



Faculty of Computer Science and Information Technology

DiLet: A Website to Let-Go Stuff

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Bachelor of Computer Science with Honours (Software Engineering)
2019

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This project is submitted in partial fulfilment of the
requirements for the degree of
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ABSTRACT

Nowadays, the numbers of university in Malaysia has become increasing and become demand. This is because every year, all the university will receive the new intake in every first semester. However, same goes to the final year students who will be graduated. The graduation event is one of the important events for every university. In order to graduate and take the new intake, the final year students need to carry away all their stuff before the end of the semester. Some of the final year students has the transportations or easy to carry all their item but some of them were not lucky as they are. The students who are face the problems cannot carry away all their item will make a solution to leave their item at the current hostel or college, pass down their item to junior or the easiest way is just throw away their item. In this project, a DiLet system is the platform for let go of item especially for UNIMAS the process of this project is done by following the Agile approach methodology which are Rapid Applications Development. The method is chosen because of the flexibility it offers for short duration projects. This project adds enhancement to existing let go item system by providing display interfaces. Thus, the prototype can benefit the user by conveying information audially and visually.

ABSTRAK

Pada masa kini, bilangan universiti di Malaysia semakin meningkat dan menjadi permintaan ramai. Hal ini kerana, setiap tahun universiti akan menerima pelajar pengambilan baru pada setiap semester satu. Bagaimanapun, perkara yang sama berlaku kepada pelajar tahun akhir yang akan menamatkan pengajian. Majlis graduasi bagi pelajar tahun akhir merupakan majlis penting untuk setiap universiti. Untuk graduan dan bakal menerima pengambilan baru, pelajar tahun akhir diwajibkan untuk mengangkut segala barang-barang peribadi sebelum tamat tempoh pengajian. Sesetengah daripada pelajar mempunyai kenderaan dan mudah untuk mereka untuk mengangkut segala peralatan mereka. Bagi pelajar yang mempunyai masalah untuk mengangkut barang mereka, mereka akan menggunakan cara yang mudah seperti memberi barang mereka kepada pelajar baru, tinggalkan barang mereka di tempat tinggal mereka seperti kolej atau rumah sewa atau cara yang paling mudah dan cepat adalah pelajar tahun akhir membuang barang mereka. Dalam projek ini, sistem DiLet adalah platform untuk melepaskan barangan terutamanya untuk UNIMAS proses projek ini dilakukan dengan mengikuti metodologi pendekatan Agile yang Pembangunan Aplikasi Rapid. Kaedah ini dipilih kerana fleksibiliti yang ditawarkan untuk projek jangka pendek. Projek ini menambah peningkatan kepada sistem halus yang sedia ada dengan menyediakan antara muka paparan. Oleh itu, prototaip boleh memberi manfaat kepada pengguna dengan menyampaikan maklumat secara visual.

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Chapter 1: Introduction

1.1 Project Title

DiLet: A website to Let-Go stuff. DiLet is a web-based system to let go the item and belongings.

The name DiLet is come from “Dispose” and “Let go” which means to give or sell the second-hand item to others who are in needs.

1.2 Introduction/Background

Every year, there are many students will get an offer to proceed with studies at the university that they have chosen. Since not all student come from the same state or country as their educational institution, most of their necessities will be brought when they reach their university. Most of the students like to decorate their room to make they feel like in their home. They will buy the extra items to decorate their room become more beautiful or buy the extra needs to make sure that they can study in comfortable situation. Some of them will buy the transport such as bicycle, motorcycle, or car to easy and fast to go to the class, meetings, or discussions etc.

However, some students might afford to buy all their needs because of their family economy. Therefore, used things from the seniors such as buckets, hangers, toiletries, plates, notes, printer, stationery, small tables, or study lamp etc will help a lot as it come with a cheaper price compare to the store. On the same page, students who finishes their study can lighten their load as they can sell some of their item to the juniors.

1.3 Problem Statement/Research Problem

The problem that annually faced by the students in their final year studies and will be graduate is to find a way to minimize their belonging to bring home especially for those who lives far away from the university, specifically Universiti Malaysia Sarawak (UNIMAS). Since some of the students go back to their hometown by flight, they might bring a certain amount of their belonging without exceeding the limit weight set by the airline company. If exceeded, charges may apply. As most of the airlines company maximize their client carrier up to 60 kg in the cargo and 7 kg as

a hand carry, the passengers need to find another alternative to fit into the guidelines prepared by the airline company.

Thus, the easiest and fastest solution is to dispose of their item by letting it go to their junior. Some of them just leave their item at the hostel or at the dumpster if they cannot be able to find people to hands them down. When the juniors look at the dumpster, they will feel aggrieved with senior action about do not pass their item to them or others because it is such a waste if the item is thrown away meanwhile it is still in good conditions. Therefore, this will increase the number of rubbish and the environment will be dirty.

1.4 Aim and Objective

- To design a web-based system that acts as a platform to sell student's belongings.
- To develop a web-based system that has the functionality to sell student's belongings.
- To test the system by verifying performance and functionality before deployed to users.

1.5 Methodologies

Methodology is the model that illustrate the pre-set guideline and description of methods characterized to effectively complete development of a project. For this project, Rapid Application Development (RAD) Methodologies is used. RAD Methodologies is an iterative approach where is open to changing requirements over time and encourages constant feedback from the end user is shown as Figure 1.0 as below:

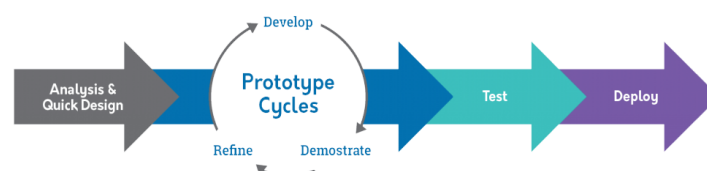


Figure 1. 0: Rapid Application Development Methodology

In analysis and design phase, the detailed requirement of the system will be analysed and gather the information from the users by conducting the online survey. The next phase will be design of interface, system, and database that are prepared from the requirements of the previous phase. The

design of interface will be using a software called Just in Mind. For prototype cycles, it is iterative phase. In develop phase, it involves coding which will create the functionality and scheduling iterations for deployment. The web-based system is developed using Laravel, a platform that support PHP framework. The database that used is MySQL. In this case, FYP supervisor will review the system and refine accordingly also gather the feedback from the users. If project is not meet requirements, the new iterative will start again. After done develop the system, it is tested to ensure all the functionality is run properly and meet the requirements. After the testing, the system will deliver to the users.

