

# FINAL REPORT

## A clear explanation of the purpose of your system and the problems that you addressed

At present, customers are limited with the way their transaction data is analysed and displayed. Additionally, there is no existing platform that personalises the available schemes and offers Macquarie bank has on offer. Hence, the purpose of our system is to ensure Macquarie Bank customers are given the opportunity to make the most out of the wide range of services provided by Macquarie without getting overwhelmed with information thus allowing clients to better understand their financial decisions and visualise their financial standing.

In order for this to occur we have come up with a series of features (projections, offers, comparisons table, payment reminders) that will provide the opportunity for customers to minimise expenditure and maximise rewards. Ultimately, the banking services provided by our system will act as the intermediary between the bank and clients to ensure they are provided with analysis of their financial decisions that will help them optimise their finances in the future.

## PROBLEM STATEMENTS:

1. No platform exists to receive personalised offers and schemes determined by an individual's transaction history.  
*The offers and schemes customers can view through their account are based on the range of services and products Macquarie has on offer with each offer being tailored to the respective customer's financial lifestyle.*
2. There is no quick way to view visual depictions and further analyse an individual's foregone monthly expenses.  
*Customers can view their monthly expenditure in the form of a bar graph.*
3. No platform exists to efficiently and quickly view monthly and yearly projections of a customers savings and expenses (deduced by their salary and transaction history)  
*Users are provided with two line graphs, with the first detailing monthly(next 12 months) projected expenditure and savings and the second detailing yearly (next 10 years) projected expenditure and savings.*
4. There is no feature to compare customers' expenses to those in the same age bracket  
*Each user is provided with a table with the first column outlining their own categorised expenditure and the second column highlighting the expenditure of the average person in the age bracket selected (series of buttons).*
5. No feature exists to keep the client on top of their upcoming payments and bills.

*Users are able to add and remove payment reminders and visualise them in a calendar form.*

6. No feature exists which allows MQ bank users to filter their transactions by the date and/or category selected and further view these categorised expenses in the form of a pie chart.

*Clients are able to view their transaction history in both a list format and a pie chart. They are also given the option to filter their transactions (in both the list and pie chart) based on the dates selected (datetime fields) and/or category chosen (clicking on a segment of the pie chart provides the option to filter the transactions by category).*

### **List of different features of your system**

<b>Name:</b>	<b>Description:</b>
Personalised Schemes	1. Receive personalised offers and schemes which are based on an individual's transaction history.
Categorised Expenditure	2. Visual depictions and analysis of an individual's transaction history <ul style="list-style-type: none"> <li>a. View monthly expenditure in the form of a bar graph.</li> <li>b. View categorised expenditure filtered by the range of dates inputted by the user in the form of a pie chart and list.</li> <li>c. View a customer's transaction history filtered by the category chosen in the form of a pie chart and list.</li> </ul>
Comparisons	3. Compare clients categorised expenses to that of an average person in other age brackets.
Projected Savings/Expenses	4. Project customers' savings and expenses (monthly and yearly) deduced by their salary and transaction history.
Payment Reminders	5. Ability to set and schedule payment reminders <ul style="list-style-type: none"> <li>a. View all upcoming payments in the form of list and dynamic calendar.</li> <li>b. Ability to create new payment reminders</li> <li>c. Ability to delete existing payment reminders</li> </ul>
Log in	6. Ability to log in to the account.
Log out	7. Ability to log out of the account

## The updated user stories and sequence diagrams

### 1) **Feature: 1**

**As a:** Macquarie client

**So that:** I am able to make the most out of the wide range of offers and schemes Macquarie Bank has on offer

**I want to:** be able to view a series of personalised offers and schemes that are tailored towards my spending habits and financial standing.

**GIVEN** I am logged into my account on the Bankquire website and want to view the personalised offers my bank provides

**WHEN** I click on the “Offers and Schemes” button which is the 4th button on the interactive navigation bar (menu bar at the top of every page)

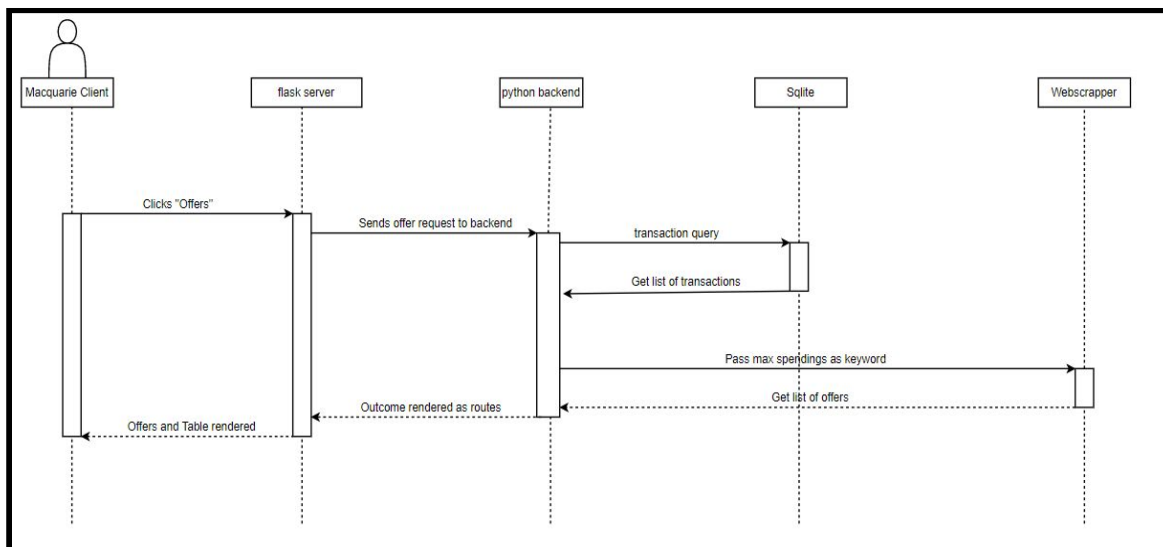
**THEN** A page with six personalised offers provided by the bank that best satisfy my financial needs comes up in a tabular format

**WHEN** I hover over a particular offer

**THEN** the offer tile flips around and I am provided with a description of the offer and a reason as to why that offer was suggested to me

**WHEN** I click on the ‘More Info’ button which is located at the bottom left of every (information side/back side of the offer tile) offer.

**THEN** I am further directed to the Macquarie bank website which gives me more information about that particular offer



### 2) **Feature: 2a**

**As a:** Macquarie client

**So that:** I am able to visualise and compare my expenditure for each month

**I want to:** view an interactive bar graph of my spendings for the last twelve months, categorised monthly

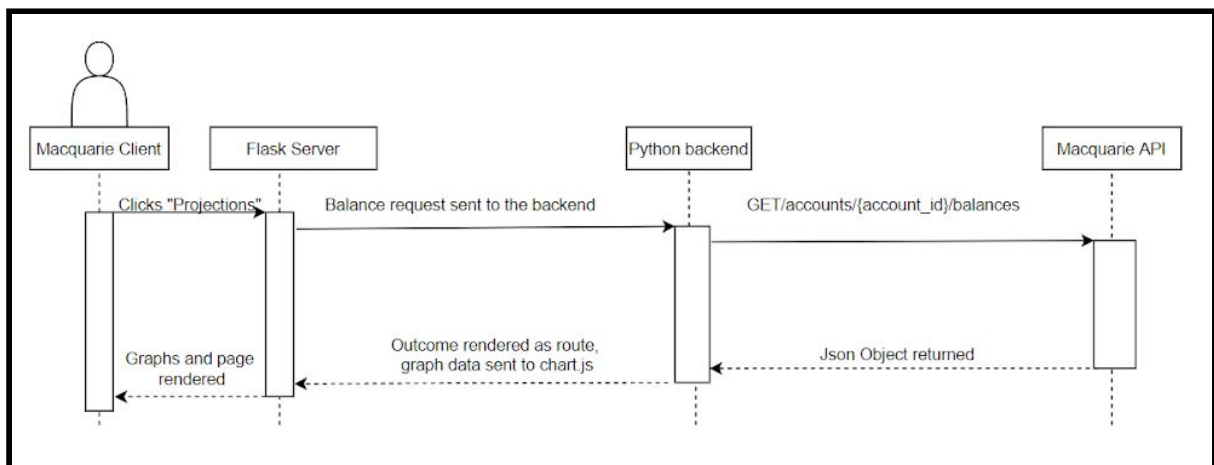
**GIVEN** I am logged into my account on the Bankquire website and want to view the monthly expenditure bar graph

**WHEN** I click on the “Projections” button which is the 5th button on the interactive navigation bar (menu bar on the top of every page)

**THEN** I can view an interactive graph (which is located at the top of the page) detailing my spendings for the last 12 months

**WHEN** I hover over each bar in the graph

**THEN** my exact expenditure for that month will appear



3) **Feature: 2b**

**As a:** Macquarie client

**So that:** I am able to efficiently visualise a categorised summary of my spending habits

**I want to:** be able to view both a list and a pie chart detailing my expenditure categorised by essentials (such as food, travel, entertainment, health, phone, car)

**GIVEN** I am logged into my account on the Bankquire website and want to view my categorised expenses

**WHEN** I click the “Expenditure” button which is the 2nd button on the interactive navigation bar (menu bar on the top of every page)

**THEN** a pie chart depicting my spendings will appear

**AND** a list of my unfiltered transactions ordered in descending order will also appear

**WHEN** I hover over each segment in the pie chart

**THEN** my exact expenditure for that category will appear.

**WHEN** I select a segment on the pie chart

**THEN** the transaction list will be filtered to only show transactions specific to the category chosen

**WHEN** I change the dates for which I want of my transactions

**THEN** my pie chart will change to illustrate my transactions for the duration chosen.

4) **Feature: 2c**

**As a:** Macquarie client

**So that:** I am able to view and analyse my transaction history

**I want to:** be able to view my transaction history over a selected duration of time and additionally filter the transactions by category

**GIVEN** I am logged into my account on the Bankquire website and want to view my transactions within a specific period of time

**WHEN** I click the “Expenditure” button which is the 2nd button on the interactive navigation bar (menu bar on the top of every page)

**THEN** a pie chart depicting my spendings will appear

**AND** a list of my unfiltered transactions ordered in descending order will also appear

**WHEN** I hover over each segment in the pie chart

**THEN** my exact expenditure for that category will appear.

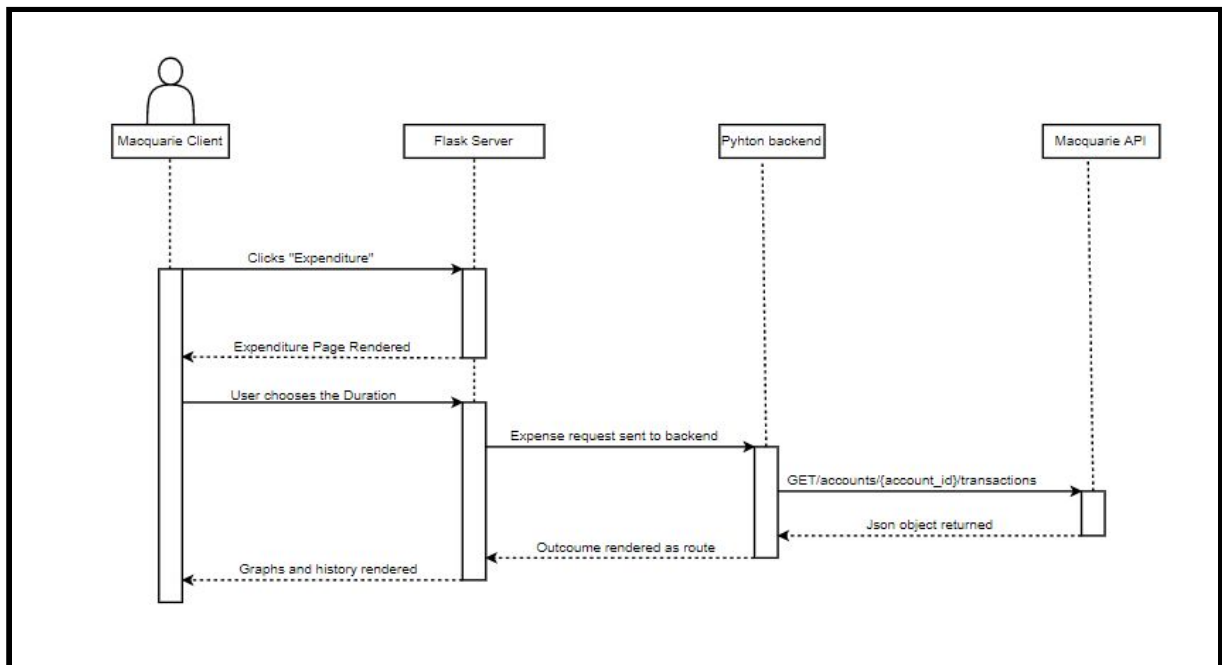
**WHEN** I select dates within the datetime fields, located on the left of the pie chart on the Expenditure page, for which I want the duration of my transactions to appear

**THEN** my transaction history list will be filtered to show only the transactions that occurred within the chosen duration

