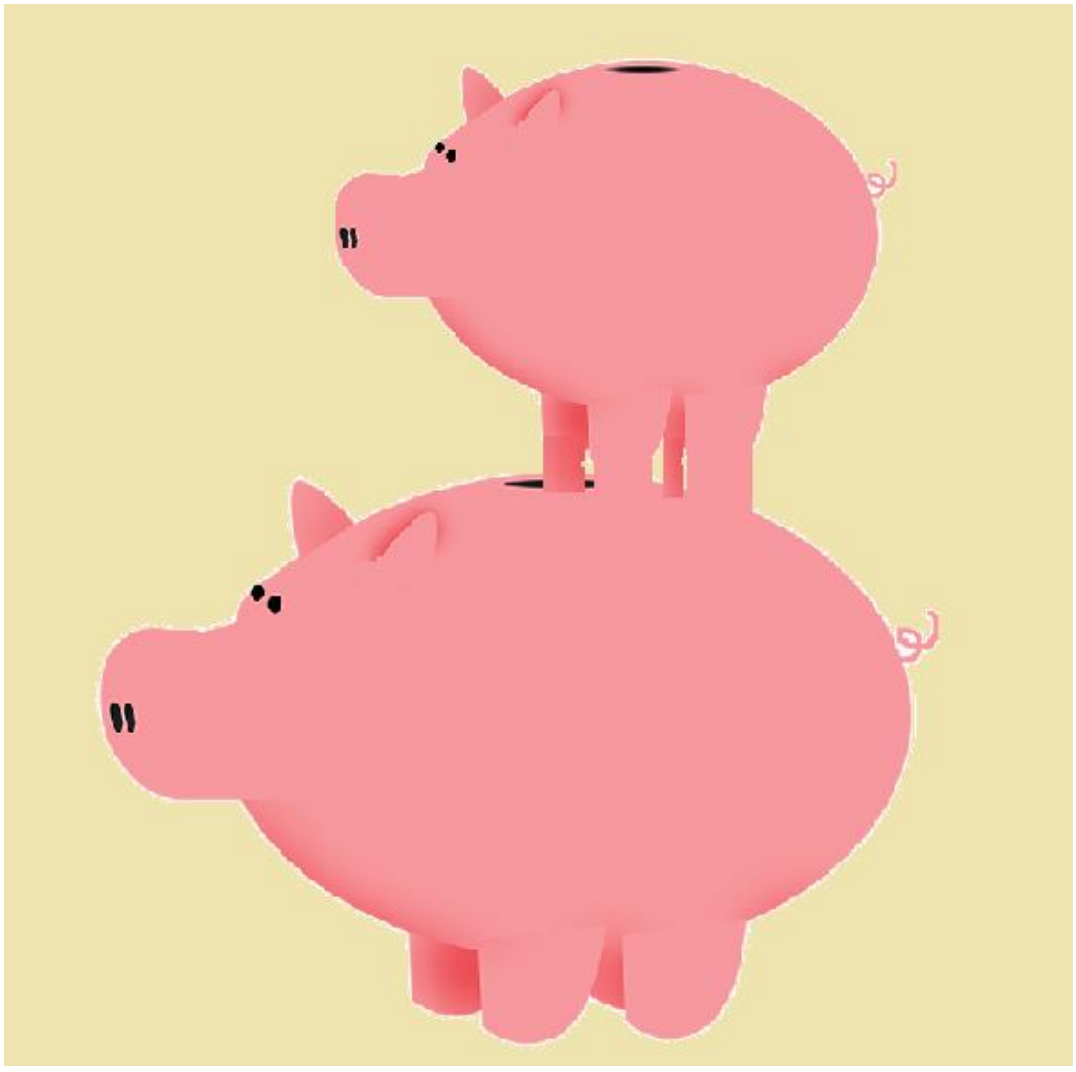
PIGGY BACK

Report 3: High Fidelity Prototype & Expert Evaluations



DECO2500

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Introduction

This report aims to provide evidence that supports the decisions made in the proposed solution, and enough information for the develop team to begin full development.

Moving forward from the previous report, the conceptual model had been modified to be more specific and detailed according to the information gathered in the previous two cycles. With modified conceptual model, a high-fidelity prototype was created to effectively present the proposed user interface and the core functionality of the application. It also allowed the board to interact with it personally and therefore to better understand the intended user experience. Evaluation was conducted to assess all aspects of UX of the application. The result of the evaluation was analysed to gather additional information about user's expectation and identify areas that can be improved in the further release.

Process Description

Process Followed

The decision of which processes are being followed was made according to the Interaction Design Lifecycle Model that was introduced in lecture.

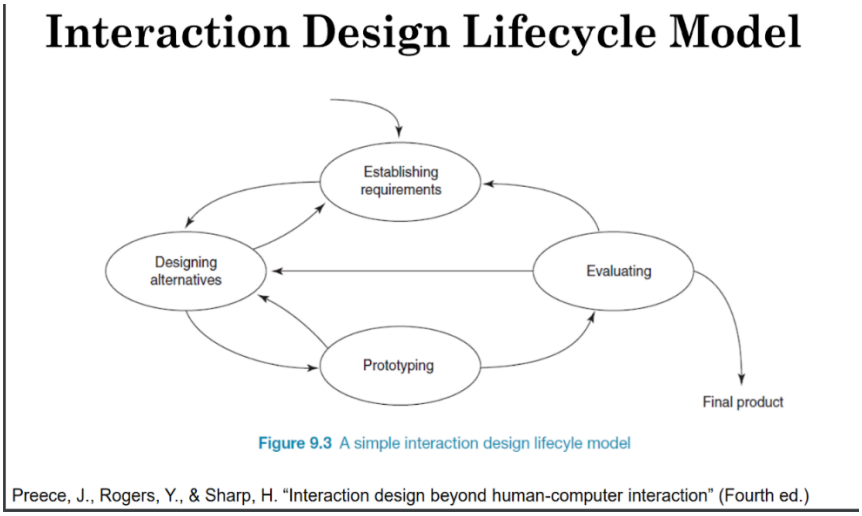


Figure 1. Interaction Design Lifecycle Model

The processes that have been followed in the first iteration can be seen in the diagram below:

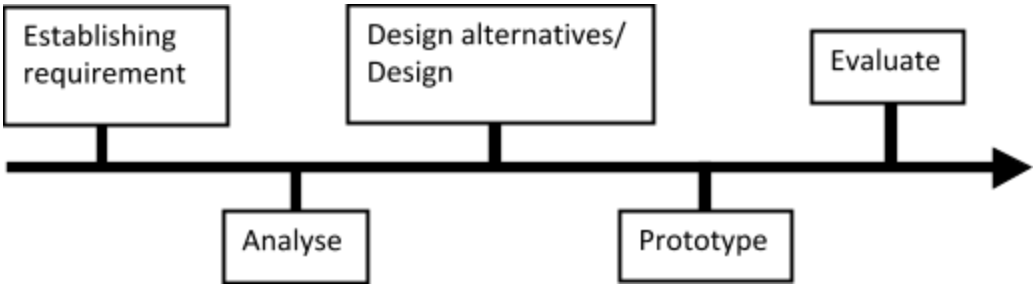


Figure 2. Diagram of the processes in the first iteration that have been followed

In the first iteration, initial requirement and conceptual model were produced. A low-fidelity prototype was created accordingly. Evaluation results which also included feedback on the conceptual design as well as more information about the user and the context was made.

The processes that have been followed in the last iteration can be seen in the diagram below:

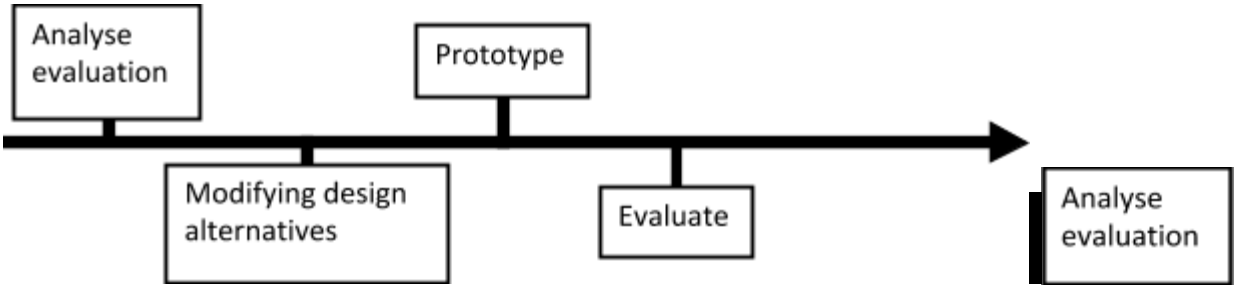


Figure 3. Diagram of the processes in the last iteration that have been followed

The processes that have been followed in the last iteration can be seen in the diagram below:

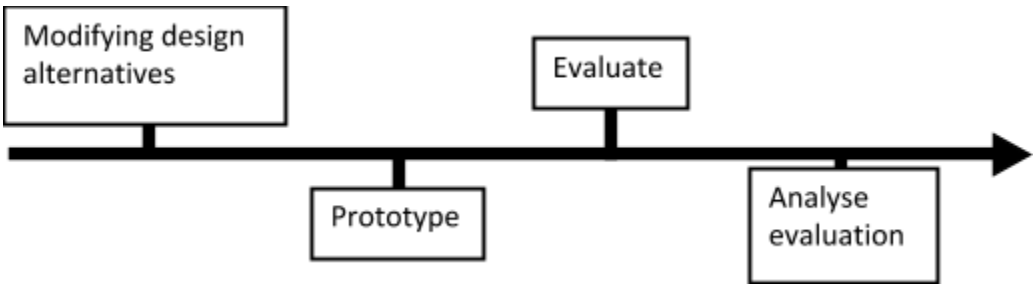


Figure 4. Diagram of the processes in this iteration that have been followed

In the last iteration, evaluation result from low-fidelity prototype was analysed and the conceptual model was modified accordingly. A mid-fidelity was created based on the low-fidelity prototype and modified conceptual model. Evaluation was made to examine the implementation of features in the prototype. Lastly, evaluation result was further analysed to revise user requirements and conceptual model.

While this timeline broadly outlines the process followed during the creation of this report, these steps are iterative. The insights gained, and decisions made during the evaluation will inform the next release requirements.

Modifying design alternatives

Before any concrete development starts, it is important to have a clear overview of the intended product. This is where conceptual design is needed. Although conceptual design can be presented in many ways, according to the instruction in studio three documents were being created to express a conceptual design. These three documents were the system concept statement, design guidelines and system requirement statements.

However, these documents are not concrete and will continue to be refined, updated and changed throughout the iterative interaction design process. According to evaluation from last iteration, the conceptual design will be modified to be more appropriate and closer to stakeholder and users' expectation. Also, UX goals and matrix will be revised to better show clear linking between the information obtained from users to the system requirement.

Using the modified conceptual design statement, a higher fidelity prototype will be created in order to assess its design concept, UI and core functionality of the system.

Prototype

The prototype is a more concrete realisation of the designer's conceptual design and will be used to gather feedback through user evaluation which will in turn inform design choices in following design iterations. Creating prototype before starting to build the final product is beneficial because:

- It requires much less effort to create a prototype compared to the final version product.
- It requires much less effort to remake or adjust the prototype when the users give some negative feedbacks compare to the final version product.
- It does not prevent users from giving negative feedback by thinking that there has been a lot of effort spent on the product already.

The prototype generated for this evaluation iteration was a high-fidelity prototype which aimed to further evaluate the conceptual design and the core functionality of the system. It allows the board to interact with the application and has greater detail in UI to better assess product's design concept and understand the intended user experience.

Evaluation

User evaluation is aimed at assessing the system functionality, as well as ensuring there are minimal gaps between designer conceptual design and user expectations and mental models. It also allows the develop team to ensure the usability and concept of the prototype is appropriate. Assessing whether the concept of the prototype is appropriate and usable can be done by observing the user behaviour during evaluation. It can be considered as inappropriate if:

- Users are having difficulty understanding how they can interact with the product.
- Users are not able to find the function they intend to use, therefore unable to accomplish tasks they wish to complete.
- Users often tap on wrong button or place which does not perform as expected.
- Users do not understand the system, therefore cannot explain the flow of the interaction.

To make sure every evaluation is repeatable is essential as having same procedure can control the factor that can affect evaluation result to just one which is the user. Therefore, protocol that can be followed each time doing the evaluation is required (DECO2500 teaching team, 2019).

Furthermore, other of the evaluation methods that will be used to achieve specific evaluation aims are SUS (System Usability Scale), Heuristic evaluation and pluralistic walkthrough. SUS is an assessment that assesses the usability of a system completed by users and is required in this report (DECO2500 teaching team, 2019). Heuristic evaluation was developed by Jacob Nielsen and was used to determine if the system meets the general usability. Pluralistic walkthrough provides diverse range of perspectives to discuss usability problem (Vivienne, 2008).

Analysing evaluation

Interpreting and analysing information form evaluation is important to identify the validity of the product and area that can be improved. Based on analysis, additional information of where the system can be improved can be identified.

Current stage

The current stage of the process is the third and final iteration. This iteration aims to finalise the design ready for full development. According to the result of this iteration's evaluation, additional information about user needs and context of use and areas that should be considered and investigated for the next release.

Step 1: Designing alternatives / Design

Improvement and changes made according to feedback

- Texts that were highlighted are to show changes and updates from previous version.
- Rationales in design guidelines section were included in the same section since the feedback from the board mentioned that it would be easier to read.

Overview

Before starting to build a product, it is crucial to have a clear overview of the intended product. A conceptual design is what the develop team must have to predict users' needs and understanding. There were three documents chosen to create a conceptual design for this project they are:

- System concept statement,
- Design guidelines, and
- System requirements statement.

System concept statement includes elements that explain the issue of the situation, solution to it, and how the solution can be achieved. Design guidelines provide fundamental principles that aims to giving the direction of design and develop the intended product. Lastly, system requirements statement identifies system requirements specified to the intended product with rationale from the previous contextual inquiry.

After the second iteration, the design concept had been tested and some feedbacks were gained through evaluation. Each document to create a conceptual design for this course had been modified to add more specific detail and meet users' expectation according to feedback from last iteration. Furthermore, UX goals and matrix were modified as well to better show clear linking between the information obtained from users to the system requirement.

System Concept Statement

<table>
<tr><td colspan="3">Design and develop a mobile app [1]

that integrates to a person's bank account to automatically track their income and expenses and uses this information to suggest savings plans [2], financial services [3] and help the user achieve savings goals.</td></tr>
<tr><td colspan="3">The app aims to seamlessly integrate with a user's bank account so that income and expenses are automatically logged, and savings calculated. The system will take user input on their savings goals and assist them in creating a savings plan. The app will also advise users on how to select financial services such as savings accounts, superannuation plans and financial advisors. A user's financial planner can also be granted access to their spending and income data if desired to let them automatically keep up to date with their clients [4].</td></tr>
<tr><td>Mobile [5]</td><td>Instructing [6]</td><td>● Lock icon indicating Login/Logout
● Black and red text corresponding to credit/debit or being over/under savings goals like traditional bank statements
● Envelope symbol like a letter for a button which shows all notifications from the app
● Question mark in a speech bubble icon as a help button
● Plus, and minus button to add and delete records
● Exclamation mark to give tips and information
● Graph (bar, pie, etc.) indicating visualized statistic information
● Calendar corresponding to view the accumulated data in weekly, monthly, etc.
● Camera icon corresponding to take or attach images of the bill or spending
● Checkboxes to view only selected items</td></tr>
</table>

		• Wheel icon indicating settings menu • Currency mark (e.g. Dollar sign) to change currency • House icon indicating home page • Light grey colour text in a text box indicating input required. • Button with different colour or effect indicating the button has been pressed.

Rationale

1. 84.3% of respondents from survey question "Do you prefer to use browser or mobile app?" declared that they would prefer a mobile app over a web app.
2. 45% of respondents from survey question "What would make you to use the tracker?" declared that they wanted savings plan advice from a potential financial service.
3. 40.8% of respondents from survey question "What would make you to use the tracker?" declared that they wanted advice on how to find and select financial services based on their personal details.
4. Of the responders from survey question "If you did/do have a financial advisor, would you like to be able to grant them access to your income and spending habits?", 77.8% would like to be able to grant access to their financial advisor to streamline communications.
5. 84.3% of respondents from survey question "Do you prefer to use browser or mobile app?" declared that they would prefer a mobile app over a web app. Interview participant 07: "the app supports multiple account books and currencies, which is convenient for overseas travelling". Users expect to be able to use this app without being limited at a fixed place and when they are traveling.
6. From lecture notes, the definition of instructing is "issuing commands using keyboard and function keys and selecting options via menus". Since the app requires users to input their data and select options, the interaction mode would be instructing.

Design guidelines

1. **Information needed by the user should be readily available and easy to understand**

People do not like too much content on the screen at the same time, since they will not be able to see the information they need. Hiding content that is currently unnecessary and then giving the user the option to access it when they need it can reduce the difficulty users experience synthesising information presented to them. Make sure every single object on the screen has its purpose related to the page is currently opened. More importantly, make sure users can understand all the information on the screen.

Rationale:

From the question "What was good and bad about the tracker you used?" in the survey, over 25% answers mentioned about the easiness of usability as a good perspective about the tracker they used.

From the lecture, discoverability was one of 7 Fundamental Principles of Design introduced.

From the evaluation 01 in the second iteration, the participant mentioned that "I just think it doesn't look very interesting or easy to read. My progress is a small number without a dollar sign, so it doesn't even look related to the total. I can't understand it at a glance and had to actually read all of the labels to understand what information I had. Make that easier somehow."

2. **Direct interaction with onscreen content**

Letting users directly manipulate objects on screen to attract their attention and facilitates understanding. It also provides users with instant feedback while they are operating the system.

Rationale:

From the lecture, signifiers were one of 7 Fundamental Principles of Design introduced.

From the evaluation 02 in the second iteration, the participant said, "See yeah I thought this was my goal progress, so I assumed it was how I got to the goals".

3. Button to action consistently

Having similar looking object with similar function reduces confusion and helps users to get familiar with the system easier. After users learnt about the function of a button, they should be able to predict what that button can do when they see it somewhere else.

Rationale:

From the lecture, signifiers were one of 7 Fundamental Principles of Design introduced.

4. Save as they go

Make sure users do not lose whatever they created when they leave the system. Remember the settings that users set up. Allow users to transport their works between devices.

Rationale:

Interviews participants 07 of the first iteration mentioned that she could not transfer her records between different devices and that was considered as "bad experience from the previous system they used".

5. Visual is better than text

Images are more attractive than paragraphs. If the information can be presented as graph, then texts can be neglected. [Rationale] Where possible, icons should be used instead of labels.

Rationale:

From the interviews of the first iteration, more than half of the participants mentioned that they were either used graphical data analysis a lot or considered that graph gives them clearer information than text.

6. Giving feedback to every action

The system's Gulf of Evaluation should be minimised by instantly providing feedback to the user after their inputs. Whether it is alerts of confirmation, or loading indicators when the program is hung, efforts should be made to communicate the state of the system to the user.

Rationale:

From the lecture, feedback was one of the 7 Fundamental Principles of Design introduced.

7. Use media to communicate positive feedback to the user

Having sound or visual effect at the well-timed to provide joyful experience for user and make them feel surprised.

Rationale:

From the survey, one answer to question that "What would make you to use the tracker" says that interesting design would motivate them to keep using the app.

8. Make it more personal

Provide options that is personalised to user, such as, customise interface, budget setting, saving goal setting, etc. Record users' input/choice and allow them to access easily when they are asked to input/choose similar data.

Rationale:

Some of the answers from survey and interview mentioned that budget and goal setting are essential feature as a financial tracker application. Budget and goal would vary depend on different person thus are considered as personal option.

From evaluation 04 in the second iteration, the participant mentioned "It doesn't actually say which goal is on the home screen, maybe have an option to decide which goal is the primary goal and then display that one on the home screen."

9. **Letting user knowing where they are**

Having clear titles on each page of features so that users can see where they are now.

Rationale:

From the question "What was good and bad about the tracker you used?" in the survey, over 25% answers mentioned about the easiness of usability as a good perspective about the tracker they used.

10. **Make sure texts are readable**

Having large enough font size and clear colour. For example, do not use light colour when the background colour is also light.

Rationale:

From evaluation 01 of the first iteration, the participant stated that the texts are hard to read on the Goal page where the texts are too small, and the colour is too light.

11. **Nothing too specific to any platform.**

Make sure not to have design that is only understandable for a specific platform native user. For example, open notification bar by swiping down on home screen on Android, and open control panel by swiping up from bottom edge on iPhone.

Rationale:

From evaluation 01 of the second iteration, it was noted that the participant didn't understand the green arrow in the android keyboard was an enter (user was an iPhone native).

System requirements statement

General aspect

Free service

Shall provide free service.

Rationale: Users are unwilling to pay for the service if they can get it for free and it prevents users from trying the product. There can more advanced feature provided only for paid customers.

Note: 73.5% of answers from survey question "What would make you to use the tracker" is free service.

Tutorial

Shall provide tutorial for users when they open the app for the first time and allow them to revisit it if they need.

Rationale: Reducing the chance of confusion from users who are new to the product and having difficulties while operating the system will reduce users' interest in keep using the system. Also, the users might miss some important information from the interface if they do not understand what it is.

Note: From the evaluation 02 of the first iteration, the participant said, "This is just really hard to understand and read". From the evaluation 04 of the first iteration, the participant said, "What is the second line?" and "Oh would not have guessed that". Which shows that users do not understand the information shown on the screen. From the evaluation 01, 02 and 03 of the first iteration, the participants are all confused about where to click to access "Category breakdown" page and eventually asked "is there any button on the screen?".

Professional financial advice

Advice on finding appropriate financial service

Shall provide professional advice on finding appropriate financial service such as saving accounts, superannuation funds, etc.

Rationale: People are keen to use a financial tracker have a better concept about financial management. Therefore, they would like to seek financial assistance for them to manage their finance accordingly.

Note: 40.8% of answers from survey question "What would make you to use the tracker" is having advice on finding appropriate financial services (savings accounts, superannuation funds, etc.).

Advice on investment

Shall provide professional advice on investment.

Rationale: People are keen to use a financial tracker have a better concept about investment and is intending to earn/save more money. Therefore, they would like to seek investment advice and see whether they should invest accordingly.

Note: 42.9% of answers from survey question "What would make you to use the tracker" is having advice on breaking up income into savings, investment and costs. Some participants from interview mentioned that they will appreciate to have advice on investment in a financial tracker.

Tips on how to save money

Shall provide tips on how to save money in general.

Rationale: People are keen to use a financial tracker might intend to earn/save more money. Therefore, providing tips on how to save money would give the users some general idea and convince them to use a financial tracker.

Note: 46.9% of answers from survey question "What would make you to use the tracker" is having tips on how to save money. Half of the answers from survey question "What is the reason to use a financial tracker" is to save money.

Analysis of spending

Visual presentation of data

Shall present expenses data in graphical presentation.

Rationale: Image is more attractive than text and it can show clear distribution of expenses.

Note: From the interviews of the first iteration, more than half of the participants mentioned that they were either used graphical data analysis a lot or considered that graph gives them clearer information than text.

