugs and give appropriate solution to solve that bugs. Finally, I contributed in making a new home page for Hyphen SCS.

PS-I experience: It was a good experience and learned many new things. Meetings with the Cofounder was the best part.

Learning Outcome: How supply chain sector works in India and what is role of Hyphen SCS. Technically I knew many things from the start but leaned some few like migration of website one.

Name: AMIT KUMAR DEOGHORIA . (2020B2AA2425H)

Student Write-up

PS-I Project Title: Rate master , home page and about us page , AWS migration

Short Summary of work done: I have worked on multiple projects in Hyphen Scs . I have worked one making the homepage and about us page using HTML ,CSS ,JS ,Bootstrap and certain other libraries . I also worked on a project called rate master ,where i have to make a web application such as if you enter initial and final location u will get the rates provided by different delivery companied and their price breakup. We also worked on the server side of the rate master so that a normal user can also make changes to the rates in database since its a variable and changed with time. During this project i learnt technology such as my sql ,tomcat ,jdbc and servlets . Other works i have done in Hyphen scs include migration of website from wordpress to AWS Lightsail.

PS-I experience: My Ps experience was amazing , our instructor and mentor was also great . I learnt so many new technologies during the project and our mentor guided us properly during every bit and pieces. Apart from all this he conducted sessions on

personal branding and many other things helps to enrich ur personality in corporate world . It was a wonderful learning experience .

Learning Outcome: I learnt many things about industrial world,how work is actually done in corporate world , i also got the opportunity to learn about certain technical things in supply chain industry. I learnt about how to integrate backend and front-end ,how to make database and integrate them ,i learnt so many new things in world of development. My learning outcome curve in this 2 month period is exponential.

Name: AKSHANS SHARMA . (2020B5AA2183H)

Student Write-up

PS-I Project Title: Web and application development

Short Summary of work done: We developed the website of Hyphen SCS by finding bugs and their solutions. We also contributed to the company by developing a whole new website for finding the most efficient logistical service provider. We then shifted the website from wordpress to aws. We also hosted the servers for the website and reformed the code in such a way which would make changing rate, user friendly.

PS-I experience: My PS experience was very wonderful. I learnt a lot of new things from team work and management to various technical skills like flutter. Our mentor and professor were both very helpful and motivating, they swiftly guided us through the whole PS and made everything easier for us.

Learning Outcome: I learned web and application development along with the working and hosting of servers.

PS-I station: IDS Infotech Ltd , Mohali

Student

Name: AAYUSH MUNDRA . (2020A3PS1007P)

Student Write-up

PS-I Project Title: Fake News Detection using Deep Learning and NLP

Short Summary of work done: I basically found out required dataset for the project and converted it into test and train through classifier model and then did the preprocessing of it through different modules to make the data readable and executable for the project. After that, I converted this data to real vectors and then implemented BiLSTM model for detection and then used F1 score as accuracy parameter for it.
I also gave quizzes, worked on my soft skills as need to prepare for group discussions and stayed in continuous loop with the mentors. Apart from this, I prepared presentation for the work done

PS-I experience: My PS-1 experience was quite good as it provided me an opportunity to explore the industry. I got to know about various modules, processing techniques and accuracy parameters in the field of AI and ML. It also gave me exposure to think and build a solution for my problem. I also worked on my presentation and soft skills which changed me as a person and gave confidence to present myself before the mentors. In and all, it was a good learning experience.

Learning Outcome: I basically learned about deep learning , importing datasets and modules which helped me analyze the data. I learnt about NLP and accuracy parameters and their differences in this duration. This all helped me in creating final result for my project. I also learnt time management, soft skills, presentation skills and technical skills during my tenure.

Name: SRIRAM KASHYAP KURILLA . (2020AAPS0359H)

Student Write-up

PS-I Project Title: Fake News Detection using Deep Learning

Short Summary of work done: Built a deep learning model to detect fake news using TF-IDF, Sentiment Analysis, Bi-LSTM

PS-I experience: It provided me an opportunity to connect with Industry experts, learn under their guidance and apply my knowledge in a tangible way

Learning Outcome: I am now familiar with the concepts and steps related to a Deep Learning and/or a Machine Learning end to end project

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PS-I station: Indian Institute of Remote Sensing , Dehradun

Faculty Name: Rekha A

Brief write-up on PS-I station.
The Indian Institute of Remote Sensing is a premier institute for research, higher education and training in the field of Remote Sensing, Geoinformatics and GPS Technology for Natural Resources, Environmental and Disaster Management under the Indian Department of Space, which was established in the year 1966.

Industry looking for in a -I intern : Interns should be interested to learn new things and involve proactively

Student

Name: SHAH NISHAL SUNIR . (2020A3PS0321P)

Student Write-up

PS-I Project Title: Ship Detection on Satellite Images using Deep Learning Techniques

Short Summary of work done: I managed to develop a trained working model for Ship Detection using transfer learning techniques. The above model was able to detect ships of 3m resolution. I trained the model using YoLO V4 on the Darknet framework. We used the Google Collab GPU to train our model as my system did not have GPU functionality. To train the model we used an open source satellite dataset repository. These images were then labelled using LabelImg tool.
All coding was done in Python.

PS-I experience: My PS-1 experience was quite enjoyable. Despite the online mode, I was able to use my resources efficiently and was quite productive as most of my work involved Literature review and Simulations. Moreover, my mentor was helpful and guided me at every stage of the project.

Learning Outcome: I learnt about various Machine/Deep Learning techniques and basics about Image Processing. I was introduced to Transfer Learning methods. I learnt about coding in Python and working in Google Collab notebooks Apart from this my soft skills were enhanced due to various seminars and presentations

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Name: RUDRAJIT PAL . (2020A3PS1018P)

Student Write-up

PS-I Project Title: Time Series Analysis of Urbanization

Short Summary of work done: The ML algorithms, which generally perform well on remote sensing data like CART, Random Forest, SVM, etc., were studied and understood. The dataset was manually picked and divided into 70-30. 70% was used as training data, and 30% was used as validation data. Four classes, Agriculture, Forest, Barren, and Urban, were created with the water bodies already taken out of the region of interest. We worked on finding the date with the minimum cloud cover in the first 3 months for each of the years 2000,2008,2010,2014,2018,2020,2022. This was done to avoid error due to hazy image due to cloud cover. The dates and the ID of the images were noted down for future reference. We have also started off with selecting feature collection of the four classes – Agriculture, Forest, Soil/Barren Land, Built-up for training our models and predicting the distribution on the satellite image. We took these months to maintain consistency over all images. Our task was to create an accuracy matrix with by applying Random forest, SVM, Cart, Naïve Bayes, Minimum Distance classifiers on the images from each year and note their validation accuracy and Kappa value. Then we took averages of the values for each classifiers over the years to find out eh best algorithm and SVM classifier came out to be the best at classifying. Then the data was used to train on the images of years 2000, 2008, 2010, 2014, 2018, 2020, 2022 and accuracies of different models noted down to perform a comparative analysis.

PS-I experience: It was quite a wonderful experience and great learning experience. My industry mentor was really engaging and gave us clearly defined objectives each meeting. The help was provided in all aspects starting from resources to the final implementation. The project work was tedious at the same time really exciting as we were learning and working on a real time data. Our project gave us insights to the various applications our work could contribute to. The project helped the organization study the growth of urbanization in Dehradun over the last 22 years. The data also could be used to study changes in forest cover and conversion of agricultural lands to barren land due to overuse. This project also would help to simulate the future distribution based on the trend generated through the models trained for multiple years over a span of 22 years.

Therefore the data could be used to study various aspects required to analyze the changes in Dehradun. Overall it was worth the time and effort for our first real time project of our career.

Learning Outcome: Identified the best algorithm for Classification
Classified the region under different categories
Applied the algorithm on images from 2000-2022
Performed a regression analysis on the data.
Used the regression analysis to predict the growth of urbanization

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Name: AKSHAT JOHAR . (2020A3PS1793H)

Student Write-up

PS-I Project Title: To develop deep learning algorithms to predict Particulate Matter Concentration over India.

Short Summary of work done: The project aimed to create an LSTM neural network that could forecast PM2.5 and PM10 levels throughout India. The input parameters for the model were AOD data from the INSAT-3D satellite, meteorological data (boundary layer height, wind speed, wind direction, air temperature, relative humidity), and intercept files. In India, 45–60 CPCB stations provided PM2.5 and PM10 data on the ground. This would be a parameter for the output. The training data used were from 2020, while the testing data used were from 2021. The data was run through RNNs using an LSTM neural network, and the model's accuracy was checked by comparing the predicted values to the actual values using RMSE (root mean square error).

PS-I experience: With PS-1 , I gained a lot of industrial experience , on how the company functions on a day to day manner. Other than gaining experience , I learnt a lot of new things and developed new skills which would be handy in the future. I would like to say that after completeing second year in college, PS-1 is a healthy exercise through which you further broaden your scope

Learning Outcome: I leart a lot of new things mainly related to the fields such as Data Science, Machince Learning , Artifical Intelligance, Deep Learning. I also learnt a lot about different useful Python Libraries which were useful towards completetion of project. WIth Knowledge gained , I was able to implement it in the project and gain successful results

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Name: HARSHIT VERMA . (2020A7PS0041H)

Student Write-up

PS-I Project Title: SIMULATION OF BACKSCATTERING COEFFICIENT BASED ON INPUT PARAMETERS OF FOREST CANOPIES

Short Summary of work done: Simulated the MIMICS model: Used Python to simulate the Michigan Microwave Canopy Scattering Paper, developed an interface to calculate backscatter coefficient given a set of parameters.

PS-I experience: It was a very learning experience. The project given to us was very interesting.

Learning Outcome: I learnt about Synthetic Aperture Radar and the MIMICS model. I also learned many python libraries.

Name: SHREYAS KETKAR . (2020A7PS0075P)

Student Write-up

PS-I Project Title: Building four Applications to Visualize Water,Atmosphere,Forest,Urban Areas around the Region of Ladakh

Short Summary of work done: We successfully built and deployed two of the applications related to water and atmosphere around the region of Ladakh. We are presently working on the forest and urban areas applications and will deploy them soon.I worked with the javaScript based API of the Google Earth Engine.The applications have a user friendly inteface which could easily used by anyone without even the knowledge of programming.The app has incorporated satellite datasets which are updated in real-time which show precise data about different parameters related to water,forest,atmosphere and urban areas around the region of Ladakh precisely.The applications can be used to compare the values of these parameters across different regions of ladakh and to previous years which can be used in detecting any anomalies and can be used in solving many environmental issues.

PS-I experience: The PS-1 experience was really amazing.During the course of the Internship i learnt a lot about how organisations work.I learnt how to interact in the corporate sector and how to work in a group.It also helped in improving my technical skills with hands on experience on work.Overall the PS1 was a great learning experience.

Learning Outcome: During the project, I learned the language javaScript, which was new to me. Apart from this I learned alot about designing user-friendly Interfaces. The Google Earth Engine was completely new to me, and hence it took a lot of hard work in learning to use the platform. Along with all the technical skills, I improved my communication skills drastically through regular group discussions and meetings with my organization mentor.

Name: DHAIRYA MUKESH AGRAWAL . (2020A7PS0130H)

Student Write-up

PS-I Project Title: Remote Sensing of Ladakh

Short Summary of work done: We developed 4 applications using the Google Earth Engine API to study and visualize the satellite data of the Ladakh region, each for water, forest, atmosphere and urban. These apps had features like band selectors and year sliders for users to adjust the parameters as per their requirements. Also it had additional features like graphs, charts, split panels, etc. for added functionality.

PS-I experience: It was a great experience overall. I got to learn different technologies and got to collaborate with scientists from IIRS to help me make this project. They guided me throughout the duration of the internship and I learned a lot from them. I tried something new which I hadn't had any experience before, which was remote sensing. I learned how it works, and how scientists and analysts actually study satellite data/images.

Learning Outcome: I was exposed to the google earth engine in this project. It is a great API for the development and deployment of apps that are dynamic, shareable user interfaces for Earth Engine analyses. I also learned JavaScript for the same as earth engine mostly works on this, the alternative to which is python. I learned a lot of things about remote sensing and IIRS, and how we need to satellite data for many purposes.

Name: SAKET B . (2020A7PS0983G)

Student Write-up

PS-I Project Title: Creation of GUI for user-friendly interaction with Earth Engine

Short Summary of work done: Different kinds of satellite datasets are made available through Google Earth
Engine, a service rendered by Google for geospatial analysis. It contains information regarding melting of glaciers, climate changes, precipitation, etc. which has been analyzed
through the aid of various kinds of spectral bands obtained from the images captured by different satellites. Currently, the features provided by Google are restricted to a JavaScript
API coding environment along with certain external Python APIs which would be quite difficult for a common man, who is oblivious to programming, to interact with it. Thus, the aim of this project is to automate various tasks that can be executed using the Earth Engine
software, code it up and then create a Graphical User Interface through which the end-user
can interact with it very smoothly. To accomplish this, I have initially automated some basic
tasks such as file-naming and batch file exporting. After this automation has been done to
calculate several spectral indices, generate image summary statistics, graph the desired bands' frequency histogram and draw its boxplot. These Python codes have then been used in implementing the GUI in which the user can obtain the desired outputs based on his
preferences at the click of a button.

PS-I experience: It was a great journey to work in an organization for the very first time. We were divided into groups and assigned mentors. They would contact us once or twice a week and give the tasks to be completed. Throughout the project received ample support from them. We also plan to enhance our project further in the future.

Learning Outcome: Learned how the corporate world works and also how to keep up the deadlines given.
Learned a lot about Python and Google Earth Engine software and how to create a GUI out of it. This could be enhanced and used further for real-world purposes as it would enable the remote sensing scientists at IIRS to automate many of their day-to-day tasks.

Name: AKSHAT KHAITAN . (2020A7PS2055H)

Student Write-up

PS-I Project Title: Parallel Processing Of Sediment Deposition With Spatial Variation

Short Summary of work done: Learned the different data models like Digital Elevation Model(DEM), Raster Data Model, Flow Direction Grid,
Flow Accumulation model, and other relevant models used in developing the algorithm. Went through several
research papers in similar domains and gained distinct prospects. Developed a graph-based divide and
conquer algorithm, implementing a multi-processor approach, thereby computing the incoming and outgoing
sediment yields. Managed to implement a Minimum Spanning Tree approach by the end.
We presented an efficient and scalable parallel algorithm to compute the global flow accumulation. This
method allows good computation times for huge DEMs. The method does not use complex data structures to
alienate memory needs, and data is distributed onto the cluster.
Developing a fast and accurate algorithm is important and necessary to meet the future's demands and come
up with a solution at the earliest. The traditional sequential algorithm, though simple to understand, might
take a lot of time when processing large data sets. This will reduce efficiency. Hence a modern technique is
required to speed up the same.
Using Parallel Computing in the field of Remote Sensing enables one to think beyond the horizons and utilise
the power of this technology in various other fields

PS-I experience: It was a good learning experience.

Learning Outcome: We can further work on our project to implement a GUI-based parallel processing technology that will make it
easy for the normal user to visualise and understand its efficiency simultaneously.

Name: NAGADHANUSH K V . (2020A7PS2090H)

Student Write-up

PS-I Project Title: Parallel Processing Of Sediment Deposition With Spatial Variation

Short Summary of work done: Learned about Digital Elevation Model, Raster Data, Sediment Analysis, Flow Direction Grid and several other models required for the algorithm. Studied few research papers in similar domains. Developed a graph-based multiprocessor algorithm computing the incoming and outgoing sediment yields. Implemented a Minimum Spanning Tree approach by the end of the project.

PS-I experience: I had a very good experience with the mentor from PSD as well as the IIRS mentor. They were extremely supportive throughout the project and were always ready to clear any doubts.

Learning Outcome: I learnt various data models which were required to devise the parallel processing algorithm. I also learnt the syntaxes of few parallel processing algorithm. I learnt how to work in a team and to coordinate with my teammate for the project to finally achieve the aim of the project. It was a very fruitful experience overall.

Name: MUSKAAN KUMAR . (2020AAPS2188H)

Student Write-up

PS-I Project Title: Ship Detection on SAR images using Deep Learning Techniques

Short Summary of work done: Ship detection using satellite images has received unprecedented attention due to the significant application value such as fishery management, ship rescue, maritime traffic control, and battlefield awareness .We went through various techniques and studies exploring the methods used for ship detection. We implemented our model to detect ships for Mumbai coastlines using YOLOv3 model which performed comparatively better than CNN methods.

PS-I experience: It was a very insightful and knowledgeable experience. Th mentors and faculty in charge were extremely helpful and guided us whenever we faced any difficulties.

We had regular meet and learnt a lot of valuable industrial knowledge that has given me a better perspective.

Learning Outcome: I leant new concepts related to satellite imagery, object detection, training CNN models, implementing YOLO and apply transfer learning to get desired outcomes. I also learnt how to access Copernicus Hub and use Geospatial Data Abstraction Library.

Name: ANISH ASHISH KASEGAONKAR . (2020B3A70785P)

Student Write-up

PS-I Project Title: To develop deep learning algorithms to predict particulate matter concentration over India.

Short Summary of work done: The aim of the project was to develop an LSTM neural network to predict PM2.5 and PM10 levels across India. AOD data from INSAT-3D satellite, meteorological data (boundary layer height, wind speed, wind director, air temperature, relative humidity) and intercept files were the input parameters for the model. Ground data was sourced from 45-60 CPCB stations across India - of PM2.5 and PM10 data. This would be the output parameter. Data from 2020 was used as training data, while data from 2021 was used as testing data. The data was run on RNNs using LSTM neural network and the predicted values were tested against the actual values using RMSE (root mean square error) to check the accuracy of our model.

PS-I experience: My PS-I experience was very satisfactory. The industry and faculty mentors were very helpful throughout the internship. Even with all the delays, we were successfully able to present our completed final report on time.

Learning Outcome: In the course of the project, I was able to learn how to create a basic LSTM neural network model with the help of in-built libraries. I also learned how to handle large volumes of data, as the data that we collected spanned thousands of rows for each station. I was also able to gain industry level experience by interacting with my mentor. In the group discussions and seminar, I was able to learn about other students' projects and understand their approach to solving the problem at hand.

Name: MAYANK VERMA . (2020B3A70841P)

Student Write-up

PS-I Project Title: Time Series Analysis of Urbanization

Short Summary of work done: The ML algorithms that often perform well on remote sensing data, such as CART, Random Forest, SVM, etc., were researched and understood. Manual selection and division of the dataset into 70-30 portions. 30% of the data were utilized for validation, while 70% were used for training. Water bodies from the area of interest were removed to establish the four groups of Agriculture, Forest, Barren, and Urban. For each of the years 2000, 2008, 2010, 2014, 2018, 2020, and 2022, we tried to determine the day with the least amount of cloud cover for the first three months. This was done to prevent errors caused by cloud cover hazing up the image. For future use, the dates and the image IDs were written down. Additionally, we have begun by choosing the feature collection of the To train our algorithms and forecast the distribution on the satellite image, we used four classes: Agriculture, Forest, Soil/Barren Land, and Built-up. These months were spent maintaining consistency across all pictures. Our aim was to apply Random Forest, SVM, Cart, Naive Bayes, and Minimum Distance classifiers on the photos from each year and note their validation accuracy and Kappa value in order to create an accuracy matrix. The SVM classifier turned out to be the best at classifying after we used averages of the data for each classifier over the years to determine the optimal algorithm. The accuracy of various models was then noted down in order to undertake a comparative study, and the data was utilized for training on photos from the years 2000, 2008, 2010, 2014, 2018, 2020, and 2022. Afterwards we used SVM over all the images, noted the urban pixels for all years, and then performed regression analysis to predict the future growth of urbanization.

PS-I experience: Due to online mode of PS it took some time to get on board the IIRS but after that it was smooth sailing. Our alloted mentors were really helpful and the learning experience was very enriching.

Learning Outcome: Enhanced coding skills in Python, Javascript and got to learn a lot about Machine Learning and various basic ML models like Random Forest, Svm, Cart etc. dealing with remote sensing data. Also learned a lot about the satellites and satellite images used in the field of remote sensing and how to perform a temporal analysis of a region over a long period of time.

Name: KARTIK DANG . (2020B3A70880P)

Student Write-up

PS-I Project Title: SIMULATION OF BACKSCATTERING COEFFICIENT BASED ON INPUT PARAMETERS OF FOREST CANOPIES

Short Summary of work done: The goal of the study that was assigned to us was to determine the backscattering coefficient for forest canopies. The Michigan Microwave Canopy Scattering (MIMICS) Model was the one used for the same.
The work's primary focus was research because we had to study about the MIMICS model before beginning the work on the algorithm. Therefore, I would say that it involved both research and development work.

PS-I experience: Our study has a close connection to the research being conducted at IIRS. Our faculty mentor was very supportive and did his best to provide us with tasks in order to keep us well within the work and help in the implementation of the project given by the organization.

Learning Outcome: The largest benefit, in my opinion, was the improvement of my social abilities. I can definitely say that the evaluative elements, such as group discussions, report writing, and presentations, helped me enhance my soft skills as well. In addition, I discovered fundamentals and applications for remote sensing that I had never heard of before.

Name: Srijan Khatri (2020B4A70836P)

Student Write-up

PS-I Project Title: Simulation of Backscattering Coefficients based on Input parameters of Forest Canopies

Short Summary of work done: We were given the task to use the MIMICS model to simulate backscattering from forest canopies consisting of crown, trunk and ground layer, based on several given input parameters using SAR data from satellites. We implemented the model in Python and were able to calculate the required backscattering coefficients. We also had to create a function to take input from the user for the value of the different parameters and then run the program.

PS-I experience: While the project was really good, I felt a lot of communication gap at times between our group and our IIRS mentor, and the project was alloted to us very late which meant we spent the initial 2 weeks without any tangible work being done. However, our faculty mentor was helpful and the IIRS mentor explained the work needed to be done very well, which enabled us to get it done in time. Overall, it was an enriching experience.

Learning Outcome: I was able to learn in great depth about Synthetic Aperture Radar, its uses and radiative transfer theory. I also worked with several Python libraries which I had never used before.

Name: ARYAMAN CHAUHAN . (2020B5A72006P)

Student Write-up

PS-I Project Title: Detecting Brick Kilns in Satellite Image using CNN

Short Summary of work done: First, we understood the significance of detecting Brick Kilns, which allows removal and decrement of Bonded Labour. Then we started understanding the basics of Deep Learning, how they work, and their advantages, and limitations. Next we learned about CNN, and applied them using Tensor Flow, which is a Python Library. We learned various image detection techniques, and finally moved to YOLO. YOLO is a state of art CNN technique, and is called You Only Look Once. We successfully trained our model and were able to detect Brick Kilns. Next we deployed our model on TensorFlowLite, as a mobile application.

PS-I experience: The mentors are understanding, as well as forgiving, and give you plenty of time to complete the project. Mentor are regular regarding meets and provide a Formal environment.

Learning Outcome: Got to learn Python, Computer Vision, CNN, Deep Learning, YOLO, and application deployment.

PS-I station: Integra Design-Online - Real Time Analytics , New Delhi

Student

Name: BHAVYA BANSAL . (2020B3A71517G)

Student Write-up

PS-I Project Title: ANPR with Vehicle type detection

Short Summary of work done: The work initially included doing the required installations on our devices to learn first about object detection. The installation process was difficult but necessary for us to handle and learn about such hectic installations. We were given a dataset to try the object detection and then further extend this process for vehicle type detection.

PS-I experience: Personally, for me, PS-I was an astonishing experience, as not only it included to make our skills sharpened but also taught us to learn discipline in our work when working in an office space. The industry mentor for us was very good and active and was always ready to take up our challenges. Nonetheless, our PS-I instructor was also very active in his work as he regularly focused on our growth and also maintained track of our doings such as attendances, diaries, reports, group discussions and many more.

Learning Outcome: The only outcome I would like to point out is that I learned, and gathered knowledge during the process.

PS-I station: Integrated Active Monitoring Pvt Ltd (onsite) , Pune

Student

Name: GUNDAPANENI VARUN THIMMARAO . (2020B2A31968G)

Student Write-up

PS-I Project Title: Data analysis on RFID tags scanned for Inventory Management

Short Summary of work done: ANALYSIS OF DATA AND STRUCTURING OF ALGORITHM FOR PROCESSING THE DATA

OBTAINED FROM RFID TAGS SCANNED AND GETTING INSIGHTS FROM THE ABOVE
DATA FOR EFFICIENT INVENTORY MANAGEMENT

PS-I experience: It was really fun and enlightening this experience for not working for money but just for the betterment of ourselves and learning everyday continuously compounding to make me better and learned person overall.

Learning Outcome: I learnt a few soft skills like to work in a team, how are supposed to pitch our doubts and perspectives and how a company is run and its structure and a few technical skills like sql, postgresql, ms excel, metabase, databases and graffana.

Name: Akshat Sagar Saboo (2020B3A80709G)

Student Write-up

PS-I Project Title: IOT Energy Data Analysis

Short Summary of work done: I collected energy, temperature, visitor and AC data for a few stores of a retail clothing chain (client of the organization) from the database through queries and then performed analysis on this data. I further derived ratios from this data and other static data collected from the stores for which I was performing the analysis. These ratios were used to compare stores and see which of the stores were performing well and which ones were performing poorly. Finally, I also performed analysis on the electricity bills and found a way to save money on it, by reducing the contract demand of the stores and thus reducing the fixed charges.

PS-I experience: I had a really good experience at the organization. The employees here were really helpful and answered any and all doubts I had. I got to learn a lot and as it was an offline PS, also got a feel for the office life.

Learning Outcome: I learned the basics of SQL and Flux to help write queries to get the data. I also deepened my knowledge of Excel functions and data validation and also learned the basics of the Python programming language.

PS-I station: Jio Platforms Ltd. (1) , Mumbai

Student

Name: KOSTUBH . (2020A3PS0759P)

Student Write-up

PS-I Project Title: Data Engineering using bounding box method

Short Summary of work done: We have to create a project through which we can download google images in a single shot and then use it as a dataset for a Pre-trained ML model.

PS-I experience: It was a delightful experience in the Jio. Firstly, we were assigned the projects according to the preferences available (most of them were related to ML\DL). My project was associated with Data Engineering Field. It was a relatively new field for me. But I tried to learn and understand as much things as I could. The mentors were really helpful and they were always open for any doubt or suggestion regarding the project. Overall, I really liked my first internship experience and I learned many new skills during this tenure.

Learning Outcome: I learned web scraping, machine learning, object detecting algorithms and some essential skills like group communication, task allocation, etc.

Name: KOTALWAR NACHIKET DNYANESHWAR . (2020A7PS0024P)

Student Write-up

PS-I Project Title: MLOPS - Deploy a Deep Learning Model and develop a dashboard to monitor its performance

Short Summary of work done: We trained a BERT Model to classify toxic textual comments. We imported the model in Python and created an API with Flask to use the model online. We learnt the basics of Docker and packaged the model and the API in a container. The container was deployed on Heroku. We created a frontend using React

JS, Tailwind CSS which included an input to get prediction and a dashboard for to check the performance parameters of the model.

PS-I experience: I enjoyed the project, and both our faculty mentor as well as the industry mentor were very helpful. Apart from the work, I also enjoyed the group-discussion sessions.

Learning Outcome: I learnt the basics of how to save and import a trained model in Python, develop an API using Flask, and using docker to containerize the code and deploy.

Name: AKSHAT GUPTA . (2020A7PS0096P)

Student Write-up

PS-I Project Title: COMPUTER VISION: IMPROVEMENTS IN FACE SWAP

Short Summary of work done: Changes are being made to the existing face-swapping codes in the project. As a general rule, face-swapping has some limitations regarding the angle of the face and the orientation of the face. To ensure proper face-swapping, we included face frontalization, face realignment, face triangulation, and face blending, to create a satisfactory input image. The face-swapping process became more efficient this way.

PS-I experience: In general, I was satisfied with the experience. There was a very helpful faculty allotted to us, and they made every effort to clear any doubts we had. Additionally, the industry mentor was always present to explain our mistakes and how to correct them. We strived to satisfy the requirements by implementing and understanding these codes in Machine Learning with my team with whom I was working.

Learning Outcome: Having never worked with Machine Learning or Computer Vision before, I gained a valuable understanding from my project. Furthermore, I developed teamwork skills, leadership skills, and most importantly, I delved deeply into a small concept to better understand it.

Name: JATIN MANCHANDA . (2020A7PS0107G)

Student Write-up

PS-I Project Title: Text to Lip-Sync

Short Summary of work done: ● Our objective during the duration of PS-1 was to work with a pre-trained wave to lip sync model and create a pipeline around it such that a user can give a video and audio file as input and get a lip-synced video file as output.
● Along with this, we also intend to understand the working of this model. Specifically :
○ Its components
○ Integration with various tech stacks
○ The logic behind the working of the model

PS-I experience: Overall PS1 was a great experience specially since it included a lot more components like Group Discussions, Quizzes rather than just working on the project which was allocated to us. Plus the mentors were really helpful.

Learning Outcome: Technical -> Flask for API and frontend, various tech stacks involved in the NLP(Wav2Lip) model.
SoftSkills -> Improved teamwork, presentation skills.

Name: PRANAV GUPTA . (2020A7PS0128P)

Student Write-up

PS-I Project Title: Chatbot using Rasa

Short Summary of work done: The project was to create to a chatbot using rasa. The chatbot was designed for an insurance company. The chatbot can perform three basic tasks: file a new claim, check the claim status and provide information regarding various claims. Python was used to write custom code and csv files were used to store user data. The chatbot was integrated with a GUI.

PS-I experience: My PS-1 was a great learning experience. The project given was relevant to my field of interest. The industry mentor was knowledgeable and pointed us in the right direction whenever we were stuck. I got to interact with many people who have a similar interest to mine, sharpening my soft skills and widening my network. I got

a glimpse of what working in the IT sector is like.

Learning Outcome: I learned NLP, Python, Rasa and how to create chatbots using the same. Also I learned how to work as a team. The various group discussions improved my soft skills also.

Name: ANISH AGARWAL . (2020A7PS1313H)

Student Write-up

PS-I Project Title: Liy-sync

Short Summary of work done: Our objective during the duration of PS-1 was to work with a pretrained wave to lip sync model and create a pipeline around it such that a user can give a video and audio file as input and get a lip-synced video file as output.

PS-I experience: It was good, mentors helped a lot

Learning Outcome: Integration with various tech stacks , The logic behind the working of the model

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Name: HARY AHUJA . (2020A7PS1690P)

Student Write-up

PS-I Project Title: Chatbot using RASA

Short Summary of work done: The aim of this project was to create a chatbot using RASA framework and integrate it with a graphical user interface (GUI). The use case was decided to be a customer care chatbot for an insurance company which includes features like filing a new claim, checking status of the existing claim or giving quotes to users based on their requirements. We chose this as it provides a 24*7 service to the customers without having to go to the office and wait in queues just to check the status of their claim.

PS-I experience: The PS-1 programme was a very fruitful learning experience for me ans I have taken many valuable lessons from this opportunity. My industry mentors were most supportive and understanding throughout the project. Thanks to my extremely supportive mentors, I was able to discuss my progress very effectively with them. In spite of the challenges faced during the project, my mentors constantly guided and supported me to
overcome them with ingenious solutions. My faculty mentor streamlined the entire programme for each one of us and made the programme a comprehensive and holistic experience, with the project work interspersed with group discussions, quizzes and seminars. I am confident that the valuable learnings derived from the PS-1 programme will be highly fruitful in my future endeavours.

Learning Outcome: The technologies used in the project were completely new to me. I was able to learn the basics of python. It also helped in learning presentation skills and being able to finish work within deadlines. I understood the importance of coordination and teamwork

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Name: YASH KHANNA . (2020A7PS1713G)

Student Write-up

PS-I Project Title: Surveying Current Method Of Representation Learning For Image/Video Based Data

Short Summary of work done: In this project, we are surveying current methods of representation learning algorithms and their real-world applications for image and video based data. Various machine learning algorithms are referred to, which can be used to find patterns in data. An extensive literature survey has been conducted understanding the methods and its implementation in domains like robotics, smart homes and cities, etc. Several methods (k-means clustering and understanding the working of image embedding) are also implemented. Moreover, Representation Learning using Graphs, and Video and Image data is theoretically analyzed.
Our project group have analyzed and worked upon the implementation of several real world applications like Object Detection Algorithms and Audio Detection Algorithms. We referred to several research papers to understand and comprehend the methods demonstrated in them.
In all, this was a great experience to understand the implementation and working of several algorithms for several real life applications.

PS-I experience: Practice School is a great way to get introduced to the corporate world and understand its working and functionality. Application and Web Development, Machine Learning, and Finance being the fields of interest, the projects in Practice School will help me in learning the working in these fields. This includes understanding What all is needed?, How to start? and What projects to undertake?
This was a great experience to understand the implementation and working of several algorithms and real life applications. I got to know about how to work as a team, present your ideas and gradually develop my understanding towards several development projects.

Learning Outcome: I had several learning outcomes from this program. I got to learn about several development projects. Learn about algorithmic approach to implementing several real world applications. Being in the Machine Learning research department of the station, I got to know several
ML algorithms and projects. I got to learn how projects are presented and what all are required for completion of tasks and projects.

Name: RITVIK . (2020A7PS1723H)

Student Write-up

PS-I Project Title: Data Engineering: Web Scraping Data For Making Data For A Knowledge Graph

Short Summary of work done: In the initial week, we were given a form to fill our IT sub-domain preference (Frontend, ML, Data Engineering, MLOps, Computer Vision, NLP). I was allotted the Data Engineering project in a group of 3.
We were allotted a Mentor from the Industry, who explained to us the project details. We then started learning the libraries required for scraping data and finalized the data source. We scraped data from the three sources we finalized in the next two weeks.
We were then asked to proceed with finding ways to build a Knowledge Graph from the data. We found about a few different ways and decided to use the Neo4j platform as it had a simpler driver setup to work with the Python code. We also processed our scraped data and generated a similarity score between movies based on the criteria: Year of Release, Rating and Genre. Towards the end of the project, we also built a GUI platform to show the recommendation system. Apart from this, we also had various presentations, group discussions and report submissions.

PS-I experience: The experience was really good. The industry mentors were really supportive and helped us to learn new technologies and frameworks required for

completing the project by providing us with relevant resources. Also, the choice given to choose the sub-domain we are interested to work on was beneficial in aligning the project with our interests.

Learning Outcome: The project gave me an opportunity to learn different libraries of the Python programming language like Beautiful Soup, Selenium, Numpy, Pandas, Scikit-Learn, Tkinter, CSV, Dotenv etc. It also introduced us to the basics of Machine Learning techniques. During the project, we also got the opportunity to learn a new form of storing data in the form of Knowledge Graphs (working on the Neo4j platform) and a new type of query language, Cypher Query Language.
It also helped in learning and improving my presentation, communication and technical writing skills.

Name: DEV BANSAL . (2020A7PS2051H)

Student Write-up

PS-I Project Title: Chatbot

Short Summary of work done: Task was to build a chatbot using RASA framework and then integrating it with a GUI. We chose to implement a customer care chatbot for a hypothetical insurance company. Features of the bot included filing new claims, checking status of existing claims and giving customers information about different policies according to their requirement.

PS-I experience: It was a good experience.

Learning Outcome: Learnt about RASA framework and what goes into building a chatbot from scratch. Even used APIs for integrating the chatbot with GUI.

Name: MOKSH PAPNEJA . (2020A7PS2074H)

Student Write-up

PS-I Project Title: Bounding Box Object Detection

Short Summary of work done: Single -shot dataset download using Selenium combined with the Google Images API now on Github as open-source. Object detection and image classification using YOLO V7 (Released July 2022) Model. Using python libararies like Numpy, Pandas, MatPlotLib to train the bounding box algorithm. Inculcating and implementing deep learning principles using Python

PS-I experience: My experience with the company was quite fruitful,upto the last few meets also. Every meet involves us discussing a new way to solve our problems with implementation or research.

Learning Outcome: Learnt basic ML implementation.Learnt implementation of Yolo model for object detection. Improving web scarping skills using Selenium.

Name: SARTHAK GUPTA . (2020A8PS1821P)

Student Write-up

PS-I Project Title: Computer Vision- Improvements in Face Swap

Short Summary of work done: The project comprised of three sub parts:
1. Face Frontalization: The term "frontalization" refers to combining frontal facing views of faces appearing in one unrestrained photo. The process includes finding landmarks on the image, frontalizing and superimposing it, and applying soft symmetry so that it looks realistic.
2. Oriented face realignment(any degree rotation): In this case, the models are able to recognize facial images tilted at any angle. They do this by realigning the images to a normal form.
3. Performing triangulation and blending on swapped image: To use triangulation, face detectors are used to determine correspondences at key feature points, and a triangular mesh over these points is defined in both images, with each triangle warped independently between the source and target images.
In Image Blending, pixel values of two images are mixed to create a new image.
We were expected to get improved and efficient results of face swap and we successfully achieved that using the above techniques.

PS-I experience: It was a good experience as I got to learn about how a corporate company works and many other technical related stuff. Both industry and faculty mentors

were really good and ready to help in case of any doubt." PS-1 helped in improving my technical skills, presentation skills, communication skills and enhanced my knowledge about Computer Vision. Meeting new people from other campuses was a very nice feeling as well.

Learning Outcome: Apart from the experience of a corporate life, I learnt about the following tools and technologies: Python Language and its libraries such as OpenCV, Dlib, Pandas, NumPy, MatplotLib, SciPy. The project was very interesting and it was a great opportunity to learn about Computer Vision.

Name: SAKSHAM SINHA . (2020AAPS0421H)

Student Write-up

PS-I Project Title: Meting Summariser

Short Summary of work done: A program which when passed with an audio/video input will use the existing NLTK tools and work on that text to summarise it. Made software that can extract audio from a video or a meeting and then convert it to text and give a summary of it. SST is implemented via python API. The program can convert mp4 to mp3 and then mp3 to a text file. Made an algorithm that can shorten text by sorting sentences according to their importance.

PS-I experience: Worked on an NLP project that would add the feature of summarizing meets on Jio Meet. Implemented the feature of providing the minutes of the meeting. Implemented STT and then developed an extractive text shortening algorithm for the summary. Currently working on making a web app for the same. It was great and very productive.

Learning Outcome: Learned a lot of new technologies and had a taste of what its like to work for a corporate organisation.

Name: SAKSHAM SINHA . (2020AAPS0421H)

Student Write-up

PS-I Project Title: Meet Summariser

Short Summary of work done: Worked on an NLP project that would add the feature of summarizing meets on Jio Meet. Implemented the feature of providing the minutes of the meeting.
Implemented STT and then developed an extractive text shortening algorithm for the summary. Currently working on making a web app for the same.
Worked on an NLP project that would add the feature of summarizing meets on Jio Meet. Implemented the feature of providing the minutes of the meeting.
Implemented STT and then developed an extractive text shortening algorithm for the summary. Currently working on making a web app for the same.

PS-I experience: It was great and very informative.

Learning Outcome: I got to know how to effectively work in a team and explored a lot of new technologies.

Name: DEVANGI SHARMA . (2020B1A71942P)

Student Write-up

PS-I Project Title: web-scraping data for making data for a knowledge graph

Short Summary of work done: I have learned about what web-scraping is, what is a knowledge graph, why is it useful, and how many ways web-scraping can be done. The primary focus of this project for the week was to find the source available and learn more about how beautifulsoup works. I have also gone through the documentation and links Sri Ram Sir gave us. Apart from that, I am following some youtube channels to learn more about it. I am also looking into the sources provided by geeks for geeks, w3 schools, and other such sites as well as the official documentation. Apart from that, we have completed the web scraping for the IMDB website and made a CSV file. The code is working properly without any error. We are working on the rotten tomatoes now. Apart from this, I have read many articles on knowledge graph and trying to figure out how can we use our CSV files to make a knowledge graph and a recommendation system.

PS-I experience: As the weeks go by, the work gets more interesting and demanding, and there are more activities like group discussions, which are excellent for fostering communication skills and interpersonal connections. In the following weeks, I am incredibly forward to learning more.

Learning Outcome: We are currently working on how to extract the data from other sites and preprocess it. We will then try to make a knowledge graph as well as a movie recommendation system out of all the data scraped.

Name: MEHUL TAMBI . (2020B1A72382H)

Student Write-up

PS-I Project Title: Face Filters: Computer Vision

Short Summary of work done: In this project, the primary task is to set up and evaluate the available implementations and understand the processes, datasets, and implementation details while referring to research papers and articles relating to computer vision and the application of face filters. The project involves realistically changing facial attributes using generative adversarial networks or GANs. Our project first looks at the application of real-time face filters using face detection and face landmark identification. Then we look at ATTGAN, which is one of the implementations that combines a GAN with an encoder-decoder architecture which helps to achieve single/multiple attribute manipulation of images along with attribute intensity control and can be naturally extended for attribute style manipulation. Our experiments have been performed on the Celeb A HQ dataset with results showing realistic face attribute editing with facial details well preserved. Finally, STGAN is an implementation that addresses the problems in AttGAN and modifies AttGAN architecture to improve its image attribute manipulation ability. Our experiments on STGAN have been performed on the CelebA dataset with results showing improvement in the results over AttGAN.

PS-I experience: All my PSmates were of Computer Science Engineering who knew a lot more than me. This motivated me to learn and put my best effort in the project. Throughout the internship all my PSmates, my instructor and my mentor helped me in every possible way whenever I needed any help. The project provided me with the opportunity to learn a completely new technology and domain and language.

Learning Outcome: got industry exposure and learnt various new technologies

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Name: YASH AGARWAL . (2020B1AA2483H)

Student Write-up

PS-I Project Title: Adversarial Attacks via Facial Attribute Addition

Short Summary of work done: Applied facial attribute addition and manipulation to implement adversarial attacks on a CNN deep learning model, which initially had high accuracy, leading to a significant decrease in model accuracy. Multiple such attacks were performed using methods like FGSM and Grad-CAM.

PS-I experience: The experience was enriching. The entire station held about 50 students divided into groups of 30 and 20, managed by two different faculty mentors. I was in the Computer Vision domain. The projects were interesting, offering a lot of variety, and we were allowed to switch to a different project initially than what we were allotted. The project went smoothly. The industry mentor assigned to me guided me along the way.

Learning Outcome: The faculty mentor's tri-weekly section and bi-weekly personal meets improved my communication skills. We submitted project updates every 2-3 days to the industry mentor via JioChat. This led to us developing a work routine. Skills developed: Computer Vision, Deep Learning, Python, Adversarial Attacks

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Name: JUBIL N S . (2020B3A70691H)

Student Write-up

PS-I Project Title: Text to Lip Sync

Short Summary of work done: Our project was lip-synchronization, a combination of NLP and CV fields, which is the lip moment of humans, animated characters, etc., should match with the voice coming so that it seems like the person only is speaking what we are hearing. It is also unnecessary that the voice coming is said by that person. The sound can be expressed by some other person or can be computer-generated. So this removes the language barrier. We can tune the video to be played in several different languages,

giving the effect that the person only is saying whatever we are hearing. Lip-sync should be accurate and match the movement of what is being said.

PS-I experience: The time I've spent here working with my fellow BITSIANs and the mentors from the tech giant Jio Platforms was exciting and full of learning. As I was all new to the fields of NLP and CV both, the mentors did help me with every possible resource when I was stuck.

Learning Outcome: I learnt to use various APIs and ended up using Flask API. I read a ton of papers on Computer Vision and Natural language processing which indeed developed an interest in me about these fields.

Name: MEHTA SANYAM SANJAYKUMAR . (2020A3PS0443P)

Student Write-up

PS-I Project Title: MLOPS

Short Summary of work done: Our project was to predict whether a comment is toxic or not. Specifically we classifyied sentences in various categories of toxic and intoxic comments which are namely toxic, severe toxic,obscene, threat, insult and identity hate. Firstly We trained the model on our dataset. We then evaluated our model based on the various performance metrics like F1 score, accuracy, Recall, etc. and then fine tuned our model for improved accuracy. Further, we made an API with the ML Model for inferencing,enabling multiple versions and saving parameters. We also Created a dashboard to see live data and model performance metrics

PS-I experience: It was a great experience where we got to learn various new things and implement those, which enhances the learning experience.

Learning Outcome: Python, Machine Learning, Flask

Name: PRAKHAR GARG . (2020A3PS0468G)

Student Write-up

PS-I Project Title: Generic web interface for deep learning model

Short Summary of work done: We worked on making the front-end of our website. The main aim was to make a Generic web interface for deep learning model. We started by making a rough design of our web page on figma and got it approved by our company mentor. Then we searched for a deep learning model that was needed to be integrated. I specifically worked on the react part of the code.

PS-I experience: It was a great learning experience where I got to learn a new software and a lot about my project domain. I received valuable inputs from both our project mentor and our faculty mentor which helped me in learning new things and aided me in the completion of the project. also developed various soft skills which surely help me in my pursuits.

Learning Outcome: I got to learn about javaScript, react and figma and how to apply these to make a working web-interface. I also developed various critical soft skills.

Name: AKSHAY KESHWANI . (2020A3PS0575G)

Student Write-up

PS-I Project Title: Web Interface to serve Data Visualization

Short Summary of work done: We had to create a web interface that would be able to generate various graphs and chart based on csv file uploaded by the user.
The graphs had to be interactive for the user to see the changes based on different parameters. We also had to store previous visualizations and files that can be accessible to the user.

PS-I experience: The PS faculty as well as industry mentors were amazing and I learned a lot. My overall experience was good.

Learning Outcome: Teamwork, Learnt about Jio and how they work.

Name: ARYAN AGRAWAL . (2020A3PS1548P)

Student Write-up

PS-I Project Title: 1. Develop a generic web interface for a deep learning model. 2. The website should take input in the form of JSON objects. 3. Ensure that the output is displayed as text, image, or video/audio depending on the model output

Short Summary of work done: the work mainly consists of Frontend Development part , so basically we made a website using HTML , CSS, bootstrap , Javascript , DOM & React . In which we used pretrained models from tensorflow to our site by importing it , models were image classification and text to speech conversion model , we also created a tab to switch between these 2 models .
It was basically based on what output we obtain if we give input like text , json or image .

PS-I experience: It was good and also our faculty member also gave us some helpful points about how to go for a GD or an Interview

Learning Outcome: Frontend

Name: ANURAG BACHCHU SARKAR . (2020A3PS2117H)

Student Write-up

PS-I Project Title: Improvements in Face Swap

Short Summary of work done: The objective was bringing improvements to face swap technology for unconstrained images, by using concepts of Machine Learning and Computer Vision and converting it into a far simpler problem of implementation on constrained images. Our main work included studying, analyzing and implementing methods like Facial Recognition, Face Frontalization and Oriented Face Realignment. It was less of actually coding and developing the models, instead it was more of researching and studying existing models, setting them up individually and then finally finding ways to to make them all work together. Finally, integrating them so that the final program included

all of the improvements and gave a better result as compared to the original face swap code.

PS-I experience: It was an enriching experience. I got to collaborate with a team of highly motivated BITSians who were ready to learn, since Computer Vision was a new topic for all of us. We also worked closely with our industry mentor, who was really helpful and guided us whenever we had problems, and also helped us push our boundaries in this domain.

Learning Outcome: On the technical side of things, I got to learn the basics of computer vision and explore fields of machine learning. I now also have a good understanding of working with python, as I was a beginner earlier.
Other than that, working with a group of people in a corporate environment was also a learning experience. I also got the opportunity to sharpen my presentation and communications skills.

Name: TENDULKAR ANIKET MINESH . (2020A7PS0001G)

Student Write-up

PS-I Project Title: Face Filter Applications in Computer Vision

Short Summary of work done: My project was based upon the application of face filters for realistic editing of face attributes. It involved researching about various algorithms for face detection and facial landmark detection. We were required to read research papers on algorithms like Haar Cascade and Histogram of Gradients, and application in face detection. The second part of the project involved learning about face attribute transfer using Generative Adversarial Networks. We looked at a few implementations and learnt about loss functions and then implemented two GAN based face filters for realistic editing. We also tested them on our own images and learnt the overall implementation details of GAN - based feature transfer.

PS-I experience: Overall the PS-I experience was enjoyable. Though it would have been better to interact in person, the industry mentors were quite helpful to guide us when required. Though at times, communicating the issues faced were difficult. The whole area was new to us and we required time to grasp the concepts initially, but later it was fun learning about neural networks and visualizing the expected results was also a nice experience. It would have better if the problem statement was more clear, but we were ultimately able to implement and test what was required of us.

Learning Outcome: I learnt a lot about Computer Vision applications and algorithms. Theoretically, it was a good learning experience about Generative Adversarial Networks(GANs) and their applications in face attribute transfer. I was able to understand the implementation and architecture of these neural networks and their loss functions. We were also able to study many research papers in this area. Coming to the skills, I worked with Python, TensorFlow, OpenCV and Conda. Also the soft - skills learnt were useful during the group discussions and the seminars. Overall, the industry exposure and the internship experience was wholesome and enjoyable.

Name: SAI PRASANNA PANDA . (2020A7PS0080H)

Student Write-up

PS-I Project Title: Surveying current methods for question generation using transformers

Short Summary of work done: We worked as a team of three. We reviewed several papers transformer models and automatic question generation. We used three pre-trained transformer models (T5, BERT2BERT and T5 QG with BERT QE) to generate questions on a context sourced from a popular question answering dataset (FairytaleQA), and evaluated them using two commonly used evaluation metrics (BLEU and METEOR scores). Finally, we generated relevant statistics from the scores and compared the performance of the three models. Colab notebooks can be found here: https://github.com/nullmight/question-generation-using-transformers

PS-I experience: Our industry mentor had regular meets with us to guide us and gave valuable inputs. Our faculty mentor took regular updates along with the evaluations. Overall, it was a decent learning experience although it was different from what I had in mind in the beginning.

Learning Outcome: I learned about the transformer model, automatic question generation, popular question answering datasets and evaluation metrics for generated text. I also learned how to use Hugging Face's transformer library to use a pre-trained model and how to evaluate generated text using NLTK.

Name: ROHAN SRINIVASAN . (2020A7PS0081P)

Student Write-up

PS-I Project Title: A Survey of Question Generation Methods using Transformers

Short Summary of work done: We surveyed the different methods of question generation, read research papers of the SOTA models and looked at their open source implementations. We explored the evaluation metrics, the transformer architecture and the challenges faced by the models. We ran and compared some pre-trained models.

PS-I experience: Since ours was a research project, we did not implement anything new, but rather surveyed the existing models and papers. Our mentor was helpful and was always ready to guide us with searching for quality papers, running our implementations, learning skills like latex which we might not have explored otherwise.

Learning Outcome: Surveying methodology, LaTeX, NLP models, NLG metrics, etc..

Name: VENKAT ROHITH PAMARTI . (2020A7PS0100H)

Student Write-up

PS-I Project Title: Adversarial Attack

Short Summary of work done: I explored the domain of Computer vision which was pretty new to me. Initially, we trained a CNN (Convolution Neural Network) using 17,000 face images with 105 different classes. The model which we used was MobileNetV2 using imagenet weights. Later we performed FGSM-based adversarial attacks on the model where the model misclassified the face and by then half of our work was done.
Later we used Grad-CAM to give a visual explanation of our model and highlighted the important regions of the face. Then using the important regions of the face I did facial attribute added to a face where the model misclassified the face. We used the following libraries: NumPy, OpenCV, Keras, Tensorflow, Dlib, etc.
Learnings: Got to know the concept of Deep Learning and Machine Learning. Also, I explored a variety of libraries in python. Got to know about face recognition, training of model.
An important aspect that I've learned is how the model is prone to adversarial attacks and how to perform them.

PS-I experience: It was great. I loved working with Jio. All the mentors were good.

Learning Outcome: Explored new concepts like Computer vision and Adversarial attacks on the models. Learned about Deep Learning and Machine Learning.

Name: ASHWIN ARUN . (2020A7PS1291H)

Student Write-up

PS-I Project Title: Data Visualization Server using Flask and ReactJS

Short Summary of work done: Make a generic web interface to serve data visualization based on uploaded csv files.
1) Make a visualization server in python
2) Make the web interface interactive
3) Store previous visualization accessible as a history.
This was the problem statement shared to us by our mentors. Our team decided to implement the backend for the project using Flask, and the frontend using ReactJS.
Users have the option of uploading files to the server, which would be stored in a Firebase storage. The server supports the following plots - Scatter Plot, Box Plot, Bean Plot, Line Chart, Pie Chart, Stacked Area Chart, Percent Area Chart, Candlestick Chart, Radar Chart, and Bar Graphs - on the requested axes. These plots are generated on the client side, hence making the plots more interactive. Users can also see the files uploaded previously as a history.

PS-I experience: It was a good learning experience. The mentors were very supportive, clarifying all our doubts related to the implementation, and giving us valuable insights.

Learning Outcome: I learnt how to create REST APIs in Flask and how to integrate Flask with Firebase.

Name: P V S TARAK SHREE VALLABHA . (2020A7PS1513P)

Student Write-up

PS-I Project Title: Face Filters in Computer Vision

Short Summary of work done: Our task was to apply face filters, i.e., filters such as moustache, beard, eyeglasses, etc. on input frames containing faces while taking care of the 3D aspects. We performed facial attribute transfer using Generative Adversarial Networks(GANs) for realistic facial attribute editing.

PS-I experience: PS-I gave me an experience of what it is like to actually work in a company. Apart from improving my technical skills, PS-I has taught me how to be a team player and has boosted my confidence to pursue my goals and dreams.

Learning Outcome: Starting from the basics of Machine learning, I was able to learn about how deep learning and computer vision works. I learned about various machine learning models used in face filters. Apart from gaining technical skills and experience, I also learnt how to be a team player.

Name: DARSHAN ASHOK CHANDAK (2020A7PS2085H)

Student Write-up

PS-I Project Title: Web-scraping data for making data for a knowledge graph

Short Summary of work done: Our objective was to do a project to scrape data from various websites to create a data set for the Knowledge Graph that is used as the source of data for the Movie Recommendation System.
We Web Scraped data from three target websites, pre-processed it, and stored it in CSV file format. Then processed the data to feed into a Graph Data Platform called Neo4j to build a Knowledge Graph, Analyzed the Knowledge Graph, and used the result to create a basic GUI for Movie Recommender that gives us top five similar movies to a given movie input.

PS-I experience: My PS-1 experience was quite nice. It helped me learn and explore a lot about the various fields in Data Engineering / Data Science. And it also helped me gain some industry exposure. It helped me in understanding the working of the industry and its needs.

Learning Outcome: I got to learn about various libraries of python: BeautifulSoup, Tkinter, etc. Learned about handling and storing data in CSV files. I also learned about Knowledge Graph and the Basics of Cypher Query Language. I also learned about the Graph Data Platform Neo4j and its database connectivity.
Other than this, PS-1 helped me develop soft skills like Communication and Reasoning through Group Discussions, Writing formal technical reports through report submissions, and delivering a good presentation through the presentations that we had throughout the course.

Name: HARSHIT BANSAL . (2020A8PS1455G)

Student Write-up

PS-I Project Title: USING DOCKER FOR DL MODELS

Short Summary of work done: In this project, we selected a Deep Learning model capable of Question answering purposes. This model was processed and worked upon to make it suitable for our needs in google collab. An API was built around this model to use it using Flask. This API was finally dockerised to use the docker image for further deployment purposes. This API was then integrated with Rabbitmq queues, to make the API more efficient. Lastly, the dockerized flask API is deployed into Kubernetes.