**AND** the pie chart will be updated to reflect only the transactions within that duration

**WHEN** I select a segment in the pie chart (after or before a duration is chosen)

**THEN** the transaction list will be filtered by the duration selected and also by the category chosen



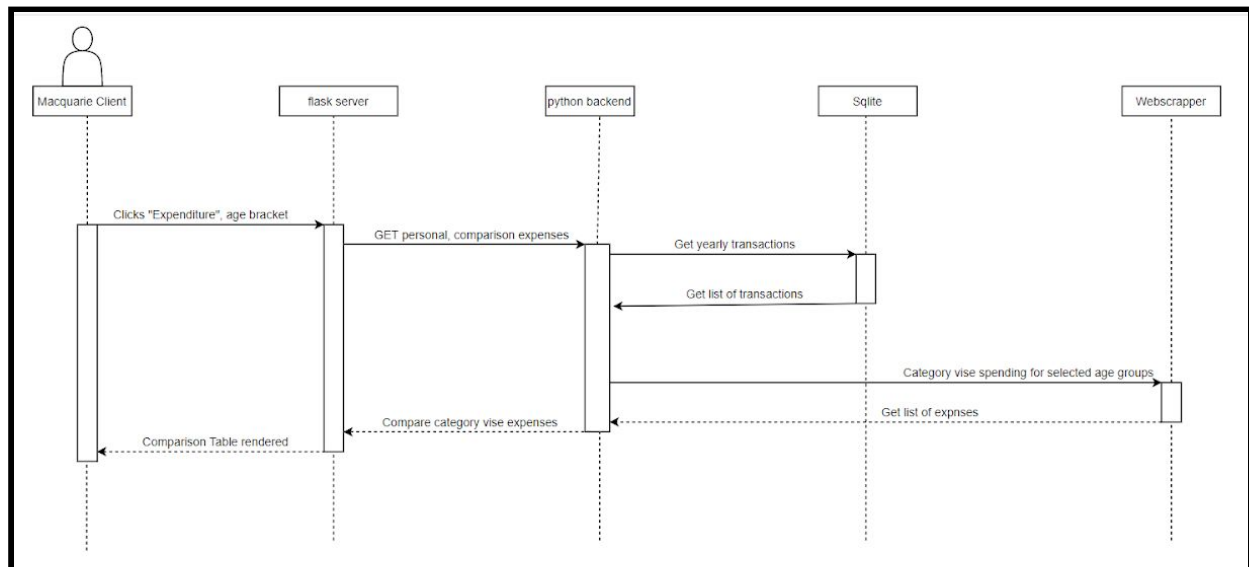
## 5) Feature: 3

**As a:** Macquarie client

**So that:** I am able to compare and reflect on my expenses

**I want to:** view the differences between my categorised expenses and that of the average person in the same age bracket

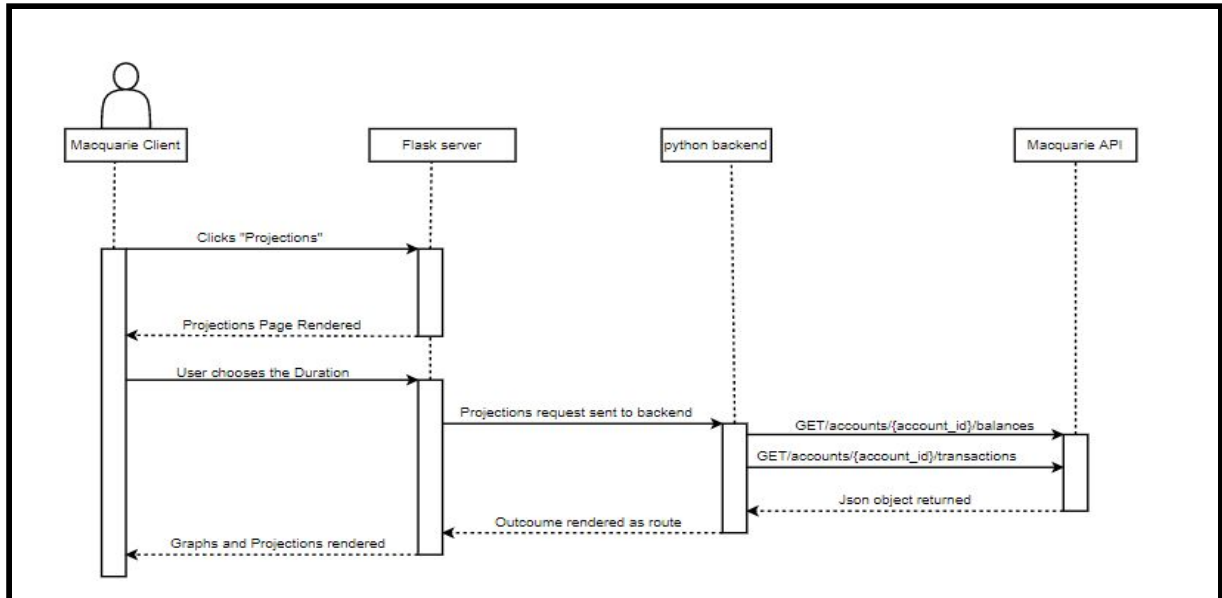
**GIVEN** I am logged into my account on the Bankquire website and want to view the comparison between my own expenditure and that of other age brackets  
**WHEN** I click the “Expenditure” button which is the 2nd button on the interactive navigation bar (menu bar on the top of every page)  
**THEN** a table will appear detailing the differences between my expenses and that of the average person in the same age bracket per category  
**WHEN** I click on another “age bracket” button (i.e. 45-55)  
**THEN** the table will update to show the differences between my expenses and that of the average person in the age bracket selected



- 6) **Feature: 4**  
**As a:** Macquarie client  
**So that:** I am able to better plan my financial future and have accurate budgeting data  
**I want to:** be able to view my projected monthly and yearly savings and expenses

**GIVEN** I am logged into my account on the Bankquire website and want to view my projected savings and expenditure  
**WHEN** I click the “Projections” button which is the 5th button on the interactive navigation bar (menu bar at the top of every page)  
**THEN** two line graphs will appear, with the first depicting my predicted monthly (next 12 months) savings and expenditure and the second depicting my yearly (next 10 years) savings and expenditure  
**WHEN** I hover over a point on either of the line graphs  
**THEN** I can see the exact amount predicted for that particular month or year (depending on what graph I am looking at)  
**WHEN** I select one category on the key (either savings or expenditure)

**THEN** it omits it from appearing on the line graph and will allow me to focus on only expenses or savings (dependent on which is omitted) and analyse this trajectory better



- 7) **Feature:** 5a  
**As a:** Macquarie client  
**So that:** I am able to accomodate for and visualise my upcoming payments  
**I want to:** be able to view all my upcoming payment reminders in a calendar and list format

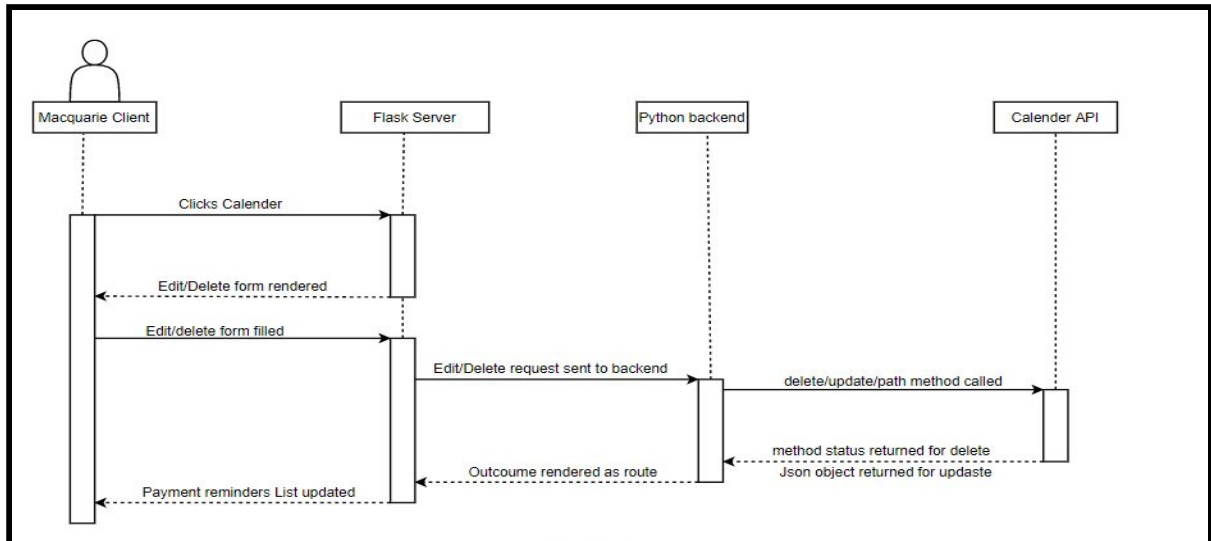
**GIVEN** I am logged into my account on the Bankquire website and want to view my upcoming payments

**WHEN** I click the "Payment Reminders" button which is the 3rd button on the interactive navigation bar (menu bar at the top of every page)

**THEN** I am able to view a list of the upcoming payment reminders I have set which are categorised by date, amount and description

**WHEN** I scroll down to the bottom of the Payment Reminders page

**THEN** a dynamic calendar reflecting my upcoming scheduled reminders will appear



- 8) **Feature: 5b**  
**As a:** Macquarie client  
**So that:** I am able to view my upcoming payment reminders and plan my finances accordingly  
**I want to:** be able to create scheduled payment reminders

**GIVEN** I am logged into my account on the Bankquire website and want to add a reminder for an upcoming payment

**WHEN** I click the “Payment Reminders” button which is the 3rd button on the interactive navigation bar (menu bar at the top of every page)

**THEN** a box that allows you to create new reminders, a list of current reminders and a calendar reflecting upcoming payments will all simultaneously appear

**WHEN** I fill in the description, amount and payment date with relevant details and click the submit button, all fields which are located in the create new reminders box

**THEN** I am able to create a scheduled reminder

**WHEN** the page is refreshed

**THEN** the calendar at the bottom of the page will also reflect the payment reminder I just created

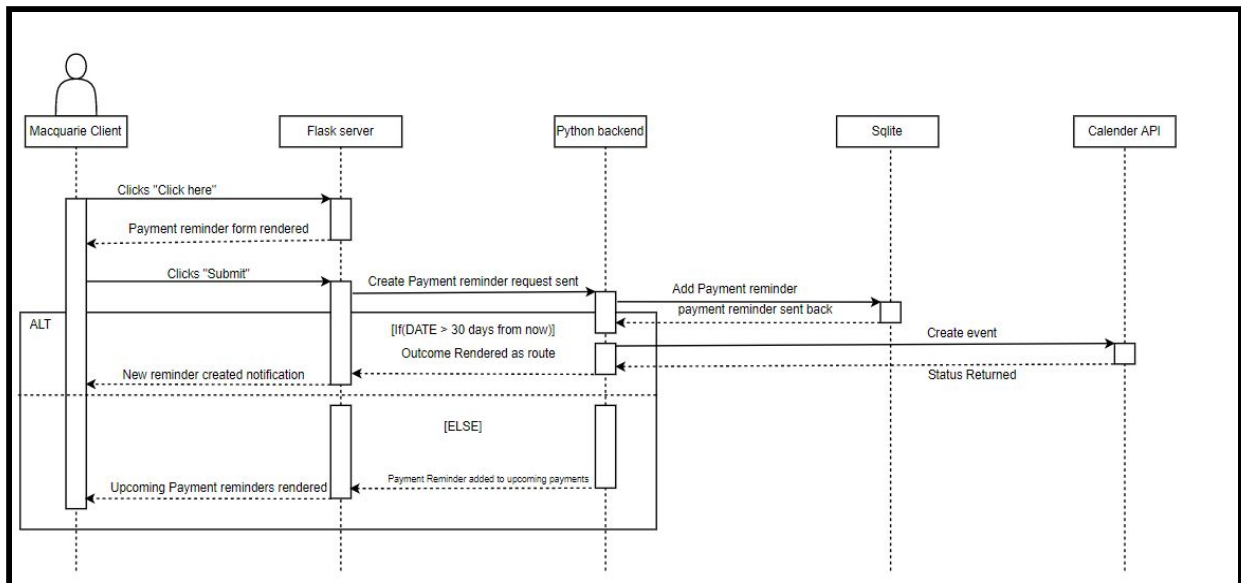
**WHEN** I view the list of scheduled payment reminders

**THEN** I will be able to see that the existing list has updated to include the reminder I have just set

**WHEN** I create a new payment reminder with a date before the current date

**THEN** an error will appear and the subsequent reminder will not appear in the list or calendar





- 9) **Feature: 5c**  
**As a:** Macquarie client  
**So that:** I am able to remove and update my list of upcoming expenses  
**I want to:** be able to delete scheduled payment reminders

**GIVEN** I am logged into my account on the Bankquire website and want to view and edit my list of upcoming payments

**WHEN** I click the "Payment Reminders" button which is the 3rd button on the interactive navigation bar (menu bar on the top of every page)

**THEN** a box that allows you to create new reminders, a list of current reminders and a calendar reflecting upcoming payments will all simultaneously appear

**WHEN** I scroll down to the middle of the page

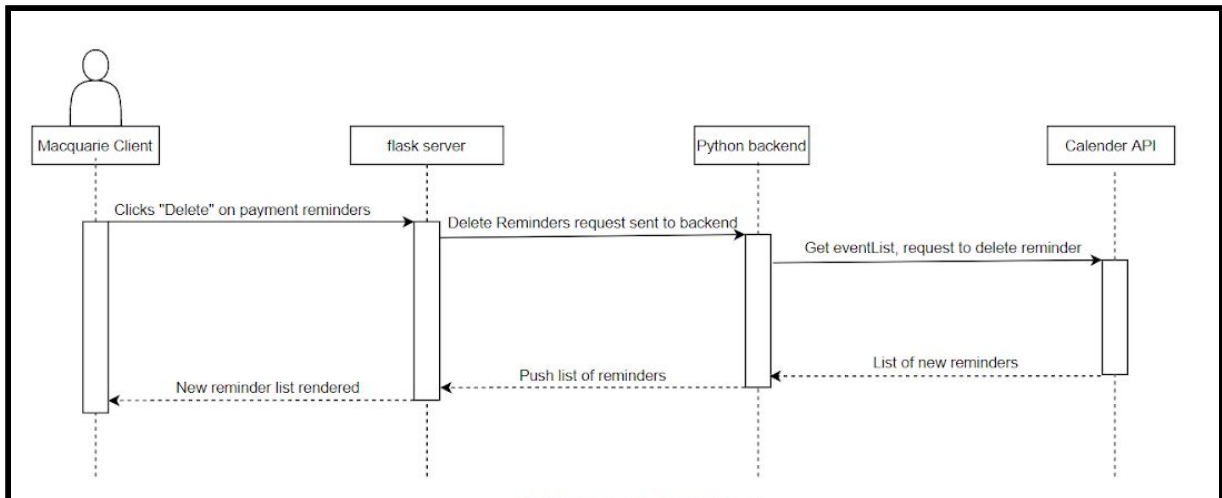
**THEN** I am able to view all my scheduled reminders in a list format