Period analysis

Shall provide options for displaying expenses in specific period.

Rationale: Period analysis provides an overview of how much user spent in a specific period, it allows user to inspect whether they need to make changes on their spending habit.

Note: From the interviews 04 and 05 of the first iteration, participants mentioned that they used period analysis a lot to see the difference between current and previous period. Therefore, they can make changes accordingly.

Categorise expenses

Shall provide category options for inputting expenses.

Rationale: Having categorised expenses helps the system to construct analysis and allows users to see which categories they spent on.

Note: From interview 01 of the first iteration, when participant answered question "What key features would you expect from a financial tracking system?", said "Breaks down spending into different categories, e.g. food, alcohol, shopping." From interview 03, when participant answered question "What feature did you use most often?", said "I used those buttons that categorize spending the most when I was using fortune city (the financial tracker participant is using)."

Personal options

Budget/Goal reminder

Shall provide notifications when user is over the budget or is not attempting to achieve the goal.

Rationale: Having reminder system keep user on track of their expenses.

Note: The participant in the interview 06 of the first iteration mentioned that he would like to be notified if he is about to over his budget or he spent too much.

Budget/Goal setting

Shall provide option of setting the goal/budget of a specific period.

Rationale: Allowing user to set their budget/goal helps them to control their expenses.

Note: The participants from evaluation 03 and 04 of the first iteration mentioned that they would like to be able to set their budget/goal for a specific period, so they can control their expenses to achieve the goal or not to break the budget.

Goal Ranking

Shall provide option to give rank to the set goal/budget.

Rationale: Allowing user to set their goal ranking helps them to control their expenses towards goals by their priority.

Note: The participants from evaluation 04 of the second iteration said, "It doesn't actually say which goal is on the home screen, maybe have an option to decide which goal is the primary goal and then display that one on the home screen."

Link to bank account

Record expenses and incomes automatically.

Shall be able to link to the bank account and record the expenses and incomes automatically without needing of manually typing in.

Rationale: Allowing linking to bank account provides convenience to the users.

Note: Some of the participants in the interview of the first iteration mentioned that the reason they stopped using the previous financial tracker was due to laziness. Therefore, this system needs to endeavor to be as ubiquitous as possible to ensure that its impact on user habits is minimal.

Currency option

Currency adaption

Shall be able to choose which currency to record.

Rationale: Having currency adaption feature allows user to record their expenses and incomes in any country.

Note: The participant in the interview 05 of the first iteration mentioned that the reason they dislike the previous financial tracker they used was due to it cannot choose which currency to input.

Data saving

Saving data and setting.

Shall be able to save data and setting to transfer between devices.

Rationale: Recording data and setting allows user to transfer them between devices which prevent losing records. If user lost their records that they spent time on they will be unpleasant and unwilling to keep using the application.

Note: The participant in interview 07 of the first iteration mentioned that the bad experience about the financial tracker she is using it cannot transfer record between devices.

UX Goals

Improvement and changes made according to feedback:

- Added discussion around UX goals;
- Stated what stage of the process the interview is from;
- Made the goals more reasonable by adding more valid reference;
- Made the measurements more related to prototype by adding "user testing" in measurement;
- Made the requirements more related to reference by highlight the requirements that reference to the source.

Since neither usability nor user experience is directly measurable, the measurement of things that can be measured can be used as indicators of more abstract and less measurable concepts. UX (User experience) goals can be seen as criterions of testing the usability and user experience of our product. UX goals were defined by focusing on users' needs from the product instead of features. According to defined UX goals, contents and features/functionalities that will support those goals were also defined. The matrix presented below was created in order to show clear linking between the information obtained from users to the system requirement.

Table of UX Goals

Sources	UX Goal	Measures	Requirements
Interview from contextual inquiry stage (report 1) participant 08: Answering question "What key features would you expect from a financial tracking system?", said "Budget management". From contextual inquiry stage (report 1) survey question "What was good and bad about the tracker you used?" one answered, "It also helped me split payments and budget for a week." From contextual inquiry stage (report 1) survey question "What kind of service are you most interested in?" two answered "Budgeting".	I want to set my goals or budget to save money for future and manage them effectively	Amount of times that users add a new goal/budget. Percentage of goals that are successfully achieved. User testing: Amount of times that users made mistake while creating a goal. Amount of time that users need to create a goal. Survey Question: "I have every option I need to set my goal/budget" "I can clearly see how my goals are progressing" "I can clearly see if I spend overbudget or not" "I have difficulties setting up my goals and budget because there are some	Start and end date option; Amount to save for goal and budget option; Showing progress towards goals and budget; Showing expected spending/saving amount at the moment according to goal/budget set. Reset goals for a period option.

		missing options" (negative scoring) "I cannot achieve my goals and often spend overbudget because I find it hard to see if I am following the progress" (negative scoring)	

Sources	UX Goal	Measures	Requirements
Interview from contextual inquiry stage (report 1) participant 01: Answering question "What key features would you expect from a financial tracking system?", said "Breaks down spending into different categories, e.g. food, alcohol, shopping." Interview from contextual inquiry stage (report 1) participant 03: Answering question "What feature did you use most often?", said "I used those buttons that categorize spending the most when I was using fortune city (the financial tracker participant is using)."	I want to find out my spending habits to reduce spending money unnecessarily and have these habits broken into categories	Amount of times that users clicks on: Statistics button Categories button in statistics screen Graph in home screen. User testing: Amount of times that users made mistake while looking for how much spent on specific category. Survey Question: "I can clearly see what categories I spent my money on" "I can see the distribution of my spending in different categories" "I cannot really tell which category I spent the most on" (negative scoring) User interview	Category option in adding spending screen; Spending distribution in categories; Option to sort categories from most to least spending.

Sources	UX Goal	Measures	Requirements
Interview from contextual inquiry stage (report 1) participant 05: Answering question "what made you stop using the financial tracking system", said "Have only one currency, have difficulties when traveling around different countries, and especially when you travel often". Interview from contextual inquiry stage (report 1) participant 07: "Apart from basic money managing functions, the app supports multiple account books and currencies, which is convenient for overseas travelling".	I want to record my spending in multiple currencies to still be able to record my spending during oversea traveling.	Amount of times that users change the currency when they record their spending. User testing: Amount of times that users made mistake while changing the currency. Survey Question: "I find it is useful to be able to change currency when I travel overseas" "I have not changed currency since I do not travel overseas" "I find changing currency is useless" (negative scoring) User interview	Changing currency option in adding spending screen; Default currency option in setting page.

Sources	UX Goal	Measures	Requirements
From contextual inquiry stage (report 1) 40.8% of answers from survey question "What would make you to use the tracker" is "Advice on finding appropriate financial services (savings accounts, superannuation funds)". Some participants from interview mentioned that they will appreciate to have advice on investment in a financial tracker. Interview from contextual inquiry stage (report 1) participant 03: Answering question "What did you find a bad experience from that previous system?", said "Fortune city is lacked on professional financial advices"	I want to access information on choosing financial services such as credit cards, superannuation etc. to determine how to manage my money.	Amount of times users click on information session button each financial services information reference link in each financial services information page User testing: Amount of time the users spent on finding specific information. Survey Questions: "Information is useful and detailed enough" "I can easily find the specific financial service information" "When I seek to have deeper information, I can find reference in the information session"	Having references for users to read more detailed information if they need; Have each financial service in separate information session.

		"Information is not detailed enough" (negative scoring) "I cannot find information about the specific financial service that I am looking for" (negative scoring) User interview	

Sources	UX Goal	Measures	Requirements
Interview from contextual inquiry stage (report 1) participant 06: "I simply like it when it gives me a notification on a daily basis." Answering question "What benefits did you gain from this system? And what features provided those benefits? ", said "Whenever I spend more than usual, I get notifications."	I want to get notifications after each spending to make sure I am well aware of my progress on my goals/budget.	Percentage of users who turn on the spending notifications. Amount of times users click on notification window. User testing: Ask the users to explain the information presented in the notification to see if they can understand the content displayed. Survey Question: "Notification allows me to be aware of my progress on my goals/budget" "Notification provides useless information" (negative scoring) "Notification shows essential information that I need to know"	Notification switch in setting page; Notification window pop up; Option to edit spending information by clicking notification. Showing notification for each spending. Showing warning when user spends more than usual.
Sources	**UX Goal**	**Measures**	**Requirements**

Interview from contextual inquiry stage (report 1) participant 01: Answering question "what feature would appreciate", said "his bank accounts being connected to automatically to the app so that he didn't have to manually input his earnings and savings". Interview from contextual inquiry stage (report 1) participant 09: "Would definitely use if it logged data automatically."	I want to connect to my bank account to be able to record my spending automatically.	Percentage of users connect to their bank account. Survey Question: "It is convenient for me to connect my bank account, so I do not need to input my spending manually" "It correctly records my spending through my bank account" "It often ignores my spending and I have to input it manually" (negative scoring) User interview	Connect to bank account option in setting page; Disconnect to bank account option in setting page. After connecting to bank account, being able to automatically record spending and income.

Step 2: High Fidelity Prototype

Overview

Based on our team's medium fidelity prototype and evaluations we have achieved from previous reports; our team has created a High-Fidelity Prototype. Our team has decided to use HTML, CSS, and JavaScript to build our high-fidelity prototype, as it can be accessed by any mobile device and can be transformed in to any app system in future.

From previous researches we have developed deeper understanding of user's requirements for our app. Based on general key features required for an app and features that our development team thinks important to help behavioural change, we have we have implemented key features that users wanted and needed. We did not implement all the features users wanted, since it would make the app heavy and confusing, but implemented ones that were thought to be important.

This prototype is not the final version, as there will be further releases till full development, ready for commercialisation with some changes. However, this prototype will finalise most of the design and features of the app. With this prototype, that can be fully interacted with users, will be once again tested and evaluated.

Development

Our high-fidelity prototype has been developed with HTML, CSS and JavaScript, that is suitable for mobile. Our team has decided to build the prototype in this method as this can be accessed by any mobile device regardless of its OS, if it has an internet connection. This app can be tested on multiple different devices with different performance, so we can test the UX in different situations

At current stage, it is not implemented, but can be used in any PC by making some modifications, which meets some user's need. Also, HTML can be easily transformed into app systems with multiple Mobile OS, with some programs like Adobe PhoneGap [reference 1-Adobe] or Apache Cordova [reference 2-Apache].

Interaction Flow

The design's interaction flow follows one seen in apps. Broadly, app navigation consists of a persistent menu at the bottom of the app reminiscent of many other systems users may be familiar with include Facebook, Instagram and Google Chrome apps. This will assist users by allowing them to use memory rather than problem solving to gain an understanding of the system.

Broadly, the interaction flow can be described as such:

The five menu buttons correspond to the layout of the paper prototype, with home being the default starting screen of the system. Clicking (touching) any of these menu items will result in the screen being changed.

Further functionality is then accessed by the following buttons indicated numbers 1 through 13 on the list below.

1. Plus, button is to add a new goal and when touched the prototype will change to the add new goal screen directly above it.
2. Edit button is to edit items that has been input already.
3. Users can choose between long term and short-term goal which have some different input fields.
4. Users can filter out short term goal and long-term goal, so they can look for certain type easily.
5. A keyboard and dropdown menu will appear when input field is clicked, so users can input the data
6. When users input data and submit, they will appear on the main screen.
7. Touching the sections of the pie chart will show the amount of money and percentage of the spending. List below, will take the users to detailed statistics page.
8. User can change the view by pressing daily, weekly, monthly button.
9. Users can press the day section of specific spending, to view the detailed statistics.
10. Touching any elements with 'click here' will take the user to page with more information.
11. In settings page users can log in and log out.
12. User can read help and policy page to find out information about the app
13. User can change settings of the language, currency and notifications.

General Required Features for App

In app, we needed to implement general things that most application have that will allow users to interact and understand the system better. In each page, except the home page, there is header, telling users, which page the user is at. This doesn't have much details, but will be enough for users to understand what they are doing with the app.

Figure 5: Example of Title of the page.

There is navigation bar at the bottom, which is present in all pages. There are 5 icons representing each main page, which is enough for most of users' mental model to understand its meaning, after they try the app once. These icons are very simple and one of most used icons, so most of users would understand after once. The area around icon will be highlighted to yellow according to which page users is at.

Figure 6: Example of Navigation Bar

There will be some general settings for the app that can users set. There will be notification settings, where users can choose to receive notifications or not. Also, there are policy and help page, that will inform the user about this application.

Features Users Wanted

From previous research, our team has discovered what features users wanted. Based on the result, we have chosen some key features and implemented on our app.

One of the key features of our app is that once, users link their bank account or their payment method, our app automatically tracks the usage and records in the system. From the research our team has found out the large number of users who had previous experience and stopped using, financial tracking/aiding app was because they had to log their income/spending data by themselves. Lots of users were not tenacious to constantly record it, so our team has implemented automatic tracking, so users don't have to. Still, there could be some errors, so users can still manually log them in and make some changes if they want to with add and edit.

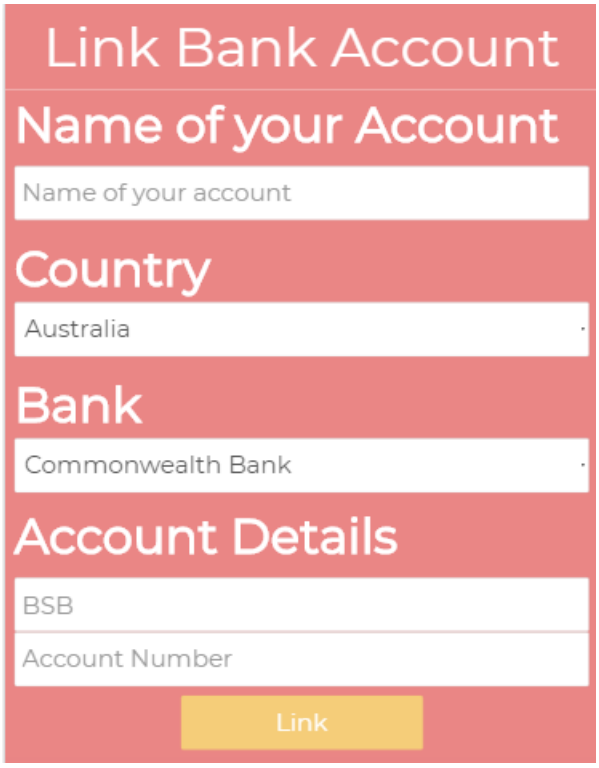


Figure 7: Captured image of linking bank account page.

One of the problems that number of users had problems with their previous experience was that there was no currency choice. People could not use their app when they were travelling or made payment overseas. In our prototype, users can set their main language and currency at settings, and whenever users input any data related to money, users can set the currency they want.

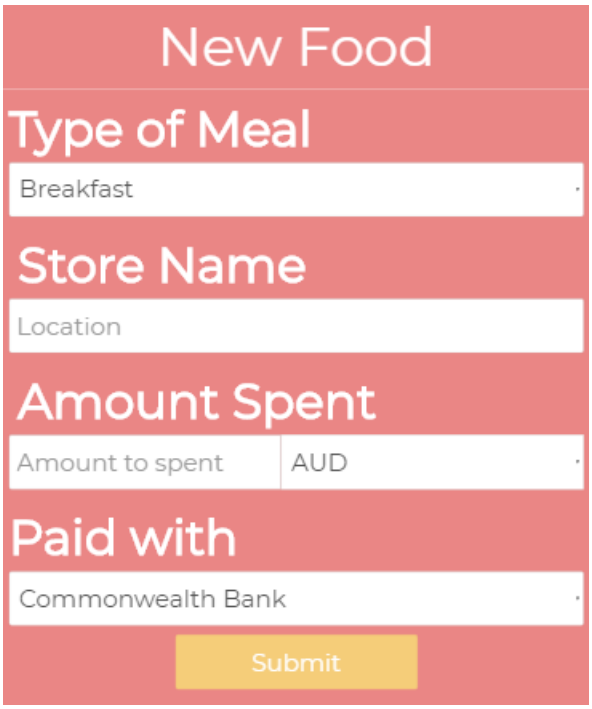


Figure 8: Captured image of adding new payment detail

To help novice users, our app has large size buttons, with labels or icons to add or edit items. Also, in some pages like financial information, there are 'Click here' signs, so users can understand that they have to click that area. Experienced users will find out a quicker way to interact with the app. By clicking an item for a long time will take them to an edit page, instead of clicking edit and swiping will allow users to delete an item, instead of manually editing to delete. Novice users will find out and improve their interaction speed once they get experienced with our app.

Changes from medium fidelity prototype

Since, our team is developing an app to assist user to change their behaviour of spending, we needed to have some basic functions. We have set these features from the beginning and has been evaluated with low and medium fidelity prototypes. However, in High-fidelity prototype, we had some changes.

Firstly, we had UI changes. From previous researches, our team has found out that some users thought our design was outdated and not aesthetically pleasing. Since this is High-Fidelity prototype, our team designed and improved our prototype with modern UI. We designed the UI to be minimalistic and slim, so it looks appealing to the user.

Also, our team has set colours of the app. Our theme is piggy bank and money, which is represented by colour pink and yellow. We have used pink variant of colour as background and main colour. This colour does not hurt users' eye much and yellow is used to highlight, important features. Since the background colours are pink and yellow, we used white texts to improve the readability of the text.

Secondly, we found that user prefer something visual over texts. In goals page, we have implemented a bar graph, so users can see the progress of the goal in a sight. Also, the texts have been changed left to right, instead of top to bottom, so user can recognise it better.

Thirdly, our team found out some users had trouble clicking input area. Since, this is mobile app which is operated by human hand, people can mis click items very easily. To prevent this and reduce errors, we have made the input field bigger and put some space around them.

Step 3: Evaluation

Expert based evaluation

Previously, we have evaluated our low and medium fidelity prototype by potential end users to further find out their needs and the problems they could find. With our high-fidelity prototype, evaluation has been conducted by UI/UX experts. Expert based, or non-user evaluation is done to save time and money that is caused on standard user evaluation. Instead of finding potential user, developer or UI/UX expert can perform the evaluation. However, since general end-users and experts may have different mental mind, experts may miss some issues that users can confront.

Since, user-based evaluation requires large amount of time, our team has decided to take some expert based evaluation. There are multiple expert-based evaluation methods, but our team has chosen Heuristic evaluation and Pluralistic Walkthrough evaluation.

Process Description

For this iteration of the design process number of evaluation techniques were selected. Using the high-fidelity prototype that has been developed, the following evaluation procedures will take place:

- Heuristic Evaluation
- Pluralistic Walkthrough Evaluation
- Unguided exploration
- SUS Questionnaire
- Post-interaction interview

Pluralistic walkthrough was selected as the high-fidelity prototype implements much of the functionality that will be present in the final design. Therefore, pluralistic walkthroughs at this stage will allow the design team to assess the implementation of functions considered desirable by users during previous evaluations.

Heuristic evaluations will allow the design team to ensure the implemented design conforms to established principles by focusing evaluator attention to specific facets of the design, allowing minute and specified critique.

Users will then complete an unguided questionnaire, coupled with a SUS questionnaire and post-interaction interview. This is a low cost means of further assessing the design's usability and gathering user attitudes towards the prototype.

Attempts were made to ensure users participating in evaluations were indicative of a potential user. Namely, that they fit into the following broad criteria:

1. 18-35 years old
2. Employed with some type of income, variable income permitted

The first criteria are to ensure users are digital natives, which has been assumed through the design stage. The second mirrors both personas generated throughout the design process (appendix), and the apps target audience as people without an income have little use for a financial tracker

While the prototype was quite good, the was one limitation which slightly affected user interactions. The prototype was built as a web app using HTML5, CSS3 and JavaScript and therefore while interacting with its users had the small browser bars present when using safari on an iPhone. However, this was a small issue and had minimal effect on the data gathered during the evaluations.

Heuristic Evaluation

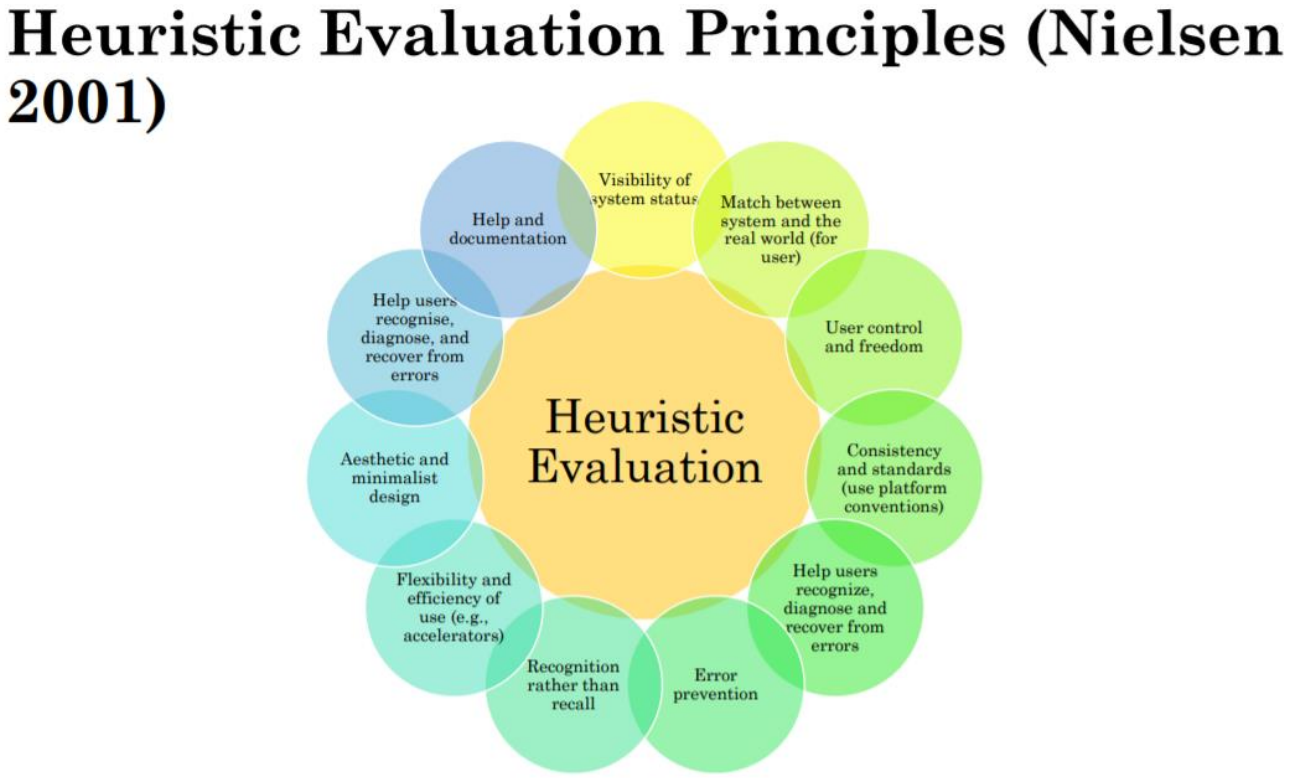


Figure 9: Diagram of Heuristic Evaluation. [5]

Heuristic evaluation is one of popular evaluation method to determine the usability of system to improve the usability, utility and desirability. Heuristic evaluation is evaluation solely conducted by UI/UX experts, without users.

