

ONLINE SHARING AND EXCHANGE FOODS SERVICE

BY

TAN YIN LING

A REPORT

SUBMITTED TO

Universiti Tunku Abdul Rahman

in partial fulfillment of the requirements

for the degree of

BACHELOR OF INFORMATION TECHNOLOGY (HONS)

INFORMATION SYSTEM ENGINEERING

**Faculty of Information and Communication Technology
(Kampar Campus)**

JAN 2019

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DECLARATION OF ORIGINALITY

I declare that this report entitled “**METHODOLOGY, CONCEPT AND DESIGN OF A 2-MICRON CMOS DIGITAL BASED TEACHING CHIP USING FULL-CUSTOM DESIGN STYLE**” is my own work except as cited in the references. The report has not been accepted for any degree and is not being submitted concurrently in candidature for any degree or other award.

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ABSTRACT

This application is aims to effectively reduce the food waste in our community. The relationship between the customers' impulsivity and quantity of food involvement has been studied. Based on the result of the survey of Sarmugam and Worsley (2015), it shown that most of the people are having high impulsivity of buying behaviour with high involvement of foods. Those foods include convenience meals, takeaways, salted snacks, ready-made sauces, and fast foods. This behaviour may affect people buy a lot and spent without control. Since people already bought too much, they may share or exchange their excessive foods with other. All their need is just a platform to enable them to share with each other. So that, the proposed application will be develop to let user share and trade their foods with others. Moreover, due to the need and demand changing of mobile apps is frequent, and the development life cycles is shorter, so that agile methodology will be a better choice. Agile methodology is allow to makes changes to fit the trends, split the tasks into different phases, and emphasized interactions between customers, testers, and developer. Agile process flow will separate into concept phase, inception phase, iterations phase, release phase, production phase, and retirement phase. In conclusion, the proposed application could let user effectively share and trade their excessive foods with others without use of money. The techniques that used to develop this project are Java programming language, Adobe for drawing wireframe, Android Studio, Visual Paradigm to draw UML diagram.

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LIST OF ABBREVIATIONS

<i>API</i>	Application Program Interface
<i>JSON</i>	JavaScript Object Notation
<i>OS</i>	Operating System
<i>UI</i>	User Interface
<i>SDK</i>	Software Development Kit
<i>UWP</i>	Universal Windows Platform

Chapter 1: Introduction

1.1 Background information

Based on the passed study, it states that most of the people are having high impulsivity of buying behavior on food. This problem has created some significant impacts to our social life. First of all, this behavior will create a lot of excessive waste to our society because most of the people will affect by those marketing activities easily, so they will buy more. Moreover, those excessive goods usually will be thrown. Besides, majority of Gen Y are facing financial stress but they still spend without control. Therefore, the society needs a solution to overcome this issue such as using barter system.

Barter system is an old trading system that exist in pre civilizations which aims to exchange goods or services between two parties before currency is invented. Bartering can be very flexible, any products also can be exchanged and shared with others. As an illustration, using portable tablets to trade for laptops, packet of milk in exchange for soft drinks. Bartering could enhance our social life apart from materialistic, as it can benefits both parties without any cost.

1.2 Motivation and Problem Statement

Problem Statement

According to the research, people nowadays having high impulsivity of buying behaviour. A survey of Sarmugam and Worsley (2015) was conducted among 530 people, the purpose of study is to identify the relationship between the consumer impulsive behaviour and the quantity of food participation. The result has shown that most of them are having high impulsivity of buying behaviour, and those foods that involve are convenience meals, takeaways, salted snacks, ready-made sauces, and fast foods. Nevertheless, some people claims that those marketing activities are one of the reason that influence their buying behaviour. Most of the businesses are trying very hard to figure out the buying trends in order to reach more people. Those business are tried to influence their customer by advertising, pricing, and the way they locate store, these make their customers think that those products is a must buy to them however this is not the truth. Thus, most of the people are having a huge number of excessive wastes especially convenience meals, and ready-made sauces. Typically, these excessive foods will become a waste to our society at the end. Statistics from Solid Waste Corporation of Malaysia (SWCorp) show that, Malaysians have create around 15,000 tonnes of food waste in a day, 60% of these foods are avoidable, and around 37% of these avoidable foods are edible (Star2.com, 2017). Moreover, while those foods goes to landfill, it will release greenhouse gases, and cause methane pollution (Naidu, 2017). Methane gas is a very powerful greenhouse gas, it will absorb the emission of ultraviolet and affect the atmosphere of earth, cause global warming and climate change (Move For Hunger, 2017). Lastly, consumer impulsive buying behaviour has bring up another problem to Malaysia's Gen Y, which is financial stress. This is because most of the people spent without consider their own affordances. Research shows that 25% of Malaysian's salary are paid for foods and beverages, imagine a household of 5 people, generally the cost that they spent on foods will be RM900 (Jaaffar, 2017). If they do not manage their expenses properly, then it is high possibility of facing financial stress. Therefore, the effect of consumer impulsive buying behaviour that bring to our society should be aware and concerned.

Motivation

Based on the research, consumer impulsive buying behaviour is the issues that currently occur in our community, this behaviour significantly affect our daily lifestyle and indirectly create a lot of food waste. When those foods waste end up to the landfill, it will release the greenhouse gases, which may bring a big impact to our earth (Naidu, 2017). Besides, consumer impulsive buying behaviour also raise another effect which is financial stress. A study of Wong (2015) stated that there are 47% of Malaysia's Gen Y involved with credit card loan, and 38% of them involved in personal loans. After review on those issues, there should be a solution to reduce the effect of this behaviour. Hence, apply the ideas of bartering and sharing could be a solution to reduce the waste. Although, there are some similar applications already exist such as Swapub and Community Exchange System but these apps doesn't concern much on the waste issue. There are a lot of excess foods which still edible end up into rubbish bin. Even though these applications have using the concept of sharing, but Swapub's user still need to pay for postage, moreover oversea postage is quite high. There is no solution for both applications to effectively settle user unwanted items, those items will become a waste again while user's offer doesn't match what people want. Hence, by using proposed application, these issues might be effectively reduce. This application is allow people to exchange their excessed or unwanted foods with less involvement of money. ShareButter application has integrated with eco green idea, as an illustration, user may get their nearby location of foods waste recycling companies by using the application. These existing foods waste recycling companies consist of COMPOSTECH, ProMinent, KURITA and so on. It is very convenient to users while they send their unwanted or expired foods to the companies for further process. In short, ShareButter application could be efficiently decrease the food wastes and financial stress, improve our social life, and benefits our community.

1.3 Project Objectives

The objective of develop this platform is to enhance the sharing behaviour between our society. Since majority of people had bought numerous of excessive goods, people shall giving those foods a second life instead of letting them become a waste. By using the proposed application, user could share their extra foods with others through some simple steps. For an example, user will buy the goods that having pricing promotion, such as buy one free one pack of biscuit. However, two packets of biscuit is too much for them, so that they may trade those excess goods to others and get something in return.

Besides, the second objective is to encourage users to give and take what their really need in order to reduce the usage of money. Since majority of Malaysia's Gen Y are facing a significant financial stress with high impulsivity of buying behaviour. So, people may simply exchange their unwanted or excessive goods to get their desired ones in return by using the proposed application.

1.4 Proposed approach

This project has studied the relationship between the consumer's impulsivity of buying behaviour and the number of food waste. It is a useful apps for the people who have impulsivity buying behaviour but unable to consume on time. This application currently support for Android user, and target to Kampar residents only. The main intention of this application is to inspire Malaysian to share rather than waste. It promotes the sharing and eco-green concepts by providing users a more convenient way to allocate their excess foods. It is a platform to share or trade for users' unwanted foods with less involvement of money. Besides, it also create awareness of the effect of food wastes such as methane pollution and global warming. This application is encourage users to trading goods in person rather than solely posting in social media. However, the trade location would be constrain at particular distance to decrease the possibility of online fraud. Users could switch their location to view the different places' offer while they are moving to other place. This means users can trade with the local community that within certain area only. Furthermore, users could use the chat room to further discuss about the exchange product and details. In summary, ShareButter is an application that capture the ideas from both existing applications (Swapub and CES) with further enhancement by adding own unique features. It could decrease the large quantity of waste, in the same time enhance our social life, and benefits our community.

1.5 Highlight of parts that have been achieved

Frist of all, I have completed the authentication of users by using firebase. All users' sign in details will be stored in firebase. All the verifications of authentication module have completed. Besides, add offer module, and exchange offer module have completed and function well, so that users could be exchanged easily with some simple steps. Users could browse the offer display in the application, and decide to give an exchange offer while they see their interested offer. Both parties could exchange successfully if both of them are agree to exchange with offer provided. In another scenario will be user add offer to their profile, and waiting other to give them exchange offer. User could exchange successfully while user satisfied with another party offer. Next, the second objective is to encourage users to give and take what their really need in order to reduce the usage of money. This application is built with idea of system barter, and there is no money involvement in whole trading process. User no need to pay for anything while they exchange with other. User could reduce the usage of money, and still can get another thing that they want by using exchange. Furthermore, it still could be a good behavior to give those unwanted or extra foods a second life instead of letting them become a waste. In short, both objectives that stated in this project have been achieved.

1.6 Report Organization

In chapter 1, the problem of high impulsivity of buying behaviour on food, and the background of related research will be included. Besides, the objectives of the project, proposed approach, and the highlight of things that have been archived will also state in chapter 1. Chapter 2 will included the review and comparison of similar application that exists currently. The highlight of results of comparison will be discussed also.

Most of the system design will be included in Chapter 3. The system design has include the system flowchart, site diagram, and use case diagram of the project. Chapter 4 will be discussed about the methodology used in this project, which is agile methodology. User requirements and the used tools have included in this chapter also. In chapter 5, the wireframe of this project included under analysis and design. Moreover, implementation and internal testing results will be contain in chapter 5. The last chapter will be contain the conclusion, which compare with objectives and what has been achieved. Future enhancement of this project will also discussed in this chapter.

Chapter 2: Literature Review

2.1 Introduction

The comparison of database and language use to develop platform will be discuss in this literature review. The study of proposed modules and similar applications will also include such as Swapub and Community Exchange System (CES). These application will bring up the sharing behaviour while user using these apps to swap goods. A study of Anilraj (2011) state that, sharing is a behaviour that could gain happiness, and harmonized the community as people could build a better relationship between each other.

2.2 Critical Remarks of Previous Works

In this part, critical remarks of previous research will be conducted such as review of pros and cons of similar applications, and comparison between similar applications with proposed project.

2.2.1 Review Similar Applications

Swapub

Bartering is the major concept that apply to the Swapub application. It incorporation of social networking into the exchange application, user can share their wishes and items to other social networks.