PS-I experience: It was a wonderful experience for me. I got to learn a lot in these two months under constant guidance of our industry mentor. We were a group of four students and were allotted tasks right at the beginning. Faculty mentors and the industry mentor took regular reports of our learnings and helped wherever required.

Learning Outcome: I have learned to make basic flask applications, using Docker to containerize the app, and deployment using Kubernetes

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Name: KAUSTUBH MISHRA . (2020A8PS1558P)

Student Write-up

PS-I Project Title: Create a RASA chatbot and integrate it into a sample widget to chat in a GUI.

Short Summary of work done: We created a chatbot using the RASA framework. We were free to decide on the use-case so we decided on an insurance company virtual assistant. We learnt about the RASA framework and the various aspects of NLP and NLU. We also learnt python as it was required to implement the custom actions for the chatbot. We learnt about various spaCy models and pipelines which were utilized in entity recognition. We also learnt about python libraries which we implemented in our custom code. We worked with csv files as our database. We also learnt frontend development which we used when we integrated our chatbot into the widget to chat in a GUI.

PS-I experience: My PS1 was a huge learning experience for me. My experience with the industry was very satisfying and I learnt how to work with a team. My industry and faculty mentors were present to guide us throughout the project, however small our queries may be. My team was also very helpful and we worked together to finish our project, each of us having our specialized tasks. I also learnt how to work in a corporate setting with regular update meets and reviews with the mentors.

Learning Outcome: The project assigned to me allowed me to learnt about Natural Language Processing and various Python models and pipelines. I gained a peek into how Machine Learning works and how meaningful messages can be extracted from a user's message. I learnt about the RASA framework and how to work in a virtual environment with Python.

Name: SHAURYA GARG . (2020A8PS2215H)

Student Write-up

PS-I Project Title: Make a meeting summariser using STT and NLP algorithms

Short Summary of work done: We built a website using ReactJS that transcribes audio and displays the transcription on the web page. We used AssemblyAI API for transcription. I learnt how to work with REST APIs in both python and javascript while working. Then we explored deep learning and NLP algorithms like extractive and abstractive summarisation. We programmed these algorithms and achieved high-accuracy summaries of the transcriptions.

PS-I experience: The experience of working for such a prestigious company was genuinely remarkable. It gave me a glimpse of how exciting working in the industry can be. The assigned assignment was incredibly intriguing because it sparked my curiosity at every point. This inspired me to delver further into every topic.

Learning Outcome: I learnt about Deep Learning and NLP models and their algorithms. I also learnt the basics of Web Development, including Javascript, ReactJS and REST APIs. I also explored Firebase and cloud storage.

Name: SHIVANSH SHUKLA . (2020AAPS0378H)

Student Write-up

PS-I Project Title: MLOps with Docker, RabbitMQ and Kubernetes

Short Summary of work done: Chose and trained a deep learning BERT model. Created an API around this model using Flask and a couple of very simple webpages to ask a question and get the answer. Integrated this web app with RabbitMQ, Docker and Kubernetes.

PS-I experience: Industry mentors were really nice and helpful throughout the entire duration, there were no hard and fast deadlines, plenty of room to take things at your own pace and learn.

Learning Outcome: Learnt general concepts of MLOps.

Name: DEBANSHU MISHRA . (2020AAPS1051G)

Student Write-up

PS-I Project Title: Web interface for a deep learning model

Short Summary of work done: Our team was given the task of developing a generic web interface for a deep learning model that takes in input in the form of Json objects and the output should be printed if it is text, displayed if it is an image or embedd audio/video player if the output is audio/video. While working on the project I learnt how to create create single display webpages using react and designing them using Css. I also learnt bootstrap which helps make the site responsive as well as javascript that makes your site functional. We created a web interface for an image classification and a text-to-speech model.
The image classification model took one input as image and gave the category of the image as the output. The text-to-speech model took input in the form of text and converted it to speech. Depending on the requirement of the user the model can be selected from a drop down menu. This web interface can be scaled and reproduced further for adding other models to it in the future.

PS-I experience: I had an enriching experience while working on this project. I got to learn a lot about front-end development. Our mentors and faculty were very helpful throughout the internship. It also helped me improve my communication skills by participating in group discussions and giving presentations.

Learning Outcome: I got to learn all the basics of front-end development. Apart from that I learnt to maintain my work-life balance. While working on the project I realised the value of team work. I was also able to work on my communication skills through group discussions and presentations.

Name: SUMIT AGARWAL (2020AAPS2109H)

Student Write-up

PS-I Project Title: Improvement in face swap

Short Summary of work done: Our project aims to enhance the existing face-swapping code . We did this by introducing face frontalization, face alignment, triangulation, and blending on unconstrained images . We used python and its libraries like Opencv, dlib , matplotlib, numpy, urlib and time.

PS-I experience: I had an excellent experience working with JIO. Having industry mentors with a wide range of expertise and knowledge was a great advantage. Work was not too hectic. We were given choices of the domain in which we wanted to work on. We were asked to provide our preferences among topics like MLOPs, NLP, Front End,

Research, and Data Engineering. Although our PS station was online, we didn't get any hands-on experience, but the overall experience was good. The PS1 was lite as usual.

Learning Outcome: I got to learn about computer vision and artificial intelligence. I also learned a lot about python libraries and their applications in computer vision. I got to to learn leadership skills and teamwork and got an wonderful experience working with an industry .

Name: PRIYAN HEMIL MODY . (2020B3AA1964P)

Student Write-up

PS-I Project Title: Adversarial Attacks via Facial Attribute Addition

Short Summary of work done: I explored the domains of computer vision and deep learning. I was successfully able to train a MobileNetV2 CNN (Convoluted Neural Network) Model on the Pins Face Recognition Dataset (collection of 17534 celebrity faces of 105 different celebrities) using imagenet weights. The model performed with 88% accuracy. Thus, the model was ready to undergo Adversarial Attacks based on FGSM (Fast Gradient Sign Method). Later, Grad-CAM (Gradient Weighted Class Activation Mapping) was implemented which darkened or hid the most crucial parts of the face. At last, Facial Attribute Addition was implemented using Dlib's 68-point facial landmark detector. An attribute in the form of a small colored cover was added to specific parts of the face. Significant misclassification results were observed due to FGSM, Grad-CAM and Facial Attribute Addition.

PS-I experience: PS-1 at Jio Platforms was my first official internship. It was an essential and primary experience to work in a professional environment. The industry mentors and Faculty in charge were extremely helpful in creating a good work environment, providing quick solutions to the problems encountered, providing essential resources for learning purposes and so on. My colleagues in the Computer Vision team were extremely motivated individuals which increased my passion and zeal for the completion of the project.

Learning Outcome: Extended my basic machine learning knowledge to explore deep learning and computer vision. Learnt new aspects of python programming (tensorflow, keras, scikitlearn, opencv, numpy, matplotlib, tqdm). Apart from the technical or computer science (ML/AI) aspects, learnt about the proper preparation and conduction of Presentations in a professional environment and also the preparation and submission of work reports.

PS-I station: Kerala Infrastructure and Technogy for Education , Thiruvananthapuram

Student

Name: AGRAWAL RACHIT MOHIT . (2020A7PS0033P)

Student Write-up

PS-I Project Title: Language Lab Platform

Short Summary of work done: I was allotted a web development project. Language Lab is a platform which has a number of modules which aid in development of English for the students of primary standards. There are games like crosswords, sentence makers, dictation ,etc. We were assigned to make a new module to add on this platform. The new module we were asked to make was jumbled words module.

PS-I experience: I had a great PS experience. I learned how do we work in a real world scenario where we need to make a real working website. I got to know how to companies work an the kind of communication involved. I had a great experience in managing of a few hectic work days when there where hard deadlines to be met.

Learning Outcome: I learned completely new technical skills when I learned how to work with Python flask. I also improved my working with MySQL. In terms of soft skills I improved my communication skills in a professional setup. It was also a great experience to work in a group with a group of completely unknown people. Overall this 7 week period has been a great learning experience for me.

PS-I station: Knowcross - Non Tech , New Delhi

Student

Name: SIDDHARTH SUDARSHAN SATHE . (2020A1PS1713P)

Student Write-up

PS-I Project Title: Competitive Benchmarking of Workforce Management Products in Asia

Short Summary of work done: The project was based on Competitive Benchmarking of various industry leading projects in the Maintenance software industry. The latest and flagship product of Knowcross Maintenance organizes all engineering responsibilities thus helping with better reporting and analysis. We chose 5 industry leaders - Alice, Transcendent.ai, Hotel-Kit, Hub-OS and Flex-keeping for the competitor analysis
We based are parameters on industry relevant factors such as - Features and Products offered by the individual competitors. We also did a SWOT analysis of the 5 companies to understand their potential, strengths and weaknesses

PS-I experience: The work started out with 2 initial - introductory meets with the HR, and the founder of Knowcross where we got to know about the functioning and about the company. Additionally about its acquisition by Unifocus. In the course of the project, the Product Manager lead us through understanding about Competititve Benchmarking and how to conduct the approporiate analysis.

Learning Outcome: I learnt the skills required to create a Competitive Benchmarking report - Feature/Product comparison, Analyzing strategies for various companies, and understanding the company perspective and visions

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Name: Aaditya Raghavan (2020A3PS1251G)

Student Write-up

PS-I Project Title: Categorisation and Updation of Leads Database, Email Validation and Company categorisation

Short Summary of work done: Forming an excel database consisting of contact details of employees of different hotel chains for marketing purposes - name, designation, hotel and professional email ids. Finding email formats for different hotel chains and validating

the same to find the respective email ids. Updating contact details for those who have invalid professional email ids for different reasons. Classifying a list of companies into different categories.

PS-I experience: Good experience overall- good exposure to how marketing works in the Hospitality sector. The projects were indulging and not too heavy either.

Learning Outcome: No project will have 100% accuracy- especially in my case, where an accuracy of 60% was considered excellent.

Name: ARYANSH TIWARI . (2020B2A31577G)

Student Write-up

PS-I Project Title: Competitive Benchmarking Of Workforce Management Products In Asia

Short Summary of work done: We were briefed on how the hospitality industry functioned and came up with parameters that govern it's advancement. Found a list of competitors and compared them with Knowcross, based on the above mentioned parameters. After that each of.us was alloted one company (HotSOS - Amadeus in my case) to compare on the basis of predetermined parameters given by the project manager. Did research on the same and verified it with Knowcross analysts.

PS-I experience: It was my first experience with working in the industry and turned out to be quite educative. The professionalism was new to me and made me realise I'm a part of something bigger.

Learning Outcome: Got to learn what parameters govern the growth of a company in the hospitality industry and what steps a company can take to work more efficiently and grow steadily.

Name: SHIVANG JANI . (2020B2A32449H)

Student Write-up

PS-I Project Title: Categorization and Updation of Leads Data Base

Short Summary of work done: filled in Excel sheets and helped the company to find out LinkedIn profiles and emails of relevant people in the hospitality industry

PS-I experience: approached PS1 from a different perspective , being someone who is more interested towards tech , this made me aware towards the other side of the work

Learning Outcome: different brands that come under big hotel chains like IHG , Hyatt , Hilton , Marriott etc

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PS-I station: Knowzies Technology Solutions (onsite) , Pune

Student

Name: AKSHIT RATHI . (2020A7PS2045H)

Student Write-up

PS-I Project Title: Developing an Effective Business Model taking into consideration all part of it. Be it Finance, tech, operations, sales, HR, marketing.

Short Summary of work done: We worked with Different departments altogether. In the first week, we worked with the sales department, then HR department, marketing department, IT department, Delivery Department, Operation department, and Finance department. We were given various research projects to search for in E-Learning Industry. We researched for Statistics, current trends, growth in the sector, coming 10 years down the line what will be the market cap of this industry! We worked closely with sales department helping them do the lead generation process. We also created many excel sheets for the effective management of finances of the company. We also learned about the Cashflow cycle of a company, about employee life cycle, debit and credit, management of the database.

PS-I experience: The experience was really awesome I must say that! The people are so enthusiastic and they always treated us like a family altogether! Being closely in touch with all of them, we learned lot of things from them like effective sales process, time

management, some parts of career counselling too, about general life also, etc. I would really highly be interested in working in this company in future !

Learning Outcome: We learned many things. We learned about Laravel, PHP, Angular JS, etc. Apart from these things we learned about sales, its techniques, its effective lead generation process, market research, HR recruitment process, employee life cycle, Gratuity, TDS, Income tax, Emotion Management in general life and professional life too, leadership, communication skills, team management, general finances of a company, making balance sheet, debit and credit. At the end made a Life Long Relationship with the Employees of Knowzies!!

PS-I station: L & T Infotech , Mumbai

Student

Name: TUMU AKSHAR . (2020A7PS0003H)

Student Write-up

PS-I Project Title: Developing the Application Portfolio Rationalization Tool

Short Summary of work done: This project demonstrates an Application Portfolio Rationalization (APR) tool using technologies like Microsoft SharePoint, Power Apps, and Power Automate. The user provides the information on the applications in their portfolio by selecting the descriptions for various business, technical, and other supporting parameters that best describe their applications. The APR tool then analyzes the business and technical fitment of the applications by calculating Business and Technical Indices for each application and suggests whether to retain, revitalize, replace, or retire them. We created the required lists in SharePoint to store the application data entered by the user, store the descriptions and ratings associated with individual parameters, and also to store the weightages of the selected parameters that go into calculating various indices. We also created the User Interface using Power Apps to take the inputs from the user and validate the entered data. The user can either enter the data of a new application or modify the data of the existing applications through this user interface. Then we connected SharePoint lists with the Power Apps to store the data entered through the User Interface in the created lists.

PS-I experience: The PS1 experience was my first Industry experience. It introduced me to the working environment of an IT organization and helped me develop some industry

specific technical and soft skills that will be useful in my future endeavours. The reporting managers at my PS Station were very welcoming and helped us settle in the environment. They were very approachable and constantly lent us support during the course of the project at LTI.

Learning Outcome: I learnt how to create business application with the help of the ready-to-use application development technologies like Microsoft SharePoint, Power Apps and Power Automate. I also the soft skills like Team-coordination, creative writing, business communication etc. through the various group discussions, seminars and report writing sessions conducted during the course of PS1.

Name: DIVAKARLA VENKATA SASANKA (2020A7PS0005H)

Student Write-up

PS-I Project Title: ML Based Automatic System Integration Attribute Mapper

Short Summary of work done: Work Done in My PS-I includes.
Using Machine Learning Semantic Search, An Automatic Mapping has to be generated between a source file and a Target File.
The Source File or the Target File can either be a JSON or an XML file
The Mapping between the Source and Target file is done based on a Logical Key that can be generated through Semantic Search or a Custom Logic File
After generating the Mapping Between Source and Target File, we need to transfer the data between Source and Target Files
All the above functionalities are done using Python Programming and importing necessary libraries like NumPy, Pandas, and Modules on JSON and XML files like jsonpath_ng, etree, and Element Tree Libraries; for Semantic Search, we used Sentence Transformer Libraries. To Transfer Data, the Source file is parsed, values stored at the end of the paths are stored, and the Matched Target Path value is replaced by the corresponding Source Path Value.
Hence we can integrate them based on the Mapping.
System Integration on a ground level is all about mapping Attributes. System Integration is done using REST and SOAP API, where Integration involves mapping the various fields of the API
The Mapping Needs to be Automated since this will require a lot of time and staff

PS-I experience: I had a good time in my PS-I Station LTI, I have improved my coding a lot and learnt using python very proficiently

Learning Outcome: I learnt ways to read JSON, XML Files, Write into XML Files, and Deploy Machine Learning Algorithms to manipulate the data transfer

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Name: MANAN MAYUR POPAT . (2020A7PS0029H)

Student Write-up

PS-I Project Title: Spectra

Short Summary of work done: I worked with the Spectra team (earlier known as Mosaic Decisions), one of LTI's products and known to be a comprehensive DataOps platform built to manage and create interdependent, complex, and varied workloads. It is meant to be an all-in-one data processing and distribution platform developed specifically to fulfil the modern-day data handling needs of businesses. In the first month, we had KT (training) sessions which included a product walkthrough, understanding the UI and working of the platform, codebase and frameworks/ technologies used to build it, etc. The second month was dedicated to volume (stress) testing and regression. This covered creating varied level flows, connections and parameters for execution and testing the robustness on different sizes of datasets, and verifying the functionalities on new softwares.

PS-I experience: Software testing is an important skill for any SDE. It includes discovering defects/bugs before the delivery to the client, which guarantees the quality of the software. It makes the software more reliable and easy to use. Thoroughly tested software ensures reliable and high-performance software operation. Through volume and regression testing on the Spectra platform, I have experienced its various nuances and challenges, and tackled them with the help of guidance of the industry mentors.

Learning Outcome: In technical aspects, I gained practical exposure to web development, data analysis, Excel skills and SQL. Moreover, I learnt how to configure global and local parameters, got to know about data-processing flows and DAG engine, dependencies and tasks, and also had hands-on with operations and scheduling of workflows.
Speaking of the soft skills, I realized the importance of clear communication, time management, teamwork and confidence. I gained leadership qualities, critical thinking & problem-solving ability, decision-making skills, work ethics, and came up with initiatives to work on and improve. ability to work under pressure.

Name: SRIKANT TANGIRALA . (2020A7PS0055H)

Student Write-up

PS-I Project Title: Spectra (part of L&T's FOSFOR Product Suite)

Short Summary of work done: Spectra is a comprehensive DataOps platform, meant to be an all-in-one data processing and distribution platform developed specifically to fulfill the modern-day data handling needs of businesses, with minimal code-user interaction and IT intervention which saves on human and capital resources.
I was mainly involved in the QA team for Spectra, which is responsible for testing all functional data-handling components of the software, to ensure that newly made changes to the codebase hasn't adversely affected them. We also had to create flows, basically data transformation flows from source to destination modelled as directed acyclic graphs, which tested the functionality of various data connector and processing nodes.

PS-I experience: Overall, the work involved in QA was pretty simple once we got the hang of how Spectra worked; this was ideal for me as I had to prepare for the SI drive and had an ongoing project under a professor. The industry mentors and engineers were quite helpful and responded in time to any doubts we had and helped us get to terms with the product quickly.

Learning Outcome: The initial KT sessions and subsequent work on the platform were a good chance to brush up on the concepts of database management and writing SQL queries; we also had access to a handful of datasets for doing Exploratory Data Analysis (EDA).
In the course of my work in QA, we had to stress test various data processor nodes in various conditions with different available parameters; this is a useful skill transferrable to debugging codebases, when various unit tests are used to diagnose faulty code snippets.
I also routinely handled instances of various relational and non-relational database management systems like MySQL, PostGres, MongoDB, Azure, Amazon S3, etc. and gained insights into how data is structured within them.
During the meetings held every 3-4 days with our mentors, we developed important soft skills including communication, teamwork, time management, ability to work under pressure, etc.

Name: SAMANDEEP SINGH . (2020A7PS0065H)

Student Write-up

PS-I Project Title: Data Analysis and Business Intelligence using Power BI

Short Summary of work done: My work included collecting data and analyzing the key performance indicators and then preprocess the data and finally make reports on Power BI to analyze and visualize how the business/ venture works and where can we improve.

PS-I experience: It was a good experience, I'd say. I got know how things works in corporate life.

Learning Outcome: I learnt how things work in big companies like L&T Infotech. It's you who have to take the task from the organization and do the task.

Name: VIBHUM RAJ TRIPATHI . (2020A7PS0247H)

Student Write-up

PS-I Project Title: Spectra

Short Summary of work done: I worked on a data ingestion and automation platform being developed by LTI as part of their Fosfor product suite. I worked as part of two teams namely Regression and Volume Testing. As part of Volume Testing team I was responsible for stress testing the data handling capabilities of the software by using/creating datasets of varying sizes and compositions. The datasets were first created and then stored on cloud storage services like Azure and then pulled accordingly. Regression Testing entailed testing and ensuring that the features of the software weren't compromised after updating the codebase. Most of my work included creating flows, which are nothing but a visual DAG representation of the processes and operations needed to be carried out and then executing them in sequence. In the process I needed to create massive datasets as well in cases where I didn't already have a readily available one, I also got to work with a spectrum of supported file types.

PS-I experience: The people at LTI were very welcoming and helpful. We had regular meets and interactions where I reported my progress and made any important clarifications. The workload was manageable for the most part, with the exception of a few days. I had biweekly meets with my mentors/managers, and daily meets with the

leads. Where the progress and bugs found along the way were reported, and our tasks were assigned and subdivided. The environment at LTI was quite healthy and productive depicted by the fact that we had some fun game night sessions along the way where the entire team of about fifty people participated.

Learning Outcome: I got to interact with a lot of people, which helped me get a real glimpse at the inner workings of an IT company. The experience enhanced my communication and cooperative skills. I got to learn the difficulties and challenges associated with building and maintaining such a large scale product. I also got familiarized with the cloud storage services like Azure or Amazon S3 which the platform made use of. There was also a heavy usage of SQL and other DBMS concepts along the way.

Name: KALLEPALLI ANISH KUMAR . (2020A7PS0282H)

Student Write-up

PS-I Project Title: Power BI

Short Summary of work done: We first explored different datasets and how to use them to organize the data. We learned simple DAX language for managing the tables in the data. We explored how to make dashboards and how to share them among our team members. We learned about the multiple visualization options such as maps, combination charts, tables, etc, that are available in Power BI and how to use them and customize them.We also saw how to integrate excel with our report for exploring more possibilities. We also learned how to use Power BI and the associated services to publish dashboards, datasets, reports to the required software platform.

PS-I experience: Our project at LTI is technical in nature. The project was aimed at using Power BI to analyse and model the data from a real client to a pictorial form, using multiple services provided by Power BI.

Learning Outcome: Power BI and its applications

Name: MAHAJAN MANALI SAMEER . (2020A7PS1012G)

Student Write-up

PS-I Project Title: Application Portfolio Rationalization Tool

Short Summary of work done: Created an Application Portfolio Rationalization (APR) Tool. Users can provide information
about the applications in their portfolio by selecting the descriptions for various business, technical and supporting parameters that best describe their applications. These descriptions are quantified with ratings. The ratings are used to calculate the business and technical indices of the applications and suggest whether to retain, revitalize, replace, or retire them. Created the user interface of the APR tool using Power Apps and stored the data entered by users in a list created using Microsoft Sharepoint Lists. Created multiple lists in Sharepoint to store the pre-assigned weightages of parameters as well as the ratings attached to the descriptions. Used power Automate for the automation of lists to calculate the indices.

PS-I experience: My PS1 experience at L&T Infotech was great. It provided a great learning opportunity in terms of developing both technical and non-technical skills by working in an industry setting. My mentors at L&T Infotech were very helpful and understanding and provided me with guidance every step of the way.

Learning Outcome: I learnt to create applications using Microsoft Power Apps and lists using Sharepoint. I learnt to use Power Automate for the process of automation. Besides technical knowledge, I also gained knowledge regarding how to communicate effectively and put forward my ideas. I learnt to collaborate with others and developed skills such as time management and creativity.

Name: Amogh Moses (2020A7PS1199H)

Student Write-up

PS-I Project Title: Academy and Training

Short Summary of work done: I was allocated work in the Cloud & Infrastructure Services (CIS) Academy Training group of L&T Infotech. Most of the tasks given to me were based on Microsoft Office tools such as Microsoft Excel, Microsoft Powerpoint, Microsoft Teams, and Microsoft Outlook. I had to

do some Data analysis on training sessions at L&T. One of the tasks given to me was to create pivot charts and tables for the feedback from the alumni of the previous batches of training. Another task given to me was to implement 'VLOOKUP' from one excel workbook to another. I also had to work on excel for documentation of projects present in CIS Academy Training in L&T. Another task assigned to me was to do follow-ups for a survey to be filled to
understand the current status of projects.

PS-I experience: The overall experience was great. I learned something from each task I got at L&T Infotech. I understood the importance of communication and presentation skills, and got to know how big companies are divided into different teams and how they function smoothly.
Lastly, I would say that my PS-I was a wonderful learning experience.

Learning Outcome: 1. Advanced MS Excel tools like Pivot charts, Pivot Tables, Macros, VLOOKUP, and XLOOKUP.
2. Learnt to execute complex queries using MySQL.
3. Developed some soft skills like Teamwork, Communication, Time Management, and Responsibility.

Name: GUJARATHI HARSH VIJAY . (2020A7PS1712G)

Student Write-up

PS-I Project Title: Spectra - Regression Suite

Short Summary of work done: The Regression Suite testing is responsible for testing and re-running all functional and non-functional components of the software, to ensure that any newly made change to the codebase hasn't adversely affected the platform. Well, Flows are Directed Acyclic Graph(DAG) representations of data transformation from reader to writer node which allow you to orchestrate data transformation, processing or engineering steps on a drag and drop web-based user interface. To prepare tests, we had to run the pre-existing flows and create new flows for the testcases which were pending. All our progress was monitored and recorded. I started with Google Cloud Services and prepared flows covering each and every corner case, then I prepared flows in similar fashion for Azure Blobs. Sometimes if the data was not readily available then I had to prepare the data in my Local machine and transferred it to various cloud Services through the platform. We also Equipped ourselves with web Frameworks like JavaScript, React along with DevOps frameworks in Java and Spark.

PS-I experience: My Experience working in Regression Suite Team and L&T Infotech as an Intern was really helpful. The internship has provided me with an insight to office-culture and how an IT firm works and communication and Teamwork is the key to success of your project.

Learning Outcome: I've Gained knowledge in DataOps, it's functioning and use cases. It also helped me enhance my knowledge in DataOps Development and better understanding of data in varied formats. Apart from that soft skills like Communication, decision-making skills, time management, resourcefulness and confidence also Improved.

Name: DHRUV ROHIRA (2020A7PS1725G)

Student Write-up

PS-I Project Title: Game Development in Learning and Development for Metaverse

Short Summary of work done: We first researched on how metaverse could be implemented in IT companies like LTI itself. After several discussions, the company decided to develop Metaverse in the direction of Learning and Development. To start, I was assigned a task to create a FPS game module from scratch using Unity, Blender and C# scripts. I was able to complete my task and the module will be integrated into the Metaverse after some minute adjustments.

PS-I experience: The overall PS-1 experience was good. In the first half the work was mostly creating presentations and maintaining excel sheets. But the later half where I started with Game development was a completely different scenario. Since I was creating something from scratch and that too in a field that was completely new to me, I learned a lot. The seniors in my team were always very supportive and understanding. They always focused on our learning and made it clear that we should focus on concepts rather than doing it just for the sake of it.

Learning Outcome: I learned using software like Unity (the game engine), Blender(for 3D modelling) and C# language (for scripting different objects in the game). I also learned a lot of soft skills like teamwork, time management, communication, problem-solving, creativity, and interpersonal skills.

Name: ARCHISHA MEHTA . (2020B3A70779P)

Student Write-up

PS-I Project Title: Game Development for LnD in Metaverse

Short Summary of work done: We developed a FPS game named as "Shoot the negativity" from scratch. We used Unity as game engine and Blender for 3D models and implemented all this using C# script. The game development included making a gun and several 3D words in blender. Implemented all these in the environment made in Unity and made a 3D room and background in it. Shooting the words, spawning of words, controlling the words, scoring the game(when person shoots negative words then positive score and when user shoots positive word, the negative score).

PS-I experience: It was an interesting experience so far. We started the project from scratch and developed our skills from making gun to environment and score calculation. PS helped me in improving my communication skills. After studying various courses for two years, I was really looking forward to working with a team towards practical applications and real-world experience, offering my knowledge and skills while simultaneously learning and improving my competency.

Learning Outcome: I learnt about game development, unity, blender and C#.

Name: PADAKANTI VAISHNAVI . (2020B3A70972H)

Student Write-up

PS-I Project Title: Analysing data using Power BI

Short Summary of work done: Firstly we were assigned a few tutorials on Power BI and introduced us to this software. Followed by that we were assigned by our reporting manager to create random data sets using excel and use that data to analyse the data using Microsoft Power BI Visualisations tools and along while had to complete our PS evals on time.

PS-I experience: It was a fruitful experience working with LTI. My teammates were really helpful and helped me develop interactive skills.

Learning Outcome: Got exposure to Power BI software which help me build my resume

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PS-I station: LightSpeed AI Labs Pvt Ltd. , Hyderabad

Student

Name: CHIRAG GADIA . (2020A7PS1721H)

Student Write-up

PS-I Project Title: Development of MERN Application for Code Editors & Linux Terminal Integration

Short Summary of work done: I had to create a replica of the Linux terminal so that users could access their Linux desktop remotely. I learnt about WebSockets, SSH and Xterm. Understood the basics of Authenticating and Sessions. It was different from typical frontend web dev as there was a lot of specific stuff which is generally not seen in course projects.

PS-I experience: The project was great and I really learnt a lot during my time at Lightspeed. My mentor was really friendly and supportive. He provided me resources and Insights to work on my project. The thing I like about Lightspeed is the focus they give to us during the internship with complete project work which is selected carefully.

Learning Outcome: I learnt how real world websites work. Use of sessions and cookies are fascinating. Also it was a great hands on Web Dev Project.

Name: SIDARTHA SANKARA PATI . (2020B2A70687P)

Student Write-up

PS-I Project Title: : Monitoring multi-FPGA Resource Utilization & metrics Collection of FPGA's using OPAE

Short Summary of work done: I started with learning the basics of linux and about FPGA's. Then I took a deep dive into the world of devops by learning about node,node js, docker and kubernetes. Then I learnt about monitoring systems and various monitoring tools such as Prometheus, Grafana and Node Exporter. I used all these tools to monitor various CPU metrics.

PS-I experience: I had an amazing experience. I learnt about many things which I would not have in my general courses. I also developed a good habit of going through new research. My mentors from lightspeed labs were really helpful and guided me throughout the internship. The faculty member from bits were also very helpful and cooperative.

Learning Outcome: I learnt about the basics of devops and also developed a good understanding of monitoring systems.

PS-I station: LOGIQ LABS Pvt Ltd - Machine Learning/DSP/AI , Bengaluru

Student

Name: AVANTIKA RANIWALA . (2020A3PS1780P)

Student Write-up

PS-I Project Title: Data Extraction from electronic proof of delivery (EPOD) using OCR/NLP

Short Summary of work done: We created a start to end approach for extracting data from EPODs. We experimented with the data set to select an OCR software (DOCTR) as it gave the best results for handwritten data. Using python we completed the OCR - pre processing and character recognition. After this we had to extract required key value pairs. This was challenging as the data was unstructured. We tried an implementation using NER which gave unsatisfactory results. Our final implementation was using sets of regular expression queries. The key value pairs were successfully extracted from the handwritten EPODs. During the course of the project we tried several resolutions for the issues like grouping lines, varying threshold distance and using rectangular kernels.

PS-I experience: It was a great learning experience, figuring out how to plan and create a project was insightful. Seeing it come together was very exciting. Working with industry professionals gave me an idea about the work flow and the expectations of an industry mentor.

Learning Outcome: The project helped me improve my problem solving skills and planning skills. On the technical front, I learnt how to work with OCR softwares, NER, Python, and re (regular expressions) library.

Name: RISHI VASHISHT . (2020A3PS1785H)

Student Write-up

PS-I Project Title: First Mile Intelligent Route Optimisation

Short Summary of work done: A dataset for a shipment company was given which included around 1400 orders from 5 different cities. A time optimized route had to be found for the picking up of orders every day for all the cities. The dataset included parameters like pincode of the locations, the date & time of the placing of the order, and several other checkpoint times in a form of a JSON file. The task was to understand and manipulate this data using Python scripts and form an input file which would be fed to NextMV (a software used to solve optimizing problems like these) which would provide us with an output file. Further analysis of this file will give us our required results.

PS-I experience: Overall, the PS-I experience was a fruitful one. I was the only person assigned to my project so I had to plan and implement everything on my own, this helped me sharpen my decision making skills. Also, the PS mentors allotted to me were very helpful and made me feel comfortable regarding any doubts I had which helped increase my confidence levels and also improve my communication skills.

Learning Outcome: This project helped me sharpened my Python skills. Some libraries I worked with are Pandas, Numpy, Folium, and Matplotlib. I was also introduced to a completely new software, NextMV so figuring out how that works was another fun aspect of the project.

Name: ATISH . (2020A7PS0107P)

Student Write-up

PS-I Project Title: Automated data extraction from ePODs using OCR and NLP.

Short Summary of work done: We needed to develop a structure that could extract sensitive data such as an address, package weight, shipping address, etc. from ePOD images and electronic shipping confirmations. Our problem description was split into two tasks: detecting and recognizing text in ePOD, then extracting key-value pairs from the text and storing them in a database.
This task comes with challenges because ePODs don't follow the strict format throughout the different companies, so approaching this problem with the application of key-value pairs might be able to give the resultant output.

PS-I experience: My PS1 experience was really good, I learnt a lot about image processing and how work goes on in corporate. The instructors were supportive and helpful, so I got help whenever I needed.

Learning Outcome: I learnt a lot about image processing and how work goes on in corporate. I also learnt time management and other useful skills.

Name: DEVESH S . (2020AAPS0295H)

Student Write-up

PS-I Project Title: API integrations with Multiple Cart Platforms and Analytics

Short Summary of work done: My task was to create standalone modules that can be implemented into the companies main carrier dashboard website. The project mainly involved in full stack web development. I worked on an Image Resizing module. This module helps the user to resize and compress an image file, this file then gets uploaded to a local folder where the original and the resized file will be saved. Certain validity checks had to be implemented to make sure that the user only uploads in .jpg, .png and .jpeg format and also to make sure the file size does not exceed 2MB. These validity checks happen both in frontend and backend to ensure that the user cannot bypass this by changing the frontend code. The frontend of this module was coded in HTML, CSS

and Javascript, while python and Flask was used for the backend. The PIL(Python Image Library) was used to resize and compress the image file. I also worked on some basic API methods. I used POSTMAN API to work on some basic GET/POST methods.

PS-I experience: Throughout the course of my PS-1 I learnt a lot of valuable skills. We had daily update meets with our PS mentor who guided us throughout the course. I was new to full stack web development so I had to do a lot of researching on my own but along with my mentor's and teammates help I was able to get the work done before the deadlines and in an efficient manner.

Learning Outcome: The project involved in working with Full stack web development tools. This includes HTML, CSS, Javascript, Python, Flask etc,. Along with all the technical skills I also got the opportunity to experience the work culture in a company and also what they expect from an intern or an employee. It also helped me improve my work ethic, time management skills and thought me how to communicate ideas as well as problems that I face while working on various topics. Working on these modules gave me a basic understanding on how to approach such problems and work on it in a systematic and efficient manner.

Name: V SAINATH REDDY . (2020AAPS0322H)

Student Write-up

PS-I Project Title: FRAUD DETECTION IN eCOMMERCE

Short Summary of work done: To build a model which predicts if the order is going to get success or cancelled.

PS-I experience: It was good.

Learning Outcome: Got to learn and explore different libraries like numpy, matplotlib, and handson experience while using Google colab, Pycaret and many more

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PS-I station: Manodayam Pvt. Ltd. , Lucknow

Student

Name: PUTTA NITIN MAHENDRA . (2020A8PS0698H)

Student Write-up

PS-I Project Title: Mental health assessment using AI engine via voice samples

Short Summary of work done: Manodayam is a startup that emerged a few months before we started. The company works on developing an AI engine that determines the mental health of the person using their voice samples. We used Python for this. In our rapidly advancing world, people with mental health problems still experience discrimination, stigma and severe human rights violations. Many mental health conditions can be treated at a relatively low cost, but the gap between people with access to care and those needing care remains. Thus, we need an effective method to help these people. This project aims to develop a way to assess the mental health using AI and ML engine via voice samples.
Voice samples are taken from the individual seeking help. Using the software Librosa, we derive the 13 features from the MFCC feature extraction code, and using a database of hundreds of samples from Kaggle, we analyze the voice samples and determine the person's mental state. This method is very cost and time effective and eliminates the stigma against seeking help for mental problems as the automated system reachable to everyone is very quick and accurate to assess the state of people.

PS-I experience: It was pretty interesting, a totally new area for me atleast, and gave an insight into how a startup works. The director of the company, our mentor was very interactive and helpful in the meets which are regularly conducted. The mentor from the technical department had supervised us and cleared every problem we had faced. He made the sessions more interesting and also gave us advice in other IT fields too. Every session was something to look forward to and learn new stuff.

Learning Outcome: Extraction of audio features of audio samples submitted by us and determining the mental health of the person.
• Getting hands on experience of librosa
• Preparation of business plan, market segmentation and cost estimations.
• Analysing and collecting data
• Use of machine learning technology to analyse data obtained from sensors for the assessment of psychiatric disorders
• Practical use of AI and ML algorithms in the industry

PS-I station: MapmyIndia (CE Info Systems Pvt Ltd) , New Delhi

Student

Name: SHREEKAR PURANIK . (2020A7PS0035P)

Student Write-up

PS-I Project Title: I was selected for IT but took up a marketing role

Short Summary of work done: First we were told to research about the company, the different products it has, the different areas it works in etc. Then we were asked to submit a report on how best to market it, what areas the company could work on, the areas where we could contribute and make a difference. After that we were given different roles. As an intern at MapMyIndia, I managed the logistics of its events. MMI is mostly B2B, so we needed to increase our reach in different business and startup circles. Attending and organizing events is the best way to do this, and so I was then given the responsibility of managing this method of reaching out to clients.

PS-I experience: It was fun and valuable. We had regular meetings, and the staff at MapMyIndia were polished and professional. They gave us mentoring and advice, and so we really enjoyed our time with MMI.

Learning Outcome: I learnt many things including management and coordination skills, but I'd say the most valuable thing I learnt is professionalism and how to act in the workplace. I learnt about how full time employees work and I also learnt how to juggle between work and family/friends

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Name: KHUSHI SHAH . (2020A7PS1687P)

Student Write-up

PS-I Project Title: Workout Path Generator

Short Summary of work done: My main work was to create a web application that can suggest the smoothest outdoor workout paths. In the earlier stages, I explored the MapmyIndia APIs, their solutions, and tried to get an idea of what the company does and

how its culture is. Later, in the development stage, I applied the knowledge learned earlier to integrate the APIs into a web-app.
To accomplish this, I made use of multiple tech stacks: HTML, CSS, Bootstrap, Javascript, and jQuery for the frontend, while NodeJS and ExpressJS were used for the backend. The entire web-app is powered by the MAPPLS APIs (a product of MapmyIndia), by making HTTP requests. In my workflow, I made requests first through Postman, then through the backend.

PS-I experience: Overall, the internship gave me a good idea of what it would be like to work as a Software Developer (IT Field) in the industry. I had multiple interactions with my mentors, my peers, and learned the value of self-reliance. For instance, when I encounter a bug (error) in the program, my first action is to look at the syntax (documentation), then search on the internet, then ask my peers, and lastly, if it still doesn't get resolved, approach my mentors. I pursued the project individually, and took the support and guidance of my peers and mentors whenever I got stuck.
In extension to the interaction with MapmyIndia's experts, we participated in two group discussions facilitated by our professor, studied about startups from Y-Combinator's startup school, and documented our work as a report & diary.

Learning Outcome: I've had two major learning outcomes: (1) the process of software development and (2) how to communicate with professionals.
Firstly, the internship introduced many practices of software development: problem identification, collaborating on git, file structure, documentation, wireframing, and naming conventions, just to name a few. Secondly, I learned how to share an idea in my head formally with a professional. This involved things like giving presentation overviews, understanding what the other side wants, minimizing jargon for certain audiences, etc.

Name: SHUBHANKAR VIVEK SHASTRI . (2020A7PS2054H)

Student Write-up

PS-I Project Title: Delivery Route Optimization

Short Summary of work done: In the first half, we were introduced to the company's ways of working and were asked to research more on the services they provide. Later we had to come up with our own ideas for the project we wanted to work on, using MapmyIndia's extensive suite of APIs available on Mappls. My project mainly revolved around using the route optimization API (which in turn uses travelling salesman algorithm).

PS-I experience: It was a good opportunity to work on real world projects and get a hang of the corporate world.

Learning Outcome: My main learning was not exactly any tech stack but rather more related to structuring projects and organizing them in such a way that with just a weekly update, the supervisor should know exactly what's going on.
As for the tech stacks - HTML, CSS, Javascript and working with APIs.

Name: AVYAKT GARG . (2020B1A71902P)

Student Write-up

PS-I Project Title: Route optimisation for delivery executives using MapmyIndia APIs, through the travelling salesman algorithm

Short Summary of work done: I developed a web application with my time at MapmyIndia which would return an optimal path for a given set of points using the mappls route optimisation API which works on the travelling salesman algorithm. I had to give weekly updates to MapmyIndia, they had a dedicated chat group for tech support. There were some limitations due to the online nature but was worthwhile.

PS-I experience: In toto it was a relaxed experience and allowed me to learn as well as pursue other interests parallelly

Learning Outcome: ●HTML,CSS,JS,
● Understood the corporate culture,
● Got an insight into giving presentations and updates,
● Learnt to use github repositories and markdown files,
● Developed Learning about APIs,
● Developed learning about the travelling salesman problem and algorithm,
● Learnt about postman as well as JSON values,
● Using figma,

PS-I station: MapmyIndia- Marketing , Bengaluru

Student

Name: PRIYANSH GOYAL . (2020A4PS1879H)

Student Write-up

PS-I Project Title: Marketing

Short Summary of work done: In marketing I got blogs section I need to make social media posts for company social media handle.

PS-I experience: I had a great experience at PS. I learned about company culture

Learning Outcome: I learned how a company handle its social media

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Name: PARTH NILESH THAKKAR . (2020A7PS0088P)

Student Write-up

PS-I Project Title: EV Service

Short Summary of work done: Made web app of EV charging station locator using MapMyIndia's Apis

PS-I experience: Okay

Learning Outcome: Web dev

Name: GARVIT ARORA . (2020B2A72113G)

Student Write-up

PS-I Project Title: Marketing

Short Summary of work done: Made website on electric vehicle charging station

PS-I experience: Really good, company was quite helpful

Learning Outcome: Great

PS-I station: Mazo Solutions Pvt Ltd , Chennai

Student

Name: MUKHERJEE ANIRUDH DEBADEEP . (2020A7PS0970G)

Student Write-up

PS-I Project Title: Resume Parser

Short Summary of work done: I had to make a resume parser application which extracts relevant information from a person's resume. The main focus was to extract the experience of the candidate. This had to be done using machine learning approaches. After this was done, I had to create a rest api using flask (because the parser was implemented in python) which exposed endpoints to accept the path to the required resume(s) and Job Description(s).
After this project was done, I was working on 2 other projects simultaneously while making any modifications in the resume parser as required by the company.
My work in the 2 other projects were:
1) To create a flask api for a serviced offered by the company
2) Help in integrating work done by 2 separate interns into a single project while making any required modifications in their code. The frameworks used in this was express.js & Angular

PS-I experience: There was constant work being done during PS1. With this, I experienced first hand how it to work in an organization. There were daily meetings where we discussed the progress of our project and what we planned to do for the next few days.

At times, I was assigned multiple projects to work on simultaneously and sometimes, I was asked to stop working on my current assigned task and then switch to another one. This sometimes caused confusions.

Learning Outcome: With the help of PS-I, I learned about what it means to work in an organization. There is a big difference between working on a project in an organization and working in an open source project which I learned in PS-I. I also learned about project management philosophies such as agile which was used here.
There wasn't any learning on any technical skills as I only had to use the skills which I already knew beforehand.

Name: Aditya Sheth (2020A7PS1511P)

Student Write-up

PS-I Project Title: Automated Invite Utility and Targeted App Notifications

Short Summary of work done: I worked on two different projects. The first one involved automating the creation of online meetings. I worked with Google, Microsoft and Zoom API majorly on the authentication part.
The second project was creating user-specific mobile notifications.

PS-I experience: The PS1 experience was nice. We had daily meets with our mentor from the organization. I was given enough to learn new technologies and was helped by experts if faced any difficulties.

Learning Outcome: All the technologies and areas were new to me. The projects I worked on included Flutter, Firebase, APIs and Authentication to use APIs.

Name: ADITYA SOMANI . (2020A7PS2049H)

Student Write-up

PS-I Project Title: Multi-platform Chatbot with User Audio

Short Summary of work done: Our work revolved around building a chatbot with integrated User Audio, and deploying it to a Web application. We initially worked on developing a chatbot- an important challenge we faced here was of the dataset. There were multiple learnings in creating this chatbot- We learnt about various data preprocessing steps, that includes Stemming, Tokenization, Lowercase the words, removing stopwords etc. We also learnt about Various ML models and their advantages as well as disadvantages before deciding upon one model The models we explored included KNN, SVM, Naive Bayes, Neural Networks etc. Once we chose RNN we worked on Optimising the right values of hyperparameteres like epochs, batchsize, iterations. After this- once we were done worked on developing a web application, learnt about Integrating an ML model to a web app, developing a web interface for a chatbot and also about Web Development. Integrating the Audio with the chatbot was the next task, this included recording user audio via the we app, converting it to text and saving it. We also worked on integration of the product. We had to regularly create design documents, and deliver presentations. We had daily stand-up calls with the organisation as well for regular updates.

PS-I experience: The experience was enriching to say the least. It was amazing to experience how actual corporations work. It was also great to work with fellow BITSians from different campuses, communicating with them regularly, discussing ideas and then working together. Communicating with your Reporting manager, delivering presentations- being up-to-date with work. All of this was an important part of my PS experience

Learning Outcome: There were multiple learning outcomes in PS-1, the first and the most important one was learning the importance of communication and teamwork- Working with my fellow teammates was easy because we were regularly communicating, taking update calls and helping each other out whenever we were stuck. I also improved my presentation skills- how to explain what you're thinking of/ built is an import part. In terms of hard skills, I learnt python, ML models and bit of Web Dev. We also learnt how to apply the agile methodology in real life projects.

Name: SHREYASH BHARDWAJ . (2020A7PS2066H)

Student Write-up

PS-I Project Title: Computer Vision, NLP (AI Chatbot creation)

Short Summary of work done: The initial guidelines given were to build an interview bot that determines the competency level of answers by candidates with input in the form of written long answer type text. This report consists of our solution approach, problems encountered, technology used and results obtained till date. We aimed to build a system which serves as a benchmarking platform for taking interviews with the added layer of complexity to integrate this with an interface which includes a chatbot-based response mechanism that throws questions at user and processes answers by splitting them into bag of words using nltk library and determines competency level with ML model(neural networks) in real-time. We then proceed to configure the user interface, and deploy the chatbot on web servers using Javascript, html and css for frontend. The configuration of MediaRecorder for speech to text functionality is also focused on, so that the user can give input in terms of audio. As of now this will be integrated as a customer support bot for all Mazo products adding a new functionality to the company website. We further explore approaches on the original interview bot concept using text vectorization, neural networks, transformers, and semantic reasoning. After completion of our chatbot project, We worked on creating a password generator for password creation of each user when their profile is created. Also, an automatic emailing system was created without the use of any paid Api(s) to automatically email the user with their password and test link.

PS-I experience: The culture is really good. You can reach out to anyone for help and they guide you with no judgement. The working hours are lenient for the interns. The employees working all share an exceptional knowledge based on their experience and always encourage learning. The working environment is friendly and the higher executives are easily approachable. The work
environment is very healthy. The team mentors and managers are quite friendly and they help as much as possible to make you complete your task successfully. The nature of work is also very industry relevant and will help the interns in future roles.

Learning Outcome: Learnt Machine Learning and Usage of AI chatbot in a vast field of use-cases. Learnt to use various python ML libraries like nltk,tensorflow etc. Also learnt vanilla webDevelopment, basics of Angular and NodeJS. Beneficial knowledge about the working of a company was imparted. I learnt the Agile methodology and The scrum method of Meetings.

Name: KAPRE AADITI AJAY . (2020AAPS1737G)

Student Write-up

PS-I Project Title: Multi-platform AI chatbot

Short Summary of work done: We were all divided into separate teams, each one having different projects. Our team included of 3 members and we delivered a customer support AI chatbot. We read up on neural networks and built our model using tensorflow. We learnt about various parameters in a neural network and how to train data as well as covert dataset into appropriate form for a chatbot using an json file. We also created a frontend for the chatbot that would accept messages from users, send it to the python backend for processing and then display the output message. Conclusively, we built an entire functional application with a working python backend(tensorflow and neural networks) integrated with a vanilla Javascript frontend for users to interact with. We trained this bot on company data, hence providing them with a 98% accurate customer care bot.

PS-I experience: The ps-1 experience was unusual for us. We got handed a lot more work than we had expected. This station took interns very seriously and a lot of hardwork and time was expected initially.Every single day a meet was taken to view our progress and a lot of them extended to 1-2hrs duration.We had some issues with the working environment being too hectic, very little time being given for learning and excessive focus on "deliverables". The initial adjusting was not smooth and there were certainly many ups and downs. But once we learnt the ways of the companies and what was expected it got better, we were able to perform and deliver and we learnt a lot of skills in the process. The final projects were really good and we achieved more than we expected to. Our company mentor, surprisingly was one of the founders itself and a very experienced person. Hence this was very close to a real life work experience and an in-depth view of the corporate world.

Learning Outcome: The biggest learning outcome was the agile methodology. Our mentor often discussed a lot of working styles like the big bang model or waterfall model and then explained why agile was the best. Apparently agile methodology involves constant changes and presenting small parts of the deliverables everyday so that the manager knows your progress. it's a very intensive approach and we learnt a lot of how organisations work through it. We developed communication skills and how to deal with company officials as we were in close contact of our mentor throughout the duration of the ps. And finally we learnt a lot of skills like artificial intelligence, working of chatbots, using neural networks and web development, both frontend (vanilla js) and backend(node js). Towards the end everyone worked together to finish whatever was pending and we gained coordination and experience of communicating well and working as a team to finish your products.

Name: GAUTAM JHABAK . (2020B3A71500G)

Student Write-up

PS-I Project Title: Calendar Invite API

Short Summary of work done: We worked on calendar invite API's to make the meeting scheduling easy and hassle free

PS-I experience: It was a great experience working in corporate.

Learning Outcome: I did learn a lot of technical skills like python APIs Java but more than that I actually learnt how to work in teams, be punctual and many other things.

Name: NAMAN AJAY MARKHEDKAR . (2020B5A71862G)

Student Write-up

PS-I Project Title: Virtual Interview

Short Summary of work done: We created a virtual interview system to be able to conduct an interview anytime. I used WebRTC ,and used REST APIs to create routes and to store data in database created using MySQL.

PS-I experience: We were provided a proper industrial exposure. We used to have a daily standup meet to discuss progress.

Learning Outcome: I worked on full stack development and learnt about creating backend system by using NodeJs , ExpressJS , BodyParser, mysql connector etc.

PS-I station: Medsupervision Pvt. Ltd. , Faridabad

Student

Name: ADITYA KANTHI . (2020A7PS0087P)

Student Write-up

PS-I Project Title: Data Extraction from Medical Prescriptions

Short Summary of work done: The data extraction project required us to extract key values like Patients name, Medicines prescribed, Age from handwritten medical prescriptions. To do this, first I looked into various OCR softwares to see what is the best for our use case. I also tried different pre processing libraries. I used OpenCV and Pytesseract for the OCR part. The issue we were facing with the post processing key value pair extraction was that the data was unstructured. There was no indication of where in the document the medicines will be written, like any required field. For the post processing, I used PySpellCheck and tried to build an NER model based on the SpaCY library but this approach failed. We tried to find the largest bounding box for the medicines too but this approach was not implementable. In our final solution key value pairs were extracted using a linear search and re (regular expressions) library.

PS-I experience: During my PS1, I learnt about the workflow in a real IT organization. It gave me an idea about the expectations from a fresher into a company. The project was very exciting and it was overall a very insightful experience.

Learning Outcome: I learnt how to create a detailed project from scratch. The project also helped me greatly improve my problem solving skills. I learnt how to work with various OCR softwares like Google vision, Pytesseract, etc. I learnt about different kinds of pre-processing and post processing libraries like NLTK, PySpellCheck. Additionally I learnt the different functionalities of the RE regular expressions library.

Name: NEERAJ GUNDA . (2020A7PS0169H)

Student Write-up

PS-I Project Title: Patient Coach

Short Summary of work done: We had to develop a DApp for solving the problem statement given to us(to help people easily access government hospitals).

We implemented The Login & Registration Page, developed Energy Restoration Metrics, Validating the Patient's Hospital ID Number, Made smart contracts and Connected the cryptocurrency wallet.

PS-I experience: It was interesting as it was a new concept that we were going to work on and we received constant support from mentors. We were able to keep with the pace and deadlines.

Learning Outcome: We acquired new skills as we were introduced to new technologies such as flutter and its packages. We used firebase as the backend(authentication and database) and learnt about solidity(language required for making smart contracts). Along with this, we had to give presentations and complete the work under the set deadlines, which improved our time management skills and were able to learn how the company operates from the inside.

Name: NIDHISH JOGEN PAREKH . (2020A7PS0986P)

Student Write-up

PS-I Project Title: Patient Coach NFT project

Short Summary of work done: We worked on a project called " Patient Coach" where the idea was to incentivise idle people in a hospital to help out new patients with basic procedures such as registration, appointment booking, etc. We used aspects of Game-Fi and Social-Fi to create a platform where users were rewarded with NFTs for helping others.

PS-I experience: PS-1 has been a great learning opportunity for me. I got to interact and work with students from other campuses. Talking to people working in the industry was eye-opening. I think it is a great experience having completed half of our college curriculum. It's good to break out of the world of tests and assignments and doing some real impactful work.

Learning Outcome: I learned the basics of Blockchain Technology like smart contracts and NFTs. I also learnt to build an Android application using Flutter & Firebase. Built my own Ethereum contract and minted NFTs on it. The Web3 revolution is underway and I feel lucky to have a headstart in it.

PS-I station: MentorPlus Pvt Ltd - Tech (onsite) , Hyderabad

Student

Name: ADITI KASHYAP . (2020B4A71654G)

Student Write-up

PS-I Project Title: Backend development for EM

Short Summary of work done: I learnt the skills required to do backend development, created a CRUD API, created a database in mongoDb and wrote a get API to fetch the information stored in it.

PS-I experience: I have had a good experience throughout my PS 1, the company i worked for really helped give me a proper feel of what corporate life would be. I have been able to use this opportunity to expand my skill set.

Learning Outcome: I learnt how to use JavaScript, node.js, express.js and MongoDb over the course of my PS. I also learnt to design API's.

PS-I station: Multigraphics - ERP , New Delhi

Student

Name: REGINTHALA YASWANTH . (2020A3PS0588H)

Student Write-up

PS-I Project Title: AI chatbots in LMS

Short Summary of work done: We proposed a few base ideas to integrate into the LMS with algorithms and competitors' developments. The core idea is of course suggestive AI which improves the
personalization experienced by the user when using the platform. The Algorithms used various ideas of ranking each course for a superset of categories into which the user falls based on well-defined and quantifiable factors.
Coming to our project area of chatbots, we went through many different research papers written on AI-based chatbots which gave a wide idea of how these chatbots are developed and what core ideas go into them.
Writing our own research paper on chatbots, we emphasized the idea of emotion recognition using AI, hence the chatbot being more like a person than a simple database reply system. Putting different emotion categories to keywords used the user input and a neural network deciphering the actual emotion of the user behind the written input. The chatbot then acknowledges this emotion and curates a reply from a given set of responses in the same emotional tone as the user. This gave us the vision of what we wanted to create and how impactful it would be on the whole chatbot market. Most chatbots used on low-traffic sites are not so helpful and this one would change it. We also researched how chatbots integrated into the site are less deployable for multiple clients as they all must be coded in the language used for a platform, hence we also decided to create one as a plugin so that it can be deployed to any platform with a few customization options available for the client's different needs and FAQs

PS-I experience: It was a simple and decent experience.