1.6 Scope

This web-based system is a platform designed to help the students to dispose of their item and belongings. The users in this system are the students which have two character which are who want to let go the item or get the item. This system will not include more details about students where the students just need to fill their name, address, contact number, and the type of item. This system required the students to register first and login to website for them to let go their item. Students who want to grab the second-hand item can view the website without login. This web-based system is only for UNIMAS students.

1.7 Significance of Project

This project would solve the problems that most of students will face when they are in final year students. This web-based system can help all the students get the information about the second-hand item which give a chance to grab it. This web-based system also will prevent the students who try to cheat the price or the quality of the item where it is still in good condition to hand downs. This will prevent the student to leave or throw their item randomly when they can hand downs to the juniors.

1.8 Project Schedule

This is the project schedule is used as a guidance for the progress of the Final Year Project. In completing this project will require Final Year Project 1 and Final Year Project 2. The Figure 1.2 and Figure 1.3 is the Gantt chart of the Final Year Project 1.

	Task Name	Duration	Start	Finish
1	Final Year Project 1	88 days	Wed 11/9/19	Fri 10/1/20
2	Brief Proposal	3 days	Mon 30/9/19	Wed 2/10/19
3	Study and research the necessary hardware and software	67 days	Tue 8/10/19	Wed 8/1/20
4	Project Proposal	13 days	Wed 2/10/19	Fri 18/10/19
5	Research Project	4 days	Thu 3/10/19	Tue 8/10/19
6	Analyse Project Requirement	2 days	Tue 8/10/19	Wed 9/10/19
7	Determine outline and project scope	3 days	Thu 10/10/19	Mon 14/10/19
8	Determine Methodology	5 days	Mon 14/10/19	Fri 18/10/19
9	Chapter 1: Introduction	6 days	Mon 21/10/19	Sat 26/10/19
10	Finaliza project proposal	6 days	Mon 21/10/19	Sat 26/10/19
11	Chapter 2: Background/Literature Review/State of Art	23 days	Thu 17/10/19	Sat 16/11/19
12	Review, journals and existing systems	16 days	Fri 18/10/19	Fri 8/11/19
13	Documentation	22 days	Fri 18/10/19	Sat 16/11/19
14	Chapter 3: Methodology/Requirement Analysis and Design	14 days	Mon 18/11/19	Thu 5/12/19
15	Requirement collection	6 days	Mon 18/11/19	Mon 25/11/19
16	Analysis and Design	9 days	Mon 25/11/19	Thu 5/12/19
17	Close project	27 days	Thu 5/12/19	Fri 10/1/20
18	Submission of FYP 1 Final report & Paper for assessment	5 days	Fri 6/12/19	Thu 12/12/19
19	Submission of Final Report (Softcopy)	21 days	Fri 13/12/19	Fri 10/1/20

Figure 1.2: Project Schedule Description

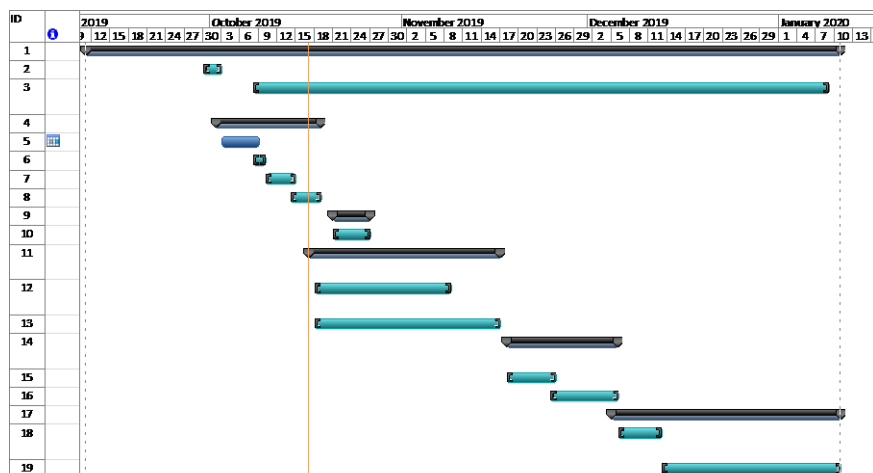


Figure 1.3: Project Schedule Timeline

1.9 Project Outcome

The outcome of this project is the web-based system will help the final year students to promote their item to the other students who are in need. The junior students also know where to find used

item from the seniors and know how to contact them. This platform will benefit all sides as the juniors can get second-hand item from their seniors such as notes, printers, or electronic appliances whereas the senior can lighten their load for their trip. Also, this approach can save the environment as less rubbish will be produced. This web-based system is a user-friendly system whereas students could easily to understand how to use it. This project can deliver all the functions in the web-based system and can be done properly during the timeline.

1.10 Project Outline

1.10.1 Chapter 1: Introduction

Chapter 1 is the introduction of proposed of the project. The chapter is required of background of the project, comprehensive of the problem statements, objective of study, the methodology used, scope of the project, significant of project, project schedule, and expected outcome of the project. The problem statements are challenges that faced by current situation and justifies with the development of this project. The objectives are clarifying the project's goal that expected to achieve the end of development. Scope is limitations of the system and who is the target users.

1.10.2 Chapter 2: Literature Review

This chapter is discussed about the existing system and techniques that similar to the propose of the project. Limitation of the existing systems and methods of improved will be analyzed by presenting the comparison of the features. This overall study will be done by research of articles, journal or any related information to the propose of project. At the end of the chapter, a brief description on the technology tools and the software utilized for the execution of this project.

1.10.3 Chapter 3: Requirement Analysis and Design

This chapter is described the methodology that used to develop the entire of this project. The methodology that used as a model is Agile Methodology. At the end of the chapter, comprises

of UML (Unified Modeling Language) diagrams and class diagram to express the system's database design.

1.10.4 Chapter 4: Implementation

This chapter discusses about the implementation of the proposed system. The interface design of the proposed system will be presented so that it is easier to understand the layout of the system proposed. The tools used for implementing and the overall system purpose will be clarified so that a clear view of the system can be shown.