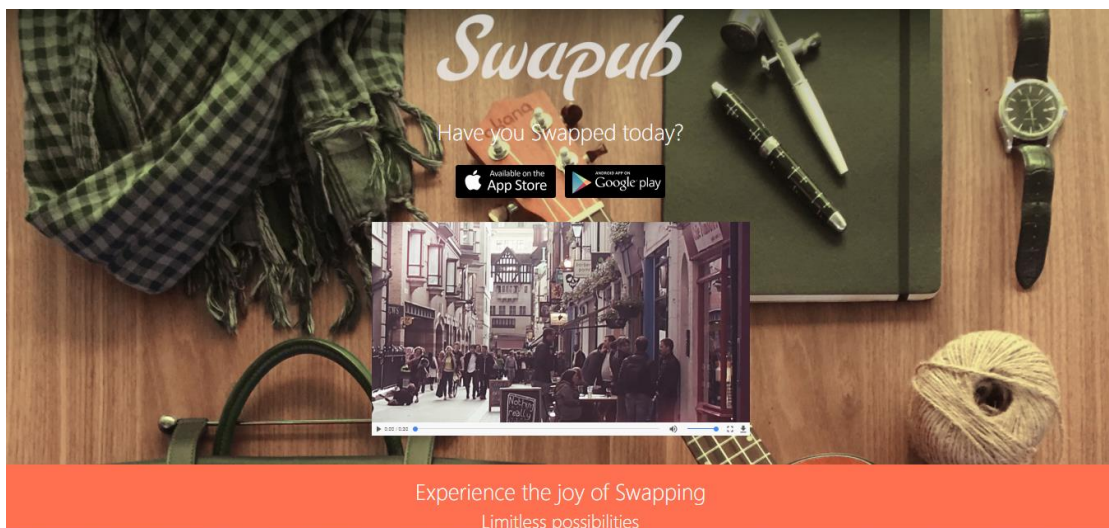


Figure 2.1 Swapub's webpage

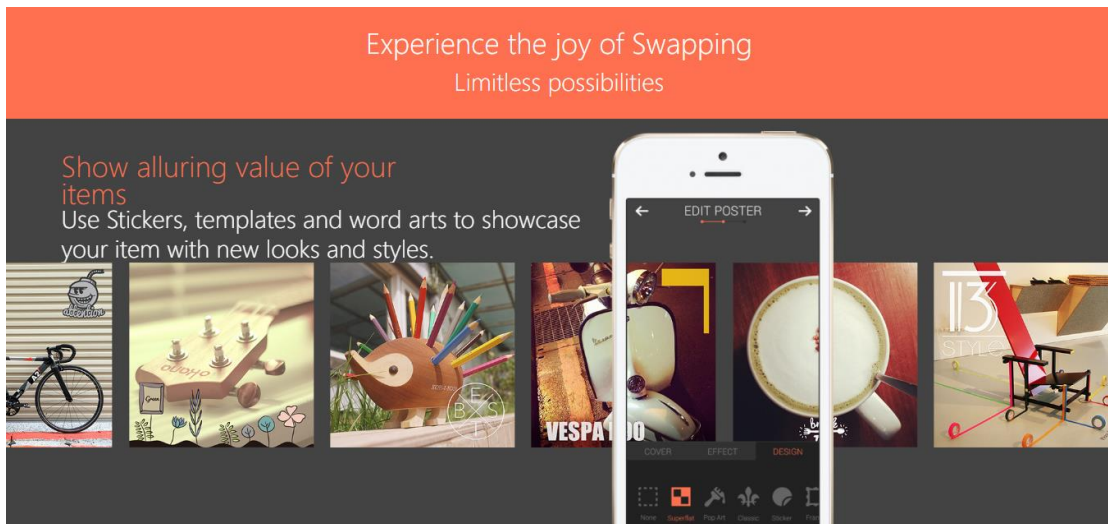


Figure 2.2 Swapub's webpage

Strength

The users of the Swapub can make a wish and post what they are looking for at the wishing wall. Users can include products' description and image to clarify their wish. This function could enable users engage in the trade aggressively as their wishing wall would be publish to the public. Moreover, Swapub is a platform that contain no boundary, it has provide different languages, so that user may grab any products from all around the world. It also allow user to upload the exchange stuffs' image perfectly. Users may capture the images with different angles or video clips, and used the image editing tool to enhance the appearance of the products. In addition, the user's personal profile and transaction's record are arrange neatly. All the users' wishes and items are arrange well. After the transaction has been made, users can trace their transactions history. In the nutshell, users could enhance their user's experience and gain satisfaction from treasure hunting through Swapub application.

Weakness

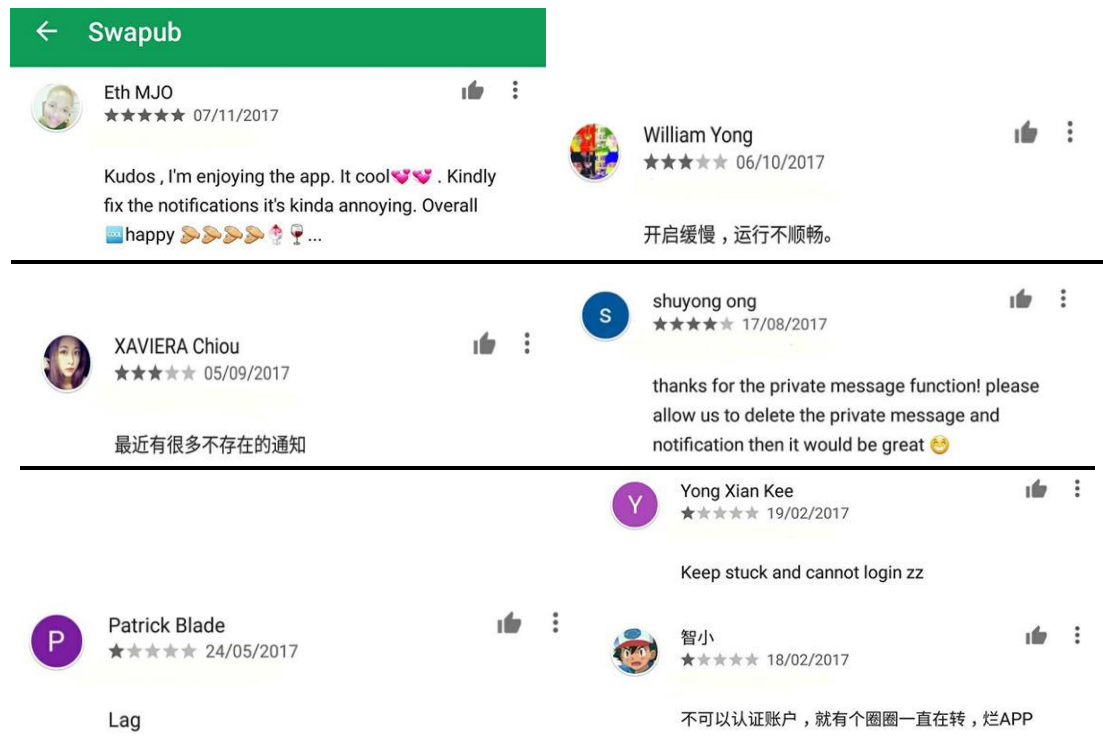


Figure 2.3 Swapub's user feedback

Based on the figure 2.3, Swapub have some limitations complain by the users, such as online fraud. Due to the wide distance of swapping, users are mainly depend on the courier service to perform sending and retrieving the traded goods. Those online fraudster using the opportunity to replace the product that has been previously agreed by both parties with an inferior good. According to the news from Apple Daily, a man has use Swapub application to exchange his goods, he wish to use one Canon camera and one iPhone 5c to exchange one iPad 2 and one iPhone 7 from other party. At the end, he only received one box of crayons but his camera and smartphone already sent to other side. Other similar cases are some users complained that they had delivered the goods that want to exchange, but they didn't receive any parcel from the other party. Besides, most of user said that there is a lot of junk notification to the user. They are feeling annoying to those notification. Another problem is time consuming while loading page. Some of the user say that the application is quite lag while they browse the site, it is taking time to response.

Community Exchange System



Figure 2.4 Community Exchange System's webpage

Community Exchange System (CES) is a platform that let its user exchange and share what they offer for what others provide. It promote the concept of give and take rather than chasing after money.

Strength

Community Exchange System (CES) have few exchange methods such swapping, time exchange, and record keeping. It also allow users to sharing and gifting. CES said their system will help their user to concentrate on give and take what their really need rather than racing with money every day. CES claims that they have created a world that without the money. Therefore, CES's users could improve their living standard and savings because they could acquire their desire products from the domestic trading system. Hence this will reduce the transportation fees. For the frequent CES's users could identify that there are extra cash leftover in the end of the month. Thus, the personal saving of the users will rise and improve their living standard indirectly.

Weakness

Even though CES has encourage people to exchange and sharing, but those goods that doesn't meet others people want still left aside. That's means the waste issue still there. CES should consider about this problem since they are focus on the problems that affect the harmony and meaningful of community. Besides, users need to enter a lot of details and descriptions while they want to register. This makes people feel troublesome and waste time to create their account because there are too many of things that users need to fill in before they join. This problem might significantly diminish their user's experience and cause people doesn't want use this system anymore.

The screenshot shows the registration page for the Malaysian Community Exchange. The page title is "Sign up for an Account with Malaysian Community Exchange". It includes a navigation bar with "Home", "About", "Info", "Join", "New Exchange", "Demo", "Contact", and "Login". The form is divided into two main sections: "Exchange details" and "Your details".

Exchange details:

- Exchange Name: Malaysian Community Exchange
- City/Town/Area: Kuala Lumpur
- Province/State/Area: Selangor
- Country: Malaysia
- Web site: [empty]
- Map: <https://maps.google.com...>
- Administrator: Eric Lim
- Tel: 6012 213 4968
- Email: erico@pc.jaring.my

Your details:

Note: Your full contact details are required for your registration to be considered. If you do not want certain details to display on the web site, it is possible to hide them after you receive your account details.

Registering as: [Registration Types Q & A](#)

Company/Organisation Name:

Firstname: Tel (home):

Surname: Tel (work):

Address: Fax:

Address (cont.): Mobile:

Figure 2.5 CES Sign up system

The screenshot shows the "Wants" section of the registration form. It includes a navigation bar with "Home", "About", "Info", "Join", "New Exchange", "Demo", "Contact", and "Login". The form is divided into two main sections: "Example: Message" and "Example: Bed and mattress".

Example: Message

Example: I do full body, deep-tissue massage. RM30 / hour

Heading:

Details:

Rate:

Example: Bed and mattress

Example: I am looking for a full-sized, single-width bed and mattress. Anyone have one?

Heading:

Details:

Rate:

Wants: You may optionally enter any wants or requirements that you might have.

Heading:

Details:

Rate:

Heading:

Details:

Rate:

Heading:

Details:

Rate:

Back Submit

Figure 2.6 CES Sign up system

2.2.2 Comparison between similar applications

Application Features	Swapub	Community Exchange System (CES)	Proposed Apps: ShareButter
User Interface	<ul style="list-style-type: none"> • UI look messy. • UI and images loading time are longer. 	<ul style="list-style-type: none"> • Too simple and plain UI. • UI loading time shorter. 	<ul style="list-style-type: none"> • Simple and clear UI. • UI and images loading time shorter.
Search function	<ul style="list-style-type: none"> • Search function filter by keyword. 	<ul style="list-style-type: none"> • Simple search function without filter. 	<ul style="list-style-type: none"> • Search function filter by tags, results show the images with same tags.
Authentication system (Login and register)	<ul style="list-style-type: none"> • Password verification and verification code are used but user's device unable to receive verification code. • Simple registration and save time. 	<ul style="list-style-type: none"> • Password verification. • A lot of information need to fill in, consume a lot of time while sign up. 	<ul style="list-style-type: none"> • Password verification, easy to access and change. • Simple registration and save time.
Customer Profile	<ul style="list-style-type: none"> • Rating function • Offer's history • Follower function • Offer upload function 	<ul style="list-style-type: none"> • Offer's history 	<ul style="list-style-type: none"> • Rating function • Offer's history • Follower function • Butter point function • Offer upload function
Private message function	Provided	No	Provided

Application Features	Swapub	Community Exchange System (CES)	Proposed Apps: ShareButter
Home module	<ul style="list-style-type: none"> Show all user's offer 	No	<ul style="list-style-type: none"> Show all users offer that within a state. Suggest additional items according to user's favourite.
Location module	No	No	<ul style="list-style-type: none"> Display nearby location of food waste recycling companies with navigation map.
Exchanged module	<ul style="list-style-type: none"> Sender could give their offer, and change their offer if needed. 	<ul style="list-style-type: none"> Sender could give their offer, and change their offer if needed. 	<ul style="list-style-type: none"> Sender could view on all offers that receiver have, then only pick for exchange. Receiver could upload the offer after pick by sender, and receiver no need change the offer many times when sender is not satisfied with given offer.
Add offer module	<ul style="list-style-type: none"> User need to enter quite a lot of info before upload. 	<ul style="list-style-type: none"> User need to enter quite a lot of info before upload. 	<ul style="list-style-type: none"> User only need to fill up some basic information before upload.
Online fraud	High probability (Due to oversea exchange)	Low probability	Low probability

Application	Swapub	Community Exchange System (CES)	Proposed Apps: ShareButter
Features			
Payment	Goods and shipping fees	Free	Free
Exchange area	Support oversea exchange	Support oversea exchange	Limited distance (exchange locally)

Table 2.1 Comparison between similar applications

2.3 Software Comparison

1) Database for Data Warehousing

Couchbase Mobile is a database that did not consist SQL. It stores the data as JSON. It has offered background synchronization and security entrance between all users. Couchbase Mobile has covered its service across numerous well known platforms like Andorid and IOS. Firebase is a cloud-based service that offers the function for data analysis, notifications, data storing, and cloud messaging. However, it has limited the numbers of data to transmit and stored although majority of the functions are free (Rozdoun, 2017).