Learning Outcome: Improved my presentation skills and communication skills, learnt full stack development

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Name: SHREYA MAHESHWARI . (2020A3PS2128H)

Student Write-up

PS-I Project Title: AI Chatbot in LMS

Short Summary of work done: Building a chatbot with user audio integration and integrating it into a Web application was the focus of our work. We initially worked on creating a chatbot, where the dataset presented a significant barrier. While building this chatbot, we learned a variety of data preprocessing techniques, such as stemming, tokenization, lowering words, deleting stopwords, etc. Before choosing a model, we also learned about several ML models and their benefits and drawbacks. Among the models we looked at were KNN, SVM, Naive Bayes, and neural networks, among others. After

deciding on RNN, we set about optimising the hyperparameter settings, such as epochs, batchsize, and iterations. After that, we worked on building a web application and gained knowledge of web development, building a web interface for a chatbot, and integrating an ML model into a web app.

PS-I experience: To put it mildly, the experience was enriching. It was fascinating to learn about how real organisations operate. It was wonderful to collaborate with BITSians from other campuses, communicate with them frequently, and exchange ideas before beginning work. Keeping in touch with your reporting manager, making presentations, and staying on top of your work. All of this played a crucial role in my PS experience.

Learning Outcome: There were a number of learning outcomes in PS-1, but the first and most crucial one was understanding the value of collaboration and communication. Working with my other teammates was simple because we were always in contact and offered assistance when needed. My ability to clearly communicate what you're thinking of in a presentation has also been enhanced. I acquired some hard skills, such as ML models, Python, and some Web development.

Name: RISHAM BINDRA . (2020A7PS0141G)

Student Write-up

PS-I Project Title: OMR Scanner

Short Summary of work done: The current OMR system used by Multigraphics needs someone to manually input the format of an OMR sheet as a template, to tell the software where the response bubbles will be found. However, if the sheet is displaced even a bit, or if the sheet was scanned upside down, etc., the OMR scanning software wouldn't work properly. Our job was to develop something that would use artificial intelligence and computer vision to detect the responses and bubbles automatically.
We decided to implement our program in the Python programming language, and used CV2 (OpenCV) library as well as functions like thresholding, contour detection, bounding boxes, blob detection, etc. to implement our program.

PS-I experience: The overall experience of PS-1 was pretty good. Our mentor was very helpful, and helped us connect to other members of the company that were relevant to the project we were assigned. She was friendly and approachable, and always tried her best to make us feel comfortable and welcome. The other technical mentors also communicated with us when we required technical assistance.

Learning Outcome: I learnt a lot of soft skills, including teamwork and communication skills, that I would not have had the chance to experience otherwise. I was able to interact with various members of the company, and learnt about the structure of the organization. The project we were assigned was challenging, and helped develop our technical skills, especially in terms of computer vision and machine learning

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Name: YASH AGRAWAL . (2020A7PS0152G)

Student Write-up

PS-I Project Title: OMR Scanner

Short Summary of work done: Me and my team have built a computer vision system using python and its libraries that can read and grade bubble sheet tests. By using imread, cvtColor, blur, threshold functions of cv2/opencv, image is converted into grayscale and is blurred to reduce high frequency noise. This step starts with binarization, or the process of thresholding/segmenting the foreground from the background of the image. After applying Otsu's thresholding method, the background of the image becomes black, while the foreground becomes white. We have used blob detection to detect selected answers from the image and check if the blob is inside the contour.

PS-I experience: The HR of the company is very supportive. The working environment of the company is very good. I have received a very constructive feedback on my project. The topic of project was very interesting and has helped me a lot.

Learning Outcome: I learnt python and used its libraries like cv2, numpy and imutils. PS1 has given me deep insights into the world of AI and how it is helping in the education sector. My presentation skills have improved a lot and the learnings will be an important pillar in career.

Name: ANIRUDH MISHRA . (2020B4A72169H)

Student Write-up

PS-I Project Title: AI based Attendance System

Short Summary of work done: Initially we were asked to do PEST and Swot analysis of the company. Then we were asked to write a research paper on AI based attendance system. Following that we wrote a paper on Live face mask detection. Once we did our research work we made a live project on AI based attendance system which was going to used for the company.

PS-I experience: Overall the experience was fulfilling. I learnt new things which I was not proficient in. The workload and deadlines weren't overwhelming for us, they were decent and achievable. Company had a positive environment for work and made us feel welcomed.

Learning Outcome: I wasn't aware of SWOT and PEST analysis so I learnt that. I had already done courses on data science so I was comfortable with python but didn't new how to do face recognition and live face mask recognition. So in the process of making a project and writing research paper I learnt these things.

PS-I station: National Centre for Polar & Ocean Research - Data Science , Goa

Student

Name: ASHMIT KHANDELWAL . (2020A7PS0980G)

Student Write-up

PS-I Project Title: Nowcasting and Forecasting of Antarctic Weather using Historical Data

Short Summary of work done: To study and develop machine and deep learning models for the prediction of Antarctic
weather, using historical data. The National Centre for Polar and Ocean Research collects hourly weather data from various Indian Research Stations in Antarctica. This hourly weather data consists of temperature, absolute pressure, wind speed, wind direction, and relative humidity, from Jan 1 2021 to May 11, 2022. The aim of the project

is to develop and train models on this data, so as to accurately nowcast and forecast the weather.

PS-I experience: The experience was fine. The project mentor provided a few resources to understand the basics of Machine Learning, and time-series data. After this, he provided us with the Antarctic data collected by Indian research stations. In accordance with the project's goal, various model architectures were implemented, trained, and tested on the data to nowcast the weather. Helper code to infer the model predictions was also provided.

Learning Outcome: The learning outcomes include understanding the importance of data-cleaning and
analysis, design and training of models, inference using in-sample prediction and out-sample forecasting, and output visualization.

Name: PRIYANSH VYAS . (2020A7PS1388G)

Student Write-up

PS-I Project Title: Forecasting of Polar Temperature using Machine learning models

Short Summary of work done: Forecasting Polar temperature using the AR, MA, ARIMA, and the Seasonal Auto-Regressive Integrated Moving Average (SARIMA) model. Working with Extra Trees Regression for nowcasting, out-sample forecasting, and in-sample fitting data using univariate and multivariate analysis.

PS-I experience: My PS one experience was a decent one. I learned about a lot of new technologies and got hands-on experience in working with research-level real-life data and other machine learning libraries. I researched about regression, time series models, forecasting, and multivariate regression concepts. These helped me in my forecasting results and predictions as well.

Learning Outcome: I learned a lot of new stuff during the course of this project. I introduced myself to machine learning libraries like NumPy, Pandas, Scikit-Learn, and statsmodels.
I learned about time series forecasting using models like Autoregression, Moving Average, ARIMA, and seasonal ARIMA models. I also worked upon a little bit of univariate Random Forest regression and univariate and multi-variate extra trees regression for forecasting and predicting out-sample and in-sample values by using 16 months of polar weather data.

Name: PRANAY NANDAN VARSHNEY . (2020A7PS1714G)

Student Write-up

PS-I Project Title: Predicting weather patterns using machine learning models for polar areas.

Short Summary of work done: We started of with ARIMA model to predict time series data specifically temperature values. We then progressed to much more advanced machine learning models such as support vector machines, regression, Adaboost regressor, Random Forest etc, Using different batch sizes and train/test split accurate model for temperature prediction was created.

PS-I experience: Being a beginner with machine learning initially the work was very hectic but soon the workload reduced.

Learning Outcome: I learned to implement several machine learning models. Cleaning data and processing it. Creating clean and scalable code.

Name: SHREYAS YOGESH DIXIT . (2020A7PS2079H)

Student Write-up

PS-I Project Title: Time Series Weather Forecasting & Extreme Event Classification using Deep Learning

Short Summary of work done: The project involved forecasting of time series polar weather data and extreme event prediction. I was involved in training regression and classification deep learning models. The regression models developed were Artificial Neural Network(ANN), Convolutional Neural Network(CNN), Recurrent Neural Network (RNN) and Long Short Term Memory(LSTM). Both univariate and multivariate models were built, trained and validated using in sample and out sample data. The classification

model made use of blizzard data which was used for prediction of blizzards(i.e. extreme events) given various weather parameters. The project also involved analysis of seasonality and stationarity in time series data. The code was written in python deep learning library Keras, and the plotting of results and data cleaning was done using Matplotlib and Pandas respectively.

PS-I experience: The PS-I experience was enriching and fruitful. The industry mentor as well as the BITS faculty were very co-operative and supportive. Our industry mentor was very particular about the work done and this highlighted the importance of the professional values of punctuality and sincerity in the industry. Overall, the experience was definitely a positive one.

Learning Outcome: The learning outcomes include
1) Deep learning concepts, models and algorithms - ANN, CNN,RNN,LSTM, seq2seq models
2) Time series data analysis - seasonality, stationarity, ACF and PACF plots, ARIMA model
3) Prediction and forecasting concepts
4) Python libraries Pandas, Keras, Matplotlib and ide PyCharm.

Name: SHUBH BHATNAGAR . (2020A7PS2197H)

Student Write-up

PS-I Project Title: Nowcasting and forecasting of weather data using historical values

Short Summary of work done: National Centre for Polar and Ocean Research had provided us with hourly data about temperature, absolute pressure, wind speed, wind direction and relative humidity collected from the Indian Antarctic Research stations.
Our aim was to study the hourly data and identify the trends, seasonality, and autocorrelation present in it. Use this analysis to pre-process the data like making the data stationary and then develop machine learning and deep learning models so as to predict the temperature in the future from the data provided to us as well as decide model hyperparameters.
We had time series data and we needed to implement time series regression for forecasting using models, these are machine learning models include Auto Regressive Integrated Moving Average (ARIMA), Random Forest, AdaBoost as well as deep learning models like Artificial Neural Network, Recurrent Neural Network (memory retention), Convolutional Neural Network (local extraction), Long Short-Term Memory (RNN with

better memory retention), Seq2Seq models (LSTMs to encode/decode data, CNN to process it).
We needed to determine which models work the best at prediction by comparing it with in-sample data as well as out-sample data. We also use custom generated cases to get to know how well the model fits the data.
Initially we worked only on temperature forecasting and further we build on it to forecast other variables as well so as to get complete knowledge of weather conditions in future and also for predicting when hazardous events like blizzards occur.

PS-I experience: I got to learn a lot from this station about data science.

Learning Outcome: I got to learn a lot about data science like the different machine learning and deep learning models. How to implement these models with time series data. I learned about numpy, pandas, keras, tensorflow and other libraries. I learnt evaluating models as well as how to change hyperparameters so as to get better results.

Name: ARYAN RAMESH BARAPATRE . (2020B4A70833P)

Student Write-up

PS-I Project Title: Nowcasting and Forecasting of Weather Data Using Historical Values

Short Summary of work done: We were given a weather dataset to work on. Our initial work consisted of performing time-series analysis on the data. We then worked on Machine Learning based model and Predicted using Univariate and Multivariate Analysis. Lastly, We tried to perform Hybrid ensemble of some of this models with other models(I tried XGBoost-Adaboost Hybrid Ensemble).

PS-I experience: The mentors expects the students to give results in a very short amount of time. The learning curve is steep at the beginning but it gets a bit better after the mid-sem. You get to experience how a premier research station of India works. You need to be willing to work hard to get meaningful help from the mentor

Learning Outcome: Learnt how to perform data analytics on python. Learned Time-series Analysis Learned how to tackle real-life data set and how to detect trends and seasonality. Learned the importance and know-how of fine-tuning an ML model. Learned about Hybrid Ensemble of a ML model.

Name: ARNAV GUPTA . (2020B4A71980G)

Student Write-up

PS-I Project Title: ANTARCTIC SEA-SURFACE TEMPERATURE AND SEA-ICE VARIABILITY

Short Summary of work done: My project work was to analyze the Antarctic sea-surface temperature and sea-ice variability by performing simulations and by using a sea-ice couple model. For this, I received three datasets from the industry mentor. The first dataset was experimental (COADS), 2nd was a satellite dataset(AVHRR) and whereas 3rd dataset was from NCPOR sea-ice model(MOMSIS). Before performing any simulations I read 2 research papers to understand basics of oceanography, after that I understood the data values and parameters(e.g., wind speed, sea-surface temperature, air pressure, etc.) in the datasets and then performed several simulations using MATLAB. These simulations would benefit NCPOR as they would enable them to understand the impact of sea-ice variability on Indian summer monsoons. In the first few weeks, these simulations were performed in the form of rectangular plots, but later I shifted to stereographic projections as they provide a globular point of view. I even used the satellite and model dataset to study the annual fluctuations in SST(sea-surface temperature) and SIC(sea-ice concentration) from 2011-2019. I found out that 2016 was the year showing max anomaly from mean SST and SIC.

PS-I experience: I had a very engaging and productive PS-1 experience as it helped me learn about the Antarctic sea-surface temperature and sea-ice cover patterns. It also helped me gain enhanced knowledge about oceanography and the MATLAB software used to plot the various essential plots. My industry and faculty mentors were beneficial and guided me at different stages. The PS-1 not only gave me a flavor of industry work but also enhanced my communication skills, confidence and ability to work in a team.

Learning Outcome: At the end of PS-1 I got the following results.
1) COADS data is the most inefficient and incomplete set of data.
While AVHRR and MOMSIS, both are well structured and complete sets of data and are almost equally efficient, MOMSIS takes the slight edge over AVHRR.
2)Further, from the SST and SIC mean variance plots I was able to see that for both of these variables, the year of 2016 was the year of maximum variance from the mean.

Name: TANUSHI GARG . (2020B1A70648P)

Student Write-up

PS-I Project Title: A DECADAL GRIDDED OCEANOGRAPHIC DATA PRODUCT FOR KONGSFJORDEN, AN ARCTIC FJORD

Short Summary of work done: 'Long Term Monitoring of Kongsfjorden and Krossfjorden' is an Indian Arctic project which collects long term physical and biogeochemical oceanographic data by employing ocean-mooring system. As part of the project, National Centre for Polar and Ocean Research has been collecting ocean temperature, salinity, photosynthetically active radiation, chlorophyll_a fluorescence, turbidity, and dissolved oxygen using a SBE19 plus V2 Conductivity-Temperature-Depth profiler during summers (June to October) since 2011. The collected environmental variables help in monitoring the changes in the high latitude fjords. The data is important in the present scenario of changes in the Arctic including prominent warming and sea-ice decline. But, since these observational data are scattered 3-dimensionally, over Kongsfjorden & Krossfjorden - two west facing fjords in the Svalbard archipelago, and also with respect to depth and time, researchers and other end users often finds it difficult to make meaning out of them. In order to overcome this difficulty, the present dissertation is to make a 4-dimensional gridded data product of all the above-mentioned variables by making use of different steps and methods in computation earth sciences.

PS-I experience: Despite having no prior experience, the work I did at this station helped me expand my knowledge and skills such that I could finish the final project. The task I was assigned allowed me to gradually advance in the field of computational earth sciences. It was a good opportunity to work at a research lab just after my second year and gain some professional experience.

Learning Outcome: Through this course, I got the opportunity to learn how different oceanic environmental factors affect climate change in the high latitude fjords. I gained valuable experience of working with various Python libraries, including Numpy, Xarray, and Matplotlib. Additionally, by presenting my work in seminars and reports, I was able to hone my soft skills and express my thoughts clearly. The group discussions also helped me gain new insights into many relevant topics.

Name: SINDURA PATRIA . (2020A8PS1812P)

Student Write-up

PS-I Project Title: Changes in Sea Ice Edge Concentration in Polar Regions

Short Summary of work done: Understood the importance and changes in the sea ice edges in the polar regions. Collected data from GeoTIFFs of Antarctica in form of longitude, latitude and sea ice concentration using python libraries like Rasterio, Pandas, NumPy, Matplotlib, PyProj. Used this data to find the distance from the coastline if sea ice concentration is 20% or more. Analysed the data to understand the trends in sea ice edge changes and compare these trends between the arctic and the antarctica. In the end, performed Statistical analysis of the datasets to understand the correlation between sea ice distance from coastline and longitudes.

PS-I experience: It was a decent experience. I got to know about the importance of Sea Ice concentration analysis and also got a better understanding as of how to handle large datasets. At first it was a bit challenging, getting stuck at problems for more than a week. Gradually we learnt how to collaborate in a team for solving difficult problems. In conclusion, I got a better clarity on hands on implementation and also would like to appreciate this learning through live project experience.

Learning Outcome: I improved my communication and presentation skills. I realised how important it is to work in a team on a difficult problem. Needless to say, discipline is also very essential for coming up with results. From the technical aspect, I learnt about the implementation of python libraries and dataframes in real world projects with more clarity.

Name: JASMIN RISHIKESH CHAUGHULE . (2020A8PS2150H)

Student Write-up

PS-I Project Title: Changes in Sea Ice Edge Concentration in the Polar Regions.

Short Summary of work done: Changes in sea ice in polar regions impact climate worldwide. The project's purpose was to analyse the changes in the distance of the sea ice edge (determined by 20% sea ice concentration) from the coastline of Antarctica over the last 42 years.
The process included analysis of 500+ satellite images of Antarctica taken every month from 1979 to 2021. QGIS application was used to understand the tiff images of the Antarctic landscape.
A proof of concept was created in Jupyter notebook to process one image using rasterio python library, which generated CRS coordinates and pixel intensity values across the

map. PyProj transform was used to covert CRS coordinates into latitude and longitude. Then Numpy, and Pandas data frames were used to sort and process the data further to determine the intersection points at every longitude and the distance between the ice edge and coastline. The identified coordinates at 20% ice concentration were plotted back on the satellite images in QGIS to verify the correctness.The whole process was then productionized using Google Colab to read the images from server, to process them to generate output coordinates and distances in a csv file, and to upload the csv files in a Google Drive sorted by every month.
Further, we carried out statistical analysis on the distance collected to understand the evolution of trends in the distance of sea ice edge from the coastline.

PS-I experience: My PS experience was great. I got a chance to explore a geo scientific domain in which I was a complete novice. Our industry mentor was very knowledgeable, and he helped us out whenever we were stuck. I learnt a lot about polar regions, sea ice, and its importance on a global scale.

Learning Outcome: Through this PS station I learnt how to convert a fuzzy problem statement into a concrete solution. I learnt how to create a complete data pipeline, right from downloading the data to uploading the solution to the cloud. I got a chance to work with python libraries and understand time series analysis. Besides the engineering aspect, this project also had a lot of geo science to it. I understood the various factors that affected sea ice and the correlation between them.

Name: AGARWAL HIMANISH . (2020AAPS0308G)

Student Write-up

PS-I Project Title: Why is Arctic sea ice decreasing while Antarctic sea ice is not?

Short Summary of work done: Collected data from maps of Antarctica and used it to find the distance of sea ice edge from coastline. Analysed the data to understand the trends in sea ice edge changes and compared these trends between the Arctic and the Antarctic.

PS-I experience: Our station mentor was nice and knew his field well.

Learning Outcome: Understood the importance of and the trends in the change of the sea ice edges of the polar regions.

Name: AGARWAL HIMANISH . (2020AAPS0308G)

Student Write-up

PS-I Project Title: Sea Ice Edge Concentration Changes

Short Summary of work done: Collected data from the maps of the Arctic and the Antarctic. Used this data to find the distance from the coastline if sea ice concentration is 30% or more.
Analysed the data to understand the trends in sea ice edge changes and compare these trends between the Arctic and the Antarctic.

PS-I experience: It was very fruitful indeed.

Learning Outcome: I learnt a lot indeed.

PS-I station: National Informatics Center (NIC) , Hyderabad

Student

Name: SHUBH MANAN UPADHYAY . (2020A3PS0493H)

Student Write-up

PS-I Project Title: CMS(Dynamic Form)

Short Summary of work done: We were assigned the work of creation of a web application which aimed at making an application which would be useful in generating the forms dynamically as per the user requirements.

PS-I experience: PS was completely online. With the support of the project coordinator and PS faculty, we learned to work as a team on a project. There were evaluation components, including regular meetings and seminars with quizzes, group discussion was also conducted. Meanwhile, a series of expert lectures are organized by the PS

division to deepen students' knowledge in industry and technology. Overall, it was a fun experience.

Learning Outcome: HTML, CSS, JavaScript

Name: VEDANSH KAKKAR . (2020A3PS1137H)

Student Write-up

PS-I Project Title: Fine-tuning a pre trained Bert question answer model

Short Summary of work done: I worked on generating JSON files from the text file containing content of sectors like the Ministry of Electronics & Information Technology, Election Commission of India, Parliament of India, and Invest India, which had question answers based on the context. My datasets were used to fine-tune a pre-trained Bert question-answer model so that its accuracy can be improved

PS-I experience: Overall it was a nice experience. We were allowed to choose the domain of our project.
Mentors from NIC were very helpful and gave us sufficient time to complete our tasks.

Learning Outcome: I got to learn new skills like python and the basics of machine learning and natural language processing. We also had group discussions in between which helped me in improving my communication skills.

Name: SHADAN HUSSAIN . (2020A7PS0134P)

Student Write-up

PS-I Project Title: Gcabs Mobile App

Short Summary of work done: We developed a cab booking mobile application. I developed an email verification page, an OTP verification page and a cloud database. Other features made by my team members include a map and a payment feature.

PS-I experience: It was a great learning experience and helped to get an insight into the work culture in the IT industry and also taught me to work together as a team.

Learning Outcome: I learnt how to build android apps and working together as a team.

Name: SARTHAK NAHTA . (2020A7PS0958G)

Student Write-up

PS-I Project Title: Quiz Portal development

Short Summary of work done: I made some additions to a quiz portal using html, bootstrap, javascript, python, and api

PS-I experience: it was a nice experience , i got a nice exposure to how to companies work and their ecosystem

Learning Outcome: Learned a lot of stuff , in just two months

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Name: HARSHIT SAMAR . (2020A7PS0964G)

Student Write-up

PS-I Project Title: Quiz Portal

Short Summary of work done: I was assigned to develop a website named Quiz Portal. It was a platform where teachers can post quizzes and the students could attempt that. Moreover there were features like flashcards which could be used for learning stuff. It was to be developed using Django and the database used was Postgres. So, I created a

discussion forum where teachers and students could interact and teachers can solve the doubts. Different class rooms could be created. I also did modification in the admin portal for the verification of the teacher's account by the admin. I was asked to develop both frontend as well as backend of the chat room.

PS-I experience: My experience overall was very good. I learned a lot from the industry mentors and they supported a lot. I got to know about the company and how actually it works and what exactly a corporate life is.

Learning Outcome: PS helped a lot in improving my technical skills. I could implement things in real life problems. Also it taught me the the work life balance. It gave a great exposure to the industry culture.

Name: AYAN HAZARIKA . (2020A7PS1377G)

Student Write-up

PS-I Project Title: Development of GCabs mobile app

Short Summary of work done: We were given the task of developing Gcabs mobile app, which allows users to book taxi and to hail a ride and drivers to charge fares and get paid. We had to implement the login pages for the customers and drivers, the functionality for the users to choose pickup and drop location, and after drop, the payment gateway for the customes to pay the drivers.

PS-I experience: The PS-1 experience was good, I was able to experience the rigor and tasks that comes with a real job.

Learning Outcome: Learnt about Android studio, APIs, Implementation of cloud database with andoird, time management and presentation skills.

Name: VISHESH GUPTA . (2020AAPS0352G)

Student Write-up

PS-I Project Title: Court Case Monitoring System

Short Summary of work done:
The project is to develop a Court Case Monitoring System to efficiently organize ,easily access and manipulate the large amounts of court cases handled in the state of Telangana.
This software is an step-up on the already existing build of this software and is expected to perform better and provide a cleaner user interface.
This project require the knowledge of the basic web-development tools such as HTML, CSS and Javascript along with some advanced web development concepts like database management and building restful API's.

PS-I experience: My PS-1 experience was very smooth and did not face any issues , all the interactions were conducted in an orderly manner and the project was explained properly and all the assistance was provided wherever required.

Learning Outcome: This project was a great learning experience to further hone my skills in the field of web development and learn many new things along the way, all the while contributing our part to NIC, Telangana government organization.

Name: SOUMYA TEOTIA . (2020B4A72182H)

Student Write-up

PS-I Project Title: CMS

Short Summary of work done: My major contribution to the project was to create a new HTML file which takes the preferences of the user as input and then connects it to the HTML file that takes a string as input. As a result, the user is no longer required to enter strings manually; instead, they can directly enter their preferences which in turn will generate strings that would be used to create a form. So, even those without coding experience may easily develop forms for their purposes using our CMS website.

PS-I experience: I had the opportunity to gain a lot of brand-new information in this field as part of the study and execution for the project that was given to us. My ability to manipulate the DOM in JavaScript significantly increased, and working with my peers,

mentors, and faculty mentor helped me gain numerous practical job skills. This provided practical experience of what it would be like to work in industry.
Thus, I draw the conclusion that working on the PS-1 project and learning all of these new things was a fantastic experience. I would want to thank the BITS PS division, faculty, workplace mentors, and team members for helping to accomplish this assignment smoothly.

Learning Outcome: I used HTML, CSS and Javascript for this project. This project helped me a lot in improving my coding skills in Javascript and gaining new skills such as DOM manipulation.

Name: MEKALA SATWIK REDDY . (2020B5AA2270H)

Student Write-up

PS-I Project Title: CMS : Web Development

Short Summary of work done: Our present project domain is creating a CMS web portal for the state police of Telangana. The primary purpose of making this CMS web portal is to collect data from users dynamically. We usually take data from the user in fixed-parameter ways, i.e., predefined keys for which values need to be taken. Still, admins of Telangana state police may sometimes require different data sets from different users. Thus, it would be difficult to change the data sets every time for a person who doesn't have prior coding experience. CMS makes it easy for the admins of the web portal to change the required forms easily without any coding knowledge dynamically

PS-I experience: The entire PS was online. With the help of a project coordinator and PS professors, we acquired the ability to collaborate as a team for the third party. We regularly had meets with the instructors, personnel from the company, and experts in the field and we completed several evaluation components like quizzes, group discussions, and seminars. The PS division organized a number of expert talks in the interim to broaden students' awareness of technology and industrial advancements. It was a good experience all around.

Learning Outcome: I successfully did the task we assigned using HTML, CSS, and JavaScript. Mainly we used DOM methods in JavaScript to create dynamic form fields according to user requirements. As part of this project assigned to us, I learned many new things in this area as a part of the research & execution. Also, I learned many workplace skills by collaborating with my teammates, mentors & faculty mentor. This gave me hands-on experience of how working in the industry would be.

PS-I station: National Institute of Oceanography , Goa

Student

Name: AVINAB NEOGY . (2020A4PS1625G)

Student Write-up

PS-I Project Title: Design of bio-mimicking device to penetrate the sediment at seabed and recover

Short Summary of work done: The project is about designing a device that will implement a mechanism used by some underwater organism to attach itself to the ocean floor, the mechanism should be feasible to implement and it should have the provision to release itself from the ocean floor when required. The device will have a basic propulsion unit to help move to the required coordinates initially but the main propulsion will be provided through ocean currents since ocean currents affect waters to a maximum depth of 400 m this device will operate at relatively shallow depths.
The device itself would have to be aerodynamically favorable as it will have to move frequently and it will use a ballast tank to dive(make it negatively buoyant) or come up to the surface(make it positively buoyant).

PS-I experience: The working environment in the company is really positive. The people are really helping and they give interns their time to learn and then work on the problems. It would have been a lot better if it were offline though.

Learning Outcome: Fusion 360,Ansys Fluent ,CFD,Compliant Mechanisms ,Bio-Inspired Robotics

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Name: AVINAB NEOGY . (2020A4PS1625G)

Student Write-up

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Short Summary of work done: The project is about designing a device that will implement a mechanism used by some underwater organism to attach itself to the ocean floor, the mechanism should be feasible to implement and it should have the provision to release itself from the ocean floor when required. The device will have a basic propulsion unit to help move to the required coordinates initially but the main propulsion will be provided through ocean currents since ocean currents affect waters to a maximum depth of 400 m this device will operate at relatively shallow depths.
The device itself would have to be aerodynamically favorable as it will have to move frequently and it will use a ballast tank to dive(make it negatively buoyant) or come up to the surface(make it positively buoyant).
The proposed deliverables for my project were that:
> Analysis of different organisms that penetrate the sediment at ocean floor
> Studying the mechanisms used by the different organisms and check the feasibility of mimicking the said mechanism in the device.
> An Extensive Research of the works that have already been done and check if any of the precedents are applicable in this project.
I had to go through a lot of research papers on topics like Biomimicry and Compliant Mechanisms .I went through the course material of "Design of Compliant Mechanisms" by Prof Johnathan Hopkins from UCLA and it was amazing .All in all it was a great experience.

PS-I experience: It was a great experience getting to work under CSIR scientists and my project topic was quite unique as well,I had a talk with my Industry Mentor and he has allowed me to continue working on the project when I am back on campus since NIO is in Goa. I would have preffered it if the programme was offline nonetheless it was an insightful experience.

Learning Outcome: Fusion 360,CFD,Ansys Fluent, Compliant Mechanisms

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Name: TEJASWI REDDY CHILLAKURU . (2020AAPS1329H)

Student Write-up

PS-I Project Title: CLASSIFICATION OF MARINE AMBIENT NOISE DATA USING MACHINE LEARNING

Short Summary of work done: The work aims to discuss a methodology to identify the aquatic species present in the sound data collected , and create a Machine Learning model for classification of these species present in any sound data collected from that region (collected by NIO).
I utilised some important information obtained by observing different sound wave graphs and plots, which help understand the various characteristics of the sound present in the data. With this information, it was possible to identify unique signatures of distinct species present in the given data.The distinct species "calls" were then identified and separated from ambient noise in the given sound data (Noise cancellation technique) .With the help of supervised learning model concept, a machine learning model is developed to identify if these distinct species are present in the sound file and would eventually classify them into the various species observed.The result would help observe species passively without external interference serving the focus of the project.I used MATLAB, google collab and python amongst other softwares and software platforms.

PS-I experience: It was a great experience, our mentor was very helpful and guided us throughout the project. I got some experience of how industries/companies work in general. I've learned many new things about oceanography in general and about the aquatic habitat and its species.

Learning Outcome: Learnt digital signal processing techniques and tools used in MATLAB which helped me analyse and plot useful visual representation of the data. I also got an understanding of machine learning concepts and real life applications of classification models. Using Google collab with python , it was possible to make the ML model.

Name: NIRANJAN CHAUDHARI . (2020B5A30929P)

Student Write-up

PS-I Project Title: CLASSIFICATION OF MARINE AMBIENT NOISE DATA USING MACHINE LEARNING

Short Summary of work done: The PS project started form 28 May. We scheduled many meets with our PS instructor to get an idea about the project. The NIO had provided us data. The data has been collected and given by CSIR-NIO in the form of 95 audio files.

These 95 data files have been analysed in the given project. The data files have been analysed in terms of different sound features using python on google colaboratory. The files have been run through the noise cancellation algorithm to remove the ambient noise. The noise-cancelled files have been passed through call segregation algorithm which also takes help from the graphs obtained from analysing sound features. The calls segregated are analysed to find the species present. Two distinct species were found in the calls segregated. The model has 4four features and 95 data points.
The machine learning model is trained and tested in the 95 files .The machine learning model predicts which of the two species is present in the sound wave file.

PS-I experience: The PS experience was really good. The professor alloted at the PS is really helpful and considerate, The BITS professor also considered our problems and provided us solutions.

Learning Outcome: A student must followup with his alloted instructors.The student must ask for work and make sure he does it on time. I learn to manage time and deadlines in PS.

PS-I station: North Eastern Space Applications Centre - Deep Learning , Umiam

Student

Name: SHIRISH KUMARAVEL . (2020A7PS0131P)

Student Write-up

PS-I Project Title: Disaster Risk Management using Deep Learning

Short Summary of work done: We trained a Deep Learning model for Landslide Detection using satellite image data. It was a CNN model using U-Net architecture. We went through various iterations of training the model by tweaking a couple of steps in the pre-processing of data and selection of a suitable loss function for the highest accuracy. We were also tasked with the creation of a QGIS3 Python plugin to be able to run the model on our desktop locally.

PS-I experience: It was a rich learning experience. it was wonderful to work along with a team with similar interests in a professional environment. Didn't experience any major problems and everything went through smoothly.

Learning Outcome: Machine Learning and Deep Learning as a whole, usage of Google Colab and the workings of various architectures and neural networks. Learnt how to use QGIS3 software and develop plugins on the same.

Name: RAHUL M. BIJU . (2020A7PS0953G)

Student Write-up

PS-I Project Title: Deep Learning Inference Server

Short Summary of work done: The aim of the project is to create an inference server that can be used
to deploy DL models. The DL model, in this project, takes in a raw satellite image and give an output image with the roads and by-lanes marked. A simple web-app has also been developed which acts a platform to upload the image from a local system. Django has been used as the primary software to create the inference server.

PS-I experience: Learned a lot of new topics and in the process came across very interesting areas that we can further pursue
Exposure to the corporate world; working on a major project with a team under a supervisor
Transition from academics to real-world implementation
Organisational and time management skills

Learning Outcome: Learnt to use various new software, communication skills etc.

Name: RISHI PODDAR . (2020A7PS1195H)

Student Write-up

PS-I Project Title: Landslide Detection using Deep Learning

Short Summary of work done: The project mainly had two components. The first one was to build a Deep Learning model. We were required to look for appropriate landslide image datasets. We then had to pre-process the data and remove unnecessary features from the same. We then build a CNN-based model based on U-Net architecture, since we had an image segmentation task. The second component was to build a plugin. We learnt and worked upon a QGIS plugin which enabled us to run our DL model on the desktop.
Apart from the project we had two quizzes. One of them was about the PS station, the other one was based on a playlist about startups. We had two group discussions as well, which were not related to our project but were based on generic topics.

PS-I experience: My experience was bittersweet. Initially everything seemed pretty abstract and we weren't clear about our work. We reached out to our project mentor and asked for more guidance about the same, following which we gained some clarity. We had some review meets, which were somewhat helpful in improving upon our work. The group discussions were fun, I liked participating in them. Our academic mentor was really helpful, understood our issues and tried not to put much pressure on us so we could work freely.

Learning Outcome: The most important learning outcomes were collaboration and teamwork. Coming to the technical part, I learnt about Machine Learning algorithms (Deep Learning ones in particular), segmentation methods and plugin development.

Name: SHRIPURNA GANGOPADHYAY . (2020B1A70603P)

Student Write-up

PS-I Project Title: Landslide detection using Deep Learning

Short Summary of work done: We used the Landslide4Sense Geographical Information system(GIS) data to train a U-net architecture using an ADAM optimizer and binary cross entropy loss. We also created a QGIS plugin allowing users to interact with the data more freely without the need for prior coding knowledge.

PS-I experience: We worked regularly with a machine learning scientist from an esteemed government institution and were able to work on a problem with practical

implications. This was a new experience which allowed us insight into the practical workflow for a machine learning scientist

Learning Outcome: We were able to work on a practical application of deep learning, which allowed us a holistic experience of conducting a literature review of DL disaster management which we then converted into practical code. This was a valuable experience to me.

Name: GAUTAM JAJOO . (2020B3A71638P)

Student Write-up

PS-I Project Title: Deep Learning Inference Server

Short Summary of work done: Deep Learning Inference is the process of giving live input to a trained DL model to produce actionable output. The host system for the DL model accepts data from the data sources and inputs the data into the DL model. It is the host system that provides the infrastructure to turn the code in the DL model into a fully operational application.
The aim of this project is to create an inference server that can be used to deploy DL models. The DL model, in this project, takes in a raw satellite image and give an output image with the roads and by-lanes marked. A simple web-app has also been developed which acts a platform to upload the image from a local system. Django has been used as the primary software to create the inference server and docker container for the inference server.

PS-I experience: It was a decent learning outcome. We learned to apply theoretical knowledge on which the paper was written to create a real life application which can be used by the users.

Learning Outcome: Learnt a lot of new topics and in the process came across very interesting areas that can be further pursued. Learnt about Django - a python based backend web server framework and how to dockerize a project which is the process of packing, deploying, and running applications using Docker containers.

Name: VEDANG BHUPESH SHENVI NADKARNI . (2020B5A70897P)

Student Write-up

PS-I Project Title: Deep Learning Inference Server

Short Summary of work done: The project was an MLOps project, in which we had to design a system that allows the user to access a server for inference remotely, over a Network. We had to create a demo as a proof-of-concept on a local system. We were able to use a docker container based solution to spawn an inference server on demand which would accept data via a REST API, and publish the data on a localhost port. Our task was to further connect this "backend" inference server with a "front-end" server, which we hosted locally. The front-end server, hosted on another localhost port, allowed a user to simply upload a local .png file for inference. Then this image was "inferred" i.e. the deep learning algorithm was applied to it after it was moved around on the local network, and the output was brought back to the front-end server. This allowed the user to easily use a deep learning model without having to deal with a terminal or script, all from their web-browser. It allowed to understand and appreciate the importance and impact of MLOps in an ML project life-cycle, and participate in one phase of such a lifecycle.

PS-I experience: The PS Experience was unique. It gave me the opportunity to experience a side of ML that is not so often available to an individual developer or academic researcher. The availability of a PS Station like NESAC with access to original data, compute infrastructure and resources gave me the opportunity to work on a project with a real-world organization that represents the ML Application and Research industry at large. It also granted me the opportunity to understand the tricks of the trade, used by industry experts, and certainly exposed me to a more practical side of the ML industry.

Learning Outcome: The project exposed me to the development side of ML rather than the research side. It allowed me to see what opportunities existed in the ML field beyond just research. I learnt a bit about Docker, Django, Web development and Applied Deep Learning. It also gave me the opportunity to learn how to work with a team, collaborate on a project remotely, work on integrating codebases, and applying research technology for customers and users.

PS-I station: North Eastern Space Applications Centre - Water Resource Monitoring System , Umiam

Student

Name: MOHIT AGARWAL . (2020A7PS0189H)

Student Write-up

PS-I Project Title: Development of Water Resources Management System

Short Summary of work done: Our project focuses on creating a web-based interface that can be used to track time series optical and microwave pictures of the area's wetlands and water bodies.
We determine the water area from a satellite image using machine learning, then produce our dataset and make it publicly available online so that anyone may examine the data and utilise it.
We used the following technology:
HTML
Java Script
PHP
Geoserver
OTSU Thresholding
Google Earth Engine
Leaflet JS
Chart JS
QGIS
SQL Workbench
XAMPP
VS Code
Using Machine Learning we first had to build a dataset which we had to upload in a database .
We created a rest API using PHP which fetched us the required information when clicked on a object in map .
integration of backend to front end was one the most challenging task and then we had to use chart js to build a line graph to show the difference in water level of a certain polygon id over a span of 2 years.
Project was a fun as well as useful one.

PS-I experience: Our mentor was really nice and was always ready to answer our queries .
We got to experience how real industry actually works and what all skill sets are required in a company.
My experience was really good and informative , 2 months of PS was really beneficial for me in terms of skills.

Learning Outcome: We got to learn about the various technological aspects as discussed in the presentation
We were co-ordinating ,working in subgroups and combined all our works and maintained the integrity of our project sprouting the teamwork in us
We got an insight on how the real industry works and what all skills are required
We were able to finally build a fully dynamic as well as interactive web page that was able to the tasks assigned to us at the beginning of our PS venture

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Name: ROHAN GUPTA . (2020A7PS1691G)

Student Write-up

PS-I Project Title: Water Resource Monitoring System

Short Summary of work done: This project was aimed to provide assistance to ISRO for analysing different water bodies present in the North Eastern parts of India, specifically the areas nearing the Brahmaputra river and its basins. It is expected to give an insight to local people and government about the water trend of certain selected area of water bodies which can be used to predict floods which is a major life threatening calamity faced by people in the monsoon season. Moreover, it can be used to see the declining water levels in an area which is an alarming sign for locals as further exploitation of that water body might lead to water shortages in that mass land. Using cutting edge technology such as Machine Learning Algorithms and Satellite Image Processing, our project aimed to solve these problems before any loss of life occurs. We achieved our goal by first creating a dataset of 2 years which gave us the water trends then we created the SQL database using it and linked it to the layer using leaflet js and using Geoserver to publish our layers. Database is linked to the frontend using PHP.

PS-I experience: It was a fruitful experience as I got to work on a project with a wonderful team. I got to work on analysis of satellite images, which is interesting to learn about, and create something that can help people out.

Learning Outcome: 1. Learnt to analyse satellite images.
2. Learnt about the interface of Google Earth Engine and QGIS.
3. Learnt to work on a project in a team.

Name: LAVKUSH SHARMA . (2020A7PS1709G)

Student Write-up

PS-I Project Title: Water Resource Monitoring System

Short Summary of work done: We have designed a web based platform to monitor the water level of diferent water bodies. We have worked on Google Earth Engine APIs and also created a machine learning model in order to extract water bodied from a satellite image

PS-I experience: It was a great learning experience. The industry mentor was very much supported.

Learning Outcome: Creating machine learning algorithm. Learning about remote sensing and Google Earth Engine APIs.

Name: ANISHKA SINGH . (2020B3A70816P)

Student Write-up

PS-I Project Title: Development of a Water Resource Management System

Short Summary of work done: Objective : Development of web-based platform for monitoring water bodies such as wetlands & reservoirs and their capacity using time series optical and microwave satellite images.
Summary : This project focused on helping NESAC analyse various water bodies in North-Eastern India, specifically in the Marigaon district. It will be used to assist the local populace and administration in analysing the pattern of change in the area of water bodies, which will aid in forecasting floods. If water levels are dropping, it will be easier for the government to take the necessary steps to save water. Our project's aim was to develop a Water Resource Management system for the North-Eastern region using technologies like remote sensing, geographic information systems, OTSU thresholding, and machine learning algorithms.
In order to process satellite photos and implement machine learning and OTSU thresholding algorithms, we used the Google Earth Engine platform. Our data was stored in a MySQL database, and the layers were displayed on the web browser using

GeoServer and Leaflet. Finally, we used PHP to connect the database to the layer and chart js to produce a graph showing the trend of the change in the area of water bodies within a polygon with a certain ID on a monthly basis for two years (2017-18).

PS-I experience: The overall experience was good. Our mentor at NESAC was very helpful and constantly guided us throughout the project. .It provided a hands-on experience on how to use various technologies to extract and process information from satellite images.

Learning Outcome: The project helped me in understanding how remote sensing and GIS are used. Me and my group members effectively constructed an interactive webpage that tracked the water area of wetlands and water bodies in a specific area on a monthly basis for two years. In order to achieve this, we used machine learning algorithms to analyse the satellite images, published our layer on a workspace in GeoServer that is open to the public, and finally plotted the graph of areas of water bodies on the browser, where it was easier to understand how the areas of the water bodies changed over the years.
Learnt : Google Earth Engine, QGIS, JavaScript, Python, Machine learning algorithms, OTSU Thresholding, GeoServer, Leaflet, MySQL, Chart.js

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PS-I station: ODE Holdings, Inc , Arizona

Student

Name: JAY PRAKASH MUNDHRA . (2020B3A70799P)

Student Write-up

PS-I Project Title: Compliance Questionnaire & Ticketing System wireframe

Short Summary of work done: We made a privacy compliance Questionnaire and also created a technical design wireframe for a ticketing system for the company.

PS-I experience: The experience was great and it gave me a early hands-on industry exposure. It helped me understand how does the industry work and how to work in collaboration in a team on a common project.

Learning Outcome: I learnt about team work and industry standards of work quality.

Name: KARAN MANOJ AGRAWAL . (2020B4A70830P)

Student Write-up

PS-I Project Title: Privacy Compliance Toolset

Short Summary of work done: The initial period of the PS was more of training and learning where we got to learn about the working space, work drive and how to use various tools in Amazon Web Services. We were given knowledge transfer sessions about the architecture of the company and how all things work, also we were explained abouth the existing products and existing code, etc
Then to implement the project we needed information about privacy and privacy design, so were given a book to read and presented our learnings in the form of presentations.
We started working on the project by learning various types of metadata and the collection methods through API endpoints and Upload requests from the customers. We also learnt about ticketing system used by various companies which helps them being compliant with various security laws. We vreated a technical document stating the working of our toolset which would present Risk Assessment, Compliance Report and Analytics of the ticketing system of the customers. We designed the application on figma and gave a detailed plan on how to develop it further.

PS-I experience: Overall it was a great experience, we learnt a lot of new things and how things actually work in corporate world. We got to learn about the tools used to check on the progress and also learnt about cloud services which would definitely help us in the future.

Learning Outcome: Learnt how to build a technical design for a project.
Learnt the processes involved from designkng to deployment of an application.
Working on code using cloud services as a team.

Name: KUHU GUPTA . (2020B4A71524G)

Student Write-up

PS-I Project Title: Privacy Assessment and Risk Analysis in Healthcare Sector

Short Summary of work done: My work included researching about various data and privacy related regulations and laws in the healthcare sector. I did extensive research on the same for countries like USA, Europe, South Africa etc. I was assigned the task to make a informative deck comprising of the information I gathered during my researching and making a questionnaire on the same for the clients to know how compliant they are with the existing laws and regulations.

PS-I experience: My PS experience was really great. I got to learn a lot through continuous guidance and meetings that was help throughout. I was being mentored by the chief product officer of the company. I was involved a lot throughout the process by the company in the product related meetings which gave me a better insight on how things actually work in the corporate culture. I learnt a lot throughout the process and will be taking a lot from here.

Learning Outcome: I learnt about how things are in the corporate life. How to better interact with people and improved my communication skills. I also got to learn a lot about the company's product and what goes behind in making an actual product. I was able gather a lot of information about risk analysis and privacy assessment. All this also helped me improving my presentation skills.

PS-I station: OnFinance - IT , Bengaluru

Student

Name: SAARANSH MARWAH . (2020A7PS1687G)

Student Write-up

PS-I Project Title: Web Development

Short Summary of work done: I learnt MongoDb , Flask , HTML,CSS and Javascript. I worked for the website OnFinance to give it a premium look.Work was distributed between the members and there was weekly assessment of the work , and the changes were made according to the instructions given by the PS Station and project was completed.

PS-I experience: It was great experience . I got to learn a lot. I also increased my networking. The mentors at PS Station were really helpful . It was an enriching experience.

Learning Outcome: I have learnt web development skills like HTML,CSS and Javascript . I also learnt how to work with team and got an enriching experience of working in a startup.

PS-I station: Palmtree Infotech , Chennai

Student

Name: KAVYANJALI AGNIHOTRI . (2020A7PS0185H)

Student Write-up

PS-I Project Title: GPT-J 6B Custom Model Training

Short Summary of work done: We were introduced to natural language processing models like GPT-J 6B and GPT-NeoX and a 825GiB collection of dataset called the Pile. Our task was to figure out how to add custom data to the Pile and further use that for training these models. Further we had to figure out out to fine-tune the models for our usecase i.e. Named Entity Recognition. We further looked into other multi-language models like BLOOM. We made use of HuggingFace's Transformer library a lot to try out various NLP tasks. We tried out the models available on HuggingFace. We were also introduced to Gradio, a app making platform.

PS-I experience: PS-1 was an eye-opener for me as it showed me the challenges faced in doing something new with the existing technologies. I also realized that a lot of great work that goes into figuring out the best strategies for making something. There is a great amount of work in making open source Natural Learning Processing models and maintaining them with the updates and deprecation of some technologies. My PS experience helped me realize that there are numerous challenges when making a new project. It taught me that correct guidance and great team work helps significantly in any project.

Learning Outcome: 1. Understand what are transformers.
2. Understand how data is converted to model comparable format.

3. Able to understand new and upcoming NLP models like GPT-NeoX.
4. Use services provided by HuggingFace and playground of ForeFront for small NLP tasks.
5. Good communication skill.

Name: YASH YOGESH YELMAME . (2020A7PS1224G)

Student Write-up

PS-I Project Title: Healthcare NLP

Short Summary of work done: I have created a NLP model which, given a sentence, will predict drugs or medicines in a sentence. So for some typed out prescription by doctors, it will recognize the names of medicines in that text and highlight it. I used SpaCy for this task. I created the whole database from different sources and combined it into one and trained the model with it. Then I combined different models created by SpaCy like HealthSea and the en_core_web_sm model to make my model useful, so that it is able to recognize drugs, conditions, person, organizations, locations and more in a sentence. I also extended this model to recognize drugs given any language, be it Japanese or Hindi or German or any language. I tested it on different languages and it works well.

PS-I experience: It was a really good experience. The project mentor (who was the director) gave us a lot of good guidence and helped us to learn and debug our problems. He was constantly in touch with what we were doing and constantly kept us working.

Learning Outcome: I got a decent grasp on machine learning and working with Natural Language processing (mainly spacy). I got a brief idea of working in a company and learnt the importance of punctuality.

Name: KRISHANU SHAH . (2020A7PS1728G)

Student Write-up

PS-I Project Title: Healthcare NLP

Short Summary of work done: Built a model that recognises parts of a digital medical prescription and labels them accordingly. Used the healthsea pipeline built on top of spacy

PS-I experience: Daily meets, comprehensive work. Moderate workload (around 2 hours per day).
Good experience overall
Requires prior experience in programming, keeping up could be tough if you don't have experience in at least one programming language

Learning Outcome: Learnt NLP using python and SpaCy, teamwork, leadership, management, task delegation

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Name: AADITYA MAHESH RATHI (2020A7PS2191H)

Student Write-up

PS-I Project Title: NLP in Healthcare

Short Summary of work done: The aim of our project was to create a model which contains a database where it can detect not only several Western drugs but also Ayurveda medicine or any nation's specific drugs which are still not popular, while also understanding a doctor's prescription by identifying not just the drug but also its dosage and the route of the drug like oral, injection, etc.
We first learnt basics of Natural Language Processing using SpaCy. Then learnt how to train models in SpaCy. We used the NER annotator tool to annotate our data. We built our own models on top of the healthsea pipeline to identify drug-names, frequency, dosage and routes. We used regex matching to find the frequency and dosage. We even made our own dictionary of words related to medical terms for correcting spelling mistakes using the Python symspellcheck library. Then we learnt Elastic-Search and learnt to implement it's various features like synonyms, synonym-graphs,dictionary and hyphenation decompounders. Learnt algorithms like TF-IDF and edit distance algorithm in detail.
We used Elastic-Search for storing drug names in our index. We automated the process of data insertion and searching using DSL queries and Django web framework for the UI. We used Django for rendering our HTML and CSS templates. We learned to train our models in different languages using the Google translate API and also storing of data and

retrieval of search in multiple languages. The overall experience was really awesome and learnt a lot of things.

PS-I experience: Our group had five members. We all were given different tasks and we had meets regularly except on Saturday and Sunday. Sir used to ask us to demonstrate our findings in the meet and also guided us very well throughout the project. As some of the technologies were new to me, like SpaCy and Elastic Search I was facing a lot of issues while installation and setting up everything. Sir helped me a lot to solve those errors. Sir made a common group for us on yammer for discussion. He regularly used to post some good articles to give it a read. That channelized the way of our thinking and gave us a proper direction to work upon. My team members were also really helpful and co-operative. The overall experience was really great.

Learning Outcome: Natural Language Processing
SpaCy
Python
Elastic Search
Django
HTML
CSS
JavaScript

Name: DHRUV AGRAWAL . (2020A7PS2193H)

Student Write-up

PS-I Project Title: GPT-J 6B Domain Modelling

Short Summary of work done: The work started with working towards GPT-J 6B and the dataset it was trained on. All of us were given a subset of the Pile to analyse and work upon. This work later transformed to a bigger model which is GPT-NeoX 20B which is the largest open source GPT model available to date. I was given tasks to understand and try to run these models for analysis using Huggingface. These models are too large to run for free so we tried to run smaller models such as GPT Neo 125M. I was able to successfully run it n Google Colab notebook. Then I was tasked to create a web page demo using these models for which a special framework called Gradio is used. I was able to create the required web page using multiple different interfaces. After which Sir asked me to start working on different audio video components of Gradio and spaces related to

it. It involved a lot of researching and understanding concepts and ideas unknown to me. So learning was extensive and insightful.

PS-I experience: The PS-1 experience was very insightful and different. The POC for my PS station was the founder of the company and him being able to guide us through each problem and discuss the progress of our work daily

Learning Outcome: I was new to Machine Learning so got to learn a lot about NLP models and how they work. Datasets used to train such models and technologies like Transformers and JAX were great for learning. Understood about Huggingface and how to create spaces and utilise spaces. Learnt about Gradio framework.

Name: TARESH BANSAL . (2020B2A71945P)

Student Write-up

PS-I Project Title: HealthCare NLP

Short Summary of work done: We worked on Natural Language Processing, training the custom models to do a particular job like identifying and analysing certain text and getting the essence of what all is written in a big text in terms of what emotions are used, what facts are used, which terms are used more often and what do they mean.

PS-I experience: It was a very great experience. If a person wants to learn then the industry mentor here helps you in every possible way. Daily sync-up meets are part of the journey.

Learning Outcome: NLP, Python, SpaCy

PS-I station: PeakMind (Purnatvam Learning Solutions Private Limited) , Bengaluru

Student

Name: ANEESH GUPTA . (2020AAPS1766H)

Student Write-up

PS-I Project Title: Working on compete assessment app and PeakMind's websites

Short Summary of work done: We mainly worked with react.js and node.js. We were also asked to go through the basics of AWS and we used that to find the reasons behind any lambda errors that occurred. We looked through the bugs/required functionality and then tried to implement those using react and node. This was done for the compete app and peakmind's web pages. We also familiarized ourselves with git and GitLab as we had to clone different repositories, make branches, push and merge necessary files. On many occasions, we were also asked to check if the app worked as planned. Towards the end, we were expected to work on an offline version of the app for students without a smartphone. We tested various open source OMR scanning softwares using relevant python libraries.

PS-I experience: I learnt a lot of things from PS-1. The work was as per the current industry standards and I really enjoyed working at PeakMind.

Learning Outcome: React.js, Node.js, AWS, teamwork and professional ethics

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Name: PULKIT . (2020B2A71932P)

Student Write-up

PS-I Project Title: DEVELOPMENT AND REVAMP OF EMPLOYEE AND CONSUMER PORTAL FOR SELF ASSESSMENT

Short Summary of work done: We have worked on a number of technological initiatives at PeakMind, including finding bugs in the Compete assessment web app, editing JSON files for the Selfcare Wellbeing Portal for Teens and PeakMind Employees, testing of OMR scanning software, and fixing the CSS of the Compete app using Tailwind CSS.

PS-I experience: In the initial phase (the first two weeks), we focused mostly on understanding the fundamentals of the many technologies needed for web development, such as ReactJS, NodeJS, etc. Most of the educational materials were made available by the IT team. Then they began giving us tiny tasks, such as detecting bugs in an app that the tech team had been working on; however, despite their assurances that they

would give us a distinct project in the near future, they continued to only provide us small tasks. Simply testing of open-source software, was assigned during the last phase(the last two weeks).

Learning Outcome: Bug finding, how to deal with JSON files, understood the core concepts of reactJS, nodeJS, Tailwind CSS and how to test the open source softwares by setting up required environment are the technical learnings i learned in PS-1. Coming to overall development, i came to know how exactly things workout in startup, this boost up my problem solving skills.