Pros and Cons of Heuristic Evaluation

Pros	Cons
Help evaluators to focus on certain elements, instead of looking for problems everywhere.	Choosing appropriate heuristic is difficult.
There is no ethical/practical issue that user evaluations have.	Relatively time consuming as experts need to examine the whole app
Help identifying usability problems by each element	Problems that experts find may be false alarm and not meaningful.
	Experts do not represent end-users, they have different ideas

Evaluation Method Justification

There is a core heuristic evaluation developed by Jacob Nielson, but that is too general and does not fit for smartphone app. There are number of variation of heuristic evaluation and SMART[6] is heuristic evaluation developed for smartphone app. Even though SMART has been developed for smartphone app, not all of them matches our app. Based on Nielson and Molich's heuristic evaluation and Joyce et al's [6] SMART heuristic evaluation our team created own list of heuristic evaluations.

1. **Match between system and the real world. Use a theme and consistent terms, as well as conventions and standards familiar to user.**
2. **Each interface should focus on one task, so that it's glanceable to users who are interrupted frequently**
3. **Design a visually pleasing interface. Users 'forgive' attractive interfaces.**
4. **Intuitive interfaces make for easier learning**
5. **Design a clear navigable path to task completion**
6. **User control and freedom. Allow configuration options and shortcuts.**
7. **Aesthetic and minimalist design.**
8. **Help and documentation.**

As our team members are experts, all members took evaluation, but since our team has 3 members, it wasn't enough. As people have different mental model, each evaluator will experience different problems. More evaluators we get, more problems we will discover. Our team has decided we needed at least 5 evaluators, which would be able to find 75% of problems that our app may have. So, we got additional 2 experts who has some domain expertise in UI/UX to evaluate our app.

Evaluation Procedure

Detailed procedures available at **Appendix D**.

Experts will have 1 hours to interact with the prototype freely. As our current prototype is not complex, it will take around 30 minutes. During this time experts will be trying out all the features that are currently available. When experts are done, they will be told what elements they should be evaluating. With these heuristics experts will have another run through applying heuristics to features of the app. When experts complete examining the app, they will record all the problems they encountered.

Once all experts complete heuristic evaluation, all experts gather for a debriefing session, where experts discuss the problems, and suggest any solution they have.

Result of evaluation available at **Appendix E**

Summary of Evaluation result

1. **Match between system and the real world. Use a theme and consistent terms, as well as conventions and standards familiar to user.**

Result: No heuristic violated.

All experts agreed that language used in this app are very conventional and standards for anyone to understand. There were no new terms or any professional terms that novice users would find them difficult.

Most icons and buttons used are good. Target, bar graph and home icons are reminiscent of real world, but information icon are less realistic.

Still some wordings like financial information was bit vague to understand for novice users, as it could mean either financial information of the user, or for the user.

2. **Each interface should focus on one task, so that its glanceable to users who are interrupted frequently**

Result: No heuristic violated.

All screens have title on the top and has singular purpose and easy to understand.

3. **Design a visually pleasing interface. Users 'forgive' attractive interfaces.**

Result: heuristic violated.

All texts are readable and doesn't hurt eye much and minimalistic flat UI looks polished.

However, most designer experts found it not very pleasing and attractive. Some found them too colourful, they prefer white background. They found some colours not matching the general theme. The pinkish colour seems bit feminine, may not attract male users.

Some suggestions were change the background colour or use pink less and make it less feminine.

4. **Intuitive interfaces make for easier learning**

Result: No heuristic violated.

User testing shows there is no huge learning curve. Gulfs of execution and evaluation have been successfully minimised and clearly key interface metaphors resonate with users.

However, few experts preferred some kind of tutorial at the beginning.

5. **Design a clear navigable path to task completion**

Result: No heuristic violated.

Plus, submit buttons and other key path determining elements are highlighted using the yellow accent colours. Very rarely are there multiple ways through a scenario. It is clear where to move.

6. **User control and freedom. Allow configuration options and shortcuts**

Result: heuristic violated.

There are few options for configuration, but not enough.
Notification control, language currency settings are good, but too basic.

Also, some expert found that some options such as short term and long term may not be enough. They wanted some more choices.

Could be improved by having a few different colour schemes to choose from which could be selected and changed in the settings screen. Also giving users choice style of data presentation would be another good idea.

7. **Aesthetic and minimalist design**

Result: No heuristic violated.

Good, flat UI is minimalist and uncluttered. Generally, clearly structured, easy to read at a glance and visually appealing. Texts and graphs are not overlap or too close to each other.

However, there were some problems with phones that have different resolutions and screen size, where they experienced problems. This could be simply fixed.

Also, some expert didn't like that design was too minimalistic that it could miss some information. The use of icons over texts maybe little confusing.

8. **Help and documentation**

Result: No heuristic violated.

There is help and policy page, giving some information, but not enough yet.

Could add some more information

Analysis of Evaluation Result

In total, 2 heuristic violations were found. They were attractive interface and user control freedom. Other 6 heuristics were not violated, but still some suggestions were made.

Some of responses and problems experts recorded, were not genuine problems, as some were our team's intention. This was discussed during debriefing session and concluded they weren't problems.

These feedbacks and suggestions will be discussed over the team and applied on release 2.

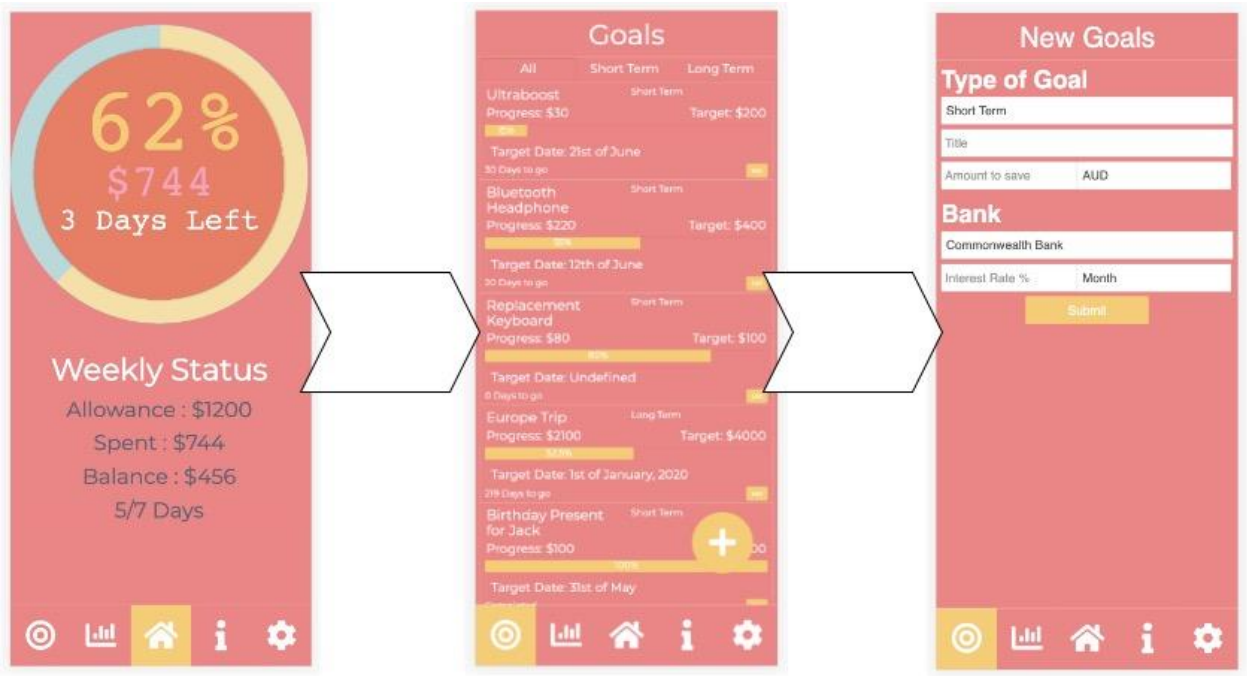
Pluralistic Walkthrough Evaluation

The pluralist walkthroughs conducted involved designers, developers and users. This ensured people unfamiliar with the system were interacting with it, this made sure experts familiar with the system were exposed to alternate points of view. However, users were made to share their opinions and responses first to ensure that their opinions were not being affected by the other participants.

The scenarios chosen for the group to respond to were three functions nominated as crucial or appealing by users (appendix G).

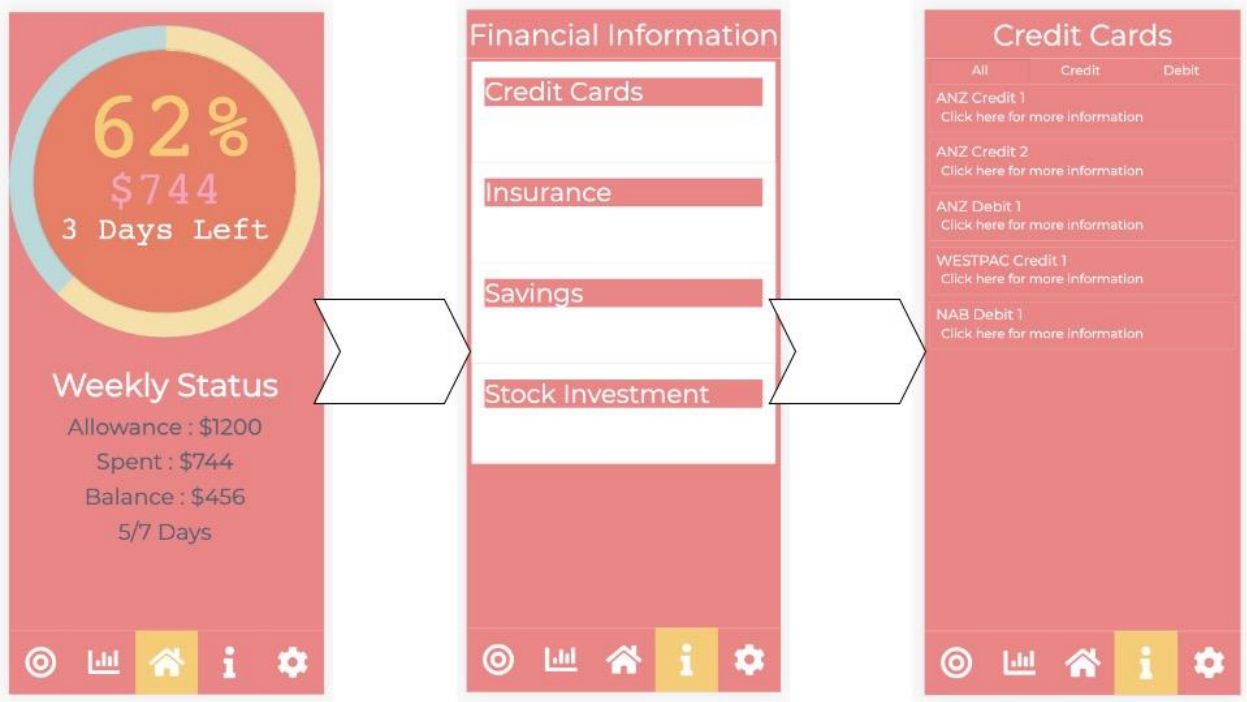
The three were:

Add a new short-term goal



View the spending breakdown for a specific category of expense (in this case food)

View information on credit cards



Details on these evaluations, including the correct actions required to move between screens and other procedure details, can be found in appendix(F).

Answers and notes collected during the pluralistic walkthroughs can be found in appendix (G).

Unguided Interaction, SUS Questionnaire and Interview

These three evaluations will take place one after another with the same user. They have been selected as a fast means of both quantitative and qualitative data about user attitudes regarding the functionality, desirability and usability of the prototype.

Initially, users will be briefly be introduced to the features of the system. They will then be presented with the opportunity to interact with the prototype. Following their interaction will be a SUS questionnaire and post-interaction interview. The interview is taking place after the SUS questionnaire as it gives the design team the opportunity to ask to follow up questions regarding interesting SUS responses to more completely understand user opinions.

Detailed evaluation procedure can be found in appendix ().

Step 4: Establishing Requirement

UI Changes

Usability

The following changes will be made to the UI based on feedback regarding the usability gathered during this design iterations' evaluations.

Issue	**Justification for Change**	**Notes on Change**
Spending breakdown row size	*"[rows] a bit narrow, could be wider" - appendix ()*	Row height should be increased to both accommodate a larger text size, making the system more accessible, and minimize miss-clicks by users
Clickability indication for spending breakdown	*"Not clear where to press" - appendix ()* Furthermore, 2 of the users involved in the pluralistic walkthrough indicated that they thought the pie chart on the spending breakdown screen was clickable rather than the rows - appendix ()	Users had trouble determining that the rows on this screen were clickable, this could be combated by having an actual button in the row that they click for more details, or making the row look more like a button.
Information clickability	*"Just make the whole row clickable, rather than only the second line, its small enough to be a little hard to click" - appendix ()*	Users had trouble with the information screen as it was assumed that the entire row was clickable. Rather than making it more apparent that only the subtitle is clickable, future prototypes should just make the entire row clickable. This both eases the gulf of execution and increases the target size, improving usability.
Edit goal button size	*"The yellow edit buttons' font is too small, couldn't read it" - appendix ()*	This is a simple fix, increasing font to make the system more accessible and usable will solve this issue.

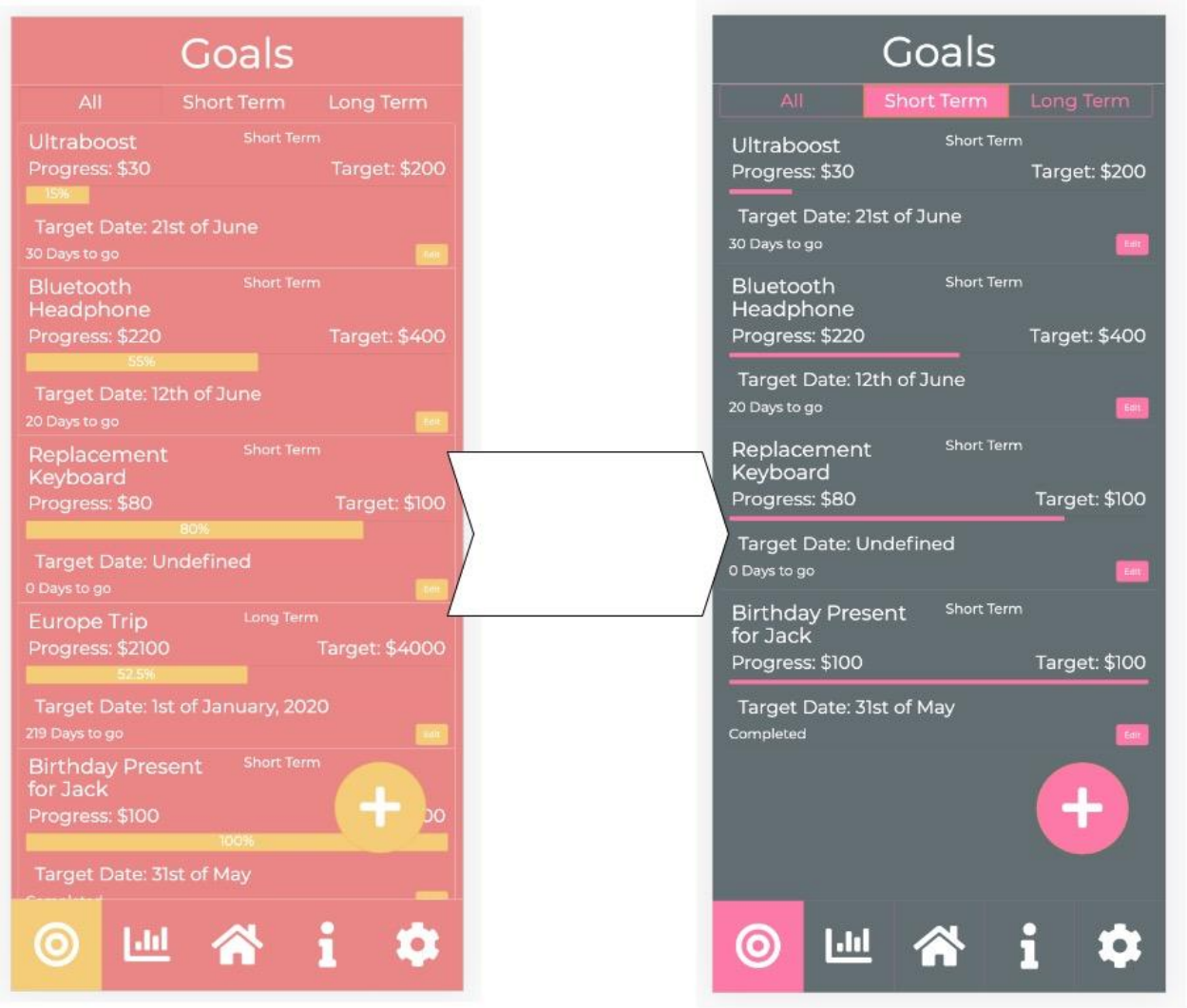
Colour Scheme

A number of users highlighted problems with the colour scheme. One opinion indicative of frequent opinion included:

> "I feel like it's just too pink. It also looks a little messy with different fonts and font colours, maybe change the colour with a constant font or font with a constant colour" - **appendix G**

While this is not strictly a usability issue, user attitudes towards the system will have a huge impact on the probability of users returning to the app. This is especially crucial as research by the Nielson Norman Group indicates that users will forgive imperfect functionality or implementation of a 'pretty' app more than one not deemed aesthetic [7].

Therefore, the following mockup details changes that could be indicative of how following prototypes could look.

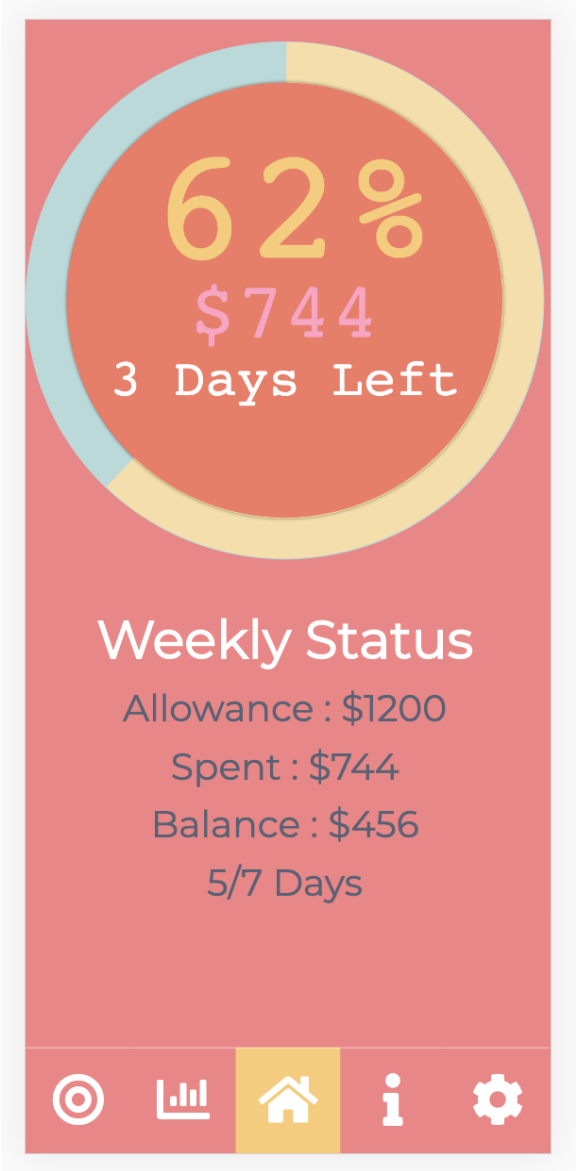


Changes were made for the following reasons:

Issue	Justification for change	Notes on change
Background colour	*In interaction notes*	The background colour was selected to both improve the design's performance in both credibility and desirability categories of the UX honeycomb. Slate grey has been proven to have a calming effect on users [2], which will help to ensure uses feel reassured by the system, improving its credibility. Furthermore, it responds to user feedback that the original colour scheme was not aesthetically pleasing.
Highlight colour	*"The white font on the yellow background of the 'active' nav could be hard to read" - appendix ()*	The light colour of the highlight yellow mad it hard for some users to read white text surrounded by that background colour. Therefore, with the UX honeycomb's accessible criteria in mind, colours were changed to improve contrast between the white font and its background.
Border Changes	*"The whole screen looks like a messy block of text, needs to be broken up slightly" - appendix ()*	All borders except those that helped to differentiate between different goals (the upper and lower border lines) were removed to ensure that the UI was not 'messy'. The colour was also changed to a muted grey to further improve the UI's desirability.
Padding Changes	*"The whole screen looks like a messy block of text, needs to be broken up slightly" - appendix ()*	Complaints about the app being 'messy' lead to the padding between goals being increased to more clearly indicate where one began and another ended. This made the content of the app more findable and easily understood.
Filter Button Changes	*"The filters both here and in the goals screen are a little hard to reda, the difference between the active filter and the others is very subtle" - appendix ()*	Contrast between active and passive navigation was increased to minimise the systems gulf of evaluation. With these changes, users can more quickly and easily understand current system state.

Font

Comments were also made about varying font colour and font family through the system. This is primarily apparent on the home screen, pictured below.



Changes should be made in successive design iterations to ensure that either font is constant, with colour used for emphasis on headings, or colour is constant with font used to create emphasis.

Functionality Changes

One feature not yet present in the prototype was the ability to specify a spending limit which the app would help the user adhere to. Future prototypes should implement both the goal adding functionality and perhaps further implementations which would allow users to use the feature for a week, ensuring that the testing environment more closely reflects the real usage of the app, resulting in more valid feedback.

Another feature that has been communicated as desirable but not a priority in previous reports is the ability for users to be able to share their financial information automatically with financial advisors. The implementation of this feature should be prototyped and evaluated moving forward.

A heuristic principle the design team has decided to make priority is "User Control and Freedom". Therefore, the ability for users to finally control their interaction with the system is important. It was determined that this heuristic is currently being violated by this prototype (appendix()), and therefore moving forward the ability to customise colour scheme could be explored. Perhaps giving users the choice between a 'light' and 'dark' mode would contribute towards improving this aspect of the design.

Moving Forward

As the ability for users to be able to automatically share their financial information with their financial advisors has been deemed desirable, research needs to be done to assess its usefulness from the advisor's side, and what form the data needs to be in to maximise this usefulness.

In order to more adequately fulfill the "Help and Documentation" heuristic, the system could benefit from a onetime walkthrough tutorial for users when they first use the app. However, care will have to be taken to balance adequate information with a tutorial that isn't frustratingly long. This could be minimised by having options throughout the tutorial that gives users the ability to both see more details and skip through aspects of the tutorial.

In successive design iterations, the focus should be on attempting to mimic the end user experience as closely as possible. As this system is in the behaviour change space, employing ubiquitous interaction paradigms, future prototypes and evaluation procedures should attempt to implement the features that contribute to this type of interaction. For example, this tracker sends alerts to the user to alert them of their goal progress throughout the week and evaluation procedures should involve a user interacting with the system over the course of a week to see how the system realistically integrates into a user's life.