#	Firestore Realtime Database	Couchbase Mobile Database
Advantages	<ul style="list-style-type: none"> ✓ Secure for writing and reading data ✓ Support real-time synchronization ✓ Simple and easy to begin ✓ No charge for small size project 	<ul style="list-style-type: none"> ✓ Secure for writing and reading data ✓ Support real-time synchronization ✓ Data amount restrictions are not available. ✓ Allowed modified encounter resolution ✓ Stable
Disadvantages	<ul style="list-style-type: none"> ✓ Limit data amount ✓ Not appropriate for huge project. ✓ Unable modify encounter resolution 	<ul style="list-style-type: none"> ✓ Require application server ✓ Hard to start

Table 2.2 Comparison between Firestore and Couchbase Database

2) Programming Language Comparison

C++ is a basic programming language with various functions. It is able to code in two styles, which are object-oriented and C. It also offers facilities for low-level memory manipulation. However, it is more advance in facilitates low-level memory manipulation instead of high-level. In contrast, Java is a programming language that applied commonly among enterprise-level application. It is fast, reliable, and secure. Java is an object-oriented programming which convenient their users to develop their project more flexible. Java also is the famous language that suit to develop the Android mobile apps.

Java	C++
Deal with class and function, can invoke functions everywhere	Compile everywhere by just write once
Need to runs on virtual machine	Executes as native executable machine code for target command groups.
Independent platform	Dependent platform
Mostly used to program apps	Mostly used to program system
Documentation comment is available (<code>/* ... */</code>)	Documentation comment is not available.
Need interpreter and compiler	Compiler only

Table 2.3 Comparison between C++ and Java

Chapter 3: System Design

This chapter will discuss about the diagrams used in this project. These diagrams have included Site Map, Flowchart for significant modules, Use case diagram, and the Wireframe of this project.

3.1 Site Map

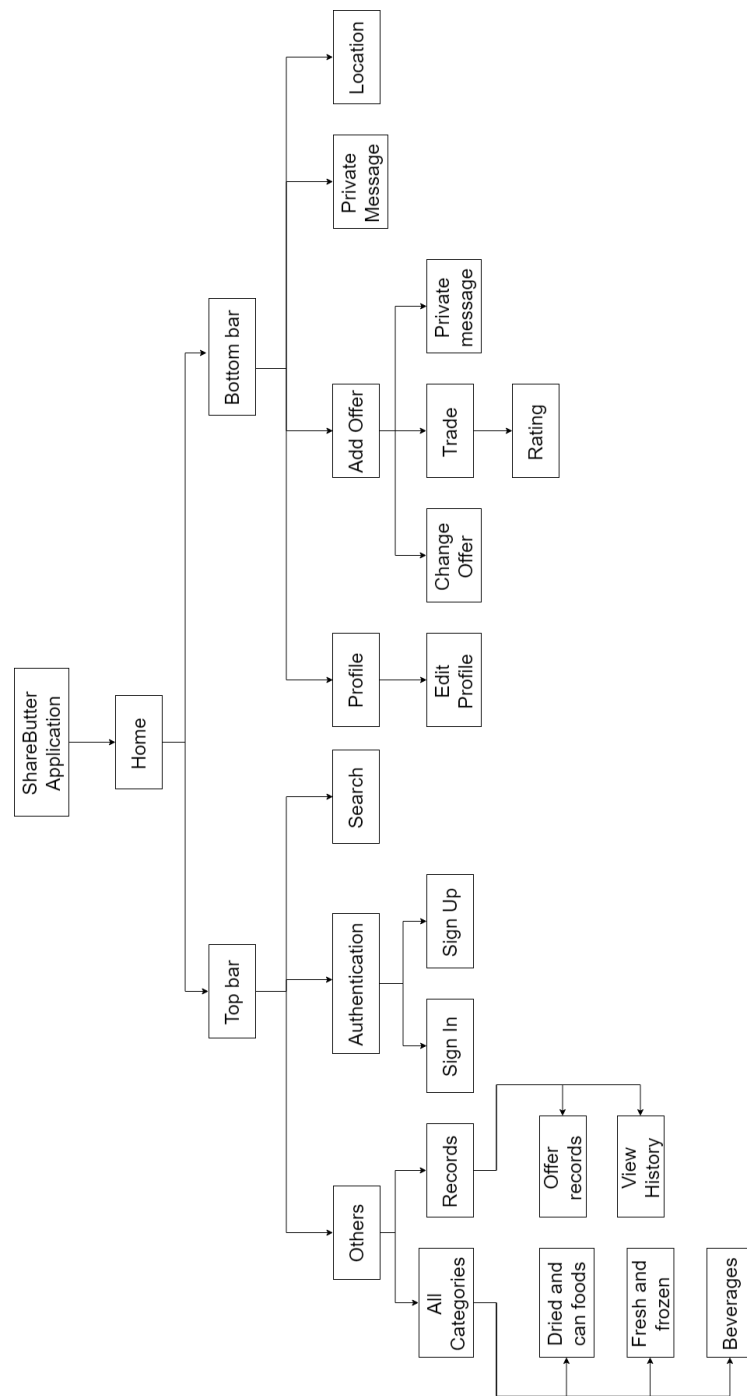


Figure 3.1 Site Map diagram

Site map is a diagram that used to display to the users about the mobile site's content. It is a hierarchical form of the pages which can assist the users to navigate the site. Based on the diagram above, it shows that this project consists of Top Bar that include "Authentication", "Search" and "Others" whereas Bottom Bar section contains "Profile", "Add Offer", "Private Message" and "Location".

Under authentication's part, the users need to register an account by using their email address and access with password. Search function enable users to search their interested item with similar tags. The "Others" included "All Categories" allows users to filter the exchange goods through three sub-categories which are "Dried and Can Foods", "Fresh and Frozen", and "Beverages". While the "Records" could aid the users to trace back their exchange history.

The users might add or edit their information under the "Profile" tab. Under "Add Offer" tab, the users could choose to upload offer, change offer, trade. The users could view or continue their conversation with the traders in private messages tab. After completing the trade process, the users could even rate their relative traders. Lastly, the users can view the nearest recycling companies through the Location tab so they are able to allocate their excessive foods to the companies.

3.2 Flowchart

3.2.1 Authentication flowchart

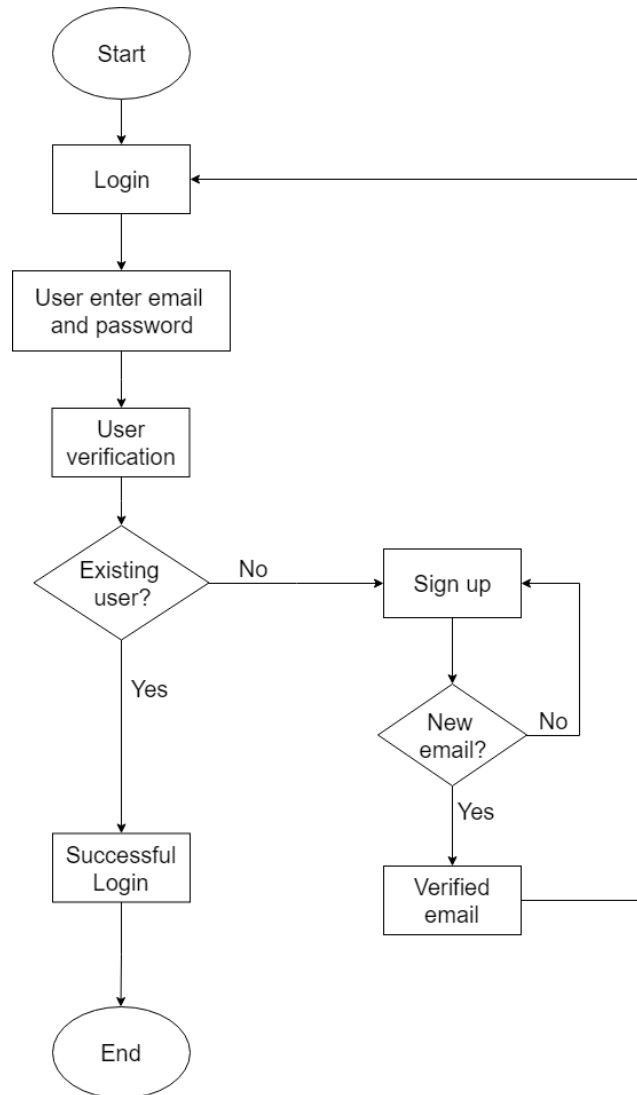


Figure 3.2 Authentication flowchart

The flowchart above has illustrated the Authentication flow of this project. Firstly, the new or logged out users would be direct to the login page. For logout users, they have to enter their email and password in order to sign in again. After user click login, a verification process will be run, if user is existing user then user could login directly. If user is a new user then user will to sign up page for register new account. If user is register with new email then user may sign up successfully. After user register new account, a verification email will be send to user's email, user might need to click the verification link then only they can sign in.

3.2.2 Add Offer flowchart

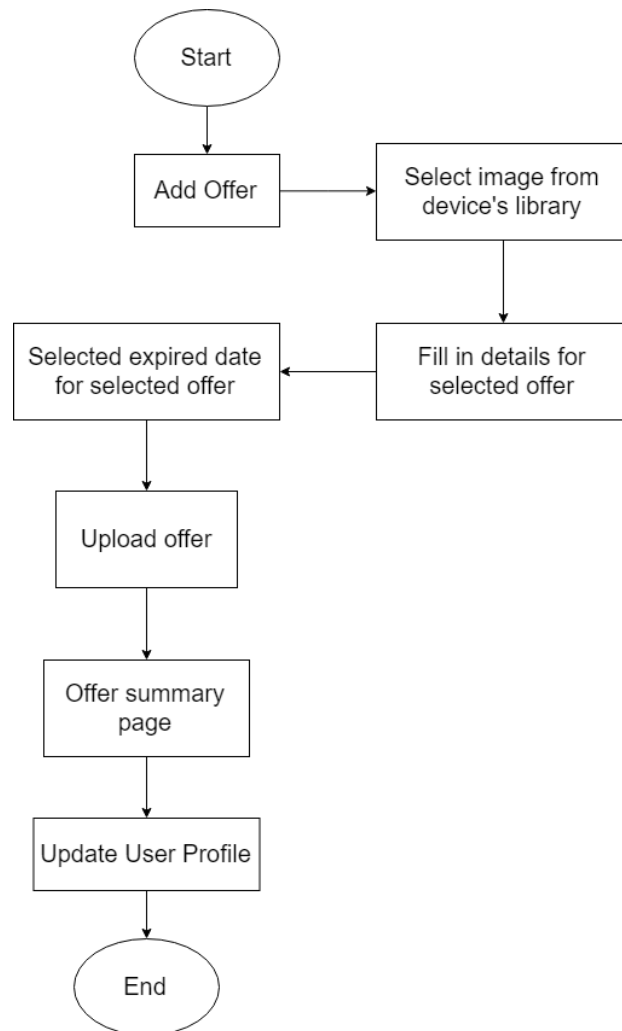


Figure 3.3 Add Offer flowchart

In the main page, users could choose to add offer by clicking the “Add” tab. After that users could choose the offer image through their device image library. After users have select the images, users need to fill in all the offer details with its expired date. Users successfully upload an offer, and users will be direct to Offer Summary page. The uploaded offer will also display in User Profile page.

