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| OTAGO POLYTECHNIC AUCKLAND INTERNATIONAL CAMPUS |
| Reflection Report |
| Predictive Policing |
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**Graduate Diploma in Information Technology**

We have explored machine learnings and deep learning in our mini-project to create and improve a model to predict the risk of crime in a particular location and day. We have carried out our project in a group of three and have one consultant who helps us to improve our data science knowledge. The implementation time is 16 weeks and has been split into two parts. Our project has been split into four separate sprints. During every sprint, we alternately take on the position of the project manager, scrum master and developer. Since the beginning to the end of this study, everyone has made an equal effort. Each person in a group works as a full stack developer.

There are five main insights I acquired in this project. First is to use tools for project management that helped us coordinate our tasks and actions. Secondly, the ability to play a role as project management, scrum master and developer, which gives me a sense of responsibility and a sense of gratitude. The third is using Microsoft Power BI and Tableau commercial tools to evaluate our datasets. The fourth one is to learn the data science life cycle, which has helped me to understand each phase better. Eventually, I've learned to interact with my colleagues.

At first, because of the lockdown situation, I thought contact to be one of our challenges. But, it turns out that things went because we used Project Management software like Jira, Trello, and Bitbucket to work and handle most of our tasks. I recognised its importance and learned directly how these tools coordinate our project, eliminate miscommunication, identify challenges and manage the objectives easily. We can see all the tasks in Jira, and allocate them to our names. We can mention the details inside the tasks. As we store our documents in teams, our codes in Bitbucket and use Trello as a checklist, it makes us effective. Our Jira dashboard and our linked Bitbucket repository make it easier for us to store Jira-task code. However, we use the Teams and WhatsApp as a medium of communication for our daily meetings.

We have learned the basics of data science and machine learning from the class. It is useful to have a good understanding of the concepts and programming languages such as Python and Object-Oriented programming because most of the tasks are research and reviewing someone’s code on the Internet. We would not be able to understand how the ML code works if we lack the basic skills. Math is extremely important in feature engineering and data visualization. By understanding how the data behaves in math will lead to a creative way to solve the problem.

The data science project is completely different from software projects. In software development, we prepare a very clear requirement and technical solution before the implementation. Otherwise, it will be the change requests when we need to modify the software. One major thing that I have learned is the process of the Data Science lifecycle. I did a lot of research to understand and decipher how to relate it to our project. Every time we find any helpful resources about it, we share the link in Trello for everyone’s visibility. After learning about Data Science lifecycle, it changed my perspective and infer that it is different from the software development lifecycle.

In the data science project, we would suggest that there is no one time process. All tasks need to be studied, applied, checked and improved in the development cycle before we can produce an acceptable result, in our case, the predictive models with reasonable accuracy scores. Then the models will be accurate only for a time its not limited it would be required to develop again when we have more new data and new requirements.

During 16 weeks, we work as a group. Everyone has assigned different task for each phase with different responsibilities. Apart from me, my team members are very experienced and knowledgeable about their experience in the past. I learned a lot of things from them which I never experienced before. I felt my opinion and suggestion were counts. I was able to apply my previous experience from my jobs more in programming, research on different topics, and explore new tools to make our problem easier. In the beginning, I took a smaller python and data science courses on LinkedIn learning, watch and learned from youtube videos to start our project. And get familiar with python language. On the academic point of view, I learned from this project various resources, different python libraries, how to analyse Microsoft excel by using pivot table and power query, descriptive analysis of different datasets, solved troubleshoots with different IDE to link code in python environment and resolved error while coding. We can communicate and share our errors with each other to solve it with different inputs. By working as a group, I played as my team player role perfectly with the results of my task, communication and helping each other to make our documents. Everyone is approachable; we acknowledge our mistakes and help one another to improve our results.

To sum up, From this mini-project, I learned important skills such as, leadership, problem- solving, team player, and most important is understand each other language and give value to each other’s feedback and thoughts, that I should have for my professional career. After acquiring understanding about Data Science, this helps us to be achieved this project as expected. As I continue and pursue my IT career, this experience will be my foundation to be successful. This project is a basic platform for me to move forword in Data Analyst job. I will apply all the concepts I've learned, and I'm more comfortable to work in a team.