Name: ADITYA BHAT . (2020B5A72045G)

Student Write-up

PS-I Project Title: DEVELOPMENT AND REVAMP OF EMPLOYEE AND CONSUMER PORTAL FOR SELF ASSESSMENT

Short Summary of work done: My work at PeakMind was mostly around building a web app called "Compete Assessment", Compete Assessment is an app that focuses on identifying the mental strengths and weaknesses of an individual through an interactive quiz based assessment in order to provide students with a competitive edge in exams like JEE/NEET.
Most of my work was focused on building the interactive frontend for the web application using ReactJS,.
The last 2 weeks we were given a new problem of porting the service provided by the web application in an offline setting. We were asked to come up with open source software solutions for the problem.

PS-I experience: PS-1 was an enriching experience. One of the reasons was that it was a relatively new startup. The environment was encouraging, and the timing was flexible. It helped me improve my communication and technical skills. Learned to work with people in a professional setting. People at PeakMind were very supportive and helpful and have guided me throughout the duration of PS-I.

Learning Outcome: As a part of the PS-I program I learned to build frontend and backend systems for an interactive web application. ReactJS, AWS Lambda, MongoDB, NodeJS, AWS Amplify are some of the tools/frameworks that I used in order to complete the tasks assigned to me. I also learnt version control and concepts of DevOps using GitLab and Git. I was also introduced to Figma and Webflow.

PS-I station: Persistent Systems Ltd. , Verna

Student

Name: VEDANTKUMAR THAKKAR . (2020A7PS0059P)

Student Write-up

PS-I Project Title: Federated learning

Short Summary of work done: Machine learning in Healthcare sector.
Tumor segmentation for the endoscopy images. And cancer cell detection using pan nuke dataset and Unet model. Integration of CVAT with Monai which helps in automatic annotation of images

PS-I experience: The mentor we extremely helpful.
They helped us in the things where we were stuck.
They were much friendly and i felt very easy to communicate with them

Learning Outcome: Knowing about Docker, federated learning,CVAT, Automatic Segmentation.

Name: SAMYAK BAKLIWAL . (2020A7PS0104P)

Student Write-up

PS-I Project Title: Fraud Detection in HealthCare Claims

Short Summary of work done: My project title was Fraud Detection in HealthCare Claims. We worked directly under the supervision of the Senior Data Scientist as a team. We were given 7-10 days to get up-to-date with Neo4J. But then we switched to using the

networkx library in Python. We were given 4 checkpoints out of which we managed to complete 2 checkpoints and we were on the 3rd checkpoint. We used classifiers like Logistic Regression and Random Forest Classifier and added certain graph-related properties like Closeness Centrality and PageRank to the dataset. We were able to improve the F1 score from 0.55 to 0.75. Sufficient time was given to complete the tasks.

PS-I experience: PS-1 was my first industry-level exposure. I got to learn a lot about the workings of an organization. We worked as a team and always thought of new ways to arrive at the solution. The regular meets held by Persistent Systems insured that don't slack off, and be up-to-date with the project. The group discussions and quizzes helped me expand my knowledge in the field of Machine Learning. Overall it was a wonderful learning experience.

Learning Outcome: I got to learn a lot about Machine Learning and various other graph-related features like Closeness Centrality and PageRank. I believe that the regular meets and presentations helped me improve my communication skills as well. Overall I would like to thank BITS Pilani for providing me with this amazing opportunity.

Name: NABAR OMKAR ASHISH . (2020A7PS0119G)

Student Write-up

PS-I Project Title: Training NLP models with Federated Learning

Short Summary of work done: Trained distilBERT to to multiclass sequence classification and then trained the model on decentralized data using federated learning.

PS-I experience: It was a good learning experience as I had the opportunity to interact with industry professionals and work on a project. I also got to explore a niche field like federated learning which I probably wouldn't have if it weren't for PS-1.

Learning Outcome: Learnt about transformer models, HuggingFace library for python, various federated learning algorithms, how to implement federated learning, fine tuning a pre-trained model

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Name: ADITYA DHANEKULA . (2020A7PS0205H)

Student Write-up

PS-I Project Title: Applications Of Knowledge Graphs

Short Summary of work done: We were initially trained in the aspects of Machine Learning and introduced to the concept of knowledge graphs and graph databases and we later worked on building a recommender engine that eases the product purchasing experience for a customer by suggesting appropriate products to the customer based on the previous user behaviour. We have implemented a recommender engine by deploying a model which uses collaborative filtering approach after converting the dataset into graph. We have worked on the Microsoft Minds dataset to build the recommender engine. After converting the dataset into a graph model. We have applied KNN to determine the similarity of nodes and ranked the nodes. The nodes or articles that get the highest score are the ones that are most similar to the user preference and hence are suggested to the user.

PS-I experience: Over the course of the last two months, I was able to work on various technologies like Neo4J and was able to implement a recommender engine. The company mentors were very helpful from the beginning by providing us time to understand all the new concepts. They have arranged meetings with us regularly and helped us out in case we were stuck at some point. Overall, it was a wonderful experience.

Learning Outcome: I was able to learn quite a few new technologies and got a hands-on experience on some of the latest technology that was available. I have learned many new concepts related to Machine Learning in the last two months at Persistent Systems. This is quite helpful for me for my upcoming semesters as I have taken a minor in Data Science.

Name: ALVIN ADARSH KUMAR . (2020B5A70931P)

Student Write-up

PS-I Project Title: Medical Fraud Detection

Short Summary of work done: My station was an ML station , and my project was allotted based on my interest in ML topics like knowledge graphs and graph algorithms. We had to train and test a machine learning model for three levels , baseline - only

traditional techniques were used , baseline + graph features and last model was baseline+ graph features+ clustering algorithms.
All these three models were trained and tested separately and their efficiencies were compared. Results showed that the final model which included graph and clustering algorithms were the most effective with a F1 score jump of over 30% when compared to traditional baseline model.

PS-I experience: Quite informative and useful for ML enthusiasts. Hands on learning with industry grade projects helped me take a deeper look at real world problems and how they are solved. Even working closely in a corporate environment instilled a work ethic inside me which would probably persist on in my further intern and workplaces. Instructors were very helpful and would solve the simplest of doubts if you had. Overall a great PS1 experience since the station was really nice.

Learning Outcome: Learnt a lot about graph data structures and Clustering algorithms and how they can be used to solve real world problems.
Learnt machine learning and other tools such as jupyter notebooks and Google colab.

PS-I station: PerspectAI , Hyderabad

Student

Name: HARSHITH HARITHSA R . (2020B2A42007G)

Student Write-up

PS-I Project Title: PerspectAI

Short Summary of work done: Learnt about ReactJS and typescript. Built a few webpages with react using their existing codebase to simplify and reuse code. Converted existing projects from javascript to typescript. Learnt API calls in redux and setting states in redux for adding functionality to the webpages to be able to store and access data from the database

PS-I experience: The experience was pleasant, not overwhelming. The instructor and the employees were understanding of our prior knowledge and helped me from the start and made sure i wasnt stuck on something for long so that I could keep progressing.

Learning Outcome: I learnt a lot of javascript, react with typescript. I learnt alot about debugging in general, about how to efficiently group and divide code for ease of access and reusability.
I also got my first experience in a professional setting and got the chance to observe, interact and learn from the people working at PerspectAI

PS-I station: Petasense Technologies Pvt. Ltd. , Bengaluru

Student

Name: CHETAN KESHAV GHODKE (2020A3PS1495G)

Student Write-up

PS-I Project Title: Designing and implementing a Python script to load device health and related data from cloud endpoints and visualize it using charts locally to the user

Short Summary of work done: Had to do Python scripting to visualise data in JSON format graphically using data visualisation libraries like matplotlib.

PS-I experience: Great experience, very helpful mentors. Overall the experience was fruitful, learnt a couple of new things, wasn't very hectic at all.

Learning Outcome: Python scripting, JSON file format, data parsing in Python, Google Cloud Endpoints, HTTP Requests, Matplotlib, Seaborn and various other small nuances like timestamps' formatting etc. that come up when building a project.

Name: MEHAK BATRA . (2020B3A71462G)

Student Write-up

PS-I Project Title: Development of a GUI for a sensor defect simulator using tkinter

Short Summary of work done: The company gave us their code for a sensor defect simulator. Such code may be difficult to run by someone with a non-tech background, as they might not know how to use terminal to run their code. Thus, building a GUI will allow for an easier, more attractive interface. We built the interface over the course of weeks using tkinter on python3. We then integrated it with the original code given to make sure that all the information inputted was properly being stored, sent to cloud, processed, and then finally the graphs were being shown to the customer.

PS-I experience: Very great mentors. Good and supportive professor. Learned a lot.

Learning Outcome: Learned tkinter. Furthered my knowledge of python. Learned to work with a team and use git and bitbucket.

PS-I station: Platifi Solutions , Bengaluru

Student

Name: HARSH PRIYADARSHI . (2020A7PS0110P)

Student Write-up

PS-I Project Title: University Website

Short Summary of work done: We started of with learning basics of web development and company gave tasks for the same to finish at certain deadlines.
The work involved creating a MERN fullstack website which would have CRUD features enabled. Though the work was not used in an actual project, it was simply meant for our learning or practice.

PS-I experience: The PS experience has been nice, the contact with station and the faculty was smooth.

Learning Outcome: I learnt mongoDB, reactJS, expressJS, NodeJS.

Name: RANIPA JASH RAMNIKLAL . (2020A7PS0119P)

Student Write-up

PS-I Project Title: University Website

Short Summary of work done: I learned MERN stack for web development. I have created university website which contains home page, student page, contact page and Faculty Page which were made using ReactJS and BootStrap5. I have also added authentication mechanism for user login in my project. For Backend I have used Node, Express and wrote API's for performing CRUD(Create, Read, Update, Delete) operations. I have used NoSQL MongoDB database for storing data. I have used Mongoose to connect backend Server with my MongoDB database. I have used Axions for calling API from ReactJS frontend to my Backend. In this way, I have made a MERN Stack Project.

PS-I experience: Experience of PS-1 was really nice. The mentors at PlatiFi Solutions were helpful and guided us through the whole project. They took regular updates from the students and gave his valuable feedback on the work done by us. Faculty mentor from BITS also helped and guided us. Working with our team was also a new and pleasant experience. I would gladly recommend this station to an absolute beginner in Web Development.

Learning Outcome: Technical : HTML, CSS, JavaScript, BootStrap5, MERN stack (MongoDB, ExpressJS, React and NodeJS), Material UI, Axions, Mongoose, API, Git and Github.
Non Technical : Work distribution, Communication and Collaboration within the team, Making reports, presentations and documentations.

Name: PALAVALI VISHNU PRANEETH . (2020A7PS0126H)

Student Write-up

PS-I Project Title: Student Management System

Short Summary of work done: Built a basic full stack web application that only has CRUD functionalities. The web app's GUI makes it easier to interact with the database(than MongoDB compass)

PS-I experience: I did learn the MERN stack. The station will have meets twice or thrice a week and assign us a small task to do before the next meet. They see your work and suggest changes and will even help you if you are stuck. The PS course was a good start in web development.

Learning Outcome: MERN Stack

Name: GAURANG NILESH PENDSE . (2020A7PS0132G)

Student Write-up

PS-I Project Title: User Login and Student Data Management

Short Summary of work done: Our work was mainly focused on Web Development and Database Management. During the initial few weeks, we were given materials and tutorial videos to study and learn from and were handed various tasks to do which were reviewed by our PS mentor and were provided useful feedback to code efficiently. We learned technologies like HTML, CSS, JavaScript, ReactJS, NodeJS, and MongoDB. Then we started work on the project which was about making a website to store student details. We also had to make a dashboard and a snack bar and the website should be functional and user-friendly. We also had several meetings, and group discussions with our mentor and professor and learned about the corporate world and how it works.

PS-I experience: It was a valuable experience in which I learned various technologies and other software development skills. The PS mentor was very helpful and always gave constructive feedback.
I learned teamwork, communication, and how work is coordinated in a corporate setting.

Learning Outcome: I learned various technical skills like HTML, CSS, JavaScript, ReactJS, ExpressJS, and MongoDB. I also learned values like communication and teamwork.

Name: LUV GHILOTHIA . (2020A7PS1700H)

Student Write-up

PS-I Project Title: Student management system

Short Summary of work done: Mern stack development

PS-I experience: Good experience

Learning Outcome: Industry skills, mern stack development

Name: ARKISHMAN GHOSH . (2020A7PS2077H)

Student Write-up

PS-I Project Title: Student Information Portal

Short Summary of work done: The objective was to make a student information portal using MERN stack. We started off with making a login page and a registeration form which would be used as components in the final project. We then moved on to making a dashboard which would store the information. Each person was supposed to make this portal individually.

PS-I experience: We were made to do work, so it gave us an industry level experience. The only problem that I felt was that they didn't give us a company project to work on, rather the project was aimed at training us. Weekly or biweekly calls to assign and check the given work. The assignments are not too hard, and it's a good opportunity to learn.

Learning Outcome: I was able to learn MERN stack and I now have a project made using the same.

Name: AMRATAANSH NIGAM . (2020AAPS0344H)

Student Write-up

PS-I Project Title: Student Data Management System

Short Summary of work done: I have developed a Student Data Management System System that allows colleges to store and edit the data of their students. The front-end part was done using ReactJS, for styling I have used CSS, for the back-end part I have used NodeJS , I have used MongoDB as database and for linking all the stuff I have used Express.

PS-I experience: My PS-I experience was very good as I learned various new things in it, and working with the company was a totally new experience. The mentors were very supportive and helpful throughout my internship. I build new things which helped in solving real-world problems. Overall, my whole working experience as an intern in Platifi Solutions was very amazing.

Learning Outcome: The learning experience was quite insightful, as we have exposed to various web technologies like ReactJS, NodeJS, MongoDB, and Express. It was my first hand-on experience on Web Development and it was very great. I am looking forward to more such experiences.

Name: MEGHANA BELLAMKONDA (2020AAPS0395H)

Student Write-up

PS-I Project Title: Student Database Login System: Full Stack Web Development

Short Summary of work done: This project comprises of an editable database which stores all details of a student (such as Name, Branch, Gender, User ID, etc). This project was made by utilizing MERN Stack. This was a full-stack development project. The frontend was designed using React Framework and backend was connected using NodeJS. The database used was MongoDB.

PS-I experience: The company was organizing weekly calls to update on what all components must be designed by the next meeting. There was very little time given for learning and the schedule was hectic. But it was great learning opportunity and real-time working experience to have. It taught us about work ethics and helped developed communication skills

Learning Outcome: This project has made me familiarize with MERN stack. I was able to implement and exercise my web development skills.

Name: HARSHIT GOYAL . (2020AAPS1773H)

Student Write-up

PS-I Project Title: Student Data Management System

Short Summary of work done: I have developed a Student Data Management System that allows colleges to store and edit data of their students.
The frontend of the project was designed using ReactJs whereas the styling was done with the help of CSS. The backend was developed using Mongo DB and linking frontend with backend is done with the help of express Js.

PS-I experience: My PS1 experience was amazing as I learned various new things which not only enhanced my technological skillset but also magnified my self confidence. Working with a company was a fresh experience for me as I got an opportunity to develop new product which could solve real world problems. The mentors at Platifi were very supportive and always encouraged us to learn different things.

Learning Outcome: The learning experience was quite insightful as we have been exposed to the various web technologies like React Js, Node Js, MongoDB and Express Js. In the beginning we were given some tasks based on basic HTML, CSS and JavaScript that gave us the feel of web development as many of us were beginners to it.

Name: CHIRAG SHAH . (2020B4A72000H)

Student Write-up

PS-I Project Title: Student User Login and Data Management System

Short Summary of work done: Full-Stack Development. We used the MERN stack to build a website which contained a login page. Once we are logged in, there is a sidebar through which we can navigate to different tabs. In the Student tab, there is a button for adding student data, which when clicked, opens a popup in which we enter our details. The details get stored in the database when clicked on submit. These details are then shown on the Students page in the form of a table.

PS-I experience: It was an amazing learning experience. We learnt a lot of new frameworks and the mentors were quite helpful.

Learning Outcome: Throughout the internship, we learnt HTML, CSS, JavaScript, Bootstrap, React, Express, Node and MongoDB. We also learnt UI tools like Material UI which helped with the frontend. In the backend part, we learnt how to use and call an API and connect it with a database.

Name: HARSHIL KANKANE . (2020B4A72230H)

Student Write-up

PS-I Project Title: Making a Student Login and Data Management Portal using MERN stack

Short Summary of work done: We started the work with making basic Tasks using HTML ,CSS ,Bootstrap. Then we made a Student Login page using JS which was connected to a website containing 3 pages (Home, Student and Support). We designed the HOME page, added Navbar, Sidebar.
In Student Page we added a fully functional CRUD application which was connected to backend servers and MongoDB database.
In which we can add user, edit user and delete user.
The register/ Adduser and edit forms were made in a popup.
Snackbar, Loader and edit ,delete button functionality was added to the page.

PS-I experience: It was a nice learning experience with the continuous allotment of tasks. For some time it felt very hectic when the pace was more , but overall was a nice experience of corporate working.

Learning Outcome: I was able to learn many concepts of Frontend and Backend programming. How to make API calls and about many external packages available in the programming which can make the work easier.

PS-I station: PreludeSys , Chennai

Student

Name: ADITYA . (2020A2PS2516H)

Student Write-up

PS-I Project Title: Quick Shop - SKU Creation

Short Summary of work done: My team created a project based on web development. We had to present our progress to the faculty and the company time to time. They suggested us ideas and we tried to implement them. We also learned a lot during the process.

PS-I experience: This experience helped me to learn a lot of technical concepts , punctuality and team work.

Learning Outcome: Job experience , technical concepts , punctuality , team work

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Name: SURAPANENI SOWRISH SAI . (2020A4PS1525H)

Student Write-up

PS-I Project Title: Employee Attrition Forecasting

Short Summary of work done: ● Firstly, we read up a little on the importance of attrition rate and how it is calculated, to understand the problem statement.

● We have gone through the basics of Python, Machine Learning and Data Analytics.
● We then headed over to find out the different algorithms that would be feasible to work with.
● We split up and worked on one algorithm each, so that we could figure out which one is more efficient and use it at the end.
● We succeeded in making models which predict the attrition possibility for a set of employees based on the historic data.

PS-I experience: We have worked on employee attrition, why it's important and how it impacts the company. Worked using algorithms for machine learning and determined the attrition of the dataset we chose. The group discussion components and the weekly team meets with the company's HR gave us good exposure to how businesses work in the IT workplace.

Learning Outcome: Gained hands-on experience with machine learning and data analytics applications. I can acknowledge that it was a wonderful experience at PreludeSys. The learning was smooth, and it gave us exposure to the machine learning and data analytics field.

Name: PRAKHAR NIGAM . (2020A7PS0168H)

Student Write-up

PS-I Project Title: Participant Reaction (Feedback Analysis)

Short Summary of work done: Using Net Promoter Score and Machine Learning algorithms, we plan to make a dashboard that should show the learner's interest level on a specific topic based on the feedback recorded post the learning.

PS-I experience: Learnt a lot of new things, got industry exprience

Learning Outcome: Data Analytics, ML algorithms

Name: KODITALA SHREYA . (2020A7PS0176H)

Student Write-up

PS-I Project Title: Employee Attrition Forecasting

Short Summary of work done: Our project dealt with data analytics and machine learning. We had an introductory meet where we were informed about the company's origin, the founders and how different sectors within the company work. One week down, we were assigned the project. We were required to learn the basics of Data Analytics and Machine Learning. We then started with the development of model. We split into groups and worked on different machine learning algorithms. We learnt about several python libraries and used them. Towards the end, when our model was ready, we were asked to do data exploration. After performing the same, we presented our findings and drafted a report.

PS-I experience: My experience at PreludeSys was productive. We were divided into teams and given
projects, we regularly had project review meets where our progress was showcased and suggestions were given by the mentors. I received proper guidance whenever I had queries. My teammates were co-operative and responsible. Overall it was a satisfying experience.

Learning Outcome: I got to learn about various Machine Learning Algorithms and Data Visualisation techniques. It helped me improve my soft skills. Further, I understood the importance of teamwork and communication in the development of a successful project.

Name: MANANK PATEL . (2020A7PS1696G)

Student Write-up

PS-I Project Title: Quick Shop - SKU Creation

Short Summary of work done: Created an in-house inventory where the support teams can order/purchase stationery items from the purchase website. In inventory management, a stock keeping unit is a distinct type of item for sale, purchased, or tracked in inventory, such as a product or service, and all attributes associated with the item type that distinguish it from other item types. SKU is a unique identification number that defines

an item at the identifiable inventory level; for example, in retail applications, the SKU may designate style, size and colour.

PS-I experience: It was a great experience, the PS faculty and the company mentors were really helpful and approachable. Overall a good learning experience.

Learning Outcome: HTML, CSS, JAVA, JavaScript, and SQL.

Name: DEVANSH . (2020B5A72001P)

Student Write-up

PS-I Project Title: Participant Reaction (Feedback Analysis)

Short Summary of work done: The project was given to a group of 5 members. My team was given the task to make a feedback analysis program which can predict the Net promoter score using machine learning algorithms.
After project was alloted, work was divided among our entire team, each team was given a Machine learning algorithm to learn and research. we also learned about Data visualization, Data exploration, Regression models, and R programming. After completely understanding the basics and theory we applied these algorithm on our dataset. Initially data analysis was done to select best features from dataset before implementing Machine learning models.
After all machine learning model were made, the model with best accuracy was finalized to be used in project. Ppt and word document were also prepared, documenting what steps were done to complete this project.

PS-I experience: The experience with both the PS faculty and company officials was great, though we were given projects 2 week late but the company officials organized weekly meeting after projects were alloted and were helpful the entire time.

Learning Outcome: This project help me to gain skills in Machine Learning and Data analysis. It also helped me to gains some extra coding experience in Python programming language. I got industry exposure by talking with organization officials who shared their experiences with us.

PS-I station: Project Management Unit, DTE , Goa

Student

Name: PULKIT SINHA . (2020A7PS1678P)

Student Write-up

PS-I Project Title: CaresGoa Web Portal Development

Short Summary of work done: Worked on revamping the Web Portal. Worked with multiple technologies such as WordPress, HTML, CSS, React js, PHP, MySQL.

PS-I experience: Overall a very positive experience. Got to work in a team of 10 people. The BITS and station faculty were both very helpful.

Learning Outcome: Over the course of PS1 I learned a lot of things including how to work in a team, how to push your fellow teammates and get work done, the various technologies we used, how to learn new languages and start using them in a short amount of time, etc.

PS-I station: Race2Cloud Technologies Pvt. Ltd. , Bengaluru

Student

Name: PARTH SHARMA . (2020A3PS1229P)

Student Write-up

PS-I Project Title: Race2Cloud Website Redevelopment

Short Summary of work done: After starting the website development project, I learnt a lot about designing websites using softwares like Figma, as well as doing UI / UX design and analysis on competitor websites and reference websites.

Once the design was completed, I learnt a lot about JavaScript frameworks like React.js and building custom websites with it. I was able to use all my learning from HTML, CSS and JS in a practical implementation of the website which I was able to deploy using cloud softwares like Vercel as well.

PS-I experience: I had a great experience working under my mentors. The entire Race2Cloud team was very supportive in helping us out with learning different technologies and expanding our knowledge. We also had the opportunity to implement our learnings and apply them in real life projects. Our mentors were constantly there to help us out at any roadblocks and were assisting us throughout the course of the project.

Learning Outcome: I have learnt quite a lot from this project, both from an organizational side as well as a
technical side. From an organizational side, I was able to learn about corporate culture, writing professional emails, industry best practices, corporate responsibility, and interacting with senior professionals in a corporate capacity. From a technical side, I was able to hone my HTML, CSS, and JS skills as well as learn more about databases in SQL. I also had a great experience learning programming languages and softwares from written documentation.
I learnt a lot about UI / UX design and frontend development over the course of the Practice School — 1 project and I will be sure to use these skills in my software development career over the future.

Name: SHIVAM SHANDILYA . (2020A7PS2094H)

Student Write-up

PS-I Project Title: Wizard Widget

Short Summary of work done: In the PS-I, The Four meetings of significant importance had been held by the organization Race2Cloud.
In First Meeting:
There is an introduction of all the tech members and my mates with the officials.
I have been assigned with the docs on technical stuff like HTML, CSS, JavaScript, SQl, PLSQL, OOPS and the deadline of 1 week is given to us.
A Quiz have been held at 8th June for the determination of the learnt skills.
In Second Meeting:
I was introduced to the ZOHO Creator and Analytics and QNTRL and I had to go through the document, working and code structure. Various Links have been provided for the

knowledge of CRM, ERP, HRMS content. Mentors have been assigned to us as helping hand in the project.
I have been assigned to make a wizard widget with the help of HTMl, CSS, JavaScript and ZOHO CRM platform using Deluge and SQL for the CRM system.
In Third Meeting
I introduced myself to CEO G K Raju and well-appreciated for my work and have been assigned under the mentor Krishna Kumar for the application part of ZOHO creator, QNTRL for the development of wizard widgetpart in Cloud CRM.
I had first make the field and apply condition on them as necessary.
Afterward I make four Wizards:
Basic Information
Contact
Address
Description
and linked them in workflow as Basic Information is linked to Contact and Contact is linked to Address and Address is linked to Description and then atlast save button will appears and
after clicking a lead will be created with the given information.

PS-I experience: It was really exciting to work on the IT fields at the Industry level.
I came to get the new technical terms like HRMS, CMS, ERP and the whole techs, structure and codes that surrounds these terms.I really got experience in JavaScript and OOPs as there were lots of application of this stuff in making wizards and widgets.
There is a totally surprising and exciting worlds awaiting for me ahead in this field and I am looking forward to it.

Learning Outcome: I came to know about the HRMS(Human Resource Management System), CMS (Customer Management System), ERP (Enterprise Resource Planning) along with the tech like JavaScript, OOPS, SQL, HTML and CSS.I got the industrial experience in the IT field.
I came to know about ZOHO CRM, QNTRL, etc.

Name: UMANG LAL . (2020B1A32487H)

Student Write-up

PS-I Project Title: Course Management App

Short Summary of work done: I was assigned to create a Course Management App using Zoho Creator. Before learning Zoho Creator, we had to learn about HTML, CSS,

JavaScript and SQL, as they were required for better understanding of the project. The app would enable the manager to allot courses to their employees and would also enable the employees to keep track of their progress. The employees would be notified about their overdue courses through email. The employees would also be able to look at their progress statistics of all the courses through a dashboard. I also learnt about Deluge and used it to perform certain functions in my application.

PS-I experience: It was a wonderful experience. My mentor and people at Race2Cloud Technologies were very helpful and supportive. They were always approachable, and I was able to learn a lot during the 8 weeks duration. I learnt about how things work in the corporate world, and I am confident that my learnings would be helpful in my future endeavors.

Learning Outcome: I learnt about HTML, CSS, JavaScript, SQL and different Zoho applications, specially the Zoho Creator. I also learnt about the workflow and work culture of the company. I learnt to communicate effectively with teammates, colleagues and seniors and also improved my presentation skills.

PS-I station: Redpine Signals India Pvt. Ltd. DBA Ceremorphic India Pvt. Ltd. , Hyderabad

Student

Name: AJAY KRISHNA GURUBARAN . (2020A3PS0519G)

Student Write-up

PS-I Project Title: Build CI/CD Pipeline for C/C++ project

Short Summary of work done: The work involved building a CI/CD pipeline for a C project using Jenkins. Initial step was to create a C library with a Makefile and automatically build the library through Jenkins whenever a change was made in the library. Once this was done, the goal of the project was to implement a CI/CD pipeline for FPGA development using the XDMA device driver. It involved learning the Xilinx Vivado FPGA development tool and learning about Linux device driver development using C.

PS-I experience: Mentors from the station were allotted to each student who gave us the project titles and weekly tasks. The project was really interesting and the mentor was

really supportive and I got exposure to working in a project in the industry. Overall, it was a valuable experience.

Learning Outcome: I gained knowledge about the DevOps domain and CI/CD pipelining. I also learnt about FPGAs and their design using the Xilinx Vivado software framework, as well as the Verilog language for their development. I was also introduced to Linux device drivers and gained exposure to using a device driver (XDMA) for connecting and interacting with an FPGA to the computer through the PCIe bus.

Name: KOTA SHASHIDHAR . (2020AAPS0369H)

Student Write-up

PS-I Project Title: Building Test Benches in HDLs using UVM for Faster Verification of Processor Design, PCIe.

Short Summary of work done: Ceremorphic focuses on building better custom processors with high data tranfer rates and lesser data losses. These enable better work of ML algorithms and accelerating AI. So we were tasked with learning Verilog, system Verilog and UVM to write test benches and a few test cases and designs of the physical layer components of PCIe framework. I focussed on 8b-10b encoding within the physical layer, understood existing HDL code, made changes to increase efficiency and decrease error rate and data loss.

PS-I experience: PS1 was a good exposure to current industry standards and methodologies. I learnt how the PCIe framework is used in computers and modern day processors and got in depth understanding of the Physical Layer on PCIe.

Learning Outcome: Learnt Verilog, system Verilog, UVM, PCIe Physical Layer. Also gained knowledge on computer architecture and data transfer protocols

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Name: DHRUV RAGHAVAN . (2020AAPS2202H)

Student Write-up

PS-I Project Title: Building Test Benches in HDLs using UVM for Faster Verification of Processor Design

Short Summary of work done: In the learning phase of the project, we were given resources to learn and understand the Verilog as well as UVM. During this time, we were also tasked with designing a few example test benches using Verilog as practice. After this, we had to read up on and understand PCIe protocol in a broad sense, going all the way up to Gen 4. We were specifically tasked with understanding the physical layer. After this, I was given code for various LTSSM states, using which I was supposed to design the corresponding microarchitecture.

PS-I experience: It was a fairly challenging journey; as beginners to the field and not having much in the way of formal work experience in this field, there was definitely a relatively steep learning curve. But once I got past the initial barriers, I did end up learning a fair bit about how test benches are exactly designed, as well as a glimpse into the work of a verification engineer.

Learning Outcome: Learning how to design HDL models for basic digital circuit systems.
Designing suitable test benches for the HDL models developed using Verilog and UVM.
Learn about PCIe and design test benches for verification and test these protocols on FPGAs and ASICs.
Design microarchitecture corresponding to different LTSSM states.

PS-I station: Regional Remote Sensing Centre , Jodhpur

Student

Name: SAMRIDDHA SINHA . (2020A7PS0021P)

Student Write-up

PS-I Project Title: WebSockets Programming - Making Multi-User Presentations in Browser/VR Mode

Short Summary of work done: Built WebSocket based solution to present VR images and rich presentations to multiple users which reduces bandwidth used and has low latency.

PS-I experience: Being a research station, RRSC-W isn't one to hassle students with deadlines and tasks and encourages self-paced learning and the freedom to choose projects based on your interests. If you mention your specific interests, you are sure to get a project which aligns with your goals. The mentor is experienced and knowledgeable, and provides useful inputs during times when you are stuck at a problem. Overall, I had a fulfilling experience at RRSC-W.

Learning Outcome: Technical skills - JavaScript, Node.js, Express.js, Socket.io, Reveal.js, Pannellum
Soft Skills - Presentation, Report writing, Communication, Documentation analysis to choose the best solution among those available

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Name: SHUBH SANJAY BADJATE . (2020A7PS0028H)

Student Write-up

PS-I Project Title: Car Model Detection

Short Summary of work done: We had to make a car model detection application. This information would be further used to detect vehicles having fake number plate. For the identification of models we used machine learning algorithms such as CNN and train it with pre-existing data. Once the model is ready we will be able to give a car's image as a test input and get the model name as the output.

PS-I experience: I got to understand how a company actually works and how work is divided in a team. The company's environment is good and people are very experienced and are very humble to interns. Overall it was a good experience

Learning Outcome: I learnt about various machine learning algorithms like CNN and YOLO.

Name: HARSHIT TEJAS MEHTA . (2020A7PS0057P)

Student Write-up

PS-I Project Title: WebSocket Programming- making multi-user presentation in browser/VR mode

Short Summary of work done: The project aimed to use the WebSocket protocol to transmit information with
low bandwidth and latency. There were two phases of the project. The first was to create a remote-controlled presentation using Reveal.js. We did it using the API from it's documentation and implemented it. The second phase used the concepts learned from the first phase and implemented remote control of VR images. When many users look into a panoramic photo and a particular area of interest is to be marked, that mark will be visible to each user. We completed both these two phases and were able to implement the fully functional website.

PS-I experience: The overall experience was very nice. It gave an industry exposure. And by working in the government organization I was able to get exposed to many things about corporate culture and the hierarchy. I enjoyed the overall work throughout the duration of the PS-1.

Learning Outcome: I got to learn about the corporate culture in high level organization. I also learned how to communicate with high level officials and maintain contact with both the PS and the BITS faculty mentor. In terms of technical skills, I learned about HTML, CSS, Node js, Express js, Socket io, reveal js, pannelum framework and creating an overall server client system and sending information to and fro. I also learned about how to present the final presentation and write reports and adhere to the timings and rules of the organization.

Name: YADAV ANKIT RAMESH . (2020A7PS2046H)

Student Write-up

PS-I Project Title: CAR MODEL RECOGNITION & FAKE LICENSE PLATE IDENTIFICATION SYSTEM

Short Summary of work done: The basic idea of the project was to create an AI/ML application that could detect a car from an image, read its number plate, and identify the

car model. The car number found would then be checked in the database and check if the found car model in the image matches the registered car model or if the number exists first. The number plate verification part was already finished, and an ML application that could detect a car model from an image was to be developed. Various algorithms that can accomplish this task, like CNN, YOLO, etc., were studied, and after trying multiple models, a final model was built.

PS-I experience: After the project was assigned, the initial few days were spent researching and learning about various things that could help in completing the project. After getting a grasp of some significant concepts of machine learning, we started trying some models to do our project. Until the midterm, a small-scale classifier had been worked on that successfully distinguished between a Mercedes, a Lamborghini, and an Audi. The same was a precious lesson, which led to the culmination of a full-fledged car model detection system that the team built, with inputs being taken from various online resources. This was achieved after overcoming various challenges and failures associated with using different data sets and ML algorithms. Regardless, the final outcome was very fulfilling and has a plethora of scope for additional features to be added.

Learning Outcome: The major learning outcomes were concerned with various Machine learning algorithms that can be employed in the implementation of the project, such as Neural Networks, Support Vector Machines, Random Forests, Logistic Regression, to name a few. Various online learning platforms such as Coursera (courses offered by Dr. Andrew NG), Udemy, Github and kaggle were looked into as well.

Name: RAHIL SANGHAVI (2020A7PS2052H)

Student Write-up

PS-I Project Title: Detection of Car models from CCTV Images

Short Summary of work done: I had to work on developing a system that would be able to detect the model of the car in the given image. This was one of the two steps in a fake car number plate detection system, the other step was the extraction of a car number plate from the given image, but that was beyond the scope of my assigned project. My team and I first accustomed ourselves to Machine Learning and various algorithms. I completed a course on ML offered on Coursera to aid me in this process. This was the most extended learning phase of PS for me. I also brushed up on my knowledge of Python. After the midsem, my team and I implemented a small-scale model, trained on about 100 images to identify three car models, but the model was unable to give satisfactory results. We then tried to train the model using more photos, but we failed due

to the heavy computational requirements needed for the same. After consulting our PS mentor, we finally decided to use a pre-trained model built using YOLOv4 and CNNs, which would be able to identify ten car models. A lot of the code tried using the library implementations of CNN using Keras and Tensorflow, so we had to extensively refer to GitHub repositories and Stack Overflow. Naturally, a lot of the code is hence derived. We also had to look up the documentation of OpenCV to aid us in this project. The final model gave satisfactory results. Even though a significant chunk of the code was obtained from various online resources, wading through several sites and putting all the components together was very knowledgeable.

PS-I experience: The PS-I was a great learning experience for me. It gave me the opportunity to explore various new domains and learn skills such as time management. The station mentor and PS faculty were very cooperative and helped me throughout the PS. I had the independence of pursuing whatever I wanted to in my free time as well. PS1 and RRSC west provided a wonderful opportunity to gain first-hand experience in the domains of Machine learning, Artificial intelligence, and Computer Vision, which can have significant real-life applications.

Learning Outcome: I learnt a great deal about Machine Learning as a result of working on my PS-I project. This knowledge will be very useful to me in the future, both in and outside the college curriculum. Interacting with my fellow batchmates throughout the duration of PS was very eye-opening. Learning about the its-and-bits of Machine learning, OpenCV, and Artificial Intelligence was a first for all. The entire experience of PS was very fruitful and the team is very thankful for the same.

Name: ANANYA SINGH . (2020A8PS1804P)

Student Write-up

PS-I Project Title: (Semi) Automatic Registration of Paper Based Maps to Satellite Images

Short Summary of work done: This project aims to extend the already established image
registration method from manual to automatic or semi-automatic. Presently this work is done manually using QGIS and other geographic information systems software. My aim was to make this process automatic using python and open cv libraries. We match the edges of both the paper based map and the obtained satellite image.
OpenCV, image segmentation, edge detection, and SIFT, feature matching

are the features I used in this project. This project still requires improvement, and the approach taken can be changed because it still fails to provide reliable results as the satellite data has a lot of information and noise which needs to be processed. In the future, I would like to learn more about it.

PS-I experience: It was a really nice experience. My mentors and PS faculty were very helpful.

Learning Outcome: I learnt about basics of open cv, Python, basics of image segmentation , edge detection, basics of Scale Invariant Feature Transform(SIFT). I also learnt how to make project reports and deliver presentations.

Name: VIDHI SAJNANI . (2020B1A71625H)

Student Write-up

PS-I Project Title: Detection of Solar Panels using ML/AI

Short Summary of work done: We build an ML model using Keras to Image Classification. We understood the fundamentals of QGIS, ML, AI, Mask R-CNN and Convolutional Neural Networks for the same. We obtained our dataset using QGIS software. Our model was able to detect solar panels in our testing dataset with an 86% accuracy with our relatively small dataset.

PS-I experience: It was a great self-learning experience. We were able to learn about a lot of complex concepts and do courses about them. Working on the project from scratch and seeing results was quite rewarding. We understood what it was like to work on an individual project under experienced scientists at ISRO.

Learning Outcome: I learned a lot about new concepts like Convolutional Neural Networks and Machine Learning. I also learned about the fundamentals of QGIS, TensorFlow and Keras. Doing a Coursera course on Basics of Image Classification with TensorFlow also taught me the practical knowledge to do the project.

Name: N. SANDEEP RAM . (2020B5A72232H)

Student Write-up

PS-I Project Title: Solar Plant Deduction

Short Summary of work done: Using Keras API and TensorFlow for creating the model and QGIS software for creating our custom dataset of Solar Panels, we deducted the Solar Panels on the Google Hybrid Earth Layout. The concept behind this process is Semantic Segmentation. This model can further be used to detect and update any new upcoming Solar panels across the globe on the Hybrid Earth Maps.

PS-I experience: Good work experience and great support from Mentor

Learning Outcome: I have got a strong hold on AI and ML techniques.

PS-I station: Shris Infotech Services Pvt Ltd , Hyderabad

Student

Name: HARSHAL SHARMA . (2020A4PS0246P)

Student Write-up

PS-I Project Title: Polymorphic Presence

Short Summary of work done: I along with my peers worked on Building a Polymorphic presence service that allows users to set their presence differently for different contacts or at signs.
Some of the major work done was: -
Creating a basic design of code and features and a pseudo code.
Developing a good working code for the service.
Testing the code with actual at signs.
Implementing an App based presence.
Incorporating the polymorphic presence service into a working app with a basic UI to make it presentable.

PS-I experience: I gained a very valuable industry experience by working closely on real life applications under guidance of various top software engineers at the company, who have previously worked in giants like Google, Oracle etc.

Learning Outcome: Learned many terminologies like Flip the Internet, Polymorphic presence etc.
I learned basic Flutter and dart.
I gained a very valuable industry experience by working closely on real life applications.

Name: ARNAV TRIPATHI . (2020A7PS0082P)

Student Write-up

PS-I Project Title: Polymorphic Presence Library development on @Protocol

Short Summary of work done: Our work was to develop Polymorphic Presence Library and UI Development on @Protocol. It aims to build Polymorphic Presence functions one can set their presence as available or unavailable for their contacts also set their presence as online or offline. Using the presence function one can set their presence as online or offline and can also set themselves as available or unavailable if the person sets themselves as unavailable then if a contact of theirs tries to contact them they will recieve the message that the contact they are trying to reach is unavailable for this to this time. Moreover they can also set their presence as online or offline. One might argue that all these things are already there but they use a central server but in @Protocol there is no central all your information is in your secondary server and you decide with whom you share your information giving user a lot of privacy as you are incharge of your own data. I learnt a lot about App Develoment using Dart and Flutter. Using the project the organization can add features to their Buzz app and other apps to show whether the contact is online or not and whether he/she is available for calls or not

PS-I experience: I really had a very good and enjoyable experience in PS1. I really learnt a lot working on an Open Source Platform and a project which has scope for changing the internet as it is really excited me. The staff of the Shris Infotech was very knowledgeable and helpful they guided us at every instance and taught me a lot of new stuff I did not know anything about app development going into the project but coming out I know quite a lot (still learning wont claim myself as a expert :)) Overall it was very good experience all you require is an inquisitive mind to work there.

Learning Outcome: I learned about @Protocol how it is better to the existing http protocol and how by filpping the internet @Protocol gives users better privacy and makes them the owners' of their data and not the other way round Facebook, Google are incharge of the data you should rightfully own and decide whom you should share with. Moreover I also learnt quite a lot about app development using Dart and Flutter which was really great

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Name: SIDDHARTH KHANDELWAL . (2020A7PS0098P)

Student Write-up

PS-I Project Title: Polymorphic Presence

Short Summary of work done: My work was related to building a polymorphic widget which can be used by all the @apps. @sign is a company which uses a protocol made by them known as @protocol. I Chose this project because i always felt the need of this type of feature where i can decide that what service other user can use with me (like call,message,file transfer,location ,etc.). So we started to work on the project. The project required the knowledge of flutter and dart which can be learnt during your ps journey.There was complete guidance from our mentors which made our work easy.

PS-I experience: My Ps experience was satisfactory. I learned quite a few things which are relevent in IT jobs.
The support from our mentor was Superb and i am grateful.to the shris infotech team.

Learning Outcome: I learned basics of app development and how testing phase works while any software development. I also learnt about design principles used in developing. Also a session on CI/CD was very helpful.

Name: YASH RAJ . (2020A7PS1686G)

Student Write-up

PS-I Project Title: Polymorphic Presence

Short Summary of work done: Shris is a service based company , as an intern we were to work for the atsign company which is a startup that aims to decentralize the internet . We worked on a "Polymorphic Presence" feature which will be implemented on applications developed by atsign company . Presence indicates the availability of a user to other users . Polymorphic presence implies multiple presences of a single user to other users at the same time . For example , if a user wants to upload a photograph on his social media application and want it to show to only some of his specific contacts and not everyone , he can use polymorphic presence and selectively choose to whom should the photograph be shown . Our task was to figure out how to capture and share presence status with other users and show it in the form of a presence status as a widget in the application using Flutter .

PS-I experience: My PS-1 experience was very productive . I got to learn a lot of technical skills and got introduced to the work culture inside a company . Mentors from Shris helped us whenever we got stuck , mentors from atsign company also guided us and gave us inputs regularly about our work . Our project incharge was very helpful and guided us throughout the project and also gave insights into professionalism in IT industry .

Learning Outcome: While working on the project and interacting with different individuals I understood the importance of data privacy and need of data security in today's world . I also understood the concept of decentralized internet where the users are the owners of their data . I got introduced to Flutter and how to code using Flutter and Dart . I also got an in-depth insight into features such as end-to-end encryption and decentralization of data . Besides , my presentation and communication skills also improved a lot .

Name: ABHINAV JAGAN POLIMERA . (2020A7PS2192H)

Student Write-up

PS-I Project Title: Cont@cts app using machine learning/Artificial intelligence

Short Summary of work done: I have worked on building an app which organizes contacts based on images, the user can upload images with a single or multiple people , the app then analyses these images and then the user can click on each of the users faces and enter the details like their contact number, name etc. The entered details are now connected to the face they have been entered against. This Idea has mainly been

implements to solve the problem of dealing with a huge list of contacts and mis-dailing two people with the same names.

PS-I experience: I would say my PS experience was very smooth, Initially we had introductory sessions regarding the companies working process and the problems they have been working on and what exactly is their technology. Although we had a bit of delay regarding the project selection we have have been offered projects of our interest and we could discuss our ideas and work on them as well with the help of the members. I would really thank many idividual's from Shris infotech to be there for us and help out with all the problems we faced while implementing the idea. Overall I am really happy with my work and the company's culture due to which i have gained a lot of exposure and learnt a lot of new things.

Learning Outcome: There was a lot which we learnt but if I had to mention I would go with the main points and are mentioned below:
1.I have learnt about a whole new idea to prevent data privacy problems with the help of a solution called as @sign provided by the atcompany. Its a protocol which allows users to be the owner of their data and others cannot access it without an encryption key.
2.I have experimented with various python libraries which are most lightweight and has the highest accuracy and found out about Deepface a python library for face recognition, I also learnt about many OpenCV functionalities.
3.
a.The most I learnt will be about flutter , I have previously never worked on App development projects and using flutter for user interface gave me a lot of insights and knowledge.
b.I have also worked with various flutter packages like google_ml_kit, Face_painter,Image_picker, path_provider.

Name: SIVARAM PADMASOLA . (2020AAPS0387H)

Student Write-up

PS-I Project Title: C/C++ Implementation of at_client

Short Summary of work done: I have implemented a C++ library for the client of @sign foundation's secure, peer-to-peer data sharing platform. It will be useful in IoT solutions, especially for implementation in Microcontrollers.

PS-I experience: My PS-1 experience was good and the people at the @sign foundation were very supportive and helpful. They went at a good pace and made sure all of us

understood the work which they did and what was expected from us. Overall, it was a very enjoyable and educational experience.

Learning Outcome: I have learnt a lot from working under the guidance of my mentors at Shris Infotech. Specifically, I have learnt about the @platform and @protocol and I have also gained the experience of working for a company. Working on this project gave me deeper experience of using C++ in a real project. It also familiarized me with the various networking and cryptographic libraries like cpr library and openSSL .I have gained first-hand experience working with APIs as well as HTTP and SSL requests and deepened my understanding of the flow of such requests in the @protocol implementation. During the implementation phase, I had lot of opportunities to debug and fix my code and it has improved my ability of reading and writing clean, robust, maintainable code.

Name: GAURAV CHATURVEDI . (2020AAPS0396G)

Student Write-up

PS-I Project Title: Polymorphic Presence

Short Summary of work done:
The aim of this project is to implement the feature of “polymorphic presence” on various applications based on the at_platform . Presence indicates the availability of a user on different applications at a particular time .The concept of polymorphic presence implies multiple presence of a single user (here,at_sign) to other at_signs at the same time.
Our project mainly revolves around building end-to-end encrypted, secure mobile apps with services (Such as call, messaging, file transfer, Email, and Location sharing) where the user can decide whether at a particular time the user is available for (none, one or many)of these services or not. If available, he can also decide to whom he is available and to whom he is not.
For building the app, we are using an open-source UI Software development kit created by Google called Flutter.
Besides using Flutter, we will also be using the company’s framework and widgets that were already built by them, like at_onboarding_flutter, at_chat_flutter, at_contacts_flutter, and so on.
We were able to develop the basic UI for the Presence Library. It shows the basic function of whether your contact is available to you for various services like call, messages etc. So if the atSign is available for call it will show you a call icon but if he is not available for

messages the message icon will not be shown if the person is online a green button will be shown but if the person is offline it will show a red button to symbolize offline.

PS-I experience: It was a first time exposure to industry and corporate world and how people work for real projects by applying their knowledge practically. Also a good mentor is of utmost importance to unblock you and guide you throughout your work which we had fortunately.
Also our PS faculty guided us wherever required and conducted the evaluation components smoothly.

Learning Outcome: I improved my communication and presentation skills through the evaluation components such as seminar and group discussion.I developed discipline in working for the project and followed all the deadlines alloted for completion of the work.Also regular stand-ups allowed me to interact with new and smart people.Also my collaborative skills were enhanced as an outcome of working with a team rather than working individually. Also my skills of developing of an authentic and relevant report of the work done were brushed up.

Name: YASHASWI PIPLANI . (2020B4A31845G)

Student Write-up

PS-I Project Title: Polymorphic Presence

Short Summary of work done: I worked on creating a Dart library for a Polymorphic presence widget. Polymorphic presence is the ability to be distinctly virtually present to different people. For example, I can be available for calls and texts to some person A but not available to calls for some person B and for neither of the two for some person C.

PS-I experience: It was a wonderful experience. We got to work under many experienced people. Station people were extremely welcoming and helped us to learn a lot.

Learning Outcome: We learned Flutter and Dart basics, the process of developing any product, collaborating eith multiple people

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Name: ANIMESH KUMAR AGRAWAL . (2020B4A32030H)

Student Write-up

PS-I Project Title: Create a library for polymorphic presence in the at application

Short Summary of work done: The project aimed at developing the polymorphic presence library, that enables the people to control their presence as per the app and as per the user. The project work required the
technologies such as Dart Programming language, Flutter SDK, @protocol. The domain of the project was Mobile app development. A library was created revolving around the central idea of polymorphic presence which would provide safe, secure and accessible platform for people who want privacy first.. The company gave the initial weeks to go through the
technologies that were to be used in this project. All the members from the organization helped in making us familiar with the working of the company and held the sessions to provide a good knowledge of @platform app development.

PS-I experience: Had a wonderful PS1 journey. I got an opportunity to gain hands-on experience in the industry, also my communication and presenattion skills had improved a lot. As I started implementing the learnings from this project, I got to know that it has resulted in developing my interest in the app dev. Working at this level definitely help me boost my confidence and competent.

Learning Outcome: The Internship experiences made me realize how important the teamwork is. One has to work with full commitment, integrity, honesty and has to always help the people in need. The success of the organization is the result of combined efforts of all the teammates and not an individual. Also I learnt a lot of technologies like flutter, dart and @platform specific technologies as well.

PS-I station: Silver Touch Technologies Ltd. (onsite) , Ahmedabad

Student

Name: GATTU V HRIDIK KRISHNA . (2020A7PS0102H)

Student Write-up

PS-I Project Title: CALCULATE CLIENT SECURITY HASH

Short Summary of work done: We as a Computer Science Enthusiast through this project tried to understand and make points about how Digital transformation and Robotic Process Automation can change the business and organization forever by making them well equipped with cyber security infrastructure like our BOT and make their digital infrastructure safer. Here we programmed our BOT to fetch specific types of information from the web through web scraping and identified some customers whose data is supposed to be protected. We used the SHA1 hashing algorithm, encrypted their data and updated it. We also sent a confirmation message to the respective organizations in charge through mail regarding this task completement.

PS-I experience: It was very good

Learning Outcome: I have learned a lot about Digital Transformation, RPA, Automation Anywhere. I have also improved my communication skills, presentation skills as well group communication skills.

Name: SOHAM VIREN SHAH . (2020A7PS0979G)

Student Write-up

PS-I Project Title: Robotic Process Automation

Short Summary of work done: We were taught automation anywhere in which we made software robots which help in automating repetitive tasks. We had to do assignments given by the company on the topics taught to us by the instructor from the company. We gave two presentations which helped us display our learning to the mentors of the company and BITS faculty.

PS-I experience: It was a great experience I attended 1st week on site which helped in interacting with all my fellow interns and with the BITS faculty and with the mentor from the PS station. Then after that the online training started and we learnt about RPA and made bots which helps in automating tasks. The assignments we were informative and helped in learning the theory of automation anywhere even better.

Learning Outcome: I can make software robots on automation anywhere which can automate tasks and do the required things.

Name: BOHARA SHUBHAM KAILASH CHANDRA . (2020A7PS1688G)

Student Write-up

PS-I Project Title: Robotic process automation - active loan bot

Short Summary of work done: We made bot to automate processes by using automation anywhere software

PS-I experience: It was really nice

Learning Outcome: We learnt about RPA and practiced making bot using Automation anywhere software

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Name: NANDISH CHOKSHI . (2020B1A72031G)

Student Write-up

PS-I Project Title: RPA (Robotic Process Automation)

Short Summary of work done: Learnt about RPA (Robotic Process Automation) and it's applications in the business and the data management sector. We used a tool called Automation Anywhere which is a new and powerful upcoming tool. We developed numerous small, scalable bots which were able to automate daily repetitive tasks.
Final project was to make an E-commerce bot that would perform a combination of various Automation Anywhere Packages. The bot automated following processes:

1. Reading through client's emails and store it in a source excel file.
2. Search the client's order list i.e., books on the Amazon Retail Website.
3. Gather information about the book's name, author, and price into an excel file.
4. The final excel file will be created and mailed to the assigned clients by the bot.

PS-I experience: Overall, it was a great experience, mentors from company were helpful and polite. Regular assignments were given which were very interesting and insightful.

Learning experience was wonderful and saw programming and bot development from a completely new perspective.

Learning Outcome:
Automation Anywhere, RPA (Robotic Process Automation), Web Scraping, Bot development, Excel Advanced, Database Management, Teamwork

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PS-I station: Smartlink Holdings Ltd (Digisol Systems Ltd) , Goa

Student

Name: SHAH JAYSHEEL DIPALBHAI . (2020A7PS0083P)

Student Write-up

PS-I Project Title: File Management System

Short Summary of work done: So our work was to create a web portal where we can input excel sheets(which had the data of the company) and output a summary excel sheet. We also had to prepare a dashboard which projected the data in different forms. Finally our website was hosted.

PS-I experience: It was a pretty good experience as it was my first exposure to corporate world. I learned few technologies and created a good project.

Learning Outcome: Learned Django, JavaScript, Bootstrap.

Name: DEEP CHORDIA (2020A7PS2073H)

Student Write-up

PS-I Project Title: File Management Dashboard

Short Summary of work done: The project allotted to me was creation of file management dashboard which consisted of managing user data effectively and displaying the essential statistics for various user categories. We were a team of 6 people and half of the members worked on the frontend while the other half worked on the backend. The tech stack we used consisted of HTML, CSS Bootstrap, JavaScript libraries for Frontend and Django and MySQL for backend. We were also supposed to create a summary report for each user, which were being created manually earlier.

PS-I experience: I believe PS-1 was a great first experience for me and it provided me with the right amount of exposure to prepare me to be industry ready and work on real world applications.

Learning Outcome: I learnt how to work with Django models as well as handling large amounts of data. I also learnt about creation of databases on an industry level, wherein the number of data-points increase manifold. The documentation process helped me keep track of the time spent on various tasks and organize the remaining ones accordingly.

Name: SHYAM N V (2020A7PS2081H)

Student Write-up

PS-I Project Title: Billing Management System

Short Summary of work done: We had to develop a webapp in Django (this was completely upto the team) which took a few excel sheets as input. The data from those excel sheets were to be inputted into a database, and after certain operations a sunmary sheet was to be created which was available for download for the user. Then the summarised customer data was to be displayed on the dashboard with a few simple visualisations.

PS-I experience: Overall experience was nice.

Learning Outcome: Django, Pandas basics, MySQL, Bootstrap CSS

PS-I station: StoryQube (VoiceQube INC) , Bengaluru

Student

Name: YASH RATNANI (2020A7PS0039H)

Student Write-up

PS-I Project Title: Voice Story using Alexa - Leo the Great Shinobi

Short Summary of work done: For First Few Weeks , Developed Practice Skills for Alexa Voice Assisstant . After 4th Week , our Mentor told us to write a original story that could be turned into gameplay (Interactive Story with multiple endings). For A Week , We Perfected the story . In the further weeks , we coded the story in Alexa Cloud Console and perfected it . Finished story has multiple endings and was developed by a team of 3 .