3.2.3 Exchange Offer flowchart

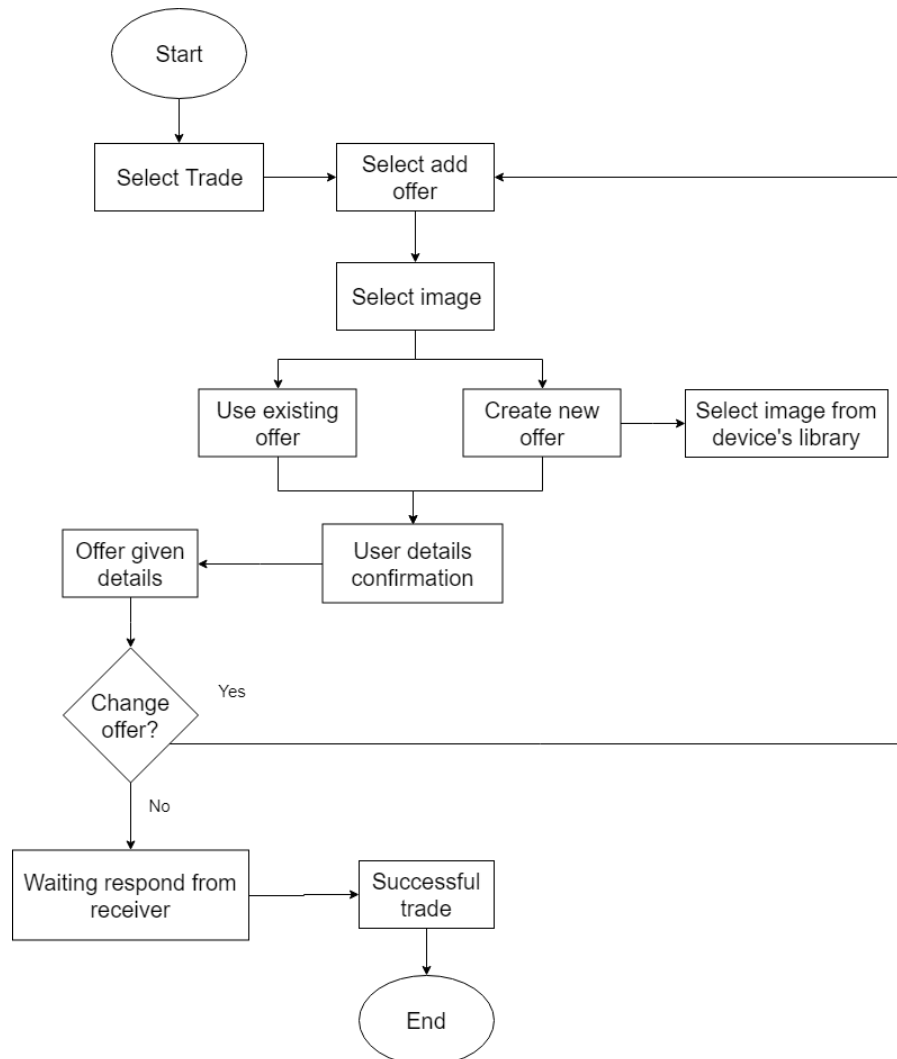


Figure 3.4

Exchange Offer flowchart

In the main page, the users could move to the main page and look for any desire foods. After found an interested foods, the users could click on the food and users will be direct to food details page. Users could click on the trade button to give an offer. Users could either select upload existing offer or create new offer. User can select image from their device's library by create new offer. After users uploaded the offer, users would have to confirm their personal details. After that users will be move to offer given page. User may choose to change offer if they want to, if not they will remain at offer given page. User might need to waiting receiver to confirm trading before they trade, trading process is completed while receiver has agree to trade. Users will need to the rate the particular trading experience.

3.3 Use case diagram

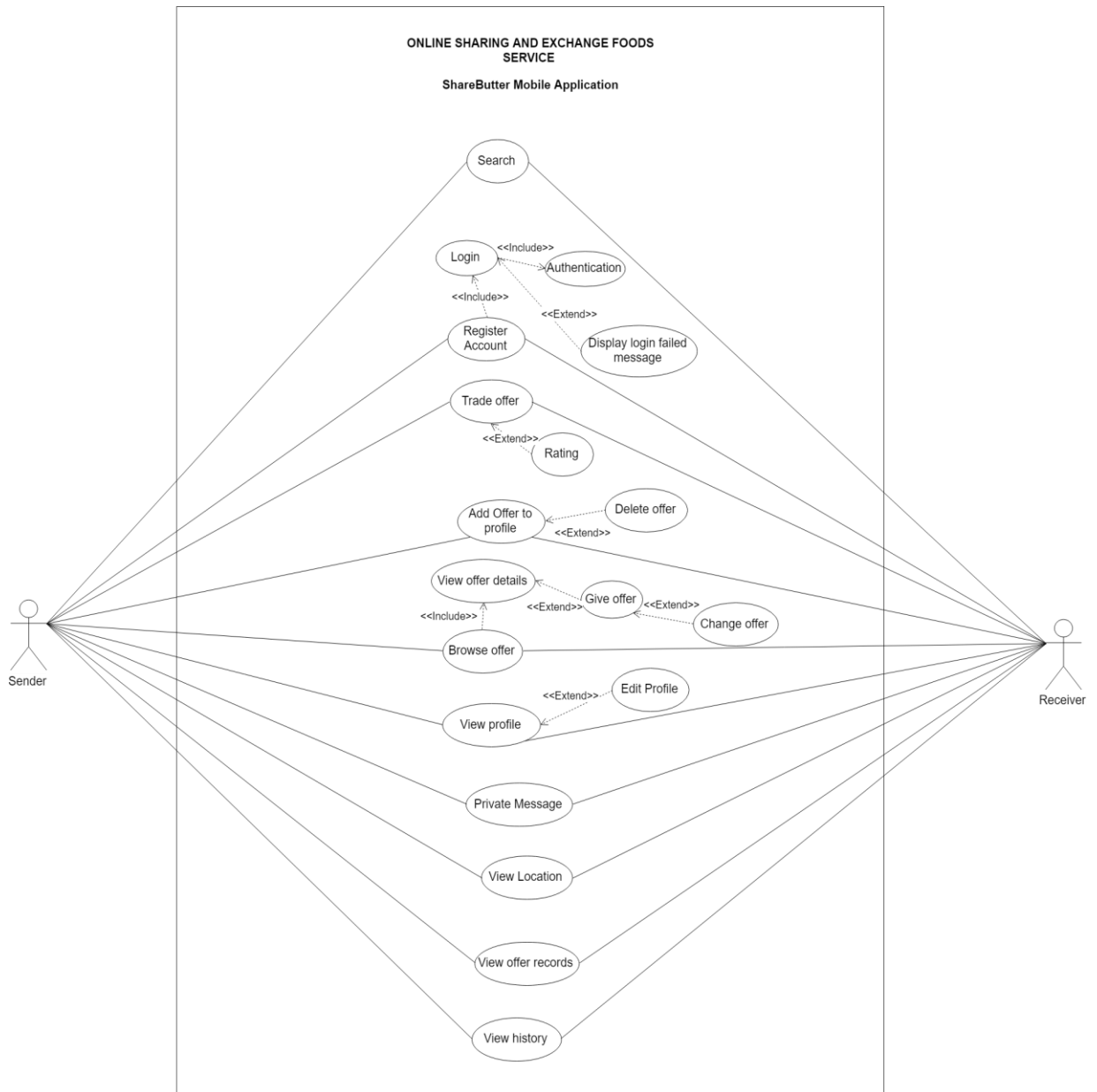


Figure 3.5 Use case diagram

The use case diagram above has demonstrated the various options for the users. The users has separate into two different characters, which are sender and receiver. First for account registration, these users could login after the authentication success, otherwise login failed message would be display if these users have input incorrect information. In the profile tab, these users could view or edit their profile. These users might also add offer to their profile or delete it when not available. These users could be search for their interested foods so the results would filter by hashtag. Otherwise, these users could browse offers and view offer details. Whenever desired foods are spotted, they could give offer and change it if needed. These users are able to trace back their previous conversation record with the traders in private message. After finishing the trade offer, these users may decide to rate for the completed trade. These users can search the nearest recycling companies through the Location tab. Last but not least, these users also could review their previous offer records and the succeed trade in view history.

3.4 Wireframe with user guide

3.4.1 Authentication

The login page features a title 'SIGN IN' at the top. Below it, there are two input fields: one for an email address with a red envelope icon and the text 'johndoe@gmail.com', and another for a password with a red lock icon and a masked password '.....'. A 'Forgot password?' link is positioned to the right of the password field. Below the fields is a horizontal line with the text 'OR' in the center. Underneath are two circular social media icons for Facebook and Email. At the bottom, there is a prominent red button labeled 'LOG IN' with a white right-pointing arrow. Below the button, a link reads 'Don't have an account? Join us now!'.

Figure 3.6 Login Page

The sign up page features a title 'SIGN UP' at the top with a left-pointing arrow. Below it, there are three input fields: 'Full Name' with the text 'John Doe', 'Email' with the text 'johndoe@mail.com', and 'Password' with a masked password '.....'. At the bottom, there is a prominent red button labeled 'SIGN UP' with a white right-pointing arrow.

Figure 3.7 Sign up page

According to the figure 3.6 and figure 3.7, users are able to sign in by using email and password. If user don't have the account before then users may click on the "Join Us Now", and users will direct to the sign up page. After that, users may need to fill in all the details to register, and then click on the "Sign Up" button. If user have using the same email to register before then user might not be sign up successfully. If users are using the new email to register then user will be received a verification email after user click the "Sign Up" button. Users might need to verify their email first, so that they could sign in successfully.

3.4.2 Home

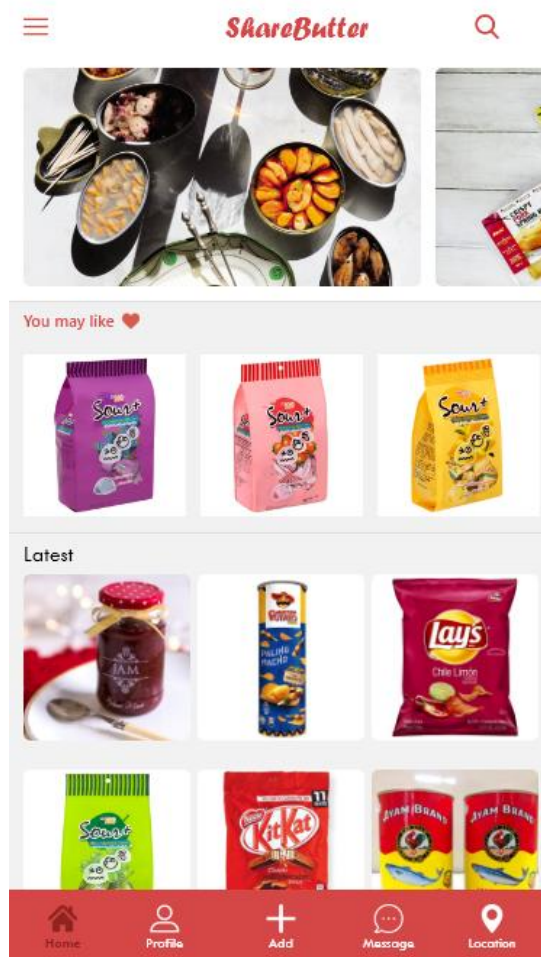


Figure 3.8 Home Page

After users has register a new account, users will be direct to the Home Page. In this page, users could browse all the offer foods here, however, these foods will be filter by state. So users could only see the foods offer that available in same state.