Conclusion

During the creation of this report, the design concept was first to be revised according to the analysis of the evaluation from the previous iterations. With the modified conceptual model, a high-fidelity prototype was created to further assess the user experience in all aspects. Next, the constructed prototyped was evaluated by user representatives to allow the team assessing all aspects of UX. Finally, the result of evaluation was analysed to gather additional information and providing direction of what to consider and inspect in the further release. In conclusion, this report aims to evidence the decisions made in the proposed solution and finalise the design ready for full development.

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Appendix

Appendix A – Team charter

Human-Computer Interaction Team Charter

Team [Lucky7]

Team Members

Name	Thomas Baxter
Email	t.baxter@uqconnect.edu.au
Phone	0401631413

Name	Hyun (Anthony) Jeon
Email	hs.jeon@uqconnect.edu.au
Phone	0404479680

Name	LiangHsun (Jimmy) Chen
Email	lianghsun.chen@uqconnect.edu.au
Phone	0452390737

Key Elements

Team leader

Tom Baxter

Whole of team meeting day and time (see 1b)

Thursday 10AM

Team communication channel (see 3)

Facebook Chat and Group

Communication response time (see 6)

24 Hours

Additional hours each week (see 1c)

5 Hours

Time to fix an issue (see 15a)

24 Hours

Our commitment

1. As a team, we commit to:
   a. Use our best endeavours and efforts throughout the project.
   b. Attend all course studio sessions, **the whole of team meeting** as specified above, and any additional meetings agreed on by the team.
   c. Dedicate necessary time and effort as is required by the team including the **additional hours per week** specified above.
   d. Contribute to the project equally.
   e. Work consistently and complete all required tasks on time and at a quality as agreed by the team.
2. We will work together by:
   a. Supporting each other;
   b. Being respectful and inclusive;
   c. Sharing resources;
   d. Listening to each other;
   e. Providing feedback to each other;
   f. Always being constructive and polite; and
   g. Maintaining a high level of communication.

How we will communicate

3. We will use the **team communication channel** for all our team communication.
4. Where necessary, we will also communicate via email and/or SMS using the details for each team member provided at the start of this charter.
5. Each of us commits to checking the team communication channel at least daily, except on weekends and public holidays.
6. We will respond to messages on the team communication channel within the **communication response time** specified above.

How we will make decisions

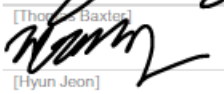
7. Decisions about the project will be made by consensus (with all team member's agreement).
8. We will work towards reaching agreement by working through pros and cons and assessing what is best for the project.
9. Where we cannot achieve consensus, decisions will be made by majority vote.
10. Where there is a deadlock, the decision will be made by the team leader.
11. Once a decision has been made, we all agree to accept and support that decision.

Managing work

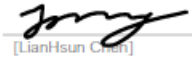
12. We will allocate work equally.
13. When allocating work, we will clearly define:
    a. Who is expected to complete the work;
    b. The task that is expected to be completed;
    c. When the work is to be completed; and,
    d. The expected standard of the work.
14. If a team member is not able to complete the work allocated to them, they must advise the team of this as soon as possible.
15. If a team member has not completed the work allocated to them within the set timeframe or not to the specified standard:
    a. The issue must be raised with that team member directly and agree what that team member must do to complete or fix the work. The team member must complete or fix the work within the **time to fix an issue** as specified above.
    b. If the team member fails to complete or fix the issue within this time, the team leader must send an email to that team member asking them to complete or fix the work within a further 24 hours. That email should be copied as a 'cc' to the tutor.
    c. If the work is not completed within that time further extended time, the team leader shall email their tutor advising them of this and ensure that a copy of this email is sent to the team member.

Signed and accepted:

[Thomas Baxter]



[Hyun Jeon]



[LianHsun Chen]

Appendix B – Weekly Logs of team meeting

Week 1

- No meeting this week

Week 2

- No meeting this week

Week 3

Date: 14/03/19
Time: 10am - 11am
Members Present: Tom, Hyun, Jimmy, Cindy
Members Absent: None

- Survey and designing alternatives work started
- Survey formulated as a group
- Interview questions formulated as a group
- Each member reviewed 1-2 reviews of existing systems
- Aim was:
    - 2-3 Observations of users interacting with the system each group member reviewed
    - 2 - 3 interviews per member
    - 10 survey responses per member
- Problem that arose
    - Where and who to get surveys and interviews from
    -

Week 4

Date: 21/03/19
Time: 10am - 11am
Members Present: Tom, Hyun, Jimmy, Cindy
Members Absent: None

- Completed
    - Survey
    - Interview
    - Researches
    - Observations
- Discussion of researches to create Affinity Diagram

- Summary analysis of interview, survey research and affinity diagram - Hyun
- System Concept Statement - Tom
- Design guideline - Jimmy
- System Requirement Statement - Cindy
- Prototype Design
    - Goals - Anthony (Hyun Soo Jeon)
    - Home with input - Tom Baxter
    - Statistics - Chen Jimmy
    - Info & Setting - Cindy Xin Pei
    - Consistent design is necessary. Discuss if anything unsure
- Consistent Design
    - After discussion, we decided to choose Android Application based
    - Brought up ideas and each member drew prototype and based on this, team decided elements to use which is consistent over the app

Week 5

Date: 28/03/19

Time: 10am - 11am

Members Present: Tom, Hyun, Cindy

Members Absent: None

- Cindy dropped out of the course
- Created prototype
- Workload for report set
    - Title page - Hyun
    - Table of Contents - Hyun
    - Introduction - Hyun
    - Process Description - Jimmy
    - Step 1 - Hyun
    - Step 2 - Jimmy
    - Step 3 - Tom
    - Step 4 - Tom
    - Conclusion - Hyun
    - References
    - Appendix
- Started to write the report 1

Week 6

Date: 03/04/19

Time: 9am - 11am

Members Present: Tom, Hyun, Jimmy

Members Absent: None

Finalizing and reviewing the report before submission.

Discussed on any extra information that could be added

Date: 04/04/19

Time: 10am - 11am

Members Present: Tom, Hyun, Jimmy

Members Absent: None

- Jimmy looking at possible changes to conceptual design
- Hyun looking for possible themes from data gathered
- Tom is analysing findings from report 1
- All members are finishing their personas and interaction story boards

Week 7

Date: 11/5/19

Time: 10am - 11am

Members Present: Tom, Hyun, Jimmy

Members Absent: None

- Reviewed persona and story boards
- Decided to create medium-fidelity prototype on MockingBot
- www.mockingbot.com
    - ID : a0989667626@gmail.com
    - PW : lucky7
- Medium Fidelity works
- Hyun
    - Goals
- Tom
    - Home
    - Info
    - Settings
- Jimmy
    - Statistics
- Fill in UX Goals Table
- Continue to work on the analysis

Week 8 & Easter Break

Date: Discussed over online

Time: Discussed over online

Members Present: Tom, Hyun, Jimmy

Members Absent: None

- Continued with medium fidelity prototype
- Completed and put them together
- Reviewed feedback from report 1
- Problem arose
    - Every member did not have access to the account to design prototype.
    - Decided one member to put them all together in one account.

Week 9

Date: 2/5/19

Time: 10am - 11am

Members Present: Tom, Hyun, Jimmy

Members Absent: None

- Discussion of work completed over the break
    - Need to state the target more clearly
- Discussion of requirements for Report 2 and broken down the remaining tasks
    - Jimmy
        - Creating UX profile - working on the designing alternatives report section
    - Hyun
        - Completing medium fidelity prototype
        - Working on the establishing requirements section of the report
        - Introduction/Conclusion/Appendices
    - Tom
        - Doing evaluations of prototype
        - Writing evaluation procedures
        - Conducting SUS assessment on the prototype
        - Analysis of evaluation results (establishing requirements 2)
- Aim to Finish it all by Tuesday night
- Meet on Wednesday 10am (08/05/19)

Week 10

Date: 8/5/19

Time: 9am - 12am

Members Present: Tom, Hyun, Jimmy

Members Absent: None

- Completing report
- Write up any missed parts
- Referencing, styling

Date: 9/5/19

Time: 10am - 11am

Members Present: Tom, Hyun, Jimmy

Members Absent: None

- Reading requirements for report 3
- Decided to build the final prototype with html for mobile
- Build app with Cordova afterwards based on html

Week 11

Date: 16/5/19

Time: 10am - 11am

Members Present: Tom, Hyun, Jimmy

Members Absent: None

- Reviewed prototype in progress
    - Looking fine
    - Need more styling
    - Information put in
    - Currently developed by Hyun Jeon and Tom Baxter
    - https://github.com/haemoolpa-jeon/haemoolpa-jeon.github.io
- Reviewed necessary things for report 3
- Specific Things to be done for prototype
    - Edit Goals
    - Improve Styling
    - Stats Page
    - Home Page
    - Links for information
    - Flesh out so it's not random words
    - Finish Settings

Week 12

Date: 23/5/19

Time: 10am - 11am

Members Present: Tom, Hyun, Jimmy

Members Absent: None

- Reviewed prototype in progress
    - Completed and can be evaluated
    - Few more minor changes
    - GitHub page available to view and evaluate
    - https://haemoolpa-jeon.github.io
- Reviewed necessary things for report 3
- Evaluations to do
    - Heuristic - Hyun Jeon
    - Pluralistic Walkthrough - Tom Baxter
    - TAM
- Report 3 Part Allocation
    - Designing Alternatives - Jimmy
    - Prototype - Hyun
    - Evaluation - Hyun & Tom
    - Establishing Requirements - Tom (Partly Hyun & Jimmy)
    - Introduction & Conclusion - Jimmy
    - Styling - Hyun

Week 13

Date: 30/5/19

Time: 11am – 2pm

Members Present: Tom, Hyun, Jimmy

Members Absent: None

- Reviewed report in progress
- Finalise report 3

Appendix C – High-Fidelity Prototype

Developed with HTML, CSS, JavaScript on GitHub

Created by Hyun Jeon and Tom Baxter

Live version on

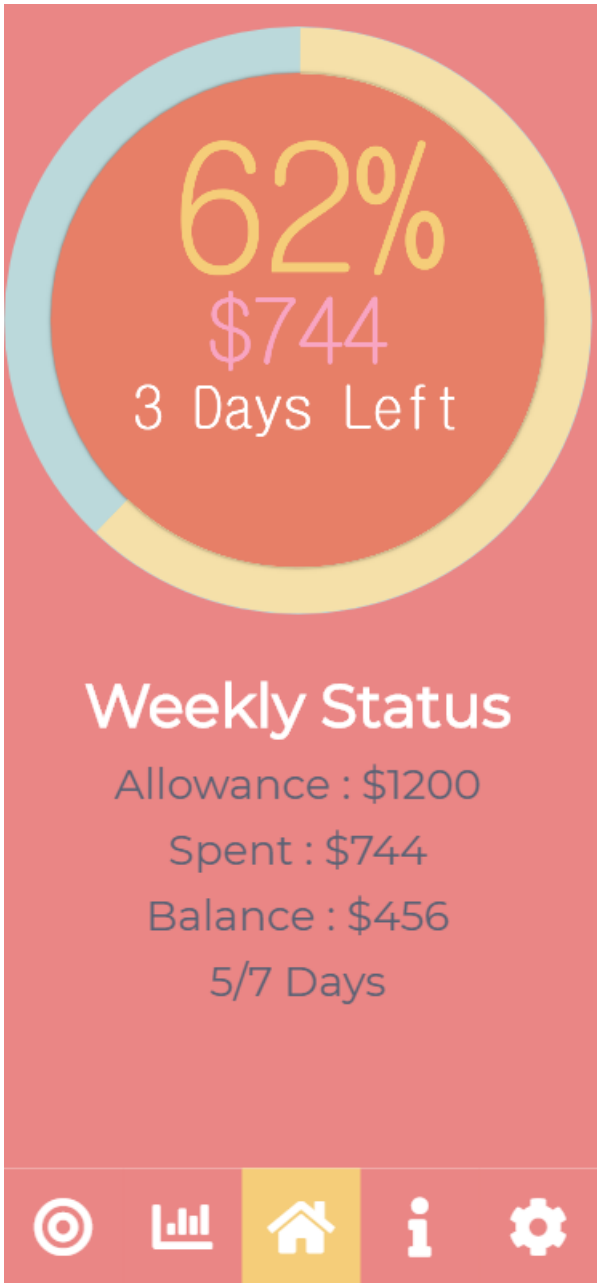
https://haemoolpa-jeon.github.io/

Code on

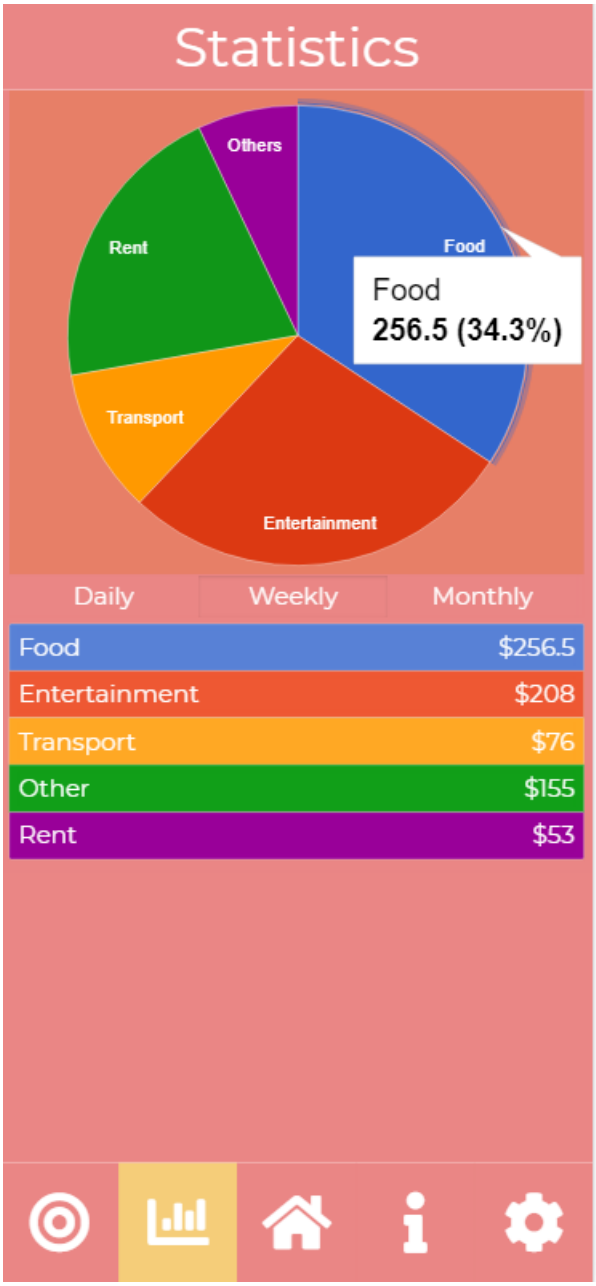
https://github.com/haemoolpa-jeon/haemoolpa-jeon.github.io

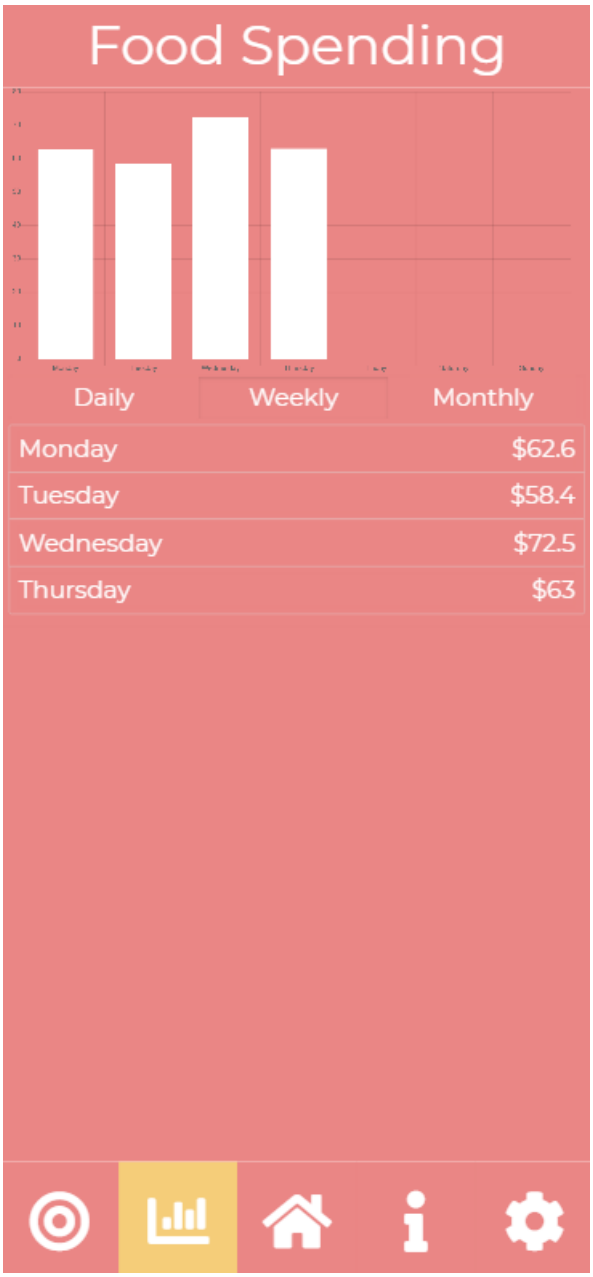
Screens of Prototype

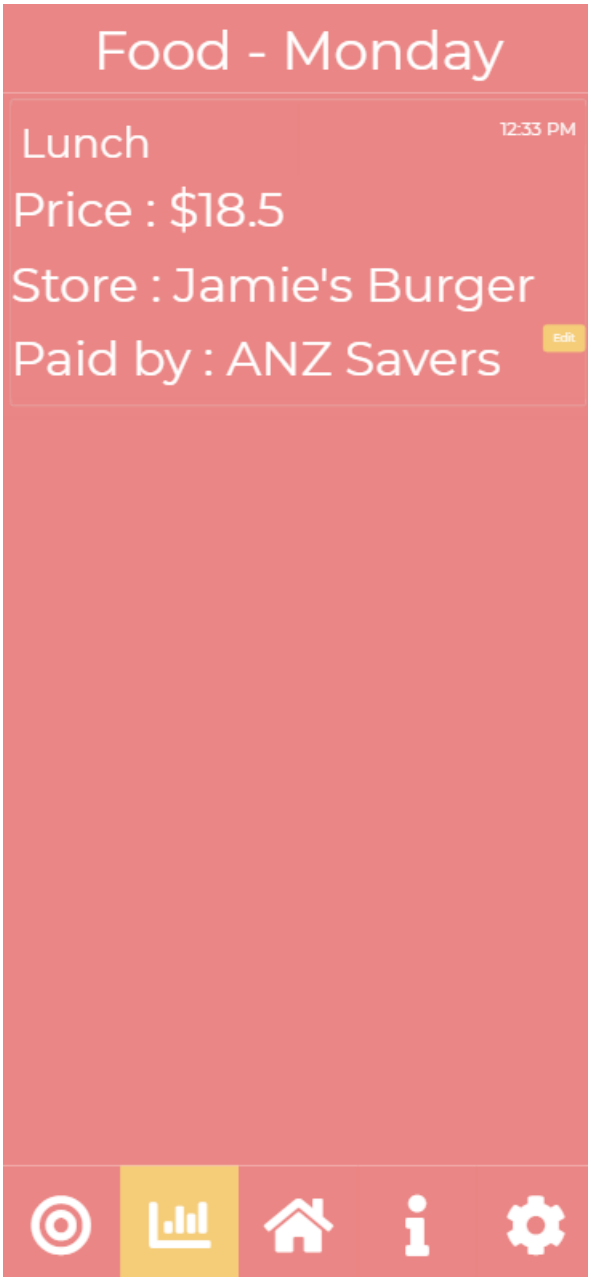
Appendix C.1 – Home Screen of the App

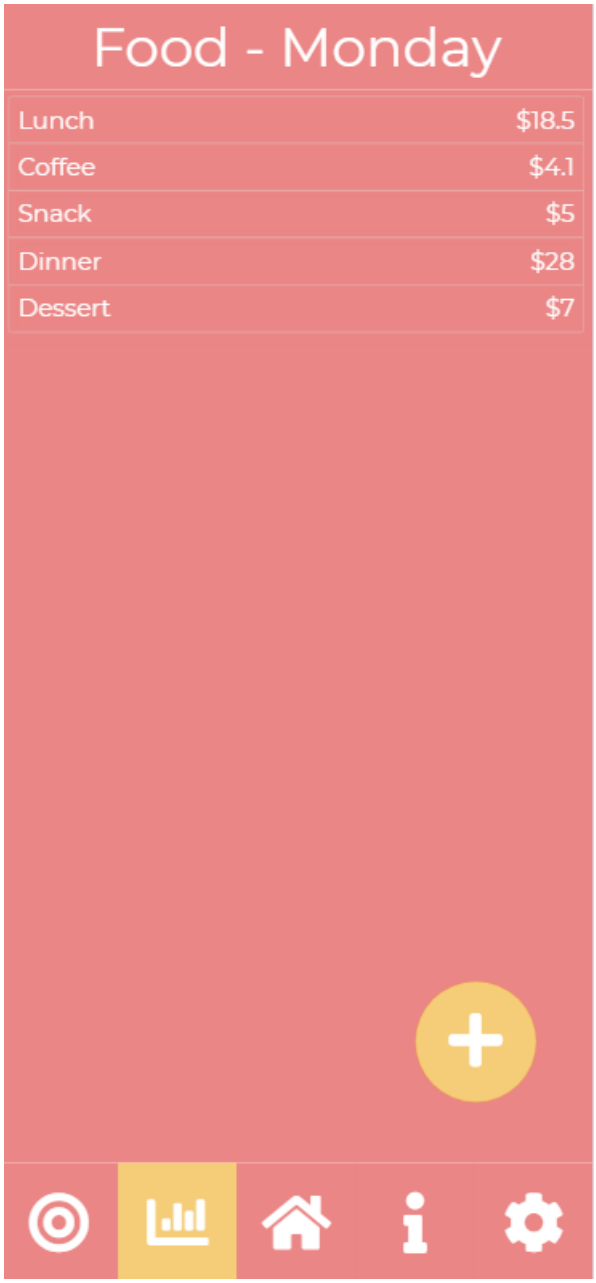


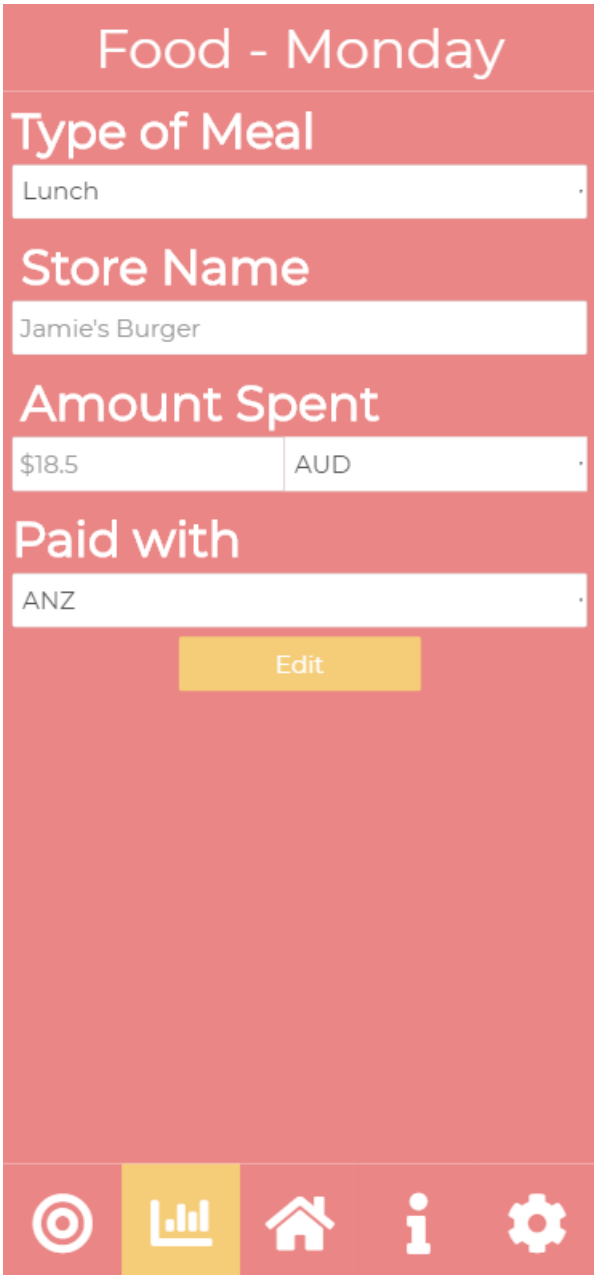
Appendix C.2 – Statistic Page of the App