PS-I experience: It was a good station . Our Mentor encouraged us to develop a new story and taught us how startups work . The Work Culture was also good

Learning Outcome: I learned NodeJS, Alexa Voice Development (SSML and Alexa Cloud Console), and How to Branch Stories

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Name: JOHARI DHRUV . (2020A7PS0109G)

Student Write-up

PS-I Project Title: Root to Success (Alexa Skill Development)

Short Summary of work done: I was a backend developer and I worked with Alexa console to create a voice based interactive story/game for children aged 10 to 15.

PS-I experience: PS-I has been a great learning experience for me. Overall, we have gained quite a bit of knowledge and experience from StoryQube. We have prepared for our main project i.e., to release an interactive story. These stories will surely benefit the youth of our population.

Learning Outcome: I learnt various technical skills concerning backend development. PS-I also helped me developed my overall communication skills and taught me how to balance between work and my regular lifw

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Name: SHIVAM ABHAY PANDE . (2020A7PS0124P)

Student Write-up

PS-I Project Title: Celine Spirits

Short Summary of work done: The first half of the Practice School was to learn Node.JS, conversation flow, design and understand the basic concepts of utterances and slots with respect to Alexa converaations. In the learning curve we were given two problems to develop an Alexa Skill about using the Alexa Developer Console. After these problems we were asked to develop a story with multiple paths and endings depending on what choices the user makes, and hence our story and project name was 'Celine Spirits'. The final project was also made on Alexa Developer Console and is an interactive audio story.

PS-I experience: The station mentor was approachable and helping in terms of learning, but he would expect you to put in some hours and get the work done. Overall the experience was smooth and good.

Learning Outcome: I learnt about conversation design and storyline development. The technical skills acquired were Node.js, DynamoDB and making HTTP and API calls through Alexa Developer Console to develop voice applications on Alexa.

Name: ABHIRAJ KHARE . (2020A7PS0161H)

Student Write-up

PS-I Project Title: Alexa Skills Development- An intellectual game using Alexa, Salon Appointment and Food Ordering Skill.

Short Summary of work done: I learnt using AWS and Alexa skill development. In the first weeks we completed learning JS and NodeJS so that we could start learning to create Alexa skills. The conversation flow design had to be converted into the interaction model front-end which through lambda sends request to the back-end and the request is completed. This design had to be developed for our respective projects and then it was deployed.

PS-I experience: PS I helped me understand how a start-up functions. How the tasks and responsibilities are divided. What is the power structure inside a company. It also helped me improve my interpersonal skills. I learn to collaborate with people on ideas and projects.

Learning Outcome: Apart from developing technical skills, PS I prepared me for the industry in which I intend to work after graduation.

Name: ASHWIN NAVEEN PUGALIA . (2020A7PS1080H)

Student Write-up

PS-I Project Title: Interactive story design and development using amazon alexa

Short Summary of work done: StoryQube focuses on building interactive stories for children. The stories can be played out on any Alexa-enabled device. We were introduced to Alexa Skill development and the Amazon Developer console for the same. We researched and learned how to use the developer console and familiarized ourselves with it by building three simple Alexa skills. We created a food ordering skill, a FAQ skill, and a Salon appointment booking skill. Following this, we were assigned the project, which entailed designing interactive gameplay (story) and developing it on the Alexa Skill Kit. We had to create and build one original story with multiple endings and choices, making it interactive.

PS-I experience: Through PS-1, I was introduced to this new field of Voice Application Development and how development for these voice assistants is increasing significantly. Working on various developmental aspects of the project and developing interactive storylines and plots helped me improve not only my technical aspects but literature writing and creativity too. Overall the PS-1 experience was very beneficial for me as I learned a lot of new things and got exposure to working in the industry.

Learning Outcome: PS-1 played an essential role in helping me get to know the working of the corporate world and what it means to have a sense of responsibility. The most important part of the entire PS was learning to work in teams in big tech companies, coordinating with your colleagues, working towards one goal, and giving your all to work.

Name: GURBAAZ SINGH GILL . (2020A7PS1228G)

Student Write-up

PS-I Project Title: ALEXA SKILL DEVELOPMENT AT STORYQUBE

Short Summary of work done: My PS can be divided into parts. First is the learning phase which is a consolidation of many Alexa voice skills we developed as learning projects given by StoryQube. We added a few more tweaks and additions to make it closer to an average voice-based personal assistant.
The second part consists of building the main project using everything we learnt. The project is a Voiced Based Mathematics Game called “Root To Success”. We designed the basic structure and logic of the game, further we designed a storyline to give the a game an engaging aspect. All this was coded and programmed using NodeJS.

PS-I experience: Practice School - It was a overall great experience, as it got me to have an insight into how real world startups work, and I got to explore a field of software development which isn't otherwise very popular but has a great scope for the future.

Learning Outcome: We started from the scratch and read about what Alexa Development is all about, which
lead us to do some research on what Alexa Development Kit is, we learnt about the Amazon Alexa Development Console and how to use it, this includes small things like changing the name of the skill, to understanding how slots and intents work or to create the complete models via the JSON editor. Every skill taught us something. So here is a list of skills and technologies we learnt in our journey.
i) Basics of Amazon Alexa Skill Development that is Alexa Developer Console learning intents, slots, custom types, code editor, testing interface, logging interface and much more).
ii) We learnt JavaScript, as most of our skills are written in NodeJS, which is a JavaScript Runtime framework.
iii) We also learnt about some AWS features like Lambda, S3, DynamoDB, and some security protocols.
iv) This was the first time we understood how powerful JSON file format can be when

using APIs.
v) We gained good knowledge of APIs and writing functions for the same.
vi) We learnt about SSML (Speech Synthesis Markup Language).
But apart from this technical knowledge, we learnt about how we can improve the interaction Alexa can have with the user, which we understood gradually while developing the skills. The optimum time between user inputs and inculcating good designing habits are some examples. All this was specially useful when we created “Root To Success”, which was mainly about Story Design, Game Logic and Good Interaction with the user. The coding aspect was not so intense in it as the larger requirement of the company was the storyline, concept and proper points of interaction. Both the phases of our PS taught us different aspects of development and has sure helped us be better programmer, rather better program designers.

Name: YASH VARDHAN SINGH . (2020A7PS1712H)

Student Write-up

PS-I Project Title: Interactive Voice App and Game Dev using Amazon Alexa

Short Summary of work done: The work included getting familiar with the Amazon Skill Kit and using the SDK to develop custom applications. We were asked to develop three individual voice apps during the training phase and then a project. The project included design and development of an interactive story/game targeted towards younger audiences. The design included making a structure for multiple choices and writing the dialogues and narration for all characters and the development was done using the Amazon Developer Console. Technologies used- JSON models, Node.js

PS-I experience: The PS-I experience was very smooth thanks to our PS Faculty who structured our evaluation components so that they don't hinder our tasks and also provided adequate guidance and support when required. The PS mentor was also very helpful and supportive and encouraged learning skills that actually matter rather than rushing the timeline.

Learning Outcome: The PS-I was a first time learning experience for how corporate environments work, how tasks are assigned etc. It really helped develop formal communicative skills and also the technologies employed during the PS-I would really come in handy in the near future.

Name: GAVHANE NIKHIL EKNATH . (2020A7PS1724H)

Student Write-up

PS-I Project Title: Interactive story using Alexa voice skill

Short Summary of work done: We initially developed Alexa skills for FAQs,food ordering ,salon appointment booking.This intoduced us to amazon devoloper console and alexa voice skill devolopment.Then we came up with the script for the interactive story to be built.Node js was used for devolopment in backend.The story had multiple paths depending on the decision made by user in the course of story,

PS-I experience: It was a very fruitful learning experience.Mentor guided us on time to time and helped us improve our skills through their valuable suggestions .Also our PS Faculty ensured smooth progress of PS.

Learning Outcome: I learned to develop Alexa voice skills.I also got intoduced to amazon devoloper console and also learnt Node js.My script writing skills were also improved as we wrote script for whole story.It also helped to improve my communication skills.

Name: MANDAR DAYANAND JOSHI . (2020A7PS1730G)

Student Write-up

PS-I Project Title: Interactive voice story game

Short Summary of work done: To begin, we were instructed to design different Alexa skills in order to gain expertise. As a result, we created a Food Ordering Alexa skill as well as a Salon Appointment Booking Alexa skill. Following that, the primary purpose of this PS was to assist StoryQube (VoiceQube INC) in developing a completely interactive Story that can be fully controlled using a voice interface. We had to be quite creative while developing the layout of the stories so that they would be engaging to children of all ages. For our backend programming, we needed to master Alexa skills as well as coding

languages such as Node.JS and JS. Using these skills, we created our story in the Alexa developer interface and considered several approaches to make it interactive.

PS-I experience: It was a fantastic experience. We had a lot of flexibility in terms of timelines and learning curves. Helped me grasp how a team of individuals works together to complete a project in real-world scenarios. Interacted with others and picked up a lot of non-technical information.

Learning Outcome: Understanding of the process of developing a speech technology enabled app, particularly an interactive tale app
How Alexa skills are used to do the task at hand
Implementing Intents, utterances and slots in Alexa Skills Kit
Implementing the Backend Logic for the Skill using NodeJS

Name: PRITHVI RAJAN . (2020A7PS2080H)

Student Write-up

PS-I Project Title: VOICE APPLICATION DEVELOPMENT USING AMAZON ALEXA SKILL KIT

Short Summary of work done: The company specializes in creating interactive children's stories. On the third-party
application Amazon Alexa, the stories can be heard. This application and its developer console were
both introduced to us. We conducted study, acquired knowledge about how to utilize the developer
console, and became acquainted with it by developing three talents. We developed a restaurant
ordering talent, a FAQ skill, and a skill for scheduling salon appointments. Following this, we were
assigned the project, which entailed designing interactive gameplay and developing it on the Alexa
Skill Kit.

PS-I experience: My experience we very good. I got exposed to the work environment, and the strict standards of a product based company. It was overall a very good, and a very enriching experience.

Learning Outcome: I learnt how to use the Alexa Development console and I learnt how to work with a team and deliver a product.

Name: ADITYA THAKUR . (2020B1A70630P)

Student Write-up

PS-I Project Title: Alexa Skill Development

Short Summary of work done: Developed an exclusive story for kids during PS using alexa skill development for the station along with detailed presentation of the user-flow.
Nodejs was used for the backend, while it was hosted on AWS Lambda.
Developed 3 other alexa skills during PS as exercises to get proficient in alexa skill development.

PS-I experience: It was a great learning experience. We learnt about how one can develop on Alexa using the Alexa Developer Console. Side by side, with various assignments we also learnt about backend development with Nodejs and hosting with AWS Lambda.

Learning Outcome: Backend Development using Nodejs, Alexa skill development using Alexa Developer Console

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Name: BHUVAN GUPTA . (2020B4A71654P)

Student Write-up

PS-I Project Title: INTERACTIVE STORY DESIGN AND GAME DEVELOPMENT USING AMAZON ALEXA

Short Summary of work done: The project was to develop an Alexa Skill which will serve as an interactive story for kids of age 3- 14 years. While working on this project, we realized that Alexa skills development includes all the aspects of product development

ranging from understanding conversation flow and writing creative scripts to code them and testing them on the Alexa developer console.

PS-I experience: We were divided into teams each consisting of 3 members such that each team had to develop an interactive story game using the Alexa console. The initial process involved ideating and coming up with games with a sufficient number of designable interactive elements. Secondly, it involved writing the entire script that would be subsequently produced and coded up. Simultaneously, we tested the interactive elements on Alexa Skills Kit using Node.js. Following an editing process where the interactive elements were revised - the scripts were sent to be coded up using Alexa Skills Kit. In this way - we managed to convert ideas into working Alexa Games and stories that could be reworked and produced to add to the company's repository.
Post our PS - the stories were sent to be officially produced (using voice actors) and will be deployed on the StoryQube platform

Learning Outcome:
In a nutshell learned about how soft skills such as how to write a creative story, and work in a team, and technical aspects learned about JavaScript, NodeJS, Alexa SDK module, and Alexa Developer console.

Name: PRANJAL MITTAL . (2020B5A71553G)

Student Write-up

PS-I Project Title: Developing Interactive Voice Game Story

Short Summary of work done: In my PS-1 , I developed a fully interactive voice game which could be played on Alexa. The process involved developing a story that could be interactive so that the user can participate in taking the story further. I learned about alexa skill development. Then with help of technologies like alexa development kit, Node.js, SSML, and alexa interactive console I programmed my interactive story as an alexa skill.

PS-I experience: My PS- 1 experience was very good. I enjoyed doing my PS. We were divided in teams in my PS which helped me to develop my people skills and learn about team management. Through my PS I was able to understand the real life approach to building something.

Learning Outcome: Thorugh my PS I was able to learn a lot of things such as I was develop my conversational skills and was able to learn to work with team. I was also able to learn to do a task within a stipulated deadlines.

PS-I station: StraysCue - HyphenBridge Foundation - Software Engineering , Mumbai

Student

Name: ALIMCHANDANI VEDANT RAVI (2020A7PS0965G)

Student Write-up

PS-I Project Title: Software Engineering - Web Development

Short Summary of work done: Our team developed a website for the organisation which will be put to use soon. The website will serve as an interface between the case reporters of the various injuries and accidents noticed and the NGOs that take care of such cases. This will help in better utilization of the resources by the NGO.

PS-I experience: The term started with learning the relevant technologies and tools that were going to be used in the development. The initial two weeks were given for getting comfortable with the technologies and tools. We were then divided into teams and allotted specific tasks, which were later integrated to form a functional website.

Learning Outcome: I got to learn front-end web development.

Name: HARSURE KHUSHI NAGENDRA . (2020A7PS1271G)

Student Write-up

PS-I Project Title: StraysCue: Donations and Transparency

Short Summary of work done: During this internship, i wrote backend code in django for storing data in databases as well as displaying that data on the react pages developed by the frontend team. The tasks thus also involved integration of frontend with the backend code.

PS-I experience: So we almost had daily meets to give updates of our progress. The mentors were friendly and understanding ; although we were expected to complete things on time, there was no hard limit on time given by them. They were helpful towards us whenever we got stuck on anything and helped resolve our errors. Though they suggested what kind of a project they expected from us, they made sure to give us enough space for brainstorming and working with our own ideas. So overall, it was a great learning experience for me and I am glad to have got such amazing mentors.

Learning Outcome: In the 8 weeks of internship, I learnt django from scratch, a few basics of react and learnt to integrate the two using axios. I also learnt how to merge codes using git and github so that all team members are on the same page at any time.

Name: RIYA PRAFUL WAIRAGADE . (2020A7PS1306H)

Student Write-up

PS-I Project Title: StraysCue: Case Management System

Short Summary of work done: I worked on the backend of the StraysCue: Case Management System.
I have added the following functionality to the website:
-Displaying case details on the dashboard.
-Adding, deleting, and editing cases on the dashboard.
-Paginate the current dashboard to only show 20 cases at once to improve the user interface.
-Exporting case details to a CSV file
-Displaying case analytics
-Displaying a calendar which will contains all the case details according to their pickup date and time.

PS-I experience: It was a good learning opportunity and gained real world experience by working at StraysCue - HyphenBridge Foundation.

Learning Outcome: I have learnt to use Python, Django framework, HTML, CSS, React JavaScript library and Figma.

Name: Prajwal Ashok Nayak (2020A7PS2059H)

Student Write-up

PS-I Project Title: Transparency and Donation

Short Summary of work done: StraysCue is a product which helps distressed animals be reported to the right NGOs in the area with ease, while also making the donation procedure for their recover easier. We were tasked to build the Frontend of StraysCue's Donation module. These pages were meant to be easy to use and transparent regarding the usage of the received money through donations. All of this was built using React.js and connected using React Router. The backend was built using Django. The project included designing the pages and user flow before building it using react and then systematically building the website using react in the form of a neat component tree.

PS-I experience: My experience with the station was outstanding. Throughout the project we were systematically asked to learn and implement things one by one without ever asking us to do too much work, while also not asking us to do too little. We were encouraged for any work we did and were advised and guided extremely well throughout. The mentors were extremely friendly to the point where they would understand any issues we had regarding the project and gave us ample time to proceed with our work and were very open to any issues we had regarding the project. They were also very useful regarding work experience and future advice to college students in general. Overall, from what I have heard about other stations, I believe this is the best station anyone could have asked for in PS-1.

Learning Outcome: I learnt how to build websites using React and also experienced the work environment in the corporate world where we have to work as a team on the same project

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Name: AYUSH . (2020B1A70623P)

Student Write-up

PS-I Project Title: StraysCue- Case Management System

Short Summary of work done: The project's objective was to build a website useful for the public and the NGOs to report and rescue injured stray animals. The website had four modules. I worked as a backend developer on the Case Management System Module. It provides a platform that allows NGOs to add and retrieve saved reporter details. This platform is being developed to assist the NGO in accessing its own cases so that, in the event, a similar case arises, they won't have to fill out all the information again, which will save them a great deal of time. The NGO will be relieved of the additional workload and that time may be spent effectively to save the injured animals.
I designed the login page and the dashboard for the module. The dashboard displayed the case details with necessary information. I added a lot of operations on the dashboard to make it easier for the NGOs to use. For instance, I designed the add case button to add the details of a case, export button to convert all the data into an excel file(which can be used by the NGO separately), analysis button to display the analysis of different type of cases in a specific date range. I also designed the calendar button that would display the case id according to the pickup time on a calendar(works like a google calendar). I also paginated the dashboard to remove the scrolling feature which becomes tedious at times. I performed the frontend integration with backend to pass the respective information.

PS-I experience: My PS project was a great experience, and I feel like I've learned a lot. The mentors at Strays cue, were incredibly helpful and welcoming to us. I personally had no experience with web development at the start. They gave us the resources we needed to learn and assisted us at every turn. They made it quite easy for us to move from the learning phase to the project phase. I was very happy with my contribution to the project website. It was also a great experience to work with my team members.

Learning Outcome: Through this PS project, I have had the wonderful opportunity to learn about backend development. At this point, I have learned so much about:
Django web framework, Admin Interface, HTML,CSS ,URL routing, CRUD operations and other such operations using Django framework. I also learned the value of leadership, confidence, responsibility, and coordination by participating in all the meetings and working in a team setting.

Name: AASTHA . (2020B2A72531H)

Student Write-up

PS-I Project Title: Building Case management system

Short Summary of work done: I worked as a frontend developer in StraysCue. StraysCue works under a non-profit company, HyphenBridge, for the welfare of stray animals. There were three major projects and I was assigned "Reporting and assignment" part. I built a reporting platform where anybody can report injured or unwell animals easily. This will ensure that every distressed animal is getting reported on an open and centralised platform and will enable any person to collaborate and help at higher volume. I also created and designed an event scheduler where the NGOs can fill in their free slots and accept/reject the reported case based on their availability. All of this was accomplished with the help of React.

PS-I experience: As a coding intern at StraysCue, I gained valuable insight into the IT and logistics industries. The work I did here helped me understand the process of developing a new product and the numerous elements that must be addressed while improving it. I was given opportunity to experiment with and learn new applications, as well as strategies to improve my work. The seminars and discussions with persons already in the sector were really beneficial since they provided us with insights and learnings from an experienced industrial perspective. Overall, it was an incredible experience that gave me several opportunity to learn about the IT sector.

Learning Outcome: I learnt a lot of things, and the experiences I obtained here will be quite useful in my future endeavours. I learned a variety of technical skills, including HTML, CSS, and ReactJS. Other tools essential for web development were also introduced. This startup's positive experience helped me gain a better grasp of product development and management. Other skills such as correct analysis, documentation, and other business processes were also acquired, and these will undoubtedly come in helpful in the future.

PS-I station: Swecha - Web Development , Gachibowli

Faculty Name: Supratim Ghosh)

Faculty Write-up

Swecha was founded in 2005 as an organisation to support the Swecha project, it is now a vibrant community of software users, students, academicians and software

professionals/developers determined to provide quality software built on the guidelines of free software development model. Swecha aims at providing global software solutions to the local people with the Free Software development model by working together with the community of developers and users all over. The prime objective of Swecha OS is to provide a complete computing solution to a population that speaks and understands only Telugu.

Industry looking for in a -I intern
a) Competitive drive to work hard and perform on the job.
b) Positive attitude and enthusiasm about the chance to grow.
c) Willingness to keep an open mind to learn new things.
d) Outgoing and able to connect with others to add to the culture of the business.

Student

Name: ALWIN HELOR (2020A7PS0957G)

Student Write-up

PS-I Project Title: Conversational speech dialogue system

Short Summary of work done: Initially a Big Blue Button server is installed on the local system which then enables
the use of the API's made available by them. In our application the API's for creating a BBB meet, obtaining the join links for a user and admin, retriving the recording of completed meets are made use of.
An express JS server is created for making API calls to the Big Blue Button mentioned above.Specific routes are defined and the response obtained from the calls are returned in
the form of JavaScript Object Notation (JSON) format.
The user interface is made using React JS and displays the join link to the meet for a moderator as well as attendee. In addition for creating a meet the name of a user and a name for the meet is to be entered in text-boxes. The language of conversation has to be selected from the drop-down.
When the user clicks on Get Transcript button the backend fetches the video recording from the big blue button api and send passes it to the python scripts through the spawn child process of Node JS.
The python scripts first converts the .mp4 file passed as input to .mp3 file which further gets converted to .wav file. The .wav file is then processed and speech to text transcription takes place. The transcript is passed back to the node JS application which gets displayed to the user as well as gets stored in the database.

PS-I experience: Using the one of the most popular tech stack, MERN (mongo DB, express JS, react JS,

node JS) we were able to build a web-application which integrated Big Blue Button for video conferencing meets.
Thus with the help of my teammates and mentor the application we build is able to take step forward in bridging the gap between technology and the lives of people with less English literacy.
I would like thank Swecha for this opportunity to learn and experience working in a tech company on such a large scale and mentor for this valuable guidance.

Learning Outcome: Use of Mongo DB for creating database schemas, storing and retrieving info from the MERN stack application.
With git and Gitlab I learned about version control management.
Further i was able to enhance my skills in back-end development through the use of express JS and many other npm packages.

Name: SHAURYA AGARWAL . (2020A7PS0963G)

Student Write-up

PS-I Project Title: ENABLING PERSISTENT SHARED NOTES ACCESS

Short Summary of work done: The Project feature assigned to me was to enable persistent access to shared notes on
BigBlueButton conference system. BigBlueButton already provides a shared notes access
where the text inside the notes persists however only until no participant of the meeting is
left after which the notes cease to access. Hence my team was required to come up with a
solution to enable access to shared notes until the meeting is abolished in other words, the
users will be able to see the previous session notes even after everyone leaves the current
sessions and join a subsequent new session.

PS-I experience: Overall it was a very enriching experience as I got to learn various technologies and got to experience the working of an organization in the real world.

Learning Outcome: This project gave me exposure towards work in the field of web development and taught me about the current best practices and technologies used in

present-day organizations. It also enhanced my communication and time manegment skills .

Name: KONDUR SAI YESHWANTH VARMA . (2020A7PS0971G)

Student Write-up

PS-I Project Title: Voice frontend and backend - Web Application

Short Summary of work done: the main aim of the project was to build an alternative website to swecha voice by incorporating some new features along with the existing ones. we implemented features through which the user can provide voice recordings and can verify existing voice samples. these help in the company's goal to build software applications that recognize native languages(especially Telugu). we were asked to add additional features such as gamification and certificate generation, user dashboard, a login and signup page, polls to the existing user about the website experience, and expanding the metadata collection.

PS-I experience: overall experience was good, and the project we were assigned was interesting. I got to know and learn about communicating in a professional space.

Learning Outcome: I learnt about different methodologies that could be followed to complete
software projects like waterfall and agile methodology. I became more comfortable git, GitLab, and git hub and understood the importance of version control. I learnt how to interact with mentors and how to work in a team. I got experience in giving presentations and writing reports.i learnt different frame works of javascript such as nodejs,react js and postgresql.

Name: TUSHAR KUMAR SINGH . (2020A7PS0975G)

Student Write-up

PS-I Project Title: DEVELOPING A SYSTEM FOR THE DESIGNING OF THE BEST NETWORK ARCHITECTURE FOR THE GIVEN AREA BASED ON GEOSPATIAL TOPOLOGY WITH BUDGET ESTIMATION

Short Summary of work done: The team's task was to "Investigate and design a web system for recommending the designing of the best topological network architecture for the given classroom(s) and school(s) based on geospatial topology with budget estimation." For achieving the task knowledge of HTML, CSS, JS, Angular JS and Bootstrap was required. Also, machine learning and python libraries like Pandas, NumPy, Matplotlib were required. The team decided to use Mean Shift Algorithm. Mean shift clustering is a sliding-window-based algorithm that attempts to find dense areas of data points. It is a centroid-based algorithm meaning that the goal is to locate the center points of each group/class, which works by updating candidates for center points to be the mean of the points within the sliding-window.
The program reads data from a CSV file and creates a density graph. Then mean shift algorithm is applied which finds the location of all the points where the routers should be placed

PS-I experience: My PS-1 journey of 2 months was a very exciting journey where I experienced corporate life for the first time. It encouraged me to learn new things for my project and ultimately I could contribute to the team in a great way.

Learning Outcome: Through this PS-1 project I learned how work is done in the corporate world. It teaches us new concepts and also motivates us to work efficiently for the team and achieve our tasks. It also teaches to work in unison with our other fellow team members and the importance of completing the tasks given to us in stipulated amount of time.

Name: UTSAV GOEL . (2020A7PS0984P)

Student Write-up

PS-I Project Title: Open EMRS

Short Summary of work done: We made a health related appointment booking portal using flask python html css and Js.

PS-I experience: It was a great learning experience

Learning Outcome: It helped me in improving my communication skills and also made me understand the importance of teamwork.

Name: AARYAN MARAR . (2020A7PS0987G)

Student Write-up

PS-I Project Title: Crop Recognition and Data Labeling App Development using ML Techniques.

Short Summary of work done: My project aimed to create a specialized crop labeling tool by the help of accurately annotated data which can be used effectively by ML algorithms to detect problems and propose workable solutions.
The tools and framework used were Label Studio, Gradio, Hugging Face etc.
One way to automate data labeling is to use a workflow that can identify when the labeling model has higher or lower confidence in its results, and pass the data to humans to do the labeling when lower confidence arises. The new human-generated labels can then be provided back to the labeling model for it to learn from and improve its ability to automatically label the next set of data.

PS-I experience: My PS1 Experience was wonderful.
The project assigned to my team was challenging but as a team we completed it which taught me the importance of team work.
Through the course of the PS1 internship I learned essential life skills which will help me further in life.

Learning Outcome: I learned new skills and technologies such as Label Studio, Gradio, Hugging Face and how to deploy ML models as an API.
Learned to appreciate the work and got an exposure to the corporate life.
Developed work habits and attitudes necessary for job success.

Name: OMKAR SACHIN GOTHANKAR . (2020A7PS0991P)

Student Write-up

PS-I Project Title: Conversational speech dialogue system

Short Summary of work done: My projects main goal was to build a web platform for collection of audio corpus. This corpus would then later be used by other teams to build and train NLP models for Swecha voice. Audio files were collected using BigBlueButton(BBB) an open source video conferencing software. Meetings were conducted and recorded on BBB server. These recordings would then be accessed using API calls and then converted to audio files. Subsequently, the audio files would be transcribed and stored in the database.

PS-I experience: My PS-1 was an enriching experience where I got a taste of the corporate world. Swecha has various interesting projects where you get a chance to work on real world projects which give back to society. My PS-1 mentor and designated Swecha expert were especially helpful and gave invaluable feedback which helped in completion of the project.

Learning Outcome: Primarily, I learned about the importance of open source software and different technologies and tools related to them. I learned about BigBlueButton and how to integrate it into your application easily. On top of this I also learned more about different web development technologies like NodeJS, ReactJs and mongoDb. This project gave me a chance to fine tune my skills related to git and version control. I learned about devops and the Agile SDLC methodology.

Name: PADMAWAR SARASWATI DEEPAK . (2020A7PS1013G)

Student Write-up

PS-I Project Title: Civic dashboard

Short Summary of work done: Made a civic dashboard for citizen operations and status.

PS-I experience: It was a learning experience, learned how to work in a team and coordinate with different people.

Learning Outcome: Learnt various web development technologies.

Name: PRATYUSH BADRI . (2020A7PS1016G)

Student Write-up

PS-I Project Title: DISEASE DETECTION IN CROPS USING MACHINE LEARNING AND DEEP LEARNING

Short Summary of work done: In the AgriTech Project, our team is involved in developing the Crop Identification application using Machine learning/Deep learning. I have worked on the Disease Detection submodule. My team and I built a Deep Learning model to detect the disease FHB(Fusarium Head Blight) in wheat.

PS-I experience: I had a very fruitful experience at Swecha. I was able to gain invaluable knowledge and experience in the highly in Machine Learning and Deep Learning. The Swecha employees were quite helpful and interactive which made the experience all the more pleasant. Their constant guidance and support had a tremendous lasting impact on me.

Learning Outcome: I have learnt so much over the course of this internship. I gained invaluable experience and knowledge in the field of Machine Learning and Deep Learning. I learnt the various processes one must go through to build a model from scratch such as data collection, data cleaning, labelling dataset, architecture research, hyperparameter tuning, etc.
In addition to the technical knowledge I acquired, I also learnt various soft skills such as the ability to work efficiently in a group, time management, how to delegate work and countless others.
At Swecha, we were taught the value of Open Source and its numerous advantages. To name a few , open source is cheaper, more reliable and flexible and can be scaled very easily.

Name: RAJARSHI RAY . (2020A7PS1017G)

Student Write-up

PS-I Project Title: DEVELOPING A SYSTEM FOR THE DESIGNING OF THE BEST NETWORK ARCHITECTURE FOR THE GIVEN AREA BASED ON GEOSPATIAL TOPOLOGY WITH BUDGET ESTIMATION

Short Summary of work done: Essentially, our job was to design a web page that interacts with the client to determine information about a given area, say a school. It obtains the information about the locations of classrooms and clients that will download information from the server. Given this information, we are to determine the optimal placement of routers and repeaters that extend from the server and create a wireless network that spans the necessary area to ensure the delivery of content to the clients.
"Investigate and design a web system for recommending the designing of the best topological network architecture for the given classroom(s) and school(s) based on geospatial topology with budget estimation."

PS-I experience: As the Group Leader for my team(Team 24), I was responsible for holding daily stand-up meets with my team and ensure the overall progress of the project. Since we have worked on the back-end my time in the team has mostly been to research about methods with which people have tried to solve similar problems before this and delegate work to my team mates who would go ahead and implement the solution. Moreover, I also kept in tough with the group leader of Team 25, who were responsible for designing the front-end part of the application. Overall I had a very fruitful experience during my time in PS-1, thanks to the helpful guidance of the mentors and the enthusiasm that my team displayed.

Learning Outcome: As the group leader of my team I have learnt and strengthened my leadership skills. Moreover, keeping regular meets with my team mates taught me a lot about time management and how to work together in a team environment. Technically I have had hands on experience with Machine Learning Algorithms in python using libraries such as Numpy, Pandas, MatPlotlib and Sklearn.

Name: ABHINAV VERMA . (2020A7PS1093H)

Student Write-up

PS-I Project Title: Fake News Detection

Short Summary of work done:

We students solved a complex yet simple looking problem of fake news detection using state of the art python libraries which includes Numpy, Pandas, Scikit Learn, NLP, Beautiful Soup and Keras.

PS-I experience:
We were divided into four teams, each team looking over a particular segment of the project. As an intern and the member of Data Science team, I was incharge of the web
scraping. I ended up creating a python script which extracted data from www.inshorts.com and merged the data with already existing data in Solr database.

Learning Outcome: In conclusion, I learned a lot about how to work in team by being a part of Data Science team and also how to meet deadlines in a corporate organization. Along with that Swecha turned out to be an excellent organization to work with, which taught me a lot of technical skills, which includes Python and Beautiful Soup Module. I also learned how difficult a simple looking problem could be when we try to implement it.

Name: KAUSTAV CHATTERJI . (2020A7PS1112H)

Student Write-up

PS-I Project Title: WEB SYSTEM RECOMMENDING THE BEST TOPOLOGICAL NETWORK ARCHITECTURE FOR SCHOOLS BASED ON GEO-SPATIAL TOPOLOGY AND BUDGET ESTIMATION

Short Summary of work done: Swecha is a non-profit organization. To enable students to access internet in schools and classrooms thereby enhancing the quality of education is the need of the hour. For them to access internet we need to place routers at multiple locations. Each router can handle a fixed number of users, so by placing more routers at densely populated regions and less at sparsely populated regions we can ensure that all students need are satisfied at the minimum budget. The project given by Swecha to the group I was a part was to design a web application which given a population density heatmap identified the minimum number of routers needed and their optimal locations which satisfied all the needs in minimum budget.

PS-I experience: The internship opportunity I had with Swecha was a great experience for learning and professional development. It was indeed a great opportunity and I am delighted to have got the chance to interact with so many resourceful people and professionals who led me throughout my internship period.

I perceive this opportunity as a big milestone in my career development. I will strive to use the gained skills and knowledge in the best possible way, and I will continue to work on their improvement in order to attain desired career objectives.

Learning Outcome: I got the opportunity to have a real time work experience meet many professionals who led me throughout my internship period. I was able to learn about many machine learning algorithms as the project assigned to me required that.

Name: DARSHAN ABHAYKUMAR (2020A7PS1214P)

Student Write-up

PS-I Project Title: Conversational Speech Recognition System

Short Summary of work done: Created a web application for listening to different speakers in a meeting hosted by BigBlueButton to generate a transcript.

PS-I experience: It was a good exposure to corporate level work and helped me understand my weaknesses during communication with others in my team.

Learning Outcome: Learnt ReactJS and got better at CSS

Name: KSHITIJ GAUR . (2020A7PS1221G)

Student Write-up

PS-I Project Title: Swecha Conference System

Short Summary of work done: BigBlueButton is an open source web conferencing system. BigBlueButton supports real-time sharing of audio, video, slides (with whiteboard controls), chat, and the screen. Instructors can engage remote students with polling, emojis, multi-user whiteboard, and breakout rooms. Our task here is to enable the persistent shared notes access in BigBlueButton.

PS-I experience: Shared Notes now has been made a lot better through our project and the restoration of shred notes has proven to be hugely impactful and has helped users throughout the organisation. This project has provided great insights on APIs and how Tech- giants have occupied the market and how our data is being used without consent. The project initially explained us about open source, proprietary and free software. They gave us details regarding how privacy is attacked by proprietary software and was explained by our mentors in Swecha. This project has given us a different perspective on the working of these Tech-Giants. Our mentors are guiding us really well. We have regular sessions and with that we have brainstorming sessions with our team, where we discuss various ideas. I also got a chance to learn REACTJS, MATERIAL UI and their real-life application. Our Professor, Supratim Ghosh conducts daily attendance meet and it really helps as he addresses all our queries.

Learning Outcome: Shared Notes now has been made a lot better through our project and the restoration of shred notes has proven to be hugely impactful and has helped users throughout the organisation.

Name: PRATHAM BHATNAGAR . (2020A7PS1222G)

Student Write-up

PS-I Project Title: Developing an app for Swecha Voice with offline functionality and online integration

Short Summary of work done: Had to develop an app in which user can provide voice samples for the text prompted to him, this sample was to be stored in a database when internet was available. A user can also choose to listen to a voice and text and flag it as correct or not. We made the app in flutter and used PostgreSql as our database. I worked on the user login and authentication
and helped in integrating various components of the app made by my fellow teammates.

PS-I experience: The project seemed interesting. The industry mentor tried to help but seemed to be busy with his other commitments. We had to figure most of the things on our own and he expected us to make the whole functional app by the end of the PS.

Learning Outcome: Learnt flutter, dart and basics of PostgreSql, understood how a cross platform app works.

Worked with postgres library of dart and understood how connection with database is made and in what way is it returned to the frontend. I learnt how the frontend deals with this info to make appropriate changes for the user.

Name: THIGULLA PRANEETH BHARGAV . (2020A7PS1299H)

Student Write-up

PS-I Project Title: FARMERS ANDROID APPLICATION

Short Summary of work done: We have built an android application for the farmers to manage their inventory, crops and machinery at their FPO (Collective Farmer Organization). We had to build a website(for FPO),Android app(for individual farmer),APIs and maintaining database. I worked on the Android application module, that deals with UI/UX part and handling REST APIs for login/signup authentication. Technologies used are Kotlin, Jetpack Compose, Ktor client.

PS-I experience: It was great. For the first time I was introduced to corporate style of working like, group meetings and discussions with mentor, working as team from remote places and contributing parallelly via VCS(Git), expressing my ideas in a group, researching about agriculture and getting to know about agricultural terms like value chain. It was one of its kin of experience that I would like to use them for rest of my career.

Learning Outcome: Learned Kotlin and Imperative UI libraries like Jetpack Compose instead of using Java and XML, Learned how to handle APIs with Ktor-Client, got a depth understanding of git and git lab.

Name: THIGULLA PRANEETH BHARGAV . (2020A7PS1299H)

Student Write-up

PS-I Project Title: AGRITECH

Short Summary of work done: We developed an android app for farmers to manage their resources remotely which are associated with FPO(a collective farmer organization). We have implemented things like login, signup activity, Inventory Management

PS-I experience: It was great to describe in one. It's an whole different experience to work in an organization like swecha, I got know about the systematic group discussions, designing and implementing the prototypes, communicating with mentors and coordinating in between the teams to ensure smooth working.

Learning Outcome: Technical aspects:
* Kotlin
* Jetpack Compose
* Ktor-Client
* Git (working with gitlab)

Non-technical aspects:
* Presentation Skills
* Team Interaction
* Report writing

Name: JAHANVI MAKKAR . (2020A7PS1372G)

Student Write-up

PS-I Project Title: swecha conference system- module 3

Short Summary of work done: We have the full access to BigBlueButton's source code under an open source license. With the source code, we can install, customize, develop, scale, and integrate it into your products and services with help from the community.
It provides including real-time sharing of audio, video, presentation, chat, whiteboard, shared notes, polling, and breakout rooms. It can also record the sessions for later playback.BBB conference has a feature called shared notes. It is an Etherpad panel embedded in the HTML page in which the participants can write the outcomes of the meets. The shared notes can be exported can be saved for future use.
However, after a session has ended, the notes cease to exist and are not visible after the meeting is reopened.
Our goal is to enable the persistence of the shared notes in the same link across different sessions.Create a pad object inside the session object with all the required properties.
Along with the session object, the pad object will persist, which will lead to the text property to persist.

Every time the session object is loaded on the page, the text property will be printed on the Etherpad.

PS-I experience: Very unique experience. Essential for development of networking , leadership skills. Taught me how to work under a team and communicate effectively. Learnt a great deal of new technical skills. We had very insightful meetings with our mentor who taught us more about the work culture and how to adapt to it.

Learning Outcome: Essential for development of networking and eadership skills. Taught me how to work under a team and communicate effectively. Learnt a great deal of new technical skills.

Name: BAWASE VIBHAV MOQTIK . (2020A7PS1382G)

Student Write-up

PS-I Project Title: Crop Identification Application using Machine Learning

Short Summary of work done: My work at swecha included -
1) API creation - API stands for Application Programming Interface. In the context of APIs, the word Application refers to any software with a distinct function. Interface can be thought of as a contract of service between two applications. This contract defines how the two communicate with each other using requests and responses.
2) Testing for bugs.
3)Integration of ML model in the backend of label studio.

PS-I experience: I am really delighted at the work done by me during these 6 weeks will be used by farmers all over the country. Overall, it has truly been an invaluable experience for me. Not only did I get an exclusive look at the work that goes on behind development in an organisation like Swecha. I also got my first glimpse of a professional work environment, with its deadlines, and various teams working sequentially in different parts of the same project. This helped me tremendously in understanding and developing countless soft skills like team work, time management and leadership.

Learning Outcome: As a result of this project I was able to learn web development and basics of machine learning. This project helped me tremendously in understanding and developing invaluable soft skills like team work, time management and leadership.

Name: SHASHANK KHATTAR . (2020A7PS1509P)

Student Write-up

PS-I Project Title: Farmers cooperative management system, consisting of a website, an android app, and the backend API for them.

Short Summary of work done: Data modelling for the needs of the project using flask-SQLalchemy and sqlite, and building the backend for the project android app and the website using Flask python framework. Building the API endpoints for authentication, equipment and item adding, purchasing and renting. Using JWT tokens in the Flask project, organized accordingly using multiple Flask blueprints for structuring the endpoints. Simultaneously making the documentation for the API using Postman, and using postman to test the API. Work is still being done, as changes in the project requirements are received. Deploying the developmental API to Heroku for further testing and integration with the under development android app, using github linking with Heroku.

PS-I experience: The internship had regular meetings which informed of the specification changes about the project and also inputs from the company about what might need to change in the current state of the code of the project or of the various prototypes of the project. The entire team was split into mainly 3 teams: The android app team, the backend API team and the website (Frontend) team. I was on the backend API team and we were specified that the backend had to be built on the Flask framework. Many of the other interns had no experience in web development and they had to spend a great amount of time of the internship to learn to use Flask and python and about web development in general. The task of data modelling was originally given to the frontend team as it had the most members, however, the backend team had to do the data modelling on their own for that time because the work on data modelling greatly lagged behind in the frontend team, and since the development of the backend API is heavily dependent on the database and the data models, we had to work with some self made skeletal data models to make the functionality which will have to be modified according to the finalized data models. I hosted the API on heroku and shared the documentation via postman to the other teams so that they could integrate the functionality developed so far, or learn to do so when their projects are ready for it.

Learning Outcome: Learning to make wireframes/prototypes for websites, android apps, learning data modelling and learning to make REST APIs using Flask, documenting them, deploying them, and collaborating with various subsystem teams using Gitlab working environment as practiced in the industry.

Name: SIDDHAVATAM ROHAN SAHAY . (2020A7PS1697G)

Student Write-up

PS-I Project Title: Civic dashboard Android application

Short Summary of work done: We built an android app where the users can lodge compliant and can keep check on registered, open and closed compliant. This app will be useful to the municipality corporation who looks into these compliant. In the app we used Jetpack compose for UI and code, Retrofit APIs for API integration that is back-end work. I also learnt how to use gitlab for collaborating with other teams and Canvas app for wireframes. In the app, user should enter details of compliant, address, location on map and upload an image of the issue to register the compliant. For this we used plugins for map and image-picker.

PS-I experience: This PS being my first internship is a new and unique experience that I will always cherish. I am grateful to my mentors at Swecha for guiding us in finishing the project. They conducted regular meets to know our progress, discuss what needs to be done next and clarify our doubts. Working in a team, collaborating with them are my main take home messages from this internship.

Learning Outcome: I learnt new technologies such as Gitlab, Jetpack Compose, Retrofit APIs which will be very useful for projects I do in future. Team work, helping each other, collaborating the work and finishing tasks before deadlines are invaluable outcomes from this internship.

Name: ARJUN JEEWAN . (2020A7PS1701G)

Student Write-up

PS-I Project Title: Swecha Voice- Web Application

Short Summary of work done: Made a web application, leading a team of 10 members that asks users to record voice samples and verify other voice samples, to improve voice accessibility in regional languages. Project based in JavaScript using React, Express, Node and PostgreSQL.

PS-I experience: It was a huge learning experience, ventured into the field of web development and became comfortable with it.

Learning Outcome: Web Development, JavaScript, React, Node, Express, HTML, CSS, PostgreSQL

Name: YUVRAJ AHUJA . (2020A7PS1704G)

Student Write-up

PS-I Project Title: Civic Dashboard

Short Summary of work done: Built a website for civilians to register complaints regarding civic issues, required frontend and backend web development

PS-I experience: I got the experience of working in the IT industry and I learned a lot of new things

Learning Outcome: I got the experience of working in the IT industry and I learned a lot including Javascript, node.js, express.js and further backend development

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Name: ANIMISH PRATEEK . (2020A7PS1713H)

Student Write-up

PS-I Project Title: Implementing voice features into Balaswecha OS

Short Summary of work done: At the start, we got an opportunity to learn web development. We learnt various tech stacks like HTML, CSS, Javascript and Node js. We also learnt about the version control systems like git and gitlab. It was fun learning these systwms. Then we staeted working on Balaswecha os, solved issues on Gitlab. The issues with Balaswecha os was reported by our mentor, then we used to solve them and merge back into Gitlab. Finally, we made our project, which was implementing voice features into the Balaswecha OS, using pyaudio and python. And then we pushed it back to gitlab.

PS-I experience: I had a good experience working for Swecha ps startion. I learnt many tech stacks and gained experience of working with a team.

Learning Outcome: We learnt various tech stacks like HTML, CSS, Javascript and Node js. We also learnt about the version control systems like git and gitlab. I laso learnt about python and pyaudio.

Name: MADHAV SRINIVAS NATHAVAJHULA . (2020A3PS0654H)

Student Write-up

PS-I Project Title: Assistive Tech: Translations and Summarization - Multilingual Dictionary

Short Summary of work done: My project was to build a web application and mobile application for a multilingual dictionary. The application would show definitions for a word inputted in any language and would also allow the user to translate between different languages. We developed the front end of the web application using HTML,CSS and JavaScript. We used APIs, Java, PostgreSQL for the back end. We used Java and Android Studio for the mobile application.

PS-I experience: My PS -1 experience was very good. I learnt not only technical skills required in building and developing a project but also various other necessary skills such as networking, communication, planning and collaborating which greatly helped in our progress. My mentors guided me throughout the course and were extremely helpful .

Learning Outcome: How to implement things learnt from theory into practice.
The benefits of networking & how important good communication is.
Importance of maintaining a diary.
Technical skills - Git, Java, Android Studio, HTML, CSS, Bootstrap, JavaScript

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Name: AKASH RANJAN . (2020A3PS1069G)

Student Write-up

PS-I Project Title: AgriTech

Short Summary of work done: I worked mainly on the frontend part of my web development work and thus helped in creating of webpages. The webpages were designed on figma so i worked upon it too.Also I learnt JavaScript and Bootstrap, which upgraded my skill. And helped in creating a webpage to handle the management of farmer's machinery and tools which they bought online.

PS-I experience: With the help of Bits Pilani , and Swecha Mentors I learnt a lot from them. And worked relentlessly on the project hence upskilling my technical IT knowledge. Hence it was a very fruitful experience and my one of the first industrial experience, which also boosted my soft skills.

Learning Outcome: During practice school, I attended seminars relating to various domains, which enhanced my knowledge. I worked on multiple technologies, such as HTML and CSS, Java Script which helped me improve my technical skills.
Overall, the practice school was very fruitful, which gave me my first industry exposure and helped me build my technical and soft skills. It also helped me explore my positive and negative points, and I am grateful to Swecha Organization for giving me this opportunity.

Name: SHREYASH SINGH . (2020A3PS1252G)

Student Write-up

PS-I Project Title: FAKE NEWS DETECTION

Short Summary of work done: This project aims at detecting bogus news articles and informing the
readers if it is fake news or not, once the system gets news text for fact checking it will extract keywords from news text while sorting trusted news sites. Based on these keywords, the system will search to generate candidates. For each candidate, the system will do document to document similarity with input news text. We are using Allen NLP Textual entailment in case we do not get a high confidence match in the previous (Document Comparison) step. We are doing this to handle similar sentences having opposite meanings.

PS-I experience: It was a very nice learning experience for me. I got my first glimpse of a professional working environment, with various team members coordinating with each other to complete the tasks assigned to us.

Learning Outcome: The project duration of 7 weeks has been really engaging and all about learning new concepts. Not only did we get an exclusive insight about the work being done in various sectors at Swecha but we also got our first glimpse of a professional working environment, with its deadlines, and various teams co - ordinating with each other and working sequentially in different parts of the same project. These tasks have helped us to induce a research-oriented approach to tackle problems.

Name: GAURAV (2020A3PS1543P)

Student Write-up

PS-I Project Title: Developing a Moodle Live Stream Plugin.

Short Summary of work done: Our work was to enable live streaming of Swecha live stream and classes on Moodle (Learning Management System) which will prevent the cluttering of different links for different courses and also smoothen and optimize the learning process. Basically we implemented a plugin for live stream embedding on moodle page itself , just like youtube.

PS-I experience: Decent. First month was mainly for seminars , teaching sessions, understanding the project and assessing the existing software of swecha. Work started in Late June.

Learning Outcome: Elixir , Phoenix , OvenMediaEngine and PHP

Name: HARISH KRISHNA A . (2020A3PS1603G)

Student Write-up

PS-I Project Title: Crop Labelling Tool for Agricultural Use Cases

Short Summary of work done: One way to automate data labelling is to use a workflow that can identify when the labelling model has higher or lower confidence in its results, and pass the data to humans to do the labelling when lower confidence arises. The new human-generated labels can then be provided back to the labelling model for it to learn from and improve its ability to automatically label the next set of data. We integrated the API, which allows two applications to interact with each other. We then integrated the ML backend, which would do the labelling. To tool has three uses: 1. Crops and plants disease detection - Deep learning algorithms can be trained on images of crops and plants with good accuracy for crop disease detection. 2. Crop and weed segmentation - Labelling tool can be used to efficiently classify between weeds and crops. 3. Crop Mapping - Traditionally, crop type information has been obtained from field surveys and censuses, but such surveys are expensive and time consuming to conduct. This is where machine learning techniques are applied on the satellite data for crop type maps.

PS-I experience: It was an interesting project. I had to make points and corroborate them in the group discussions, become familiar with the basics of machine learning, etc, which meant I got to learn something everyday. It was enjoyable and satisfying to work on this project.

Learning Outcome: I learnt Label Studio, an open source data labelling tool for labelling and exploring multiple types of data and Gradio, an open-source python library that permits you to rapidly make simple to utilize, adjustable UI parts for your ML model, any API, or any subjective capacity with only a few of lines of code.

Name: TANGIRALA ASHISH RAJ . (2020A3PS1757H)

Student Write-up

PS-I Project Title: Fake News Detection

Short Summary of work done: During the PS-1, I learned languages like python, HTML, CSS, JavaScript, and flask. Using these, I learned to build a website that works as a registration form. I made this website using python and flask. The aim of our project was fake news detection. This project included working on a website and an extension that helps users know whether the given news article has valid information or not by browsing the web for articles on similar topics and scanning and comparing them with this one.

PS-I experience: During the PS-1, I learned languages like python, HTML, CSS, JavaScript, and flask. These languages help in web development. The mentors were very helpful in guiding me throughout the duration of PS-1. They conducted sessions regularly and responded to my doubts frequently. Hence, the PS-1 experience was a very big learning opportunity for me.

Learning Outcome: During the PS-1, I learned languages like python, HTML, CSS, JavaScript, and flask.

Name: HARISH BHARDWAJ . (2020A3PS1761G)

Student Write-up

PS-I Project Title: BalaSwechaNet and BalaSwechaOS

Short Summary of work done: Our project was to integrate virtual labs with the BalaSwechaOS .The primary objective of our project was to introduce computer-based learning at the school level for children studying in government schools and other schools for the underprivileged using specialized software called the BalaSwechaOS. BalaSwecha is an open-source Operating system for the education of the underprivileged. The primary objective of BalaSwecha is to bridge the growing digital divide in education between the privileged

and underprivileged in India. Purpose of virtual labs is to provide remote access to simulation-based Labs in various disciplines of Science and Engineering and to provide a complete Learning Management System around the Virtual Labs where the students/ teachers can avail the
various tools for learning, including additional web resources, video lectures, animated demonstrations and self-evaluation.

PS-I experience: Our whole project can be divided into 4 phases: -
1) Learning phase
2) Discussion phase
3) Development phase
4) Launch phase
Learning phase:- Our team devoted nearly first 2-3 weeks in this
phase.In this phase, we go through various concepts based on OS Development and Application building in Ubuntu. Some of the concepts include:
CPU scheduling, Synchronisation, threads and processes.
Discussion Phase: -. In this phase, we had regular standups and discussed various possible changes to improve the functionality of the OS.
Development Phase :- In this phase, we implemented what we
learned so far. We created different user stories and explored the
current version of BalaSwechaOS. We majorly created new virtual
labs and made changes to the existing ones. We also collaborated with another team who has been tasked to implement voice control with the help of NLP (Natural Language Processing) .
Launch Phase :- This was the last phase of our project which was the
Launch phase. In this phase, we were supposed to launch the OS. The
final touches and bugs, if any, were fixed in this phase. After the final
approval of our Mentor, we launched the New Revamped
BalaSwechaOS.

Learning Outcome: I got to learn a lot of essential skills which are
quite necessary in the corporate sector. Like:-
HTML, CSS, JavaScript, OS development, App building in Ubuntu

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Name: SAUMYA SHRIVASTAVA . (2020A3PS1767G)

Student Write-up

PS-I Project Title: TTS enabled Web Application and Audiobook android application

Short Summary of work done:
Our work was divided into two modules. For the first module, we had to make a web app that converts text to speech and vice versa. We used web speech API for this purpose. For the second module, we had to make an audiobook android application that fetches audiobooks and their details from the internet. We used Android Studio to build the project. We used Kotlin and Expolayer to implement media playing.

PS-I experience: I had a good experience working with Swecha. It is a nonprofit organization, so I learned about open source. I got a peek into how the actual industry works and how to work in teams to solve a common problem.

Learning Outcome: I learned HTML, CSS, Bootstrap, JavaScript, and Web APIs for web development. I learned Kotlin, APIs, Android Studio, and how XML files work for Android development.

Name: NIKHIL KUMAR SINHA (2020A3PS1785P)

Student Write-up

PS-I Project Title: Enabling multi screen-sharing in BigBlueButton

Short Summary of work done: Came up with use cases of multi screen-sharing, design of the wireframe with the required features and implemented such features component wise on the video conferencing software BigBlueButton.

PS-I experience: It was a great and enriching experience overall.

Learning Outcome: Learnt about free software, Agile SDLC, Gitlab, basics of web development

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Name: BODAPATI SAI SWAROOP . (2020A3PS1787P)

Student Write-up

PS-I Project Title: Swecha AgriTech

Short Summary of work done: The Aim of the PS project work at Swecha was to develop a full functional AgriTech website which include modules of farm machinery and inventory management system for a Farmers Cooperative or FPO(farmer producer organization).The work on the website started by creating wireframes for the webpages using a software tool known as Figma .UI/UX, themes, components were added and submitted as a presentation to the PS mentor and changes were noted. The changes suggested were processed by the team and were finalized and submitted to the PS mentor. After approval of the wireframes resources and platforms were suggested by the mentor for development. Languages HTML ,CSS vanilla.js were suggested for the frontend development of website and Bootstrap framework was used for responsiveness. The collaboration of API team was helpful in backend data processing of the website. The code for project was committed and submitted through Gitlab account provided by Swecha.

PS-I experience: The work experience at swecha was very nice and it has given an opportunity to learn and explore new technologies.

Learning Outcome: I learned how to render the websites using HTML,CSS,JavaScript and Bootstrap wireframe.I l improved my technical and communication skills by working as a team and also got introduced to corporate working environment.

Name: SAMEER BANSAL . (2020A3PS2002G)

Student Write-up

PS-I Project Title: Making APIs to integrate with the Public Convenience Systems

Short Summary of work done: Me and my group had to make APIs to integrate them with the Web Application and Mobile Application of the Swecha Civic Dashboard using Python and Flask Framework. We had to take care of the APIs and the database that will be useful for the clients in lodging in their complains on the Swecha Civic Dashboard.