1.10.5 Chapter 5: Testing

This chapter discusses about the testing of the proposed system. The proposed system 's purpose will be tested as a completed system to make sure the system requirements are met. A user test is performed and in this chapter the feedback has been analysed and discussed.

1.10.6 Chapter 6: Conclusion and Future Works

A conclusion about the proposed system is prepared. Other than that, future enhancement is being defined on the proposed system developed.

Chapter 2: Literature Review

2.1 Introduction

In order to ensure the objectives of the project can be achieved, a literature review is carried out before proceeding with the developing phase. This chapter is discussed about the existing system and techniques that are similar to the proposed of the project. This overall study will be done by the research of articles, journal or any related information to the proposed of the project. Through the review, processes are to understand how the currently existing systems work. The essential functions and features of the system that satisfies the current markets can be identified. The imported screenshots of the existing systems are included in this section. Limitation of the existing systems and methods of improved will be analysed by presenting the comparison of the features.

2.2 Overview of Objectives

The main objective of the project is to design and develop a web-based platform to dispose of the item and the juniors know to get second-hand item. The other objectives:

- To design a web-based system that acts as a platform to sell student's belongings.
- To develop a web-based system that has the functionality to sell student's belongings.
- To test the system by verifying performance and functionality before deployed to users.

Every workplace will use internet access and become one of a common need for them. Because of this, the users of the web-based system become wider and become important tools for business. For the business, it might be for selling or promoting their products/services, give information about any sales or event/trip, etc, or writing out blogs. This can potentially lead to an increase in their sales, increased profitability, and reduced the inefficient (Evergreencomputing.com, n.d.).

“According to Nviro – a leading contract cleaning company in the UK – **ensuring that the college is well maintained is not only conducive to productivity, it also increases the likelihood of attracting more students.**” From here we already know that cleaning is important, not only for health but also for safety. An increasing number of students also will increase the number of

rubbishes. The dirty building or dirty environment can affect the studies which do not give uncomfortable environments ("Cleanliness is important to college campuses", 2016).

Let go stuff or second-hand item is a huge market on campus, there are many things can be supplied like stationaries, books or old notes, MP3, hangers, etc. These items have the guaranteed quality and at a low price because both seller and buyer are a student and it is easy to monitor. So, people like to buy second-hand item from the students because giving them high trust. The last year students spontaneously organized second-hand markets annually in China, where to exchange second-hand school materials. They place stalls along the college street as long as 100 meters and become of a tradition. Even some residents nearby the campus join this event. There is a great deal for the graduate students in college every year because they have a lot of personal belongings hard to carry away but it still useful. For the sake of avoiding waste and recycling, let go stuff market is a good way to solve the problem which can bring some economic benefits at the same time ("Secondhand Market And Its Future", n.d.). This is explaining the first objective was to design a web-based system for students to let-go their item and belongings.

In order to create the website, run smoothly, the project must have clearly requirements. This requirement will give the developer ideas to create the system. All the functionality and feature can be create based on the different activities. The functionality of the system will determine the system the percentage of quality. This functionality will be obtained the system that has been developed is user friendly to the users. The functionality will affect the experienced of users where the system is high quality or vice versa. This is explaining the second objective, where to develop the functionality to student's belongings will affect the experience of the users.

The website needs to develop as an accessible, informative, and user-friendly. Web testing is the process to maintain a quality website. Web testing is a software testing practice when the bug is appearing, this can cause a problem when the bug increases with every life of code and the costs

of bug fixing rise with time. A web-based system needs to be checked completely from end to end before goes live for end users. This explains the third objective, by performing website testing, it can make sure that the web-based system is functioning properly and can be accepted by real-time users (Rueben, et al., 2019).

According to the study of Global Market Insight (GMI), there are 35% of women and 25% of men say there are buying more second-hand products than the new products compared with 12 months ago. GMI European marketing director Ralph Risk has said that there will always be a strong second-hand market because people are looking at how they maximize their return on income and it's now such an established marketplace (Chahal, 2019).

2.3 Reviews on Similar Existing System

Nowadays, there exists a lot of popular and well-building let go or second-hand item systems. Every student might have some item that they need to let go of. In order to solve this problem, UNIMAS students are using media social to let go of their item. Then, this section will be discussed about the other existing system such as Letgo, Carousell, and Vinted.

2.3.1 Media social viral – WhatsApp and Facebook

Media social is one of the most people used for this day. Social media refers to websites and apps - designed to allow people to share content quickly, efficiently, and in real-time. Many of the people or the way of some business used media social because of the ability to share events, opinions, photos, etc in real-time has transformed the way we live (Hudson, 2019).

For university students, they will face to adapt to the new environments like need to find new friends, adapt to new places, or adapt the teaching-learning, etc. Students also need to know or communicate with each other because of to discuss some of the assignments or projects, events faculty, or college and many.

Based on this, the usually UNIMAS students do are they will make some groups by using WhatsApp for them to keep in touch, for example, the college's group, housemate group, faculty

group and many. This because easy for them to keep in touch or easy to give or viral information. In the case of final year study, to get the person to pass down their item is by asking the nearby people if they are interested in their item. If the nearby people are not interested, they will be viral on social media, usually, they will use WhatsApp or Facebook. This is because easy for them to find the juniors who are needs the second-hand item.

The problem is not all UNIMAS students are in the same group especially in WhatsApp's group, so some of the juniors will miss the information about second-hand item. The same goes to the final year student, they will face the problem if they cannot get the person to pass down. Below is shown how UNIMAS students promoted or let go of their item to others. They will spam all the groups that have UNIMAS students until getting the buyers or just throw away if no one wants to grab it.

Social media viral

The figure below shows UNIMAS students' viral second-hand item by using WhatsApp:



Figure 2.1



Figure 2.2

Figure 2. 1 & Figure 2. 2: WhatsApp image for UNIMAS students viral their item

Figure below shown UNIMAS students' viral second-hand item by using Facebook:



Figure 2.3



Figure 2.4

Figure 2.3 & Figure 2.4: Facebook image for UNIMAS students viral their item

After viral all the social media that they have. They will wait for the other students who are interested to grab their item. If they are no one responds, the other solution is they just throw away even though the item is in good condition. The figure below shows that the item that has been left and throw away from previous students:



Figure 2.5



Figure 2.6



Figure 2.7

Figure 2.5 & Figure 2.6 & Figure 2.7: Image for UNIMAS students throw away their item and give uncomfortable conditions

For using WhatsApp, all country is available to use it except for North Korean, China, Cuba, United Arab Emirates, Iran, and Syria (Lawrence, 2019) while for using Facebook apps all countries are available except for China, Cuba, Iran, Syria, North Korea, Bangladesh, Egypt, Mauritius, Pakistan, and lastly Vietnam (Index on Censorship, 2019).

