



**CHAMELEON**  
FOR OUR SMARTER WORLD

Task 11.2P

Chameleon



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## Executive Summary

### Our Mission

Given the complexity of energy application needs today, IoT systems are being designed to address a wide variety of existing problems.

At Chameleon, our mission is to research, create, test, document and deploy IoT-based solutions to enhance life through the application of smart city technologies. Including the building of smarter cities, homes, transportation, and energy management systems.

### Our Structure

Four active company divisions,

Chameleon Security (CS)

City of Melbourne Open Data (MOP)

Chameleon Website (CW)

Electric Vehicle Adoption Tools (EV)

### Chameleon Security

The Chameleon Security Project engages with the City of Melbourne Open Data Project (Melbourne Open Playground – MOP), Chameleon EV and the Chameleon Website Project, to perform security testing, development of security guidelines, and recommendations, to guide the other projects in the security of their systems and applications. The Chameleon Security Project was formerly engaged under the MOP Project, however, has been separated to operate as its own entity, to enable security testing of all projects that fall under the Chameleon company.

### City of Melbourne Open Data

The City of Melbourne Open Data partners with The City of Melbourne to support knowledge expansion and application development among businesses, researchers and software developers. Using an educational platform 'The Melbourne Open Playground' (MOP) explores the potential applications of Open Data, aligning its initiatives with Melbourne's Smart City strategies.

### Chameleon Website

The Chameleon Website is a user-friendly and informative gateway to the Company, it targets potential clients and the public to showcase the company's initiatives and achievements. The website continues to evolve aimed to enhance user experience and engagement using responsive design, mobile optimisation and SEO strategies. These objectives aim to communicate Chameleon's vision and projects to create a dynamic and secure online presence.

### EV Adoption Tools

The EV Adoption Tools project is dedicated to promoting the increased adoption of Electric Vehicles (EVs) in Australia. This initiative supports the reduction of fossil fuel dependence, decreases greenhouse gas emissions, and positively impacts the environment.

## Leadership Team

**Acting Director:** A/ Prof. Chathu Ranaweera (Associate Professor)

### Chameleon Security

**Communications Lead:** Nathan Tien Le Nguyen

**Code Lead:** Kartik Kaushik

**Coordination Lead:** Theodore Savvidis

**Leaders:** Theodore Savvidis, Kartik Kaushik, Nathan Tien Le Nguyen, Miriam Azmy, Hamish Andrew Burnett, Pascal Traczewski, Shuodong Xing, Su Myat Win

### City of Melbourne Open Data Project

**Project Leads:** Mollie Fernandez, Te' Claire, Alison Collins

**Data Science Team Leads:** Rhutavaruni Kharade, Harley Ngo

**Web Development Team Leads:** Kasey Wu, Sakif Hasan

**Leaders:** Kashish Bansal, Madhuvaishali Thakoor, Mukul Singh, Samiha Haque, Sim Simranjit Singh, Hoang Duy Vu, Thomas Rostov, Suraj Kuwar, Adrian Thilina Weerasinghe, Akintomiwa, Katrine Chan

### Chameleon Website

**Leaders:** Chris Hole, Matheesha Nirvan Palliyaguruge, Varun Chaudhary, Umair Mohamed Feroze

### EV Adoption Tools

**Project Lead:** Akshit Singh

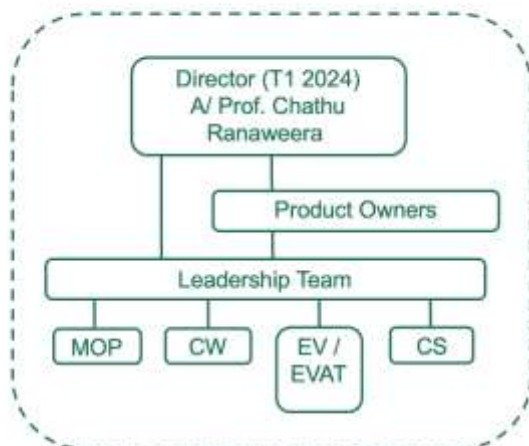
**Data Science Team Lead:** James Davies

**Web Development Team Lead:** Akshit Singh

**Mobile App Development Team Lead:** Kaelen Mackinnon

**Leaders:** Akshit Singh, Kaelen Mackinnon, James Davies, Yuvraj Singh Sekhon

## Company Structure



## Mission & Vision

Our goal is to use IoT technology to create and implement smart city solutions that are efficient, sustainable, and improve energy use, transportation, and urban living.

@Chameleon-Company

## Trimester 1 Goals and Objectives

This trimester Chameleon seeks to continue the development of its independent security team, to strengthen the security of all digital products within Chameleon helping to quickly identify and secure any potential attack vectors. The City of Melbourne Project seeks to develop more use cases and implement existing use cases and get the site up and running. The website team seeks to further enhance its UX and design (focusing on the mobile experience) and implement multiple backend services (such as Firebase and Mailgun) and transfer from AWS to GCP hosting solutions. The EV Adoptions Tools project seeks to develop a website and mobile app that can support multiple use cases including optimisation of EV charger locations and EV route planning aligned to user preferences.

## Trimester 1 Company Showcase Video

<https://deakin365.sharepoint.com/:v:/r/sites/Chameleon2-Chameleon-Leadership/Shared%20Documents/Chameleon%20Leadership/Trimester%201%20-%202024/Showcase%20Videos/Company%20Showcase%20Video/Chameleon%20Company%20Showcase%20Video.mp4?csf=1&web=1&e=Krpbee>

## Projects Overview

### Chameleon Security

#### **Overview**

The Chameleon Security team intends to operate independently within the company with a dedicated focus on strengthening the digital security of its projects. This trimester the security team aims to align its work with the Melbourne Open Data Project (MOP) and Chameleon Website Project. The overarching goal is to proactively identify and address potential vulnerabilities, as shown through different initiatives. E.g. SQL Injection testing, compliance audits aligned with national and international security standards, and the execution of a variety of security attacks, (including ARP Spoofing, Header Injection attacks, and Directory Traversal attacks, on both the Chameleon and MOP websites).

As a team, we will be working closely with the Chameleon Website Development team to ensure high-quality security, and through this collaboration, it will improve the overall project where possible. The security team will aim to not only work on the security of the projects and web pages of the company, but also encourage the development of the wider project, through documenting findings, and using problem solving, to aid in the growth of the wider project landscape. Ultimately, this will also aid in the project handover at the end of the eleven weeks.

#### **Goals and Objectives**

The project includes the development of a training program which includes the usage of the security applications, identifying potential vulnerabilities and ensuring the platform's robustness, to ensure that the platform concretely demonstrates the practical application of open data. It is designed to meet the needs of a variety of stakeholders, including industry professionals, government agencies and academic researchers. The aim of this project is to find the different vulnerabilities in the Chameleon and MOP websites, by usage of the different attacks such as SQL Injections, XMAS scans etc, while the long-term aim is to encourage the use of data and provide innovative and informed solutions to contemporary issues within Melbourne City Council.

#### **Aims This Trimester**

The aim for this trimester, is to continue the smooth transition of the security team from the other teams. While we will still set out to perform security tasks on behalf of the other teams, we will also focus on performing our own tasks as well. Following this, the aim for this trimester, is to perform security testing, develop security guidelines & lastly, to recommend other projects, security features & vulnerabilities that the development teams should be aware of.

## **Deliverables**

- Collaborate with City of Melbourne (MOP), and Chameleon Website teams, to create a Security page on both websites.
- Perform Authentication and Authorization testing, to ensure only valid users are allowed to access the website.
- Contact HardHat Company, to enquire about collaboration between companies.
- Document current security attacks and how Chameleon can harden web applications to stay protected from cyber-attacks.
- Develop various security policies and procedures. This includes documenting various policies, covering Privacy, IoT, Intellectual Property, Remote Access, Security Awareness and Training, Access Control, Network Security, and Incident Response plans.
- Complete Security auditing, and Compliance Auditing, in line with national and international security standards.
- Inspect DNS configuration on the Chameleon website, and address security vulnerabilities.
- Conduct and document Cyber Security Risk Assessment and a Third-Party Component Assessment.
- Execute SQL injection attacks on the Chameleon, and MOP websites, to ensure the database cannot be manipulated.
- Carry out ARP Spoofing attack on the MOP website and document findings.
- Perform Input Validation for MOP website, to detect, and prevent malicious input.
- Perform Directory Traversal attack on Chameleon website, to prevent other files on the server from being accessed.
- Perform Port Scan on both MOP and Chameleon websites, to identify open ports which can be used for malicious activity.
- Perform Header Injection attack on Chameleon website.

## **Summary of Achievements:**

Over the past 11 weeks, the Security Team has completed a range of operations, involving both offensive, and defensive security, policy development, and security awareness, to ensure the security of the Chameleon organization. As both the Chameleon, and MOP websites are now running, this provided an increased attack surface, upon which attacks could be performed. A range of attacks, and tests, have been conducted, against the EV applications, Chameleon website, MOP website, and other tests that are related to the overall Chameleon company. These attacks and tests have included Vulnerability Testing, against the EV mobile app, Cross Site Scripting, Directory Traversal Attacks, Nessus Scans, and User Input Validation, on the MOP website, and a Secure Coding Review, HTTP Header Analysis, and Clickjacking attack, on the Chameleon website. Tasks completed for the overall Chameleon organization, include various policies, on topics such as Network Security, Data Encryption, and creating Backups of Data. A Phishing report has also been created, in addition to infrastructure required to perform Security Operations roles, in future trimesters.

### Security Project Team Members:

Name	Student ID	Semester Contributions
Leader <b>Miriam Azmy</b>	220268915	Over this trimester, I have made both technical and leadership contributions. Along with other leaders I have coordinated meetings and guided junior students with their technical contributions. Additionally, communicating with leaders from other divisions enhances communication across teams and opens pathways for the rest of the team. I have also published several reports for incident response planning business continuity. For my lasting and technical contributions, I have designed an end-user patch deployment software for the team to work on in future.
Leader <b>Hamish Andrew Burnett</b>	222282244	<p>Over the trimester, I have completed a range of tasks, including both technical, and leadership tasks.</p> <p><b>Technical Contributions</b></p> <p>I have performed an SSL Certificate Verification, AI Dataset Audit, and an audit on the Chameleon organization's Essential Eight maturity. I performed upskilling, on each task, to ensure high quality assessments. Once the testing was complete, a detailed report was developed for each test, which was then published.</p> <p><b>Leadership Tasks</b></p> <p>I have developed several presentations, and weekly summaries, of the progress of the Security team, and presented these at several leadership meetings. I have participated in a number of leadership meetings, contributed to the group tasks, and 11.2P video, hosted several Chameleon Security meetings, and provided assistance to juniors, through answering questions, and providing guidance.</p>
Leader <b>Nathan Tien Le Nguyen</b>	221365574	<p><b>Leadership</b></p> <ul style="list-style-type: none"> <li>Supported Chameleon Security Leadership tasks including: <ul style="list-style-type: none"> <li>Assigning students to the correct groups</li> <li>Leading activities</li> <li>Coordinating group tasks</li> <li>Providing task execution guidance</li> <li>Assisting students with their tasks</li> <li>Participated in the following Chameleon Leadership meetings &amp; Chameleon Security meetings</li> </ul> </li> </ul>



Name	Student ID	Semester Contributions
		<b>Technical Tasks</b> <ul style="list-style-type: none"> <li>• Executed a DDoS mock attack with Theo and created a corresponding DDoS theory document</li> <li>• Co-authored a guide on performing a DDoS attack with Theo</li> <li>• Co-developed a Security Policy document with Theo</li> <li>• Engaged in leadership tasks and delivered a Chameleon Security slide leadership presentation</li> <li>• Authored a mock brute force attack guide document</li> <li>• Completed the following Technical tasks: <ul style="list-style-type: none"> <li>○ Co-wrote a Trello Board Guide with Theo</li> <li>○ Developed an MS Teams Guide</li> <li>○ Conducted a mock port scan &amp; Developed a Mock Port Scan Guide</li> </ul> </li> </ul>
<b>Leon Jude Netto</b>	218723755	<p>Throughout the trimester I attempted to enhance my skills in various aspects of cyber security. I constructed a Clickjacking attack which involved researching and upskilling in Burp Suite. As part of the attacks, I upskilled in HTML, CSS and JS to develop my own malicious webpage. I researched and constructed a Host-Header Injection attack that would exploit and redirect users of the Chameleon and MOP websites to another page. I attempted an SSL/TLS Decryption for the MOP website to try and decrypt the traffic in Wireshark to potentially leak sensitive information. I documented a Digital Preservation Policy for Chameleon and conducted a Cyber Risk Assessment for the MOP website. All assessments completed were heavily researched with upskilling included in Burp Suite, Port Swigger, W3Schools, YouTube videos and various security policies and procedures. I also attended (all but one) team meetings and even hosted and took minutes for a team meeting.</p>
<b>Leader Theodore Savvidis</b>	220562771	<ul style="list-style-type: none"> <li>• Attended Chameleon leadership meetings</li> <li>• Attended Chameleon Security Team Meetings</li> <li>• Completed my OnTrack tasks for myself and the company wide tasks.</li> <li>• Upskilled in ITL to be a leader and manage.</li> <li>• Performed a DDoS attack with Nathan</li> <li>• Collaborated with Nathan on a network security project</li> <li>• Upskilled in what DDoS attacks are and how they're performed</li> <li>• I led the Chameleon security team as a leader to guide the junior students.</li> <li>• Co-authored a security policy document with Nathan</li> </ul>