**WHEN** I click on the delete button which is located on the right of the chosen reminder

**THEN** the reminder will be deleted and will no longer exist as an upcoming payment

**WHEN** I scroll to the bottom of the page

**THEN** the calendar will also be updated to reflect the payment reminders list and the deleted reminder will be removed from the calendar



10) **Feature: 6**

**As a:** Macquarie client

**So that:** my bank account and transaction details are secured

**I want to:** be able to log into my Bankquire account using my macquarie Client\_Id and password

**GIVEN** that I am on the Bankquire homepage

**WHEN** I click on the login button which is located at the top right of the homepage

**THEN** I am redirected to the Macquarie Bank login page

**WHEN** I enter my login details (i.e. client\_id and password) in the relevant fields

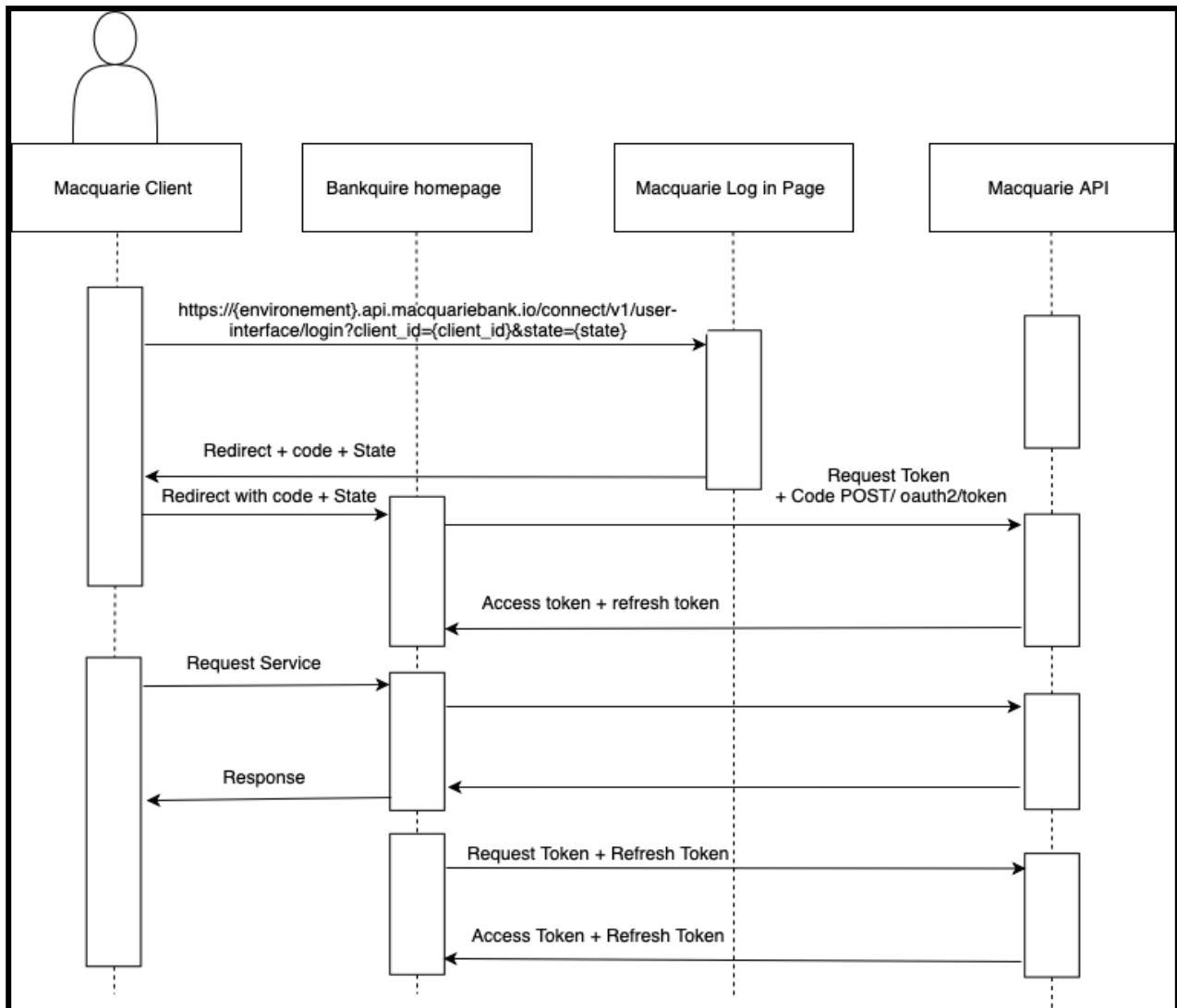
**THEN** I am provided with the option to authorise the website (Bankquire) to access my account and relevant financial history

**WHEN** I click the submit button after authorising access to Bankquire

**THEN** I can gain access to my personalised account within Bankquire and view all the subsequent features on offer.

**WHEN** I don't authorise Bankquire to gain access to my Macquarie account and details

**THEN** I will not be able to gain access to my personal Bankquire account and thus not access any of the features on offer



# 11) Feature: 7

**As a:** Macquarie client

**So that:** no other third party can gain access to my account details

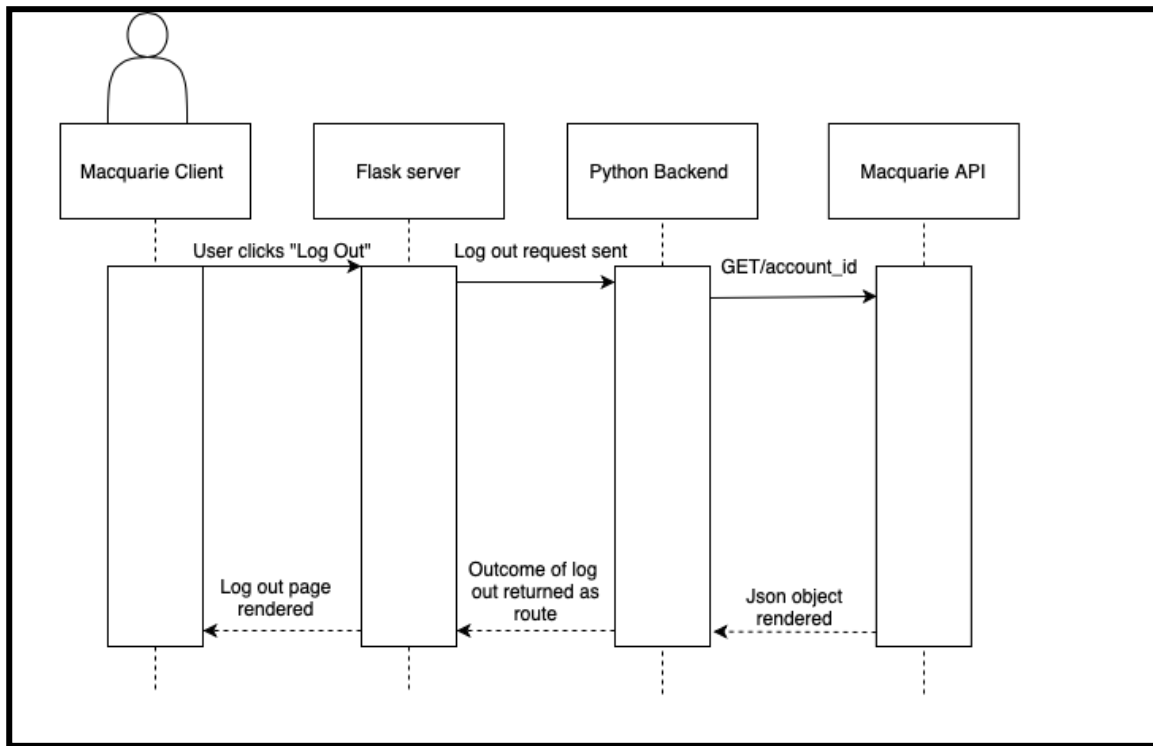
**I want to:** be able to securely log out of my account

**GIVEN** that I want to end the session regardless of the page I am on

**WHEN** I click on the logout field which is located as the last button on the right hand side of the interactive navigation bar (menu bar on the top of every page)

**THEN** All my data is securely removed from the website

**AND** I am successfully logged out of my Bankquire account

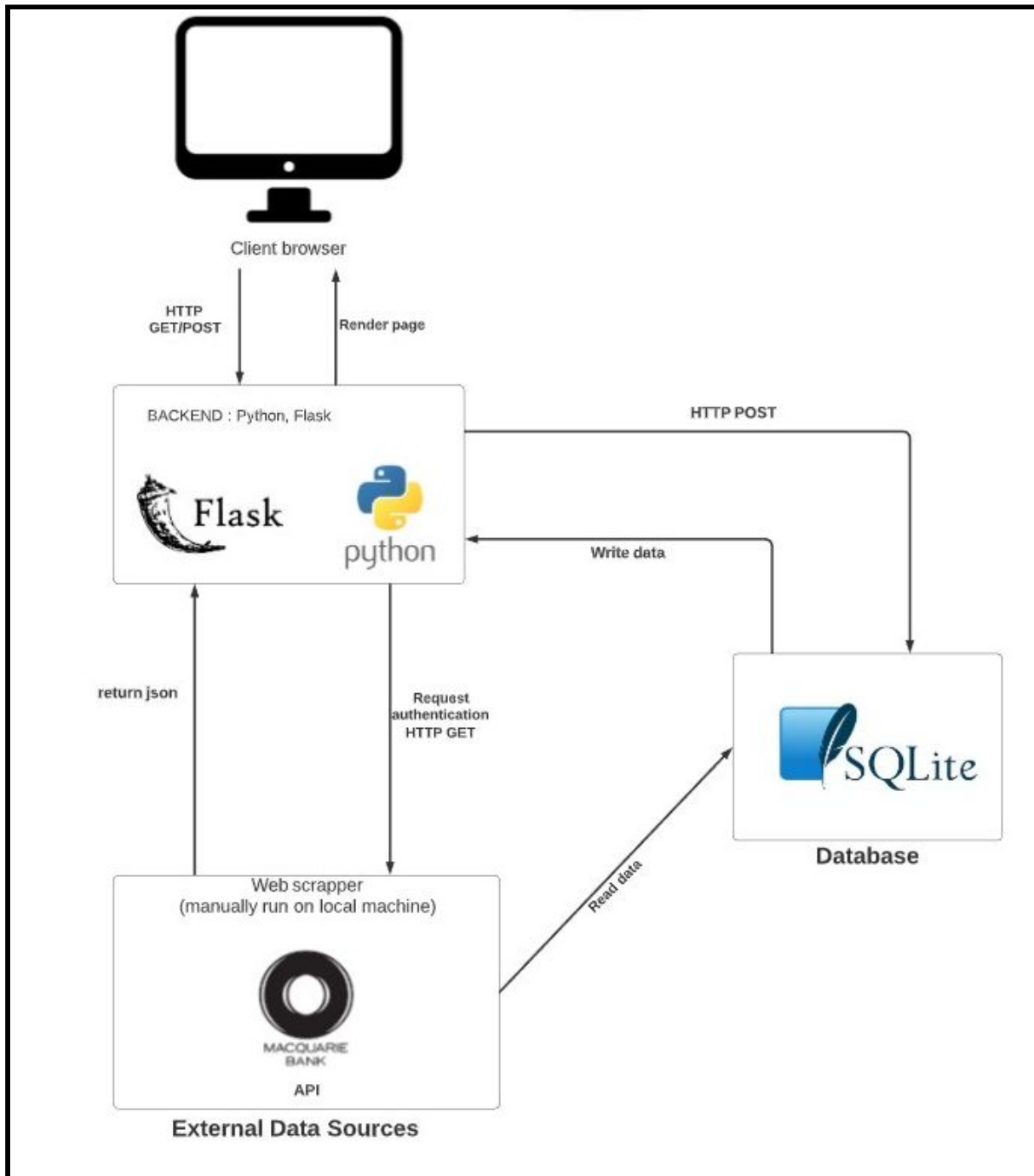


Interface screenshots (At the bottom of the document)

## The updated design and information on prototype implementation

Through the course of the project the design and implementation of our web application changed multiple times so as to ensure the final product was viable enough to appeal to a broad range of Macquarie Bank consumers. As demonstrated by the final software architecture diagram, despite our technologies changing from our initial deliverable, our features and idea behind 'Bankquire' have remained the same.

### Software Architecture



## Relevant information

### **Deployment**

The deployment of our website was done on localhost as it is easier to run and is free of cost. Additionally, we used a flask server to run the website as every team member was comfortable with Flask and had a good understanding of its functionalities and features. In regard to the potential of our web application being deployed in the future, as stated in Deliverable 2 we would use AWS, as it is highly secure, provides great features, and is one of the most optimal performers in the market (top market share with 61%).

### **Continuous integration**

In order to reflect agile methodologies, our group frequently used platforms like GitHub, CodeShare and Microsoft Teams to ensure code was committed frequently and each member was updated on the subsequent changes before we uploaded to the master branch to reflect our additions. Considering all members had strong familiarity of all these platforms, the CI process was made smoother and it ultimately ensured our code was rid of code smells like fragility and rigidity.

In regard to CI and documentation, the project was jointly done on Google docs, as everyone was able to seamlessly work on the same document.

### **Continuous Delivery**

Our inclusion of mini goals/deadlines within each deliverable itself allowed us to reduce the time spent on unnecessary problems. This also allowed us to incrementally add changes as opposed to large commits of work which may have had flaws and caused issues in regard to the larger scope of things.