2.3.2 Letgo

Letgo is a simple and basic mobile app and website. Letgo is offered to sell or buy the item in the local place. This website is one of the best concepts that want their mobile sales application to work efficiently and quickly. The premise for this app is simple and easy where just snap a photo of your item, then post it to the website or app, chat or talk with the buyers, and close a transaction and get paid fast and easy. This app also offers to set the seller's location feature where it makes it easier for the buyers to buy their products (O'Connell, 2018).

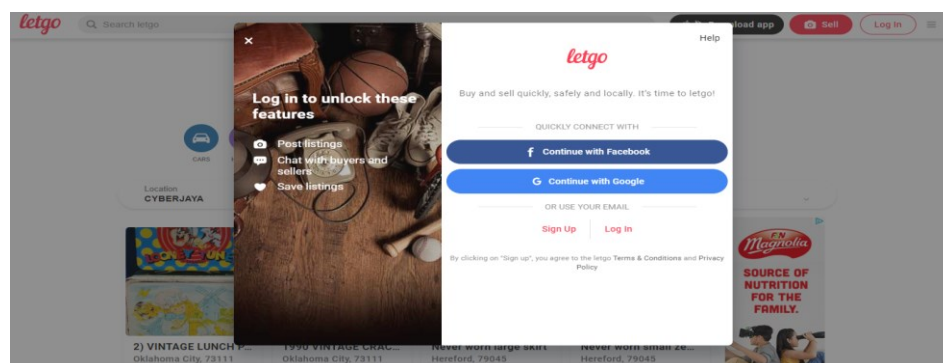


Figure 2.8: LetGo's login page

The figure above shows the login page for the Letgo system. This app offered extremely easy to register users can use register by using the email addresses or by using the Facebook account. Users can choose one of the options. If the users want to create an account, users must be 13 years old and above.

After register, an account. Letgo has offered the selling function. This selling function is about the screen with the camera, which simply takes a photo of the product you are going to sell. The Letgo system has the artificial intelligent mechanism – recognize the photo of the products and automatically category it belongs to. So, the users only need to fill the product price and product description. Letgo also offered a search option for the user, which the user can search through the name, categories, and region where they are available.

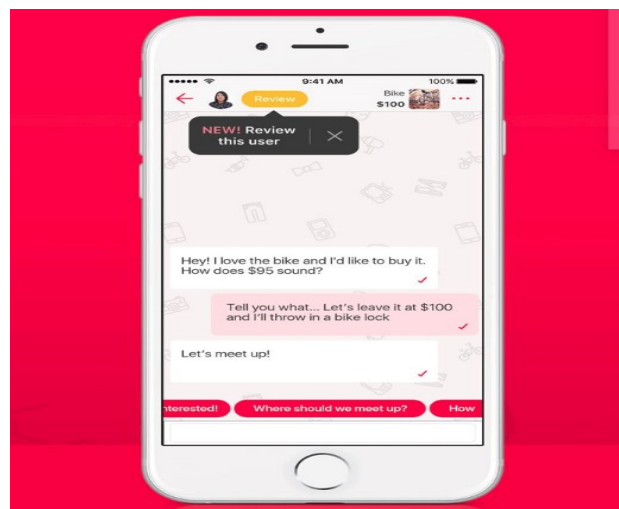


Figure 2.9: Letgo's built-in chat retrieved from <https://www.businessinsider.my/letgo-app-buy-sell-used-items-online-2017-9/?r=US&IR=T>

Letgo also has built-in chat where the buyer and seller can communicate with each other. This chat can be easy for sellers and buyers to make a deal easily and fast. The other feature is geotagging. This geotagging is showing the nearby products to the customer.

LetGo has provided the feature a listing to the seller to double up their sales. The items will be sent to the top of feeds and make it stand out with eye-catching details such as product title, price, etc. This feature can be used in 7 days in a row, the product can bump it back to the tippy top once

a day where to put the product in the spotlight again and again ("New: Double your visibility every day and sell faster with featured listings", n.d.).

LetGo does not charge the users and it also does not charge the sales fee. But the payment cannot be made via the app, so the sellers need to meet customers/buyers in-person to close a sale (O'Connell, 2018). LetGo app is not supported by Malaysia's country, only available in Canada and the United States and some other countries (Canada, 2018).

2.3.3 Carousell

Carousell is a community marketplace that sells and buys a product or various types of items.

Carousell is Singapore made the application, was created in 2012, and it became wider used and reach in Malaysia. This app is providing the users with a simple way to sell their item. Carousell not only sell the new or latest items, but this app also provides the seller to sell their second-hand item. It is as easy as taking a photo and posting it to Instagram; the app even comes with a variety of preloaded photo filters that you can use to beautify your products (O'Connell, 2018).