Name	Student ID	Semester Contributions
		<ul style="list-style-type: none"> <li>Assisted with the creation of the Chameleon security team presentation for the leadership meetings</li> <li>Participated in upskilling by learning and participating in an SC-900</li> <li>Upskilled in a Microsoft crash course.</li> <li>Booked the exam, undertook the exam and passed thus obtaining the certification</li> <li>Upskilled in the technical task of forced browsing</li> <li>Performed a forced browsing attack on the Chameleon website and drafted a report based on the findings.</li> <li>Created a how to guide on Trello</li> </ul>
<b>Leader Kartik Kaushik</b>	221453995	<p>Over this trimester I have completed a range of tasks in terms of technical and leadership tasks. The contributions are as follows-</p> <p>Technical contribution-</p> <ul style="list-style-type: none"> <li>I have performed a bunch of attacks and scans throughout this whole trimester.</li> <li>The things include the API TESTING, VULNERABILITY SCAN OF CHAMELEON WEBSITE, port scan on MOP SITE etc.</li> <li>I have done upskilling on each tasks and attacks which I have done so that the attacks are successful and well presented to the peers and faculties.</li> <li>After the performance of these tasks I summarized in the form of a report.</li> </ul> <p>Other contribution</p> <ul style="list-style-type: none"> <li>Attended the weekly meetings, otherwise watched the recordings</li> <li>Helped my peers and did the reports together with them.</li> <li>Did me-in-minutes and represented my company.</li> <li>Did code lead in my company</li> <li>Participated in the weekly leadership meetings and provided the help to the juniors whenever they needed.</li> </ul>
<b>Adam Tay</b>	213149152	<ul style="list-style-type: none"> <li>Attended weekly meetings where possible, otherwise rewatched meeting recordings</li> <li>Researched and upskilled on different cyber security policies and procedures</li> <li>Throughout the trimester, I have developed the following security policies for the company:</li> </ul>

Name	Student ID	Semester Contributions
		<ul style="list-style-type: none"> <li>○ Access Control Policy</li> <li>○ Network Security Policy</li> <li>○ Password Management Policy</li> <li>○ Bring Your Own Device Policy</li> <li>○ Monitoring and Logging Policy</li> </ul>
<b>Adam Sarin</b>	217342706	<ul style="list-style-type: none"> <li>● Undertook a lot of Upskilling</li> <li>● Attended Chameleon Security Team Meetings</li> <li>● Overlooked past students documentation for help understanding what has been done and what needed to be done</li> <li>● Wrote a report on Cross-Site Scripting on the MOP website.</li> <li>● Finished another report where I attempted to identify any open ports on multiple copies of the MOP site.</li> <li>● Wrote my final report in regards to Hidden files and additional vulnerabilities where I attempted to find resources that were hidden on MOP that could potentially be taken advantage of.</li> </ul>
<b>Adrian Thomas Thaus</b>	222275741	<p>Weeks 1 to 3 I familiarized myself with the company's pages. Starting the 'Collaboration with HardHat' task, I brainstormed collaboration ideas, methods of organising, and who to contact before establishing that our limited tasks meant collaboration wouldn't be viable and so I discarded the task.</p> <p>Weeks 4 to 6 I experimented with the Evoleon app, creating the 'Vulnerability Test Evoleon APP' task. Upskilling in this area, I hoped to discover opportunities for testing and outlining details for the task.</p> <p>Weeks 6 to 8 I experimented with methods of compiling the app for a real-world environment, providing opportunities to test a variety of devices, specifically testing for root checkers. I conducted analysis of the decompiled app in search of unsafe code practices and hard coded information.</p> <p>Weeks 9 to 10 I finalised my report, highlighting my processes and unused ideas for tasks and investigations in the future of this area.</p>
<b>Ahmad Rahman</b>	222035605	<ul style="list-style-type: none"> <li>● During my first weeks, I spoke with people and gained an understanding of the unit and its requirements</li> <li>● Throughout this unit, I did a lot of upskilling for various subjects including GitHub, Trello as well as my task upskilling which includes Burp Suite, SonarQube, Kali Linux Testing, SAST, Penetration Testing, Secure Coding Review.</li> <li>● I attended all the weekly meetings in which we discussed our weekly updates, progress and gave</li> </ul>

Name	Student ID	Semester Contributions
		<p>feedback on our work. In addition, we also discussed some stuff with the mentor as well</p> <ul style="list-style-type: none"> <li>• I conducted a secure coding review in which I documented my findings of coding vulnerabilities and discussed secure coding practices and optimal coding practices for efficient and secure codes and did a pull request through GitHub</li> <li>• I did a penetration test on the MOP website using Burp Suite</li> <li>• I did SAST using SonarQube on the source codes and documented my findings</li> </ul>
<b>Bipanjeet Singh Sodhi</b>	222093716	<p>Did independent research and report making on:</p> <ul style="list-style-type: none"> <li>• Looked at the previous trimester reports and aligned myself with the expectations.</li> <li>• Did upskilling on the selected topics and spent a good time reading articles and watching educational YouTube videos.</li> <li>• Attended team weekly meetings and updated the mentors on the weekly progress.</li> <li>• PORT scanning on MOP website, which included XMAS, NULL, SYN, FIN scans on the website.</li> <li>• Created a data retention policy which classifies the data as sensitive, internal or public and also the rules regarding their disposal.</li> <li>• Wrote another report on Directory Traversal attacks on the MOP website and did hands on testing using GoBuster to scan for vulnerabilities with the directory.</li> </ul>
<b>Brock Dylan Alexiadis</b>	220256787	<ul style="list-style-type: none"> <li>• Port scan on MOP website</li> <li>• Nessus scan on new mop website</li> <li>• smartphone security policy document</li> <li>• cybersecurity questionnaire</li> </ul>
<b>Dan Blair</b>	223215521	<ul style="list-style-type: none"> <li>• Setup Local Hosting of the MOP Website using source files, Python &amp; Unicorn.</li> <li>• Performed Port Scanning on the MOP Website identifying multiple addresses.</li> <li>• Conducted Manual Website Observation &amp; Analysis of the MOP website using Wireshark and Chrome Developer Tools.</li> <li>• Undertook MOP Website Vulnerability Scanning using Nikto. Identified issues including missing security headers and potential SSL-related vulnerabilities.</li> <li>• Developed a CoAP client-server environment using asyncio &amp; aiohttp libraries.</li> </ul>

Name	Student ID	Semester Contributions
		<ul style="list-style-type: none"> <li>Performed IoT device network simulation, a DoS attack and mitigation strategy.</li> <li>Developed an overarching IoT Policy Document for Chameleon.</li> <li>Created a CoAP client-server setup &amp; walkthrough guide.</li> <li>Developed reports on CoAP network attack &amp; mitigation strategy and outcomes.</li> <li>Engaged in Weekly Team Meetings.</li> <li>Assumed the role of team meeting minute-taker over multiple weeks.</li> </ul>
Harry Tierney	221190865	<ul style="list-style-type: none"> <li>Completed Phishing Report through GoPhish/Kali Linux, detailing the need to test Chameleon Students against phishing campaigns.</li> <li>Developed Strategy surrounding Phishing within Chameleon that could be enacted in the future, needs approval.</li> <li>Began developing Incident Response Management Plan, detailing action plans for current systems and how Incident Response may look like for the Chameleon Security Team.</li> <li>Created Incident Management Playbook, detailing necessary steps to rectify attacks on different systems, tech stacks etc.</li> <li>Engaged in all weekly team meetings, to provide updates on my work and gain direction from Seniors.</li> </ul>
Jason Galletti	219594483	<ul style="list-style-type: none"> <li><b>Completed</b> Vulnerability Scans on Chameleon and MOP websites</li> <li><b>Completed</b> DNSSEC report and testing.</li> <li><b>Completed</b> Chameleon Company Infrastructure Security Report.</li> <li><b>Completed</b> GCP DevSecOps model and logical diagram.</li> </ul>
Jesvin Sabu	222052497	<ul style="list-style-type: none"> <li>Attended weekly team meetings and shared my progress with my tasks.</li> <li>Performed User-input validation on the MOP website locally hosted on my kali machine.</li> <li>Completed a report SQL documentation which can guide someone not familiar with SQL language and databases.</li> <li>Completed a report on Incident response and planning for Chameleon company and it includes responses to companywide incidents like DDoS attacks, data breach and ransomware attack.</li> </ul>

Name	Student ID	Semester Contributions
<b>Julian Holland</b>	220330887	<ul style="list-style-type: none"> <li>Contributed in every weekly meeting, either through direct attendance and interaction, or chat updates based on current workload.</li> <li>Built and hosted MOP website on local machine for testing purposes</li> <li>Performed web app vulnerability assessment on MOP website using OWASP ZAP. Documented findings and provided recommendations</li> <li>Collaboration with other students to assist in work, through in person meetings and online chat</li> <li>Created red team attack cheat sheet for various CLI tools and useful information.</li> <li>Began development on slowloris DDoS vulnerability assessment and report.</li> <li>Hosted weekly meeting</li> </ul>
<b>Rewniz Patell</b>	221267802	<ul style="list-style-type: none"> <li>Performed the SQL injection test on MOP website and created a report. This project was shared with Usman Tariq of Chameleon Security.</li> <li>Researched and upskilled regarding security logging and monitoring procedures and best practices, and created a report recommending mechanisms Chameleon can implement, and related to OWASP top 10 threats.</li> <li>Completed a phishing awareness and training report, so implement better awareness of phishing and how to mitigate attacks within Chameleon.</li> <li>Created an Account Security policy, outlining how Chameleon members can keep third-party application accounts (MS Teams, GitHub, etc.) safe and secure.</li> <li>Created an insider threat detection and prevention report, highlighting the issues with insider threats, and how Chameleon can mitigate these threats.</li> <li>Completed a data encryption policy, outlining steps Chameleon needs to take to follow relevant regulations and standards for encrypting customer and company data.</li> </ul>
<b>Tolulope Ebenezer Akin-Dada</b>	223022696	<ul style="list-style-type: none"> <li>GitHub Introduction (Weeks 1-3): I embarked on a journey to understand GitHub, familiarizing myself with its features and grasping the basics of version control. I completed a project named GitHub Getting started.</li> <li>weekly meeting: I regularly attend weekly mentorship meetings and learned deeply about effective communication and teamwork.</li> </ul>

Name	Student ID	Semester Contributions
		<ul style="list-style-type: none"> <li>• Anomaly Detection Project (Weeks 4-10): I launched a project centered around anomaly detection of the MOP website, dedicating six weeks to its execution and finalization.</li> <li>• Ongoing Learning: During this time, I consistently upskill, utilizing various resources to boost my knowledge and expertise in relevant fields.</li> <li>• Hands-on Experience from GitHub Project: The project on GitHub provided me with practical exposure to collaborative software development, equipping me for more complex projects in the future.</li> <li>• In-depth Exploration of Data Analysis Techniques: The anomaly detection project facilitated a comprehensive exploration of data analysis techniques, employing network analysis tools, and creating baseline anomalies in data captured for MOP website.</li> </ul>
<b>Lucas Kocon</b>	218510242	<p>I began my contribution by researching how to implement a Content Security Policy in a Node.js environment and investigate how to include this system into the project. Sadly I was unable to implement a Content Security Policy module that can be included into the project, which would protect this website from common web-based attacks. Instead, this has led to a writeup to teach new members about the Content Security Policy system and how they will write a Content Security Policy. I also attended each of the weekly team meetings to share my progress with fellow members and discuss the progress we've made. In week 8 I coordinated the meeting as well as scribing the meeting minutes, while in week 9 I assisted Hamish in scribing the minutes as he coordinated the meeting.</p>
<b>Pascal Traczewski</b>	220493959	<ul style="list-style-type: none"> <li>• Familiarization of Chameleon as a company and expectations of the security team.</li> <li>• Upskilling in areas of DDoS how to perform and prevent a DDoS attack.</li> <li>• Upskilling in areas of ransomware and malware, injecting it into a virtual machine and understanding how it works</li> <li>• Prepared and completed report on security threats, going over the different type of threats and how they can be prevented as well as how to recover from attacks.</li> </ul>