3.4.3 Exchange offer

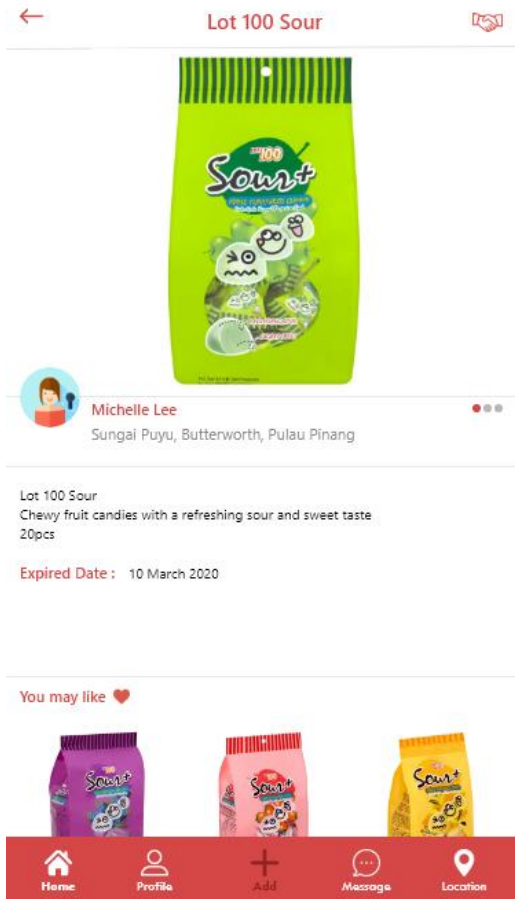


Figure 3.9 Offer details page

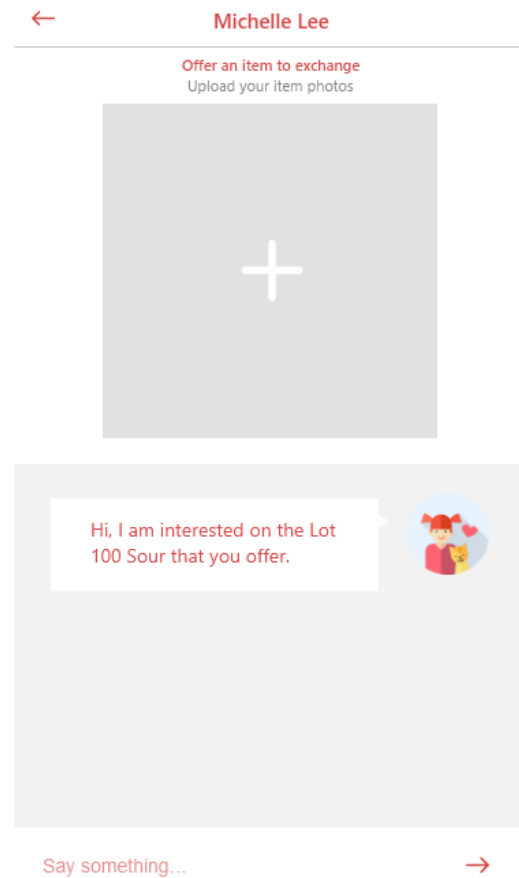


Figure 3.10 Give offer page

After found their interested foods from home page, users could tab on their interested food and users see the food summary page. User can get all the offer information on the page. Users could tab the trade button on the top right corner to give an offer. User could upload their offer by tap on the “Plus” sign in give offer page. Besides, users could discuss what he want, and item details with another party through the private message function.



Figure 3.11 Add offer image

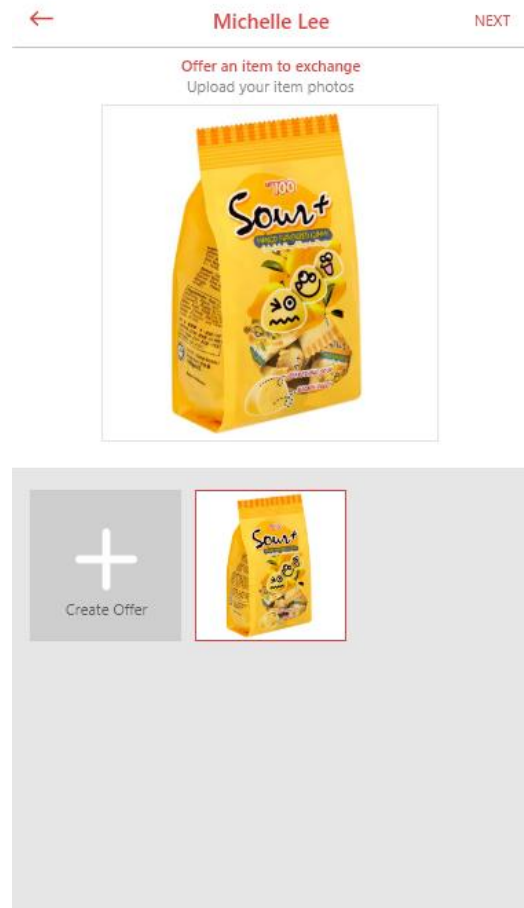


Figure 3.12 Select offer page

Users could either select upload existing offer or create new offer. User can select image from their device's library by create new offer.

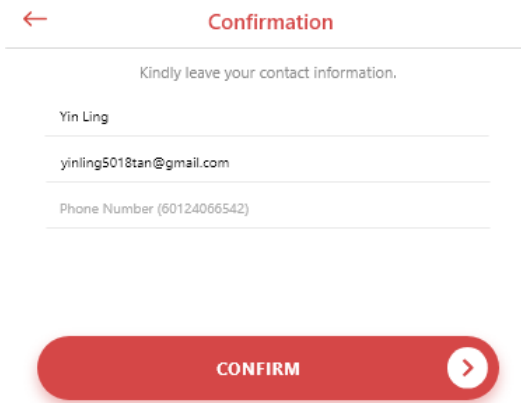


Figure 3.13 User details confirmation page

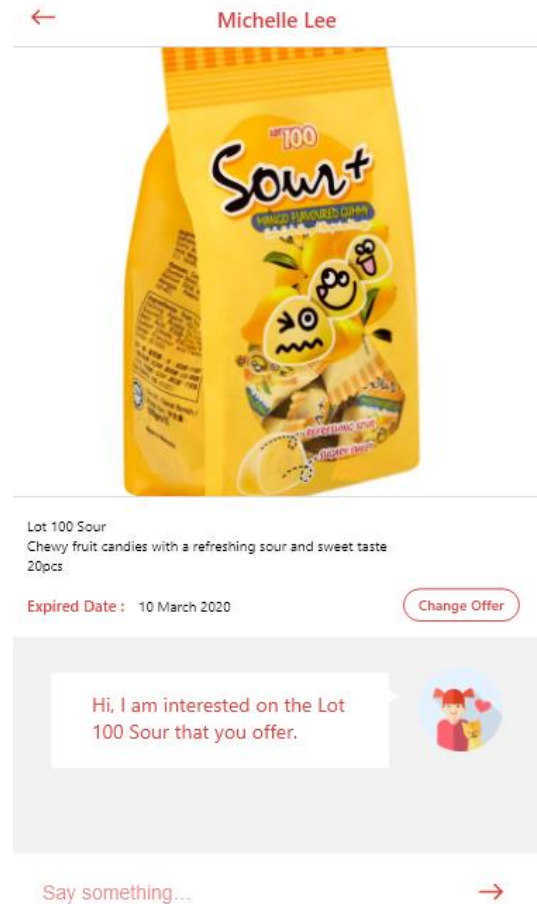


Figure 3.14 Offer given summary page (Sender)

After users uploaded the offer, users would have to confirm their personal details. Users might need to confirm their name, email, and phone number. After they enter their details, click on confirm, then offer given page will be displayed. User may choose to change offer if they want to, if not they will remain at offer given page.

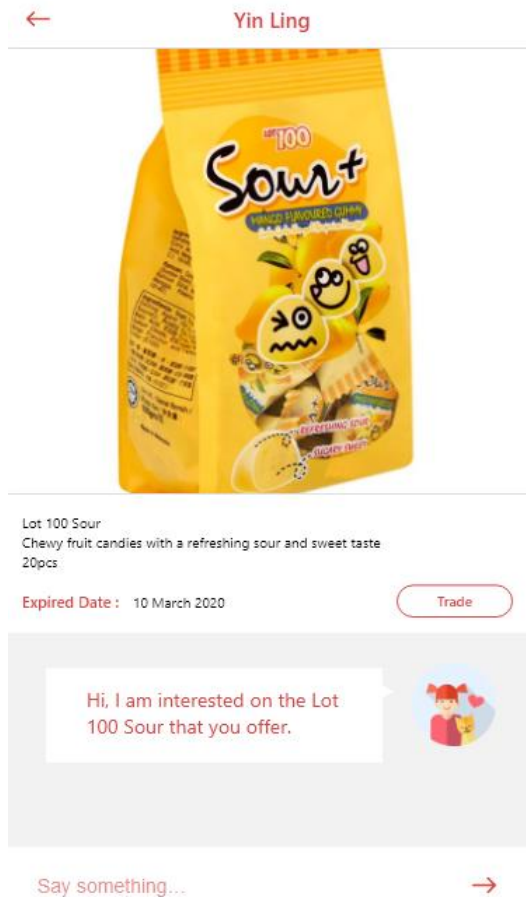


Figure 3.15 Offer given summary page (receiver)

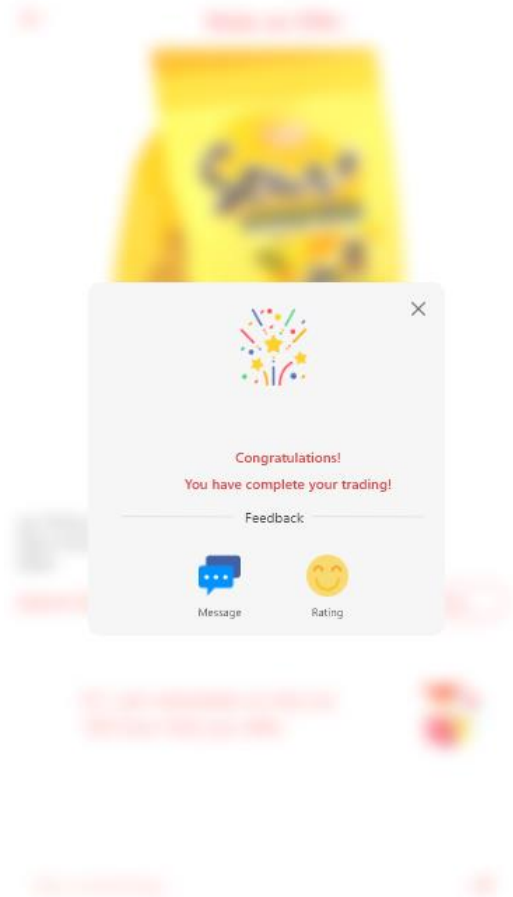


Figure 3.16 Congratulations pop up

After all done, users might need to wait for receiver to confirm the trade, whole process is completed while receiver has agree to trade. A pop up message will be displayed and users may choose to the rate the particular trading experience or further contact will receiver.

3.4.4 Add Offer

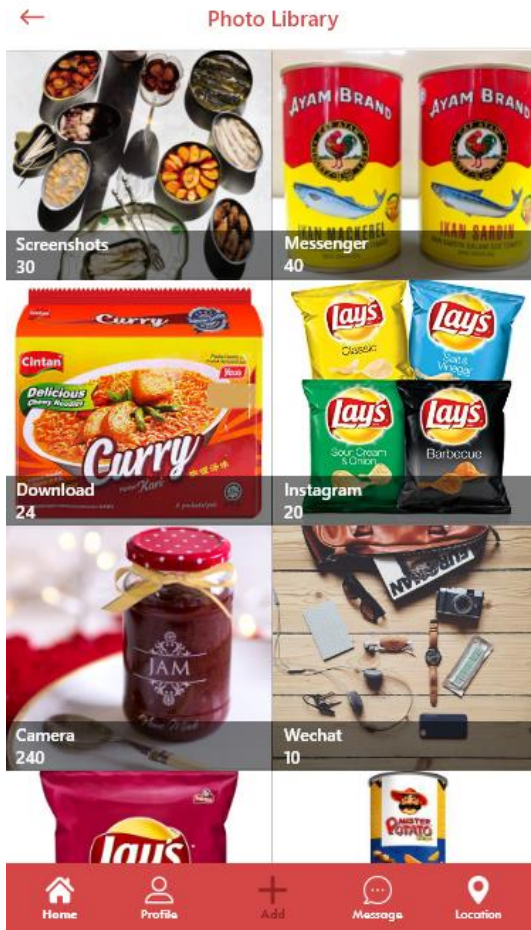


Figure 3.17 Add Offer tab



Figure 3.18 View image page

User could simply add an offer to public by tab on the “Add” tab at bottom toolbar. Users might need to select the images that want to upload first then only will navigate View Image page. Users could view their selected image in figure 3.12.