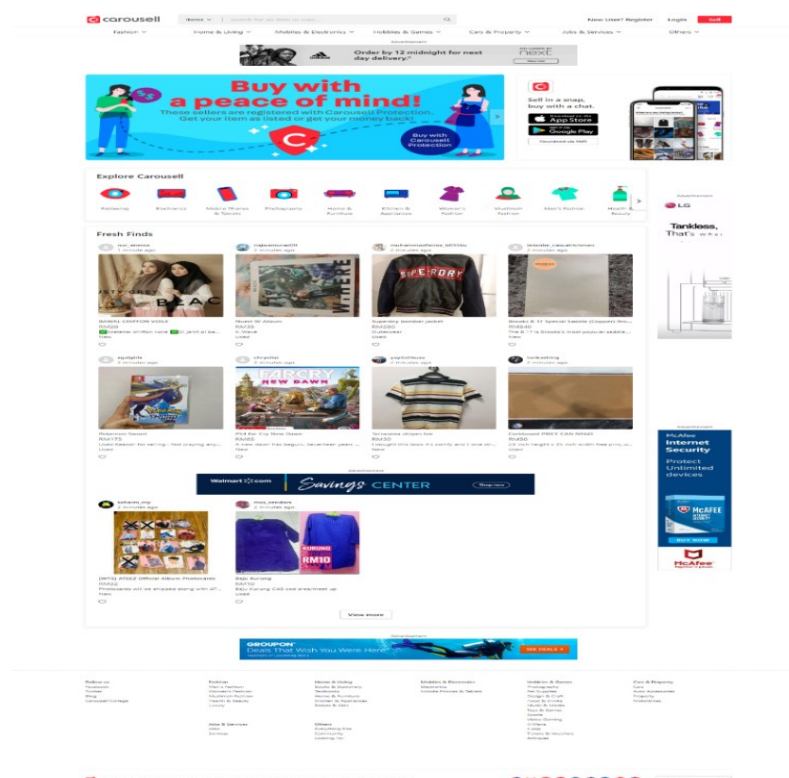


Figure 2.10: Index page for Carousell

Above shown the fly page for Carousell. Users can view the items without login into the system. Users also can search or select the category that he/she wants to. This function gives faster results to the users.

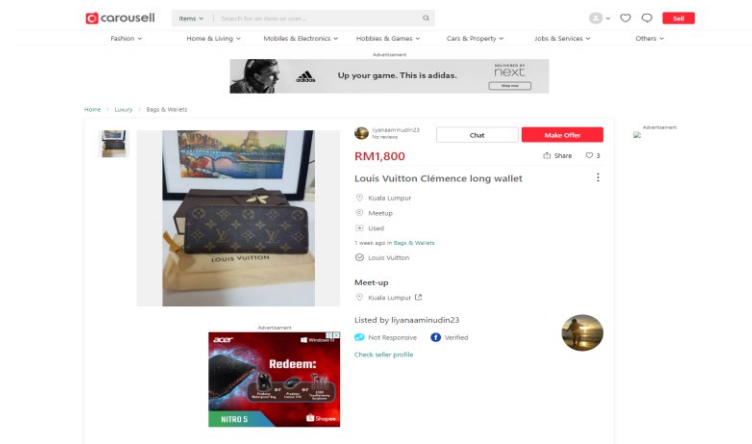


Figure 2.11: View for Carousell's item Details

The figure above shows the item details of Carousell. Users can view the item details. On this page, the seller has filled the requirements that how the methods to pass down to buyers. Seller also has offered that the items can be dealing with again based on the buyer's budget. Users can click the “Make Offer” button, but to use this function, the buyer needs to log in. In order to know the seller details, users can click the “Check Seller Profile”. The user can see the other items that the same seller has a sale, which has shown in the “Listing” tab. The status of the items is shown in each of the items where is reserved or sold. All the users can only view the items and sellers’ details. If the users want to add items to favourite or chat with the seller, users need to log in or create an account. The figure below is showing the seller profile of Carousell:

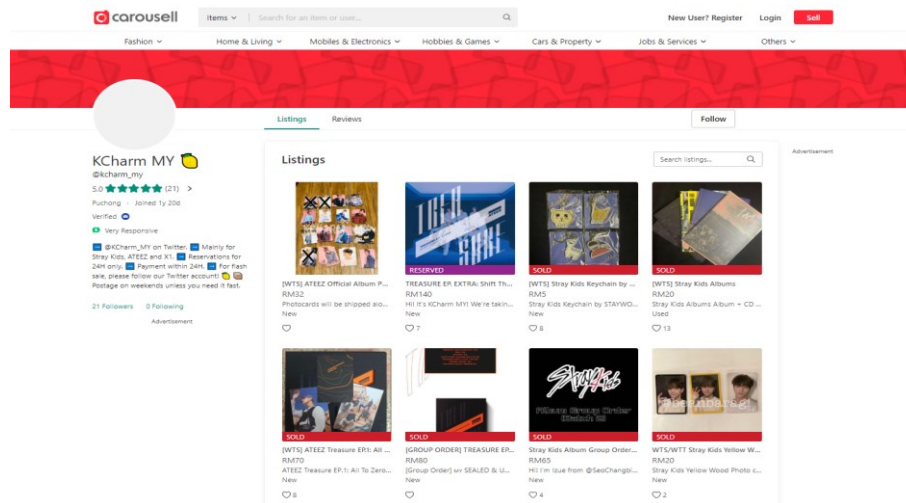


Figure 2.12: Seller Details of Carousell

Users who are already logged in to the system, can use the function such as add items to favourite, chat with the seller, and make an offer if the seller opened to make a deal. The figure below shown make an offer page for the user to deal the price with the seller:

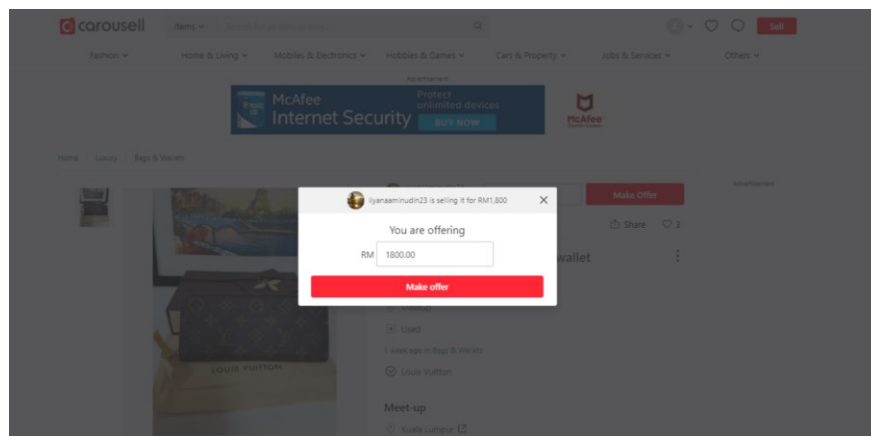


Figure 2.13: Make offer page for Carousell

For the seller who wants to let go of their item, they just clicked the “sell” button and filled all the item’s details. The seller can upload up to 10 photos of the item, then the users can choose the category of the item. After choosing the category, users also need to choose the types of items. Every type or category of the item has selected, the form that needs to fill will differ based on the types of the items. Carousell offered the seller to choose the deal methods: Meet or Mailing &

Delivery. The seller can choose one of the options. The figure below shows the different types of forms of items needs to fill in.