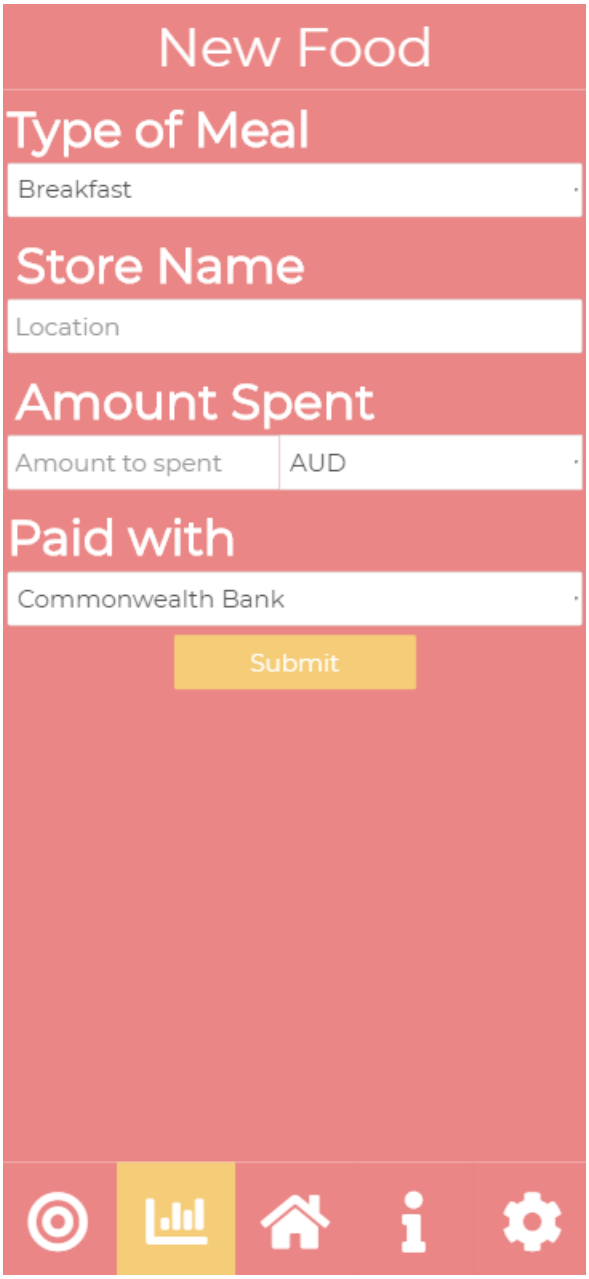




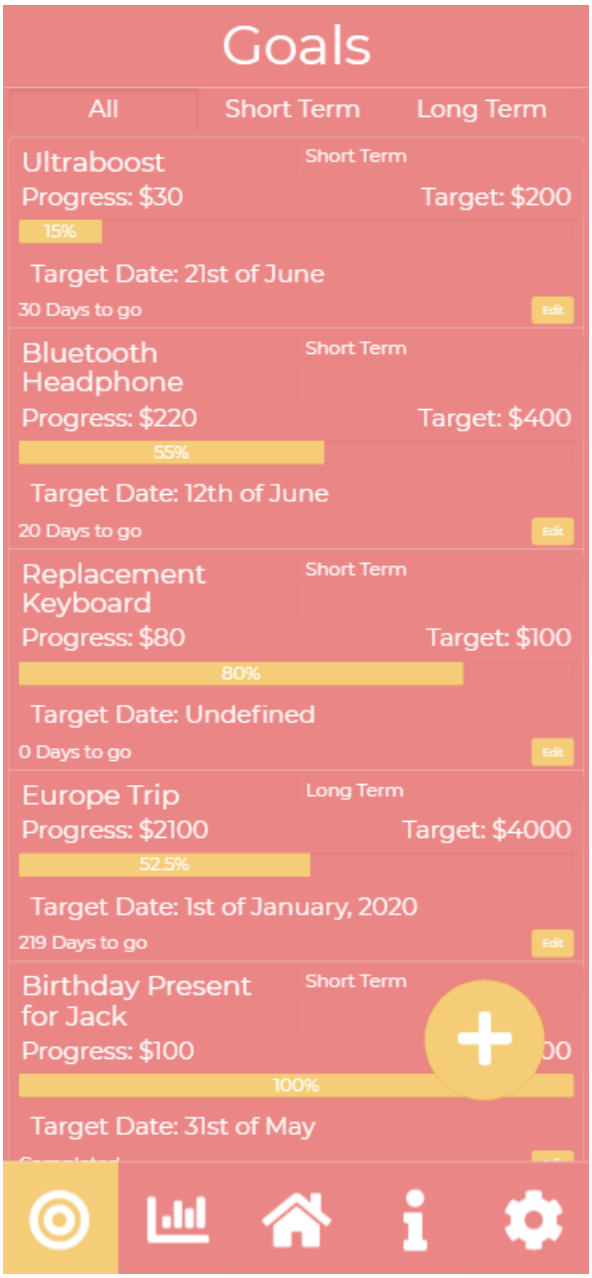

Food - Monday
Lunch
12:33 PM
Price : $18.5
Store : Jamie's Burger
Paid by : ANZ Savers
Edit

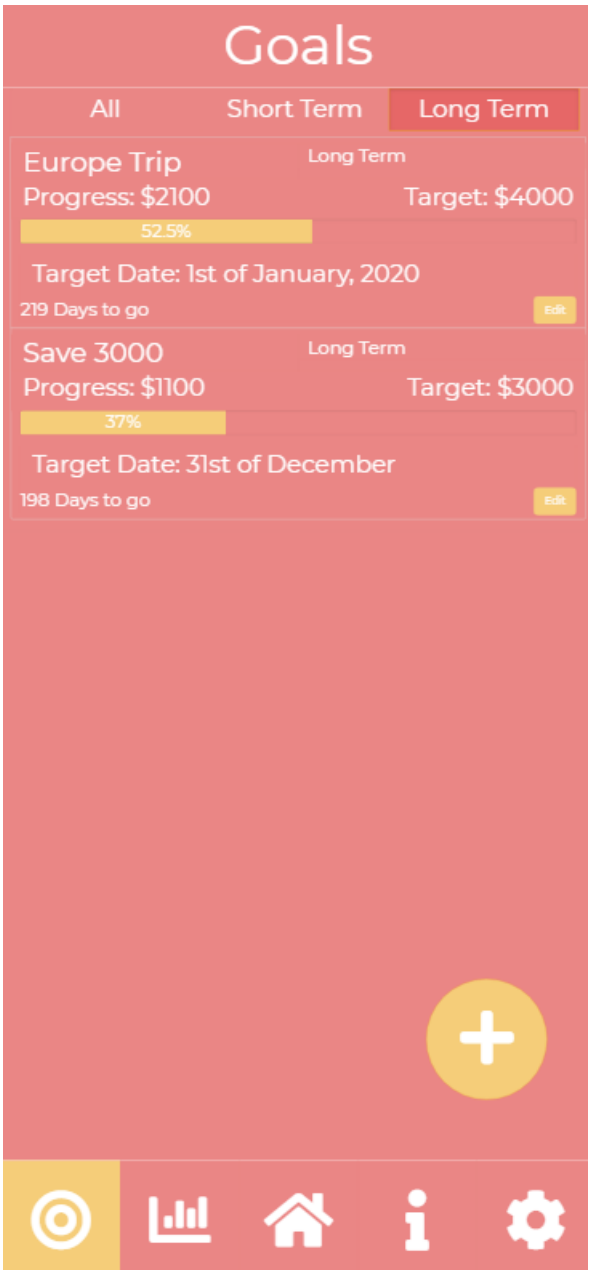

Food - Monday
Lunch $18.5
Coffee $4.1
Snack $5
Dinner $28
Dessert $7

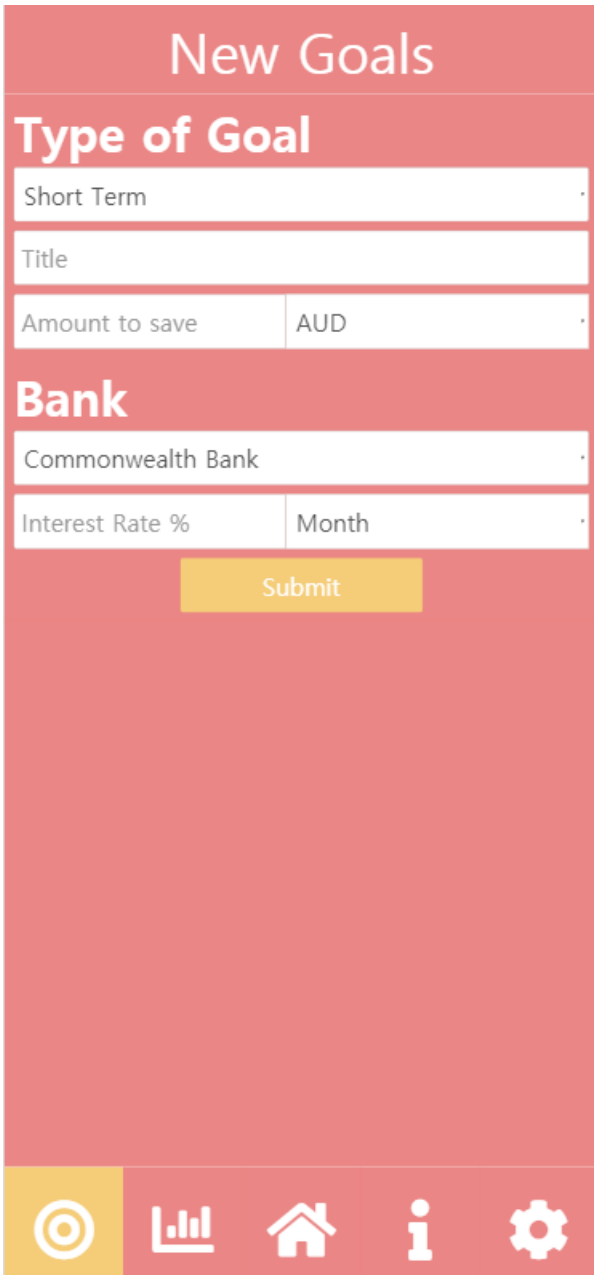

Food - Monday
Type of Meal
Lunch
Store Name
Jamie's Burger
Amount Spent
$18.5
AUD
Paid with
ANZ
Edit

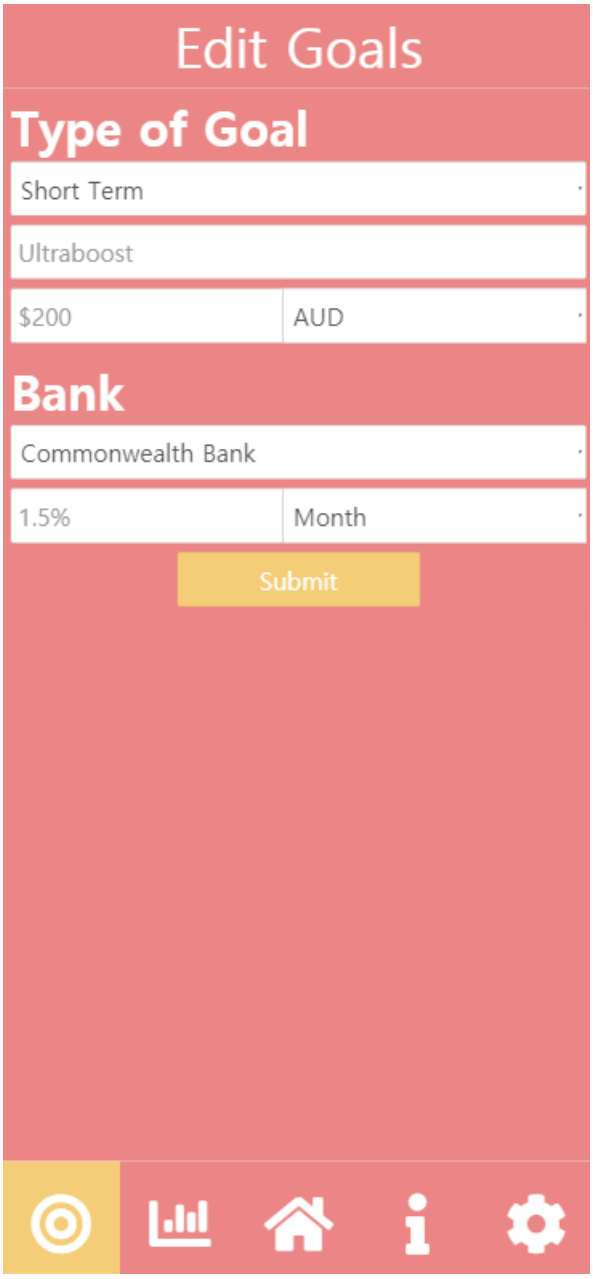

New Food
Type of Meal
Breakfast
Store Name
Location
Amount Spent
Amount to spent
AUD
Paid with
Commonwealth Bank
Submit

Appendix C.3 – Goals Page of the App

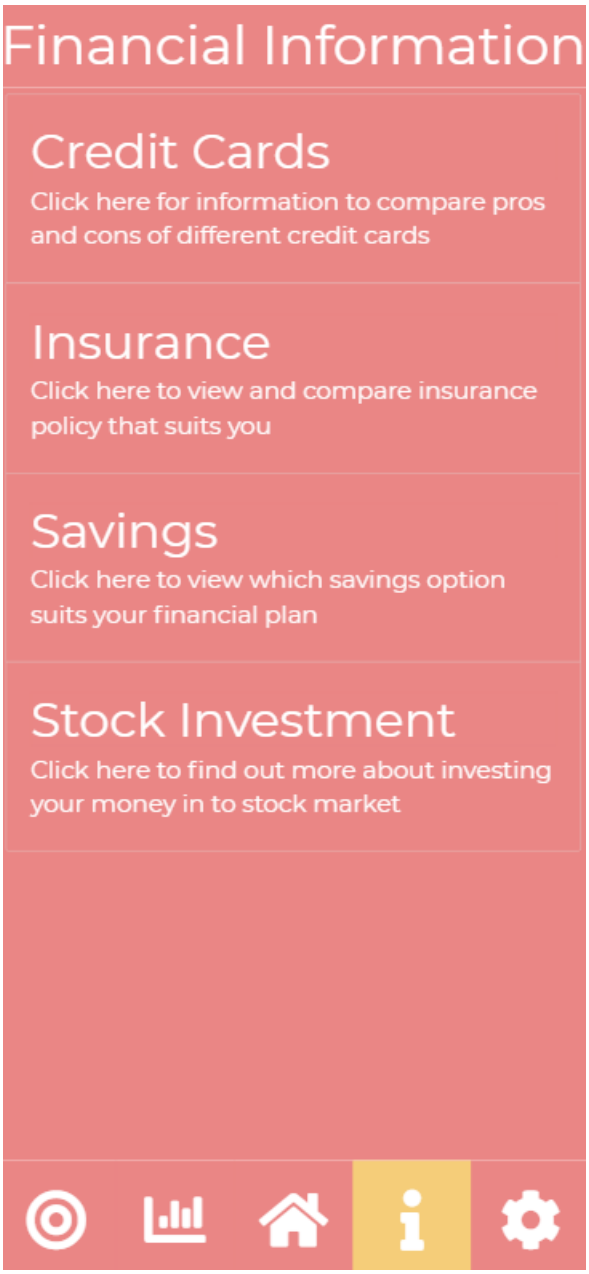


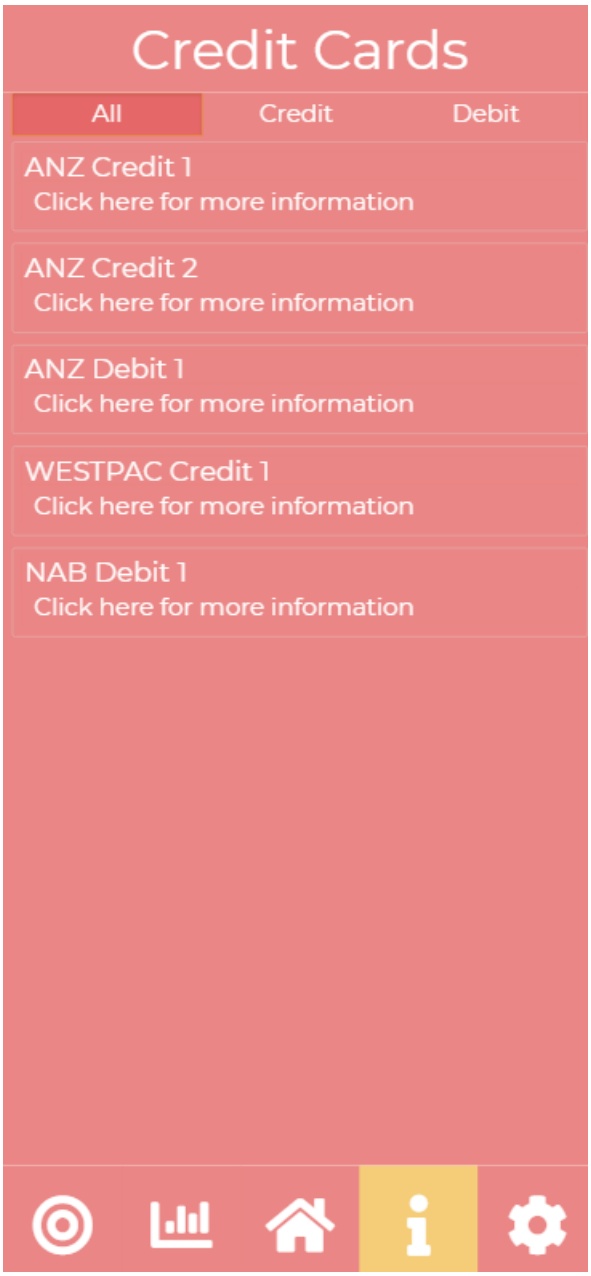



New Goals
Type of Goal
Short Term
Title
Amount to save
AUD
Bank
Commonwealth Bank
Interest Rate %
Month
Submit

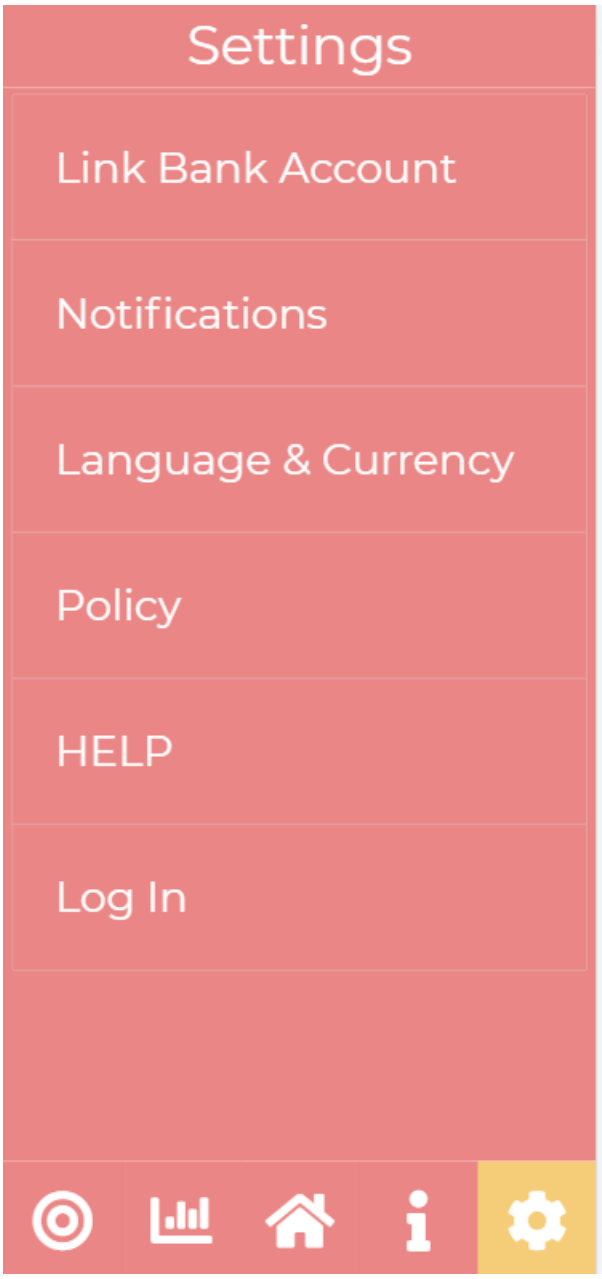

Edit Goals
Type of Goal
Short Term
Ultraboost
$200
AUD
Bank
Commonwealth Bank
1.5%
Month
Submit