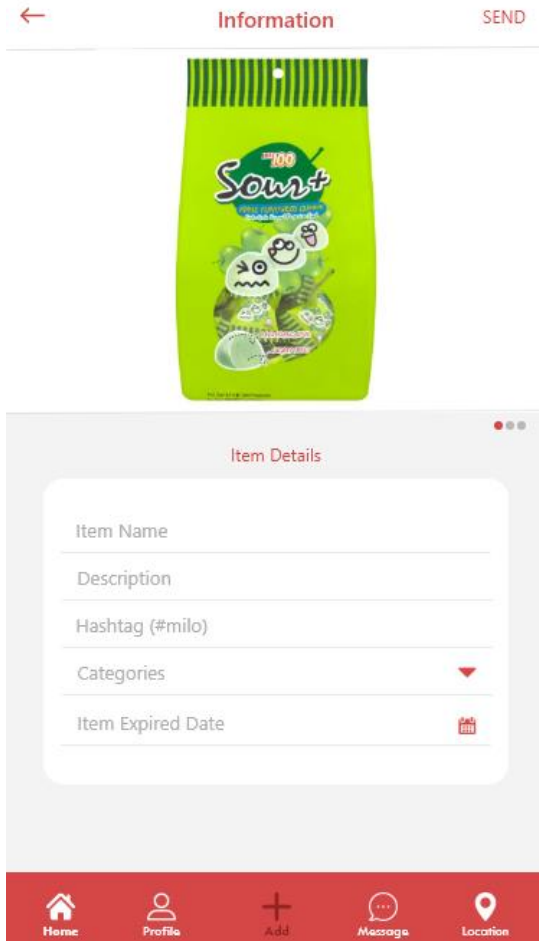


Figure 3.19 Item details page

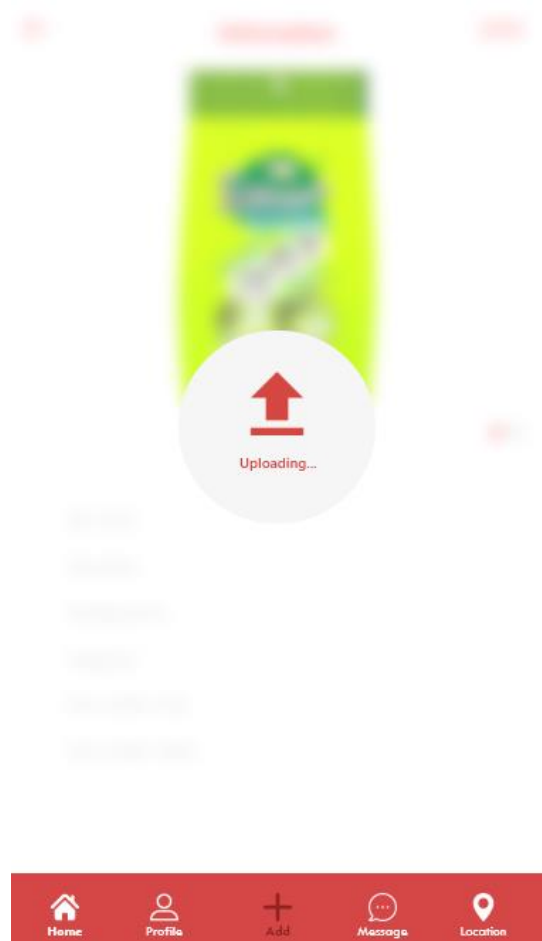


Figure 3.20 Upload offer

After users select their offer's image, user will direct to Item details page. Users need to fill in their offer details such as item location, item hashtag, item expired date, and so on. User may send their offer while finish enter item's information. Uploading pop up will be showed while user click send.

3.4.5 Search Engine

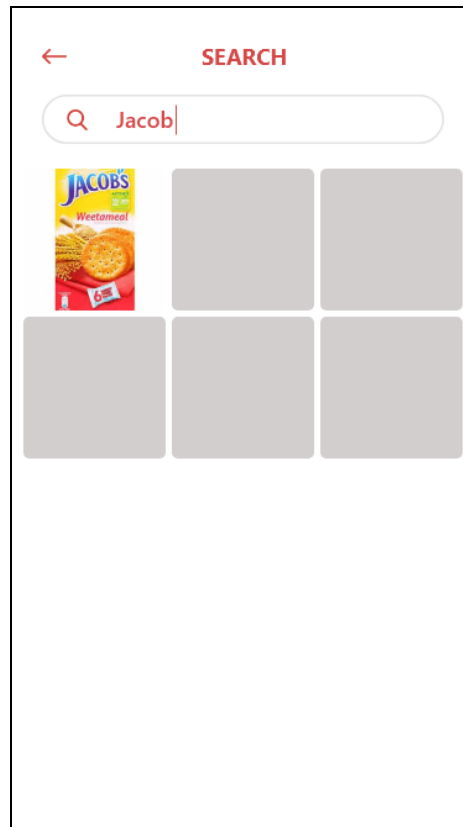


Figure 3.21 Search engine

User could using search engine to search what they instead of finding the offer from category, so that it will be save time and easier. Results will be show with image that similar to what users have search.

Chapter 4: Methodology, Tools and Requirement

4.1 Design Specifications

Design specifications will be consider about the methodology applied and the application work procedures. Moreover, this chapter will also discuss about the verification plan, user requirements, hardware and software requirements, implementation, and user acceptance testing.

4.1.1 Methodologies and General Work Procedures

After study of different type of software development methodologies, agile methodology is the best choice used to develop this project. This is because agile development is allow to separate the task into different phases, makes changes to fit the trends, and emphasized interactions between customers, testers, and developer. Besides, it also allow to perform testing in every stage to enhance rapid delivery, stability and quality of application. So, it is suitable for mobile apps development since the development life cycles of mobile apps is shorter, the necessity of requirements changing, and updates is frequent.

Agile process flow has divide into six phases. These phases are concept, inception, iteration, release, production, and retirement. The most significant phase in development process is iteration, because this phase include the interaction with developers and customers. Customers' feedback is needed during iterations.

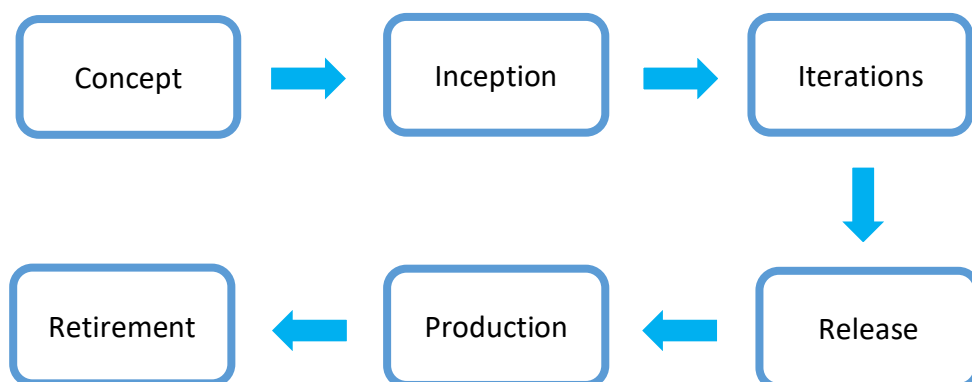


Figure 4.1 Agile Process Flow

Concept Phase

1. Aware the problems of consumer impulsive behavior that bring to our daily life.
2. Study on related field and review the problems and effects.
3. Analyze and asses on available solutions (Community Exchange System CES and Swapub).
4. Draft an improvement plan of existing solutions.
5. Proposal of proposed project has been written.

Inception Phase

1. Proposed application has been divide into various modules.
2. Schedule and arranged work duration for different modules such as user interface, login and register module, push notification module and so on.
3. Site map and Gantt chart will be provided to visualize the modules implementation.
4. UML diagram, and activity diagrams will be drawn by using visual paradigm and draw.io.

Iteration Phase



Figure 4.2 Iterations process flow

1. Allocate modules into sprint based on module's priority.
2. Include users to test application and gather the requirements and feedback for further iterations enhancement.
3. Using android studio IDE, and the real-time database which is Firebase for developing application.
4. The wireframe of user interface will be draft by using wireframe drawing tools such as Adobe XD and Proto.io.

Release Phase

1. Conduct performance testing such as user interface loading speed.
2. Modules' functionality, and integration of these modules will be test (Functionality Testing).
3. Ensure there is no error while running the application.
4. Application test on android device (Samsung Galaxy Note 5) to check on device availability.
5. Involve users while conduct User Acceptance Testing (UAT).
6. Finalize the apps and documentation.

Production Phase

1. Maintain all modules of the application, ensure these modules are work in good condition.
2. Demonstration of the application will be conducted.

4.2 Tools to use

4.2.1 Software Requirements

Tools	Description
Android Studio	<ul style="list-style-type: none"> • Fastest tools that used to develop mobile application. • Support on each type of android devices. • Provide varies features for user to create their unique and quality apps. • Features include: instant run, intelligent code editor, performance profilers, fast and feature-rich emulator, and so on.
Firestore Real-time Database	<ul style="list-style-type: none"> • Cloud-hosted database that can store and sync in real-time for JSON data. • Allow to build apps without use of server, and collaborate users across devices. • Provide a good platform, since proposed module require it to allow users to upload and retrieve photo, update latest information and offer.
Adobe XD	<ul style="list-style-type: none"> • Platform that provide simulation for mobile concept. • Allow to create fully functional UI prototype with clickable wireframe. • Provide advanced interaction, animations and effects, gestures and transitions.
Visual Paradigm	<ul style="list-style-type: none"> • Design the application with UML, and Activity diagrams.
Draw.io	<ul style="list-style-type: none"> • Easy use for drawing site map, and flowcharts.

Table 4.1 Software requirements

4.2.2 Hardware Requirements

1. Mobile Device

Model: Samsung Galaxy Note 5

Platform OS: Android 5.1.1

CPU: Octa-core (4x2.1 GHz Cortex-A57 & 4x1.5 GHz Cortex-A53)

Memory: 4 GB RAM

2. Laptop

Model: MSI GP63 Leopard 8RE

Processor: Intel(R) Core(TM) i7-8750H CPU @ 2.20GHz 2.20GHz

System Memory: 16.0 GB

Graphics Card: NVIDIA GeForce GTX 1060

System type: 64-bit Operating System, x64-based processor

4.3 User requirements

Authentication Module

1. System will require user to sign up and login before starting exchange goods with others.
2. User should enter their email address, and password to register their account.

User Profile Module

1. System will allow user edit their profile.
2. System will display the user's offer in their profile.

Home module

1. System shall enable user to view the offers from public.
2. User is able to click on the offer displayed in homepage for further understanding.

Add offer module

1. User may upload their offer's image.
2. User is able to retrieve their goods' photo from their device gallery.
3. User must add some descriptions, hash tags, expired date, and other details to the image.
4. System will displayed the uploaded offer in user profile.

Exchange offer module

1. User is able to send offer to another party.
2. User able to give existing offer in profile or create new offer.
3. User must confirm their user information before trade.
4. User are able change those uploaded offer.
5. Each user also will get their rating from other users. The rating system is used to determine the exchange experiences between two parties.

Search Module

1. System shall allow user to search with tags.
2. Result should be the images with similar tags.

Location Module

1. System will display the map and show user's location.
2. The nearby location of recycling companies will show to the user.

Chapter 5: Implementation, Verification Plan and Testing

In this chapter, the regarding techniques that used to implement this project will be discussed. Besides, a verification plan will be provided to have a clearer view which modules are plan to test. Lastly, user acceptance testing will be used for testing part, this is because user acceptance testing could provide a good picture on each module details.