The screenshot shows the Carousell mobile app interface for listing an item. The header includes the Carousell logo, a search bar, and user icons. The main heading is "What are you listing today?" with a subtext "Upload photos of your item or choose a category to get started." Below this is a "Select photos" button with a camera icon and the text "(Up to 10 photos)". To the right is a form titled "What are you listing today?". The form has a dropdown menu for "Audio" (selected "in Electronics"). Below this is a "Listing Title" input field. The "Product Detail" section includes a "Type" dropdown (selected "Select") and a "Brand (Optional)" input field. The "Special Features (Optional)" section has three columns of checkboxes: Noise Cancelling, Wireless, For Sports And Fitness, For Fashion, For DJs, Volume Limiting, Surround Sound, For Work, For Audiophiles, Others, Wired, Microphones & Cont..., For Home Entertainm..., and For Gamers. The "Item Condition" section has two radio buttons: "New" (selected) and "Used". The "Deal Method" section has two checkboxes: "Meet-up" and "Mailing & Delivery". The "Price" section has an "RM Price" input field. The "Description" section has a text area with a placeholder "Describe what you are selling and include any details a buyer might be interested in. People love items with stories! (Optional)". At the bottom right is a green "List now" button.

Figure 2.14: The example of a form to let go Electronics category

The screenshot shows the Carousell mobile app interface for listing an item. The header includes the Carousell logo, a search bar, and user icons. The main heading is "What are you listing today?" with a subtext "Upload photos of your item or choose a category to get started." Below this is a "Select photos" button with a camera icon and the text "(Up to 10 photos)". To the right is a form titled "What are you listing today?". The form has a dropdown menu for "Textbooks". Below this is a "Listing Title" input field. The "Item Condition" section has two radio buttons: "New" (selected) and "Used". The "Deal Method" section has two checkboxes: "Meet-up" and "Mailing & Delivery". The "Price" section has an "RM Price" input field. The "Description" section has a text area with a placeholder "Describe what you are selling and include any details a buyer might be interested in. People love items with stories! (Optional)". At the bottom right is a green "List now" button.

Figure 2.15: The example forms for Textbook category

In order to have an account, users must be 18 years old and above. The figure below show the register page of Carousell:

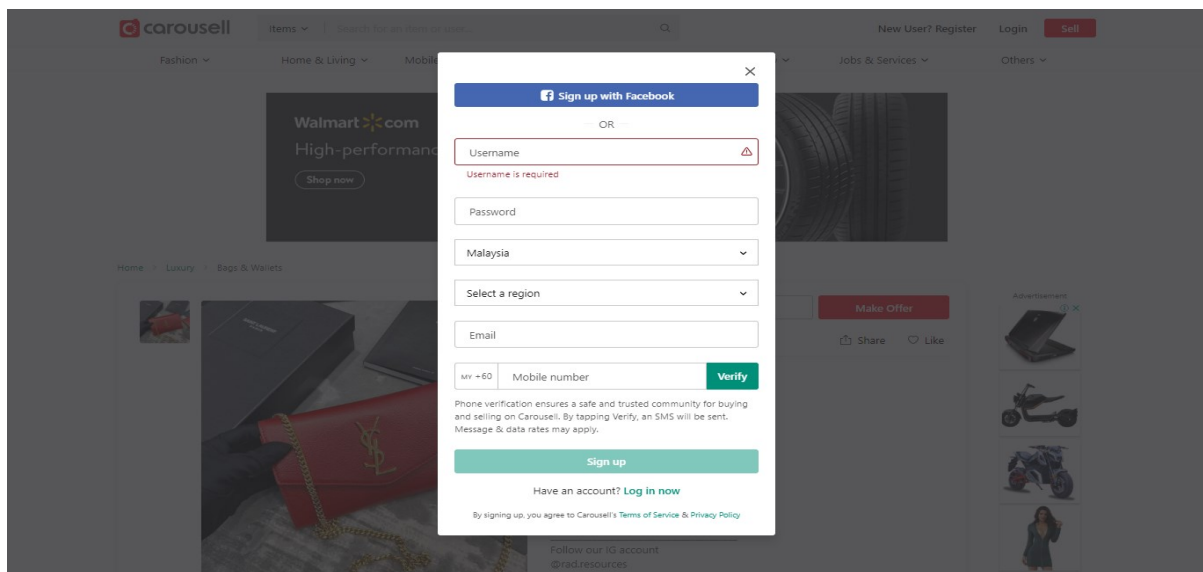


Figure 2.16: Register Page for Carousell

Carousell also offered the users to signup either by using the username or Facebook accounts. Users need to fill the handphone number to verify. Same goes to the login page, users can log in by using a username or by using Facebook accounts. The figure below is showing the login page of Carousell:

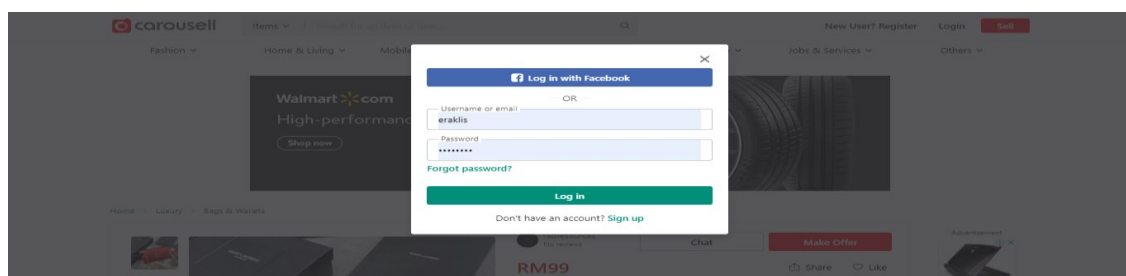


Figure 2.17: Login page for Carousell

Carousell has provided Bump and top Spotlight campaign which are the premium visibility features that help to promote seller listing in Carousell. Bump feature is seller listing for the one-time push to the top of the categories and search on results once a day. This is for sellers who are decluttering or selling tickets and need a quick sale. Top spotlight an ad campaign that pins sellers

listing at the top of search results and within the browse feed. This is for a business seller and wants a constant stream of visibility and sales (Lim, LimHi, & Lim, 2018).