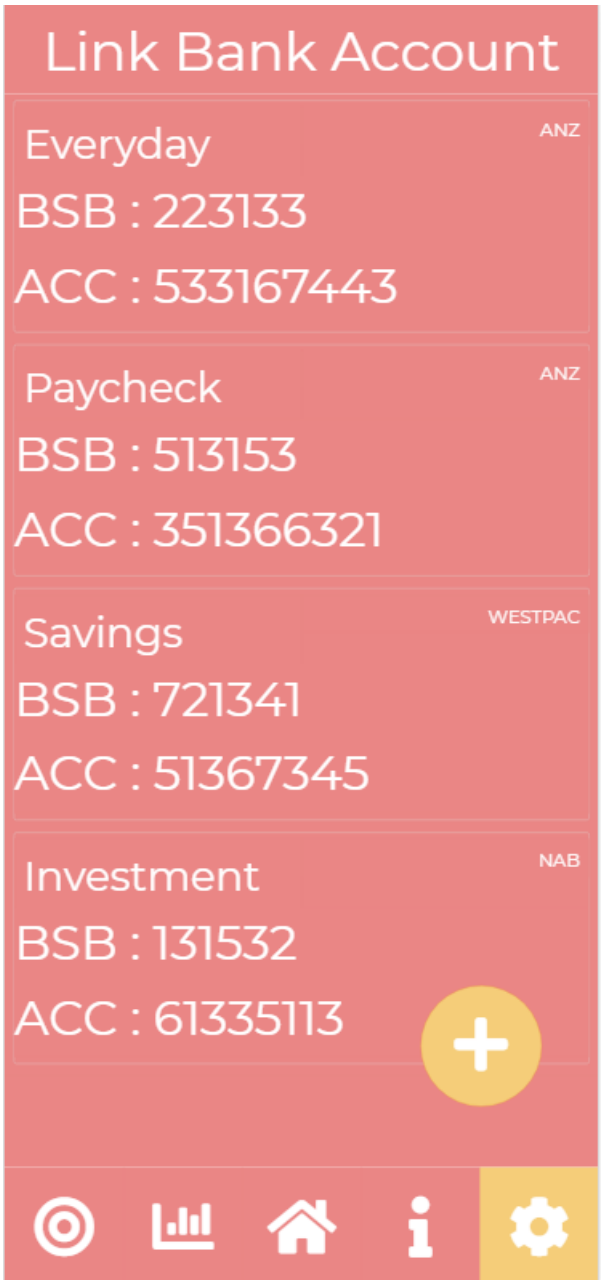
Appendix C.4 – Financial Information Page of the App

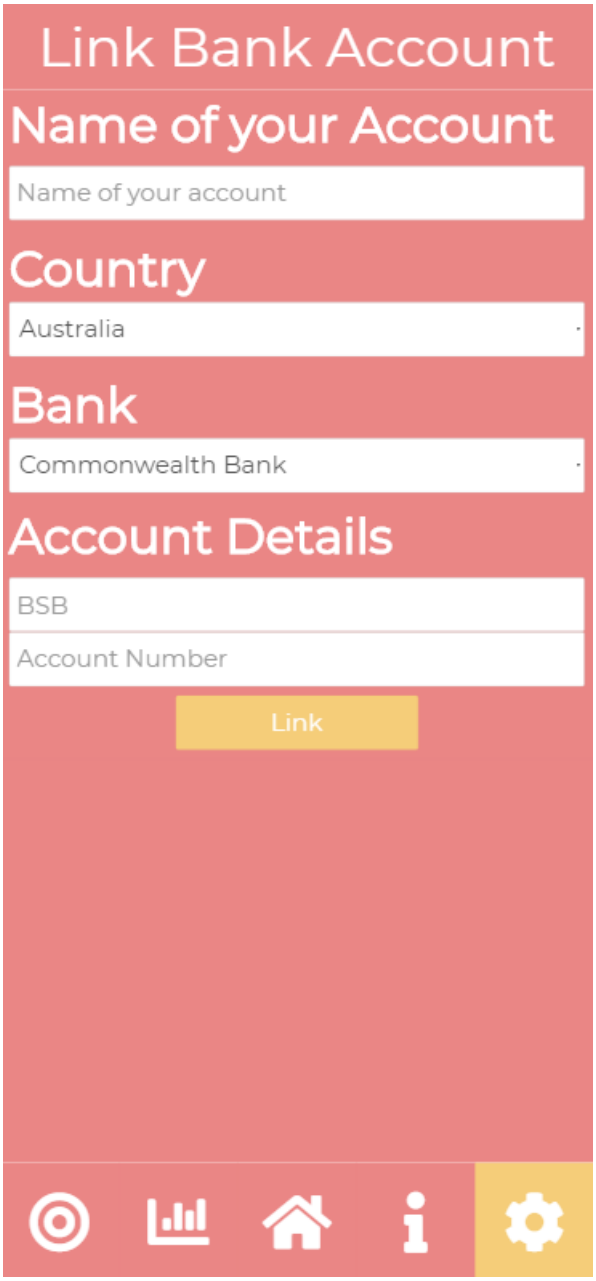


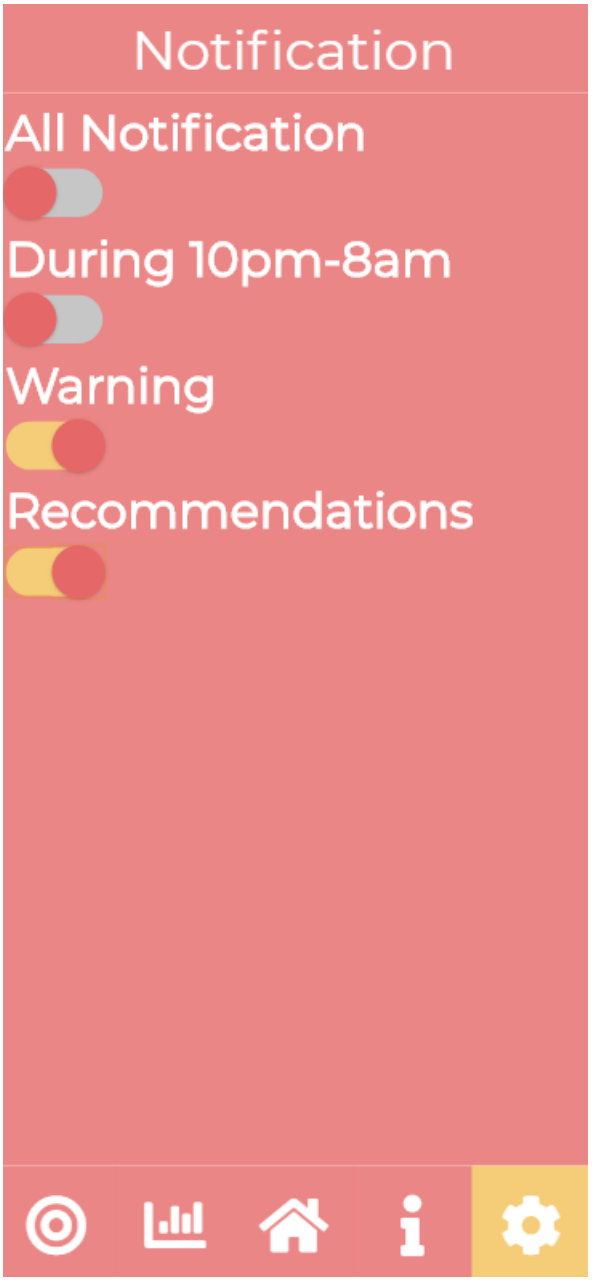


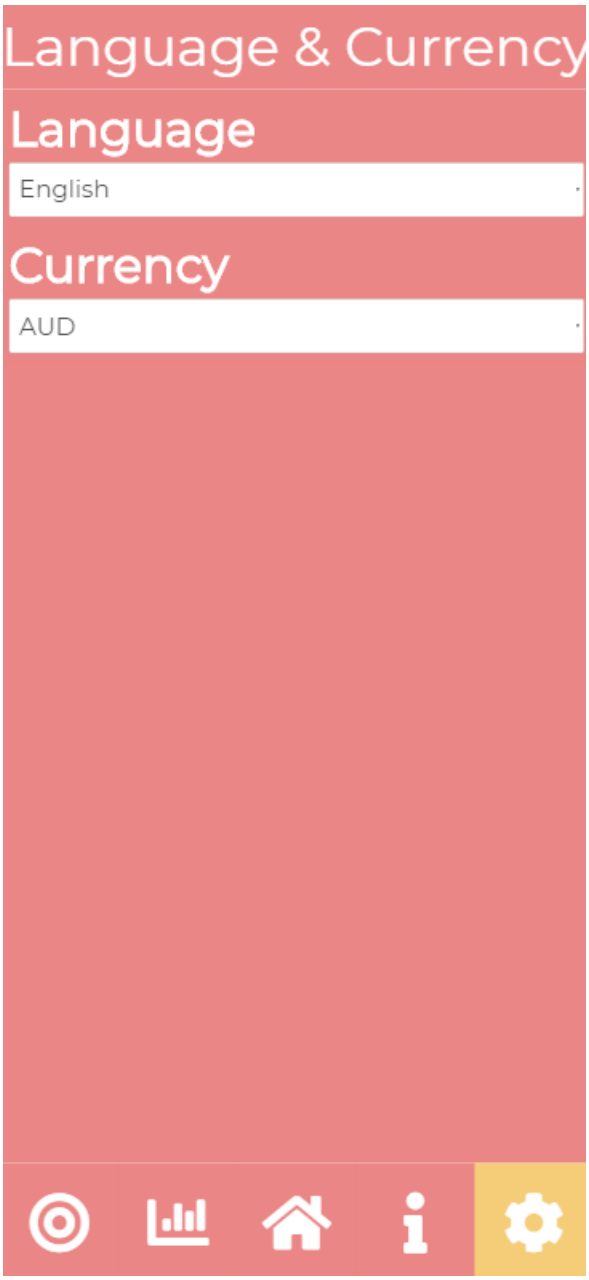
Appendix C.5 – Settings Page of the App

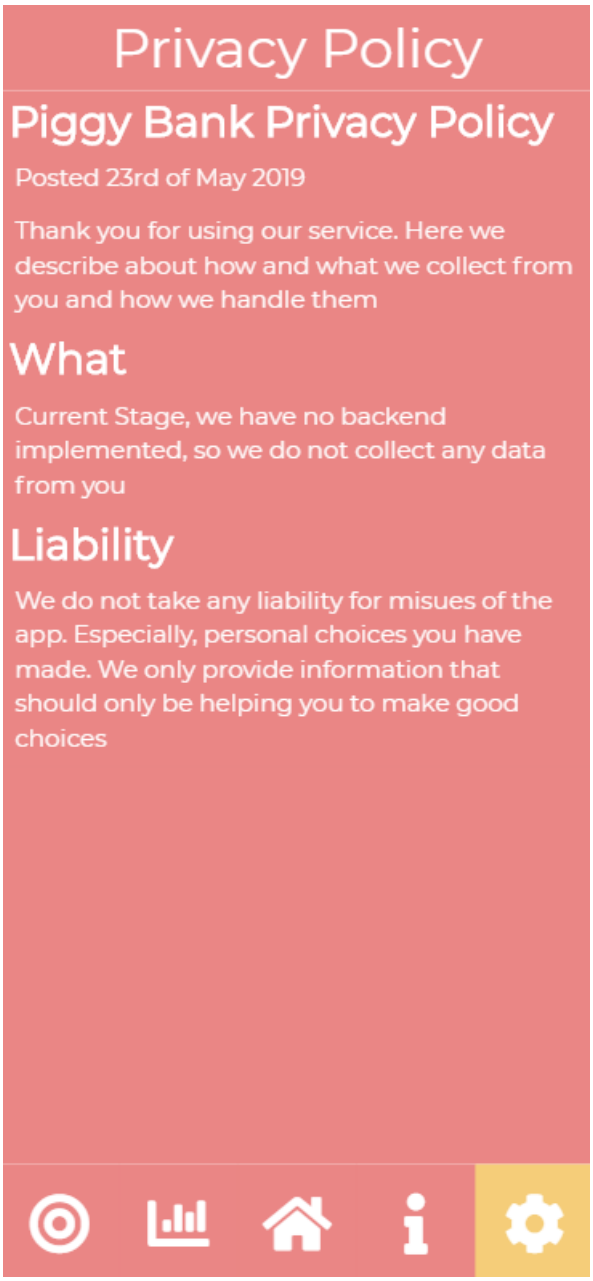




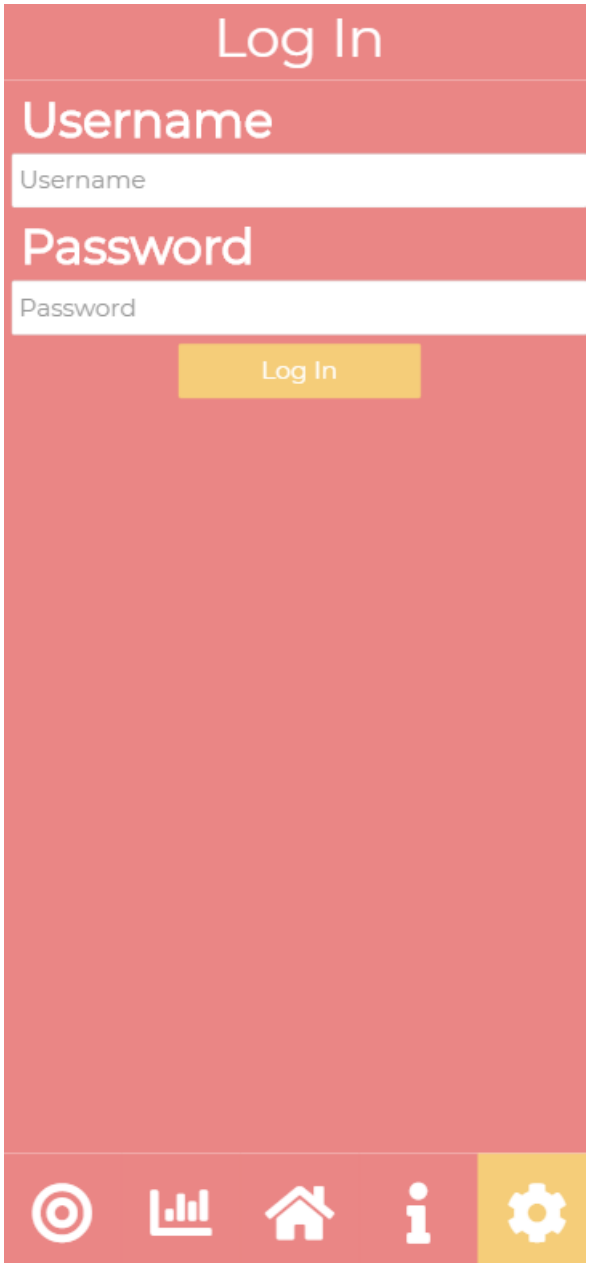

Link Bank Account
Name of your Account
Name of your account
Country
Australia
Bank
Commonwealth Bank
Account Details
BSB
Account Number
Link


Notification
All Notification
During 10pm-8am
Warning
Recommendations


Language & Currency
Language
English
Currency
AUD


Privacy Policy
Piggy Bank Privacy Policy
Posted 23rd of May 2019
Thank you for using our service. Here we describe about how and what we collect from you and how we handle them
What
Current Stage, we have no backend implemented, so we do not collect any data from you
Liability
We do not take any liability for misues of the app. Especially, personal choices you have made. We only provide information that should only be helping you to make good choices


Help
About Piggy Back
Piggy Back is application made by Team Lucky7, in order to improve behaviour of users to spend wisely and save money. Users can develop spending plan, create spending goal, view their spending statistics and get financial informations.
Using Piggy Back
Any one can use Piggy Back. Once you log-in and link your bank account, Piggy Back will Automatically track and log your financial details made after.
FAQ
Click here to see more FAQ
Contact Us
Click here to Contact Us


Log In
Username
Username
Password
Password
Log In

Appendix D – Heuristic Evaluation Procedure

Evaluation ID	
Aims	Identify any issues or underlying problems that users may face while using the app Generate suggestions for improvements to app's usability, utility and desirability
Dates	28/05/19
Creator	Hyun Jeon

Materials Needed

- Consent forms
- Paper to take notes on
- Phone with prototype loaded

Introduction

- We are the design team "Lucky 7". Today we are going to get your feedback and impressions on the features and utility of our financial tracking app.
- We are interested in the features you find useful or interesting, features you believe to be missing, and how easy you find the app to navigate and understand.
- There is a consent form that we need you to complete. It tells you what the purpose of this task is today and how the data will be used. This is a voluntary task and if you feel uncomfortable please feel free to strop the testing session. Through this process, we are not evaluating you in any way, we are evaluating the software and how effective the design is.

Consent

- Get users to read and sign the consent form.
- Thanks for providing consent. Just a reminder you can withdraw from this task at any time without any negative consequences to you.

Process

1. Firstly, experts will be briefed about our app. We will explain what functions there are. Then without giving any further information the experts will freely interact and use the app.
2. Secondly, experts will have another run through of evaluation, with heuristic evaluation. They will be focusing on one element at a time and look through the entire app to find out any problems they have experienced.
3. When experts complete all heuristic evaluation, all the details about their experience is recorded with screenshots and discuss if they have any suggestions.

Appendix E – Heuristic Evaluation results

Expert 1 : Hyun Jeon

Age: 26
Role: Developer
History with financial tracker: Only tried for few days
Employment Status: None (Student)

1. Match between system and the real world. Use a theme and consistent terms, as well as conventions and standards familiar to user.

Terms used in this app are very basic and easy to understand for wide range of users. No new terms or any professional terms that novice users would feel difficult about.

Heuristic Violated: No

2. Each interface should focus on one task, so that it's glanceable to users who are interrupted frequently

Nearly all pages have heading and the page functions according to the heading. All pages have specific purpose and focuses on one task.

Heuristic Violated: No

3. Design a visually pleasing interface. Users 'forgive' attractive interfaces.

Readable, but not sure it is visually pleasing. Very neat, not too fancy.

Heuristic Violated: No

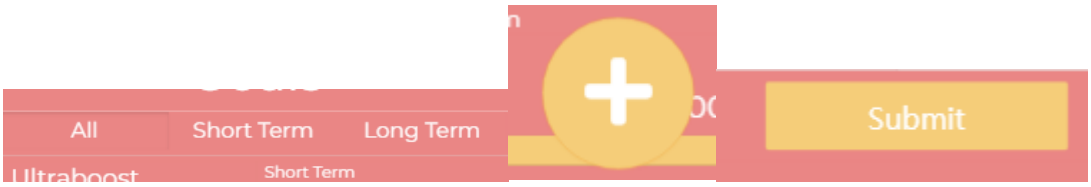
4. Intuitive interfaces make for easier learning

No guidance, not very intuitive. Quite easy for most users, but since there is no tutorial, or any message redirecting, not sure it is intuitive.

A tutorial page or pop up information would be helpful.

Heuristic Violated: Yes

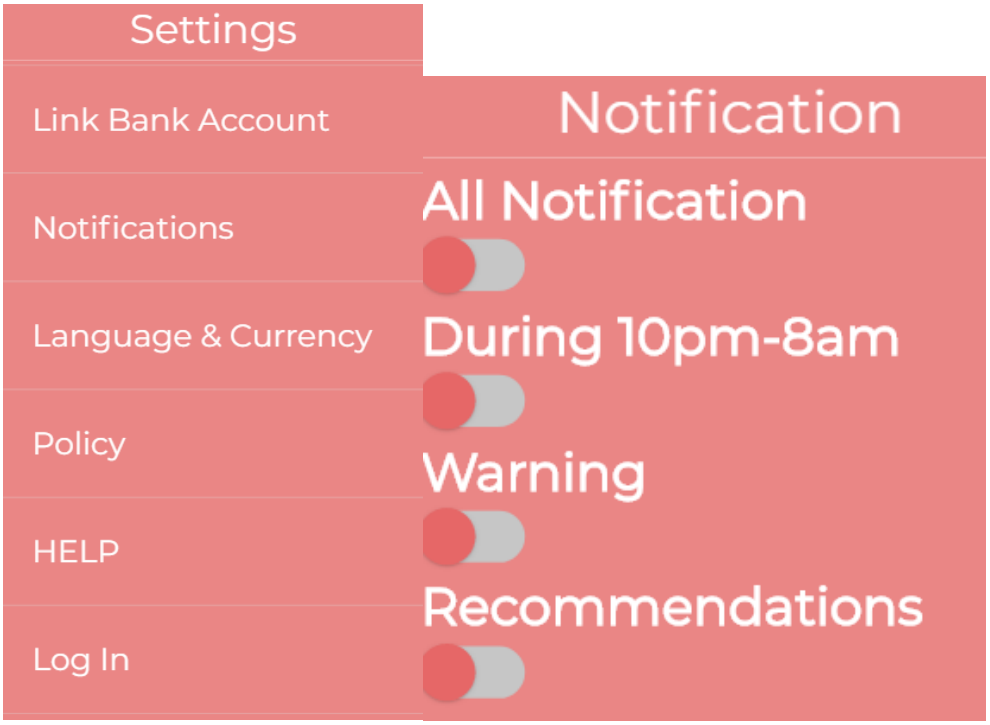
5. Design a clear navigable path to task completion



Labelled and big enough to see and understand the meaning. Clear enough to navigate to task needed.

Heuristic Violated: No

6. User control and freedom. Allow configuration options and shortcuts.



There is settings page for user to set configurations, but not enough. Only thing users can really set is language & currency and notification.

Other settings like font setting, colour setting, would be necessary.

Heuristic Violated : Yes

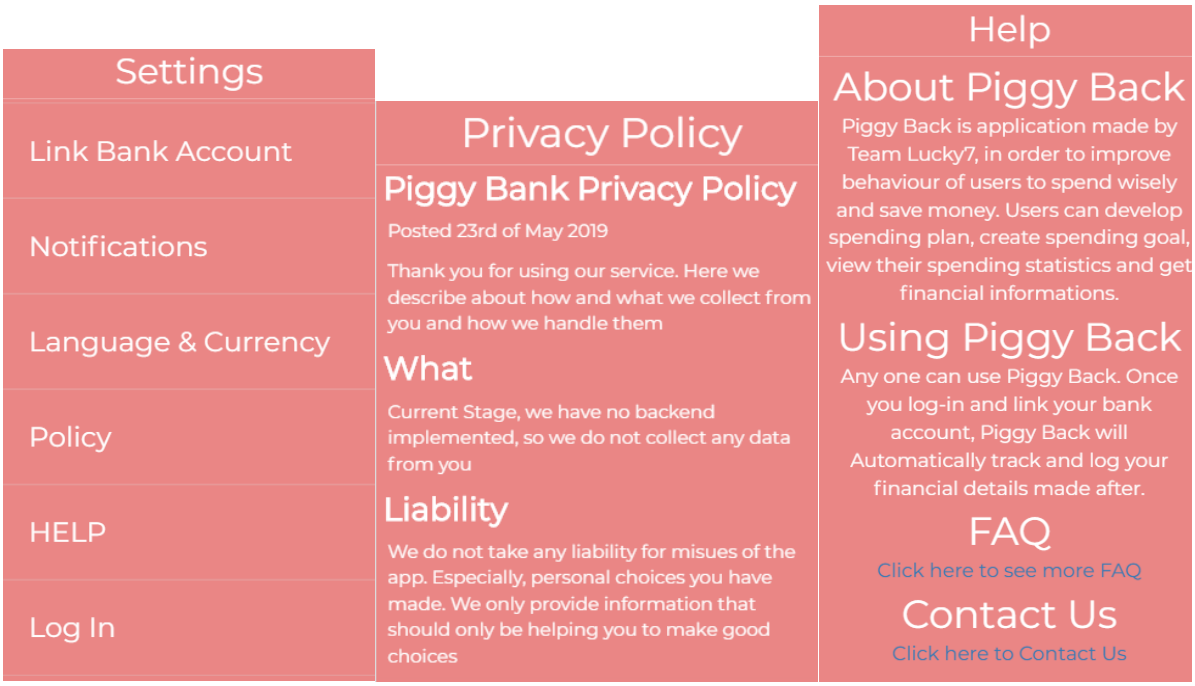
7. Aesthetic and minimalist design.