Name	Student ID	Semester Contributions
<b>Sanchit Mahajan</b>	222463578	<p>In the whole trimester I did many things in terms of the technical contribution and lead tasks which are stated as follows-</p> <ul style="list-style-type: none"> <li>- I attended the weekly team meetings in which we discuss the goals, problems and the progress of the technical tasks we are on.</li> <li>- Personally, I did many attacks and scans on the chameleon website which are the XSS cross site scripting attack, API testing, port scanning etc</li> <li>- Throughout the trimester i did upskilling in various tools such as nikto tool which is used for the web scanning</li> <li>- Performed the HTTP header analysis of the chameleon website.</li> <li>- I also build the good understanding of cybersecurity practices and their communication skills by attending and participating in team meetings and the discussion board.</li> </ul>
<b>Shuodong Xing</b>	219368407	<p>This semester is quite open end, I learn a lot from group mates' work. And regard to past 6 weeks (about 1 and a half months) I work on Safety awareness design of web development, collecting real world case and try to discover the latest technology development like how a large model impact on can discovering anomaly system and network behaviour then report it to secure stuff.</p>
<b>Su Myat Win</b>	222385178	<ul style="list-style-type: none"> <li>• Attended weekly meetings with the team to discuss progress, goals, and challenges, and participated in discussions and shared knowledge and insights.</li> <li>• Conducted research on various topics related to cybersecurity, including security awareness, data backup, and network security, and upskilled and learned new skills and concepts.</li> <li>• Developed a comprehensive Security Awareness and Training Policy, Data Backup Policy, Acceptable Use Policy, and Network Security Policy.</li> <li>• Gained a deeper understanding of cybersecurity concepts, principles, and practices, and applied knowledge to real-world scenarios to develop practical skills.</li> <li>• Demonstrated a strong understanding of cybersecurity best practices and standards and developed strong collaboration and communication skills through team meetings and discussions.</li> </ul>



Name	Student ID	Semester Contributions
<b>Usman Tariq</b>	217034263	<ul style="list-style-type: none"> <li>Created a comprehensive guide on how to install kali Linux.</li> <li>Assisted seniors to compile a comprehensive guide on how to use 'Burp Suite'.</li> <li>I was able to run the MOP website on local host as it wasn't operational, so I had to run it on local server.</li> <li>Performed a port scan on MOP website found the open port.</li> <li>performed a SQL injection attack on MOP and chameleon websites.</li> <li>Did some reading regarding 'SQL injections.</li> <li>Performed vulnerability scan on both MOP and Chameleon websites.</li> <li>Performed HTTP header Analysis of the Chameleon website.</li> <li>Performed SSL/TLS Vulnerability testing on the Chameleon website.</li> <li>Performed DDoS attack on the chameleon website.</li> <li>Reconnaissance Report on Chameleon website</li> </ul>
<b>Anena Ghosh</b>	223792694	<ul style="list-style-type: none"> <li>Weeks 1to3: I embarked on a journey to understand GitHub, Trello board familiarizing myself with its features and grasping the basics of version control. I joined the Chameleon Security group.</li> <li>I make sure to attend weekly mentorship meetings and if not, I watch the recording to learn deeply about effective communication and teamwork. I have done upskilling on the selected topic and allowed proper time for journaling articles and watching educational YouTube videos. I have made notes of the progress and even on the areas which require more attention.</li> <li>SQL Documentation (weeks 4to10): I designed and maintained the database schema, optimized database performance. I have written SQL queries and stored procedures, implements data integration tasks. I have created detailed documentation for database schema, SQL queries, and user manuals.</li> <li>I have completed initial research on advanced SQL optimization techniques and new documentation tools. I will regularly update documentation and guidelines to reflect the latest project developments.</li> </ul>

Name	Student ID	Semester Contributions
<b>Aashrith Gunnichetty Krishna Prasad</b>	222453913	<ul style="list-style-type: none"> <li>• During the course of this entire trimester, I have carried out a number of assaults and reconnaissance.</li> <li>• API testing, vulnerability scans on the Chameleon website, port scans on the MOP website, and other things are included in the list of things.</li> <li>• I have accomplished upskilling on each of the jobs and attacks that I have completed in order to ensure that the attacks are successful and that they are presented in a successful manner to the faculty and peers.</li> <li>• All of the tests that were finished were thoroughly researched, and the upskilling that was included in them included Burp Suite, Port Swigger, W3Schools, YouTube videos, and a variety of security policies and procedures.</li> </ul>
<b>George Chia</b>	219600175	<ul style="list-style-type: none"> <li>• Finished CLI attack tool cheat sheet.</li> <li>• I've added extra screenshots to the cheat sheet by running my own test on Kail Linux on a VM through VirtualBox.</li> <li>• Completed phishing awareness and training report.</li> <li>• Upskill and did research for the report.</li> <li>• Upskill on other topics such as SQL injections, penetration test, and data encryption policy.</li> <li>• Engaged in weekly meetings and made remarks in the final meeting.</li> <li>• Added tips for the next Trimester's students so they can get better start.</li> </ul>

## City of Melbourne Open Data Project – Melbourne Open Playground (MOP)

### Overview

Since 2014, the City of Melbourne has been at the forefront of Open Data in Australia. Collaborating with Deakin, they drive increased utilisation of their Open Data by businesses, researchers, and developers. Integral to their smart cities' strategy, the Melbourne Open Data Playground (MOP) website will feature MOP's operations, security details, and use cases aligned with its goals and objectives.

### Goals and Objectives

The project objective is to create an educational platform focused on practical open data applications tailored for various stakeholders, including industry experts, government agencies and academic scholars. The long-term goals are to data mine and track the City of Melbourne's open data, provide innovative solutions to the challenges faced by the City of Melbourne, increase data usage rate, and support urban smart strategies.

### Aims This Trimester

The focus is to systematically address each published and upcoming notebook, modifying and updating code to ensure proper functionality when downloaded.

The aim of the Data Science team is to develop an IoT based collection of use cases that align with the City of Melbourne's three predefined areas of interest (Business, Environment and Wellbeing). The team intends to complete an entire set of use cases while also preparing a backlog for the next trimester.

The primary goal of our web development team is to integrate our website with user cases supplied by the Data Science team, enabling easy access through a sophisticated database solution. Additionally, we aim to deploy, rigorously test, and ultimately host the City of Melbourne's website. Our efforts will also extend to enhancing the website's design, framework, and features, ensuring a seamless and engaging user experience.

Another major focus for the project leadership is to update the API for all published notebooks, create new use cases, complete unfinished use cases, propose new use cases, improve organisation in GitHub and MS Teams directories, and generate multiple new use cases for future backlogs.

### Deliverables

#### *Data Science Team*

- Prepare for the release of completed analysed use cases.
- Create 5 new use cases ideas to ensure the teams continued output.
- Develop 3-8 relevant and valuable use cases.
- Continue to update data and API for early project cases to ensure the latest analysis.
- Replace local files with online sources for older cases to improve analysis reproducibility.
- Continue to update and improve the file systems of GitHub and Teams to provide efficient guidance.
- Continue to complete the backlog in Trello.

### *Website Development Team*

- Publish all completed use cases.
- Ensure the establishment and maintenance of a fully functional website with uninterrupted operational capacity.
- Establish a dedicated database and integrate a webpage on the site where the data science team can seamlessly upload their work.
- Enhance the design system by refining symmetry and incorporating more intricate details. The objective is to develop a purpose-driven design that enhances the overall user experience.
- Conduct testing for the website.
- Deployment of the website and ultimately host the website.
- Incorporate the Next.js framework for streamlined website routing functionality.
- Integrate useful figures such as account management functionality and multi-language support within the system.
- Migrate from traditional CSS to Tailwind for a more efficient and straightforward approach to website styling.
- Ensure the website is responsive across various platforms for seamless user experience on desktop, tablet, and mobile devices.

### **Summary of Achievements:**

#### *Data Science Team*

- Developed 6 new use case ideas and accessed archived projects, updated use case progress on Trello for workflow management.
- Update of file systems on GitHub and Teams (SharePoint) providing better guidance.
- Upgraded API v2.1 to access unlimited records from Melbourne Open Data website.
- Conducted an audit and documentation of existing use cases.
- Fixed corrupted use cases, backup restored in SharePoint for large compression issues.
- Completed 26 use cases, ready to be publish.

Trimester 1 Data Science Use Case video summary:

[https://deakin365.sharepoint.com/:v:/r/sites/Chameleon2-Chameleon-Leadership/Shared%20Documents/Chameleon%20Leadership/Trimester%201%20-%202024/Showcase%20Videos/MOP/MOP%20DS%20Usecase%20Presentations\(longer version\).mp4?csf=1&web=1&e=rFz1Md](https://deakin365.sharepoint.com/:v:/r/sites/Chameleon2-Chameleon-Leadership/Shared%20Documents/Chameleon%20Leadership/Trimester%201%20-%202024/Showcase%20Videos/MOP/MOP%20DS%20Usecase%20Presentations(longer version).mp4?csf=1&web=1&e=rFz1Md)

#### *Web Development Team*

- Deployed a new version of the website on Google GCP.
- Initiated database development with Firebase.
- Began developing CI/CD pipelines.
- Finalised the design system, including Figma templates 'mock-ups'.
- Completed developments for 12 webpages based on Figma design.
- Added multi-language function, chatbot function and search function to the website.

- Migrated project from react to nextjs.
- Rendered static user cases in user case page.
- Designed website mobile frameworks.
- Started designing and developing dark/light mode function.

### Melbourne Open Data Project Team Members:

#### *Data Science Team*

Name	Student ID	Semester Contributions
Project Lead <b>Mollie Fernandez</b>	217285498	This trimester, I successfully completed multiple API updates and use case reviews. I updated and reviewed the Bicycle Network Routes and Road Safety Parts 1 and 2, ensuring data accuracy and enhanced functionality. I also revised and updated the Green Roofs Location and Pedestrian Safety use cases, streamlining the dependencies and improving overall performance. I conducted a comprehensive review and reorganisation of existing use cases, categorising them as READY TO PUBLISH, UPDATE NEEDED, or RETIRED, which will aid the Data Science team in managing workloads efficiently. I addressed formatting updates for the Urban Bar and Urban Art Explorer use cases and resolved corrupt file issues. I completed the Live Music Events use case and performed various dependency updates to maintain system integrity. These efforts have collectively contributed to the improved management and functionality of our project. Finally, I served as the link between the WD and DS teams providing invaluable insights for both teams.
Project Lead <b>Alison (Ali) Collins</b>	222364505	Senior Project lead for Chameleon Company and City of Melbourne Project. Strong leadership involvement in all meetings to ensure information was communicated and tasks allocated. Initiated the MOP use case audit. Company task co-ordination for 2.1, 6.1, 11.2, writing skeletons for 6.1 and 11.2 and following up with all Chameleon project leaders, and mentoring juniors for video task. Lead of client meeting planning sessions. Significant technical achievements in the completion of 3 uses cases; Green Walls, Pedestrian Accidents and Bus Stops, and Bin Fill Levels. Collected data using API from City of Melbourne and JSON URL from TAC. Data pre-processing and exploratory data analysis using numpy, pandas, geopandas, folium, seaborn, matplotlib, distance calculation with Haversine, Pearson correlation. Data modelling preparation using z-score and logarithmic transformations with hyperparameter testing used prior to SVM modelling with

Name	Student ID	Semester Contributions
		linear, polynomial and rbf kernels; also k-means clustering and null hypothesis testing.
Project Lead <b>Te' Claire</b>	220320033	Senior Project Leader: Actively engaged/ volunteered all weekly meetings (5hrs), supporting 45 MOP team. Significant Technical Contributions: ODSQL API v2.1 guide unlimited API requests and ML Guide for predictive modelling. Active Communication: Initiated MOP division/ onboarding/ meeting schedules, MS Teams announcements, feedback report GCP and CoM Client meeting documentation. Project Management: Supported company/ division decision-making processes (wind-up and wind-down), Website (additional) division set-up, use cases/ Trello supervision, GitHub branch management, and Task Coordination (2.1, 6.1, 11.1 & 11.2). Completed 3 Use Cases, Eco-Metric (EC) and Foot Traffic (FT). Collected over 2million records, LOCF, IQR, Pearson and Spearman Correlation, Granger Causality Test, User Dashboard 70 different soil measurement types, PCA, FFT metric, Linear Regression Model (temperature predictor) high accuracy and consistency across predictions y (0.63 ~ base model) with non-significant deviations of 0.01 predictions. FT identified 340 Businesses within 100m traffic areas 7pm-7am (Nov—Jan) for economic growth. Haversine Formula, KDTree for Fast Nearest Neighbour Search, user interfaces (parking and 23 business category).
Data Sci Lead <b>Ha Trang (Harley) Ngo</b>	222100745	<b>Technical contribution:</b> Finished 3 use cases: Art Finder, Mental Wellbeing, Private Event Planning. Applying ARIMA, NLP and data crawling. Repointed 1 use case.  <b>Leadership contribution:</b> Prepared and presented for DS team in CoM client meeting. Prepared, hosted, and did minutes for Chameleon Leadership Meeting and CoM Leadership Meeting. Created a document guiding for DS juniors. Reviewed and approved 30+ GitHub pull requests.
Data Sci Lead <b>Rhutuvaruni Kharade</b>	222021231	Attended most leadership and other DS weekly meetings and worked with other leaders to complete tasks. Contributed to the company task 2.1 and 6.1 alongside Alison to make changes needed. Communicated with other team leaders and team members to help them with task that needed to be done as a part of the team's objective. Reviewed pull request for use cases and suggested potential improvements. Highest level of technical contribution through my use case where I worked on the transportation optimization to visually show isolated areas where services are needed. Showed the need for transport given the growth in population in future years. Used ARIMA model to predict the population growth for years after 2040.