PS-I experience: It was a good experience. I learnt many new skills , got to know how the industry works and made many new connections with people.

Learning Outcome: Learnt skills like Python , Flask , GitLab , GitHub.

Name: P. K. ASHISH SRIVARI . (2020A3PS2126H)

Student Write-up

PS-I Project Title: AGRITECH

Short Summary of work done: We built an Android app and website for a FPO(Farmer Producer Organization) management system.

PS-I experience: It was a good hands-on industrial experience.

Learning Outcome: It was a fruitful internship in which we learnt the basics of app and web development.

Name: YASH NAVIN KORINGA . (2020A3PS2141H)

Student Write-up

PS-I Project Title: Swecha Voice Modules

Short Summary of work done: Made an app using android studio. The languages used for front-end were dart,kotlin and java. Back-end part was made using python, the recording functionality, speech to text conversion and OCR part. Front-end part including parts like login page,dashboard. Dynamic certificate generation was also there. Database was made using PostgreSql.

PS-I experience: It was good, experienced team work and got to know how to keep balance between work and life.

Learning Outcome: Learned app development from scratch, learned flutter, kotlin and different pyhton libraries.

Name: CHAHAT GUPTA . (2020A3PS2213H)

Student Write-up

PS-I Project Title: Civic Dashboard-APIs

Short Summary of work done: We developed APIs for a public welfare platform which connected the client app to self developed databases through the basic 4 api requests

PS-I experience: We learned how works get done in a professional environment and how we contribute to solutions of real life problems

Learning Outcome: During the course of the internship, we learned how to build apis from scratch as well as version control through GIT

Name: AKSHAT KUMAR (2020A7PS0034H)

Student Write-up

PS-I Project Title: Design of Web system for recommending the designing of the best topological network architecture for Schools based on geo-spatial topology with budget estimation

Short Summary of work done: We have implemented an ML implementation along with a web-app which predicts the budget as well as the topology of the architecture which should taken for internet access in schools and classrooms. The web-app is based on AngularJS framework. The ML implementation is done via Python. We have a login page which redirects to a webpage which takes coordinates of the place which can be done by maps as well as the radius of routers. This user data is used by Python code which predicts the topology and the approximate budget.
This is done to provide rural schools affordable tools for estimation.

PS-I experience: Meetings conducted with our mentor guided us to make the desired product. PS helped us to interact with the demands of the industry.

Learning Outcome: HTML, CSS, JS, AngularJS, LeafletJS, Python libraries such as Tensorflow to implement ML algorithms, Heat maps based data sets

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Name: SARTHAK ARORA . (2020A7PS0060P)

Student Write-up

PS-I Project Title: Medical Clinic Management

Short Summary of work done: We had to make an android application for helping clinics easily manage their patients. The patients could also use the app for booking appointments, checking prescriptions etc. All in all it was a great experience.

PS-I experience: The experience was great. I won't call the work too heavy or either too light. Regular meetings took place with the mentor at Swecha, where we could discuss all the problems we faced.

Learning Outcome: I learnt Kotlin and Android Studio.

Name: NIKHIL RAJ (2020A7PS0093H)

Student Write-up

PS-I Project Title: Web Development

Short Summary of work done: I worked on Project BalaSwecha Operating System, which aimed to integrate voice-enabled teaching and the learning environment. This project dealt with software development. I was a part of both the front-end and back-end teams. BalaSwecha OS is an open-source OS designed for students from grades 1 to 10. Our Project aimed at upgrading an application present in BalaSwecha OS known as Pencil-Box, which consists of several simulations to make learning interactive. We decided to add three new features to the Pencil-Box Application: a voice search feature,

a notes section consisting of speech-to-text technology, and a voice recorder. We successfully updated the GUI of the application according to our needs and added desired features. We used HTML, CSS, JavaScript, Node.js, and Bootstrap to update GUI. Back-end was done using python, JavaScript, and Node.js. We attended standup meetings two to three times a week. Since I was my group leader, I was responsible for updating meeting standups on GitLab and mentioning about discussions that happened during the session. We have also committed the changes as expected by Swecha on the GitLab Project Repository. In the Backend, we Connected the application to APIs, which would help in speech-to-text conversion. The project was concluded by raising a merge request in the project repository on GitLab.

PS-I experience: It was great to be a part of Swecha and contribute to free software development. It was an enlightening experience and gave valuable insight into how corporate work and the process of making and submitting projects in an organization. The beginning part of the project was given a generous amount of time, so that team members could pick up the essence of the project and get acquainted with the technology stack without being overwhelmed. Initially, we faced some challenges while setting up the basic project structure, collaborating via GitLab, and running the project in the local environment, but eventually, everything was sorted out. Being the Team Lead, I delegated tasks, set project deadlines, and scheduled daily standup meets with team members and mentors, which immensely helped me grow and learn team management. Overall, it was a good experience that developed many technical and soft skills.

Learning Outcome: I learned about the AGILE software development methodology followed in the industries for the Software development life cycle. Since I worked on application development and was familiar with web development, things were not tough for me on the tech side. However, it helped me brush my web-development skills. Also, Our Team worked on GitLab, a new platform for me, so I got to learn about open-source contributions and version control. Also, being Team Lead, I learned about Team Management. And most significant, of all, I gained the experience of working from home. Participation in Group Discussions, Seminars, and presentations on our project helped me develop different soft skills.

Name: PAI VENKATESH AJIT . (2020A7PS0106G)

Student Write-up

PS-I Project Title: Creating a crop labeling tool using Machine Learning

Short Summary of work done: We created an app which identifies the crop image you submit and labels it accordingly.

PS-I experience: It was decent

Learning Outcome: I learnt about corporate atmosphere, some skills I lacked and about effective communication as well.

Name: DEVASHISH SIWATCH (2020A7PS0113P)

Student Write-up

PS-I Project Title: CIVIC DASHBOARD MOBILE APP

Short Summary of work done: Make a civic complaint registration dashboard application in Kotlin. You can register new complaints and see all the previously registered complaints and their statuses.

PS-I experience: My experience with the mentors was great and I improved my communication skills.

Learning Outcome: As I already knew App Development, it wasn't anything new; but I did improve quite a lot on my leadership skills as I was chosen to lead my team of 12.

Name: SAI HEMANTH ANANTHOJU . (2020A7PS0116H)

Student Write-up

PS-I Project Title: Enabling multi-screen sharing in BigBlueButton

Short Summary of work done: BigBlueButton is an open-source web conferencing software. Our team was assigned the task to add a feature of sharing multiple screens by multiple attendees at the same time.

We have developed some of the front-end components required for the same and have raised respective issues on the official GitHub repository so that the next team working on this project can continue.
Frameworks and Languages worked with: BigBlueButton. Kurento Media Server, webRTC, ReactJS, Node.js

PS-I experience: My PS - I experience was very informative. I could interact with my counterparts from the Goa and Pilani campuses.
The project assigned to us was a multi-version project, and was slightly advanced with respect to our caliber, so a good chunk of our time was spent in the learning phase. The learning phase was useful in itself, as we managed to make several mini-projects using ReactJS before being proficient enough to implement it in our project.
We have managed to make good progress, and set the field for the next team that works on this project.

Learning Outcome: Technical components learned:
1) Software Development Life Cycles
2) Basics of Git and GitHub
3) Basic commands in Linux terminal and Ubuntu server
4) Basic knowledge of Vim editor, used in the Linux terminals.
5) Architecture of BigBlueButton
6) Basics of Penpot and prototyping software
7) Docker for Linux
8) ReactJS and NodeJS
9) Basics and working of Kurento Media Server

Name: YASH AHIRRAO . (2020A7PS0124G)

Student Write-up

PS-I Project Title: Creation of virtual labs

Short Summary of work done: The two months of my PS-1 were hectic and challenging. Our team had to make PHeT simulations and merge them with Pencil Box app for school students. We had to make many such simulations. Later, we had to host the webapp UI into Apache server(Cloud based server). We also had to integrate it with IIAB. Later we

had a sub-task assigned to create a voice recording feature and add notes section similar to one present in Coursera and Udemy.

PS-I experience: Initially, the work assigned to us started late and it was a period of calm during that time. As midterms approached, we were assigned to make Phet Simulations for Pencil Box, which was hectic and challenging. We also had some setbacks when we had to integrate web server with IIAB which caused many system errors because the current version of Balaswecha OS v14.04 was not compatible with IIAB which supports Ubuntu v20.04. During the last week we had to create voice recording feature with Team 27 which was ultimately challenging.
During the whole 2 months , we had several stand up meets with ourselves as well as with our Industrial coordinator to discuss the issues and brainstorm the tasks. Both our Ps faculty mentor and industrial coordinator were helpful to us in communicating with the difficulties faced by us and simplifying the work. Overall, I am grateful to Practice School Division to be presented with such oppurtunity and enriching my work experience.

Learning Outcome: 1.I learnt how to collaborate with your team members.
2.I learnt to efficiently manage time as I had to allocate my time to PS-1 work,and other activities.
3.I learnt how Operating Systems and Virtual Machines work.
4. I had to familiarize myself with Linux OS and its commands.
5.I learnt the technical details of web hosting and cloud services.
6.I learnt IIAB- Internet in a Box
7. In the last week , I had to familiarize myself with NLP - Natural Language Processing to create voice recording feature.

Name: PANKHEDKAR ASHISH MILIND . (2020A7PS0126G)

Student Write-up

PS-I Project Title: Agritech-Crop Recognition using Machine Learning

Short Summary of work done: The agritech project was based on machine Learning.We built a ML model for crop recognition. Using python the machine learning model was made. We also had to make a user interface for the same using Gradio- a python library. Further was a website was to be made by integrating the model along with its API. We successfully made the machine learning algorithm which made use of image processing. along with it the gradio interface was also developed.

PS-I experience: The whole Practice School duration had a lot to offer right form learning new frame works and tools to improving my presentation and communication skills. From the start of the internship all the people involved helped me in completing my project especially my mentor and ps faculty. The internship gave me the required exposure to corporate life. The people at swecha were also interactive and quick to respond.Overall it was a great learning experience.

Learning Outcome: During the course of this internship, I was able to learn a lot of things and enhance my skillset with few new tech stacks and frameworks that I was unaware of. The main concept that I learnt was Data labeling, and different ways to label data along with image processing. Some techniques like Computer vision, Natural language processing etc. Learnt New python library i.e., Gradio used for building user interface to ML models. Attending many meets and reporting to mentor gave me the flavor of corporate life. Seminars enhanced my Presentation Skills and Public speaking skills too. I became a better team player as most of the work assigned to us was to be done in groups. Overall, the internship strengthened by abilities that one needs to have in industry.

Name: RISHI ROY . (2020A7PS0135G)

Student Write-up

PS-I Project Title: Building Voice Dialogue Systems

Short Summary of work done: My team had been assigned to build the website for Swecha Voice. The work was divided between the different team members. I was assigned to work on the frontend of the main page of the website. We used React.js for the frontend. It was a nice learning experience.

PS-I experience: It was pretty fun. It was really nice working with my team members and building our project together.

Learning Outcome: I got to learn Web Development and how to work with teams for building a big project. I brushed my knowledge of HTML, CSS and I learnt JavaScript and some of its frontend frameworks: React.js

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Name: ADITYA HRIDAY SAHU (2020A7PS0144G)

Student Write-up

PS-I Project Title: SWECHA CIVIC COMPLAINT DASHBOARD REST APIs

Short Summary of work done: Took responsibility as project lead for the API development team in Civic Dashboard Modules, developed a prototype with CRUD operations and a sample database. Developed two APIs for the final project submission, one for handling requests which registering/logging in a user, the second API for lodging civic issues as complaints and viewing complaints lodged in the past. Designed two separate databases, one for storing the details of the registered users and the second for storing the details of the complaints lodged. Implemented user authentication based on a username and a unique phone number. Worked closely with the web development team and the android app development team to constantly incorporate changes in the request parameters the APIs will handle. Ensured that all the API requirements specified by our client Mr. Srinivas Kodali were implemented in request handling and while designing the databases. Created two demonstration videos with a total 40-minute watch duration, the first video demonstrates the live working prototype API, and the second video demonstrates the working of the final two APIs: User API and Complaint API, in the local-host development environment. Further created an API usage manual for the final project submission so that the web and app teams can easily integrate the APIs. Finally, I deployed both the APIs on AWS, tested them rigorously, and pushed the code into Swecha's GitLab repository.

PS-I experience: PS-I was probably the most unique experience I had this year. Initially, I faced a little difficulty in getting familiar with the new open-source platforms presented by Swecha such as Gitlab, and the technologies required for accomplishing the project requirements such as flask_restful, REST APIs, Database Designing, etc but I eventually got used to it. I really appreciate the enthusiasm of Swecha towards open-source software and working on this project was a wonderful experience for me.

Learning Outcome: The first important learning outcome for me would be leadership and team management skills. I voluntarily took the position of project team lead for the API development team and I learned a lot of essential project management skills. Other than these, some of my key takeaways would be database designing, flask_restful, developing REST APIs, handling requests, testing the APIs, deploying the APIs on AWS, version control of code base, Git, and Gitlab.

Name: SHREYA NEHRA . (2020A7PS0146G)

Student Write-up

PS-I Project Title: Civic Dashboard - Ride Sharing Driver App

Short Summary of work done: I contributed in developing an app with the goal to facilitate commercial taxi drivers with an open-source software that has an uncomplicated UI and smooth functioning so that
they can feel comfortable with the technology without straining their wallets.

PS-I experience: It was mostly hassle free and not so demanding. The level of challenges can be raised.

Learning Outcome: -Learnt the basics of Kotlin.
-Learnt how to write UI Logic Code to build app screens.
-building an effective ViewModel Class.

Name: DEEP PANDYA . (2020A7PS0148P)

Student Write-up

PS-I Project Title: Enabling Multi screen sharing in BigBlueButton

Short Summary of work done: The major part of the PS involved learning. I learnt HTML, CSS, JavaScript and also developed few webpages to test my understanding. The wireframe of the project was made using PenPot. I then learnt basic nodeJS and ReactJS. I made a small video chat application by following several tutorials.

PS-I experience: The project involved working with BigBlueButton to implement multi screen sharing feature. I was interested in a machine learning project. So, I requested to change my project title. I was allowed to shift to a different project but was not assigned any work for days. I had to revert back to my original project. The learning curve for the project seemed steeper because of no proper communication from the organisation mentor. The interaction with the PS faculty was always fruitful. He supported and gave valuable suggestions on our work.

Learning Outcome: I learnt HTML, CSS, JavaScript, Git, basic nodeJS and ReactJS. I also learnt to make wireframes for the project using PenPot.

Name: Penugonda Satya Sohan (2020A7PS0190H)

Student Write-up

PS-I Project Title: Swecha Conference Systems - Live Streaming

Short Summary of work done: We have learnt Elixir and Phoenix framework, Git/GitLab, HTML CSS JS and other relevant technologies. With this knowledge, we have implemented a Swecha Comments webpage.

PS-I experience: The overall experience was good. We could learn many current technologies and implement them in projects currently undertaken by Swecha.

Learning Outcome: We have learnt various languages, frameworks, and computer network protocols and implemented this knowledge to create a chatbox. We also improved our communication and management skills, which mattered most to me as a team lead. We learnt about the latest technologies as well.

Name: ADITHA VENKATA ANIMESH . (2020A7PS0193H)

Student Write-up

PS-I Project Title: Medical Clinic Management System

Short Summary of work done: My team was tasked with building the backend and the frontend for a website whose purpose is to help clinics in rural regions to manage appointments with the limited availability of doctors and also to digitise the medical records of the patients which can make the transfer of a patient from a rural region to a better hospital in cities more efficient than storing the physical records which have a high possibility of going missing or damaged. We had regular meetings with our PS mentor from swecha who reviewed our work and also provided assistance when stuck at a particular point in the project. We also got the next tasks in the meetings which we had to

divide among ourselves. We built the backend using the flask framework and the data models using SQLAlchemy and Marshmallow for serialization of the entities. We also built the frontend for the website using flask as opposed to other frontend frameworks like react because python is relatively easier to pickup and this enables new developers to modify the code according to their needs without much effort. We also had to deploy the backend online using Heroku and the PostgreSQL database that comes with heroku.

PS-I experience: My experience at Swecha was very good and exceeded my expectations from it before the commencement of PS 1. The PS mentors were very helpful and accomodating to all difficulties. The organisation had arranged a few seminars from industry experts from various fields like AI/ML, Web Development etc. which were helpful in building our project. I also learnt how organisations work and the motive for projects.

Learning Outcome: I learnt a lot of skills during my PS 1, with the most important being communication skills and presentation skills due to the multiple reports and presentations that were part of PS 1. I also learnt technical skills like flask, and most important being how to host websites online.

Name: ANUPAM SINGH (2020A7PS0203H)

Student Write-up

PS-I Project Title: Translations and Summarization

Short Summary of work done: I worked alongwith my team members on 2 modules of this projects, namely TTS web app and Audiobook android app. I learnt about building a complete web application alongwith web speech api, that enables us to do both the tasks of tts to stt. For the audiobook app, I learnt kotlin and familiarised with exoplayer. We used the audiobooks available in the public domain as its a free app. The different features blended in the app were:

- Search view
- Background Play
- Play and Stop Button
- Navigation to other activity
- Accessing audiobooks and their details from the internet
- Book cover pictures for better viewing experience

PS-I experience: Throughout the course of Practice School - I, I have learnt a lot of valuable skills and I hope to gain even more experience in tarnishing those skills in the future. The experience has been wonderful not just cause of my peers but also my mentors and PS faculty who have been there there to help always.

Learning Outcome: Kotlin, Web Speech API, Js

Name: ISHAN CHHANGANI . (2020A7PS0230H)

Student Write-up

PS-I Project Title: Civic Dashboard

Short Summary of work done: swecha was an open source company. Thus there was not much load in doing the work and also i got a good team. Our work was to create a working website and it had gone well.

PS-I experience: Easy

Learning Outcome: I learned to communicate better and work as a team

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Name: BHAVYA RAJESH KALYANI . (2020A7PS0310P)

Student Write-up

PS-I Project Title: Conversational Speech Dialogue System

Short Summary of work done: Our task was to create a webpage/interface to enable users
to get a meeting link and get the corresponding transcript of the whole online
video meet. This would work closely with other parts i.e. modules of the
project related to translation and data collection as well.
We have successfully created the frontend and the backend for the

webpage and are working towards the Telugu implementation of the same.
We have used languages like HTML, CSS for the frontend design and had to learn it all from scratch as Web Development was a totally new field of work in IT for me. As for the backend we used NodeJS for the project and several other JSON files for the integration.

PS-I experience: Since the first day of my PS experience, Swecha seemed to intrigue me a lot
with its various initiatives in all domains of technology and IT and even social service. Initiatives like Bala Swecha and Swecha Voice are medium scale projects that are currently working for bringing Telugu into the limelight as another mainstream language for technologically advanced people in Southern India and destroying the language barrier set up in rural India.
I had been assigned a project under the Swecha Voice initiative namely – Conversational Speech Dialogue System. The idea of Swecha Voice is to build voice-enabled interaction systems in Telugu. Moving from text-based to voicebased systems the proprietary frameworks built by organisations like Google, Apple, etc. has widened the digital divide. Furthermore, this voice-based system acts as a base input framework for Artificial Intelligence (AI) based predictive mechanisms and recognition systems. In such scenarios, the need for Free Software based, privacy-aware voice tech for progressive commons is to bridge the digital divide.
Out of the 4 teams assigned to Swecha Voice, my team as already mentioned is working on building the Speech Collection and Detection web platform to be integrated with BigBlueButton APIs which is an open-source video conferencing system.

Learning Outcome: Web Development

Name: ARYAN KOHLI . (2020A8PS1488G)

Student Write-up

PS-I Project Title: Civic Dashboard Mobile App

Short Summary of work done: My team was given the task to make a mobile app using kotlin, using which people can registers civic complaints (like potholes on roads, garbage dump at public places etc.) We used Jetpack Compose to make our UI and retrofit for working with APIs.

Tasks I did were creating wireframe for login/signup screen and encoding the image to be uploaded.

PS-I experience: My PS-I experience was really good. I was given enough time to learn the required skills. The teams were properly organized and we had regular meetings to discuss our future steps.

Learning Outcome: I got opportunity to learn Kotlin, Jetpack Compose for UI and retrofit for dealing with APIs used in our app.

Name: MOHAMMED ABDUL AFREED . (2020A3PS0487H)

Student Write-up

PS-I Project Title: CIVIC DASHBOARD-COMPLAINTS

Short Summary of work done: Our team got the task to build APIs system for the civic dashboard complaints app which makes the communication and data exchange between two software systems.I got the task of testing the scripts and building prototype in order to work in AGILE methodology as instructed by our PS mentor. I learnt Python basics for the first 10 days and then straight away went on learning Flask ,Restful APIs for more 20 days. Then our team divided the work to assign different tasks to each individuals, we finally build the dashboard where we can lodge complaints of daily issues like running tap water, disfuntion of streetlights, dumping garbage in open places etc.

PS-I experience: It was an overall development of technical skills and soft skills and am looking forward to apply what I have learnt in ps1 in further projects.

Learning Outcome: I was able to learn basic skills required for web development like python, Restful APIs.

Name: RUDRARAJU VENKATA ASHISH VARMA . (2020A3PS0561G)

Student Write-up

PS-I Project Title: Creating a dashboard web application

Short Summary of work done: We worked on a dashboard web application for users to raise and track complains.

PS-I experience: It was a great learning experience. In the past 2 months I have worked over technologies that I have never learned before. We worked as a team and I also got to know about how an organization works and teams within an organization coordinate.

Learning Outcome: I have learned technologies like javascript, node.js, express.js, mongo DB. I have also learned about how working as a team can increase our productivity.

Name: ARPIT MAKKAR . (2020A3PS0585H)

Student Write-up

PS-I Project Title: Multilingual Dictionary

Short Summary of work done: Our team was assigned to multilingual dictionary module,. We were expected to build a web application and a mobile application which have dictionary for various language. We used node.js and express for the web development. For the dictionary functionality team used dictionary API. The mobile application was build using android studio and java containing the same API.I worked on the web application and created the backend for the web application.

PS-I experience: PS - 1 was a great learning experience. It shifted the focus from regular classroom learning to learning in an industrial environment. Got to learn about industrial working process and developing a product.

Learning Outcome: Learned new technologies like Node.js , Express and JavaScript.
Got familiar with industrial working process.
Learned how to work in a team to develop a project.

Name: AMOL AGGARWAL (2020A5PS2021P)

Student Write-up

PS-I Project Title: Development of Civic Dashboard Complaint App

Short Summary of work done: Civic Dashboard Complaint App - Our project required development of a Civic Dashboard complaint app; a single place destination to register all types of complaints using Kotlin and Android Studio along with other tools. We also integrated the app with functional APIs using Retrofit and resources to initially start working and the app when deployed. My contribution in the team was in both the frontend part and backend of the app development. I initially worked on the wireframe for the camera/image upload screen app, then I created the UI for the complaints details screen for the app. Finally I worked upon the API Integration of the app along with data transfer inside the app from one screen to another.

PS-I experience: The past two months were very interactive and engaging. I learnt many new things both technical and interpersonal. I gained first time experience in app development and also gained confidence to interact with people in the industry. I learnt how to work in a team and collaborate together. I hope these skills will help me in future. The app we have made is open source and accessible to everyone once launched by Swecha, anyone can use our code and learn various concepts of app development through the same. Our app is that sort of a single place destination to register all types of complaints. I hope my contribution is useful for society and also other developers on the internet willing to learn something new.

Learning Outcome: I was able to discover App development and learn various technical skills including Kotlin, Jetpack compose, Android Studio, Git, Python and retrofit during this project.

Name: AMBOLE SUSHANT SADASHIV . (2020A7PS1733G)

Student Write-up

PS-I Project Title: Multilingual Dictionary Module

Short Summary of work done: We had to develop a website and a mobile app that would act as a multilingual dictionary that would be able to translate stuff from one language to other. We had to use open source means for the same.

PS-I experience: We were divided into multiple teams working on different projects by the station. We were allotted mentors for each team, with whom we could clear our doubts.

Learning Outcome: This project made me learn front-end development and technologies needed for that. I was working on front-end aspect of the website for the project.

Name: HARSH TIWARI . (2020A8PS1491G)

Student Write-up

PS-I Project Title: Civic Dashboard (Web Development)

Short Summary of work done: First of all we were alloted the team and the project that we were supposed to complete. We were also alloted mentors for our project along with the project details. Our team had 12 members overall. And our task was to build a dashboard to view the complaints status and operations for citizen services. But since most of the group members were unaware of the technologies involved in web development, so we started off with learning those technologies along with the tools required to complete our project. After that, we had a meet with our mentor regarding the exact details of our project and were asked to develop a basic prototype of our project. So, we did that and after that started working on the project. There were several meets that were orgainzed to analyse the current progress. And finally after 2 days of hard work, we were able to complete our project. Various evaluatives were also taken during this time frame to evaluate our progress and our faculty prof was very supportive as well. Overall, it was a great learning experience for us in terms of learning both technical as well as soft skills.

PS-I experience: The PS-1 experience was pretty good overall in which I got to work on open source project and got to learn/revise the web development technologies as well. And the continuous support from our mentor and the campus faculty made the work much more easier for us.

Learning Outcome: Since, I already had some insights into web development. I started with revising the stuff mostly the front-end part that includes revising HTML5, CSS3, JS,

Bootstrap 4 and 5 (alpha), Asynchronous JavaScript, AJAX, semantic UI and Bulma CSS Framework. This helped our team to get done with the frontend portion.
After that I moved on learning the backend stuff which includes learning DOM Manipulation, unix commands, NodeJS, NPM, ExpressJS, Templating, SQL and non-SQL databases, MongoDB, Schema Design, mongoose, Authentication, Authorization, common security issues, image upload and storage, maps and geocoding etc.
Then we started with the implementation and firstly got done with the front-end part using technologies like HTML, CSS, JS and bootstrap. After finishing the front-end part, we started with the backend portion and got it done using JS and the MERN stacks which also involves usage of middlewares such as body-parser, multer and passport.js
Coming to my contribution, since I was the one who had some prior knowledge of development, I guided as well as helped the team through the entire process including the frontend as well as the backend. From pushing in the code to gitlab or writing code or simply helping others out, I tried giving my best at every moment possible. And I'm having a great experience learning and working with the team.

Name: VAHORA ABDULRAHIM ABDULHANNAN . (2020A8PS1781G)

Student Write-up

PS-I Project Title: Translation and Summarization : Multilingual Dictionary

Short Summary of work done: We worked on building Free Software based multilingual Dictionary that
has the potential to transliterate one language to the
multiple languages. The dictionary efficiently conveys the
meanings of words in one language to the other multiple
languages, with true to near meaning.

PS-I experience: PS1 has been a great learning experience for me. I got to know how the industry works. The online nature of the internship did not hinder our learning process. We could work efficiently and with great teamwork by regularly organizing online meetings.

Learning Outcome: I learnt HTML , CSS , JS , Bootstrap & NodeJS. These skills will be helpful for me in future projects.

Name: SIDAARTH BALAJI . (2020AAPS1026G)

Student Write-up

PS-I Project Title: Civic Dashboard App Development

Short Summary of work done: In the first few weeks a basic UI design or wireframe of the app was asked to be made using any software. My team decided on using canva. During this I also learnt the basics of GitHub. I was assigned to work on the notifications screen which displayed all notifications from the application along with how old or recent the notification are. From the third week onwards the actual app design using Android Studio Jetpack Compose begun. I was assigned the Complaint Submitted confirmation screen which also displays the details of the user. In the last few weeks I learnt how to use the retrofit tool for API integration for the app and postman tool for api testing. I learnt how to implement the various commands such as GET,PUT,POST,PATCH etc.

PS-I experience: PS-1 experience was very smooth and pleasant.

Learning Outcome: I learnt many things during this PS-1 such as working with a team as efficient as possible. I also learnt how to use git properly to work on a single project simultaneously. I learnt jetpack compose in android studio and MVVM architecture. During the last weeks i did api integration using retrofit.

Name: PARIKSHIT GUPTA (2020AAPS1413G)

Student Write-up

PS-I Project Title: Multilingual dictionary

Short Summary of work done: Made an app for getting meaning of the word basically a dictionary, used free dictionary API to do that, later on will implement golden dictionary which will give meaning of word in different languages.

PS-I experience: It was a wonderful experience.

Learning Outcome: Android studio, Java, git, GitHub, Gitlab, implementation of API's

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Name: PARIKSHIT GUPTA (2020AAPS1413G)

Student Write-up

PS-I Project Title: Multilingual Dictionary

Short Summary of work done: Developed a dictionary app

PS-I experience: It was a wonderful experience working with my team.

Learning Outcome: Android Studio, GItlab, Git, Github

Name: RAHUL REDDY SAMA . (2020AAPS2108H)

Student Write-up

PS-I Project Title: Civic Dashboard Web Application

Short Summary of work done: We made a website to view the status and operations of the complaints about citizen services, known as Civic Dashboard. In this website the citizens can complain about many things like damaged roads or any government property , waste in streets or open places, graffiti, etc. and see the status of their complaints. We made the frontend using HTML, CSS and JavaScript. We made the backend using Node.js and MongoDB. I helped in the backend . I made a server to make get and post request to individual pages and rendering those pages with the data from the database.

PS-I experience: My experience in PS-1 was good. I had a good time working with my team and learning new things. My teammates really helped teaching me new modules and helping me out in making the website.

Learning Outcome: Through the two months of my journey with my practice school station at Swecha, I was able to learn these web frameworks like CSS and HTML and

programming languages like JavaScript along with Node.js and MongoDB with which I was able to learn how to develop a web application. I learned to manage my time by meeting my deadlines which were set up by my organization. And I also got a chance to socialize with my team members, who were from different locations. Also, I had my presentation skills improved during my work duration.

Name: BHAMARE YASH PRASHANT . (2020B2A80760G)

Student Write-up

PS-I Project Title: Civic Dashboard API

Short Summary of work done: Designed the user login and registration page along with front-end and integrated the APIs

PS-I experience: Good

Learning Outcome: Learnt about many languages and use of researching , learning and doing things

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Name: S Shri Ram Kumar (2020B2TS1254P)

Student Write-up

PS-I Project Title: Building Swecha Enterprise Asset Managament Resource Site

Short Summary of work done: We were given the project to construct an Enterprise Resource Planning (ERP) website for the station to manage their assets. The instruction was to construct the human resource and financial aspect of the site. ERPNext and Frappe framework was used to construct the ERP for the company, both the softwares are open-source and free to use. The project started with team meets, discussing strategies and drawing flowchart to work allocation and finally giving the project its shape.

I was in the human-resource part of the project and contributed in the making of and maintaining of the membership forms.

PS-I experience: My overall experience of Practice School - I was really good, filled with knowledge both about technical and non- technical things. Through PS-I, I got a clear insight and an exposure in the working of corporate world and their methods of operations. I developed a lot of in-demand skills such as coding in Python and Javascript and also developed soft-skills like the art of communication, time-management, teamwork etc. I am glad I had the opportunity to explore real-world industries by actively participating in their projects and learning from them.

Learning Outcome: Well-versed in Python and Javascript, developed soft-skills like communication, time-management, teamwork etc. Above all I got an insight and exposure to the working of corporate sectors and their methods of method of operations.

Name: SIDDHARTH KOUNDAL . (2020B4A71909G)

Student Write-up

PS-I Project Title: Web Development Project

Short Summary of work done: Developed text - to -speech audiobook website

PS-I experience: It was a good learning experience. I got to learn about corporate culture also how to work as a team and also about web development.

Learning Outcome: Enhanced my web dev skills, worked as a team, communicated with clients, learnt about corporate culture.

Name: SWAYAM RANJAN . (2020B4A81590G)

Student Write-up

PS-I Project Title: Building API-based system for integrating with other public convenience systems

Short Summary of work done: My team's job was to build APIs for complaint dashboard so that it can be integrated in the app and mobile client. There were two databases the registered users database and the complaint database. The API could handle the normal CRUD functionality and even store images. This helped the mobile and web application to be in sync.

PS-I experience: It was a great learning experience for me. Though it was online, I got a hint at how the corporate work. I got to collaborate with new people. Learnt the importance of team work.
Though the work was not so much, but still learnt to manage the work life. The mentor was good and he would guide us at any stage and share with us the required resources.

Learning Outcome: I didn't knew anything about API development. Working at swecha gave me the opportunity to learn some new technologies like flask framework for web development. I also got to know about Gitlab, python, Database management and Postman. Working smoothly in teams and AGILE methodology for working was also something new to learn. Moreover I got the corporate exposure and surely developed my interpersonal skills.

Name: YASH TYAGI . (2020B5A20718P)

Student Write-up

PS-I Project Title: Civic Dashboard-Driver App

Short Summary of work done: Driver App project team consisted of twelve members and we had to build a basic driver side app through which a professiomal driver can get transport requests.I worked on the user interface of the Driver App using Jetpack Compose. The programming language used was Kotlin. We made our app with MVVM(Model View-View Model) architecture which makes the code more organized. As per MVVM architecture, we used three layers of code in our app namely Data, Domain and Presentation layer. I worked on the Login and Registration part of mapper file(data layer) and repository file(domain layer) of our app.

PS-I experience: It was a good experience, I got an opportunity to learn many new technologies and also learned the ways how corporate world works.

Learning Outcome: Application Development, Team Work, Soft skills

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Name: TEJAS ALISYAM . (2020B5A40974H)

Student Write-up

PS-I Project Title: Translations and Summarization: Web Development

Short Summary of work done: We were working to implement Text-to-speech (TTS) in our website. Text-to-speech (TTS) is a type of assistive technology that reads digital text aloud. It can take words on a computer or other digital device and convert them into audio.

PS-I experience: We got to work on an open source projects. It was really fun learning web development

Learning Outcome: I learnt HTML, CSS, JAVASCRIPT, learnt how organisations work on large scale using git and gitlab

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Name: Prince Kumar (2020B5A41275H)

Student Write-up

PS-I Project Title: TTS Audiobook Web and Android Application

Short Summary of work done: I developed a TTS (Text to Speech) audiobook web and android application for Swecha. Using the app one can listen to Audiobooks.

PS-I experience: The PS experience was really rewarding. I learnt a lot about how remote work is done online in the industry using the Agile development method and tools like Git and GitLab.
I also got to learn new skills like web and Android development and actually apply these to a real life project.

Learning Outcome: I learnt skills like Web and Android development along with collaborative tools like git and GitLab.

Name: NEEL SUDARSHAN SHELGAONKAR . (2020A3PS0424P)

Student Write-up

PS-I Project Title: Crop Recognition and Data labeling app development using ML techniques

Short Summary of work done: In this project the task assigned to me was deploying a Mask-RCNN model on a custom dataset for training and validation of our model that will be used as backend for Label Studio. The training is done using pre-trained weights on a COCO dataset and then validation can be implemented on given dataset provided with annotations in JSON format.

PS-I experience: The PS-I enabled me to understand what essentially a deep learning framework is and how it is implemented for complex tasks such as Image Classification and Segmentation. It gave a deeper experience of programming in Python with the help of tools like Tensorflow, Keras, Pytorch, etc. We were also introduced to new software such as Label Studio and Gradio. In my scenario, I had to implement our model for disease detection in wheat for determining crop yield. The model can basically be used to predict if any image provided entails a disease affected crop or not.

Learning Outcome: The learning outcomes of the project include introduction to artificial intelligence, machine learning and deep learning. The project also provided a depth to how the ML backend of an API looks like and how to deploy it to frontend site. The project also describes how basically the backend is integrated into the API using tools like Gradio.

Name: MD YUSRA MAAZ . (2020A3PS0611H)

Student Write-up

PS-I Project Title: Agritech

Short Summary of work done: Built an app that allows farmers to connect with their co-operatives.
Technologies used were Kotlin, Bootstrap and Ktor.
The farmers could rent facilities, or purchase raw materials through the app

PS-I experience: PS was completely online. I had the experience of working as a team. We had regular meets and different forms of evaluation components such as quizzes, group discussions and seminars with the faculty. A number of expert talks were organised by the PS division meanwhile to enrich student's knowledge about industrial and technological enhancements. Overall it was a pleasant experience.

Learning Outcome: Learned a bunch of technical skills like Kotlin, Bootstrap and Ktor. I also learnt about the workflow and work culture of the company and the importance of opensource software. I learnt to communicate effectively with teammates, colleagues and seniors and also improved my presentation skills.

Name: MISHRA KUSHAL OMPRAKASH . (2020A7PS2083H)

Student Write-up

PS-I Project Title: Developing a farmer-facing application to assist them in their day-to-day activities

Short Summary of work done: Application prototyping, relational database modelling, REST APIs designing, testing and deployment

PS-I experience: Smooth. Good interactions with mentors.

Learning Outcome: Learned how to work in a professional environment and managing large teams.

Name: AMIREDDY VINAY KUMAR REDDY . (2020AAPS1405G)

Student Write-up

PS-I Project Title: Farmer Cooperatives Management Systems

Short Summary of work done: The main objective of the project is to make all the activities of
Farmer's cooperatives easy, efficient, and less time-consuming, and
increase profits by keeping farmers updated with the technology. So, the idea is to make a web app with all the required activities of the cooperatives and Many other useful technologies for farming like weather prediction, crop recognition, etc. There are two platforms one for the farmer, which is a mobile application, and the other one is a website for management from the cooperative side. This reduces the workforce required and digitalizes everything, making it easy to manage data.

PS-I experience: I am satisfied with the amount of work I did in 2 months. This projects helped me learning skills which are practically used in the Industry

Learning Outcome: Web Dev, App Dev and learnt to build APIs

Name: ABHIJAY SINHA . (2020AAPS1748G)

Student Write-up

PS-I Project Title: CIVIC DASHBOARD PROJECT-RIDE SHARING DRIVER APP

Short Summary of work done: Our team was working on the ride-sharing app for the vehicle operator. The goal of the project is to facilitate the drivers with an open-source software with an uncomplicated UI and smooth functioning so that they can feel comfortable with the technology and reach out to more customers while simultaneously providing the civilians with safer and more economical means of transportation.
The several pages of our app were the login page, the registration page (for first time users), past trips page and the current trip page.
I was responsible for writing the code pertaining to the View Model for the current trip page. To be more specific about my work: -

- I worked on the files pertaining to CurrentTrip View Model, files pertaining to CurrentTrip in domain and data layer.

- I worked on functions pertaining to CurrentTrip in Mapper file and DriverRepository
- I also helped in making the prototype video

There was quite a lot of learning work involved as I had to learn about the basics of app development from scratch. To this end, I started learning about Kotlin programming language from various sources like youtube and online documentations, basics of git and about the android studio software. The entire journey was a learn-as-you-go process.

PS-I experience: PS1 gave me the opportunity to learn by working a professional environment apart from gaining technical knowledge and experience in app development. I also learnt a lot in terms of presentation skills along with conducting myself in a professional environment, teamwork and other important soft skills. PS1 helped me enhance my communication and negotiation skills. It gave me an exposure to experienced industry people and real life projects. Overall, it was a worthwhile experience.

Learning Outcome: Through the project I learnt the basics of App Development, Kotlin Programming Language, basics of git and about the software android studio.

Name: NANDAN GOUD B . (2020B1A11898P)

Student Write-up

PS-I Project Title: Creating and Building a New Mobile Application That Enables the Public to Report Civic Issues

Short Summary of work done: I was allocated the Citizen Dashboard project by the Swecha team for the PS-1. We are creating an app from scratch that enables citizens to alert their local authorities to issues such as potholes, broken street lights, etc. City dashboards are a visual way to showcase your municipal authority and the problems you are acing. As part of this project, we had to build an app to collect citizen complaints and show these statistics over a map for the dashboard. Kotlin, Jetpack Compose, Gitlab, Android Studio, etc. were used.

PS-I experience: I was able to widen my horizons and apply the knowledge I gained from Practice School 1 to a professional setting. It helped me bridge the knowledge gap between my academic background and my practical experience. Gaining experience is crucial because everything is going virtual due to the current pandemic. PS1 provided me with the industry exposure I required to improve individually. I learned a lot and had a great time participating in the Free Software Movement of India and working with SWECHA. I learned a lot about the subject of my project and business in general. I

allocate duties and set project due dates in my capacity as the team head. Applying my skills and expertise to real-world situations gave me the opportunity to learn a lot. The major objectives of practise school also include teaching us about organisational structure and operations and assisting us in gaining experience and skills for the community. Through this eye-opening experience, I gained a lot of knowledge about corporate work and the process for creating and presenting projects in an organisation. The project's initial phase was given adequate time so that team members could become acquainted with the technology stack and comprehend its purpose without feeling overworked. There were some challenges with the initial construction of the project's basic structure, using GitLab for collaboration, and carrying out the project locally, but everything turned out okay in the end. I have no doubt that this exposure will help me grow personally and also help me become a polished person who can make the most significant contributions to the industry.

Learning Outcome: I discovered a lot of new tools that I was unaware of because the company placed a lot of focus on using free software tools. In order to prepare for the project, they also held a number of seminars and panel discussions that covered a range of issues. In order to prepare for the project, I myself learned the basics of web programming and also shared expertise with my peers. Last but not least, the project's emphasis on teamwork, meetings with clients and mentors, as well as the group discussions led by the faculty in charge, helped me build soft skills.
To test the functionality of the app, we used Android Studio as the emulator. The app has a login screen, a home screen, a details screen for complaints, and a status screen for complaints. To make the app interactive, we used a variety of Jetpack compose packages. With the help of GitLab, the team worked together on the project.

Name: ANUJ RAMESH PARTANI . (2020B2A81199G)

Student Write-up

PS-I Project Title: Fake News Detection

Short Summary of work done: Crawling the web for news articles and then extracting the data from their URLs and then storing them for further operations.
Applying machine learning on stored data and compare the meaning of stored data with the text entered by user.
Testing if the news is real or fake in real time by comparing the stored data and articles entered by user.

PS-I experience: The experience was really good. We got to learn various things about how the work is executed in companies and got to learn little bit of backend in decision making. We also got to learn various technologies for the work, some of which were quite exciting. Overall the experience was really great.

Learning Outcome: Python, Scrapy, Beautiful Soup, JavaScript, Web Scraping.

Name: KAMAL CHAUHAN . (2020B2AA1403P)

Student Write-up

PS-I Project Title: Agritech

Short Summary of work done: We learnt a lot during our PS-I. The work I personally did was about Agritech and using Machine Learning Models to detect and verify crops. We learnt about Machine Learning and Deep Learning Algorithms like CNN and methods of detecting crops using image and video processing. We learnt how to build a labelling tool by integrating algorithms into the backend. There were multiple tools and frameworks used by us such as Gradio, Hugging Face, Labelling Studio. During the latter parts of the project I also learnt web development using HTML, CSS and Javascript. I used frameworks like React and Next.Js and studied about APIs as well.

PS-I experience: The experience was enriching. Our instructors and coordinators were very helpful and guided us all throughout the process by sharing their knowledge with us. There were regular meets to know about the updates of the work and I worked closely with my teammates and learnt a lot during the project.

Learning Outcome: I learnt a major part of web development and got some required information about APIs, Machine Learning and other algorithms as needed. I also learnt why technology is needed in the Agriculture sector. Working with my peers also helped me gain skills such as teamwork, leadership and improve my communication skills.

Name: MAYANK AGRAWAL . (2020B3A30675P)

Student Write-up

PS-I Project Title: Web Development- Agritech

Short Summary of work done: We were assigned the task to develop web application that can conduct the following task for the farmers:
1) plant disease detection
2) Leaf counting
3) Fruit/vegetable detection
We were divided into 3 teams. I was the part of the third one and our the task was to develop the website. Other teams need to build the ML models for the same purpose.

PS-I experience: The tasks were worth it and required our consistent efforts.

Learning Outcome: I learnt web development. I learnt HTML and CSS. I still want to continue my learning. I aim to develop myself for javascript as well. Currently I am working on the frontend part but later I want to be a full stack developer. I would like to suggest a site for all the resources and practice for the web development ->> freeCodeCamp.

Name: SOMYA KANSAL . (2020B3A30944P)

Student Write-up

PS-I Project Title: Agritech Modules

Short Summary of work done: we did a brief research on how technology can help farmers, it is clear that the field is rich in potential applications in various fields, at the same time we need to be aware of its practical complexity and behavior. We also discussed and criticized various applications and features that can be included in our website, and finally came up with 2 features to start with for our website.

We designed the webpages for these 2 features, which are inventory management system and farm machinery management system. We have coded the sections for sign up and sign in, we have used css and reactjs for the same. I first learned about API, Flask API and how to code and then we made the backend using the same. We decided the data models, made the endpoints and coded. We solved the errors and debugged it.

PS-I experience: It was just fine. Those who were willing to work learned new things.

Learning Outcome: I learned about APIs and Figma

Name: MANISHA MATHUR . (2020B3A31776G)

Student Write-up

PS-I Project Title: AGRITECH : WEB DEVELOPMENT

Short Summary of work done: This Project aims to build a website that can be accessed by the farmers producer organizations. This involves both frontend and backend development learning approaches. The roadmap involves creating a website for FPOs through which they can check various farmer profiles and manage inventory and machinery.

PS-I experience: The project was a good opportunity to get started with full stack web development and to work on a real time project. Though with a duration of weeks allotted to this project, presently the scope of the project involves creating only a simple functional website with basic necessary features, the website can be further upgraded to include complex features like map, weather forecast etc.

Learning Outcome: Through this project, we learned various tech stacks like html,css and react js. The team was able to learn all these tools and effectively apply to create the web pages. We also got to learn about APIs while working on this project.

Name: MAANYA AGARWAL . (2020B3A81427P)

Student Write-up

PS-I Project Title: Web Development

Short Summary of work done: Our main aim was creation of a website where the FPO members would be able to connect with local FPO members, exchange resources, and learn about market prices for products by using this website. Our project included use of Figma, CSS, HTML, BootStrap and JavaScript for the development of website, and our team mainly worked on the frontend part.

PS-I experience: Working with the Swecha professionals as well as my BITS colleagues on this project was a great experience for me and taught me a lot of things. It helped me improve my knowledge as a coder and opened up many future opportunities for me.

Learning Outcome: I learnt about the industry production process, ideation as well as Figma, HTML, CSS, JavaScript and Bootstrap.

Name: KUNAL JAIN . (2020B4A32123G)

Student Write-up

PS-I Project Title: Civic Dashboard – APIs : Web Development

Short Summary of work done: Work assigned to my team was creating an API for the Complaints Dashboard App and the Website. This complaints dashboard was basically a platform where any user can lodge a complain of anything. For example, if these is a false functioning street light so the user can easily lodge a complaint using App or the Website which is easy to use. There are many features of this application as a complaint can be easily lodged as well as image and location can be uploaded to make it easier for the concerned to sort the problem. In making APIs, firstly there was a demo prototype prepared by out team so that we can show it App and the Web team so that even our client can suggest the changes. Then, we had meetings for the actual project and even showcased our wireframe for the actual API that we were going to code for the project. Our team divided the work among each members according the work. I got the task to make an API for getting all the complaints using the username.
So the user can see all his/her complaints lodged and all the data is also visible to the screen of the user. I used Python RESTful Flask in which GET requests of the python allowed to get the data from a Database of all the complaints that was maintained by our team.

PS-I experience: I had a very learning and nice PS-1 experience. I got to know the working environment of the company and also understood how to perform at the industrial level.

Learning Outcome: I got to learn so many skills from this PS-1. I learned team management and also understood the working culture of a company. I also learned Python skills and even implemented them in making a live project.

Name: KUNAL JAIN . (2020B4A32123G)

Student Write-up

PS-I Project Title: Civic Dashboard APIs

Short Summary of work done: To get information and send it to the concerned people, APIs are needed which is specifically my project area. There are many sub-divisions of roles that are divided among the API team that I am part of. There would be various screens that would be used.
Firstly, API for the Log-in/Sign-up page and getting the user's data and allowing to use the platform.Then there's a page displaying for latest complaints and also page for displaying all the complaints that the login user had lodged earlier. Also, there is the status of these complaints whether they are resolved or not. My major role assigned is building API to get all the complaints that the username lodged or signed in has lodged earlier and this should be visible in the screen to that username. Here we assumed that the username would be a unique entity. We designed in such a way that if we change this unique thing to be phone number or complaint id it could be done easily.

PS-I experience: It was a good experience and I learned many things. I got to work and get real exposure of the industrial problems and also got to know many new knowledge and information regarding Web development.

Learning Outcome: It was a great learning experience. My Python skills got upgraded and also got to know the various requests and libraries in Python. I also leaned to work as a team and make good decisions in implementing during working on the project.

Name: ABHINAV GUPTA . (2020B4A81996P)

Student Write-up

PS-I Project Title: Crop Recognition and Data labeling app development using ML techniques

Short Summary of work done: Through the medium of this project, we were able to create a
multi-purpose application that will support crop recognition and
related activities. We first used a reusable model on a training data set to get accurate results. Then we tried to implement a research paper using Deep Learning to count the number of grains in an image. Hence, We also learned new Machine Learning techniques and algorithms.

PS-I experience: It was quite an educational and an inspiring experience. We were supported by our industry mentors and PS faculty at each step of the way and overall, it helped us gain quite a bit of insight on the industry practices as we worked on a project in teams.

Learning Outcome: Aside from the technical part, like new Machine Learning Algorithms, and use open-source software, I was able to gain much perspective upon the IT industry as a whole, and appreciated the brains behind the services that we use in our day to day life.

Name: R ANANTHAN . (2020B5PS2021G)

Student Write-up

PS-I Project Title: Infrastructure monitoring

Short Summary of work done: Created a dashboard using grafana dashboard and Prometheus data source

PS-I experience: Useful for learning frameworks of web development

Learning Outcome: Learnt web development and raspberry pi

Name: SHYAM SASIDHARAN PODUVAL . (2020A3PS0445G)

Student Write-up

PS-I Project Title: Fake News Detection

Short Summary of work done: Project was to understand a software architecture for fake news detection using web scraping and NLP, and deploying the website with minimal front-end. My role was focused on the web scraping of news articles using Scrapy and Beautiful Soup, adding to the Solr database for quick lookups. The web app was built using the flask micro-framework.

PS-I experience: We made use of a GitLab repository where we got the code for the project and then had to run it on local host on our system, and then deploy it. Our Swecha mentor gave us one task depending on which team you were in and since I was in the web scraping team I got the task of scraping 20 news articles using Scrapy and Beautiful Soup. Mostly we just had to understand the code that they gave us and finish the task given to us. Other than that our PS mentor kept 2 quizzes and 2 seminars. The quizzes were just basic knowledge about the PS station and the seminars were on generic topics related to science like whether driverless cars would be feasible in India and on mobile phone radiations. He gave us feedback on the way we talk and present ourselves. We also had a midsem and final report followed by presentations for the same in which we just had to describe the project.

Learning Outcome: I learned about web scraping using Scrapy and Beautiful Soup, building web apps using flask and how data looks like in a Solr database. I also learned how to make presentations in Canva and how to present them in an online meet.

Name: ANISH ATUL KULKARNI . (2020A7PS0975P)

Student Write-up

PS-I Project Title: Open EMR

Short Summary of work done: Initially we were supposed to use Open EMR to build the backend of a medical clinic. It was later told to us by the mentor to build everything from scratch. We made a clinic management system website(for rural areas) website using Flask and SQLAlchemy(frontend+ backend). The backend was hosted on Heroku.

PS-I experience: Overall it was a decent experience

Learning Outcome: Learnt a bit about APIs and backend. Learnt the basics of Flask.

Name: UDAY SINGH THAKUR . (2020A7PS2050H)

Student Write-up

PS-I Project Title: Open ERMS (Electronic Record Management System) - Clinic Management System

Short Summary of work done: My group was required to prepare a Clinic Management System for Rural regions. Initially, we were given the option to make it from an open source project of the organization and continue on it or make it from scratch. We decided to make it from scratch and started our work. The organization gave us the requirement on which we were to make our website. We were suggested to make it on Flask, a python-micro web framework. As we were starting from scratch, we first started by making the design and wireframing our website pages on Figma. My group divided the work among each member. After its completion, we started the Frontend and the Backend part. As the group was of 10 members, we split the team to work separately on both parts. I was in the Frontend team and prepared Web Pages for our website according to the requirement of the Backend part. Each week we had meetings among members to ensure work progress and crosscheck each other's contributions. Our organization mentor checked on our work each week and suggested changes according to the organization's needs. One week before the end of our PS-I, we had completed all the tasks given to us, which included the Appointment booking process and proper functioning of our website.

PS-I experience: PS-I journey was excellent for me. I learned so many new things during these two months of my journey. It not only includes the technical stuff but also how it is to work for an organization and work in a group and cooperate with the members. I was more into learning new things than just completing the given work. Before starting any work, I learned the basics of it and then started working on it. Some of my group members

already knew most of the stuff and shared educational stuff with others so everyone could learn new things from it. It was just a wonderful experience of learning for me.

Learning Outcome: I had an understanding of frontend concepts but not of the backend part. I started with the Flask Framework basics, which helped me throughout my PS-I journey. I also learned to implement the API endpoints, which was new to me. I used Figma for the first time, and creating wireframing on it was really easy due to its excellent tools. As the organization focused mainly on open source projects, I learned many things about it and how helpful they are to everyone.

Name: AYUSH GUPTA . (2020A8PS0700H)

Student Write-up

PS-I Project Title: OPEN- Electronic Record Management System

Short Summary of work done: Open ERMS (Electronic Records Management System)-Clinic Management System
Preparation of local clinic management system. Reservation Reservation process implementation.
Create a web application from scratch that your organization can use immediately or after modification.
I had a prior understanding of the front end concept. You learned the basics of Flask (Python-Micro Web Framework). Learn how to implement API endpoints and backends. An application has been filed to support a medical camp hosted by
Swecha.
The booking process for booking is complete. In addition, it is possible to implement storage of medical reports and invoices.

PS-I experience: It was a good experience, it was not at all hectic and was quite manageable. I had a great team and hence working all together was fun. Also my instructor IN charge was cooperative in nature and therefore the overall experience was smooth.

Learning Outcome: I worked mostly on the front-end part and hence had to learn HTML, CSS and JavaScript. Also I learnt basics of FLASK.

Name: GHOTAVADEKAR ATHARVA AJAY . (2020A8PS1300G)

Student Write-up

PS-I Project Title: Conference System - Live Streaming: To build the APIs for integrating Moodle and BigBlueButton

Short Summary of work done: Work at Swecha focuses mainly on open source, community driven development. The project involved integration of BigBlueButton(Open-source Live Streaming service) and Moodle(Open-source Learning Management System). The project was to develop a live streaming API plugin framework for Moodle, to have a BigBlueButton live stream within Moodle. The live stream plugin enables the live streaming environment in Moodle as per the user's selected course by interacting with the currently existing BBB(BigBlueButton) plugin.

PS-I experience: The PS-I experience was good with early exposure to the actual industry, practices and workflows such as various Software Development Life Cycles, and how an actual project operates. I got an opportunity to learn about software development and API integrations.