Elements and navigation are minimal and clear. Most of screens doesn't have huge information in it. Most are relevant and connected.

There are filter options to reduce the load and view detailed information with low amount of texts in a page.

Heuristic Violated: No

8. Help and documentation.



There is HELP page at settings, where they can find contact information and some FAQs and policy information for users who want to know.

However, there are not much information currently, and believe that there would be more updated later.

Expert 2 : Thomas Bxter

Age: 21
Role: Developer
History with financial tracker: Some, frequently use a banking app, have used budget planners in the past
Employment Status: Casual (income varies from week to week)

1. **Match between system and the real world. Use a theme and consistent terms, as well as conventions and standards familiar to user**

Menu items are good, target, bar graph and home icons are reminiscent of real world. Information and settings icons are less realistic but common in applications so will still be familiar to users.
Good consistent theme, only improvement would be making all the text under “weekly status” white to keep with the rest of the design.
The statistics screen needs its colours altered, the current colours on the rows and the pie chart are not in alignment with the rest of the design.

Heuristic Violated: no

2. Each interface should focus on one task, so that its glanceable to users who are interrupted frequently

Good, all screens have a singular purpose and easy to read.

Heuristic Violated: no

3. Design a visually pleasing interface. Users ‘forgive’ attractive interfaces.

Good. Minimalist flat UI looks slick and polished. Could be improved by altering the statistics screen. The pie chart and row colours don’t fit the rest of the interface and the background colour of the pie chart is slightly different to the rest of the backgrounds. The home screen has the same problem with its’ chart background colour.
Some of the elements, especially the progress bar and filters on the goals screen, have some depth to them, which doesn’t work well with the flat UI design and could be improved.

Heuristic Violated: yes

4. Intuitive interfaces make for easier learning

User testing shows there is no huge learning curve. Gulfs of execution and evaluation have been successfully minimised and clearly key interface metaphors resonate with users.

Heuristic Violated: no

5. Design a clear navigable path to task completion
Submit buttons and other key path determining elements are highlighted using the yellow accent colour. Very rarely are there multiple ways through a scenario. Clear where to move.

Heuristic violated: no

6. User control and freedom. Allow configuration options and shortcuts
Not great. No control over colour scheme, can control default language and current which is good. Notifications are controllable which is another good sign.
Could be improved by having a few different colour schemes to choose from which could be selected and changed in the settings screen.

Heuristic violated: yes

7. Aesthetic and minimalist design
Good, the flat UI is minimalist and uncluttered. Easy to read at a glance and visually appealing

Heuristic violated: no

8. Help and documentation
Help section included in settings screen. Could also benefit from a walkthrough tutorial on the first time the app is booted up.

Heuristic violated: no

Expert 3: Jimmy Chen

Age: 22
Role: Designer
History with financial tracker: Used to be using one but not anymore.
Employment Status: None (Student)

1. Match between system and the real world. Use a theme and consistent terms, as well as conventions and standards familiar to user
Buttons at the menu bar are close to the real world. Presentation of information like pie chart can be widely seen in real world.

Heuristic Violated: no

2. Each interface should focus on one task, so that its glanceable to users who are interrupted frequently
All pages focus on one task and have text to outline what task is performing in the current page.

Heuristic Violated: no

3. Design a visually pleasing interface. Users 'forgive' attractive interfaces.
The colour is a bit pale and more like design for female users since the theme is pinky. However, it is pleasing to watch the interface with light colour anyway, perhaps choosing colour for unisex users will be suitable for general users.

Heuristic Violated: yes

4. Intuitive interfaces make for easier learning
Having a tutorial when first time opened would be helpful to understand all the features in the application and reduce further confusion.

Heuristic Violated: yes

5. Design a clear navigable path to task completion
Buttons in all the pages are easy to understand their purpose, e.g. submit, and add goal.

Heuristic violated: no

6. User control and freedom. Allow configuration options and shortcuts
Allowing users to choose language, currency, and enable notification provide freedom and user control. They are enough for basic uses. There are other options can be invested into the application, such as, the style of data presentation.

Heuristic violated: no

7. Aesthetic and minimalist design
The page layout is simple and clear structured. Texts and graphs are not overlap or too close to each other.

Heuristic violated: no

8. Help and documentation
Help page provides help if the users are facing issue or difficulty while operating the application. Documentation is clear and not too wordy.

Heuristic violated: no

Expert 4: Yeomin Yoon

Age: 26
Role: Designer
History with financial tracker: Have some experience
Employment Status: Yes

1. Match between system and the real world. Use a theme and consistent terms, as well as conventions and standards familiar to user
Generally, the system matches the real world. However, some features are not clear yet. Not sure what Financial Information really means. Whether it's mine or giving me information?

Heuristic Violated: no

2. Each interface should focus on one task, so that its glanceable to users who are interrupted frequently
All of interfaces are focusing on each task.

Heuristic Violated: no

3. Design a visually pleasing interface. Users 'forgive' attractive interfaces.
Design, yes it looks good. Pinky style, huge diagrams, and texts&icons! They quite look good. Here is the point. I cannot see the sorting option on goal menu (i.e. sort by time or sort by price) and even there is no total amount of current goals.

Heuristic Violated: yes

4. Intuitive interfaces make for easier learning
GUIs and large texts are so typical gifts that we don't spend time to learn

Heuristic Violated: yes

5. Design a clear navigable path to task completion
In general, all menus function properly. But since it is a budgeting app, it is recommended to have goal setting button anywhere for better accessibility.

Heuristic violated: no

6. User control and freedom. Allow configuration options and shortcuts
Degree of freedom in budgeting like setting goals is fully allowed for all users.

Heuristic violated: no

7. Aesthetic and minimalist design
Since it has icon-based GUI, there is no significant use of texts which freaks me out. But I don't like that huge menu bar on the bottom. Is it possible to make a floating menu icon on screen and pop all menus out when clicking it anywhere?

Heuristic violated: no

8. Help and documentation
Unless the dev is a super-rich, all budgeting app must have HELP section. It is a minimum value, and this app has it.

Heuristic violated: no

Expert 5: Kyusang Choi

Age: 24
Role: Designer
History with financial tracker: Have used
Employment Status: Intern

1. Match between system and the real world. Use a theme and consistent terms, as well as conventions and standards familiar to user
Yes, they are very conventional, anyone would understand.

Heuristic Violated: no

2. Each interface should focus on one task, so that its glanceable to users who are interrupted frequently
Yes, they are focusing one task at a time.

Heuristic Violated: no

3. Design a visually pleasing interface. Users 'forgive' attractive interfaces.
Too colorful. Use less brighter color perhaps

Heuristic Violated: yes

4. Intuitive interfaces make for easier learning
Financial information page may need some elaboration. I cannot understand whether we are tracking products that we already purchased or whether the page allows tracking of products available at the market right now

Heuristic Violated: yes

5. Design a clear navigable path to task completion
Yes, clear enough to find out what I want and what I am doing.

Heuristic violated: no

6. User control and freedom. Allow configuration options and shortcuts
For goals I feel that some goals may need to have specific deadline rather than just classifying as 'short term' and 'long term'

Heuristic violated: yes

7. Aesthetic and minimalist design
Home page has a few texts going off the page. Would be better to fit it in all pages. Maybe due to different resolutions on different devices.

Heuristic violated: no

8. Help and documentation
Help page is available.

Heuristic violated: no

Appendix F – Pluralistic Walkthrough Evaluation Procedure

Evaluation ID	
Aims	Identify potential usability issues Generate suggestions for improvements to UI designs
Dates	
Creator	Thomas Baxter

Materials Needed

- Consent forms
- Laptop to take notes on
- Phone with prototype loaded

Introduction

We are the design team "Lucky 7". Today we are going to get your feedback and impressions on the features and utility of our financial tracking app.

We are interested in the features you find useful or interesting, features you believe to be missing, and how easy you find the app to navigate and understand.

There is a consent form that we need you to complete. It tells you what the purpose of this task is today and how the data will be used. This is a voluntary task and if you feel uncomfortable please feel free to strop the testing session. Through this process, we are not evaluating you in any way, we are evaluating the software and how effective the design is.

Consent

- Get users to read and sign the consent form.
- Thanks for providing consent. Just a reminder you can withdraw from this task at any time without any negative consequences to you.

Process

1. Scenarios will be presented to the panel of testers and the panellists will be asked to write down the sequence of actions they would take to move from one screen to another without talking to one another.
2. Once all action has been written down, the panellists discuss the actions that they thought with users going first.
3. The correct actions are then read, and the panel moves to the next round of screens.
4. Process continues until all scenarios have been evaluated

During this process evaluators will be given the following table to record their thoughts for each scenario.

Screen	Action	Potential Issues	Notes

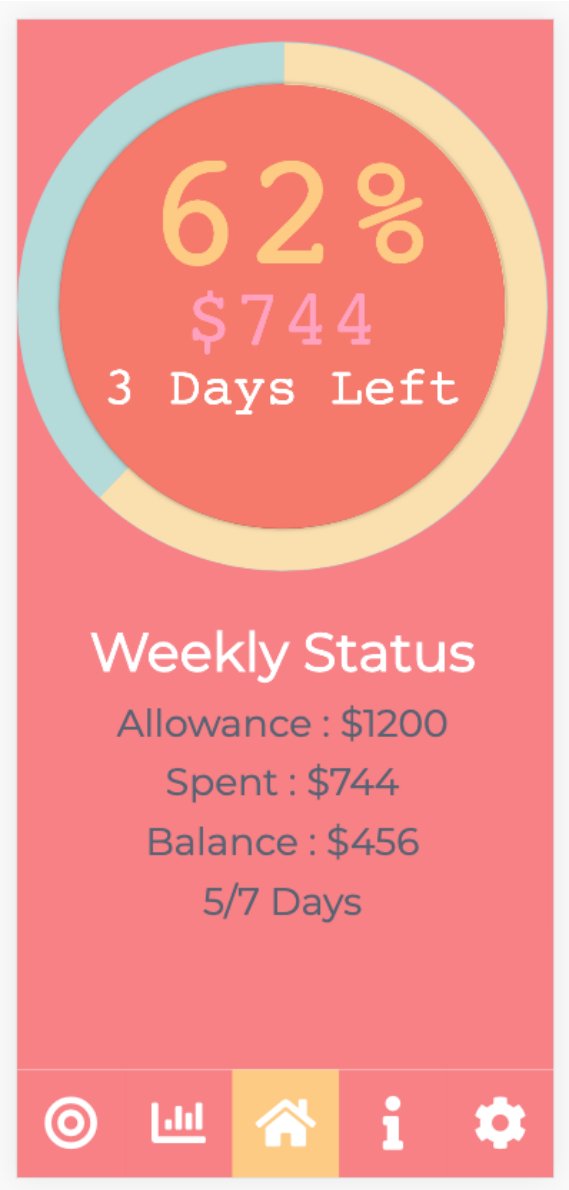
Scenarios

The following scenarios will be presented to the panel:

1. Add a new short-term goal
2. Determine how much the user has spent on food this week and yesterday
3. Find more information about credit cards

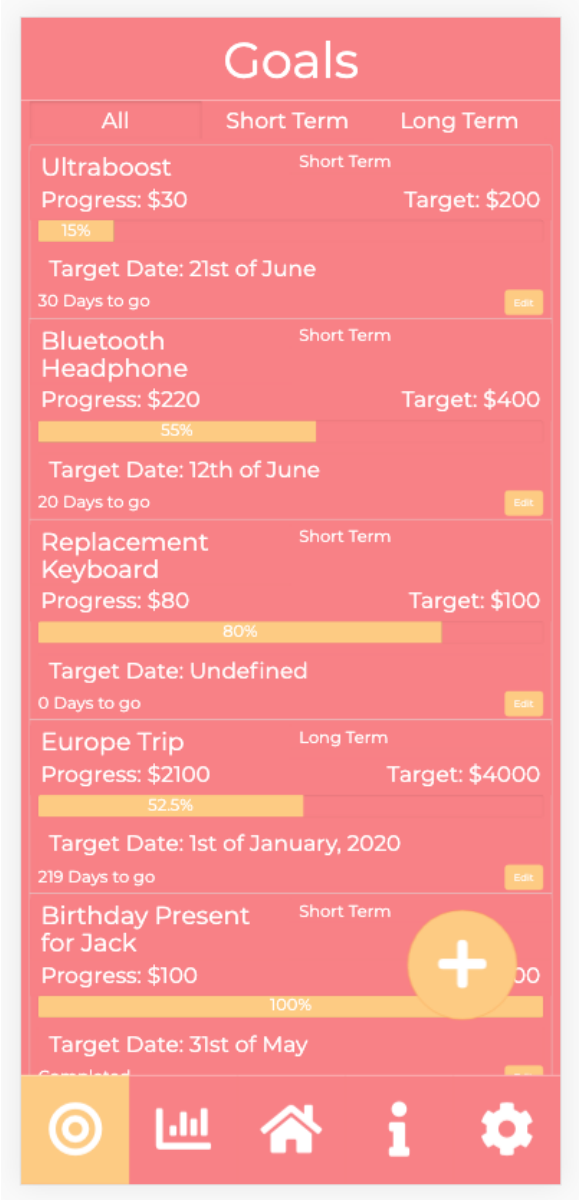
Screens

Activity 1



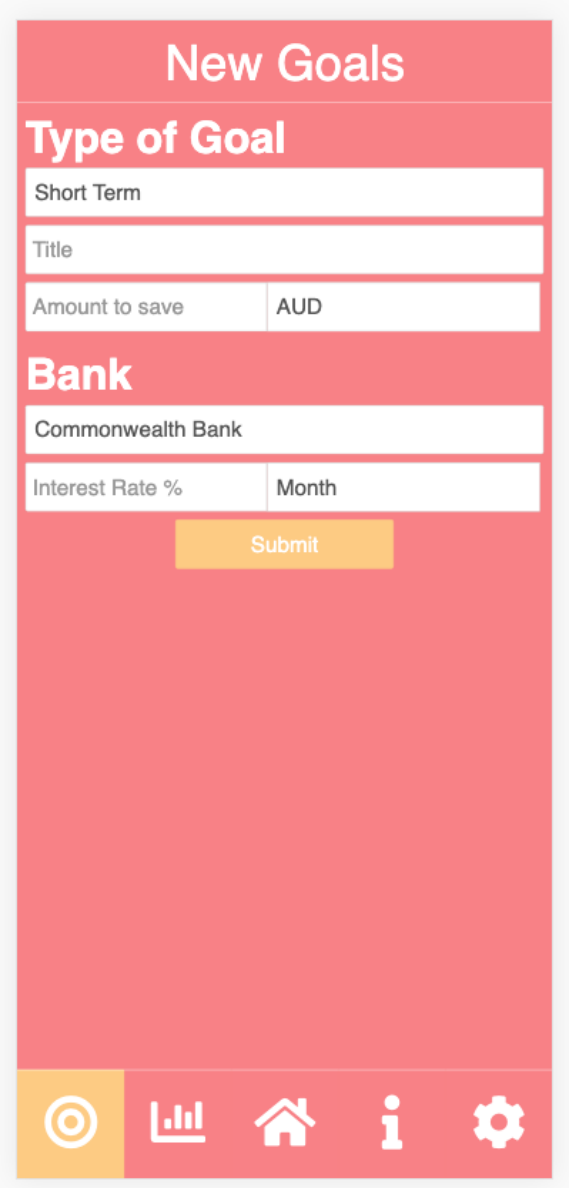
1. Starting screen

Correct Action: Target Icon in the menu bar



2. Goals Screen

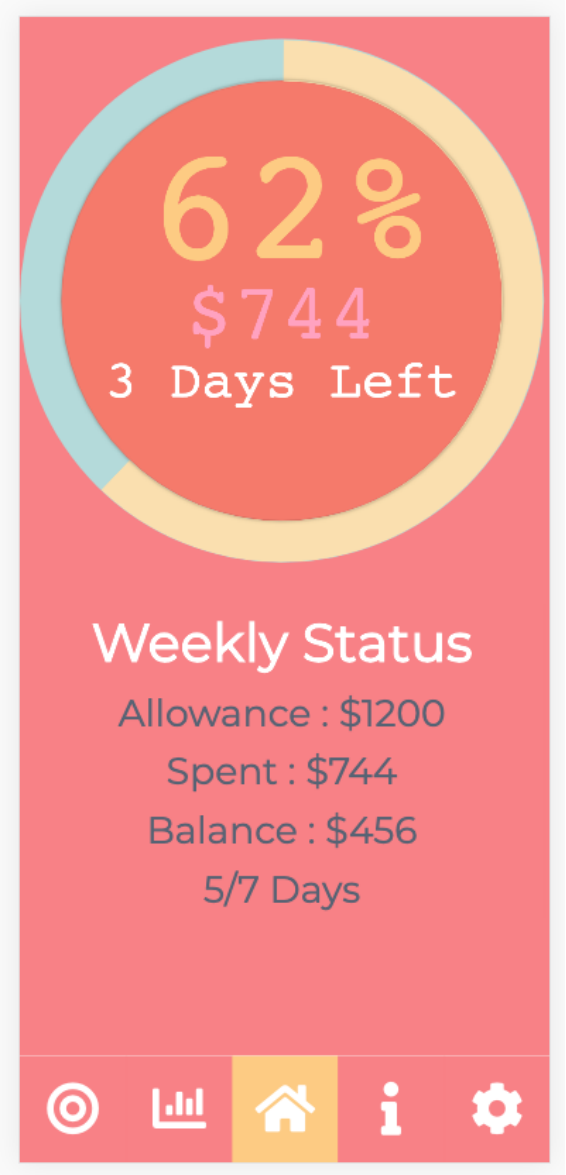
Correct Action: Yellow plus button



3. New Goal Form Screen

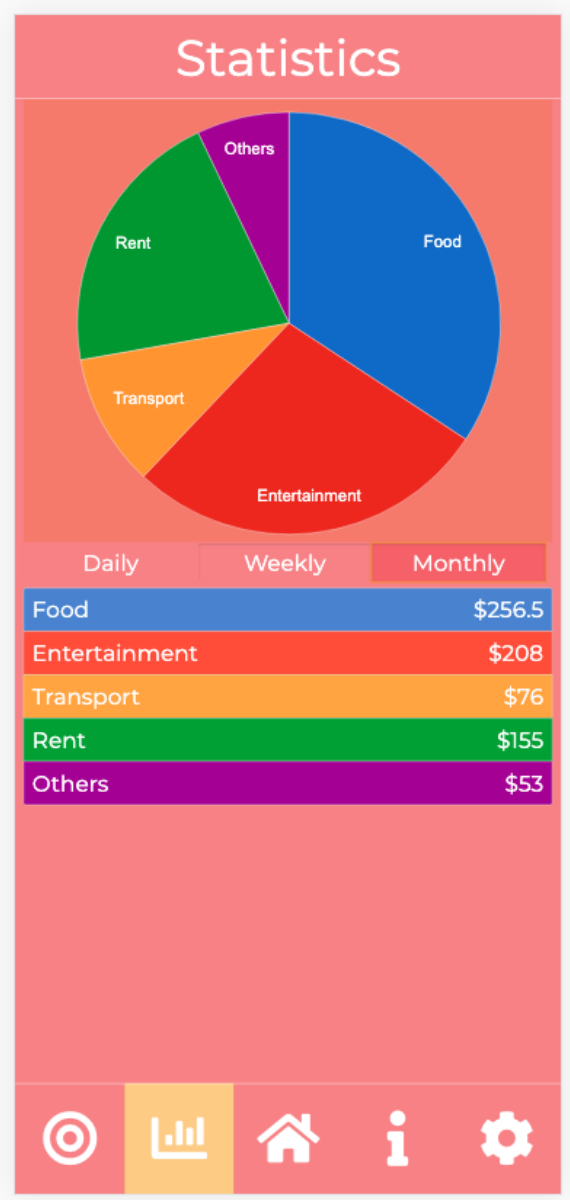
Correct Action: Fill out form and press submit