It was easy to set up the user's eCommerce store via the Carousell app. Not only that this app also makes it easier to close the sale. Carousell is widely used, the target users also involve international buyers or sellers. However, some of the sellers might come from the blacklisted country, for example, in Nigeria, were known as a scam. Some of the items need to pay hundred dollars, where some buyers used fake Paypal accounts. Some of the buyers might need to face some price of items that the buyers offer because the prices tend to differ with purchase and trade (Seah, 2015). The country that can use this system in Australia, Canada, Hong Kong, Indonesia, New Zealand, Philippines, Singapore, Taiwan, and Malaysia. So, this system is available to our country ("Is Carousell available in my country?", n.d.).

2.3.4 Vinted

The clothes exchanges app was founded in Lithuania in 2008. This app is strictly offered to buy, sell or exchange the second-hand clothes or accessories (O'Connell, 2018). This fashion app is offering the buyers can chat with the buyers about the garments, for example just post a photo of their clothes or accessories then directly chat with customers.

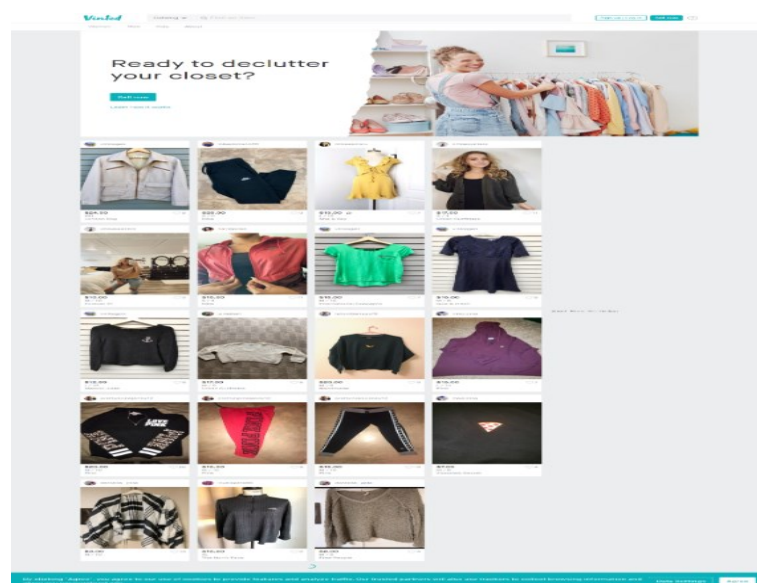


Figure 2.18: Overview of Vinted website

The figure above shows the index page of the Vinted. The users can view items in the system. Users can view the item's details by clicking the item that she wants. Users also can click the category such as women, men, kids, also about.

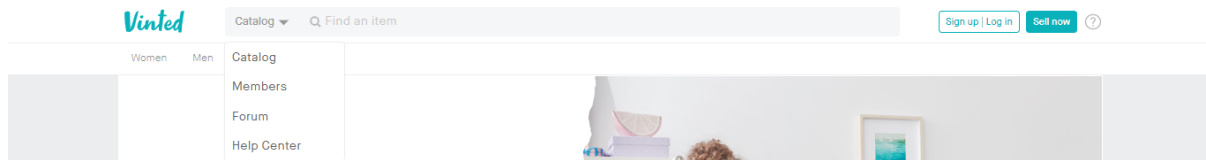


Figure 2.19: Top Bar Navigation of Vinted

The figure above shows that users also can search by catalogue, members, forums, or help center when clicked on the drop bar button. Users can click either one of the categories for example catalogue, then the users can fill the search bar what is she looking for.

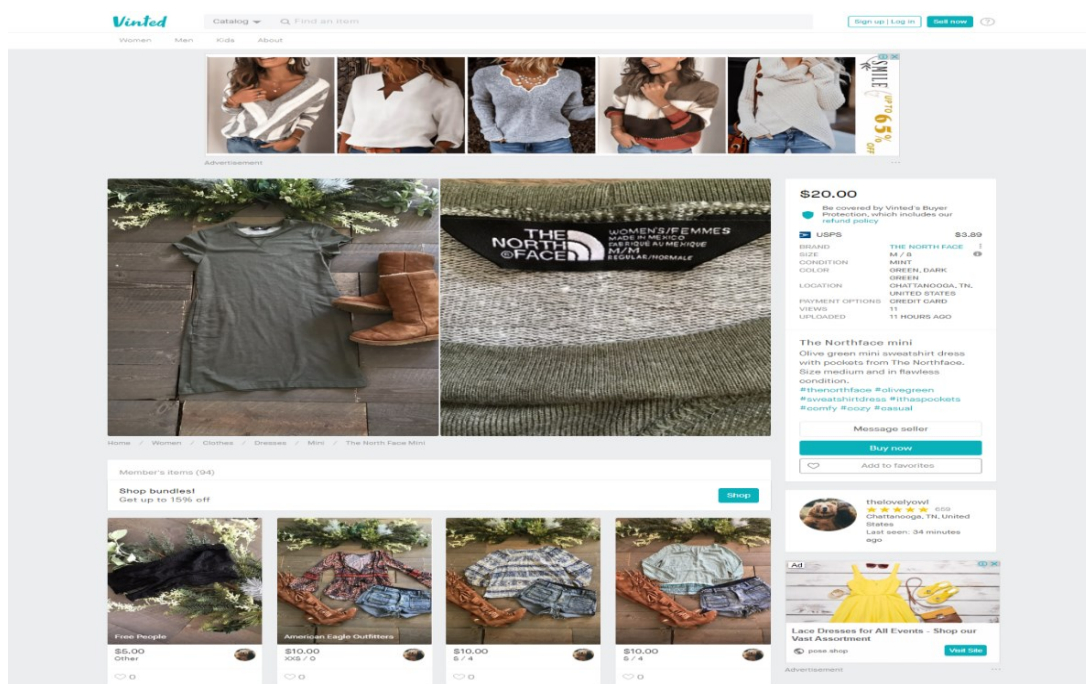


Figure 2.20: Item's Details in Vinted system

The figure above shows the details of the items. Users can view the photos of the items and items details on the right sides. The items detail that shows are product brand, size, conditions, payment methods, location, views, uploaded, and descriptions. At the product brands, the user can click the

name of the brand where the systems will display all the clothes or accessories with the same product name.