Testing was thoroughly done through the use of dummy data before the integration of the API occurred so as to ensure the functions and classes we had written were suitable for what was required. This was exemplified in deliverable 3 as the API was not working until deliverable 5 and hence we used hard coded transactions for this deliverable to simultaneously showcase and test the functions and features that we had implemented.

### List of key technologies used in the implementation

<b>APIs</b>	<ul style="list-style-type: none"><li>• Macquarie API: provides transaction history and client data for Macquarie Bank customers<ul style="list-style-type: none"><li>◦ The backbone of our website was the public MQ API as it allowed us to gain access to customer data (which in turn allowed us to create features like the projections graphs, monthly expenditure graphs etc)</li></ul></li></ul>
<b>Backend</b>	<ul style="list-style-type: none"><li>• Python3<ul style="list-style-type: none"><li>◦ Using python as our core language gave us the flexibility to use the functions we created in python across different formats i.e. (we could use the data from a python function within javascript to enable the filtering of transaction history by data)</li><li>◦ Considering the language was known to all group members, collaboration also became easier</li></ul></li><li>• SQLite3 Database: self-contained and server-less RDBMS, easy to run with python<ul style="list-style-type: none"><li>◦ The payment reminders features was created using an Sqlite Database to ensure “creation of new reminders” and “deletion of new reminders” would be easily and efficiently reflected on the users list of reminders and calendar</li><li>◦ Given python and sqlite can be integrated strongly, the use of sqlite made it easier to deal with python functions and simultaneously user input</li></ul></li><li>• Flask Server: micro web framework written in python<ul style="list-style-type: none"><li>◦ As a group, we felt using a flask server would be the most effective way in setting up our web server</li><li>◦ Format of flask was also familiar to all team members</li></ul></li></ul>
<b>Frontend</b>	<ul style="list-style-type: none"><li>• HTML/CSS</li><li>• JavaScript</li><li>• Bootstrap v4.4: CSS framework</li><li>• jQuery v3.5: Javascript library for Event handling, css animation and Ajax</li></ul>
<b>Graphing Libraries</b>	<ul style="list-style-type: none"><li>• Chart.js: Aided in creation of dynamic graphs<ul style="list-style-type: none"><li>◦ Displaying and analysing data in the form of graphs was a major feature that would contribute to allowing customers to visualise and analyse their financial history and hence using Chart.js to create interactivity within the graphs for the user aided us in doing so</li></ul></li></ul>

## Summary of the key benefits/achievements of our design/implementation

The aforementioned Software design decisions taken by our team allowed us to host our website on the localhost whilst using a scalable flask server which will allow for the possibility of actual deployment in the future. The integration of the backend with the Macquarie API provided us with functions required for the extraction of client information and accounts from a secure source. Further, the Macquarie Sandbox provided us with a safe and secure environment to retrieve sample client data from so as to protect us from actual repercussions related to loss of client data and client security. This in turn allowed us to be more innovative with how we used our clients data. The python backend allowed our ideas to become a reality thanks to the variety of libraries and functions that can be smoothly integrated with python i.e. chart.js. The fluidity of python also allowed us to easily implement the backend as well as create helper functions to transfer data from one framework to another. As iterated previously, the interactivity of our graphs were as a result of using chart.js to create them. Finally, the integration of an Sqlite3 database with a python backend allowed for the dynamic updating of the payment reminders list/table in accordance with client input.

## **Team organization and conclusion/appraisal of your work**

### Our Experience and how we went:

Collectively, we felt that the SENG2021 experience was ultimately a big learning curve in terms of both learning to deal with different group dynamics and new web frameworks. However, excluding the challenges faced, it was a positive experience and the final product we produced ultimately was a culmination of our effort and our newfound learnings.

### Learning experience:

Throughout the project, there were a number of technical and soft skills that we all learnt making this subject valuable in more ways than one regardless of our final product.

- How to work as a group to achieve a common goal- Dealing with a new group dynamic was something we all had to overcome and learn in order for us to achieve the common goal of producing a final product to a high standard. As a result of this we were able to learn and develop the following skills.
  1. Organising and Planning Skills- as we had ensure that all all deliverables were completed on time with enough time to spare at the end for editing and proofreading
  2. Decision-Making skills- were utilised as we collectively came up with an innovative website in which all team members had the opportunity to make decisions and further implement them
  3. Problem-Solving skills- were used while we encountered issues relating to the integration of the API, how to physically implement the ideas we had and how to flesh out ideas in order to make our website more important and worthwhile



4. Being responsive to feedback- needed to rebuild or edit any code or documentation that our mentor thought was not executed to the best of our ability or was incorrect
  5. Ability to build rapport and trust in a short period of time with not only our teammates but also our mentor was also a vital learning curve.
- How to effectively deal with team members who have different levels of experience, skill sets and understandings- Overcoming the gap in the different levels of understanding between each team member was a challenge but we also were able to harness the 4 following skills in order to deal with this
    1. Communication skills- learnt how to deal with limited interactions with our teammates and mentor.
    2. Conflict resolution skills were utilised as our team was a mix of four very different individuals with varying skill sets and ideas. Hence, our conflict resolution skills were developed to overcome conflicting ideas and opinions to ensure we were all working towards the same common goal
    3. Goal setting skills were developed due to the rapid pace of this course and the constant need to put out work in accordance to the deliverables.
    4. Creative thinking skills- were also utilised when we had to decide what innovative web solution we wanted to create and how we wanted to implement the various ideas we had
  - How to build and develop a web application from start to finish- Being thrown into such a foreign environment from the beginning was a positive experience as we were able to experience and implement each stage thoroughly
    1. Design Phase- process of choosing an idea and nurturing it enough for it to be a plausible design solution (Diagrams, User Stories, Problem Statements, Features, Low-Fi Prototypes, Hi-Fi Prototypes)
    2. Backend- creating the functionality of all our features (Functions & Classes in Python, Sqlite Database, Flask Server, API set up and integration)
    3. Frontend- developing a high level UI (Dynamic & interactive Charts & Graphs (Chart.js), Consistent Navigation Bar (HTML), Interactive features for the user to use (i.e. buttons, dynamic tables and graphs), Appearance and presentation of every web page (HTML/CSS/JS) to make a high level UI)
    4. Integration of Backend and Frontend- Developing both components (i.e. backend and frontend) so that they worked seamlessly in the larger scope of things

Any issues/problems encountered

Group environments are challenging for many reasons and even though our group was able to produce a final product to a high level, there were multiple uncontrollable factors that limited us from producing 5 flawless deliverables.

### **1. COVID-19:**

Due to the limitations placed on us because of the COVID-19 pandemic, not having physical meetings and mentoring sessions disadvantaged the group greatly. The lack of in person communication limited us from adhering to our action plan that we created at the start of every deliverable and hence it became difficult to hold people accountable if they did not meet the deadlines set. Hence, group connection was low and thus we were hardly on the same page causing unnecessary confusion. Inevitably, our satisfaction with our work in every deliverable and the marks we received differed greatly because there was a bit of misdirection and confusion as to what was expected in the deliverables.

### **2. MENTORING:**

As a result of having to conduct mentoring sessions virtually, articulating the questions and concerns we had was extremely difficult and hence as a group we were unable to get the most out of our mentor. Additionally, the group felt that being the last mentoring session of the day meant that the time invested into our group was not as proficient as it could have been and hence a strong enough relationship with our mentor was not built. As a result, there was unnecessary confusion regarding our final product.

### **3. API:**

Further, we encountered several unprecedented challenges such as the API not responding in deliverable 2, and as a result it took the team over two deliverables to solve the issues associated with it. Hence, not having the API working meant that the level of other tasks completed were limited, as there was nothing to test it against.

### **4. NEW EXPOSURE:**

Further, when it comes to the programming side of the workshop, the development of a web stack was foreign territory for some of the group members. Thus, our final challenge was having to balance learning new web frameworks and implementation of these frameworks into our project.

Despite these setbacks, the team was diligent enough to complete deliverables with a high quality and finally due to the nature of the workshop we were able to learn plenty of new skills such as the development of a Web Stack and API integration.

## Positives

All in all, despite the challenges that arise with such a foreign environment, as a group we are proud of our final solution and the amount of software engineering knowledge we have acquired over a short period of time.

### Suggestions for improvements

Considering the group had never worked together before, the project went well. If we had the chance to do it again, we think we would ensure that before each deliverable began we had a strong written down plan as to how all the targets would get achieved.

Despite an initial hiccup in the first deliverable when it comes to organisation, our team was extremely efficient and was able to meet deadlines. We split up responsibilities in each deliverable between the four of us and made sure that we gave each other constant updates and resolved any issues we were facing either through group calls or messages. Every individual was given a task to undertake in each deliverable which played to their strengths, and if a given task was too complicated for one person it was shared between two people to even out the load. We gave each other deadlines for specific tasks in order to stay on task.

Additionally, we believe asking further detailed questions to our mentor would have enabled us to maximise our marks and final product. Regardless, throughout the project the end product was something that we all kept at the forefront of our mind. Hence, the team has faith in our final product being something that has the potential to be deployed on a larger scale and ultimately be something that future Macquarie users could potentially use to optimise their finances.

### Responsibilities & Roles of Team Members

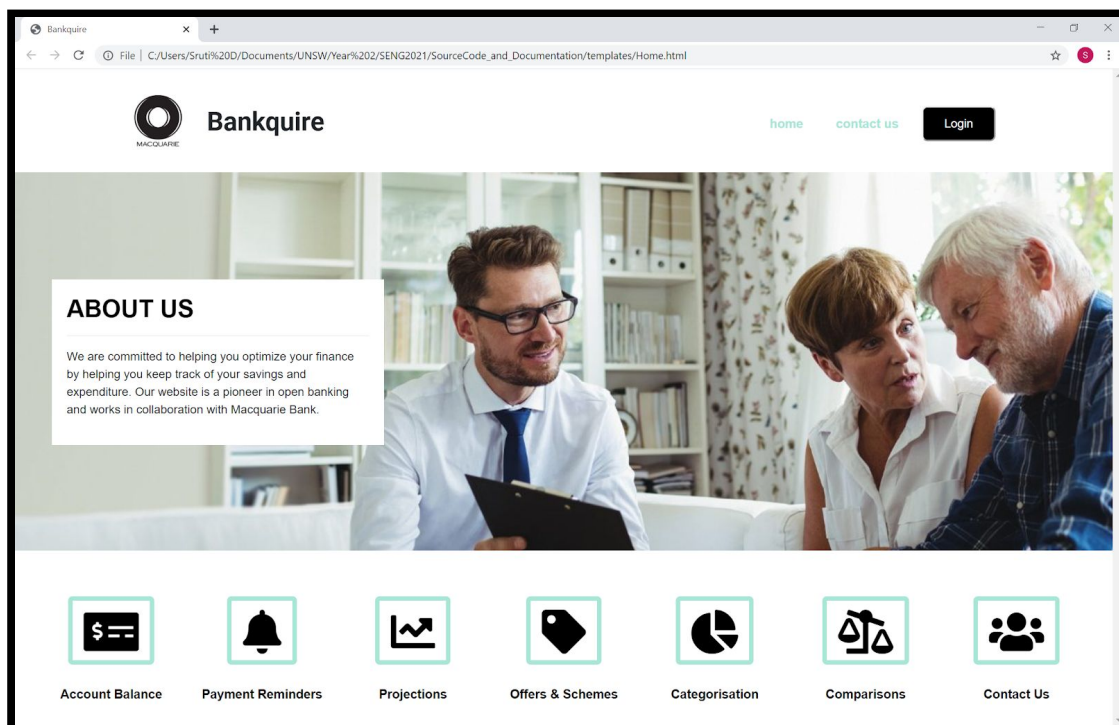
Kshitiz and Abhyudit	Sruti and Malavika
<b>Deliverable 1:</b> <ul style="list-style-type: none"><li>• Came up with the selected theme</li><li>• High Fidelity Prototype (HTML pages)</li><li>• User Stories</li></ul>	<b>Deliverable 1:</b> <ul style="list-style-type: none"><li>• Low Fidelity Prototype</li><li>• Problem Statements</li><li>• Features</li></ul>
<b>Deliverable 2:</b> <ul style="list-style-type: none"><li>• Software Architecture</li><li>• Initial Software design</li></ul>	<b>Deliverable 2:</b> <ul style="list-style-type: none"><li>• Software Architecture</li><li>• Initial Software design</li></ul>
<b>Deliverable 3:</b> <ul style="list-style-type: none"><li>• Set up Flask server<ul style="list-style-type: none"><li>◦ Created routes</li></ul></li><li>• Integrated Jinja with HTML</li></ul>	<b>Deliverable 3:</b> <ul style="list-style-type: none"><li>• Interactive graphs (chart.js)<ul style="list-style-type: none"><li>◦ Pie chart</li></ul></li></ul>