Learning Outcome: Learning Outcomes:
1. Working as a part of a team
2. Software Development Life Cycles such as Agile and Waterfall
3. APIs
4. Integration using Plugins
5. Elixir and Phoenix Framework

Name: EKANSH AGARWAL (2020AAPS1131H)

Student Write-up

PS-I Project Title: Enabling persisten access to shared notes

Short Summary of work done: The project involved developing a BigBlueButton API which is a virtual teaching platform and has a feature called Shared Notes. Previously, the text inside the share notes disappeared after the meetings end and was not stored for future references. My team was assigned to develop a framework to automatically

store notes and reappear them in the next meeting for attendees to access the notes of previous meetings as well.
We created the design, wire-frame, and use case diagram for the project. The wire-frame was created through Penpot.
I worked on the frontend part in order to implement our improvements in BigBlueButton using React.js. Also worked on building a server to accept the request, and store the plane text along with meeting ID in the database.

PS-I experience: I did get to learn some important technical and soft skills from PS-1.

Learning Outcome: I got to learn some useful technical skills like hands on experience in working with Linux environment, JavaScript, Node.js, React.js. Apart from these I also got to learn about operational procedures of the organization and how to work in a team.

Name: AAYUSH . (2020AAPS1744G)

Student Write-up

PS-I Project Title: Web Development: Swecha Conference Tech (Live Streaming)

Short Summary of work done: My team had to make a low latency live streaming platform for Swecha. Their current live streaming which was written in Python and used Django as the framework could not handle many concurrent users. To solve this issue, the framework needed to be changed to Phoenix which is an Elixir-based framework.

PS-I experience: My PS experience was good. I got to learn many new things about web development.

Learning Outcome: I learnt about the elixir programming language and the phoenix framework.

Name: AAYUSH . (2020AAPS1744G)

Student Write-up

PS-I Project Title: Web Development: Swecha Conference Tech (Live Streaming)

Short Summary of work done: I and my team built a live streaming platform for Swecha. Their previous live streaming platform was built using Python and Django as the web framework. Our job was to change the framework from Django to Phoenix which is an Elixir-based web framework.

PS-I experience: My PS-I experience was okayish

Learning Outcome: I got to learn more about web development

Name: DIVYAM SRIVASTAVA . (2020B2A82103G)

Student Write-up

PS-I Project Title: Fake News Detection

Short Summary of work done: Learned about Programming methodologies like AGILE, the basics of coding environment, how developers work, and tools like Git and GitLab.
I was assigned to the data science team and learned about Natural Language Processing(NLP). Textual entailment was used to process the information scraped from the web and organize it using AI techniques to detect fake news using reliable data sources.
Collaborating with other teams and learning about their work like web development on the frontend and backend.
Also, realized the importance of Open Source software and committed to using them to complete our project.

PS-I experience: Swecha is a non-profit that really drove home the importance of open-source to all of us. I
Could not have imagined such a professional team and helpful setup for our vast batch.
And I really enjoyed working on this project with my batchmates and our team of mentors.
Most importantly, we learned a lot and enjoyed our work despite this being remote.

Learning Outcome: Python, Solr, Data Science Techniques, Basics of NLP and Textual Entailment.

Name: AMAN DOKANIA . (2020B2AA2512H)

Student Write-up

PS-I Project Title: Enabling Multi-Screen sharing on BigBlueButton

Short Summary of work done: I worked as an intern in front-end Web development. I contributed to the wireframing and implementation part of the project. It was a very informative experience. I learned the software development cycle, React.JS, Wireframing, and PenPot.

PS-I experience: The overall experience increased my confidence in Web Development.

Learning Outcome: I learned the software development cycle, React.JS, Wireframing, and PenPot. I learned wireframing skills using PenPot and used React.JS in development.

Name: KASHIKA SHARMA . (2020B3A10863P)

Student Write-up

PS-I Project Title: Development of Free Software-based Ride sharing cooperatives (the driver app).

Short Summary of work done: The project allotted was in the field of App Development. Firstly, the roadmap was prepared on how to go about the project throughout. After that, the app's wireframe was designed, followed by the prototype. After that, we learnt about the MVVM Architecture, Android Studio, Kotlin language, and Jetpack Compose. We wrote the JSON responses for the backend team APIs. While we were provided with the APIs, we studied about the MVVM pattern. The UI part was coded in Kotlin, using the Android Studio. The Integration of the APIs followed it.

PS-I experience: It was a great experience. It helped me gain industry exposure and get acquainted with the work culture in the corporate.

Learning Outcome: It helped me improve my soft skills to a great extent- it helped improve my communication skills, group discussions, teamwork, work ethics, etc. Apart from this in the tech field, I learnt a new OOP language Kotlin, learnt Android Studio, etc., and the other skills required for app development.

Name: SARASWAT JHA . (2020B3A32161H)

Student Write-up

PS-I Project Title: Open ERMS (Electronic Record Management System) - Clinic Management System

Short Summary of work done: We made a website which we were supposed to(a website for managing clinics digitally) do. It is accessible to all as it is open source and can be used by the patients, doctors and clinic management system. It is mostly designed for the use of the rural clinics.
Patients can book appointments, check medical reports, check appointments, make payments etc.
Doctor can see scheduled appointments, upload prescriptions etc.

PS-I experience: It was wonderful. Got to know many things and worked in a team environment which helped to boost my interpersonal skills.

Learning Outcome: At the end of PS-1 I learned UI designing and frontend web development with programming languages like HTML, CSS, JavaScript etc.

Name: Rohit Kisan Kodam (2020B3A71141G)

Student Write-up

PS-I Project Title: Open ERMS (Electronic Record Management System) - Clinic Management System

Short Summary of work done: Prepare a Clinic Management System for rural regions. Implementation of Appointment booking process. Building a web application from scratch which the organization can use directly or after modification. Application was made to assist in the medical camps organized by Swecha. Appointment booking process is complete. Further, implementation of storing medical reports, bills , etc can be implemented.

PS-I experience: We learnt a few things like new techstacks. I learnt teamwork and leadership along the way which is hardly possible in individual projects.

Learning Outcome: i had understanding of Full stack web dev before hand i learnt Flask which is a python based framework for this internship as it was the tech stack. and also learnt teamwork and leadership as i leaded the frontend part of the project as i was the one with most experience in my group regarding web development.

Name: PRASOON BAGLA . (2020B3A71159G)

Student Write-up

PS-I Project Title: Enabling Multi-Screen sharing feature on BigBlueButton

Short Summary of work done: During PS-I I learned all the frameworks required for project, including ReactJS, MongoDB, HTML, CSS, and NodeJS. To put my lessons into practice, I created numerous small projects, including a keeper app, the Front-end of a gaming website, a To-Do List, and My portfolio website. also I learned several soft skills like experience of working in a team, email writing, presentation skills etc.

PS-I experience: PS-I was a great experience I learned several soft skills

Learning Outcome: I learned several technical as well as soft skills.

Name: RAVINDRA RAO . (2020B4A42239H)

Student Write-up

PS-I Project Title: Open ERMS (Electronic Record Management System) - Clinic management System

Short Summary of work done: I worked as an intern in frontend web development. Contributed in the wireframing and preparation of various pages of a clinic management system for rural areas. In this, we built a web application for the clinic management system from scratch which is open sourced and any organization could directly use and modify them.

PS-I experience: My mentor was very supportive and helped us in building the website from scratch. Great feedbacks for your work. Weekly meetings on reviewing your progress and assigning work.

Learning Outcome: I already had prior frontend knowledge so implementing it has helped me gain confidence in frontend development. Also, learnt basics of Flask and wireframing tools like Figma.

Name: S TUHIN . (2020B5AA0785H)

Student Write-up

PS-I Project Title: Swecha Conferencing System: Live Streaming

Short Summary of work done: My work entailed making a moodle web plugin to enable live streaming for bigbluebutton. Bigbluebutton is currently being used for regular meets for classes but it has a upper limit of participants so my project was to enable live streaming from the moodle page itself which would reduce the number of working tabs simultaneously and make it easier and less tedious for both the teacher and students.

PS-I experience: My PS-I experience was a new experience which made me learn and do a lot of new things and adapt to the new environment which is much different from the ones I have encountered yet. This new exposure was a great learning experience and I really cherish this experience.

Learning Outcome: During my PS-I duration I learnt many new skills like working with online API and designing wireframes. Along with these I learnt how to carry myself in a work environment and communicate with my fellow teammates and mentors.

Name: SAMRIDHI SINGH . (2020A1PS1710P)

Student Write-up

PS-I Project Title: Medical Clinic Management application

Short Summary of work done: The project aims at resolving the medical health crises faced by these people by developing a healthcare application that provides 24*7 accessibility to nationwide doctors. The application also alleviates the management of reports and prescriptions storing it online. Though the digitization of healthcare is a blessing, a lot of challenges are faced along the path. For this , we are building the Free Software-based Medical Clinic Management System Application names Arogyaswecha integrating the existing Tools

PS-I experience: Similar to other projects of Swecha, medical healthcare management also aims to serve the nation by bridging the gap between the ones who have access to medical facilities and the ones lacking those. Medical facilities are one of the basic amenities of humans and we aim to grant that to everyone .I am grateful to our institute for providing this opportunity so that I could join this noble cause. This might be a small step in the right direction but with time the vision of the project will be accomplished

Learning Outcome: During the course of my practice school internship, I have learned to design a wireframe of an application using Figma, penpot, and mockups. We have learned Kotlin. Kotlin is designed to interoperate fully with Java. We have used the Android studio for both writing the code for the app and running the application. Android studio is the official IDE for Google's android OD built on Jetbrains.We are now familiar with Gitlab too, a DevOps software package that combines the ability to develop, secure, and operate software in a single application. I have learned about the necessity of digitalization of health care along with problems faced in the same. The most effective learning outcome through this project is working as a team, appreciating the ideas of others, and discussing the problems faced in doing the project.

Name: DEVANSH PANDEY . (2020A1PS1959H)

Student Write-up

PS-I Project Title: Medical clinic management application

Short Summary of work done: Programming Languages Used To make the wireframe we used mockups. A streamlined web app that helps you create and collaborate in real-time on wireframes. To make the app we used Android Studio as Integrated Development Environment. The back-end team used python to make the APIs for the app. We used XML to design the app. We used Java to program the app.
The features of the application include - SOS option: In case of any medical emergency, you can reach out to any available doctor at that time. This app provides a 24*7 helpline. Prescriptions: You can safely store your prescriptions and download them at any time. It won't take storage space as it'll be uploaded on the cloud and as it is downloadable, there is no need to worry about it. Reports: This app keeps track of all medical checkups you have been through, to date by clustering all the reports in one place. This enables your doctor to be aware of your medical history.
Other features include scheduling an appointment with the doctor and consulting via chat, call, and video call options.

PS-I experience: It was really enlightening and exciting.To get to know firsthand about the industrial and corporate practices and know-hows.

Learning Outcome: Experience of Professional Environment Technical Expertise of App Development Teamwork and Communication Presentation and Documentation Skills

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Name: DEV AGARWAL . (2020A3PS0452P)

Student Write-up

PS-I Project Title: Medical Tech App Development

Short Summary of work done: We were divided into teams. Our team had 10 members and we had to manage the front end of a medical tech app. This app would be used by patients and doctors to book appointments and diagnose. The work required us to first

build a mockup, which we made using figma, penpot. It illustrated how the pages of the app would be linked together and how they would interact with the user. The next stage was development of the app in Android studio. We woked with the backend team on this. We had adequate support from the mentor but had to learn a lot ourselves too.

PS-I experience: It was a decent experience. We had a taste of a professional environment and had to work on real world based projects. The work wasn't very rigorous and we were given ample time for our deadlines.

Learning Outcome: Professional Environment: We got to work in a professional environment and understood how work is done in the industry.
Technical Expertise in App Development: We learnt the basics of App Development and got hands on experience in building a functional application.
Teamwork and Communication: We were divided in teams and were given differentiated tasks. We had to coordinate intra-team as well as inter-teams to fulfill the project and realised the importance of communication.
Presentation and Documentation: We had to carefully document and present our progress throughout the course of the project and we realised the importance of it.

Name: SWAYAM SIDHANT PAL . (2020AAPS0327G)

Student Write-up

PS-I Project Title: Medical Clinic Management Application

Short Summary of work done: I was part of the Medical Clinic Management Application development team. We were tasked to build a tele-health application with all the functionalities like any health-tech app i.e; Finding Clinics, Booking Appointments, Prescription generation and storing all lab-test results in a safe and secure database environment. In the very first week we were smoothly on-boarded and Swecha organized a great orientation session which presented a convincing picture of what amount of work and effort was expected from us. After the orientation we were allocated teams with separate projects, or even project with similar header having different modules to work upon. After the project listing, a specific mentor from Swecha was also allocated to each of the teams who helped and guided us through whole duration of the program. In the starting week my team and our mentor organized few general meetings with an agenda to understand our problem statement and to make us absolutely clear about what we were going to build and what are its implication in the real world.In the meetings we were also presented about the "Agile" methodology which was practiced in the organization in building up any application. In the next week, we were assigned to prepare a wireframing

of our mobile application that we intend to build. To create a wireframe we used a moqups software to build and connect the different functional pages of our application. The wireframe basically presented the overall functionalities of our app. It constituted of login page with sign-in and sign-up options. The login page would direct the user to the patients' dashboard. The dashboard had a nav-bar which had options to open-prescriptions page, reports page, find-doctors page. Then in the next week me and my team spent time in learning the technology stack and languages that were requisite for building the app. Being part of the application team, we were required to build up the app using Kotlin language in the Android-Studio. To quicken the process of learning we split up the work and decided to learn separate sections that would help us build the application. I took over the part to learn and use the Android-Studio jetpack for building up various page of the application. Then after gaining quite a good amount of knowledge in each of our cho0sen specifics, we went back to building the app. The team meetings with mentor were always guiding as our mentor helped us in every simple or complex issues we had in building the app. I used Android-studio jetpack to create the login, sign-up, sign-in and the home page of the application. The login page consisted of options to either sign-in and sign-up pages.
I had integrated my login and sign-up pages with the login apis generated by the back-end team, so that every time a user logs-in, his data can be stored and fetched up from the database securely. The rest all other pages were also designed by my other team members and we were successful in completing the mobile-application and integrating in with the backend apis.

PS-I experience: This internship experience provided by BITS was really very professional and amazing at the same time. It definitely provided me a glimpse of the work-culture and ethics that are expected in the corporate world. The industry experience that the PS division strives to provide to the BITS students was certainly achieved, which I believe. The learning experience was good and the mentors were really helpful in every point in resolving my slightest and silliest of the issues. It was my first time working on a live-project with a team and I thoroughly loved to share my work with really sharp minds and I was really proud to produce an outcome that could impact the lives of people in a helpful and positive manner.

Learning Outcome: There were quite a few learning from this internship experience. Besides all the technicalities and stuff related to my project i did also learn many other essential things. Talking about my project, I was required a learn Kotlin and also learnt to use Android-jetpack to build the mobile application. The project certainly helped me in getting into the app-development vertical through hands-on experience of building a industry grade application. In the entire process of the internship, I had to collaborate and work with a team to successful build the mobile application and that certainly helped be gain experience of working on live project with a bunch of new people who are as enthusiastic and willing to learn as you. This industry experience was great in terms of giving a actual picture of the corporate world and the work culture followed there. It certainly made me understand what level of professionalism and ethics are expected from us and I feel more confident about my career choices after completing this practice school internship.

Name: SHIRADHONKAR MIHIR ASHISH . (2020AAPS1058G)

Student Write-up

PS-I Project Title: Fake News Detection

Short Summary of work done: In Swecha, I worked on the project Fake News Detection. We had to identify whether the news is fake or not using fact verification. This project was a combination of Machine Learning and Web development. I was a part of the web development team. Our job as the web development team was to develop a website from scratch using HTML, CSS and JS in collaboration with the Machine Learning team.

PS-I experience: It was a decent experience to be a part of Swecha as I got to learn a lot. The industry mentors as well as the PS faculty were always approachable and guided me throughout the internship. It gave me a valuable insight on how corporate organizations work and how one must coordinate in a team efficiently. Overall, it helped me develop my soft skills as well as technical skills.

Learning Outcome: The main learning outcome was the learning the technical skills for web development such as HTML, CSS, JS, Python, Flask, etc. Apart from these it also helped me develop my soft skills too through various evaluation components like documentation, group discussion, seminars and presentations, etc.

Name: RISHABH KUMAR BHAKTA . (2020AAPS1747G)

Student Write-up

PS-I Project Title: Fake News Detector

Short Summary of work done: Development of a fake news detector website using flask framework for
the back-end and HTML, Javascript, and CSS for the front-end

PS-I experience: Adaptable working hours. The subjects for the project were covered in advance.
There was time for independent research on other subjects in addition to the project.

Learning Outcome: HTML, CSS, Javascript and python

Name: BUGGAREDDIGARI HANISH REDDY . (2020AAPS2103H)

Student Write-up

PS-I Project Title: Fake News Detection

Short Summary of work done: The task is to modify and make the better version of the website using basic web development and web scrapping skills.

PS-I experience: It was a decent one and we find lots and lots of leisure time.

Learning Outcome: Basic Frontend Development and Flask framework.

Name: MADHAV GARG . (2020B1AA1890P)

Student Write-up

PS-I Project Title: Crop recognition using ML techniques with limited data

Short Summary of work done: We prepared a platform using ML techniques and models which could recognize crops, count them, detect disease, perform crop type mapping just by giving images of the field as input.

PS-I experience: Our project was divided into two modules one worked on developing the ML model and the second module worked on developing the GUI of the software which was later to be integrated with the ML model made by the first module.

Me being in the second module worked towards GUI development and ML model integration. We used Gradio which is an open source python library which helped us build the GUI of the software in the short time period as it had premade UI adjustable components. Then we moved on to the ML model integration phase, we used hugging face models to get an example ML model and integrate that with out GUI. We integrated the test model and begun testing the GUI and the integration to check for bugs.
Developing the GUI for the software gave me more experience in working in python language along with helping me develop a more UI/UX mind-set where we not only see how the end product will look but also how the user using the product would feel and experience while working with our software.

Learning Outcome: Throughout my PS I was able to learn alot of new things, I covered up my basics of python, learned basics of how ML models are made and integrated, Learned how to design and plan GUIs of such platform, learnt about label studio, Hugging face models, gradio and other tools that helped us with our project

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Name: AKARSH SAXENA . (2020B2A31921P)

Student Write-up

PS-I Project Title: Fake News Detector

Short Summary of work done: I was working in Fake News Detector project.The goal of this project is to create an architecture that is feasible to predict the reach of the propagated fake news on time series.Project Description: Fake News is recognized as any incorrect message, meme, image, or article that is typically created for financial, interpersonal, or political gain. One of the biggest risks to informed opinion and, consequently, to democracy is the epidemic of fake news. There is a need for an automatic fake news identification solution in addition to promoting and adhering to reliable sources of information and fake news busters. This effort tries to identify these false news reports and alert readers of their legitimacy.
I learned NLP , SOLR Database etc which helped us in making our backend strong . We successfully managed to change our backend from working only on one source to working to many sources and articles for fact checking.

PS-I experience: My experience was good during the PS. We learned how projects and softwares are completed in a real industry.

Learning Outcome: learned NLP , SOLR Database etc which helped us in making our backend strong . We successfully managed to change our backend from working only on one source to working to many sources and articles for fact checking.
Also we learned how projects are made and completed in an organization.

Name: Anansh K. Shetty (2020B3A70659G)

Student Write-up

PS-I Project Title: Medical Clinic Management System

Short Summary of work done: Built an application starting from scratch, starting from the wireframe to the frontend using
kotlin (android jetpack) in android studio and connecting it with the backend using ktor. Other than this there were presentations, quizzes and group discussions.

PS-I experience: It was a nice experience working in the industry. Figuring out things by yourself, taking guidance from mentors and working in a team.

Learning Outcome: Android Studio (Kotlin/Jetpack Compose) , Ktor

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Name: ISHAN NERLEKAR . (2020B3A71515G)

Student Write-up

PS-I Project Title: To build the low latency streaming architecture for the Swecha live streaming tech using Elixir

Short Summary of work done: We were required to learn the Elixir programming language in order to implement the Phoenix web framework in order to build a live streaming website for Swecha. The current website was written in Python, Django so we needed to build its counterpart in Elixir. Once we found the appropriate online resources, we proceeded to build the website starting with the chatbox. We then uploaded our

repository on Gitlab after the work was completed. Our team held daily standups in order to update one another on the work done as well as for doubt clearance.

PS-I experience: My PS-I experience has been satisfying journey indeed. My faculty was regular with sorting out our discrepancies and all the evaluatives were held on time. I have learnt a great deal in these last 2 months, a lot of which I shall be using in my career henceforth.

Learning Outcome: Elixir programming language, Phoenix framework, Teamwork, Soft skills

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Name: ARYAN RAJESH SHELKE . (2020B4A71203G)

Student Write-up

PS-I Project Title: Build a live streaming website

Short Summary of work done: We built a working chatbox, along with a wireframe of the website

PS-I experience: It was good to gain some work experience while working with a team

Learning Outcome: Learnt to make a chatbox using phoenix liveview, learned to use figma to make a wireframe for a website.

Name: YERRABELLI AKSHAY . (2020B4A81984P)

Student Write-up

PS-I Project Title: FAKE NEWS DETECTION

Short Summary of work done: Building a web plugin for fake news detection was the focus of our project. I had to learn a lot about natural language processing, working with

Apache Solr, candidate selection, document-to-document comparison, and textual entailment as a member of the data science team in order to enhance our false news detection model. In order to improve keyword extraction, analyze related news items, and handle negations, we additionally utilised LSTM seq2seq models for text summarization. GitLab taught us how to participate in any open-source project.

PS-I experience: It was an excellent encounter. I gained a lot of fresh knowledge. Everything went really smoothly. Throughout the term, organisation mentors were approachable and were very helpful in developing the project. Throughout PS, my BITS mentor was also quite helpful.

Learning Outcome: I gained knowledge of Solr and NLP and could use it practically in a project. I also picked up how to utilise GitLab, how to submit merge requests, and how to participate in any significant open-source project.

Name: RADHESH J . (2020B5A82010H)

Student Write-up

PS-I Project Title: Fake News Detection Web Application

Short Summary of work done: One way to protect the public from false information is by providing them with a way to check the authenticity of a piece of information.
The Web Application that we were developing at Swecha does precisely this. This project uses Natural Language Processing to interpret a given text and then compares it with authentic news sources on the internet to state the information as false or otherwise. As I was chosen to work on the backend of the project, I got to learn a lot about Web Development.

PS-I experience: NA

Learning Outcome: Acquired basic web development skills like HTML, CSS, JavaScript, and Flask

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Name: SHLOK KAKKAR . (2020B5AA0833G)

Student Write-up

PS-I Project Title: Fake News Verification

Short Summary of work done: We were given a task as a team to improve the overall working of the fake news detector. I was in the web development team and our major task was to improve the overall outlook and view of the home page and make it a bit pleasing and appealing to eyes of the user. The data science and the backend team were given the task to add few features to the home page to increase interaction from the user side like to allow the user to give a basic upvote or downvote to the result also to make our database of the fake news even stronger let users submit RSS links through the main web page only.

PS-I experience: The overall experience I would describe it as fruitful because I got to learn a lot of skills and understood the ways to interact in a corporate setting also a major learning was how it is possible to work in a team and still function smoothly and work along with inclusivity and take up and work upon opinions of all the members of the team. This was my first exposure to the corporate world although online but this made me grow and I felt at the end of the PS program that I took my first steps towards becoming an efficient and productive individual of the corporate world.

Learning Outcome: I was in the Web Development team so I majorly worked with technologies like HTML, CSS, JavaScript and to support the data science team we worked with python NLP and Solr too. It was a fruitful experience in terms of the social skill building domain but in the domain of the technology also as I was given the opportunity to work on a real life project.

Name: JAY KHANDKAR . (2020B5PS1998P)

Student Write-up

PS-I Project Title: Infrastructure Management Dashboard

Short Summary of work done: We had to develop a solution to monitor the metrics of servers remotely with a graphical dashboard, as well as an alerting system. We used the open source tools Prometheus and Grafana to accomplish this.

PS-I experience: Infrastructure management is a slightly overlooked aspect so it was interesting to work on this project.

Learning Outcome: Working with a team on a software project, interacting with your supervisor, documenting and presenting your work were some important things PS-1 taught me.

Name: KESHAV SANGWAN . (2020A2PS1743P)

Student Write-up

PS-I Project Title: To enable the support of hybrid learning with Virtual Labs

Short Summary of work done: Our team was assigned the work of integrating virtual labs into their online learning and testing application called pencilbox. We went through different free simulation sources available online, and selected the best ones, our next job was to find a good hostable medium. We also compiled which simulations were needed, and tried to host the available sims on our libraries.

PS-I experience: My PS-1 experience was very enriching. For me it was a first -hand experience on how things work in the corporate world. Also, it helped me in many social skills too like delivering a good presentation and working together as a team to achieve our goals.

Learning Outcome: 1. As a part of my project, learnt mainly some front-end and backend development
2. Coordinating with the team while doing your own work.
3. Efficiently conveying your ideas in a short time, while receiving input from others too.
4. Work experience in a corporate-like setting.

Name: ARYAN RAJ . (2020A2PS1777P)

Student Write-up

PS-I Project Title: BalaSwecha OS

Short Summary of work done: Explored the BalaSwecha OS and learnt about virtual labs. BalaSwecha OS has an application called PencilBox which contains educational videos and virtual labs (simulations) for students of classes 7, 8, 9 and 10 based on the Telangana state syllabus. The problem was that all the chapters did not have simulations or videos. Our task was to search for relevant simulations for chapters which did not have any content, search for better versions of already uploaded simulations and explore technology to integrate the simulations with the PencilBox application.

PS-I experience: PS-1 experience was great. It was a good exposure of how work progresses in an organization. I was able to explore and learn a lot of new things while also receiving able support from the project coordinator to execute the learnings.

Learning Outcome: Learnt about virtual labs, running windows applications on linux using bottles (usebottles.com), hosting a server and being part of this brilliant initiative of the organization Swecha further encouraged me to do good for the underprivileged. It also helped me enhance my communication and teamwork skills.

Name: ABHIJEET KAR . (2020A3PS0520G)

Student Write-up

PS-I Project Title: BalaSwechaOS

Short Summary of work done: While working on this project, as per my task I got to suggest and create new modules and features from PHET, VLABS, OLABS etc which can be implemented on the original BalaSwechaOS which involved multiple animations and simulations of lab related courses which the students cannot afford to access in real life.

PS-I experience: PS-I was a great experience in which I got to work with industry experts and learn from them.

Learning Outcome: I got to learn about how to enable the support of Hybrid learning with virtual labs on existing BalaSwechaOS.

Name: PARAG GOYAL . (2020A3PS0529G)

Student Write-up

PS-I Project Title: Creation of Virtual Labs for Balaswecha OS

Short Summary of work done: My experience with the PS-1 has been fantastic, and I've worked at professional levels. A chance to comprehend and learn about the business's operations was available. Diverse software was taught and employed. I learned about OS development, Web page, and WebApp development using HTML, CSS, and Js. I Learned about phet simulations, vlabs, and their uses but most importantly I learned social skills as we had to work together in a team. Overall it was an amazing experience to work with a lot of new people and learn so many new things, especially to work with a company whose mission is to inform the general public about the value of free software and to disseminate information to the working class.

PS-I experience: PS-I was extremely productive and with the help of our mentors we gained a lot of skills that will help us in our future, and it was an amazing experience working at Swecha, a company whose mission is to inform the general public about the value of free software and to disseminate information to the working class.

Learning Outcome: I've gained a lot of industry exposure through being a part of Swecha. Working
in Swecha also helped me a lot to learn how to execute things at a
professional level. It was an amazing experience to work as a team with a lot of
new people. With the help of this Practice School –I got to learn a lot of
technical skills like web development, OS development, and making and
hosting WebApp UI. Evaluation components of PS helped me in learning
important industry skills like planning, making and delivering presentations,
and also creating reports.

Name: SONESH KUMAR SWAIN . (2020A7PS1729G)

Student Write-up

PS-I Project Title: BalaSwecha-OS

Short Summary of work done: We had to upgrade the existing BalaSwecha OS of Swecha. The existing one was a modified Ubuntu 140.04 LTS OS with a different default background and an educational app called pencilbox pre-installed by Swecha on it. Since it was modified, it didn't receive any OTA updates and hence we had to manually upgarde it. So we created the new Pencilbox app with Tauri, added a tutorial webpage for easy understanding of apps in the OS, changed the bootup image, etc. and did all of this in Ubuntu 22.04 LTS. For the app, we just had to design Frontend as backend was automatically handled by Tauri's rust binary package. Then we created an iso file after installing all the required apps in it. And that's how we upgarded the OS.

PS-I experience: It was an exposure to jobs in the IT sector for the very first time. I learnt so many new things from PS-I. I learnt Frontend properly and also report management.

Learning Outcome: We learnt various new languages, improved in languages that were known, and learned about the current needs of the IT sector so that we can work on improving ourselves in that image to get better jobs during graduation.

Name: ABHISHT RUSTAGI . (2020A7PS1891H)

Student Write-up

PS-I Project Title: BalaSwecha NET

Short Summary of work done: I was mainly involved in making the frontend of the project's web application. I was responsible for creating the layout and designing the frontend of the web application. I was also responsible for making changes to the User Interface wherever required. I integrated OpenStreetMap using Leaflet and JavaScript and added the required functionalities, such as embedding the map and placing the marker on a list of specific coordinates generated by the project's backend. I also made a module to parse the input string to a two-dimensional array of the required format before backend processes the input. I added the functionality to make mock API calls using jQuery for testing and debugging purposes.

PS-I experience: My practice school experience has been excellent. I learned a lot of new things and honed already known skills. Both faculty mentor and industry mentor allotted to me were very supportive.

In case of any problems or queries, they were able to resolve them satisfactorily. I learned how to work in a professional environment, with various teams and members working simultaneously on the same project. I would like to say my work in the practice school has been fruitful, and it feels great to know that my work will be used for the benefit of thousands of students across the country. Overall, it has been a learning experience.

Learning Outcome: 1) I learned Agile Methodology.
2) I learned Git, how to create issues, and contribute code to GitLab.
3) I learned about Web Applications and how frontend communicates with backend.
4) I learned how to implement OpenStreetMap API using leaflet and JavaScript.
5) I learned how to use Angular Framework to create a web application's frontend.

Name: NISHKARSH JAIN . (2020A8PS1802G)

Student Write-up

PS-I Project Title: Balaswecha NET

Short Summary of work done: I worked with team to help writing the code at various stages of our project while researching various algorithms, working on some of them and then coming up with better approaches. I helped in optimizing and fixing the bugs in the algorithm. Our team 24 has successfully Built a Web App to find the best computer network architecture topology based on the given geospatial topology of a classroom/hostel along with finding the budget. We have used mean shift algorithm to find the position of routers taking into account the routers range and population density. The user's radius falls within the router's operating range, whereas the router's placement coordinates are determined by the coordinates of the center points. After that we successfully integrated it with team 25 in their backend to create a full-stack web system.

PS-I experience: In team meetings and talks with our teacher and mentor, I learned a lot and got various ideas and learned how to get engaged in research and brainstorming. I worked with the team at various stages of our project to help develop the code while researching various algorithms, working on some of them, and then coming up with better solutions. We were able to face the challenges and gradually upgraded our solution to the current version by continuously researching finding better approaches and optimizing our solution to the current version. We took part in group discussions and meetings and got exposed to many different strategies and ideas. This internship introduced me to a plethora of new prospects while also teaching me the principles of Unsupervised Machine Learning, and I became acquainted with Python.

Learning Outcome: I learnt about many new technologies during the project like machine learning, python .unsupervised machine learning and its various algorithms like mean shift algorithm, recursive algorithm using Python and libraries like NumPy, pandas, sklearn, and matplotlib.integration of front end with backend and its smooth, fast and responsiveness was challenging and insightful. Team work and time management were another key skills I learnt during my project.

Name: RAJARSHI MISRA . (2020A8PS1822P)

Student Write-up

PS-I Project Title: Fake News Detection - Android Application

Short Summary of work done: During PS-1, we were required to make a fake news detection android application. The project required us to work with Python libraries. While working, we were divided into subteams- Frontend, Backend, Data Science and Web Scraping. As a part of the web scraping team, I had to scrape news articles from websites.

PS-I experience: PS-I wasn't very hectic for me. But I got a learning experience that was decent enough. PS-I seems to be a great starting point for doing future work related to this for me.

Learning Outcome: After PS-I, I've got a pretty decent understanding of Python and its libraries. Further, I've also got a proper idea of how version control systems work. The chance to work in a team made me clear about how technical teams work in industries or any company.

Name: ARYAN SINGH . (2020A8PS1826P)

Student Write-up

PS-I Project Title: BalaSwechaNET

Short Summary of work done: Our group's project was to build a website which assists in lowest budget estimation of the cost of necessary infrastructure. We implemented this using various languages like JS, SQL, Python, HTML and CSS. Me and two of my teammates worked on the design of the webpage using HTML and CSS. We succeeded in creating a professional looking and easy to use webpage. The rest of my team created a machine language algorithm using python and connected it to the webpage using AngularJS framework. We manage to complete the project in the specified time. This project will aid in the process of setting up routers in rural areas at the lowest cost possible. These projects helped me understand how a professional web development team works and also enhanced my knowledge of how single page applications work.

PS-I experience: My PS-1 experience was very good. I learnt how to work in a team and got a pretty good idea of how web development and really most types of software development work environments are like. My industry and faculty mentors were both helpful, however industry mentor was a bit hands-off.

Learning Outcome: I learned a lot of things like how to operate git, languages like AngularJS, HTML, CSS etc. I also leant how single page web applications work, and got to see how to apply machine learning in real life situations.

Name: PRIYANSHU PANDEY . (2020AAPS0422G)

Student Write-up

PS-I Project Title: To build the BalasSwech OS with Free Software Enabled applications for the class room environment

Short Summary of work done: Our aim was

- To improve the working of BalaSwecha OS and bring about new features in the model.
- The OS being a old version need updates and better user interface. Our task is to improve on these factors.
- Update the existing apps and develop new apps for students to better understand the OS.

We worked on the following points throughout the PS:

- Introduced a proper flow of the app from frame to frame to improve usability.
- Improved the readability of text in the app using HTML & CSS.
- Introduced features like dark mode. Allow students to use video navigation features like YouTube.

- Used JavaScript to incorporate additional features such as menu expansion when the cursor hovers over it.
- Updated the imagery of the app.
- Exported code from Figma as HTML, CSS, and JavaScript

PS-I experience: In team meetings and talks with our teacher and mentor, I learned a lot and got various ideas and learned how to get engaged in research and brainstorming. We were able to face the challenges and gradually upgraded our solution to the current version by continuously researching finding better approaches and optimizing our solution to the current version. We took part in group discussions and meetings and got exposed to many different strategies and ideas.

Learning Outcome: This internship introduced me to a plethora of new prospects while also teaching me the principles of Web and app developments and new technology tools such as Figma and Tauri.

Name: NIKHILESH KUMAR . (2020AAPS2201H)

Student Write-up

PS-I Project Title: FAKE NEWS - ANDROID APPLICATION

Short Summary of work done: our work started on the 30 of April when we met our PS instructor: prof. shuvadeep maity . then after some days, like near about 5/06/2022 we were given our respective projects by the PS-1 station. i was given fake news detection android app dev. task along with 21 others. our project started by the swecha faculty teaching us concepts like agile methodology for doing our project. thereafter our PS mentor from Swecha : Mr. Harisai Kaja told us how were we as a team supposed to go through the project. first he divided all of us in this project into four teams namely : frontend, backend, AI, web scrapping. besides this every team was given some pre requisites which we were supposed to learn in order to start our project. I was in the frontend team and the first task I had was to learn python which I was able to complete in 1 week. by this time the end of mid semester came. during this course of time we had certain evaluation components as well like quiz1, diary 1, seminar 1, report 1 etc. after this the second half had started and my next job was to learn flask and then make a form frontend. I stared to do this and completed my task by the end of the week. after this the main part of the project had come where my team was able to enhance the code for fake news detection application and thereby update the app. after this we again had a few

evaluation components. throughout the course of these two months we were also able to attend a few webinars which were hosted by our college faculty.

PS-I experience: my PS -1 experience at Swecha was pretty nice. my mentor at the PS station was very helpful and and helped us in every way possible. I was able to learn a lot many things in this span. my faculty incharge would also guide us always and would ask us if we were facing any kind of issue w.r.t our project. even the other college faculty helped us by conducting webinars.

Learning Outcome: the first and the biggest thing i could learn during my internship at Swecha was web development and in specific frontend development. along with this I was also able to learn programming languages like python and software like flask and docker. with the help of my PS instructor I was able to learn how to make good and informative presentations and how to deliver good speeches. also with the help of different webinars conducted i could learn about android development, angular for beginners etc.

Name: HARSHIL GUPTA . (2020B1A82074G)

Student Write-up

PS-I Project Title: Designing a system for determination of the best network architecture for the given area based on geospatial topology with budget estimation

Short Summary of work done: Developing a web app that identifies the suitable computer network architecture topology based on the geographic topology of a classroom/hostel as well as the budget. We used the mean shift approach to calculate router positions while taking into consideration the routers' range and population density. The user's radius is within the router's operating range, and the router's placement coordinates are specified by the coordinates of the center points.

PS-I experience: We incorporated the Mean Shift clustering-based technique, which can take data from a client-supplied region and create a cluster-density-based map that predicts router coordinates based on range and population density. In team meetings and talks with our teacher and mentor, I learned a lot and got various ideas and learned how to get engaged in research and brainstorming.

Learning Outcome: I worked with the team at various stages of our project to help develop the code while researching various algorithms, working on some of them, and then coming up with better solutions. We used unsupervised learning to predict and give

us the optimum required solution for our problem statement. We were able to face the challenges and gradually upgraded our solution to the current version by continuously researching finding better approaches and optimizing our solution to the current version. We took part in group discussions and meetings and got exposed to many different strategies and ideas. This internship introduced me to a plethora of new prospects while also teaching me the principles of Unsupervised Machine Learning, and I became acquainted with Python.

Name: RAASHI VANWANI . (2020B2A30637P)

Student Write-up

PS-I Project Title: BalaSwechaNET

Short Summary of work done: We were given a problem statement to investigate and design a web system for recommending the designing of the best topological network architecture predictor for classrooms and schools. Since, team 24 and 25 were allotted the same project, we divided the work among us. Team 24 used the optimization approach, an algorithm that takes input and gives an output i.e., the coordinates of router. Using HTML, CSS and JavaScript and leaflet js, we created a topological network architecture predictor.Bala Swecha is an ambitious project which aims to reduce the digital divide. BalaSwechaNET is a local Intranet server with content for students. This content comprises video lectures, audiobooks, interactive learning content, assessments, worksheets, exercises, e.t.c. This server has network routers, a switch(If needed), and repeaters to increase the range of the network. Students from nearby locations and hostels can access the content in the server for learning, thus showing significant growth in students daily learning curve.

PS-I experience: It was an enriching experience which taught me a lot of technical skills as well as communication skills. The roller coaster ride had many ups and downs but my industry mentor and bits faculty member were always there to help and guide me through the journey.

Learning Outcome: HTML, CSS, JS

Name: ISHAAN SHUKLA . (2020B2A82027G)

Student Write-up

PS-I Project Title: BALASWECHA NET

Short Summary of work done: We were given a problem statement to investigate and make a web application that would be used internally in Swecha to recommend the best topological network architecture along with budget estimation, which would be used to place servers and routers in schools and classrooms as a part of the BalaSwecha NET project.
We started with making and designing the front end part for our project first. I was part of the connection group within our team. My group soon started working on the integration via Leaflet JS. Along with that a layout was formed for the front end. We got the layout approved by our mentor and after that designing the HTML document was started. The basics of HTML, CSS and JavaScript were learned and designed the HTML page. We also combined OpenStreetMap and Leaflet, which required us to develop an algorithm to analyze the input coordinates and turn them into a two-dimensional array for later use.Later on we combined the front end and back end work with the help of leaflet JS and made a full stack running website.

PS-I experience: The overall experience was amazing as it made me work in a company (in a team) for the first time. Our project was completed well in time and all the evaluative components were held smoothly. Both my industry mentor and PS faculty were helpful in the entire journey.

Learning Outcome: Learned several new concepts like Agile methodology, Git and languages like Html, angular and LeafletJS. I also learned how to work in a team in a professional environment along with all the aspects of web development.

Name: TANISHA MAITY (2020B3TS1265P)

Student Write-up

PS-I Project Title: Infra Dashboard

Short Summary of work done: The project deals with creating infra dashboards using a software named Grafana. Grafana was used to make dashboards for data analysis, Server monitoring and alert management . To create these dashboards different data sources like Prometheus and node exporter, Influxdb, plugins like infinity and google sheets were used.

PS-I experience: My PS-I experience was great as I have developed a lot of skills. As a team leader of the project, I learned to manage a team and divide work. I had an amazing experience in giving presentations, making reports, updating work progress to the industry mentor as well as PS faculty and writing MoM's. Learned to used a new software, Grafana and create dashboards. I attended some educative and interesting webinars on finance and portfolio management. There was a very informative session on career options in finance which was very helpful for me.

Learning Outcome: Learned about Swecha and the wide range of fields they work on. Learned a new software Grafana and create dashboards with different data sources. Teamwork and soft skills.

Name: PONASANAPALLI AJAY . (2020B5A82273H)

Student Write-up

PS-I Project Title: BalaSwechaNET

Short Summary of work done: We were divided into groups and allotted projects; the projects did not have to be of the domain allocated. We Investigated and designed a Web system for recommending the designing of the best topological network architecture for the given class room (s) and School (s) based on geo-spatial topology with budget estimation.

PS-I experience: The first contact with the company and the allotment of projects took some time. The first month was mostly for seminars and teaching sessions related to the Free Software movement and ethical software, and some technologies, like Agile development, Orange ML, Computer Vision and so on. The work actually started towards the end of June. The project mentors and coordinator guided us well. In late July, the process of keeping the coordinator and mentor updated with our work progress was followed strictly, and we were given daily grades based on our work.

Learning Outcome: The project helped me understand how a open source organization

like Swecha works. It also helped me in improving my frontend knowledge and As there were several components of evaluation during the course of PS1, I also learned how to prepare myself for group discussions and seminars. So overall the learning outcome was good.

Name: RAHUL GUPTA . (2020B5AA1853G)

Student Write-up

PS-I Project Title: BalaSwechaNET

Short Summary of work done: Our main project aim was to design a topological system which would take in the coordinates of the classrooms and give the appropriate coordinates for the routers to be installed along with a budget estimation. Our project required use of Web Development along with Machine Learning.

PS-I experience: My Experience with Swecha was all-in-all good only. I got to learn a lot of skills in both Web development and Machine Learning and I got to learn the value of working in a team as well because for a project to be successful, the whole team needs to come together and put in efforts.

Learning Outcome: I learned a great number of skills in both Web development as well as Machine Learning along with learning how to use AngularJS, LeafletJS, GitLab and many more wonderful things.

Name: SAKSHI JHA . (2020A1PS2599H)

Student Write-up

PS-I Project Title: Building Swecha Enterprise Asset Resource Management

Short Summary of work done: Our team had to work on a software-ErpNext. It is an open source software for enterprise resource planning.

PS-I experience: It was a good learning experience. I had to dowload ErpNext on my system and make different kinds of forms.

Learning Outcome: I learned Front-end development and the basics of back end development.

Name: SUDIREDDY KOUSHIK REDDY . (2020A8PS0725H)

Student Write-up

PS-I Project Title: BUILDING SWECHA ENTERPRISE ASSET RESOURCE MANAGEMENT

Short Summary of work done: We have made the web application forms using ERPNext, an open-source software developed by frappe technologies. Those application forms will make the work hassle free and efficient.

PS-I experience: The Project Coordinator was not that interactive, and our project got started late, .but our team members were very cooperative, and I also got aware of how the team issues will be and managed to help them. We managed to complete our project in time. Overall it was a very insightful experience, and we were glad to have this opportunity.

Learning Outcome: Team work spirit, Presentation skills. I explored many new things and learned how to use ERPNext software to manage company resources effectively and efficiently.

Name: Vibhav Pandey (2020A8PS1778G)

Student Write-up

PS-I Project Title: Developing a Voice Integrated Learning Environment

Short Summary of work done: Our project was aimed at building a speech-recogintion system for Swecha's BalaSwecha OS, which is a linux based software developed by Swecha for students. We started off by installing the OS in our local devices on a virtual machine and going through its applications. Our team was divided into front-end and back-end team. I started learning about NLP and went through APIs and NLP libraries to figure out what will be the most suited for our project as Swecha focuses a lot on free and open source software. We explored the PyAudio library in Python and finally used the WebSpeech API in JavaScript to complete our project.

PS-I experience: Projects were alloted to teams and we had to work collectively on them. We had weekly meetings with our project mentor and fellow peers from across campuses. We had to organise our work on GitLab. Overall it was a good learning experience.

Learning Outcome: I learnt about Natural Language Processing and got familiar with Git. Also learnt how to present my ideas and work with deadlines.

Name: AARAV GULATI . (2020A8PS1823P)

Student Write-up

PS-I Project Title: balaSwechaOS

Short Summary of work done: Implementation of NLP using python in balaSwechaOS

PS-I experience: decent

Learning Outcome: Learned various technologies like machine learning, and also about NLP

Name: ARPIT GUPTA . (2020A8PS2216H)

Student Write-up

PS-I Project Title: BALASWECHA OS

Short Summary of work done: I have submitted an article on WEB DEVELOPMENT .I have downloaded signal , made an account on git lab and then explored some repositories which our Swecha mentor has shared .Then we have submitted a prototype to Yuvraj sir which includes a roadmap , task division among team members and discussing the technologies that will be used later .I downloaded the virtual machine and then the BalaSwecha OS then I took the OS to this virtual machine so that our computer runs fine without issues . Then I explored the OS but I have issues there . I have explored the back-end development part since our team members willingly distributed it . So I took that , this includes Python and database flask .I have explored different API's and what are its working .I started working in python , deep-speech
API , Assembly API , PyAudio .I have made the user interface containing mic but its functioning is left .So I explored the last API which is WEB Speech API through which I put the functionality in that .Downloading websockets , Pyaudio and many libraries for that .

PS-I experience: I am very thankful to the BITS PILANI for providing me the opportunity to work for the company . It was a very good experience as it allowed us to work apart from academics , working in team and discussing the doubts with our faculty member which help me to boost my skills.

Learning Outcome: I have learned front end , back end development . I have learned git lab and git hub . Also ,many API'S and NLP's . Many libraries and packages which we used in the software .

Name: AMOGH RAI . (2020AAPS1029G)

Student Write-up

PS-I Project Title: Swecha Organizational Asset Resource Management

Short Summary of work done: The task given to us was to build webforms using the open source software ERPNext.ERPNext is an open source web-based system aimed at small and medium sized businesses. It assists companies with accounting, project and task management, sales, purchase, inventory, CRM, administration, human resource management, manufacturing, and even website. This system is the most suitable for

businesses in manufacturing, retail, and distribution spheres. Extensive functionality is integrated into a single platform for easy management.
With the help of ERPNext we had to build 4 different webforms for Swecha oragnisation
These were:
1)Membership Form
2)Appilcation for loan
3)Application for renewal of loan
4)Application for recurring deposit
I built these 4 forms successfully with the help of ERPNext

PS-I experience: It was a great learning experience and it enhanced my knowledge about web development and other fields. I had wonderful team members and mentors who really helped me a lot throughout the PS-1

Learning Outcome: I learnt a lot about web development,building webforms and different frameworks.

Name: YASH VARDHAN GUPTA . (2020AAPS1275G)

Student Write-up

PS-I Project Title: Ticket Management System (Website)

Short Summary of work done: We started with training on HTML, CSS, JavaScript, and ReactJS in the first two weeks. Later we were introduced to the project outline to create forms in a ticket management system. The project was divided into a frontend website and a backend database. For the following weeks, we were given various tasks to create an Expense Tracker and learned the AntDesign Library of ReactJS for the frontend part. Following weeks we practiced Oracle functions and made tables using the Toad work tool. Using C# with Entity Framework, we converted the tables created in Toad to classes and objects, in turn using them to connect the frontend and backend with the concept of data and business models. We learned to create an API using ASP.Net, SQL, and C#. Using advanced ReactJS commands, we incorporated the API created to request data from the database, retrieve it in JSON format, and display it on the website. Ultimately, we added the option for my form on the website making its functionality fulfilled.

PS-I experience: The team and the mentors I worked with were constructive and encouraging at the same time and helped me learn a lot of computer languages and work with several softwares. I had a great time learning a lot of new things.

Learning Outcome: I learned a lot of technical as well as soft skills. On the technical side, I learned various languages: HTML, CSS, JavaScript, ReactJS, Ant Design Library, SQL, and C#. I learned how to create and understood the working of API, management of backend databases, and connecting it with the frontend of the websites and the process behind the Software Development Lifecycle (SDLC). This experience helped me understand how to work on code with a team. Besides that, I learned about how things work in the real world and how the actual industry works, which was very helpful. I improved my communication skills and learned to manage my time and work with specific deadlines.

Name: DHWAJ GUPTA . (2020AAPS2100H)

Student Write-up

PS-I Project Title: Building Swecha Enterprise Asset Resource Management.

Short Summary of work done: Setting up ERPNext software(which is an open source software) in the local system which is compatible with the software(Ubuntu). Our complete team had to work on the project and learnt about frappe framework. The major languages used in it were python and javascript. The entire team learnt about the erpnext interface. We were introduced to web forms and how it could be built from scratch. We were given four forms basically related to banking:-account membership, loan on surety, application for recurring deposit and loan renewal application. We as a team learnt more about all this from frappe school videos and erpnext documentation and developed the web forms which looked far better than normal conventional forms.

PS-I experience: PS was completely online. We learnt how to work as a team for the third party with the assistance of a project coordinator and ps faculty. We had regular meets and different forms of evaluation components such as quizzes, group discussions and seminars with the faculty, company people and industry experts.A number of expert talks were organised by the ps division meanwhile to enrich student's knowledge about industrial and technological enhancements. Overall it was a pleasant experience.

Learning Outcome: I learnt about erpnext, frappe framework, javascript and python and a lot related to front-end development.I learnt about work culture and workflow.Additionally I could work on my communication skills because of the nature of work. I interacted with my team and could enhance my leadership and communication skills.

Name: ANUBHAV GUPTA . (2020AAPS2106H)

Student Write-up

PS-I Project Title: BalaSwecha Os

Short Summary of work done: Our team's task was to integrate a voice user interface and learning environment into BalaSwecha OS. For this, we learned frontend technologies like HTML, CSS, JavaScript, and backend technologies like Python, APIs, NLPs, etc. I created the backend of a voice notes app and used Web Speech API: a speech-to-text conversion API. We also integrated a voice search option in the pencil box app of the BalaSwecha OS.

PS-I experience: My overall experience was quite good.

Learning Outcome: •We learned about the AGILE methodology used in the real world while developing software.
•I was able to develop a good understanding of various technologies used in developing a web app, such as HTML, CSS, JavaScript, Python, and APIs.
•I also learned several soft skills such as teamwork, coordination, cooperation, and time management.

Name: JATIN SINGHAL . (2020B1A31957G)

Student Write-up

PS-I Project Title: BUILDING SWECHA ENTERPRISE ASSET RESOURCE MANAGEMENT

Short Summary of work done: We learnt about the various new technologies used in the ERPnext ,frappe framework ,python and JS.Our team made 4 type of forms regarding loan and deposits

PS-I experience: It was an experience to the professional and corporate world where in I learnt several practical skills

Learning Outcome: Python,JS,HTML,ERPnext,Frappe Framework

Name: SHIVAM ARYA . (2020B1A40593P)

Student Write-up

PS-I Project Title: SWECHA-Web Development

Short Summary of work done: We basically had to work on a fake news detector. A lot of work had already been done on it so we had to figure out how the existing software worked and how we could improve on it. Basic python knowledge is required. There was also the web-app interface system of the same on which the another team had to work on for that javascript and html knowledge is required but all that you can also learn on the go as well.

PS-I experience: Our instructor was a bit busy with his job and other projects at SWECHA so we didnt have as frequent meetings as some other groups. It was an alright experience, you can defenitely do some actual work there if you're interested in it.

Learning Outcome: Learned Python and its libraries like BeautifulSoup, requests, nltk on VS code

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Name: CHETAN VISHNU MAREM . (2020B1A42399H)

Student Write-up

PS-I Project Title: Swecha Community Resource Management

Short Summary of work done: We had to build an event management system of students and colleges.
For this, we had to create an upload functionality where the admins can upload .csv files with specified columns in order , then all the students will be added to the database and fetch their college id from college database. We also had to build a web application, in the form of user login portal that can store and edit the data of the user in the database of the organization. Flask and MySQL were mainly used for this project.

PS-I experience: It was a great experience. I learnt various new things not just technical but also non technical like communication, presentation skills.

Learning Outcome: I started by learning HTML, CSS, JavaScript. Also had to work with Flask framework , MySQL and git. I also learned how to prepare myself for group discussions and seminars.

Name: TANMAY JAIN . (2020B1AB1903P)

Student Write-up

PS-I Project Title: Making an RSS news aggregator for fake news detection

Short Summary of work done: •Learned Python basics
- Learned its libraries
- My project was Data science oriented.
- Basically , learned NLP techniques and their implementation
- Most importantly, work was more focused on deploying text entitlement
- Also got exposure to Web scrapping (by learning libraries like beautifulsoap, scrapy etc.)

PS-I experience: My PS-1 experience was satisfactory. I was allotted a decent project at Swecha. However, the quizzes and seminars conducted by the PS faculty mentor helped me a lot in improving my soft skills. Overall it was a decent experience.

Learning Outcome: I learned Python for Data science, NLP , web scrapping to some extent.
Got exposure to work in Software Industry.

Name: LANKA NISHANTH . (2020B2A31956G)

Student Write-up

PS-I Project Title: BalaSwecha OS

Short Summary of work done: The project was to build the BalaSwecha OS with free software-enabled applications for the classroom environment. The older version of BalaSwecha OS was installed and booted up using virtual box and the built Pencilbox app was explored. Noted down errors, listed improvements and additional features that can be added to the app. Made UI/UX designs using Figma and coded the frontend using HTML, JavaScript and CSS. Tauri was decided to be used for backend to make the web application. New features like back button ,settings page ,separate teacher and student login page, dark mode were added and UI/UX was improved.

PS-I experience: The experience was really good. The mentors allotted for the project regularly kept in contact with the teams and got updated with the progress of the project. Everyone was really helpful. We were allowed to think of our own solutions and guidance was given for completion of the project .

Learning Outcome: I learnt about what web app development was and what was workflow for making a successful working product. Learnt HTML,JS and CSS for working on the frontend of the application. Learnt to use Figma which is a really useful UI/UX tool for designing . Learnt a little bit of Rust programming to understand how Tauri works for the backend of the app. Since BalaSwecha OS was based on a Linux distribution, I was able to get familiar with the Linux interface and terminal with the structure to be able to build an OS.

Name: PRATHAM ARYA (2020B4A81658P)

Student Write-up

PS-I Project Title: To build the Balaswecha OS with free software-enabled applications for the classroom environment.

Short Summary of work done: Our project was to work upon the Balaswecha OS that was made back in 2014 for Ubuntu 14.04 version. We learnt the basics of an operating system and how to build a live CI/CD Kernel based OS from Linux from scratch. Then we listed down the important apps and services used in previous version of Balaswecha and made it into appimages and transferred it into newer version of Ubuntu 22.02 LTS. We worked upon improving the UI/UX of the Pencil Box (An important app in Balaswecha) as well as made a new Ubuntu App using Tauri as the bundler. It was the major milestone of our project.