Activity 2



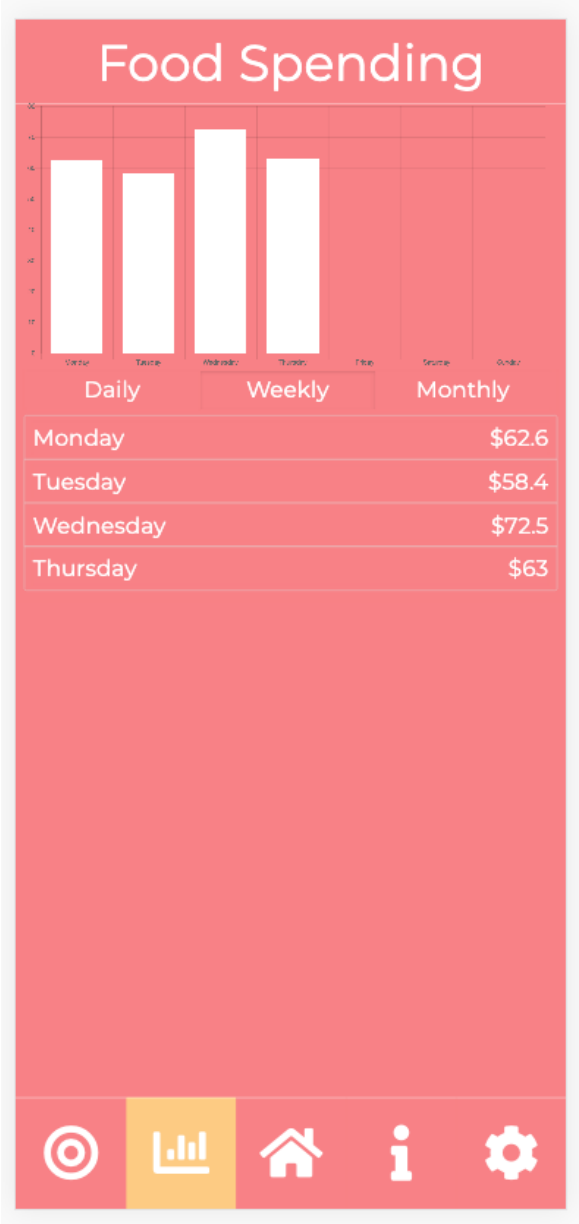
1. Home Screen

Correct Action: Bar Graph Icon in the Menu Bar



2. Statistics Screen

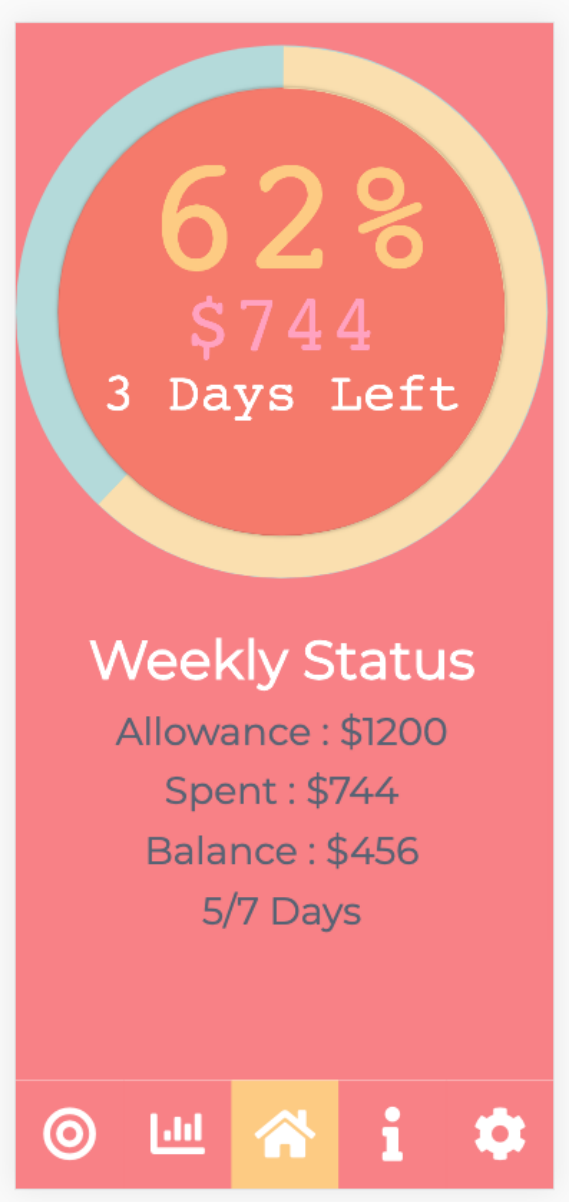
Correct Action: Click the food row



3. Food spending breakdown screen

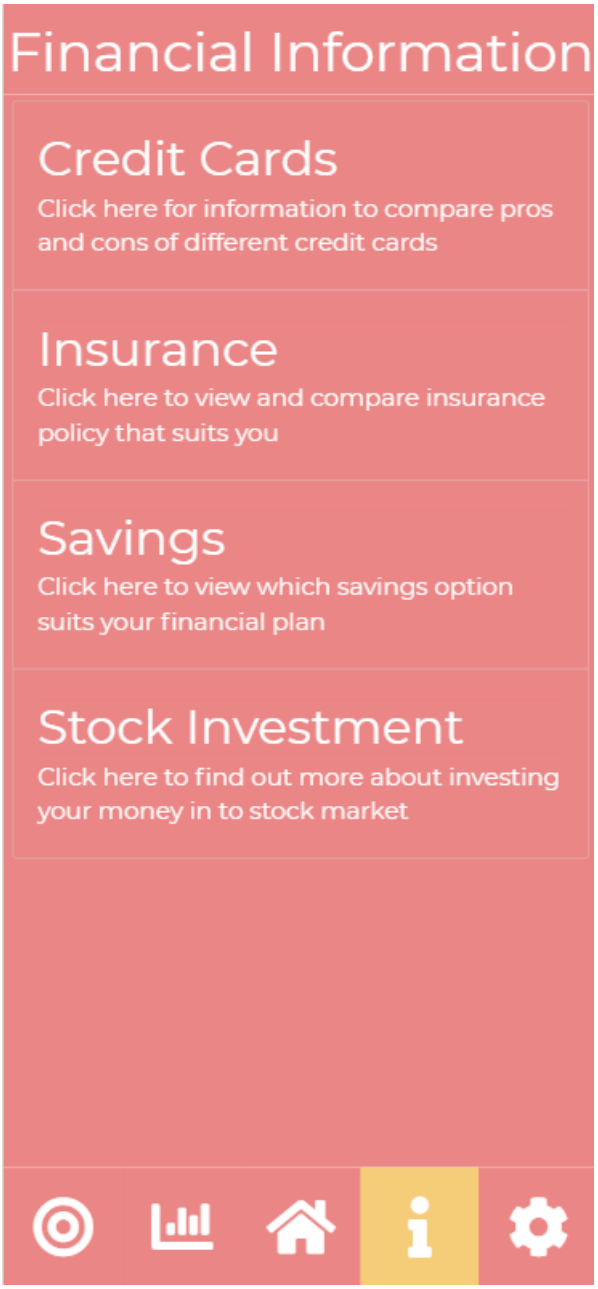
Correct Action: realise $58.4 is the total spent on food yesterday

Activity 3



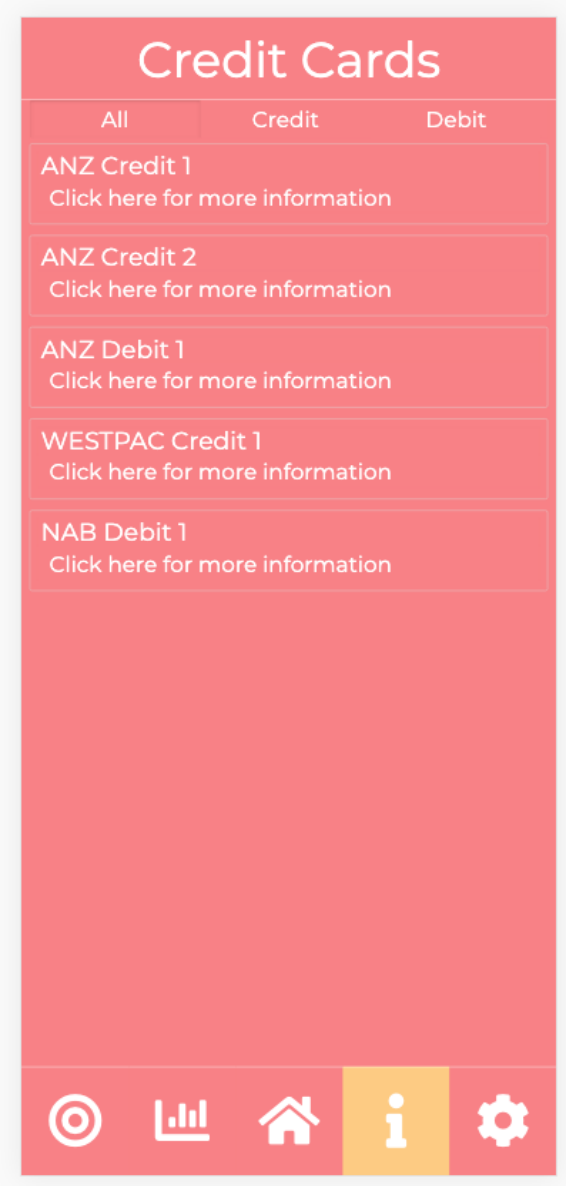
1. Home starting screen

Correct Action: Click the I icon in the menu bar



2. Financial information screen

Correct information: Click the credit cards link



3. Credit card information screen

Correct Action: Click any of the credit card links

Appendix G – Pluralistic Walkthrough Notes

Expert 1: Hyun (Anthony) Jeon

Age: 25

Role: Developer

History with financial tracker: Only tried for few days

Employment Status: None (Student)

Screen	Action	Potential Issues	Notes
Task 1			
1	**Adding a new short-term goal.** Press the big yellow circle button with plus symbol.	May be too big and disturb to view items behind.	Easy to locate add button, easy to type in details with large boxes.
2	Went in to new goals page. Selected type of goal to short term. Typed each item one by one.	Maybe need keyboard sign/icon directing users that they have to press it to get keyboard loaded.	Generally fine and big enough to see.
3	Pressed submit button and got back to the first page with new goal added.	Once goal is added, it doesn't appear on the top of the list. Should have function to sort the list, with some orders.	Fast, no delay or loading.

Task 2			
1	**Determine how much the user has spent on food this week and yesterday.** Pressed graph icon at the navigation to get in to statistic page.	No problem found	
2	Pressed weekly button, to see how much I spent on this week.	Maybe the buttons could be too small. Doesn't have borders, so unsure where to press.	Will get to know later eventually
3	Pressed food, on the pie chart, but only showed how much I spent. Pressed blue bar with food, took me to next page.	Not clear, where to press. Also bit narrow, could be wider, for people with thick fingers.	Will get to know later eventually
3	Can see the weekly break of food. Learning from previous action pressed, bar instead of chart with Wednesday written.	No dates written on here, so can be confusing. Could be better if there were dates and something like today yesterday?	
3	Could see the break of how much I spent on food yesterday.	No problem found. Maybe some chart here could be better.	

Task 3			
1	**Find more information about credit cards** Since, looking for information, pressed I icon.	No problem found. Easy to understand I means information.	
2	Read the page, and pressed credit cards, where it says press here.	Readable, but could highlighted the 'click here' area, so it could be clearer to know where to press.	
3	Saw list of credit cards and pressed 'click here' for some card.	Could have some details of the card, so we can know some general information before click for more information,	

Expert 2: Thomas Baxter

Age: 21

Role: Developer

History with financial tracker: Use banking app regularly, have used basic budget planners

Employment Status: Casual (income varies from week to week)

Screen	Action	Potential Issues	Notes
Task 1			
1	Click the target icon in the menu bar	The white font on the yellow background of the 'active' nav link could be hard to read, perhaps have a colour inversion when active (pink on white) The fill of the pie chart is a slightly different pink to the rest of the background The combination of grey and white font looks strange, would be better to have consistency	
2	Yellow plus button	The yellow edit buttons' font is too small, couldn't read it The yellow of the button slightly blends in with rest of the yellow accents, maybe change the add button so it is more noticeable	The styling here seems off, the app primarily prescribes to a minimalist, flat UI design and here the borders and progress bars give the impression of depth which doesn't gel with the rest of the app

3	Fill in then hit the submit button	No issues	
Task 2			
1	Click the bar graph statistics icon	No issues	
2	Click the food row of the spending breakdown	These are quite thin and could lead to accidentally pressing the wrong row, increase the row height The colour scheme here is very wrong, need to be replaced with pastels or something matching the rest of the app, these colours are too vibrant and do not look integrated with the rest of the system The filters both here and in the goals screen are a little hard to read, the difference between the 'active' filter and the others is very subtle and needs to have a more pronounced difference	

3	Read what was spent on Tuesday	The bar graph should change so that the columns are this week, last week etc for weekly and days only for daily The labels need to be changed to be today, yesterday etc because now it is just assuming that today is Monday and therefore yesterday is Tuesday The labels on the bar graph need to be much bigger, were unreadable even with glasses on	
Task 3			
1	Clicked the information I in the menu bar	No issues	
2	Clicked the credit cards link	No issues	The background colour on the list group of the prototype is broken or wrong, should be all pink background rather than white with just credit cards pink. Easy fix but something to note

3	Clicked ANZ credit 1	That whole list item should be clickable, very rare in an app that you click the subtitle for more information and so this felt strange even though it said "click here for more information" Same issue here with the filters from all the other scenarios, need to make the active filter more dramatically different to the other filter buttons	

Expert 3: LiangHsun (Jimmy) Chen

Age: 22

Role: Designer

History with financial tracker: Used to be using one but not anymore.

Employment Status: None (Student)

Screen	Action	Potential Issues	Notes
Task 1			
1	Pressed target button at the menu bar.	There are no separate lines between each button which could cause miss clicking.	
2	Pressed the add button and went to New Goal Form Screen (Screen 3)	Headings (All, Short term, Long term) font and colour look the same as the other contents which could be hard to identify the headings.	Add button is big enough and the plus sign is very easy to understand and straight forward.
3	Filled in everything then clicked submit.	No issue.	
Task 2			
1	Pressed statistic icon at the menu bar.	Under Weekly status, the "Spent" column could lead the user to click on it instead of the statistic icon at the menu bar if they want to find their weekly spending.	

2	Pressed weekly button to see how much has spent on food this week.	The buttons (Daily, Weekly...) could be more outstanding so the user can see they are clickable buttons.	
2	First clicked the daily button to see if I can change the date to yesterday there and realised there is no option to change date.	If users would like to find their spending on specific date, then it seems reasonable for them to be able to find it in Daily page.	Thought what to click next for a little while.
2	Clicked food bar to see if there is detailed information.	No issue	
3	Saw spending on yesterday.	It would be better to have date shown in the page as well.	
Task 3			
1	Pressed "I" button at the menu bar.	No issue	Information button is very easy to understand.
2	Clicked Credit Cards bar.	The way those sections displayed do not look like they are clickable, and the colour seems like it has not completed adding colour.	It is still easy to find the information of credit cards.
3	Clicked the first "Click here for more information".	No issue	

User 1: Kelbie Davidson

Age: 24

Role: User

History with financial tracker: None

Employment Status: Full Time (fortnightly salary)

Screen	Action	Potential Issues	Notes
Task 1			
1	Click the target icon	I feel like it's just too pink It also looks a little messy with different fonts and font colours, maybe change the colour with a constant font or font with a constant colour	I like that animation on the pie chart, just make it faster
2	Click the plus button	The button sort of blends in with the progress bar underneath, either give it a border or change its colour	
3	Fill out the form and press submit	Your headings look weird, the new goal heading seems smaller than the headings on the actual screen. Maybe make the hierarchy more defined	
Task 2			
1	Press the I icon in the menu bar	So, the I was wrong, that's honestly just because I didn't notice the bar graph, looking at it now that's the more obvious choice	

2	Just read off that the user has spent $256.50	Pretty obvious, no issues	The colour scheme seems out of place here
2	Click the food section of the pie chart	Again, this choice was wrong, the rows don't look like they are meant to be clicked, maybe have an actual button in them	
3	Read that they spent $58.40 on Tuesday	Looks good, I can't read the labels on the bar graph, they need to be way bigger or colour coded to the rows, then it'll look sort of like a legend	
Task 3			
1	Press the I icon in the menu bar	No issues	
2	Clicked the credit card link	Pretty straight forward, I think the styling might be broken here? Shouldn't it all be pink like the goal list was?	
3	Clicked the click here for more information line	No issues	

User 2: Mathew Lynam

Age: 20

Role: User

History with financial tracker:

Employment Status: None (Student)

Screen	Action	Potential Issues	Notes
Task 1			
1	Click the target icon in the menu bar	No issues	
2	Click the add button	Some of the text on this screen is a little hard to read because of its size, might be because I don't have my glasses on but maybe have a setting to allow for larger font sizes	
3	Fill in form and submit	Again, I would make elements on this screen bigger, now you are only taking up half the screen anyway so make labels and particularly the submit button bigger	
Task 2			

1	Click the graph icon	No issues	
2	Read that they have spent $256.50	Pretty obvious, the colours don't really fit but that's not a huge deal	
2	Click the blue food section of the pie chart	The rows need to be bigger if they are meant to be clicked, I just assumed they were just data because they were small	
3	Read that they have spent $58.40	It would make more sense for it to be "today", "yesterday", and then dates, rather than day names, that's what other apps are usually like	
Task 3			
1	Click the I icon in the menu bar	No issues	The menu items are pretty obvious, they're just like most other apps
2	Click the credit cards link	Pretty obvious, the styling just looks weird, make it all white or all pink	It'd look better if it was like the goals screen. But generally, I feel like it's a lot of pink. Maybe look at grey or white background with a pink theme running through it, the minimalist stuff looks good, just maybe a different colour
3	Click any of the "click here for	Just make the whole row clickable, rather than only the	

	more information" links	second line, its small enough to be a little hard to click	

Appendix H - Unguided Interaction, SUS and Interview Evaluation Procedure

Materials needed:

- Laptop to take SUS responses and notes
- Phone with prototype loaded

Introduction

Hello, we are the Lucky 7 Design team and this is our app Piggyback. This is a financial tracking app that helps you save for goals, understand your spending habits and access information on financial services.

Your time and opinions are greatly appreciated and please don't hesitate to say your unfiltered opinions. Please note that we are not assessing you, but rather the design.

Consent

Gain user consent here.

Interaction

The user will be given time to organically explore the app without direction from the development team.

SUS

A SUS questionnaire will be conducted with the following questions:

1. I think that I would like to use this system frequently
2. I found the system unnecessarily complex
3. I thought the system was easy to use
4. I think that i would need the support of a technical person to be able to use this system
5. I found the various functions in this system were well integrated
6. I thought there was too much inconsistency in this system
7. I would imagine that most people would learn to use this system very quickly
8. I found the system very cumbersome to use
9. I felt very confident using the system
10. I needed to learn a lot of things before I could get going with this system

Interview Questions

The following questions will be asked of the user. Please note, more questions may be asked by the development team to further elaborate ideas.

1. Where there any aspects of the design that you found misleading or confusing?
2. Can you see yourself using a system like this in the future?
    A. If so, what features would attract you to a system like this?
    B. If not, why not?
3. Are there any features that you would use that are not present in the design?

Appendix I - User Interaction Notes

Evaluation 1

User information

- Age: 21
- History: no
- Iphone/android: Both
- Employment status: student with part time job

Question answers

1. Did you find anything difficult to understand or complete during your interaction?

Making the goal wasn't difficult
The colours - very monotonous, plus is yellow so stands out
Use colour to differentiate information

2. Would you use this system in the future?
   A. If not, why not?

Bit cluttered

   B. If yes, what key features make it appealing?

Spending stats
daily /weekly monthly breakdown
Home page is good - knowing how much should be saved/spent
Use spending limits

3. Are there any features you think you would use but are not present in the design?

Evaluation 2

User information:

- Age: 20
- History: Commbank app
- Iphone/android: iPhone
- Employment status: unemployed

Question answers:

1. *Did you find anything difficult to understand or complete during your interaction?*

2. *Would you use this system in the future?*

a. *If not, why not?*

b. *If yes, what key features make it appealing?*

Breakdown on food spending
Commbank - put money in - total they show is combined, rather than just the money spent
See just what has been spent

3. *Are there any features you think you would use but are not present in the design?*

Can you elaborate on why you answered that you agreed with the statement "I think there is too much inconsistency in this system"?

Yeah it just seems like its a few things cut together. For example on the spending bit the colours are totally different to the rest of the app, same with the home screen too.

Evaluation 3

User information:

Age: 22
History: None
iPhone/Android: android
Employment Status: part time work

Question answers

1. *Did you find anything difficult to understand or complete during your interaction?*

I assumed that the pie chart would do what the rows in the spending breakdown bit did. But it just added some popup that isn't very useful. The rows in the spending breakdown bit were very narrow.

2. *Would you use this system in the future?*

a. *If not, why not?*

b. *If yes, what key features make it appealing?*

I just need to save money and I think this would probably help, it seems unfinished, but I can see that it could be useful.

3. *Are there any features you think you would use but are not present in the design?*

Not really

You noted that you 'disagreed' with the statement "I found this system very cumbersome to use", why did you not strongly disagree?

Mostly because of how the rows and pie chart her, actually throughout the app there were a couple places where things I thought would be clickable weren't clickable which made it feel clunky.

Evaluation 4

User information:

Age: 19

History: Currently does it himself with a spreadsheet

iPhone/Android: iPhone

Employment Status: part time work

Question answers

1. *Did you find anything difficult to understand or complete during your interaction?*

Not really, pretty straight forward

2. *Would you use this system in the future?*

a. *If not, why not?*

Probably not, I like my current system

b. *If yes, what key features make it appealing?*

3. *Are there any features you think you would use but are not present in the design?*

I just would want it to be as customisable as my spreadsheets, otherwise I might not be able to have things exactly as I have them. If I could customise more about goals and having milestones and stuff then maybe, until then no.

And so is that why you answered that you disagreed with the statement "I think I would like to use this system frequently"?

Yeah I'm just happy as I am now.

SUS Results

	SUS Raw Data					
		RP 1	RP 2	RP 3	RP 4	
1	I think that I would like to use this system frequently.	4	4	4	2	
2	I found the system unnecessarily complex.	1	1	2	1	
3	I thought the system was easy to use.	5	5	4	5	
4	I think that I would need the support of a technical person to be able to use this system.	2	2	1	1	
5	I found the various functions in this system were well integrated.	4	4	5	5	
6	I thought there was too much inconsistency in this system.	2	4	4	2	
7	I would imagine that most people would learn to use this system very quickly.	5	5	5	5	
8	I found the system very cumbersome to use.	2	1	2	1	
9	I felt very confident using the system.	4	4	5	5	
10	I needed to learn a lot of things before I could get going with this system.	1	1	2	1	
1	Strongly Disagree					
2	Disagree					
3	Neither Agree nor Disagree					

4	Agree					
5	Strongly Agree					
	Please ensure you only enter the numeric value					
		RP 1	RP 2	RP 3	RP 4	Average per Question
	I think that I would like to use this system frequently.	3	3	3	1	2.5
	I found the system unnecessarily complex.	4	4	3	4	3.75
	I thought the system was easy to use.	4	4	3	4	3.75
	I think that I would need the support of a technical person to be able to use this system.	3	3	4	4	3.5
	I found the various functions in this system were well integrated.	3	3	4	4	3.5
	I thought there was too much inconsistency in this system.	3	1	1	3	2
	I would imagine that most people would learn to use this system very quickly.	4	4	4	4	4
	I found the system very cumbersome to use.	3	4	3	4	3.5
	I felt very confident using the system.	3	3	4	4	3.5
	I needed to learn a lot of things before I could get going with this system.	4	4	3	4	3.75
	Total for each response	85	82.5	80	90	
	Average of Total	84.375				
	Score:					

Appendix J – Consent Forms

(Updated version 7 February 2019)

School of Information Technology and Electrical Engineering
HEAD OF SCHOOL
Professor Michael Bruenig

The University of Queensland
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Internet www.itee.uq.edu.au

Informed consent form

User interface testing for DECO2500/7250 class exercise

This user testing exercise is for educational purposes only, and is being conducted as a course requirement for DECO2500/7250, a course about human-computer interaction.

You will be asked to interact with a paper prototype, computer program or system, and/or to answer questions about your interaction. We are testing the design; we are not testing you in any way. The test will require no more than an hour of your time, and potentially less.

Consent is voluntary – you do not have to participate if you don't want to. If you do participate, you may withdraw your consent at any point, and all your data up to that point will be destroyed and not used.

All data collected is confidential and will be kept in a secure location, and your data will be indexed by a participant ID rather than by name.

If AV recordings are taken, they will be seen only by the students doing this particular project and possibly also by their Studio tutors and the course coordinator (Dr Chelsea Dobbins).

All your data, including any recordings, will be erased/destroyed once class grades are released.

There is no reimbursement or payment for participation.

I have read the information above and give my consent to participate.

Participant Name: Kyusang Cho

Participant Email: c.kyusang@gmail.com

Signature: Cho Date: 18 / 03 / 2019

Researcher Name: Hyun Jeon Date: 18 / 03 / 2019

Researcher Signature:

Researchers:
<student researcher name(s) here>

Instructor in charge of DECO2500/7250: Dr Chelsea Dobbins, School of ITEE, UQ (c.m.dobbins@uq.edu.au)

Because this is an in-class educational exercise, performed by course students with UQ students, family or friends only, formal ethics approval has not been sought.

(Updated version 7 February 2019)

School of Information Technology and Electrical Engineering
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Informed consent form

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All your data, including any recordings, will be erased/destroyed once class grades are released.

There is no reimbursement or payment for participation.

I have read the information above and give my consent to participate.

Participant Name: Yeomin Yoon

Participant Email: net13meet@gmail.com

Signature: _____ Date: 18 / 03 / 2019

Researcher Name: Ji-Hyun Jeon Date: 18 / 03 / 2019

Researcher Signature: _____

Researchers:
<student researcher name(s) here>

Instructor in charge of DECO2500/7250: Dr Chelsea Dobbins, School of ITEE, UQ (c.m.dobbins@uq.edu.au)

Because this is an in-class educational exercise, performed by course students with UQ students, family or friends only, formal ethics approval has not been sought.