5.1 Implementation

5.1.1 Google Firebase

Each data in Firebase Realtime Database is structured as JSON tree. It is diefferent compare to SQL database, it has no records or tables. While add a node into the JSON structure, it will associated with a key. User may also give their own keys, for example likes semantic names, or user IDs. It could have many child node below the origin node. Figure below is the firebase structure of this project. Each user has their own ID, and all these user are below the users node.



Figure 5.1 Firebase Structure of this project

5.1.2 Algolia Search Engine and algorithm involved

In order to provide user a better search experience, this project is using the instant search library from Algolia. First, Algolia search engine can perform search by getting the first keystroke to deliver a real-time results. It support mobile, and website application by providing a powerful API to implement search quickly. This search engine has involve an significant alogorithm to compare the matching items with other. This alogorithm named Tie-breaking algorithm, Tie-breaking is the action of determining a winner between two elements that are first considered equals. It alogorithm is a set of ordered task that process input to perform operations on it and output the results put together. This gives us a set of ordered tasks that process element to determine a hierarchy between them. Figure below shows how Tie-breaking algorithm works, these blocks separate into 3 differences shapes, 3 differences colours, and two type of studs. Results will be filtered by three rules, it must ensure no ties left after each rules applied.

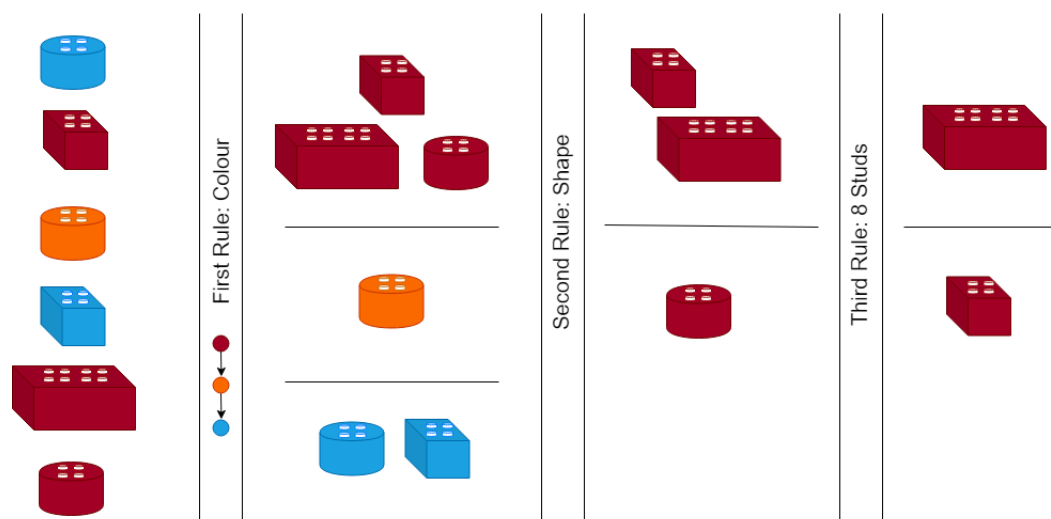


Figure 5.2 Tie-breaking algorithm example

For the purpose of providing a quickly results to users, Algolia search engine has provide a brunch of UI/UX libraries, which is Instant Search. It's instant search widget can be used without any further customization, it also support fully customization to match user needs. Instant search will be a better choice to used for implement this project is because it provide all well-prepared helpers and widgets in order to let user to experience the instant search. Besides, it also provide a high-level solution for user to built differences search interfaces quickly, and all these are built by using Algolia's Anroid API Client. Moreover, Algolia search could be perform well with Firebase Realtime database by using Android Studio, and it's API client support for 10 languages, which are Java, Javascript, PHP, Ruby, Phyton, C#, Android, iOS, Scala, and Go

5.1.3 GitHub and SourceTree

Firstly, this project is bulit under Github and SourceTree. The development of this project is using GitHub respository to stored. GitHub allow user to share any ideas or resources that they want. In order to work with Git, SourceTree will be a good choice to deal with. This is because SourceTree is a very popular cross-platform graphical user interface for Git, it provide a simple and clean interface compare to command line in Git. Besides, the significant reasons of using SourceTree with Git in this project is because it allow user to create and manage the branch easily. For example, user could code their modules in the master branch at first, and create the side branch while user want to make some big changes in their project. The side branch will have the same copy of the code in main branch, so user can make any changes on it, and it will not affect the main branch. User may choose to merged the side branch into master branch while the changes is complete. Besides, user could save their work progress by using "commit", and "discard" while user want to undo the changes. It also provide user their working copy, so that user may know the changes they made. In short, the development way of this project has turn into more convenient and efficient by using GitHub and SourceTree.

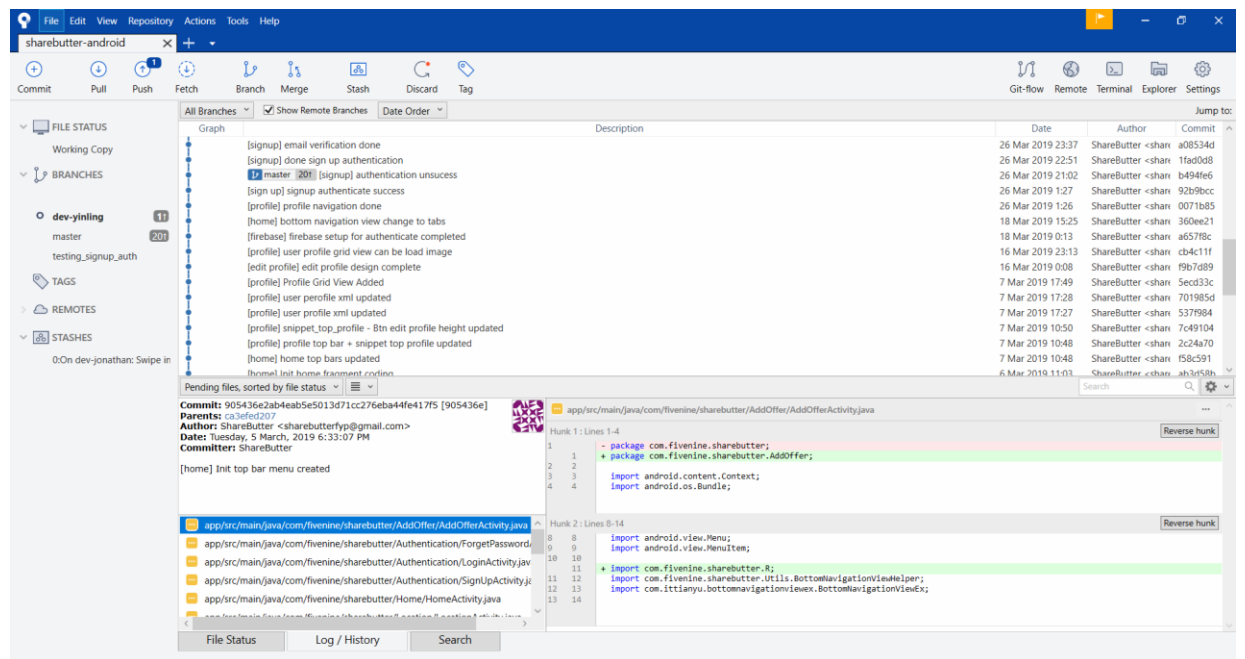


Figure 5.3 SourceTree account for ShareButter project

5.2 Verification Plan

In verification plan, some significant modules will be included, such as add offer module, exchange offer module, and authentication module. The first test is to ensure users could add offer through the Add tab. User must be able to review the selected image and fill in the details of the offer before uploading the offer. User should be able to upload successfully after they done all steps.

The second test is to ensure user could be trade by sending offer or receive offer. User should be able to sending offer by using device’s image library. User should be able to confirm their own information before uploading. Other than these, user also should be able to change offer after the original offer has been uploaded.

The last test is to ensure the user account is secure by authentication of application. User should be able to login successfully by fill up all details. New user might need to sign up before they login, otherwise user should be unable to login. Verification email should be send after user sign up.

5.3 Testing

User Acceptance Testing

Document Details

Title	ShareButter Application with significant modules
Version	V1.0.1

Release History

Version	Date Released	Sections Affected	Remarks / Changes
1.0.0	-	-	Draft Document
1.0.1	17/10/2018	More details for all section	More details updated with actual information.

5.3.1 Tester Details

Tester 1 (T1)

Full Name	THAM YI HANG
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Test Date	4 th April 2019

Tester 2 (T2)

Full Name	KOEY YONG KAI
Email	koeyyongkai@gmail.com
Test Date	4 th April 2019

Tester 3 (T3)

Full Name	TANG EE HANG
Email	tangeehang@gmail.com
Test Date	5 th April 2019

Tester 4 (T4)

Full Name	TIEW KAI WEN
Email	tiewkaiwen@gmail.com
Test Date	6 th April 2019

Tester 5 (T5)

Full Name	TEI BENG GEOK
Email	benggeok64@gmail.com
Test Date	6 th April 2019

Tester 6 (T6)

Full Name	TAN TEE CHOON
Email	tctan888@gmail.com
Test Date	7 th April 2019

5.3.2 Test Cases (ShareButter App)

Authentication Module

No.	Test Case	Conditions	Steps to Take	Expected Results	Actual Results (P/F)
1.1	Sign up page	New user	-	Page shows: <ol style="list-style-type: none"> 1. Sign up title 2. Request name 3. Request email 4. Request password 5. Sign up button 	T1: P T2: P T3: P T4: P T5: P T6: P
		Register (If user never use this email sign up before)	<ol style="list-style-type: none"> 1. Fill in the name, email, and password. 2. Click sign up. 	A toast message “Sign up successfully, a verification email has sent to your email.” will be displayed.	T1: P T2: P T3: P T4: P T5: P T6: P
		Register (If user has use this email to sign up before)	<ol style="list-style-type: none"> 1. Fill in the name, email, and password. 2. Click sign up. 	A toast message “Authentication failed.” will be displayed.	T1: P T2: P T3: P T4: P T5: P T6: P

No.	Test Case	Conditions	Steps to Take	Expected Results	Actual Results (P/F)
1.2	Sign in page	New user	-	Page shows: 1. Sign in title 2. Request email 3. Request password 4. Sign in button 5. Sign up message.	T1: P T2: P T3: P T4: P T5: P T6: P
			1. Click “Join Us Now”	User will direct to Sign Up page.	T1: P T2: P T3: P T4: P T5: P T6: P
		After sign up, and verify email User sign in with new created account	1. Fill in the email, and password. 2. Click sign in.	A toast message “Sign in successfully” will be displayed. User will be direct to Home page.	T1: P T2: P T3: P T4: P T5: P T6: P

No.	Test Case	Conditions	Steps to Take	Expected Results	Actual Results (P/F)
		After sign up, but not yet verify email	-	A toast message “Authentication failed.” will be displayed.	T1: P T2: P T3: P T4: P T5: P T6: P

Table 5.1 Authentication module UAT test

Add Offer Module

No.	Test Case	Conditions	Steps to Take	Expected Results	Actual Results (P/F)
2.1	Item’s details page	After user confirm item’s image.	<ol style="list-style-type: none"> 1. Tab on the “Add” tab in Home page. 2. Select image from device’s library. 3. Review selected image. 4. Click Next button. 	Page shows: <ol style="list-style-type: none"> 1. Information title 2. Send button 3. Item’s image 4. Item details with item name, description, hashtag, categories, expired date. 	T1: P T2: P T3: P T4: P T5: P T6: P