<ul style="list-style-type: none"> <li>• Initial python backend layout (find history function)</li> <li>• Toggle Menu</li> <li>• Demo Presentation</li> </ul>	<ul style="list-style-type: none"> <li>◦ Monthly Expenditure &amp; Account Balance graphs</li> <li>◦ Projections graphs (Weekly, Monthly, Yearly)</li> <li>• Integrated graphs into HTML</li> <li>• Created test data</li> <li>• Offers page <ul style="list-style-type: none"> <li>◦ Frontend- Made offer tiles interactive, visually appealing</li> <li>◦ Backend- Found data</li> <li>◦ Integrated page with the rest of the HTML pages</li> </ul> </li> <li>• Business Idea and Requirements Addressed <ul style="list-style-type: none"> <li>◦ Speech for Presentation</li> </ul> </li> </ul>
<p><b>Deliverable 4:</b></p> <ul style="list-style-type: none"> <li>• Macquarie API integration <ul style="list-style-type: none"> <li>◦ Updated routes</li> <li>◦ Integrated Macquarie Login</li> <li>◦ Retrieved JSON objects for accounts, transactions and balance</li> </ul> </li> <li>• Integrated calendar</li> <li>• Demo presentation</li> </ul>	<p><b>Deliverable 4:</b></p> <ul style="list-style-type: none"> <li>• Backend classes and functions <ul style="list-style-type: none"> <li>◦ Payment Reminder classes- create reminder, delete reminder, error functions</li> <li>◦ Transaction History classes-filter by date and category functions</li> </ul> </li> <li>• Made all graphs and labels dynamic (i.e. update dependent on information from API) <ul style="list-style-type: none"> <li>◦ Pie chart, Projections graphs, Monthly expenditure graphs</li> <li>◦ labels are generated based on date accessed</li> </ul> </li> <li>• Sqlite database for payment reminders <ul style="list-style-type: none"> <li>◦ List of reminders and calendar becomes dynamic and based on user input</li> </ul> </li> <li>• Frontend pages more appealing <ul style="list-style-type: none"> <li>◦ Home page- Bankquire page</li> <li>◦ Home page- After login</li> <li>◦ Expenditure page</li> <li>◦ Offers page</li> <li>◦ Payment Reminders page</li> <li>◦ Projections page</li> </ul> </li> </ul>

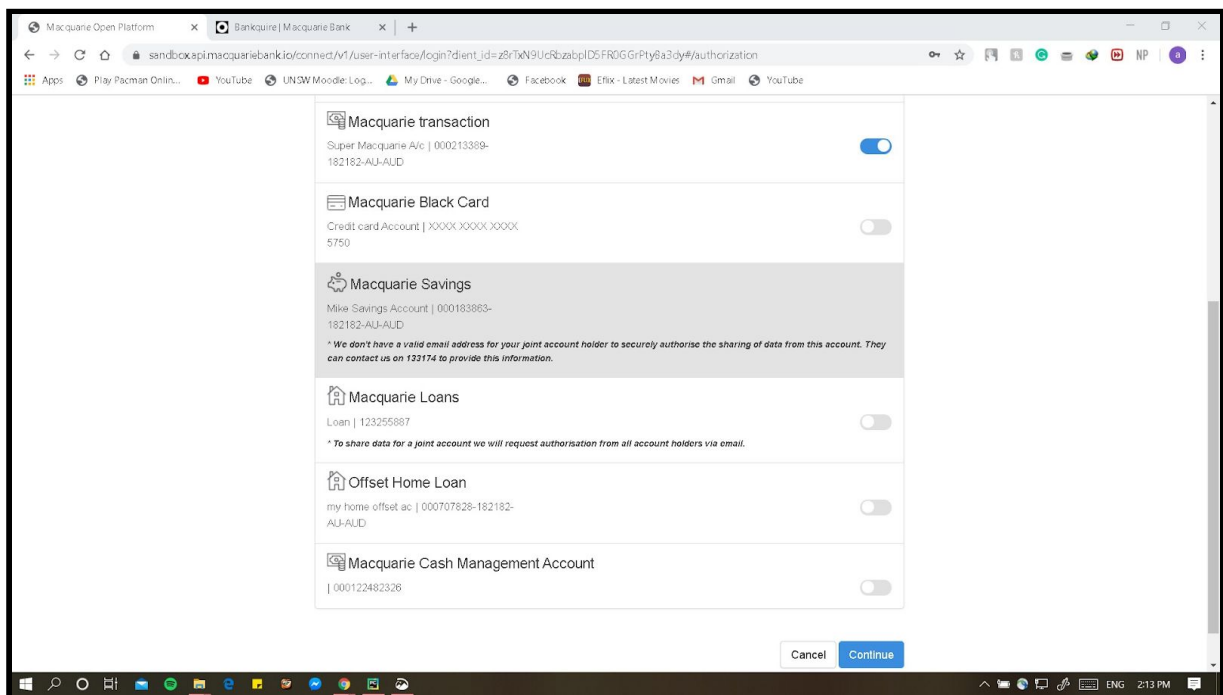
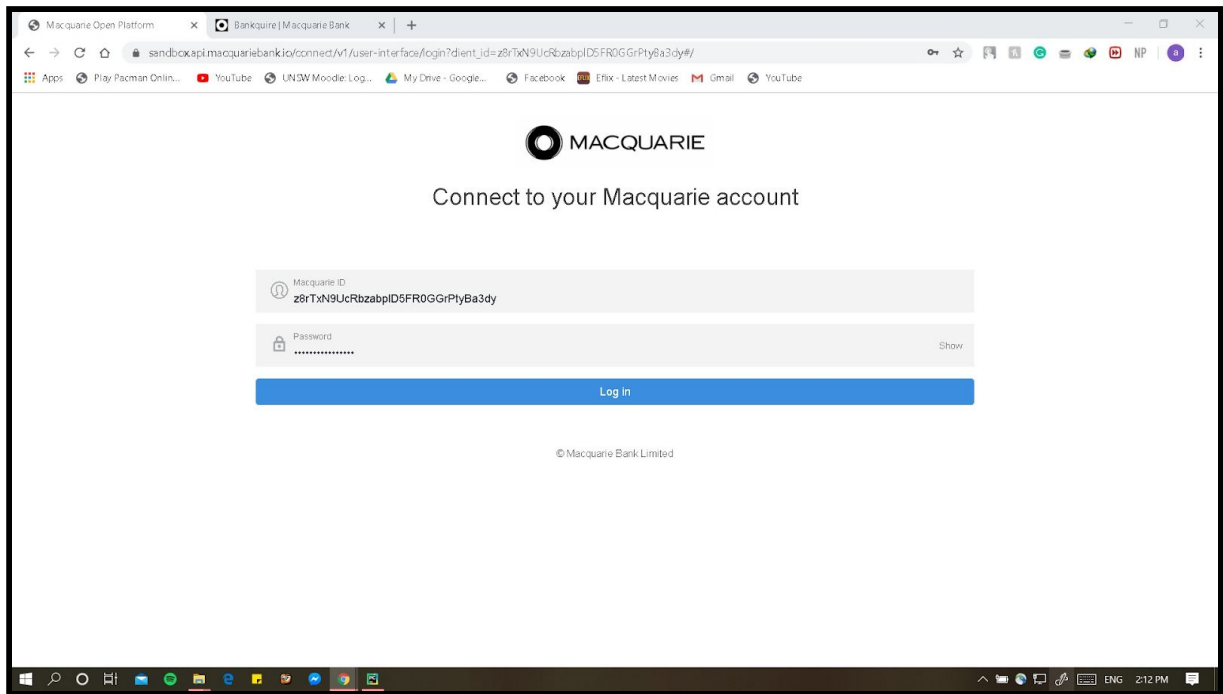
	<ul style="list-style-type: none"> <li>○ Interactive Navigation Bar</li> <li>● Integrated Jinja with HTML</li> <li>● Speech and demo for Presentation</li> </ul>
<b>Deliverable 5:</b> <ul style="list-style-type: none"> <li>● Updated design and information on prototype implementation <ul style="list-style-type: none"> <li>○ Final software architecture</li> <li>○ Updated sequence diagrams</li> <li>○ Key technologies used</li> <li>○ Summary of key benefits of our design</li> </ul> </li> <li>● Added screenshots of the final website</li> <li>● Final editing of report</li> </ul>	<b>Deliverable 5:</b> <ul style="list-style-type: none"> <li>● Explanation of the purpose of our website</li> <li>● Problems we addressed before implementing our solution (problem statements)</li> <li>● List of different features of our system.</li> <li>● Updated user stories</li> <li>● Updated design and information on prototype implementation <ul style="list-style-type: none"> <li>○ Key technologies used</li> <li>○ Updated sequence diagrams</li> </ul> </li> <li>● Team organisation and conclusion/appraisal of work <ul style="list-style-type: none"> <li>○ Reflection on experience</li> <li>○ Issues faced</li> <li>○ Suggestions for improvements</li> <li>○ What we learnt</li> </ul> </li> </ul>

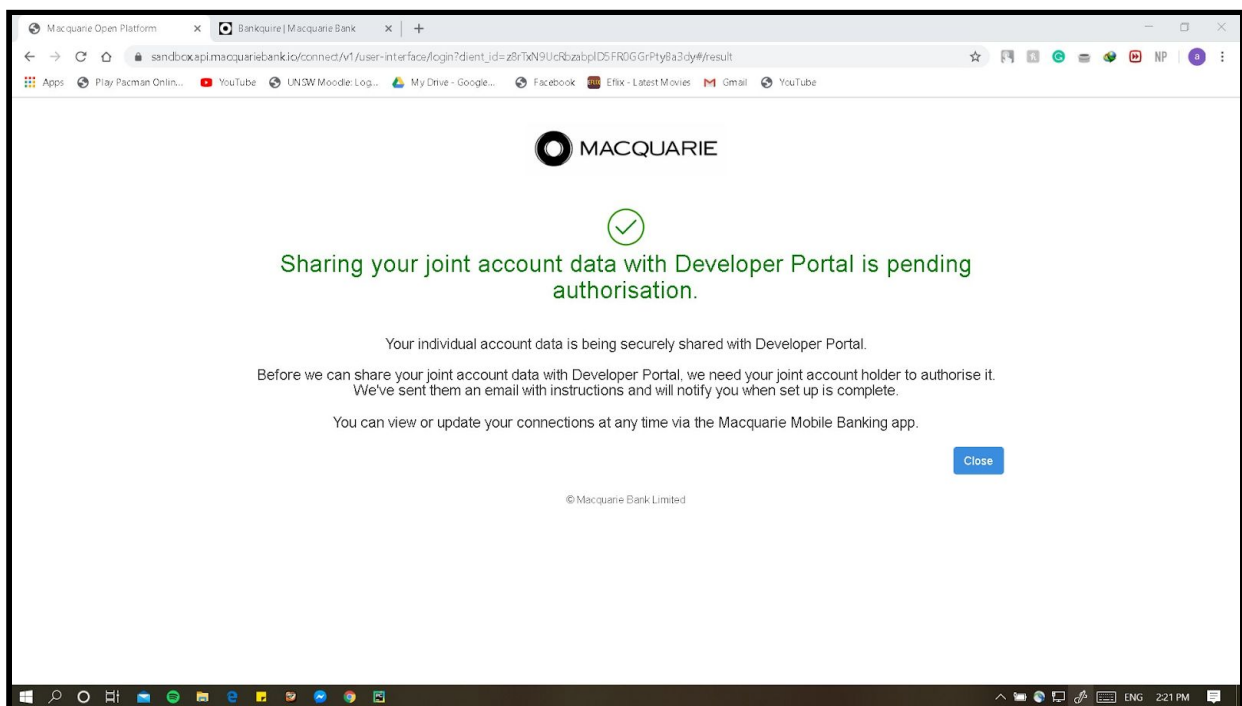
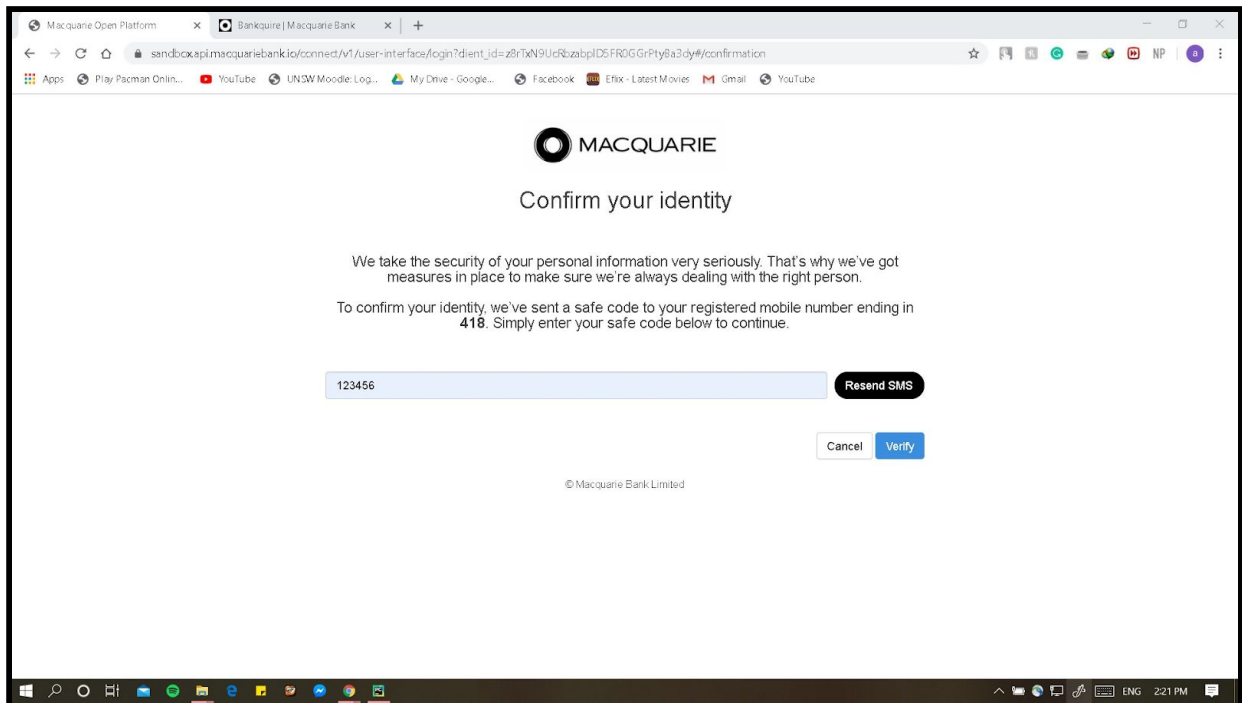
### **Final interface screenshots**