Name	Student ID	Semester Contributions
		Used DBSCAN clustering to cluster similar bus stops and metro stops together and showed outlier stops. Used Harvesine distance to plot distances between clusters. Finally cited my sources and gave credit to the authors.
<b>Madhuvaishali (Vaishali) Thakoor</b>	218335436	As a junior leader, I created and completed a use case to help people find the nearest support services in Melbourne. I created map visualizations using Folium to display the locations of support services and public transport stops and utilized pie charts and word maps to analyse the types and frequency of support services. I developed a function to find the shortest distance from transport to services and visualized the paths. I also implemented a filter on the map for users to select specific services. My leadership contribution includes actively attending and participating in all meetings, taking minutes for the leadership meeting in Week 3,4,6, and hosting the DS meeting in Week 7. I took charge of maintaining Trello for the end of Sprint 3, moving unfinished use cases to backlog and sending reminders to team members. I assisted with the 11.2 company task, showcasing proactive involvement and leadership to the team.
<b>Thomas Alexander Rostov</b>	221260666	I am a Junior this trimester, and have attended almost all meetings, including leadership ones. I've hosted a meeting myself, and have taken minutes for multiple others. My use case was presented to the product owner, and I have been made GitHub owner for next trimester. I believe I'm in a good spot to guide new and existing students come trimester 2. As for my technical contributions, I have created and fully completed a new use case regarding Pedestrian prediction and analysis, using data from pedestrian and weather sensors. After ample data cleaning, visualisation was performed to see how different factors impact pedestrian volume. Multiple single sensor location regression models were trained, with their results show (R2 score > 85 achieved). A list of models, as well as a composite model was then trained, with the predicted pedestrian counts shown on a folium map, given the users inputs through widgets.
<b>Sachitha Sadeep Kasthuriarachchi</b>	223270464	Over the course of this project, I made significant contributions across various domains. I successfully managed and pre-processed complex datasets, ensuring data accuracy and operational efficiency through heuristic approaches for route optimization. I integrated geographic data with Folium to create dynamic, user-friendly visualizations, aiding quick

Name	Student ID	Semester Contributions
		decision-making. My commitment to self-directed learning led to expertise in data visualization tools, crucial for developing an interactive waste management dashboard with advanced features like fill percentage gauges and time series analysis. I enhanced API security and map visibility, ensuring seamless and secure data access. Additionally, I authored comprehensive guides on Distance Matrix and Power BI usage, facilitating knowledge sharing among peers. My final contributions involved refining use cases, preparing necessary files, and actively participating in code reviews during team meetings, ensuring high-quality project deliverables. These achievements reflect my technical proficiency, dedication to continuous learning, and collaborative efforts in advancing our team's objectives.
<b>Samiha Haque</b>	223935632	I attended weekly meetings, created agendas for five, hosted three, and took minutes for two. I ensured timely submission of 2.1P on OnTrack and created new use case Trello cards. I reviewed three GitHub pull requests and completed API repointing/rewrite of an old use case (Waste Analysis). I will showcase MOP DS achievements and compile team members' presentations videos for 11.2P. For my use case, Public Event Planning, I handled datetime objects and geolocations, fixed skewness, addressed missing data, standardized and scaled datasets. I extracted embeddings using a Neural Network with LeakyReLU and Adadelta optimizer. I optimized epochs and batch size with gridsearch, applied custom metrics (Pearson, Euclidean) during training, used Batch Normalization and Early Stopping for regularisation. I used KNearestRegressor to detect 5 potential event locations based on test embeddings, used NearestNeighbors to find 5 closest parking and banner locations for each event location and used folium to visualise the results.
<b>Akintomiwa James Aremu</b>	222497446	In my urban planning project, I focused on improving bus stops and pedestrian facilities. I worked with three types of data: counts of people walking, environmental conditions, and bus stop locations. I used machine learning techniques like k-means clustering, logistic regression, and decision trees to analyse the data better. I also took on some leadership roles. I was responsible for taking minutes during our week 6 meeting and helped organize materials for our first client presentation. I created visual aids for our documents and assisted teammates in setting up their GitHub accounts. Additionally, I contributed to building a library of functions that can be used by anyone in the company now and in the future. This project improved my



Name	Student ID	Semester Contributions
		technical skills and my ability to lead and collaborate with others, enhancing my overall professional development.
<b>Dinuk Nadishan Kariyawasam Senadheerage</b>	223237065	In my project on enhancing pedestrian safety in Melbourne, I have developed a comprehensive understanding of data analytics, including the origin and characteristics of data and the importance of secure handling. I explored the correlation between pedestrian traffic and environmental factors by analysing detailed data to identify critical patterns and trends. Using specialized constructs, statistical modelling, and machine learning algorithms, I tried to develop predictive models to optimize pedestrian routes and improve safety. Additionally, I contributed by creating a technical document titled "How to Handle API Keys Securely," which serves as a practical guide for secure API key management and assists peers in implementing best practices.
<b>Katrine Kit-Ying Chan</b>	221375343	Throughout the semester, I successfully navigated the onboarding process. I enhanced my skills in using GitHub, Trello, API; additionally, I learned how to use libraries such as folium, geopandas, shapely, ipywidgets, all of which I had never used previously. I dedicated time to understanding Melbourne's city vision and previous use cases, ultimately selecting the bird habitat use case for further exploration, working with the bird survey and urban forest datasets. Even though limitations were present in the dataset, I was able to complete this use case and provide a prediction model, of which if a better and larger dataset becomes available, can be used to predict the sighting count. In terms of leadership contribution, I took minutes for various meetings, helped with coordinating members' contributions for task 6.1, formatting and submitting it, completed the repointing of the use case - Smart Bin Waste Collection AI application, reviewed pull requests, coordinated and submitted 11.2P for the juniors.
<b>Venuka Hirusha Wijenayake</b>	223048223	I developed a comprehensive project plan outlining essential timelines, milestones, and roles, effectively guiding my team. Midway through Week 4, I successfully transitioned from the "Smart Bin Optimized Waste Collection Route" use case to the "Tree History" use case, adapting quickly and maintaining project momentum. I executed an interactive geospatial analysis using Folium in a Jupyter Notebook to distinguish tree populations in Melbourne's parks and streets, demonstrating my proficiency in geospatial analysis and data visualization. I adeptly managed and manipulated large datasets with pandas and GeoPandas, implementing advanced visualization techniques for clear insights into urban biodiversity. To enhance project security, I updated the API integration to use

Name	Student ID	Semester Contributions
		environment variables, securing the API key. Additionally, I authored a comprehensive guide on using Folium for interactive mapping in Python, assisting colleagues and other data scientists, and showcasing my leadership in knowledge sharing and capacity building.
<b>Sheng Tha (Tharusha) Cao</b>	222079586	These weeks have been extremely productive, I have managed to finish my use case with a lot of information and a high accuracy and low MSE with a user input model predict. I had also helped my junior members and some of my senior members with both on onboarding issues, GitHub and technical issues and providing essential feedback on their codes. I also started my Function list as to try help future team code better with the function list with another member (junior: Tomiwa (Akintomiwa) Aremu) with currently there are around 20 plus functions. I also old use cases which does not use the new API get function and spent majority of my second half with it and fixing any grammar/code / runtime errors. moreover, I have done multiple pull request reviews around 17 and gave feedback to my team members I also had completed 3 backlog API repoints.
<b>Wing Sum (Carissa) Wong</b>	222104491	<p>In my recent work, I focused on extracting deeper insights from the datasets, presenting them through various visualizations with concise explanations to the findings. I finalized the use case by cleaning up the code and text, making it more presentable and adding brief background information along with a conclusion to provide a comprehensive understanding to the audience.</p> <p>Additionally, I contributed to updating an existing use case. I revised the API integration, eliminating the need for users to input an API key. I also cleaned and adjusted the code and column names to ensure the datasets used were up-to-date, maintaining consistency. Furthermore, I enhanced the code by implementing error handling capabilities, particularly for situations where no records are available, and updated the corresponding JSON file.</p> <p>Moreover, I proposed a new use case idea, complete with objectives and potential datasets for future cohorts. This has been documented in the shared team sheet.</p>
<b>Daljeet Kaur</b>	222049265	Throughout the Project I have actively attended all the project meetings, presentations, and written assignments, I added more graphs for data visualisation and applied advanced statistical techniques, including data transformation and visualization. Created a heatmap to visualize correlation coefficients and Conducted correlation analysis to find the relationships between various features and for Data Modelling

Name	Student ID	Semester Contributions
		developed and trained a Linear Regression model and by using and encoding categorical variables to numeric values, split the data into training and testing sets and standardized the features, addressed missing data issues evaluated and compared the models using R-squared scores and also, I focused on enhancing my knowledge in key areas such as GitHub, Trello, and APIs and data modelling techniques.
<b>Mai Chi (Jamie) Hoang</b>	222187106	In my ten weeks as a new senior member, I focused on understanding company procedures by reviewing handover documents, objectives, and published use cases. I spearheaded the creation of a new use case, 'Banner Poles Booking,' completing three sprint tasks involving data merging, pre-processing, and map creation. I utilized the Prophet library to forecast foot traffic, contributing to the successful completion of the use case. Additionally, I completed two Kaggle courses on Geospatial Analysis and Time Series, applying the acquired knowledge to my use case.
<b>Manasa Nagaraja</b>	222586756	I have made significant progress by developing and understanding a wide understanding of the data analytics. I have gained insights into various aspects of data analytics, including the origin and characteristics of data and securely, know the analytics outcomes how it can be leveraged to improve business, organizations, or society. I researched into employment trends in different industries and their correlation with house prices in various Melbourne neighbourhood, by performing analysis to understand the patterns, trends. I applied specialized constructs, statistical modelling, and machine learning algorithm, to develop predictive models that could accurately forecast housing prices based on employment indicators and to identify key patterns and trends within the data. In addition to my contributions to the project use case I have worked on preparing a technical document titled "How to Set Up Google Colab Using GitHub Bash." This document serves as a practical guide for setting up Google Colab, using GitHub Bash.
<b>Prathibha Nishadini Kandawala</b>	222440671	Over the past few weeks, I diligently worked on the use case analysis for my project. I analysed real estate data, visualized the results, and derived meaningful insights to obtain the final results. To ensure clarity and ease of understanding, I added detailed code explanations, providing more context and description for anyone who reads the document. I attended team and mentor meetings to ensure alignment and clear communication. Additionally, I focused on enhancing my knowledge in key areas such as GitHub, Trello, and APIs. By improving my GitHub skills, I was able to manage version