PS-I experience: My PS-1 experience was good. All my teammates in PS group as well as the PS mentor were really helpful. I made friends across campuses and enjoyed working with them. I was able to work upon skills like making and preparing official Presentations, learning by reading documentation and Time Management Skills. It was a wonderful experience.

Learning Outcome: My skills in UI/UX designing have sharpen during the project and I learnt how to read documentation which can help me to build applications and services with future tech stacks.

Name: Shreya Mishra (2020B4TS1278P)

Student Write-up

PS-I Project Title: Infra Dashboard

Short Summary of work done: We learnt to create a dashboard on grafana using prometheus datasource which stored the data from the node exporter like CPU utilisation, memory, RAM, storage etc.
I also learnt influxDB along with telegraf that works like prometheus and node exporter. Further server updown monitoring was done using blackbox exporter on grafana on extracting some data from influxDB.

PS-I experience: Ps-I experience was very delightful. It was great exploring how the organization work and how even small small details need to be taken care of at the right time. Swecha's faculty was very supporting and lenient to work with. He guided us throughout the course duration and was very punctual regarding the meets and discussions.
Although work got little hectic at the end and piled up, the overall experience was enlightening.

Learning Outcome: I learnt to to create dashboards on grafana and influxDB, also got to explore various data sources such as telegraf, prometheus, node exporter, blackbox exporter and their functioning.

Name: Paramjeet (2020B4TS1279P)

Student Write-up

PS-I Project Title: Infra Dashboard

Short Summary of work done: We need to monitor the systems in our network to provide a quick way to
know their status and assure that everything is working fine. So, we were given the task of creating a dashboard to monitor the system using grafana and prometheus. We successfully completed the task and built a live working dashboard. We also accomplished on building a dashboard to monitor the situation of Covid-19. Our work is useful to get a quick glance of the systems and to keep an eye on the situation of corona infection. Our future endeavor includes mapping host servers and learning more about the various features of grafana and prometheus which will continue even after the completion of the Practice school.

PS-I experience: Our journey was almost two months long. It started back on 29th May. Different activities continued as we moved on our task. Finally our task was completed on 22th July. Regular meeting were conducts by our mentor and PS faculty to know the updates and progress of the project. We were given new tasks every time and our doubts about the previous tasks got clarified. We used a lot of resources to help with our project including tutorials, You tube videos, Websites etc.
We did a lot of work in continuity and finally completed our project.
We enjoyed working with everyone on the project and got to know about various things during our journey gaining new experiences and skills. In a nutshell, I would like to say that the journey proved fruitful and it was a beautiful time spent.

Learning Outcome: We learnt operating grafana and prometheus. We configured node exporter as data source of grafana and built a dashboard to monitor the system stats. We also learnt about infinity as a data source, geo mapping and used it along with various features of grafana to create a Covid-19 monitoring dashboard. We also learnt about creating alerts in grafana.

Name: chennupati sree nihitha (2020B4TS1384H)

Student Write-up

PS-I Project Title: To build the Bala Swecha OS with free software-enabled applications for the classroom environment

Short Summary of work done: The report discusses the project aimed at developing an operating system and web
application for better student education using Figma, Tauri, and web development. Educational slides, video representations, and graphical representations of concepts are all included in the applications. It will also include quizzes and homework for kids. We also learned how to create UI with Figma and, more importantly, integrate it with the fine-tuned model. PencilBoxElectron proved to be a powerful and efficient learning model.
Furthermore, I believe that our contribution to this project will provide a new way of learning and make learning more enjoyable for students.

PS-I experience: I have really enjoyed at lot in my ps.I'd like to thank BITS Pilani for providing me with the opportunity to
intern at Swecha, a prestigious nonprofit organization. I'd like to thank
my ps instructor, my parents, and the
Swecha - Web Development members for their kind cooperation and encouragement.
I'd also like to thank our Industry mentor, for guiding us
throughout this internship, providing resources, answering our questions, and taking time out of his busy schedule to help us understand the Project.
My special thanks and appreciation go to my team members in developing the project and the people who have willingly helped me with their abilities.

Learning Outcome: i have learnt JavaScript, python, HTML/CSS

Name: PRATHAM AGRAWAL . (2020B5A40744P)

Student Write-up

PS-I Project Title: Swecha Resource Management

Short Summary of work done: In my PS we were supposed to built a web application which can take input from the user and save the data in the database, Our group was supposed to built a user login portal that can store create or delete a user as well store the data in the MySQL database, and we were supposed to built the web application using python and flask, so firstly I learnt the basics of python and flask and how to make web applications using it, secondly we were to store the data to the database, so I learnt about how to do the same, we were also given the task to add password to the user login web page using the salt encryption method, so I learnt about the salt encryption method and how to add password using it, that's all was the the task given to us and we completed it as well.

PS-I experience: My PS-I experience was overall too good and I learnt a lot new things during the whole process.

Learning Outcome: I learnt many things during the PS like, I learnt how to make web applications using python and flask, I also learnt the basics of HTML,CSS and JAVASCRIPT, I learnt upon how to interact in a group as well as the communication skills, I also learnt how to add password to a web page using the salt encryption method.

Name: Isha Jangir (2020B5TS1259P)

Student Write-up

PS-I Project Title: Infra Dashboard

Short Summary of work done: The project was to create a monitoring system for Swecha's infrastructure. Its components included Grafana, Prometheus, and Node exporter.
Learned how Grafana, Prometheus, and Node exporter work and explored various dashboards, alerting tools, databases, and visualizations that Grafana provides

PS-I experience: The experience was good, the mentors were supportive.

Learning Outcome: I got a lot to learn from this PS at Swecha. The Most important of all
was teamwork, as the project we worked on was a group project so it was a very good experience of how a group of people cooperates towards a single target.

Name: ROHAN SANKLECHA . (2020A1PS2457H)

Student Write-up

PS-I Project Title: Speech Recognition & Dialog System – Automation of Speech labeling.

Short Summary of work done: Created a minimal viable product which comprises of a web app in django backend framework that takes in user speech input either in form of direct file
upload or url input for youtube videos from which audio is scraped
(using the package youtube-dl in python) and saved as a file. The file then goes through labelling using various python libraries.
The labelled audio is transcribed using open source hugging face models in python.

PS-I experience: I would like to thank BITS Pilani for giving me this once in a lifetime opportunity of working with such a prestigious institute Swecha, Gachibowli. I would like to thank the PS division for giving me this chance to experience in the field of Web Development.
Special thanks to Swecha for giving me the opportunity to work with them. Thanks to our PS mentors for being so supportive and giving me the opportunity to work under his expert guidance and taking time out of his busy schedule for helping me.
Special thanks to my PS instructor for his guidance and support throughout.

Learning Outcome: During the course the practice school internship I have learned the following tech stacks for incorporating frontend and for making the necessary updations in the UI/UX of the website:
HTML5:
● HTML (Hypertext Markup Language) is the primary building block of creating a website.
● HTML is a very basic markup language and requires implementation of a f HTML commands that structure the look and layout of a web page, which I learned during the course of PS1.
CSS3:
I also learned CSS which helped me in beautification and styling of the project.

● It helped me improve Website Presentation.
● Made updates and filters easier and smoother.
JAVASCRIPT:
We are using javascript in our project for:
● JavaScript helps to make web pages dynamic and interactive by implementing custom client-side scripts.
● At the same time, we can also use cross-platform runtime engines like Node.js to write server-side code in JavaScript.
● This helped me improve SSR and CSR to a great extent.

Name: ABHISAR GAUTAM . (2020A3PS0524P)

Student Write-up

PS-I Project Title: Civic dashboard webdev

Short Summary of work done: Developed front end of a website using html css

PS-I experience: Many communication gaps in online PS

Learning Outcome: Front end and how to bring an idea to its execution

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Name: AARNAV HETAN SANGHVI . (2020A3PS2119H)

Student Write-up

PS-I Project Title: BalaSwecha OS

Short Summary of work done: Our job was to build the BalaSwecha OS for Schools with virtual learning environment and to integrate the Voice enabled teaching and the learning environment

PS-I experience: It was really good and interactive. It was an internship that gave us a first hand work experience.

Learning Outcome: We got to learn a lot of new skills and got an insight into how a corporate company works. We also learned different computer concepts and programming languages that we had to use for our projects.

Name: KHUSHI VIJAY . (2020A5PS1159P)

Student Write-up

PS-I Project Title: Fake News Detection Project- Web Developer

Short Summary of work done: We were divided into 3 teams i.e. data science, frontend, backend. All the teams had 4 to 5 members. We collectively developed learned languages and developed the web page for fake news detection. The mentors showed us an existing prototype of the project and accepted input on how it could be improved. All the team members were assigned the task of deploying the model on their local systems.

PS-I experience: The Instructor was very cooperative and guided us all through perseverance. I got to learn the backend of the programming and the team was able to develop a webpage for fake new detection with the help of the swecha instructor.

Learning Outcome: Since I was part of the backend team, I had to learn HTML, CSS, and JavaScript, of which I had little prior knowledge. I also had to learn Flask- a framework used to build web applications. Learning these technologies helped me understand most of the code behind the prototype, as Flask was used the most in it.

Name: KOTHA ROHIT REDDY . (2020A7PS1890H)

Student Write-up

PS-I Project Title: Swech Voice - Automation of Speech Labelling

Short Summary of work done: I have contributed to the project by working on the backend using flask - a python framework. A web scraper was developed by me using open source python libraries.

PS-I experience: It was a great learning experience. We have worked in project sprints according to the agile model. It gave me a good idea of what lies ahead for a future as a Software Development Engineer.

Learning Outcome: I learnt about using Git workflows and version control in this project.
Got to know about open source software and open source libraries.
Enhanced my python skills.
Improved my web development skills.

Name: NIKHIL SHARMA . (2020B2A81413P)

Student Write-up

PS-I Project Title: AUTOMATION OF SPEECH LABELLING

Short Summary of work done: I developed the backend of a web application that labels speech into parts based on the speaker, his emotions, age and gender. The code I wrote essentially provides the following functionality :

1. Taking input from user either in form of url or audio file through a form with POST method
2. The choice of url or file is taken through a radio button and accessed using the following code :

“request.POST[‘input_type’]”
where ‘input_type’ is the name of the radio button field in the form.

3. If the input is url, it is sent to the scraping function which returns a file
4. The file is then saved locally while its inference is stored in the database
5. This inference is then sent to the labelling function from within the home page view
6. The user is redirected to the output page using :

“return HttpResponseRedirect(reverse('output'))”
and the output of the labelling function is rendered on the ‘output’ page.

PS-I experience: I learnt many things and worked on an industrial project.

Learning Outcome: I learnt the fundamentals of web backend development using web frameworks like Django and Flask and team collaborations through git.
This included learning about Django forms, models, GET and POST method, templates, control flow and database management along with frontend development in HTML.

Name: SHUBHAM ABHAY LULU . (2020B3A70691G)

Student Write-up

PS-I Project Title: Automation of Speech Labelling

Short Summary of work done: Automation of speech labelling, done via use of Unsupervised clustering(GMM) followed by NLP models for Speech to Text. Make the app scalable over multiple languages

PS-I experience: It was a fun experience.

Learning Outcome: flask, git, GMMa

Name: PRATYUSH . (2020B3A70895P)

Student Write-up

PS-I Project Title: Swecha Voice web application

Short Summary of work done: I was a part of a team which was supposed to build web interface for the voice collection which imitates the functionality of https://voice.swecha.org/te which is Swecha's voice collection site and add a few extra features to it (gamification, dashboard, certificate generation). Specifically, my task was to build the dashboard of the website with the following features - access profile data, a polls section which collects feedback, metadata collection and retrieval of voice samples from the database. This was done in a sequential manner, first we built a design flowchart

for the dashboard, then a wireframe, made the frontend of the site and presented a working demo and finally the backend of the site, after which there was a final demo.

PS-I experience: Through PS-1 I was exposed to the industry, I believe this experience was very important in preparation for the future. We created the Swecha voice website using a smaller tech stack than the original website (the maintenance of this website has become difficult to the organization). and successfully implemented all the extra features that we were tasked to do.

Learning Outcome: I learned how an organization operates. I gained knowledge of several software project completion approaches, including the waterfall and agile methodologies. I gained experience producing reports and presenting presentations. I learned how to seamlessly work with a team using version control systems.

Name: TANMAY SATIJA . (2020B3A71516G)

Student Write-up

PS-I Project Title: MULTI-LINGUAL DICTIONARY

Short Summary of work done: Our project at swecha was to develop a website and a mobile application which could transliterate the meaning of one word in one language to another language with true to near meaning. our team was divided into app and web development teams, and worked with frontend technologies like HTML, CSS, JAVASCRIPT, AND BOOTSTRAP, and backend technologies namely Node JS framework. we further searched for open sourced API to find meaning and translate the words in one language to the other. we then integrated these API in our system.

PS-I experience: I have gained a lot of knowledge throughout the project, not only regarding the technical aspects of a real-world project but also regarding the essential of significant qualities like communication and teamwork. The project's technical side taught me how to use GitLab for version control, gave me exposure to the field, assisted in my learning of front-end development, assisted in my learning of web development, and introduced me to application programming interfaces (APIs) and their applications. Particularly swecha taught me about open-source organisation and how I can contribute to it.

Learning Outcome: This experience exposed us to the workings of the industry and helped us develop a problem-solving mindset. It also gave us students a glimpse into how an industry organization operates on the inside. I studied the software development life cycle and monitored my own development. Our mentor and I met on a regular basis, and he would point out our errors or give us directions on how to proceed.

Name: VARUN GOPAL . (2020B3A71785G)

Student Write-up

PS-I Project Title: Multi lingual dictionary

Short Summary of work done: We were made to make a multi lingual dictionary. Basically a Google translate, but using only open source software. This multi lingual dictionary would be combined with text to speech made by the other team to provide meaning of words and sentences recorded with voice in multiple languages. We learnt HTML,CSS, Javascript through online courses on youtube and other sites and applied our knowledge to build the company's website that would act as a translation software. We were given weekly tasks to be completed and had regular meets with out mentors from the company who we would update with the progress of our goals. Eventually we were tutored to learn backend development that includes Node.js and PostgreSQL as the database. We applied this knowledge to make a server that would host the frontend and the webpages and would deliver it when requested. Finally around mid July , one and half months into the project, it was coming to an end. We were told to complete our deliverables and polish the different components and aspects of our website. Basics of Git and Gitlab were understood while working with the rest of team to integrate different parts completed by different people. The final aspects of the project was the report submission that documented our learnings and work done during the course of the project.

PS-I experience: The ps1 experience was good. The experience of interacting with diverse individuals with different areas of expertise and working together as a team to complete the project at hand was enriching. The mentors helped out whenever there was an issue and would lead us in the right direction.

Learning Outcome: Learnt web development skills and discovered areas of interest. Learnt other skills like working in a team, coordinating with team members, solving conflicts that arose. Worked on my soft skills and developed them.

Name: VIDHAN AGARWAL . (2020B3A71857G)

Student Write-up

PS-I Project Title: Web page development of swecha voice

Short Summary of work done: Speech Recognition & Dailogue system - I: India Language - Build a speech recognition system platform which supports Indian languages : Building Online & Offline Voice collection integration

PS-I experience: It was a great experience I got to know how people collaborate and work in companies which involves sharing of tasks and making of projects. If people are sincere in there work in this PS-1 they can develop many skills and get to know the views of the experts in the respective field.

Learning Outcome: In the due course of the internship I got to learn many new skills . Apart from the soft skills developed I also learned full stack development which included learning ReactJs , PostgreSql, ExpressJs and NodeJs. I also learned about the git lab functionalities and how to work in repositories and handle requests.

Name: VATSAL NADKARNI . (2020B3AA0493G)

Student Write-up

PS-I Project Title: Swecha - Web development

Short Summary of work done: Worked on unsupervised machine learning and implementing python libraries for speech recognition, to convert speech to text in English and Telugu. Also worked on speaker diarization which uses some other python libraries to identify separate people based on their voices.

PS-I experience: PS1 was online. We had daily stand-ups and decided on what we were going to work on for the day. We had weekly meetings with PS1 mentor and he saw how much we had progressed the project. We worked on learning from scratch many of the things and how convenient documentation is.

Overall it was a great learning experience and we learned about development cycles, clean code, and how the IT industry works.

Learning Outcome: I learned about machine learning, pre-trained models, how to use hugging-face, python implementation, working on clean code, learning gitlab, learned good important tasks and teams are in software industry, learned to co-operate with others, and about software development life cycle. Overall great learning experience.

Name: KALIDINDI MEDHA . (2020B4A32302H)

Student Write-up

PS-I Project Title: Swecha Voice Modules - App development

Short Summary of work done: Made a user dashboard and navigation menu for the app using Dart, Kotlin, XML and Java.

PS-I experience: It was a little hectic with a lot of submissions to be made at short deadlines and not much time given to bridge the learning gap. However, it was pretty insightful into the realm of app development, and I gained useful skills in various languages like Java, Kotlin, XML and dart.

Learning Outcome: Learnt the basics of app development with XML and Kotlin. Also, learnt flutter and integration of flutter backend and frontend, then I made a user dashboard and navigation menu in XML and Kotlin, and then in dart too. Learnt how to use a new IDE called Android studio and how to run emulators in it.

Name: DIVYANSHI CHOUKSEY . (2020B4A71668G)

Student Write-up

PS-I Project Title: Automation of Speech Labelling

Short Summary of work done: I coordinated with the other members and created user flows, and brainstormed
wireframing and final design prototyping for our project. Finding open source alternatives for the tools was a tough task. After some exploration, I found diagrams.net, which is an open source for diagrams software and flowchart maker. I read documentation and articles
about user flows. For any product to be successful, it should satisfy the user's needs. And I
was supposed to handle the crucial part to understand the user pain points and accordingly
proceed with the frontend. I created user flows to represent the user journey on our product
pictorially. Following this, I had to make the wireframes. I found Penpot, which is an open-source alternative for wireframing and designing. The process involved brainstorming the ideas with the developers' team about the feasibility and the relevance of the designs. Finally, I worked along with developers to finish the frontend part. And also did the frontend integration to fetch data from the backend for an initial prototype using Javascript.

PS-I experience: It was my first experience working on a project which had an application in the real world along with a team of 10 members collaborating and brainstorming ideas to come down to solutions which helped us complete the allotted tasks. Altogether it was a really nice experience. Meeting new people, from around campuses, mentors, and instructors from the PS station helped and guided us at every step of the project.

Learning Outcome: Got much more acquainted with the programming stuff. Learned how various components work in a corporate while developing a product and practically using AGILE software development life cycle throughout the project.

PS-I station: Techverve Solutions , Bengaluru

Faculty Name: Tejasvi Alladi

Faculty write-up
Techverve based in Bangalore is a technology company providing domain specific solutions in finance, e-governance and education by designing and developing web based solutions and mobile applications. They have also begun developing IoT solutions in various domains.

Industry looking for in a -I intern

Techverve Solutions,Bengaluru:
They are looking for CS students interested in developing mobile and web applications. In the offline mode, they are looking for students interested in building IoT products.

Student

Name: SAMARTH SHARMA . (2020A3PS0615H)

Student Write-up

PS-I Project Title: Mobile App Development using React Native

Short Summary of work done: The project was divided into 2 parts. First of all, everyone who were allotted this PS station were divided into 3 sub groups based on the technology they were supposed to use during the PS. I had to work with React Native. During the first 2 weeks, all of us had to get acquainted with the technology and regularly update on the progress.
Afterwards we were given the project of designing and deploying a Mobile Banking App using the technology given to us. We worked and included the Reqres API in our app and built the app on both iOS and Android platform.

PS-I experience: The PS helped me learn a lot of new things. First thing is how to work in a professional environment. Showed me how to take responsibility and what is excepted from each one in a team. Second thing is I learnt a lot about new softwares and development tools like React Native, ReactJS, Flutter.

Learning Outcome: Overall the PS I got to develop a new skill, Mobile App Development. Used React Native, CSS. Also got a few insights on development using Flutter and Angular.

Name: JAYANT PANT . (2020A3PS1555P)

Student Write-up

PS-I Project Title: Mobile Banking Application

Short Summary of work done: It was a wonderful experience, i gained a lot of experience, i developed mobgile application, it was a great experience. We used Flutter in development using Dart language and API calling

PS-I experience: It was a work from Home experience and it was an amazing experience. we developed full ,mobile banking application and made it login with API. I worked with teammates from different campuses of BITS and it really showed me teamwork is very important and developed within me a sense of fraternity towards my teammates

Learning Outcome: I learnt Github, flutter, Dart technologies. i also learned the value of teamwork, patience and persevarence. I learned that we must work together to achieve goals and teamwork is very important in an IT company.

Name: SURINEEDY VENKATA SAI RAHUL . (2020A7PS0204H)

Student Write-up

PS-I Project Title: Mobile Banking Application using React Native

Short Summary of work done: We made an Android application for Banking Purposes. Technology Used is React Native which is used to make cross platform applications such as android, ios and web apps.
User needs to Register and Login accordingly. OTP verification is done after register. Then after login User is presented with a beautiful Dashboard with following features:
1. Accounts Screen : User can view his accounts with it's type , balance and account Number
2. Beneficiary Screen : Users can add and view beneficiaries
3. Bank statement Screen : Users can generate a Bank statement by mentioning account number, start date and end date
4. Profile Screen: His Name , Aadhar, pan details , mobile number , address is displayed
5. Forgot Password and Change Password Functionality
All the Backend and Api was developed by some other team, Our Job was to make a User friendly UI and interact accordingly with the API developed.

PS-I experience: It was a great learning experience overall. I can now develop android and iOS applications with Ease.
Lots of learning from my team mates and collaborative learning was a huge plus.
We had constant supports from my PS mentor and Industry mentor, their guidance was the key for making this PS program huge success for me.

Learning Outcome: Learning Outcomes :
1. React Native
2. Api requests and responses
3. Team working Strategies

Name: Saahir Jitendra Vaidya (2020B3A71142G)

Student Write-up

PS-I Project Title: Mobile Banking Application

Short Summary of work done: Developed a Mobile application for Banking on a cross platform development architecture - Flutter. The application had to be designed according to industry requirements like a splash screen that occurs when a app is clicked, a responsive design based on users actions. Being a banking app its security was paid special attention to. It established a connection to the company server for login and authentication. The continuous authentication along with biometric locks made it secure and a encryption was used to save whatever minor changes that were made in the cache. Upon loading the dashboard, the user could interact with feature like Money transfer, account statement, etc.

PS-I experience: The company mentor was very cooperative and helpful, I got the opportunity to learn about server side processes due to this project. The Ps- instructor was very supportive and helped a lot whenever we had any issue.

Learning Outcome: I was able to hone my skills in interpersonal communication and backend development.

Name: ANSH BHARDWAJ . (2020B5A31847G)

Student Write-up

PS-I Project Title: BankVerve 101

Short Summary of work done: Developed a progressive single page web application that would be used as banking customers' data driven dashboard UI giving a summary of a user's financial records

PS-I experience: It was great to finally get down and acquire some skills along with getting industry experience

Learning Outcome: Learned web development

PS-I station: TNSTC - Digital Content - Astronomy - App/AR/VR , Chennai

Faculty Name: Tejasvi Alladi)

Faculty write-up
TNSTC - Digital Content - Astronomy - App/AR/VR,Chennai:
Tamil Nadu, Science and Technology Centre conducts various educational activities throughout Tamil Nadu by approaching educational institutes, research organizations, and philanthropists for their development programs. TNSTC has been a PS-1 station for several years now.

Industry looking for in a -I intern

TNSTC - Digital Content - Astronomy - App/AR/VR,Chennai:
They want students to create products that can be displayed in the science center showcasing the advancements in computer vision, virtual reality, augmented reality, machine learning.

Student

Name: VENKATA NAGA SAI BHARATH THATHA (2020A4PS1904G)

Student Write-up

PS-I Project Title: An interactive space game based on real-time hand tracking

Short Summary of work done: In this episode of PS-1, we explored our views on developing a game that hand gestures can control. For game development, we learnt C#, using the object-oriented programming functionality of C# for customised input on a particular object. For developing the game, we learnt how to use the popular game engine Unity. For the computer vision part, we learnt Python and mainly relied on its libraries, including Numpy, OpenCV, and Google's Mediapipe library, and developed a working hand tracking model. Then, utilising socket programming in Python, we created a server. Once a connection is established, the server delivers data to the client. The server is always listening for connections. The hand coordinates produced by the model were imported into the server's hand tracking module and encoded as a list of points (one coordinate per frame) that the server could broadcast. We used C# to establish a client in the game that can accept data and be accessible by any game object.

PS-I experience: Experiential and practical learning are essential aspects of preparing for your career, which is perfectly balanced in my PS-1 . During our whole time on PS-1, we were not restricted from doing the final project of what they said. Instead, they asked us to explore all the fields, select our project, and complete it before the end of PS-1. The company we got allotted to didn't share any resources with us. Instead, we were given the choice of selecting our resources. In this search for help, we learned about many platforms where we could get the resources, and we also figured out there were many good videos available on YouTube that helped us build our project. Our mentor helped us in suggesting some better ways to improve the efficiency of our project, and accordingly, we made the changes to it. The experience we gained was beneficial to our careers.

Learning Outcome: While developing the game, I focused on learning C# and learning how to use the game engine Unity. We used Unity's assets and some free assets from the Asset Store to integrate the various props (game objects) into the level. Some assets that required further detailing were designed using the "Blender" 3-D modelling software. The in-game light was handled by a single "Directional Light" element. The C# scripts define the functions of different objects in the game. We learned Python and focused on some of the leading libraries, which include numpy, OpenCV, etc. We also learned to use Google Media Pipe. We also learnt how to build a server in Python using socket programming in Python. Apart from that, I also gained a lot of useful knowledge about how the real world and the industry operate. My ability to communicate was enhanced, and I also learnt time management techniques and how to perform under pressure.

PS-I station: Trangile Services Pvt. Ltd. , Noida

Faculty Name: Tejasvi Alladi

Faculty write-up
Trangile is a software services company based in Noida with deep domain knowledge with proven experience in Retail, Logistics, Life Sciences and BFSI domains.

Industry looking for in a -I intern

They are looking for students having knowledge/interest in working on AI/ML, Computer Vision and Blockchain based applications.

Student

Name: AMITAVA CHAKRABARTI . (2020A7PS0010G)

Student Write-up

PS-I Project Title: License Plate Recognition

Short Summary of work done: The purpose of the project was to try and develop a robust deep learning model which extracts and outputs license plate information of cars from video data. The overview of our approach for this project is as follows:
Load a pretrained YOLOv4 model available online.
Use custom license-plate dataset to train our model to detect license-plates.
Crop our image according to the bounding box generated by the YOLOv4 model before applying further pre-processing techniques on it.
Next, we pre-process the license-plate image by converting to grayscale, using gaussian blur and then thresholding to find contours. All rectangular shaped contours are sorted left to right.
To filter unwanted contours, we pick suitable aspect ratios.
Finally, we apply the Tesseract OCR algorithm on the individual character segments to extract the respective characters.

PS-I experience: I had a great PS-I experience working for Trangile Private Limited as I learnt a lot from the project that we had to undertake. It provided a great exposure to how deep learning and computer vision projects are executed in the industry.

Learning Outcome: This report describes the project of creating a license plate recognition program undertaken by our team as a part of Practice School-1. This project was undertaken by our team so that we could make a license plate recognition tool. We have used YOLO v4 and Tesseract OCR to meet our goals. We have used our basic knowledge about Computer Vision techniques and their applications from our learnings from the first half of our internship. Our solution still has room for improvement, but it has potential applications in real-life problems such as keeping track of vehicles entering and exiting a parking facility. We feel that further improvements to our existing model can be of great benefit to society in that it can be used to solve real-world problems.

Name: AYUSH MADAN . (2020A7PS0090P)

Student Write-up

PS-I Project Title: Computer Vision and Deep Learning

Short Summary of work done: I learnt things like image transformations in computer vision, studied various classification algorithms of machine learning and also dived into applications of neural networks in real life projects.

PS-I experience: It was good.

Learning Outcome: I got to have hands on a completely new field and I can better understand the tech world.

Name: MILIND JAIN . (2020A7PS0153H)

Student Write-up

PS-I Project Title: Invoice management system

Short Summary of work done: First week we were asked to study basic Mathematics for machine learning and basic python and OpenCV library. Then we were asked to perform various operations on a given images dataset. Then we were asked to study about various machine learning algorithms that will help in our project.
Then finally we were given project to extract useful data from invoices using OCR.

PS-I experience: PS station gave us good amount of time before each assignment and we have regularly keep them updated about our progress

Learning Outcome: We learnt to code and perform operations/transformations on images in python using TensorFlow/OpenCV, Pillow library and noise introduction using the scikit learning module to perform various ML and DL operations.

Name: SATYAM BANSAL . (2020A7PS0171G)

Student Write-up

PS-I Project Title: License Plate Recognition

Short Summary of work done: I first worked on the Optical Character Recognition problem for detecting the characters written on bank cheques. For this I learnt about image processing and data augmentation techniques. I also learn about some machine learning algorithms. Then I worked on the detection and recognition of License plates of vehicles in images and videos, preferably in live video feeds. I used the yolov4 and TesseractOCR algorithms to achieve my goal.

PS-I experience: My internship at Trangile Services Pvt. Ltd. was a fruitful and fun experience. I got to learn a lot of new things under the guidance of a very learned and helpful mentor.

Learning Outcome: I learnt about image processing techniques, data augmentation techniques, machine learning algorithms and computer vision in general.

Name: AVI GOYAL . (2020A7PS0179G)

Student Write-up

PS-I Project Title: Video Analytics -License Plate recognition

Short Summary of work done: During The first week Python was brushed up on along with a lot of mathematical concepts that are common with m1,m2,m3 and pns courses of the college curriculum.Then after that we worked on image transformations such as

rotation , shearing ,translation ,etc on multiple image sets.After that we learnt about the technique of image augmentation as our dataset was not vast enough to cover all real life scenarios.So we performed superimposition of our image on different backgrounds with random transformations such as scaling or shearing, etc.Extra noise was introduced as well to create a more all encompassing dataset.
Then i learnt the different machine learning techniques present and how they work so that later on we could do a comparative study of their accuracy for our use case.I learnt the naive Bayes algorithm for more than a week and then gave a presentation on it.We were then assigned our end project which was to create a software capable of running an ml model in realtime on a video stream such that it can identify any license plates present in the image and extract the text from them .Working on this problem statement over the course of 3 week we were able to get a pre trained yolo v4 model with our custom weights for license plate recognition and were able to extract each license plate with very high accuracy .The main issue was the license plate was at obscure angles and sometimes hard to read so the tessaract ocr engine that was used for the extraction of the text wasn't returning great results

PS-I experience: A good learning experience.Experience new corporate and formal interactions and learnt a lot from our excellent mentor.

Learning Outcome: New ML techniques were learnt.
Learnt how to identify a problem from a problem statement and solve it procedurally using ml.
Learnt how to Do a lot of image operations.
Learnt to solve some basic computer vision problems

Name: VANSH GUPTA . (2020A7PS0315P)

Student Write-up

PS-I Project Title: Computer vision

Short Summary of work done: I worked on creating a facial recognition system using certain machine learning algorithms.

PS-I experience: It was a fun experience. Our mentor was very enthusiastic and I got to learn a lot from his experience.

Learning Outcome: I got to revise my basic mathematics taught in 1st and 2nd year. Also image processing ,adding and removing noise from images and the basic ml algos and how to implement them.

Name: ARVIND RAM . (2020A7PS1210P)

Student Write-up

PS-I Project Title: Face Recognition

Short Summary of work done: During the PS I worked on a face recognition software where I tried implementing different ML algorithms and learned about each one's pros and cons.

PS-I experience: My PS-I experience was very educative. My PS mentor was very helpful in helping me understand the concepts and gave me enough time and guidance to implement what was asked of me.

Learning Outcome: I learnt about the various machine learning algorithms and got work on practical issues.

PS-I station: Truck book , Mohali

Student

Name: DHRUV VARSHNEY . (2020B3A40865P)

Student Write-up

PS-I Project Title: Machine Learning and Data Science internship

Short Summary of work done: The modus operandi that we followed was : Our mentor Tanmay Singla would assign us some learning tasks to help us learn a particular concept in machine learning and then we would work on some industry use case of it. We worked on various different tasks like finding the number of times a particular user opened the app and in which state he opened i the maximum number of times. All of this was followed by presenting the data as per Truckbook's needs. For a large chunk of time we worked on web scraping and automation . I have worked and created algorithms to work on datasets having 600000+ entries , crawled and extracted data from 500+ links using proxy IP Addresses . We were given a lot of small tasks to help us learn about various different concepts like python, pandas, json readers, api calling, numpy, scikit, image processing using opencv, beautifulsoup, selenium webdriver, working with proxies, regex etc. By the end of our internship at Truckbook we were quite confident with our data science and machine learning skills and thus setting up for rest of our career.

PS-I experience: My mentor was highly highly supportive. A normal day as an intern at Truckbook would go in the following manner: We would have a morning meet with our mentor Tanmay Singla at 11'o clock where we would be assigned a task . This task on an average took a week to complete. We had meetings monday to friday at 11:00 AM and 7:00 P.M. where we would discuss our updates with our mentor and discuss about any difficulty that we faced while completing the tasks or any part of it. We total of 5 interns(3 BITSians and 2 non- Bitsians) and we would work collaboratively to complete a task, helping each other out whenever possible. Thus it became a highly enriching learning experience.

Learning Outcome: My Internship experience at Truckbook was quite enjoyable. I learned a lot about professionalism, teamwork, and how things work in a company as large as truckbook. I learned about how a machine learning and data science team operates in a company and the general algorithm followed by it to solve a particular data science problem. Completing the everyday task gave me deep knowledge about machine learning and data science. Technical learning includes- learning about python, pandas, json reader, webscraping, webscraping using proxies, webscraping using selenium webdriver, scikit, numpy, OpenCV(image processing and face recognition)

PS-I station: Urjanet - Tech , Chennai

Student

Name: SHASHWAT TRIPATHI . (2020A3PS2210H)

Student Write-up

PS-I Project Title: Identification of complexity of tickets-Analysis Automation

Short Summary of work done: The work revolved around the tickets generated when there was a problem related to the extraction of information from bills generated.
The task was to sort the tickets into different categories depending on the time it took to resolve the ticket and the problem that occurred.

PS-I experience: The experience was actually good despite the work of mode being Online; the mentor allotted to us was really helpful and easily approachable. We had a daily meet-up to discuss the work done and what we wanted to do going forward.
Our faculty was also really helpful, and he had weekly meetings.

Learning Outcome: Java, Jira, Json, REST-API

Name: AGNIVA BANERJEE . (2020B3A70922P)

Student Write-up

PS-I Project Title: Development of Monthly Plots from the Real Data given from the company

Short Summary of work done: -> Learning Python from scratch.
-> Working on CSV files in python.
-> Graphical representation of one month's data on matplotlib.
-> Graphical representation of multiple months' data on matplotlib.
-> Understanding Selenium(for Automation) from the code presented by the company.
-> Constantly tried to make improvements in code- ways to make it short and concise and error free.

PS-I experience: It was good. Mentor, was always there to guide me.

Learning Outcome: It was good. Learned applications of Python and Matplotlib.

PS-I station: UST Global , Thiruvananthapuram

Faculty Name: Asish Bera

Farulty write-up
UST Global: applies the state-of-the ML/NLP tools such as GPT-3 for machine translation, Yolo-v7 for object detection and classification for various applications like fashion design, fire area, etc. classification. Whereas other group of students have worked for language translation using GPT-3 models.

Industry looking for in a -I intern

They focus on real world projects where an intern can quickly adapt and learn the latest technology to work in the project as a team in a timely manner.

Student

Name: G SAIKANTH . (2020A3PS0550H)

Student Write-up

PS-I Project Title: IMAGE BASED SEARCH

Short Summary of work done: CONTRIBUTION
Before starting our project, our first task was to find a suitable dataset on which we could implement our visual-based search engine. So I surfed through many datasets related to the fashion industry on google, found some good datasets on Kaggle and shared them with my fellow team members. We presented some datasets we collected and gave them to our mentor, who chose a dataset and asked us to work on it.
After the finalization of the dataset, our next task was to start implementing object detection models on the chosen dataset. The recommended models were yolov5 and f-RCNN. I researched these models and even tried implementing both of these models in our dataset. First, I tried implementing f-RCNN on our dataset, and the results I obtained were unsatisfactory. So I decided to implement the yolov5 algorithm on our dataset. I successfully implemented the yolov5 algorithm on our dataset, and it worked pretty well for a small subset of our dataset.The challenge I faced while training yolov5 in my local system was it worked pretty well for smaller number of images but when I increased the number of images, my system could not train it due to insufficient RAM, so i switched to google COLAB for training.
INVOLVEMENT
I have attended and actively responded to all the meetings held by our mentor every day at 7:00 pm.

I researched f-RCNN, YOLOv5, mmdetection models and even tried implementing some of these models in our dataset.
I learnt some basics about pytorch, openCV and streamlit python libraries.
PROGRESS
Coming to progress, we have successfully chosen a dataset for our project : the fashionpedia dataset, which had around 48k imaged. Our mentor asked to implement yolov5 on our dataset and we have successfully implemented it. We also made a UI using streamlit framework that takes in image either from webcam or device as input from the user and gives a list of fashion products and their important features detected in the image which enables further search across the web for similar products.

PS-I experience: EXPERIENCE
It has been a wonderful journey of 2 months, from the day of project allocation to the last day of the final presentation. After coming to know about the projects that the company was currently working on, it sounded a bit difficult, and everything was new for me in the field of AI/ML. I had to start learning everything about machine learning from scratch and spent some weeks learning the basics. Then I started researching computer vision on which our project was based. Next I had to learn about object detection models and some of the technical terms and their applications in training data. After learning about these things, I finally started implementing the training process on the chosen dataset. I faced a lot of issues while implementing the object detection models like insufficient RAM, non-availability of GPU in my system, overfitting results, annotation-format conversions etc. and I also spent a lot of time fixing these issues. Finally, after overcoming all these hurdles, we were able to create a UI using streamlit framework that takes in image either from webcam or device as input from the user and gives a list of fashion products and their essential features detected in the image which enables further search across the web for similar products.
The evaluation components were not too heavy, and our faculty in charge strictly took all our evaluations according to the handout. The industrial mentors from UST GLOBAL were very helpful right from the beginning and ensured our work proceeded smoothly.
So with some individual effort and technical help from mentors I successfully finished my project in the stipulated time, making my PS-1 a success.

Learning Outcome: LEARNING OUTCOME
At the beginning of PS-1, I was completely new to machine learning. Hence, I had to start from scratch. I spent some of the initial weeks in learning some basics about machine learning. Then I started learning about computer vision and object detection models. I learnt about f-RCNN, YOLOv5, mmdetection etc., models. I also learnt about standard annotation formats such as yolo format and COCO JSON format and the interconversion of these formats. While coming to the implementation of these models, I learnt some basics of Pytorch and OpenCV libraries. Coming to creating the web application, I went through the streamlit framework which was used to make the User Interface.

Name: NEHA MITTAL . (2020A3PS2324H)

Student Write-up

PS-I Project Title: Keyword Extraction using GPT-3

Short Summary of work done: The project aimed at us getting started with Python, with us first web-scraping a website called 'XKCD' which has an image for a comic everyday. There were many different libraries used like BeautifulSoap. Then we were introduced to OpenAI and GPT-3 and we used GPT-3 for the project of keyword extraction. I learnt and understood the working behind GPT-3. It is a machine learning model which takes a sequence of inputs and generates the output by using what the model has learned during its training phase. It started with an untrained model, it was trained on a huge dataset consisting of million tokens of text. One step of the training of GPT 3 is to generate multiple training examples. When the model generates the output, it'll be not a good output, that's because it's being trained, then we tell the correct answer and then calculate the error and then the gradients are adjusted using back propagation, we tell how much the prediction is wrong and that error calculation is fed back into the model, so that when the next time the model gives us the output, there'll be less error and more accuracy. GPT 3 takes each token at a time and also, outputs one token at a time. The main thing about GPT-3 is its size, it is a huge model, has 175 billion parameters. The parameters are stored into various matrices, generating the prediction is multiplying the matrices together by the inputs. When we process a word, we process the vector and it goes through various layers of transformer decoders and GPT-3 has 96 of these transformer decoders. It is trained on 'next word' prediction the transformer decoder will train the parameters so that it can predict the next word using a bunch of words at the input.

PS-I experience: The nature of the work is to create a keyword extraction tool, using GPT-3 model. We learnt about how the model GPT-3 works, how it is different from transformer model. OpenAI had released the GPT-3 model, leading to a huge breakthrough in the world of Natural Language Processing. GPT-3 can perform various tasks like text completion, text summarisation and so on. The design of the project was the integration of Streamlit with GPT-3 using a Python script. The model was tested on a number of input texts to see how efficiently it extracts the keywords from the text. As the model has been trained on enormous and diverse corpus of text via datasets, the model has a very good way of detecting the keywords. The model is very productive and can be used for detecting the keywords in search engines. The project of keyword extraction has some future aspects of being used in a search engine where if a person searches for something, for example, "a red t-shirt" then the keyword would be red and t-shirt, so that it would help the user in choosing the items and looking at only what they desire to see.

The project aims at doing more research and further, fine-tuning the keyword extraction model so that we can train it on our own dataset and make it more accustomed to our needs. There is so much potential in the field of GPT-3 and NLP, of fine-tuning the model and using another model, BERT for keyword extraction and then comparing the results of the two models. The further scope of collaboration would be for fine tuning and creating search engine.

Learning Outcome: I learnt about NLP, Keyword Extraction, creating webUIs using streamlit.

Name: KUSHAGRA VERMA . (2020A7PS0225H)

Student Write-up

PS-I Project Title: Computer Vision - Drone

Short Summary of work done: In order to learn about the tools used for object detection, I first worked in a group to make an Indian Sign Language Interpreter. Then I worked individually on identifying safe landing spaces for drones in urban areas.
Using a dataset from Kaggle and augmenting it using a platform called Roboflow, I trained a custom YOLO model (an object detection ML model) on Google Colab. The predictions from the model needed to be cleaned up using techniques like non-maximal suppression, and interpreted in order to gauge the safety of the landing spaces visible.

PS-I experience: The first week was spent on orientations and choosing project domains. After getting assigned a mentor, we went through learning material provided by them, before choosing a focus area to work on as a group. After a month, we chose individual focus areas to work on as our final project.

The flexibility to choose our own project was pretty exciting, even if we had to spend time researching focus areas. I had a lot to learn, but the workload was not too heavy, if managed properly. My mentor was helpful throughout the project, guiding me whenever I asked for help. All in all, it was a pretty fruitful experience.

Learning Outcome: I learnt a lot about computer vision and object detection, in terms of the tools used (YOLO, Roboflow, Google Colab, etc.) as well as the various concepts and techniques involved (intersection over union, non-maximal suppression, etc.)

Name: KUSHAGRA SAHNI . (2020A7PS0974P)

Student Write-up

PS-I Project Title: Image Based Search Engine

Short Summary of work done: UST has given us complete flexibility to determine our domain and project we wished to work on. Our PS1 started with deciding that I wanted to work on a Computer Vision project and formed a group for the same. We chose our topic as Image Based Search Engine for Fashion Products. The idea in our mind being say you go shopping and want to compare a shirts price online before buying in the market, you can simply click a picture and search it on say Myntra or you want to find what your friends wearing in an Instagram post so simply take a screenshot and search. For this project we had to build a machine learning model which detects all clothing/footwear objects in an image and hence we needed an object detection model. Next steps were to decide a database and a model. Choosing the right dataset was a hard task and it took us quite a bit of time and experimenting to finally arrive at the right one. Our mentor told us try out two models which go by the name of YOLO and Faster-RCNN. We researched them and trained on the two models and found better results on YOLOv5. So we went ahead and built a webpage around the same with Streamlit, an easy to code Python library.

PS-I experience: UST is a big company with working on various state-of-the-art technologies. Our mentor was very helpful throughout the project. UST is a recommend PS1 station from my side.

Learning Outcome: Machine Learning, Deep Learning, Neural Networks, Computer Vision, Object Detection, Image Classification

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Name: DHAVAL DARPAN MANIAR . (2020AAPS0305H)

Student Write-up

PS-I Project Title: Chatbot Creation Using NLP Models

Short Summary of work done: Our project was based on Natural language processing. We started off with learning python and some important libraries and then moved on to writing a web scraping automation script to extract data from a website. Then we moved on to the main task to study about openai to understand its functionality and use it to make different NLP apps. We learnt about training and testing data which is called fine tuning the model. We made custom models and the last part was to extract data from legal documents and train the model using the same

PS-I experience: The company was really helpful and good. We got to know a lot about how the corporate life is. The mentors were really sweet and approachable at all times. I liked exploring about Deep Learning models and it was a good experience working with a team.

Learning Outcome: Basic python, Web Scraping, Automation, OpenAI, Finetuning

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Name: RAHUL KARNA L K (2020AAPS0437H)

Student Write-up

PS-I Project Title: Chatbot development using NLP Models

Short Summary of work done: Our main aim was to create chatbot that would be able to respond to any query asked from a pdf/dataset. Firstly, we had to revise fundamentals of various python libraries to learn web scraping and automation. Secondly, we explored OpenAI & gpt-3 which would help us easily create a Q&A bot with its inbuilt NLP models. Next, we modified this Q&A bot into a basic chatbot in a python script. This was a generic chatbot. Now our next task was to finetune a dataset and feed it to the Chatbot. So, we explored many data sets and started working on the easily compatible one. Also, we wanted our Chatbot to be a webpage, so we used streamlit as UI for that purpose. Lastly, we had automated the model to extract data from pdf and convert it into a data set internally. Thus, we successfully made a Chatbot that would be able to give contextualized response from the pdf/source material provided to it. This chatbot model would be really useful for small scale companies. It can help them widen their customer reach and enable them to interact with them with ease.

PS-I experience: Working hands on with state-of-art technology like OpenAI and gpt-3 with the guidance of the project mentors was nice. All the mentors in our company were really friendly and made sure to help us go through with our project in a reasonable pace. Our project mentor constantly stayed in touch and was always available for doubts session to smoothen our progress. Also we were provided with proper documentation

and resources that were essential to the project. Overall it was a really wonderful learning experience.

Learning Outcome: I learnt a lot about state-of-art technology in NLP and AI which were extensively being used by companies these days. I also became more confident and skilled in web-scraping and automation using python.

Name: GHANEKAR SANIKA NACHIKET . (2020AAPS2111H)

Student Write-up

PS-I Project Title: Chatbot Creation using NLP Models

Short Summary of work done: My project domain was NLP, I learnt a lot about NLP and OpenAI, GPT-3. In the project I also learnt about automation, UI to Backend linking and the most important was learning to finetune the GPT-3 model. The project also included creating a dataset using conversion to text of legal documents of a company.

PS-I experience: It was a great first real world experience. It was great working with the mentor, and the team of UST Global as well as fellow classmates.

Learning Outcome: I learnt professional ethics, having to work in a team and cohesive learning as well as working environment. I learnt much more practical applications of NLP and GPT-3

Name: ANKITH PRAVEEN . (2020B4A70625G)

Student Write-up

PS-I Project Title: Drone Computer Vision

Short Summary of work done: My project was on "Drone Computer Vision and Object Detection using YOLO." YOLO is a state-of-the-art real-time object detection algorithm.

Initially in June, I was part of a group of four BITSians, and we worked together on an Indian Sign Language Detector using YOLOv3. After the Mid Semester Exam, we started focusing on individual use cases. I chose to make a wildfire detector using YOLOv7. The first group project helped me in learning about the resources and how to use YOLO on Google Colab (which gave us free access to Google's GPU which helped in faster processing). I found a wildfire image dataset containing 926 images on Kaggle, an online dataset repository. I used Roboflow to label, generate and partition (into training, testing and validation datasets) the image dataset. Then, using Google Colab, I trained the YOLOv7 algorithm to detect "fire" and "smoke" by applying bounding boxes on the image in the required positions. This training took 3.5 hours to complete after which the program could detect fire and smoke in any given image. Furthermore, I tested the algorithm on live video-feed as well so that the model can be deployed in drones to help in early detection of forest fires. This would be really helpful to extinguish the fire in its early stages.

PS-I experience: I had a great time working with the members of UST. My UST mentor provided ample resources for the completion of my project and helped me whenever I was stuck in any situation. BITS faculty member overseeing my internship, was also very active and ensured that all the work and report submissions were completed on time. Overall, all the work went very smoothly.

Learning Outcome: I had no experience working with AI/ML before this internship. The concept of a computer learning from its mistakes and correcting itself was something completely new to me. Working with the members of UST truly exposed me to a new field of computer science. The resources shared by my mentor were very informative and thorough about how to go about incorporating object detection algorithms in my project. The experience fundamentally changed the way I look at computers now, knowing that they can be taught to detect objects, read and interpret text, recognise accents, etc. as humans do.

PS-I station: William O Neil (WON)- India - Algo Trading , Bengaluru

Student

Name: SUKRITI . (2020A7PS0071P)

Student Write-up

PS-I Project Title: Pairs Trading with Kalman filters

Short Summary of work done: First we were provided with learning resources, then simple projects were assigned to make us familiar with backtesting. And at last we worked on the final project divided in groups.

PS-I experience: It was a great learning opportunity. The workload was not heavy. It was up to you how much you wanted to learn.

Learning Outcome: Python, Backtrader and knowledge about trading

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Name: AKSHAT AGRAWAL . (2020A7PS0994P)

Student Write-up

PS-I Project Title: Backtesting algorithm for pairs trading

Short Summary of work done: Initially we played around a little with pandas and numpy and datasets and learnt how to calculate correlations and do plottings. After that we made a miniproject in backtrader package of python, which generated buy and sell signals based on moving averages. And in the end we implemented the pairs trading strategy which used cointegration for identification of stocks and then used zscores and p values to calculate deviation from mean.

PS-I experience: It was a great experience throughout. I learned a lot of new things. I experienced how company officials interact and communicate and how all the things were so formally arranged. I learned more about python and it's packages. I also did a lot of reading about stock markets and got to know the usage of maths and probabilities in trading.

Learning Outcome: Corporate communication skills, python, backtrader package, the stock market, and probability theories were some things I learned during my PS at WON India.

Name: AKSHAT AGRAWAL . (2020A7PS0994P)

Student Write-up

PS-I Project Title: Algotrading

Short Summary of work done: The main objective of the project is to develop a software in python using the backtrader package that can be used to backtest the efficiency of "Pairs Trading Strategy" in the Indian Stock Market. We first have to identify correlated pairs from the many stocks which are traded in the exchange, and then backtest years of data to calculate the expected returns using these strategies.

PS-I experience: The initial experience was very new to me and very exciting. We were given official email ids, and were added to slack channels.
Initially interviews were also held so that the company knows our skills and our weaknesses and strengths so as to allot work accordingly.
There were a lot of seminars held by the PS faculty which were very informative and beneficial.
Before starting on the main project we were also given 2 basic projects so that we can get ourselves familiarized with the backtrader package and the company's FRM was constantly beside us and was always there to help us.
Biweekly meets were held so as to check up on our progress and to assign new work or to clear any doubts.

Learning Outcome: I learned the way people in companies communicate among themselves.
I learned the way to write code in a way the all people in the company can understand it well and make changes if needed.
I learned about risk management in a portfolio, sharpe's ratio, correlation, risk free rate, standard deviation and a lot more.
I learned about indicators like moving averages, Bollinger's bands.
I learned about Pairs Trading Strategy.
I brushed up my skills on Python and Pandas. I also used matplotlib.
I learned a completely new package, read its documentation and got to know how powerful it is and how to work on it efficiently.
I learned how to develop a strategy and how to backtest it for historical data which is more than 15-20 years old.

Name: H R VEDANTH . (2020AAPS0248G)

Student Write-up

PS-I Project Title: Backtesting Trading Algorithms

Short Summary of work done: My project involved replication of trading startegies using Python and the Backtrader Python framework. Backtrader is a Python framework for backtesting and trading and helps write reusable trading strategies, indicators, and analyzers instead of spending time building infrastructure.
Initially, during the learning phase, we had to replicate Moving Average Crossover Strategy and Statistical Arbitrage using Pairs Trading strategy.
Finally, we had to research and implement Principal Component Analysis method to select pairs of stocks for Pairs Trading.

PS-I experience: PS-1 has been an exciting and very fruitful experience for me. Initially, I had a surface level understanding of some concepts in finance. Through my work at the company, I have gotten to read and learn multiple trading strategies and methods to implement them.

Learning Outcome: I got to learn more about finance and investment. I learned how to code trading strategies in Python and implement them using Backtrader. I have an improved understanding of and appreciation of the corporate world.

Name: MEHAK AGARWAL . (2020B3A70868P)

Student Write-up

PS-I Project Title: Pairs Trading using Time Series in Backtrader

Short Summary of work done: I made strategies in Backtrader. Initially they were just simple ones to learn the functionality of Backtrader and eventually I worked on developing and coding out a method of selection and trading pairs of stocks (automatic trading using signals). The selection procedure included checking for co-integrated pairs, and then, using a Gaussian Space State Model; the logarithmic spread of the returns of the two stocks in the pair is checked for some given parameters.
We then trade some of the pairs that clear both these checks using signals on backtrader. We use a rolling train and test model to keep updating the portfolio. The model was slowly

developed to include more and more of the above mentioned features over the course of PS.

PS-I experience: My PS-1 experience was very hands-on and coding intensive so it helped me get comfortable working on bigger projects. Our mentor would hold regular meets (usually three times a week) to take progress updates, discuss possible approaches to problems, and tell us the next steps. Resources were shared adequately in the first couple of weeks after which we were expected to figure out everything ourselves.

Learning Outcome: The packages that we used the most were Backtrader, Pandas, and Numpy. Apart from this we were asked to learn SQL also altho we did not use it. I had to read research papers about pairs trading and its multiple mathematical methods of implementation and in general, I learned to create and backtest strategies for algo-trading.

Name: RAUNAK BHALLA (2020B4A70859P)

Student Write-up

PS-I Project Title: Algo Trading

Short Summary of work done: Our Project was Project – Statistical Arbitrage
The Statistical Arbitrage is a computationally intensive approach to algorithmically trade financial assets. It involves the simultaneous buying and selling of security portfolios according to predefined or adaptive statistical models.
This technique was used by us for Pair Trading which involves two important steps:
Finding an appropriate co-integrated pair of stocks whose stock prices are expected to behave in a similar way. This is done by performing a Stationary test (The augmented Dickey-Fuller or the ADF test) for the Selected Pair.
The second part involved generating trading signals using z-score of the spread of the pair of stocks.Our team worked on writing a python code using backtrader library to implement the algorithm behind this strategy. This strategy has a comparatively higher winning probability than most of the other competing trading algorithms.
We trained and tested it using rolling train test model over 10 years of stock price data and performed this task for multiple pairs of stocks.
In the second half of my project, I was guided to study about the Kalman filter based models and to implement it in our back-testing algorithm. With the help of the Kalman filter, I was able to make the spread of the stocks being traded more stationary and mean

reverting. This helped in improving the performance of our code by using a dynamically updated hedge ratio instead of a constant one.

PS-I experience: Our assignment concluded with us learning multiple technical skills such as
pandas, numpy, SQL, Backtrader and much more as well as soft skills such as presentation skills, time management, and team work which helped us gain an understanding of how to
work in a professional environment. Overall, it was a fruitful experience.

Learning Outcome: Learnt about Algo trading (Pairs Trading), SQL, Python libraries like Backtrader and Pandas, Kalman filters and knowledge about stock markets in general.

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