#### **Home Page**



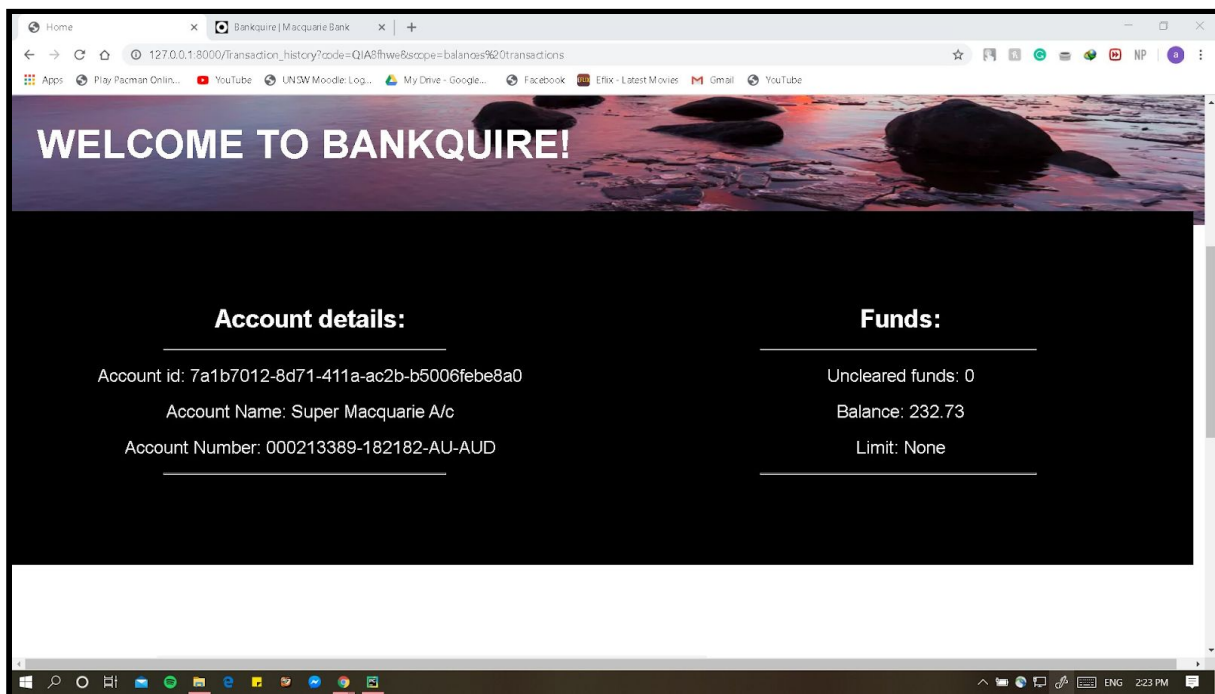
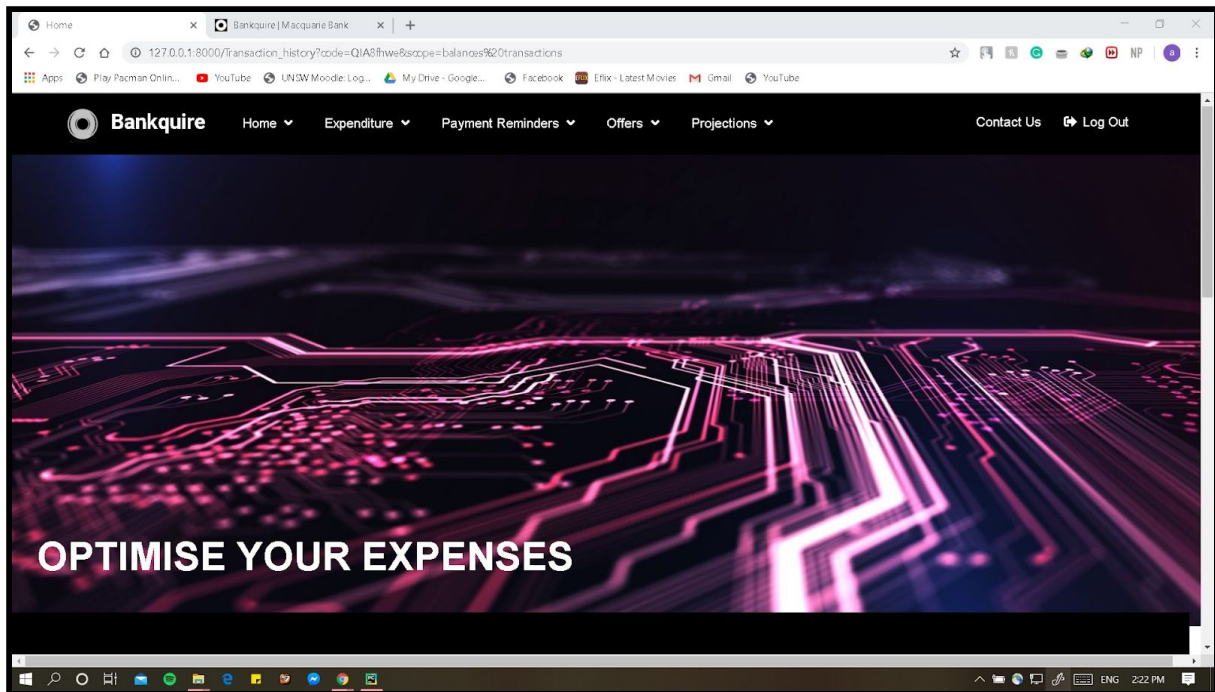
## Login Page

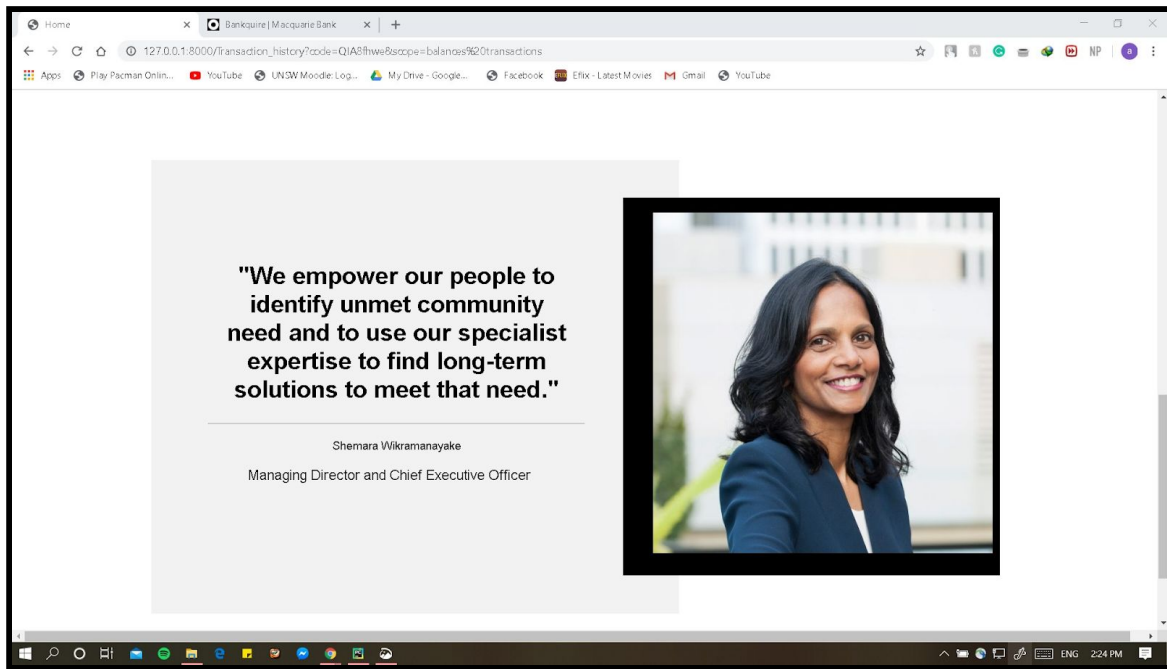




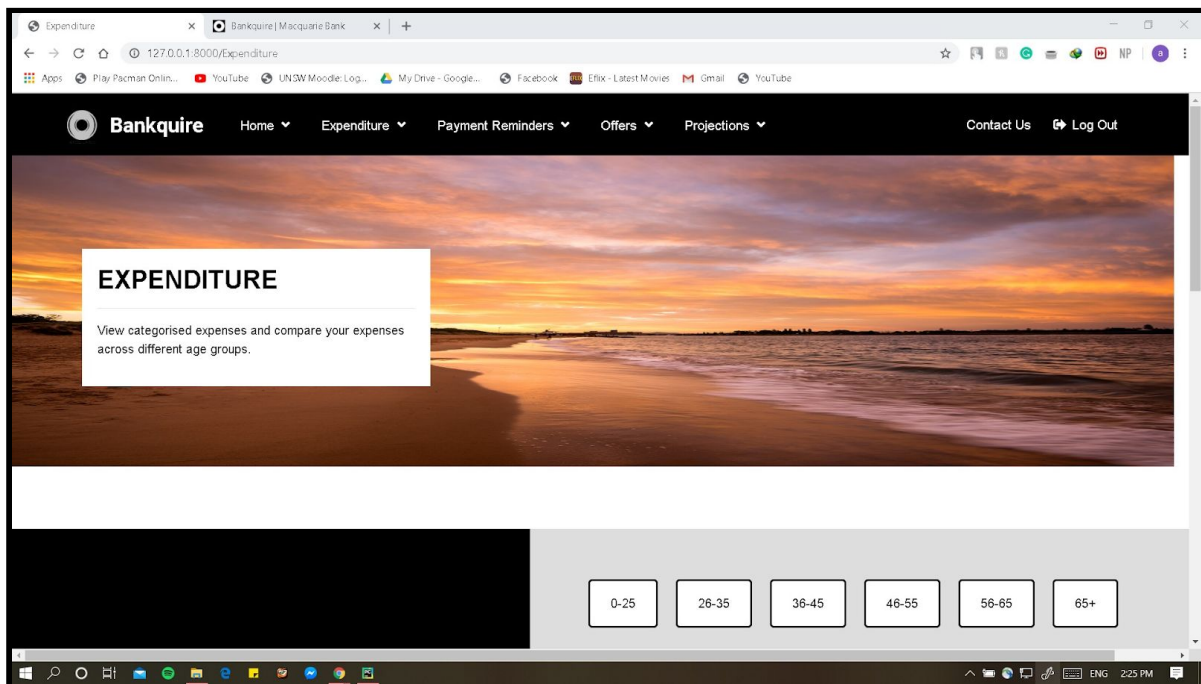


## Home Page:





## Expenditure Page:



## Comparisons

Select the relevant buttons above the table to compare your yearly spendings with the average person in other age categories.

0-25

26-35

36-45

46-55

56-65

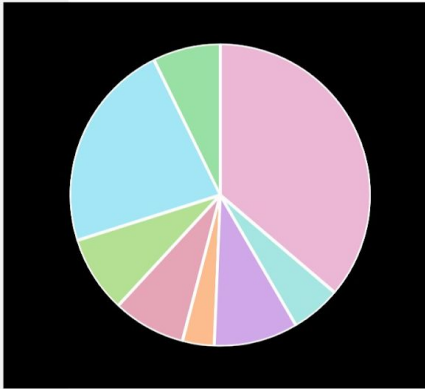
65+

Category	Your Spendings	Other Spendings
Housing	1175	\$48,087
Food	803.22	\$6,198
Phone	740.72	\$486
Entertainment	206.44	\$2,894
Travel	1176	\$7,891
Car	267	\$1,390
Health	640.5	\$1,429

## Choose a Duration

**From:**

**To:**



Expenditure

Bankquire | Macquarie Bank

127.0.0.1:8000/Expenditure

Transaction History ▾

Date	Description	Amount
2020-04-26	Food	-16.44
2020-04-25	Phone	-33
2020-04-25	Car	-10
2020-04-25	Other	-25
2020-04-25	Other	-18
2020-04-25	Other	-3
2020-04-24	Food	-8.0
2020-04-24	Health	-17.54
2020-04-24	Food	-9
2020-04-24	Entertainment	-18
2020-04-24	Food	-5
2020-04-23	Travel	-1
2020-04-23	Other	-13