Name	Student ID	Semester Contributions
		control more efficiently. My enhanced understanding of Trello allowed me to contribute to better project management and team coordination. Furthermore, by deepening my knowledge of APIs, I was able to integrate external data sources more effectively into my project.
<b>Yash Krupanand Daware</b>	222482648	This trimester, I completed onboarding with the Chameleon Team and the Data Science team, set up my local environment, familiarized myself with GitHub, Trello, and the City of Melbourne Open Data API. I watched online courses on advanced Python techniques and GIS, followed by a tutorial on Python Maps using Folium and Leaflet.js. I assigned myself a new use case: analysing the correlation between housing prices and landmarks/places of interest. I pre-processed and cleaned the data, defined key parameters, and conducted an analysis to visualize trends and insights. I performed spatial analysis, combining suburbs and landmarks data to determine landmark density, ranked suburbs accordingly, identified common landmark types, and created filters for their distribution. I made final updates and committed the use case for sprint 3.
<b>Arjun Jamwal</b>	222300263	I made a substantial contribution to the Bird Sighting Analysis project by overseeing the data integration and collection processes and making sure that clean, high-quality datasets from various sources were obtained. I used sophisticated data pre-processing methods, such as data normalization and handling of null values. I created a machine learning predictive model based on meteorological variables to estimate the number of bird sightings, and I assessed its effectiveness using R-squared values and Mean Absolute Error. In order to make complex data understandable to stakeholders, I also developed interactive visualizations that show spatial distributions and anticipated sightings using Folium and heatmaps. Furthermore, I conducted a thorough analysis to identify potentially extinct species, which has given important information for conservation efforts. My contributions included model development, data engineering, and visualization, demonstrating a thorough application of data science and machine learning abilities
<b>Bao Ngo</b>	220313209	Throughout the unit, I have made significant contributions to my team by leveraging my technical skills and fostering a collaborative environment. I enhanced my data analysis skills by utilizing Python for pre-processing, analysis, and visualization tasks. This included implementing a random forest model to forecast job trends in Melbourne, which provided valuable insights for workforce planning. I actively participated in team and mentor meetings, sharing knowledge and seeking

Name	Student ID	Semester Contributions
		feedback to improve our project's outcomes. My effective use of GitHub and Trello ensured seamless collaboration and task management within the team. Additionally, I maintained detailed documentation of my work, which facilitated transparency and continuity in the project. By engaging in discussions and providing constructive feedback, I helped create a supportive and productive team dynamic. Overall, my contributions have been instrumental in advancing our project's objectives and achieving our goals.
<b>Francis Albert</b>	223045645	Over the past weeks, I have actively contributed to the MOP DS team. My engagement has been consistent, particularly in participating in weekly team meetings where I exchange ideas and collaborate effectively with fellow team members. I took the role of hosting the week 9 team meeting, ensuring it ran smoothly and that all agenda items were thoroughly discussed. Additionally, I completed the Melbourne's Biodiversity use case by creating detailed visualizations and predictive models. These efforts enhanced our team's understanding of the data and provided valuable insights into biodiversity trends, supporting our project's objectives and deliverables.
<b>Ramandeep Singh (Ghuman)</b>	222196318	<p>During this project, my primary contributions focused on data science techniques and spatial analysis. I successfully extracted and cleaned data from Melbourne's open data portal, which involved structuring and pre-processing the data for analysis. I performed spatial analysis to identify relationships between water flow patterns and canopy scarcity, iteratively refining the data and employing advanced analytical methods to derive meaningful insights. Additionally, I created informative visualizations using Matplotlib and GeoPandas to effectively communicate our findings.</p> <p>Moreover, I prepared a comprehensive use case handover document to ensure the project's continuity, detailing the methodologies, data processing steps, and analysis rationale. These efforts not only demonstrated my proficiency with data science tools but also significantly contributed to the project's success by providing clear and actionable insights and ensuring that future team members can seamlessly continue the work.</p>
<b>Ruofeng Qiu</b>	222364873	Over the past weeks, I've reorganised the code of my project to add more features, such as the handling of outliers, predicted by machine learning. I added more graphs for data visualisation and clarified the visualisation results by comparing the visualisation graphs before and after data processing. Also completed the current project by adding more comments and explanatory text. By adjusting the code structure in conjunction with data visualisation, the results of outlier handling in the

Name	Student ID	Semester Contributions
		data can be better demonstrated. Meanwhile the data processed based on outliers effectively enhances the results of data visualisation. Based on the structure of the data after the outliers were processed, I once again adjusted the objectives of the machine learning so that the results of the machine learning were more in line with expectations.
<b>Thomas Warren</b>	223053304	In Sprint 2 I have focussed on developing and implementing new use cases - one for short term accommodation, which was dropped, and another for energy usage which was completed. Additionally, I repointed 2 previous use cases that required extensive reworking to improve their presentation. Further, I assisted the team by chairing two meetings, providing some information on working with skewed datasets, and reviewed numerous use cases.
<b>Vaibhavi Jayant Deo</b>	222525978	<p>This trimester, I familiarized myself with the project unit and completed all necessary setups, including Trello and GitHub. I thoroughly reviewed the project documentation and collaborated closely with my teammate, Yash Daware, who focused on spatial analytics while I concentrated on machine learning. My goal was to understand how neighbourhood landmarks and amenities influence housing prices.</p> <p>I built a housing price prediction model using a RandomForestRegressor. This involved data cleaning, converting the `sale year` column to integers, and handling missing values with a median imputer. I then encoded categorical variables using OneHotEncoder and scaled numerical features with StandardScaler. After training the model with optimized parameters, I evaluated its performance and achieved an improved <math>R^2</math> score. I also visualized feature importance to identify key factors influencing house prices. Throughout the project, I maintained regular communication with my mentor, whose guidance helped refine my approach and improve my work.</p>
<b>Simranjit Singh</b>	222429305	This trimester, I significantly enhanced my Melbourne Parking Problem project by building on last trimester's work. I developed advanced machine learning models and comprehensive time series analyses, integrating real-time data feeds from Melbourne's on-street parking bay sensors. By incorporating additional temporal features and external factors like weather and local events, I improved forecast accuracy. I also developed ARIMA models for parking trends and conducted trend and seasonality analysis. Extensive validation and scalability testing ensured model reliability and efficiency. My contributions have strengthened the project's technical foundation, providing actionable insights for urban planning

Name	Student ID	Semester Contributions
		and parking management, demonstrating my ability to apply advanced data science techniques to real-world problems.

#### Web Development Team

Name	Student ID	Semester Contributions
Web Dev Lead <b>Sakif Hasan</b>	222355053	In my leadership role, I expedited team onboarding and conducted meetings to bring everyone up to speed on the project. I enhanced project clarity by updating GitHub documentation. To foster innovation, I led a team brainstorming session. I kept stakeholders informed by presenting weekly progress reports to the company board. Additionally, I containerized and deployed the website on Google Cloud Platform, ensuring its smooth operation. I spearheaded the backend architecture, including testing and deploying automation through CI/CD pipelines. I also presented the backend and project roadmap to the client during a MOP meeting. To ensure a seamless user experience on the new website, I analysed test cases from the old site. I prepared and delivered client presentations, updating them on project progress. As the main contact for Deakin, I held discussions to secure resource permissions on GCP for hosting our applications.
Web Dev Lead <b>You (Kasey) Wu</b>	222482192	As the team lead for the MOP Web Development team, I spearheaded the migration of the entire Melbourne Open Data Project website to the Next.js framework, enhancing its performance and scalability. I integrated static use case files on user case page. Additionally, I successfully implemented advanced search functionalities on the user case page, allowing users to search by title or content and filter results by different tags. My technical prowess extended to developing a multi-language feature, supporting English, Chinese, Spanish, and Greek, complemented by a user-friendly language selection dropdown. In a leadership capacity, I was instrumental in onboarding new students, organizing and leading meetings, managing the project's Trello board, overseeing all frontend tasks and engaging with clients. I also played a crucial role in mentoring junior team members, overseeing the review and merging of pull requests as essential git lead.
<b>Ashok Bishowkarma</b>	222365243	I have been actively enhancing my skills and contributing to the project. I began by upskilling in Next.js, HTML, CSS, and Tailwind CSS, which has significantly boosted my front-end development



Name	Student ID	Semester Contributions
		capabilities. Subsequently, I joined the CICD team, where I initially aimed to work on Infrastructure as Code (IaC). Although IaC wasn't a part of the team's focus, I took the initiative to research IaC independently, specifically utilizing Terraform. Additionally, I collaborated with a colleague, Kashish, to develop the front end of the "About Us" page for a project. This involved integrating our skills and ideas to create a user-friendly and visually appealing page. These experiences have not only broadened my technical expertise but also enhanced my ability to work collaboratively and adapt to new challenges.
<b>Kashish Bansal</b>	222437163	Throughout the project, I have contributed to various aspects, showcasing my technical and leadership skills by being the senior design lead. I led the design team, ensuring smooth onboarding for juniors and updating Trello task cards to reflect project progress. My technical expertise was demonstrated through upskilling in technologies like React, Next.js, Docker, and Kubernetes, and applying these skills to tasks like developing About Us page and designing wireframes, mobile views, and dark mode versions of webpages on Figma. I facilitated team meetings, documented minutes, and made necessary announcements, ensuring clear communication. Additionally, I designed new logos, case study icons, and finalized pictures for website, using Canva. My involvement in all team and leadership meetings, conducting research on innovative ideas, and mentoring juniors further highlights my dedication and impact on project's success. This comprehensive involvement reflects my strong commitment to achieving project goals and contributing to a collaborative team environment.
<b>Abanob Mikhael</b>	221429529	I took on the role of a front-end developer, where I made significant contributions to the overall functionality and user experience. I was responsible for creating the login page, ensuring its functionality, and making it responsive across various devices. Additionally, I enhanced the responsiveness of the policy and licensing page, ensuring a seamless user experience. To achieve this, I learned and applied Next.js, which improved the performance and scalability of our application. Furthermore, I gained proficiency in Tailwind CSS, which allowed me to implement modern and efficient styling techniques throughout the project. Throughout the project, I consistently attended all team meetings, ensuring effective communication and collaboration with my team members.



Name	Student ID	Semester Contributions
<b>Allen Gao</b>	222018485	As a member of the web development team, my main responsibility centered on the 'contact us' page. I meticulously developed the frontend, closely adhering to the initial design specifications and later updates. Utilizing Tailwind CSS, I enhanced the page's style and responsiveness, particularly for mobile users, significantly boosting the user-friendliness of our website. My contributions extended to improving form functionality by implementing robust validation checks for all input fields, which helped in maintaining data integrity and enhancing user interaction. Additionally, I conducted extensive research and attempted to develop the functionality for submitting emails through the form, which plays a crucial role in effective communication between users and our team.
<b>Pema Lhagyal</b>	219130345	As part of the frontend development team, I played a role in enhancing our web application. I developed the upload page, ensuring it was intuitive for users. I handled the responsiveness of the pages for smooth user experiences across various devices. Collaboration was key, and I worked closely with my teammates to integrate features and resolve challenges. During this project, I upskilled in JSX and Tailwind CSS, leveraging these technologies to create dynamic and visually appealing components. My contributions extended to the successful deployment of the developed pages, ensuring they were live and functional. Moreover, I took a role in addressing and fixing issues in GitHub pull requests, maintaining code quality and consistency. These efforts collectively enhanced the project's functionality and user satisfaction.
<b>Simranjit Singh</b>	222341387	Initially I started by upskilling in react as team decided to develop the MoP website in react so, as a part of web development team member I have developed the complete homepage of the MoP website for better UI/UX along with linking to different pages like Sign-up and Use cases. During development phase I recommended few changes like the images which was selected was not of good quality, so design team shared a new image along with these shared new icons that I now used in case study part of the webpage. Now new website also contains image stabilisation. All these works are successfully merged into the main branch. Also, before starting the web development of homepage, I was the member of CI/CD team and started upskilling but due to overcrowd I have leave that team. Along with this I researched about how we can implement chatbot on the website along with another team, for this I have shared a documentation for the same.
<b>Mukul Singh</b>	222296609	As a junior design lead, I actively demonstrate programming and software development skills by contributing to the creation of

Name	Student ID	Semester Contributions
		advanced IT systems and design solutions. I engage in designing, and testing activities to ensure the functionality and reliability of the UI components I work on. Additionally, I apply industry best practices and standards to write efficient and maintainable code, considering factors. Through continuous learning and adaptation to new technologies and designing strategies, I enhance my proficiency in programming and UI designing, thereby contributing to the successful implementation of IT solutions. I was also one of the presenters in the 1st Client meeting. I have hosted multiple Web dev and MOP meetings. I was also one of the junior leads of the design team.
<b>Adrian Thilina Weerasinghe</b>	222481445	As a junior lead I took on multiple roles in the creation of the website, I led the CI/CD team, I was part of the design team and Front-end team. For technical contributions, I created wireframes for about us, case studies pages, made the final Figma design for the Home page. For the front-end I made the front-end for the use case page. I also created the chatbot which redirects users to a page. I created an FAQ page for the chatbot as well. Throughout the trimester I hosted multiple meetings and took down the meeting minutes. I volunteered to handle the GCP resources for next trimester, I presented the Web Dev team progress to the company director as well as the client. I volunteered to create the Web Dev teams presentation for the company showcase for Task 11.2. I reviewed multiple Pull Requests as well.
<b>Thisu Nanayakkara</b>	222084424	I contributed to both design teams as well as contributed in the WCAG implementation of the selected web pages. In the design team I contribute with the designing of the Login, Signup, OTP and forgot password pages and their dark mode versions of designs. I also designed a Logo design for the new logo selection and participated in the poll to select the finalized logo design. In the website selecting the web images I participated it by providing images and participated for the team meetings and all most of the extra design and WCAG team meetings to update myself on the work. With WCAG I created Pull requests on webpages as Licensing, Contact Us, and About us with updating the code according to the WCAG accessibility and tailwind CSS.
<b>Hoang Duy Vu</b>	222461495	As a Junior Lead, I played a key role in leading the Design team, the CI/CD team, and the WCAG team. In terms of technical contributions, I created the initial mockups for the website, which largely influenced the final design, in which I also played a significant part, and I selected the color palette and font used throughout the site. For the CI/CD team, we developed a viable implementation plan for a CI/CD pipeline, scheduled for deployment next trimester due to the current lack of access to