No.	Test Case	Conditions	Steps to Take	Expected Results	Actual Results (P/F)
		Fill in item details	<ol style="list-style-type: none"> 1. Fill in all item details 2. Click Next button 	<p>Loading screen will be displayed.</p> <p>User redirect to Offer Summary page.</p>	<p>T1: P</p> <p>T2: P</p> <p>T3: P</p> <p>T4: P</p> <p>T5: P</p> <p>T6: P</p>
2.2	Offer summary page	<p>After user has uploaded offer.</p> <p>(Before trade)</p>	-	<p>Page shows:</p> <ol style="list-style-type: none"> 1. Item name as title 2. Item image 3. Delete button 4. Profile image with user name, and hashtag. 5. Item description 6. Expired date 	<p>T1: P</p> <p>T2: P</p> <p>T3: P</p> <p>T4: P</p> <p>T5: P</p> <p>T6: P</p>
		After trade	-	<p>Page shows:</p> <ol style="list-style-type: none"> 1. Item name as title 2. Item image with blur background and app's icon 3. Delete button 4. Profile image with user name, and hashtag. 5. Item description 6. Expired date 	<p>T1: P</p> <p>T2: P</p> <p>T3: P</p> <p>T4: P</p> <p>T5: P</p> <p>T6: P</p>

No.	Test Case	Conditions	Steps to Take	Expected Results	Actual Results (P/F)
		Delete item	<ol style="list-style-type: none"> 1. Click on delete button 2. Click confirm 	<p>Pop up shows: “Are you sure you want to delete?”</p> <p>Item deleted and update in user profile.</p>	<p>T1: P T2: P T3: P T4: P T5: P T6: P</p>

Table 5.2 Add offer module UAT test

Exchange Offer Module

No.	Test Case	Conditions	Steps to Take	Expected Results	Actual Results (P/F)
3.1	Give offer page	User want to give an offer.	<ol style="list-style-type: none"> 1. Click on the item in Home page 2. Click Trade button 	<p>Page shows:</p> <ol style="list-style-type: none"> 1. User name as title 2. Guide message 3. “Plus sign” column that let user upload offer 4. Chat box for discussion purpose 	<p>T1: P T2: P T3: P T4: P T5: P T6: P</p>

No.	Test Case	Conditions	Steps to Take	Expected Results	Actual Results (P/F)
3.2	Confirmation page	After user select image	<ol style="list-style-type: none"> 1. Click Next button after select image 2. Fill in all user information 3. Click confirm 	<p>Page shows:</p> <ol style="list-style-type: none"> 1. Confirmation title 2. Guide message 3. Request name 4. Request email 5. Request phone number 6. Confirm button <p>User will direct to Offer given summary page.</p>	<p>T1: P</p> <p>T2: P</p> <p>T3: P</p> <p>T4: P</p> <p>T5: P</p> <p>T6: P</p>
3.3	Offer given summary page	<p>After user confirm personal information</p> <p>(Sender point of view)</p>	-	<p>Page shows:</p> <ol style="list-style-type: none"> 1. User name title 2. Offer image 3. Offer description with expired date, and Change Offer button. 4. Chat room for discussion purpose. 	<p>T1: P</p> <p>T2: P</p> <p>T3: P</p> <p>T4: P</p> <p>T5: P</p> <p>T6: P</p>

No.	Test Case	Conditions	Steps to Take	Expected Results	Actual Results (P/F)
		After user confirm personal information (Receiver point of view)	1. Click Trade button	<p>Page shows:</p> <ol style="list-style-type: none"> 1. User name title 2. Offer image 3. Offer description with expired date, and Trade button. 4. Chat room for discussion purpose. <p>Pop up shows: “Congratulations! You have complete your trading!” with Message and Rating button.</p>	<p>T1: P</p> <p>T2: P</p> <p>T3: P</p> <p>T4: P</p> <p>T5: P</p> <p>T6: P</p>

Table 5.3 Exchange offer module UAT test

Chapter 6: Conclusion

6.1 Project review, discussions and conclusion

High impulsivity of buying behaviour has bring a big impact to our community. Most of the people spent without control, they purchase without consideration of their affordances. This indirectly create a lot of food waste since they buy too much and left a side. In order to effectively reduce the food waste and financial stress in our community, bartering system will be one of the solution. Therefore, this project aims to encourage the sharing behavior between our societies to reduce these problems. This project has studied the relationship between the consumer's impulsivity of buying behaviour and the number of food waste. It is a useful apps for those people who have impulsivity buying behaviour but unable to consume on time.

In first objective has stated to enhance the sharing behaviour between our societies. By using this application, users could cultivate their sharing behaviour and start to share with other especially when they noticed they have a lot of unwanted or extra foods. User could browse the offer display in the application, and decide to give an exchange offer while they see their interested offer. Both parties could exchange easily if both of them are agree to exchange with offer provided. Next, the second objective is to encourage users to give and take what their really need in order to reduce the usage of money. This application is built with idea of system barter, and there is no money involvement in whole trading process. User no need to pay for anything while they exchange with other. User could reduce the usage of money, and still can get another thing that they want by using exchange. Furthermore, it still could be a good behavior to give those unwanted or extra foods a second life instead of letting them become a waste. In short, both objectives that stated in this project have been achieved.

Problems encountered

Firstly, the problem that encounter by this project is the search engine. It is time consuming from the start of study the tie-breaking algorithm that used to optimize the search to the implement part. There are some bugs occur and it take times to solve. Besides, there is also some challenges on referring child node to the root node while connected Android Studio with Firebase. This is because there are not only one child under the root, there are multiple child contain with different message under the parent node. So, Firebase real-time database need to be structured and organized well before start to insert the child.

Weakness

There are also some weakness that exist in this project. On the application site, users are not allow to exchange multiple items at once. So, users might feel trouble while the value of their single item is not match the value of other people offer because they could not offer multiple items to accumulate their items value. Lastly, although search function could help users to find their desired items, however, users need to keep using the app to search or refresh. When their desired items has been offer in public, but users are not using the app on that time, so that user might missed their desired offer.

6.2 Novelties and contributions

The novelties and contributions of this project are user could share or exchange their excessive foods with other with less involvement of money. Users no need make any payment for sharing or exchange items, it is money free so that users could prevent from chasing after money. Users are encourage to exchange their foods in person, because it is restricts users to exchange with local community only. This could let users interact with each other and also reduce the possibility of online fraud. This application also have integrate with eco green idea, users could send their expired foods to those recycling companies which near to them. In short, this application could enhance the sharing behaviour between our societies. It encourages users to give and take what their really need instead of buying those unnecessary things. This practice could effectively reduce the food wastes, benefits our community, and let our community become better.

6.3 Future Work

1. Current project only support for using one item to exchange another item. Future enhancement could be support to using multiple item to exchange with one item or using one item to exchange multiple items. So that while sender is offer something which is expensive, receiver also could give multiple offers to match with the item value that sender provide.
2. The application could allow user to create some free offers to public. For users that only want to share and they don't ask for anything back this could be a better function to them. So that they could purposely share what they have with other to enjoy the happiness together.
3. The application could let user to put the item that they wish to get in a wish list, so that other party may know what user want, and user can get their wish item in shorter time. Besides, user also may get notify when their wish item has been offer in public. So that user could approach with the people who has given offer in shorter time, and more efficiently.

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Appendix A

FINAL YEAR PROJECT WEEKLY REPORT

(Project II)

Trimester, Year: Jan, 2019	Study week no.: 2 - 3
Student Name & ID: TAN YIN LING 14ACB01972	
Supervisor: Ms Yap Seok Gee	
Project Title: Online Sharing and Exchange Foods Service	

1. WORK DONE

Research on type of search engine and it's algorithm that can be used in this project.

2. WORK TO BE DONE

Previous work from Project 1

3. PROBLEMS ENCOUNTERED

Some of the algorithm for search engine are not provide library, and some algorithm are very complex and hard to understand.

4. SELF EVALUATION OF THE PROGRESS

Working progress is slow, might need to catch up quickly.

Supervisor's signature

Student's signature

FINAL YEAR PROJECT WEEKLY REPORT

(Project II)

Trimester, Year: Jan, 2019	Study week no.: 4 - 5
Student Name & ID: TAN YIN LING 14ACB01972	
Supervisor: Ms Yap Seok Gee	
Project Title: Online Sharing and Exchange Foods Service	

1. WORK DONE

Moving some information that can used from Project 1 to Project 2.

2. WORK TO BE DONE

Drawing wireframe of each module.

3. PROBLEMS ENCOUNTERED

No

4. SELF EVALUATION OF THE PROGRESS

Working progress is quite smooth.

Supervisor's signature

Student's signature

FINAL YEAR PROJECT WEEKLY REPORT

(Project II)

Trimester, Year: Jan, 2019	Study week no.: 5 - 6
Student Name & ID: TAN YIN LING 14ACB01972	
Supervisor: Ms Yap Seok Gee	
Project Title: Online Sharing and Exchange Foods Service	

1. WORK DONE

All modules wireframe were done.

2. WORK TO BE DONE

Xml design of each module need to be done.

3. PROBLEMS ENCOUNTERED

No

4. SELF EVALUATION OF THE PROGRESS

Overall progress is slightly slow due to the number pages that need to design is quite a lot.

Supervisor's signature

Student's signature

FINAL YEAR PROJECT WEEKLY REPORT

(Project II)

Trimester, Year: Jan, 2019	Study week no.: 7 - 8
Student Name & ID: TAN YIN LING 14ACB01972	
Supervisor: Ms Yap Seok Gee	
Project Title: Online Sharing and Exchange Foods Service	

1. WORK DONE

Xml design for major modules have done.

2. WORK TO BE DONE

Code for the Authentication module, setting up firebase, and do the verification for user to sign in and sign up. Add Offer module and Exchange offer module will also schedule to code.

3. PROBLEMS ENCOUNTERED

Xml design for Add Offer module need to make some changes.

4. SELF EVALUATION OF THE PROGRESS

Progress with moderate speed, part of the time need to allocate for report writing.

Supervisor's signature

Student's signature

FINAL YEAR PROJECT WEEKLY REPORT

(Project II)

Trimester, Year: Jan, 2019	Study week no.: 9 - 10
Student Name & ID: TAN YIN LING 14ACB01972	
Supervisor: Ms Yap Seok Gee	
Project Title: Online Sharing and Exchange Foods Service	

1. WORK DONE

Firestore has been setting up. Major modules can be work and verified.

2. WORK TO BE DONE

Bugs fixing on previous module. Other modules will be plan for develop and merge into main branch after completed.

3. PROBLEMS ENCOUNTERED

Facing some bugs and have to consume some time for fixing it.

4. SELF EVALUATION OF THE PROGRESS

Progress with moderate speed

Supervisor's signature

Student's signature

FINAL YEAR PROJECT WEEKLY REPORT

(Project II)

Trimester, Year: Jan, 2019	Study week no.: 11 - 12
Student Name & ID: TAN YIN LING 14ACB01972	
Supervisor: Ms Yap Seok Gee	
Project Title: Online Sharing and Exchange Foods Service	

1. WORK DONE

Other modules have complete developed.

2. WORK TO BE DONE

Optimize codes for a better performance. Design the testing plan, and conducted the test by using User Acceptance Testing.

3. PROBLEMS ENCOUNTERED

Some bugs have appear.

4. SELF EVALUATION OF THE PROGRESS

Progress with normal speed, due to rushing on report writing and format arrangement.

Supervisor's signature

Student's signature

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Chapter 1: Introduction
1.1 Background information

Based on the passed study, it states that most of the people are having high impulsivity of buying behavior on food. This problem has created some significant impacts to our social life. First of all, this behavior will create a lot of excessive waste to our society because most of the people will affect by those marketing activities easily, so they will buy more. Moreover, those excessive goods usually will be thrown. Besides, majority of Gen Y are facing financial stress but they still spend without control. Therefore, the society needs a solution to overcome this issue such as using barter system.

Barter system is an old trading system that exist in pre civilizations which aims to exchange goods or services between two parties before currency is invented. Bartering can be very flexible, any products also can be exchanged and shared with others. As an

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Full Name(s) of Candidate(s)	TAN YIN LING
ID Number(s)	14ACB01972
Programme / Course	Bachelor of Information Technology (Hons) Information System Engineering
Title of Final Year Project	Online Sharing and Exchange Food Service

Similarity	Supervisor's Comments (Compulsory if parameters of originality exceeds the limits approved by UTAR)
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UNIVERSITI TUNKU ABDUL RAHMAN

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