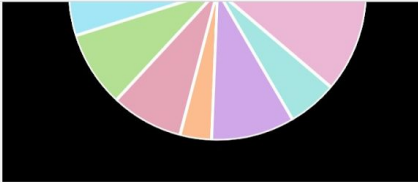
Expenditure

Bankquire | Macquarie Bank

127.0.0.1:8000/Expenditure

27/04/2020

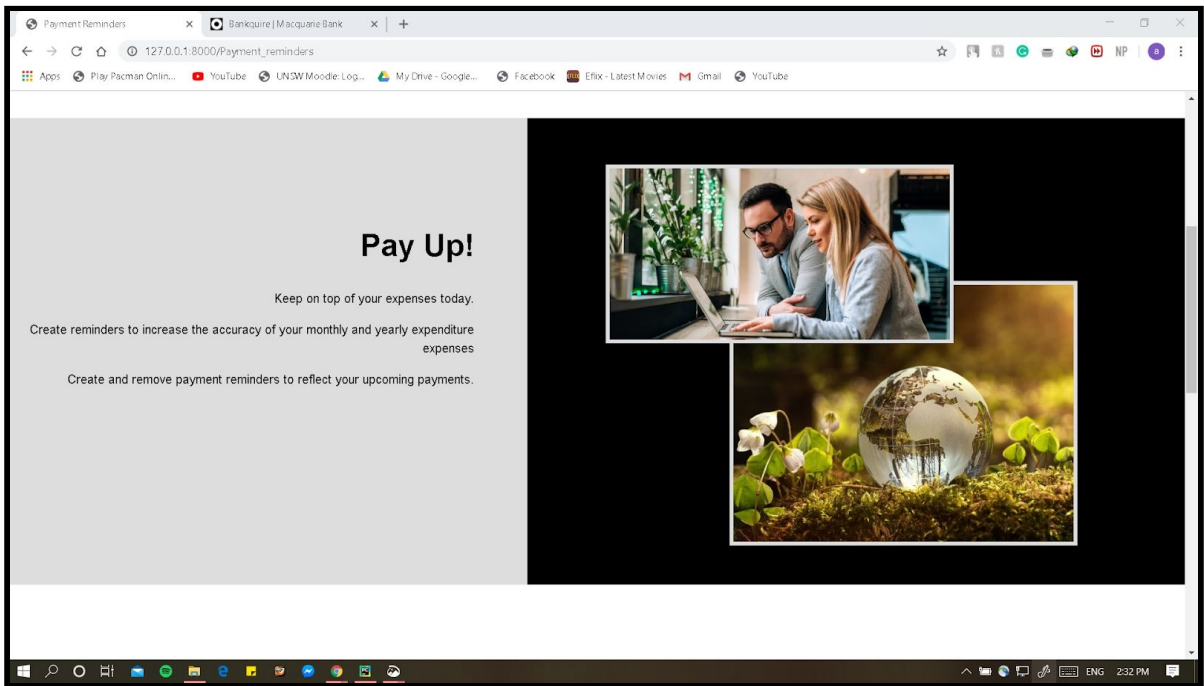
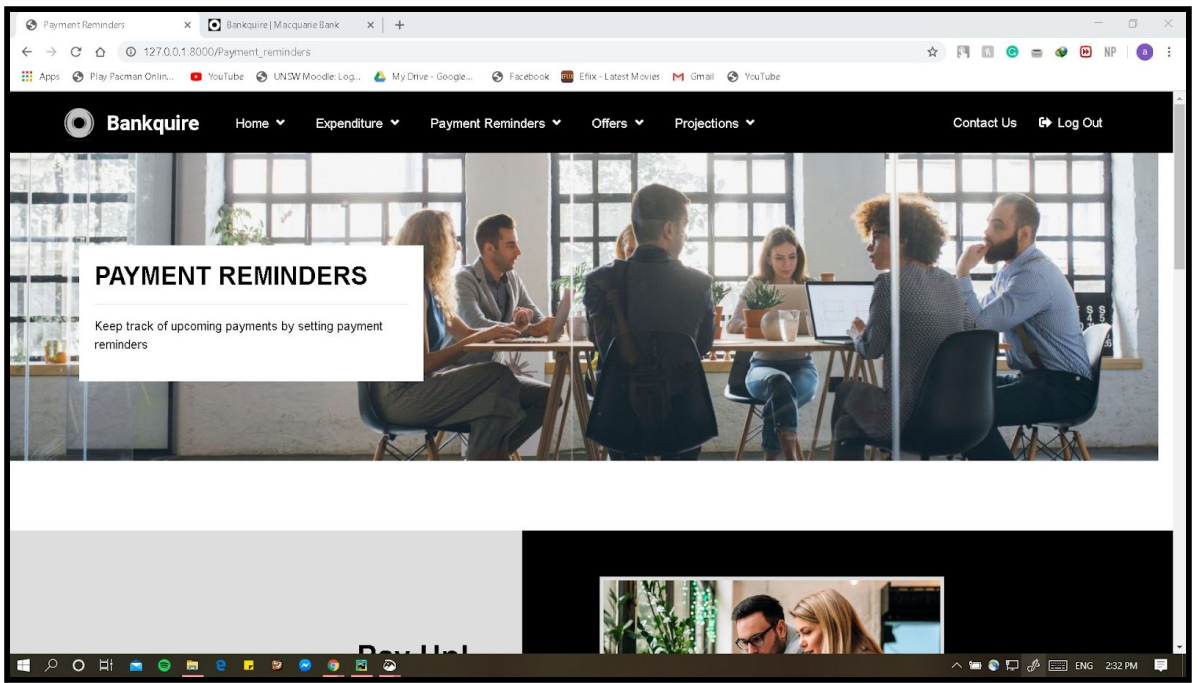
Submit

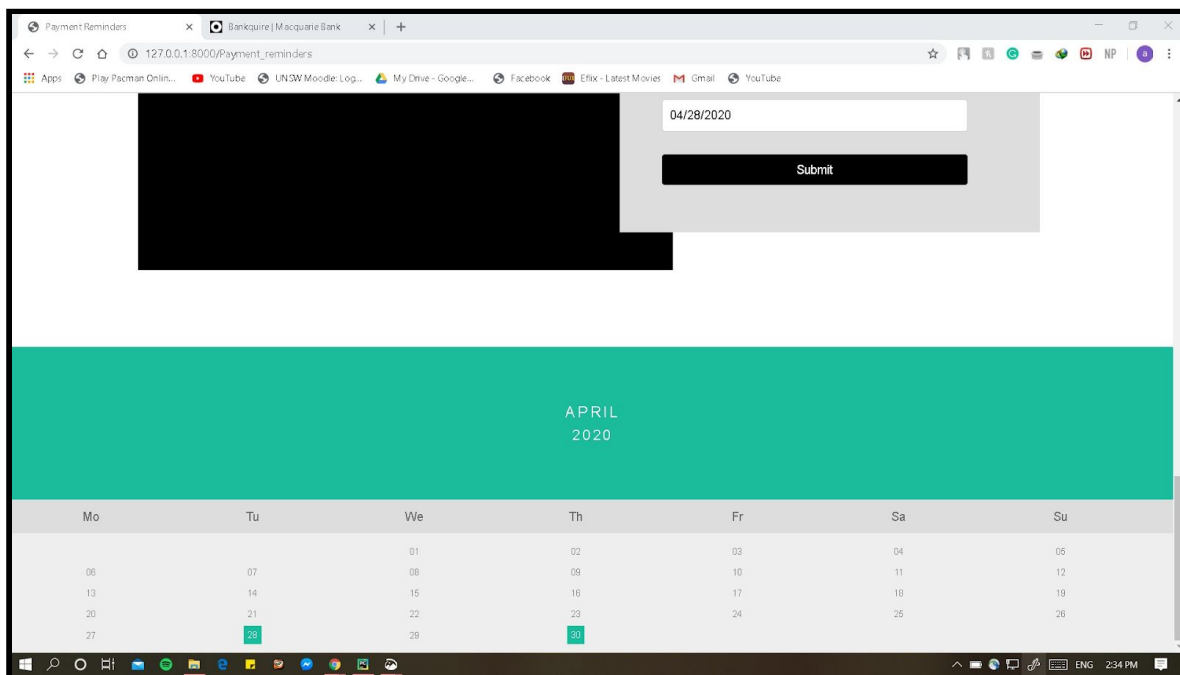
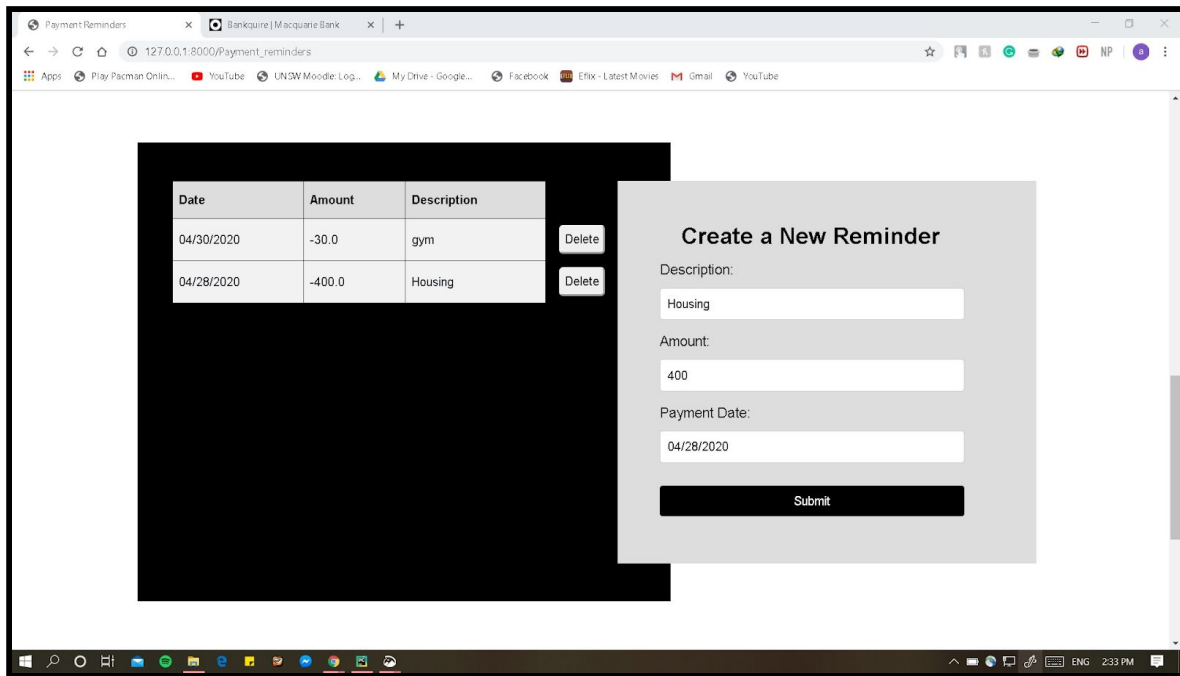


Transaction History ▾

Date	Description	Amount
2020-04-16	Housing	-350
2020-04-14	Housing	-500
2020-04-12	Housing	-125
2020-04-12	Housing	-200

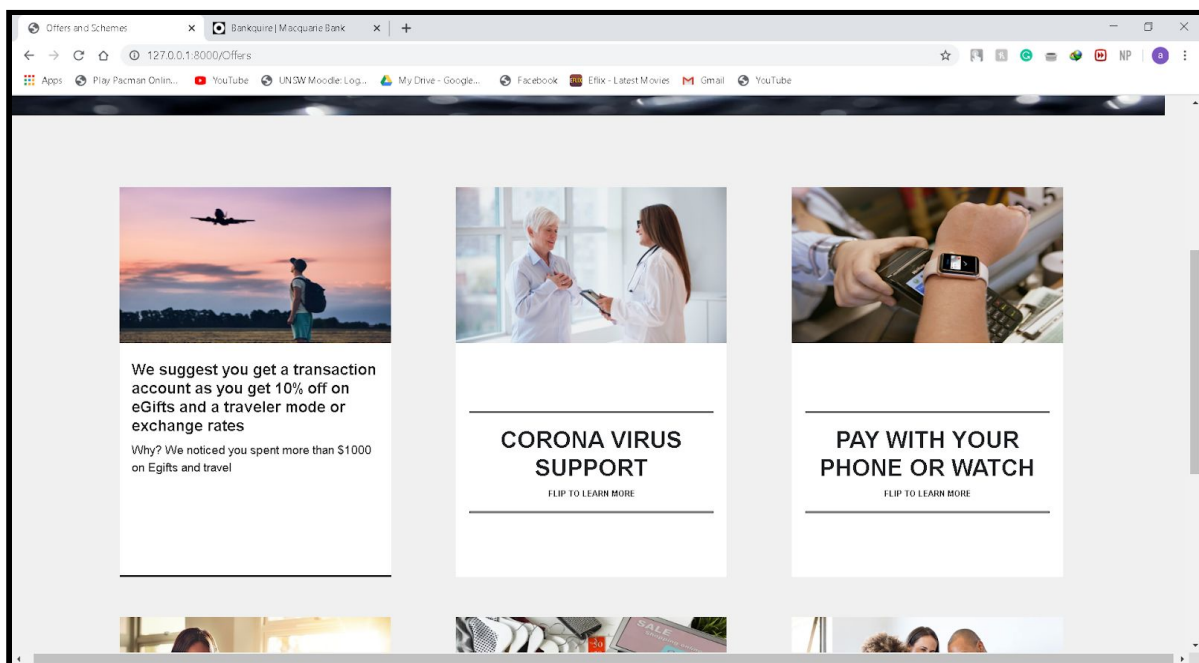
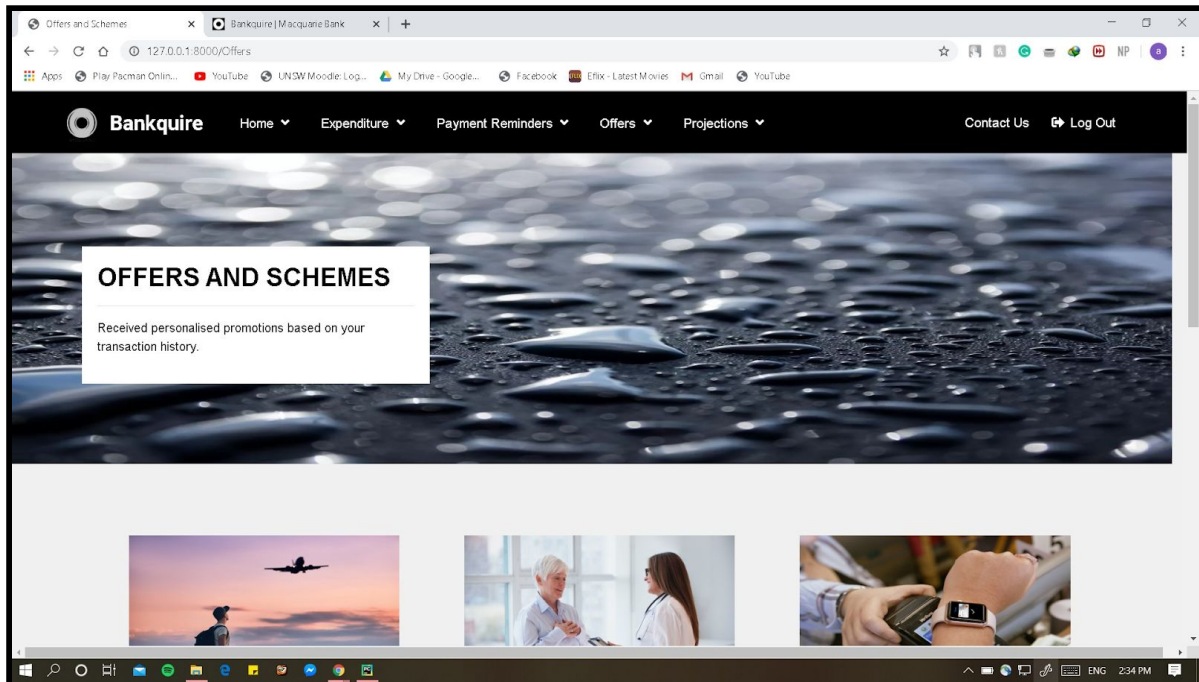
Payment Reminders Page:

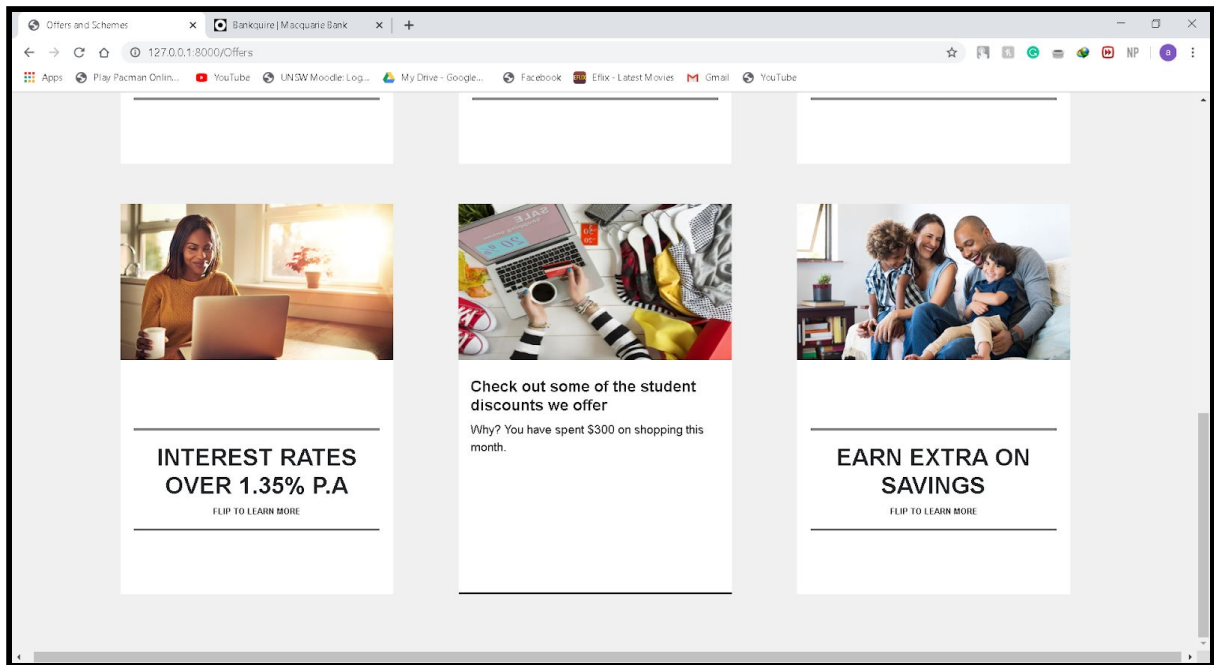




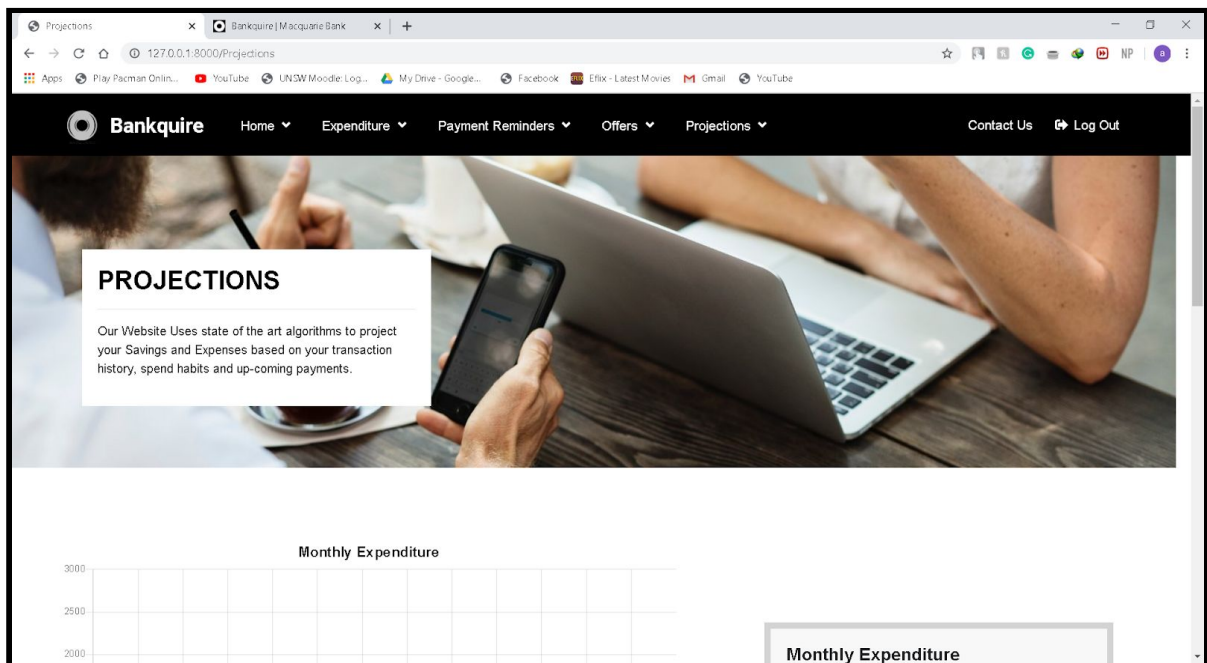


## Offers Page:

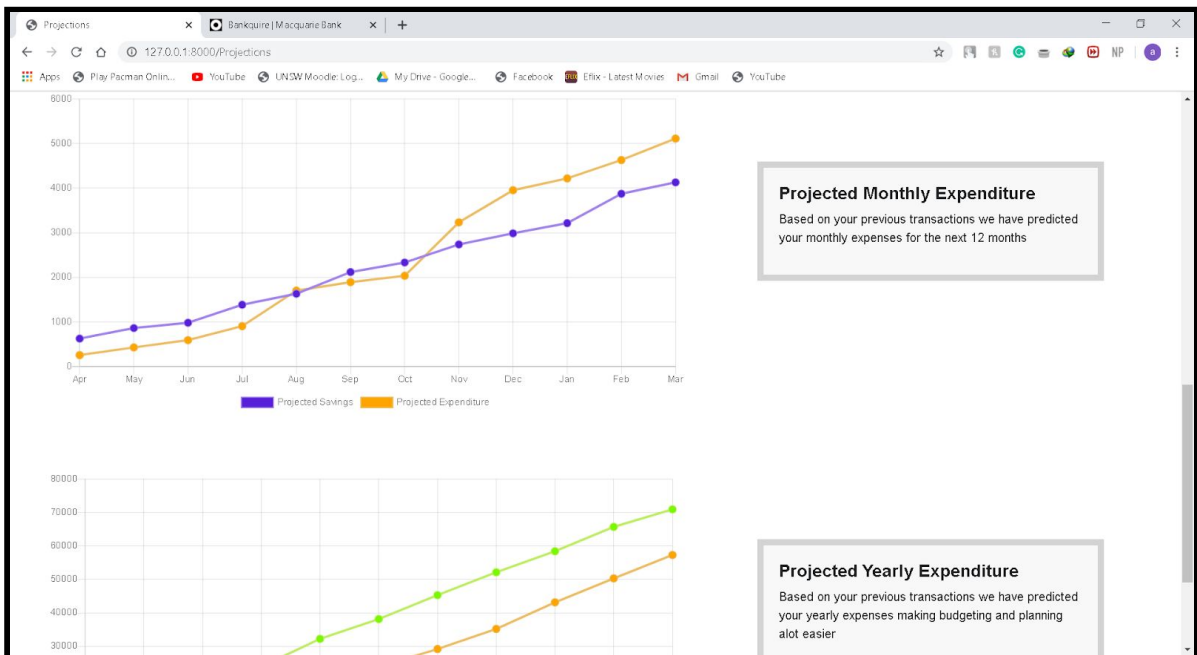
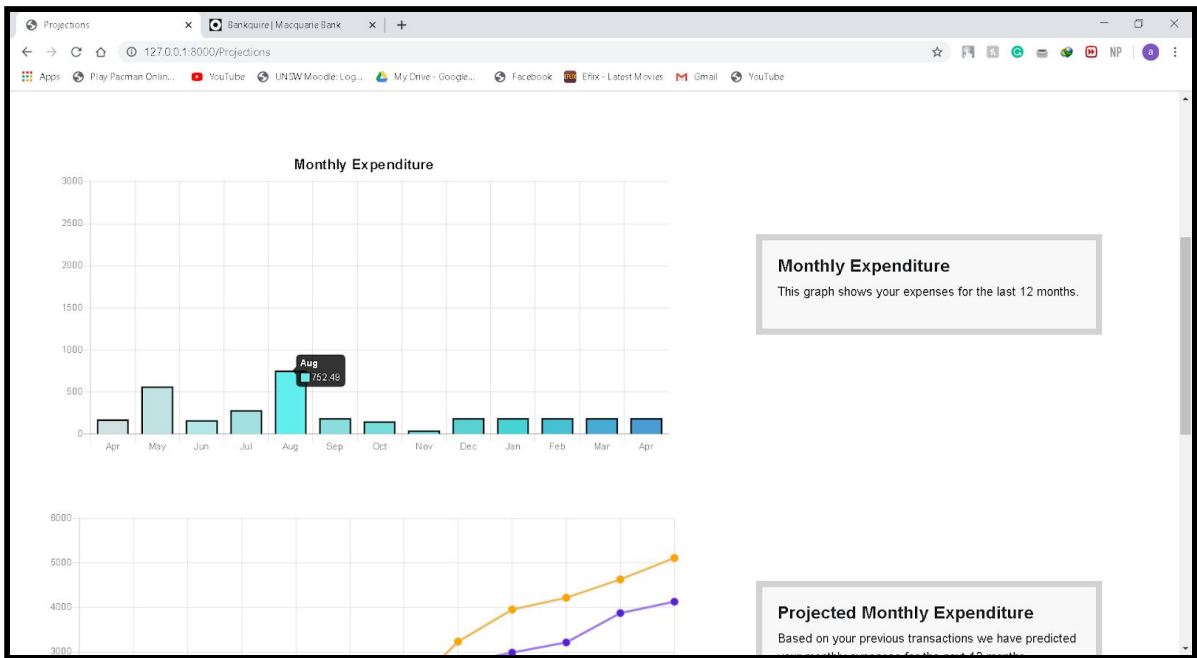


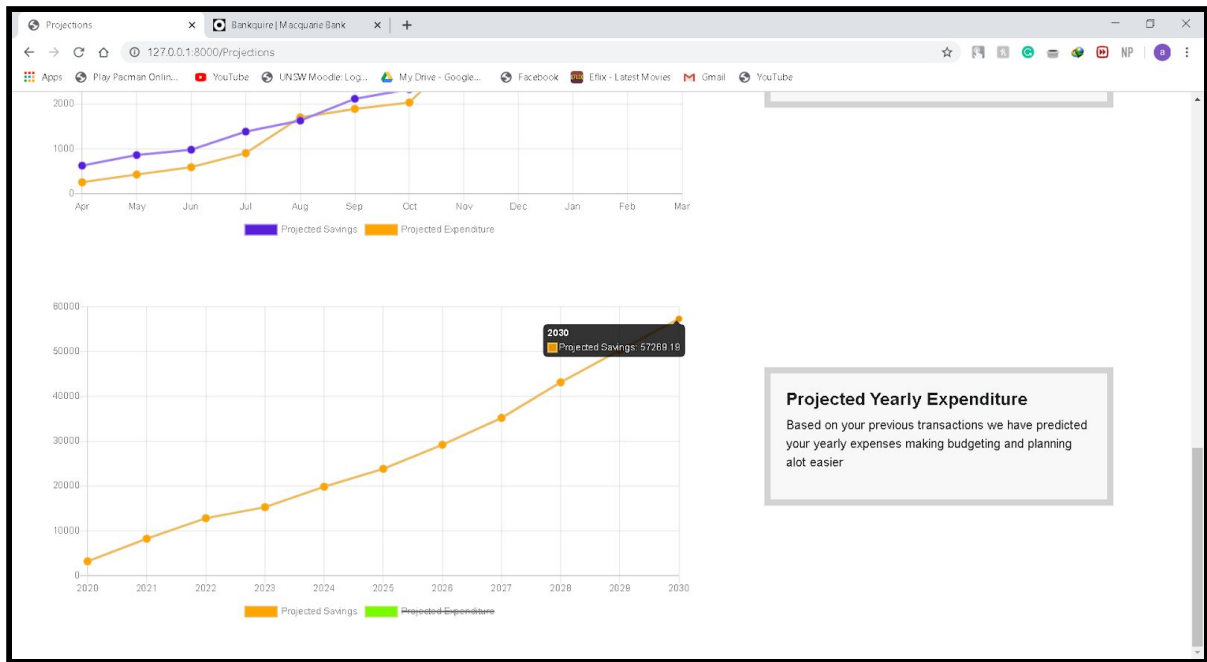


## Projections Page:









## Macquarie's Contact Page

The screenshot shows the Macquarie Contact Page. The header includes the Macquarie logo and navigation links: Impact, Perspectives, About, Investors, Careers, AU, Login, and a search icon. The main content area has a large 'Contact' heading. Below the heading, there are three columns of text providing contact information for Personal, Business Banking and Advisers.

Personal, Business Banking and Advisers		
Banking and Financial Services	Macquarie Car Loans	Financial assistance
Visit our <a href="#">Help Centre</a> to self-serve online.	Visit our <a href="#">Help Centre</a> to self-serve online.	Where you feel you may not be able to meet your regular repayments or some other financial obligation, please contact us to see
Send us a direct message on our Macquarie	Send us a direct message on our Macquarie	

## After Logout