Name	Student ID	Semester Contributions
		GCP. In the WCAG team, I implemented WCAG accessibility features for various elements, including the footer, header, About Us page, Forgot Password, Login, Sign Up, and Statistics sections. Additionally, I translated the entire website from traditional CSS to Tailwind CSS.
<b>Suraj Kuwar</b>	223183442	As a junior leader, I began by upskilling in React and Tailwind CSS to meet the project requirements. I was then assigned various tasks, including developing the header front-end, creating the licensing page, and working on the forgot password feature linked to the login page. I also handled the OTP verification process for users to create new passwords. Additionally, I contributed to the team by hosting meetings, taking minutes, and reviewing pull requests. Through these efforts, I played an active role in both development and team coordination, ensuring smooth progress and effective collaboration.
<b>Chaya Shiv</b>	221071557	Over the past few weeks, I've been actively involved with the Web Development Team, attending all necessary team and mentor meetings every Monday. I participated in the design meeting to vote on the final logo for our website, actively contributing to its selection. Additionally, I've been a part of both the WCAG and Mobile Design Team meetings, where I contributed to the accessibility and mobile design initiatives. My tasks included enhancing the privacy policy page by adjusting its Tailwind CSS, leading to my first successful pull request on GitHub. Following this, I also worked on the Tailwind CSS adjustments for the Use Case page, resulting in another approved pull request. Moreover, I was also responsible for designing the mobile view of the Statistics Page. I also developed the dark mode version of the Statistics page, which was part of my contributions as a member of the MOP WebDev design team.
<b>Linda Li</b>	220452853	I mainly focused on making mobile views to enhance the user experience. I designed a new header and directory to make browsing on mobile devices more convenient. At the same time, I also designed four key pages for the mobile vision, including Contact Us, About Us, Privacy Policy and Licensing, to ensure that mobile users can easily access this important information. In order to further optimize the contact us page, I also added a dark mode to it to make it more comfortable for users to read at night or in a low-light environment. During this time, I continued to adjust and optimize every detail of the mobile view, striving to provide users with the best browsing experience.
<b>Thamasha Galahahena</b>	223043446	As a Junior Team Member, I played a pivotal role in various aspects of the MOP website project. I led the implementation of

Name	Student ID	Semester Contributions
<b>Mudiyanselage</b>		unit testing for our website, setting up the development environment using Jest and React Testing Library, designed for long-term use, ensuring future students can easily add tests. I spearheaded the Cypress testing initiative, successfully setting up the environment and completing comprehensive navigation tests, ensuring seamless transitions between pages. My prior Selenium experience aided the smooth Cypress setup process. I hosted weekly team meetings twice, facilitating collaboration and progress tracking. As part of the front-end team, I created the user-friendly sign-up page interface. In the CI/CD team, I contributed significantly to creating a CI/CD design plan, laying the groundwork for continuous integration and deployment for future iterations. These contributions enhance current functionality, user experience, and sustainable development practices.
<b>Abhishek Chiluka</b>	223046759	Initially I was joined in Chameleon website Company, due not familiar with tech stack at the end of 2nd week I changed to MOP web development Team. I have contributed technical contribution on frontend. Initiated my process by learning NextJs concepts, GitHub and Tailwind CSS . Developed the privacy policy page, statistic page which involves showcasing the User cases in a table format. For table, implemented the page number and filter to sort the table and one of the statistic bar graph to highlight the trimester which published more user cases. Finally, I have build the responsiveness mobile view version of the header. As a team member contributed to reviewing pull request and took meeting minute. Being active on the development aspect and as a team member .
<b>Victor Xiao</b>	220229302	During the first two weeks of this trimester, I was in the Chameleon Web Dev Company, but after both senior leaders stepped down, I transitioned to the MOP Web Development Team. I attempted to deploy a MongoDB CRUD application in our Next.js MOP server, which worked locally but failed on the hosting network. Due to my current capabilities, this feature was suspended. I then updated the Case Studies page UI by removing unnecessary elements and adding a search bar, filter list, and preview screen. For the Statistics page, I developed features like three filter drop lists, a popularity range bar plot, and implemented fixes such as case-insensitive search, centered plots, a full-width search bar, and extended spacing between the body and footer. Additionally, I upskilled in deploying dark/light mode functionality in Next.js, developing a theme change feature based on user preferences.

## Chameleon Website

### Overview

The website serves as a dynamic platform to not only publicize the achievements and progress of Chameleon but also to engage with stakeholders, including clients, partners, investors, and the public. By providing comprehensive information about Chameleon's overarching goals, values, and accomplishments, the website aims to enhance transparency and foster trust among its diverse audience.

### Goals and Objectives

The main objectives of the Chameleon company's website are multifaceted, aiming to provide a centralised hub where visitors can access comprehensive information about Chameleon and its subsidiary companies. This one-stop destination is designed to advocate for the company's mission and promote its services while ensuring the website remains visually appealing and user-friendly.

### Aims This Trimester

This trimester, our main goals are to enhance the website's usability and engagement. We'll improve the contact form, add social media sharing buttons, optimise images for faster loading on mobile devices, customise the 404-error page, ensure browser compatibility, enhance accessibility, implement a newsletter signup popup, optimise performance, create interactive tutorials, and incorporate a user feedback mechanism. These efforts aim to provide a seamless and enjoyable experience for all users.

### Deliverables

- Enhance the contact form with validation checks and confirmation messages.
- Integrate social media sharing buttons for increased content sharing.
- Optimise images for faster loading on mobile devices.
- Customize the 404-error page to guide users back to the main content.
- Conduct browser compatibility testing.
- Make accessibility enhancements for users with disabilities.
- Implement a newsletter signup popup.
- Optimise website performance.
- Create interactive tutorials.
- Incorporate a user feedback mechanism.
- Enhanced Footer Component with theme management across all screen sizes.
- Implemented colour palette along with code refactoring.
- Website Performance improvement converting images to SVGs.
- Project setup refined and cleaned bugs.
- Profile Screen with extensive user management features.

### Summary of Achievements:

- Fixed the project setup bugs.
- Enhanced the user interface.
- Redesigned the sign up/log in page.

- Deployed the website on a test server with SSL security.
- Modified the navbar.
- Updated the product and about us pages.
- Brainstormed new functionalities for better user experience.
- Refined and update Trello board.
- Created a new support page.
- Footer component functional with themes across all screen sizes
- Profile Screen with extensive user management features

**Chameleon Website Project Team Member:**

Name	Student ID	Semester Contributions
<b>Akashdeep</b>	223040483	As a junior member and beginner with no knowledge of React JS and limited knowledge of HTML, CSS, Node.js, and GitHub, I took full ownership of creating support page from scratch and spent significant time understanding the project code and documentation. I have integrated React Router for effective navigation, utilizing lazy loading for better performance, and structuring routes for general, technology-related, and resource inquiries. Created a collapsible section for each category, dynamic toggling for answers, and anchor links for seamless navigation. User interaction enhancements include welcome notification upon access and a visually appealing, responsive layout. Additionally, a user-friendly query submission form with validation and intuitive styling has been developed. These advancements align with my goal of enhancing user experience by providing organized and accessible information about Chameleon's projects and services through a well-structured support page. I actively collaborated with my team, contributing ideas and resolving conflicts during my code merges.
<b>Minh Khoi Pham</b>	220189994	Implementation of Google Sign In button authentication, Front-end implementation: Sign Out and Reset Password page components using Tailwind CSS along with connecting to backend server through express by fetching services at API endpoints. Updating a responsive navigation bar in header file with conditional routing to present different set of actions for authenticated users including Log out button that navigates the users to sign out page. In addition, I have also implemented Remember Me toggle to allow the user's login state persistence upon user's request. Finally, these changes have been tested locally along with debugging and staging in order to ensure smooth integration into the main workspace. Throughout the working period, I have also learnt how to quickly adapt to new tech stack through documentation and developing prototype of

Name	Student ID	Semester Contributions
		new features before integrating new functionalities and modules into the main website.
<b>Project Lead Matheesha Palliyaguruge</b>	222506155	I have done a custom error 404 page which every non-existent path will be routed to the 404 page. And I have refined and made slight modifications onto the resource page since there was several instances of inconsistencies across the code base and I have made all the fonts, paddings consistent across. Did debugging to the already merged code and got the site working properly again after the site went down second time. I have done code reviews and PR approval throughout the trimester and consistently had discussions with co-leadership team on projects progress. Have refined Trello board to get it properly optimised within team members. Discussed among the leadership team to revert back to the old code after the site has been broken and couldn't get it working.
<b>Kanishk Rajbanshi</b>	222486026	Throughout the trimester in the SIT782 unit, my contributions were diverse and hands-on. I started by getting to know the project's tools like GitHub and Trello through support session recordings. Then, I dove into self-study to learn TailwindCSS, successfully migrating the codebase from Bootstrap CSS, which made the project more efficient and visually appealing. I tackled technical issues like fixing NPM specification problems and build stage bugs, and I recreated overwritten pull requests to keep everything on track. I also researched and updated sitemap.xml and robots.txt, making necessary improvements. I helped junior team members with their questions, kept Trello updated with our progress, and attended mentor meetings for valuable feedback. My journey was a mix of technical learning, teamwork, and practical application, which really helped me grow professionally and contributed to the project's success.
<b>Hao Huang</b>	223304143	In this trimester, I made significant contributions to the Chameleon website project, showcasing skills in cybersecurity, web development, and teamwork. I deployed the project to the test production environment with SSL certification, ensuring security and system integrity. I redesigned the login and sign-up pages to enhance their visual appeal and usability. Additionally, I implemented the News Management API for managing news items in Firebase Firestore, developed a service layer for database interactions, configured Express routes, and created detailed API documentation. I also developed the initial version of a Chatbot component using React, integrating it with OpenAI for intelligent responses and conducting performance testing. I



Name	Student ID	Semester Contributions
		collaborated with team members to implement front-end CRUD functionalities for news items and conducted thorough testing to ensure functionality. Throughout, I focused on improving user experience by maintaining chat continuity, marking AI-generated responses, and addressing UI issues, demonstrating my technical expertise and problem-solving abilities.
Project Lead <b>Chris Hole</b>	220118255	<p>In trimester 1 I have contributed to the project by learning the code in GitHub and understanding how it works. I have only made a small number of technical contributions, learning how to pull the repository and add my branch to it without causing issues to the original code.</p> <p>I have contributed to the leadership team. I have been able to work with Trello to update and add parts to the project, with ideas on what the team could be working on and prioritizing the stages of the project.</p> <p>As I am a junior this trimester, I hope to be able to contribute more next trimester as I have improved my technical skills and enhanced my knowledge surrounding the project.</p>
<b>Pranshul</b>	222196274	During Trimester T1, I significantly enhanced the Chameleon website by implementing various key improvements. I redesigned and implemented a new header section to improve navigation and user engagement. The homepage was revamped to ensure responsiveness across all devices, enhancing the user experience on both mobile and desktop platforms. I refined the image on the 'About Us' page to appear cleaner and more visually appealing. The project page blogs were transformed into interactive, responsive cards that provide visual feedback to indicate their clickability, improving user interaction and navigation. Additionally, I modularized the website's content to facilitate easier updates and management, allowing for straightforward addition of new information and centralized management of existing content. This restructuring lays the groundwork for future upgrades. Finally, I comprehensively updated the codebase documentation to support faster debugging and more efficient future updates, ensuring a smoother development process. These improvements collectively enhance the website's usability, maintainability, and scalability.
<b>Kashish Bansal</b>	222206515	During this trimester, I made significant contributions to the Chameleon website team by focusing on enhancing performance, improving code quality, and facilitating team collaboration. I addressed and resolved state dependencies by implementing a Context Provider API, which not only fixed existing issues but also laid the groundwork for future



Name	Student ID	Semester Contributions
		enhancements such as light/dark mode toggling. This approach ensures efficient and scalable style management throughout the application, adhering to React best practices. I also upgraded the entire codebase to React 18, leveraging the latest features and improvements to maintain the app's compatibility and performance. Furthermore, I redesigned the user interface and introduced lazy loading, which significantly improved loading speeds and enhanced the user experience. In addition to technical contributions, I played a key role in task allocation, helping my teammates manage their workloads effectively and ensuring smooth workflow and timely completion of tasks. Collaborating with Pranshul on content modularization, I streamlined content management and improved the maintainability of the codebase. These contributions have provided long-term benefits for the project's scalability, performance, and maintainability, while my proactive approach and collaborative efforts have significantly enhanced the overall quality and efficiency of our development process.
<b>Project Lead Umair Feroze</b>	218118134	During my time on the project leadership team, I played a pivotal role in bridging the communication gap within the team by initiating meetings with the co-leader. I managed GitHub code reviews and merge requests, ensuring a smooth workflow. To promote efficiency, I introduced and facilitated GitHub Best Practices. My dedication often extended past midnight, providing support and assistance to teammates. Leading the project setup, I resolved numerous bugs and errors. I standardized screen components across all pages and contributed significantly to feature enhancements, including a footer component and improved theme management. I also initiated code reversion techniques that protected other teammates' contributions and led a code refactoring effort to align with React JS standards. Additionally, I implemented a responsive Profile Screen featuring edit profile functionality, post viewing, and a prospective analytics dashboard, all while focusing on implementing Responsive Web Applications (RWA). This experience highlights my leadership, technical, and collaborative skills.
<b>Seohee Lee</b>	222127941	This semester, I achieved significant milestones in web and application development. I implemented responsive design for a homepage, ensuring compatibility across various devices. My focus on enhancing user experience was evident in my continuous testing and optimization of the homepage's responsiveness. Additionally, I expanded my technical knowledge and skills by engaging with various educational resources. I explored articles, tutorials, and GitHub repositories,

Name	Student ID	Semester Contributions
		focusing on responsive web design technologies like React.js, Tailwind CSS, Bootstrap 4, and Node.js. This has not only enhanced my development projects but also equipped me with practical insights and troubleshooting skills.
<b>Project Lead Varun Chaudhary</b>	222475653	This semester, I completed a comprehensive Figma course and earned certification, applying my skills to create advanced website mock-ups and demonstrating proficiency in user experience design. I engaged in example-based learning for UX, implementing design elements like navigation, site layouts, and product pages, and obtained certification in this area. As a junior lead on the project team, I conducted a comprehensive theming overhaul of our website, enhancing usability and user experience. I revamped the resources section, significantly upgrading the user interface of the technologies, statistics, and innovations pages. My key technical contributions included theming the entire website for consistency, ensuring hamburger menu responsiveness, adjusting the search box position, enhancing homepage layout and project card designs, and implementing a global footer and theme switch button using ReactJS. Additionally, I improved chatbot visibility, optimized the news, about us, and contact pages, and refined the resources section for better user engagement and navigation.
<b>Uttam Chandu</b>	220507122	In this trimester, as a senior student, I thoroughly reviewed the company's objectives and goals that needed implementation and explored all the Trello tasks posted by the leadership team. Over the semester, I successfully implemented the GCP endpoints for Mailgun components on the Chameleon website project. By leveraging my expertise in GitHub, NPM, and API integration, I ensured that the Mailgun components integrated smoothly into the website's overall architecture. This involved significant upskilling in areas vital to our project's success. I improved my knowledge and practical skills in HTML, CSS, JavaScript, GitHub, NPM, API integration, AI, ML, and IoT. These skills allowed me to contribute effectively to the technical aspects of the project and ensure smooth integration of new features.  I actively engaged in weekly team meetings and mentor sessions, where I provided updates, shared insights, and collaborated on solving problems. My participation in these meetings helped align our team's efforts with project goals and supported continuous improvement.
<b>Arman Dhamani</b>	221301447	Throughout this trimester, as a junior student, I made significant contributions to the Chameleon website. I undertook the task of developing the mobile version of the site and implementing its responsive design. Despite facing challenges in Weeks 9 and 10,

Name	Student ID	Semester Contributions
		<p>when the website crashed due to multiple conflicting pull requests from other students, I created a new pull request and successfully redeveloped the necessary features. Additionally, I worked on integrating the backend with Firebase.</p> <p>I worked closely with the team throughout the project, offering creative suggestions, mediating disputes during code merges, and recording implementation specifics to guarantee efficient knowledge transfer. I overcame and overcame a variety of technical obstacles, exhibiting tenacity, excellent problem-solving abilities, and a never-ending desire to learn.</p>
<b>Subramanya N S</b>	223113345	<p>As a junior student, I made substantial contributions to the Chameleon Company's website project, focusing on enhancing the functionality and user experience of the Resource Page. I developed a robust and user-friendly content management system, enabling administrators to easily update and maintain content without code deployments. Integrating a powerful rich-text editor and implementing role-based access control, I ensured a seamless editing experience while prioritizing data security and integrity. Furthermore, I integrated Firebase Database as a scalable back-end solution, developing functions for efficient data management and synchronization between the front-end and back-end. Throughout the project, I actively collaborated with the team, contributing ideas, resolving conflicts during code merges, and documenting implementation details to facilitate knowledge transfer. I encountered and resolved various technical challenges, demonstrating perseverance, problem-solving skills, and a willingness to learn. Additionally, I conducted code optimizations and refactoring to improve performance, maintainability, and scalability, adhering to best practices and coding standards.</p>
<b>Sinan Kilci</b>	222356603	<p>As a junior team member, I worked closely with my team and thoroughly reviewed our entire web development repository. I worked on GitHub best practices with my team leader, Umair Feroze. I actively participated in creating new ideas, adding at least four to our brainstorming sheet. I attended nearly all our weekly meetings and attended a crucial meeting with the PO. Unfortunately, my machine learning project ideas were not approved by the PO, so I couldn't pursue them. However, I focused on other important tasks like developing user stories and use cases for extended user roles such as administrators, content creators, content editors, and registered users. This work helped improve how users interact with our site. Additionally, I redesigned the "Contact Us" page to make it more user-friendly and fixed security weaknesses related to React</p>

Name	Student ID	Semester Contributions
		packages and package dependencies in our website, enhancing its safety and performance.

## EV Adoption Tools

### Overview

The EV Adoption Tools project was initiated with the objective of promoting the widespread adoption of Electric Vehicles (EVs) in Australia. By leveraging innovative tools and strategies, the project seeks to address key barriers to EV adoption, thereby contributing to a reduction in fossil fuel dependency, mitigation of greenhouse gas emissions, and fostering a positive environmental impact on both local and global scales.

In response to the significant interest of team members in ECVFLO web development, ECVFLO Data science, and Evoleon app team for the project "EV Adoption Tools" has been formulated for this trimester. The project aims to harness the collective expertise and enthusiasm of the team to address key challenges in the adoption of Electric Vehicles (EVs), particularly focusing on forecasting demand for EV chargers and optimizing their locations for maximum effectiveness.

### Overview of EV Adoption Tools

EV Adoption Tools encompasses two key projects: ECVFLO and Evoleon, both aimed at facilitating the adoption of electric vehicles (EVs) in Australia. ECVFLO is a multifaceted initiative consisting of web development and data science teams, focused on enhancing the accessibility and usability of EV charging infrastructure. On the other hand, Evoleon is dedicated to developing a new app specifically designed to streamline the process of locating EV charging stations. By synergizing the efforts of these projects, EV Adoption Tools aims to address the growing need for efficient and user-friendly EV charging solutions across the country.

### Goals & Objectives

Our primary focus this trimester is to make significant strides in improving the accessibility and usability of electric vehicle (EV) charging infrastructure across Australia. To achieve this, we have outlined several key objectives. Firstly, we aim to enhance the user experience of the ECVFLO website by implementing a chatbot feature capable of addressing user inquiries and providing personalized recommendations for optimal charging locations. Additionally, we are committed to expanding our data resources by adding new datasets focusing on Australian EV charging station information, thereby enabling us to conduct further research and analysis to support the development of EV charging infrastructure. Moreover, we seek to develop additional AI/ML models to streamline EV route planning based on user preferences, thus ensuring a seamless and efficient charging experience. Collaboration between our web development and data science teams is crucial to achieving these objectives, as we work together to deploy machine learning models, improve mapping features, and enhance the overall user experience. Finally, we are dedicated to addressing any challenges encountered during the development of the Evoleon app, exploring the possibility of creating a new app if necessary, and designing a user-friendly interface tailored specifically for locating EV charging stations. By focusing on these objectives, we aim to make significant progress in advancing EV adoption in Australia this trimester.

### Aims this Trimester

This trimester, our overarching aim is to propel forward in our mission to promote the widespread adoption of electric vehicles (EVs) throughout Australia. To achieve this aim, we

have set out several specific goals and milestones. Firstly, we aim to enhance the accessibility and usability of EV charging infrastructure by implementing innovative tools and technologies, such as our chatbot feature and advanced mapping capabilities. Additionally, we seek to expand and improve our existing data resources to support the development and deployment of EV charging stations across the country. Collaboration and teamwork are essential to our success, and we aim to foster strong collaboration between our web development and data science teams to maximize efficiency and effectiveness in achieving our goals. Furthermore, we are dedicated to making significant progress in the development of the Evoleon app, ensuring that it meets the needs and expectations of users by providing a user-friendly interface and efficient functionalities for locating EV charging stations. Overall, our aim is to make tangible progress in advancing EV adoption in Australia, bringing us one step closer to a sustainable and eco-friendly transportation future.

### **Trimester Deliverables**

#### *Web Development Team:*

- Develop a chatbot capable of addressing user inquiries round the clock regarding company information and usability concerns.
- Integrate the chatbot with a database to store locations and provide tailored recommendations for optimal charging locations.
- Showcase recently discovered EV charging station (EVCS) locations on an interactive visual map.
- Incorporate new EV charging station locations seamlessly into our Google API interactive map.
- Enhance mapping functionalities, EV charging station search capabilities, and visual representations for improved user experience.
- Refine the EVCFO website to enhance its intuitiveness and responsiveness to user interactions.

#### *Data Science Team:*

- Expand the EV Charge Location database by adding new datasets focusing on Australian information.
- Develop additional EVCS-related AI/ML models to support EVCS development and promote EV adoption.
- Develop EV route planning based on user defined preferences.
- Conduct further research and exploratory data analysis (EDA) on newfound datasets.

#### *Collaboration (Data Science & Web Development Teams):*

- Fully deploy EVCS Machine Learning density clustering models for both Victoria and Queensland on the AI Models webpage.
- Collaborate to ameliorate current mapping features, EVCS search functions, and visualizations.

#### **Evoleon Team:**

- Collaborate to ameliorate current mapping features, EVCS search functions, and visualizations.
- Address challenges encountered during the setup of the app's development framework by troubleshooting and implementing solutions effectively.
- Explore the possibility of creating a new app for Evoleon if the issues persist, documenting challenges such as the lack of documentation in GitHub and absence of handover documents for reference.
- Design a new Evoleon app tailored for locating EV charging stations, ensuring user-friendly interfaces and efficient functionalities.
- Conduct thorough research to determine the most suitable technical framework for developing the Evoleon app, ensuring optimal performance and scalability.

#### **Summary of Achievements:**

##### *Web Development Team:*

- Set up EVCFO website development framework locally: We got the previous version of the website running on our own computers for building the EVCFO website.
- Documented the implementation flaws and hurdles of the backend development, focusing on locating EV charging stations: As we worked on creating the part of the website that finds EV charging stations, we kept track of all the problems we faced and wrote them down. This helps us understand what went wrong and how we can fix it later.
- Developed architectural diagram with chatbot powered by Bot Express (Open AI): We made a detailed plan that shows how different parts of the website work together. This includes the chatbot feature, which uses technology from Bot Express powered by Open AI. It's like drawing a map to understand how everything connects.
- Designed website layouts and user interfaces using Figma for every page and to make the website better: We used a tool called Figma to create the designs for how each page of the website will look and how people will interact with it. This helps us visualize the website before actually building it and allows us to make it user-friendly and attractive.

##### *Data Science Team:*

- Updated existing CSV files with new and updated EV charger location data.
- Developed a PowerBI report that can visualise EV charger locations across Australia and provide filtering capability based on charger information and amenities within 100m of the charger location. Data collection process (python notebook) to source EV location and amenity data and create updated CSV files. Both Open Street Map and Open Charge Map have been tested. The output CSV files have been used to create the PowerBI Report.
- Developed a Route Planning Tool (python notebook) that utilises open charge map to identify public EV chargers in Australia. User input parameters are set (Origin, Destination, Range, starting charge %) and the algorithm calculates and plots a route including the EV charging stops required.

- Developed a use case for analysing the location of landmarks/services within Melbourne and identifying locations where an EV charger is not within 1000m of the landmark. Results have been plotted on a heatmap of Melbourne.
- Developed a use case that plots a route from origin to destination in Melbourne calculating the amount of power consumed and the electricity costs to complete the journey.
- Developed a use case that utilises charging station data to analyse and visualise various distributions including charging speeds and socket types
- Developed a suite of visualisation reporting in Tableau highlighting:
  - The adoption of EV vehicles in Australia since 2021.
  - The adoption of EV vehicles globally by country since 2010.
  - EV vehicle comparisons across make and models including costs, range, efficiency, charging time.

Trimester 1 Data Science Use Case video summary:

<https://deakin365.sharepoint.com/:v/r/sites/Chameleon2-Chameleon-Leadership/Shared%20Documents/Chameleon%20Leadership/Trimester%201%20-%202024/Showcase%20Videos/EV%20Adoption/EV%20Adoption%202024%20T1%20Final%20Showcase.mp4?csf=1&web=1&e=jyOTd1>

*Evoleon Team:*

- Working on solving dependency issues that are popping up from the GitHub files from the packages.json files, it appears that conflicting package versions entered at some point and have yet to be resolved which has been the main obstacle that has been worked around thus far.
- Looking at working towards stabilising the current app build then progressing to adding more features to the app to ensure that what is there works before adding more which would make the web more difficult to untangle later down the line.
- Eventually concluded that the current application code was too broken and needed new foundations to be built to allow it to both run and be built upon in the future without the same issues occurring for future team members, still using the relevant parts of the previous code, just ensuring that no issues that were a part of the original continued with the new.
- Began the building of the new foundation of the application with the correct updated packages and dependencies to ensure that the program works in the future as well as allowing the original program to function as intended using the expo framework in conjunction with the working and relevant parts of the original code.



## EVFLO Project Members:

### Web Development Team:

Name	Student ID	Semester Contributions
<b>Varun Sai Burla</b>	221013876	I gave an important effort over the last few weeks by using React to construct and redesign the login page with an emphasis on accessibility and user experience. To improve user ease, I established sophisticated features like "Forgot Password" and social login alternatives (Facebook, Microsoft, Google). I implemented user feedback tools to direct iterative improvements in frontend development and security using data-driven methodologies and best practices. This guaranteed a reliable and user-friendly login process. By utilizing React and Figma to construct and redesign the login page, I have made a substantial contribution to our project. Using Figma, I created a contemporary, easily navigable interface that improves accessibility and user experience. To further improve the login page, I have also tried to maximize efficiency and carry out thorough accessibility testing.
<b>Aurobindo</b>	221013938	My contribution for our website was improving the team page in SIT 378, mostly by utilising Figma to make design changes. To enhance the team page's visual appeal and user experience, I completely redesigned its layout. Adding an advanced search option was one of my main contributions. With this new feature, users can find team members more quickly by filtering based on specific criteria. This makes it simpler to find people who fit specific roles or have specific skills. Furthermore, I made certain that the design was optimised and responsive for a range of devices, guaranteeing a smooth and consistent experience across multiple platforms. My efforts on the team page have improved accessibility and navigation, which has improved our team's online presence's usability and functionality. Through the integration of both functional and aesthetic elements, my contributions have greatly enhanced our team page's overall efficacy.
<b>Aashritha</b>	222453913	I have significantly contributed to the EV adoption tools project by redesigning the signup page using Figma, enhancing both its usability and visual appeal. I implemented this design with HTML, CSS, and JavaScript, ensuring a responsive and user-friendly interface. Additionally, I established a robust backend infrastructure using XAMPP for secure data storage, integrating PHP scripts for seamless login and signup functionalities. I also added advanced features like Google login for improved user authentication. By adopting continuous integration practices

Name	Student ID	Semester Contributions
		with GitHub, I streamlined development processes and enhanced team collaboration. My focus on user experience, backend reliability, and advanced features has been pivotal in driving the project towards its goals.
Fangzhou	222305846	In past 3 months I have attended all weekly and mentor meetings to shared my opinions to the team projects and report my working progress in each weeks. And I have checked and completed all Teams activities for each week which include stands up excel files per week, EVCFO lifecycle documents and company group works I was also contributed to for 6.1p and 11.2p and 2.1p. in terms of designing and developing the assigned web pages, I used Figma to create and design UI of research and AI model pages. I have redesigned the navigation bar, font styles and size, Apply new designed Texts box and buttons, new search squares. And I have completed development of research pages and AI model pages with HTML, CSS, and js. At the end I have commit all coding files, updates of web pages to the personal repo and company repo with git.
Ivy Zhao	221209335	During this SIT374 course, I used Figma to redesign and optimize the webpage to improve the user experience. The layout of some web pages has been redesigned to improve users' browsing and operating experience. Through the redesign, I enhanced the visual effects and usability of the page while maintaining the original design style. Try to participate in team meetings to understand and discuss the team's goals, tasks and progress. The overall support page was redesigned and the design plan implemented. The design of each jump page has been improved to provide users with a better experience during use. The news page has been optimized to ensure that news can be arranged in chronological order from latest to oldest. A latest news display area has been added to enable users to quickly understand the latest developments and information. These improvements not only improve the readability and usability of news pages.
Leader Akshit	221071548	<b>Technical Contribution:</b> The first stage involved designing the chatbot using Figma and defining its usability features. A chatbot for the EVCFO website was developed, with Replit chosen for backend coding and Voiceflow selected for frontend development. An OpenAPI key was securely stored in Replit, which was crucial for generating the link to connect Replit's backend with Voiceflow's frontend. Additionally, a knowledge base file was created to train the chatbot AI. This file stores information about EV charging stations in Victoria, pricing, case studies, and more. The aim is to update the chatbot's capabilities every semester by retraining it with the latest

Name	Student ID	Semester Contributions
		information. <b>Leadership Contribution:</b> I led the team's web development project, organizing weekly meetings with team members and the mentor, as well as attending weekly company meetings. I also contributed to the creation of both the company showcase video and the web development showcase video.
Hongkun	220427276	Over the past few weeks, I've been actively involved in all planning meetings for the project, and I've contributed significantly to the development of the About page. Despite missing a mentor meeting, I managed to code the About page, including front-end interface and back-end integration, ensuring it was fully functional and performant. I solved technical issues in data processing and API integration, improving page load speed and user interaction fluency. Next, I plan to communicate with my tutor, get feedback, and continue to optimize the page performance. At the same time, I plan to prepare the next stage of the project presentation to ensure that the project goes smoothly as planned. These weeks of work not only improved my technical skills, but also enhanced my collaboration and communication skills in a team.
Ratanak Sovann	219339559	<ul style="list-style-type: none"> <li>Reached out to stakeholders to obtain the config.py files and request access permission to GCP.</li> <li>Re-implement the navigation menu utilising Radix UI and Tailwind CSS, incorporating dropdown menus for the 'About' and 'Business' for better navigation.</li> <li>Created boilerplate pages (Company, Insights, Support, Business Dashboard, Research, EVCFLO API) as a base for future development.</li> <li>Implemented in React navigation menu for small screen size with animated hamburger-style icon as a trigger to open and close the menu. "About" and "Business" can be clicked or tapped to reveal submenu items.</li> <li>Implemented Log in and Sign-up UI using the dialog and tab components and the mobile version using drawer component.</li> <li>Integrated Chatbot from Akshit into the frontend.</li> <li>Reviewed pull requests from team members and provided feedback and approved to merge when appropriate.</li> </ul>
Laksh Gilhotra	222437252	I actively contributed to project meetings, focusing on designing the user profile page for the Chameleon Electric Vehicle Charger Forecasting and Location Optimization (EVCFLO) initiative. Documenting planning and analysis, I ensured alignment with project goals and user needs. The React-based application

Name	Student ID	Semester Contributions
		developed showcases user profile details, while customized CSS styles enhance visual appeal. Organizing the project with modular components facilitates code management, with npm managing dependencies. Next steps involve deploying the React application publicly and refining the user interface based on feedback. Additionally, I enhanced the user profile page's front-end design, improved layout and functionality, and provided updates in team meetings, ensuring project alignment. These efforts aim to exceed expectations in functionality and user experience.

*Data Science Team:*

Name	Student ID	Semester Contributions
<b>Shilpa</b>	222315366	This Capstone program has been an immense learning for me as an individual as well as a team player where I have built a project from an end-user perspective where a user can filter out near by charging stations based on the socket type as well as the charging capacity, I have tried to make it more visual by creating heatmaps, bar charts , violin charts , used folium to create a map to showcase the EV stations throughout Australia. Also, volunteered for plenty of team work, have created a document for the team from technical perspective, attended team meetings regularly, created minutes for the weekly DS meetings, created a short video to showcase my use-case's workings. In addition to this I have attended the class scheduled like industry engagement etc.
<b>Leader Yuvraj Singh</b>	222184401	In this unit, I extracted data on parking status and costs from over 140 locations using Open Map API, and merged it with the main dataset via Jupyter Notebook. I created and shared documentation on the data extraction process for team use. Additionally, I integrated an EV vehicles information dataset for 2024. My contributions were successfully merged into our GitHub repository. I developed three Tableau dashboards comprising 12 visualizations, focusing on EV adoption in Australia, EV adoption worldwide, and detailed EV vehicle information. I meticulously documented the visualization process and insights. Furthermore, I facilitated collaboration by hosting four mentor meetings, providing guidance and updates to the team. These achievements highlight my skills in data extraction, integration, visualization, documentation, and team collaboration.

Name	Student ID	Semester Contributions
Leader <b>James Davies</b>	218377995	<p>Technical:</p> <p>2 tools/uses cases have been developed. A Route Planning Tool that can map the route from an origin to a destination across Australia using the EV charging network. The tool takes user input (range, starting % charge, origin and destination and the algorithm calculates and plots a route on a map showing each EV charger stop required.</p> <p>A data visualisation tool (EV Charger Location and Amenities Explorer) was also created and published to the PowerBI service. The PowerBI Report allows a user to explore the EV charger network and all amenities within 100m of each charging location.</p> <p>Leadership:</p> <p>Ran weekly meetings for Data Science Team, completed minutes and ran Chameleon team meeting. Presented 2 times at Chameleon team meeting. Led the coordination of the showcase video and EV Data Science video.</p>
<b>Samuel Ng</b>	222518061	<p>This trimester, I accomplished a notebook to visualise data and a tool to calculate the electricity cost of a custom route with a selected EV for the use case. The data visualisation provides basic information about the EV industry and energy consumption information for the top 20 most energy-efficient EVs. Additionally, the tool allows users to input a start and end location to draw a route on a map and calculate the cost of the route based on the selected EV and electricity distribution zone.</p>
<b>Mackenzie Gong</b>	223065159	<p>This trimester, the use case I'm working on is to investigate the distribution of EV charger stations around major public facilities and landmarks in the city of Melbourne. Through data collection and updates, datasets with 110 entries of landmarks and 480 entries for EV stations are ready. The aim is to get the density EV stations within the radius of 1 kilometre around each destination.</p> <p>Results were generated and stored in a CSV file. Then for the visualization, I use the python folium library to present the density of the charger stations with different colour patterns. Also, this tool is able to stay fresh by allowing updating dataset of both landmarks and EV chargers, and the map for visualization can also be updated after update each time.</p>

*Evoleon:*

Name	Student ID	Semester Contributions
<b>Kaelen Mackinnon</b>	222277913	<p>This trimester I have worked on upskilling myself in both the react programming language as it is something that I have not</p>

Name	Student ID	Semester Contributions
		worked with before as well as the Expo framework and learning how that operates in order to work with my team to find a solution to the non-functional program and the many dependency and packages errors that came up when running it. Eventually, this led to a decision that a rebuild of the foundation of the application would be created to ensure that this issue would not occur again and that we could access and use the original code which we could not find a way to do. Using the workable parts of the original code and the Expo application framework we have begun work on rebuilding the application so future team members do not have the same issues that we did.
<b>Auth Chanakijkam jorn</b>	218033849	This trimester, I worked in EVOLEON team. I researched and studied a lot about React native and Expo go that use for running the application and fixing many errors when install. After that, I started to create my own page for the and call it "Newsscreen" this screen will provide the latest news about EV car and other information that related to it. I also provide a picture and header of each news for the user, to make them easy to select what news they want to read by look at the picture and the topic and click on read more button. After that I link it to the main application that handover from the last trimester students, added back button for the user to use when they want to go back. I already push and make a pull request to company's repository.
<b>Sam Bonnor</b>	221437663	This trimester I was part of the EVOLEON team, I have performed upskilling about the Expo app development framework while also working with my team to try and bring the Evoleon App into a functional state from its initial completely broken state, until the decision was made to rebuild the app due to the many dependency and compilation errors