The list of the items will be displayed to the users. The item display is only showing the product's price and size also a small icon of the seller. The short descriptions will be displayed if the user moves their mouse to the photo of the product. Vinted also provide sort algorithm: sort by relevance, price: High to Low, Price: Low to High, and Newest first. The figure below shows the sort algorithm of Vinted:

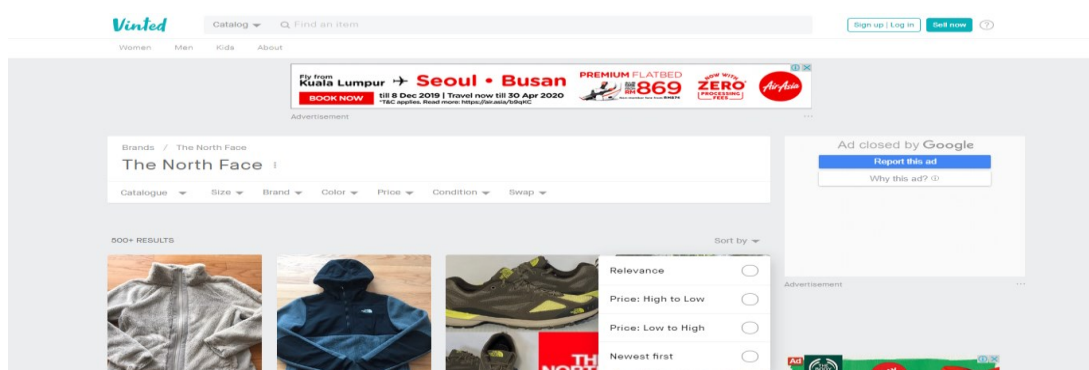


Figure 2.21: Sort algorithm provided by Vinted

When users clicked on the seller icons, users can view the list of items that the seller has the sale. The seller's details that show is only the username, verified by email, rating of the seller, locations of the seller, status login info and numbers of following and followers. The figure below on the left side is shown the details of the seller are shown. On the right side is the items that the user is a sale.

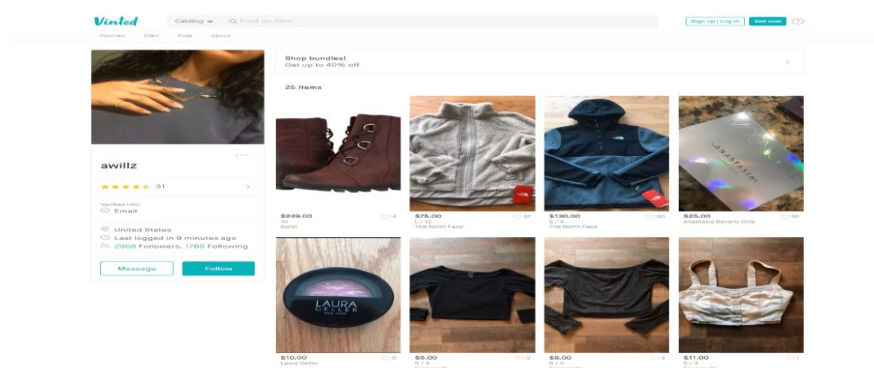


Figure 2.22: Seller's Details and related items sale from the same seller

Signing up to the Vinted app is free and you can easily register via the mobile app and the security is solid on Vinted. For example, new signees must enter a two-way authentication passcode before they are allowed on the platform. The users will also be required to enter their phone number, which Vinted uses as an SMS confirmation feature, which further solidifies user security (O’Connell, 2018). The figure below shows the sign-up page and login page for Vinted:

Figure 2.23: Signup page for Vinted

Users also can choose one of the options to sign up by using a Facebook account or email address. In order to register an account, users need to be 18 years old and above.

Figure 2.24: Verify info

The figure above is about the users need to verify info by using the phone number.

Figure 2.25: Verify the phone number

The figure above is users need to fill in their phone number to verify the security. The figure below shows if the users filled in the wrong phone number:

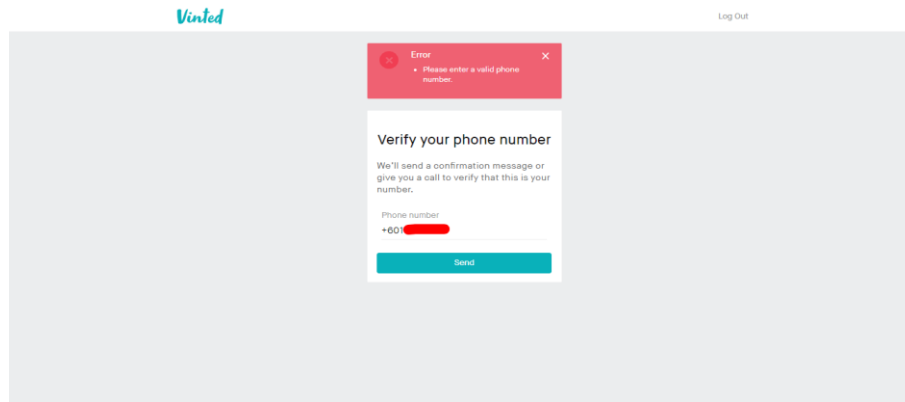


Figure 2.26: Users filled invalid phone number

The figure above shows that even though the users from other countries such as Malaysia, want to register as a member, she can pass when register with the email address. When comes to the verified phone number, the user will be stuck at this page even though she login for the second round.

After login into the system, users can manage their account and profile by clicking the dropdown button arrow located next to display picture and hitting “profile”. Vinted allows the users to enter negotiations with potentials buyers, so some of the sellers will receive offers that below their price. Some of the customers also will like to swap their clothes with the other seller, this is handy if users happen to like any of your would-be buyers’ items. Selling the items in Vinted is completely free, but the buyers need to pay the services fee of 3% to 8% of the item’s price, plus a fixed fee of between 30 pounds and 80 pounds ("How To Sell On Vinted", n.d.). Seller also needs to answer the item placement questionnaire to list the item and needs to provide information as Vinted required all items that the seller has offered for sale, exchange or give away in this system. After completing the questionnaire, the item shall be deemed to be a “Catalogue Item” ("Vinted Terms & Conditions of use", n.d.).

Vinted also has provided Wardrobe Spotlight to the users for selling their items faster, wherein 7 days in a row, the buyer will see 5 listings from seller wardrobe in dedicated spots on their news. In order to use this feature, sellers need at least 5 visible listings in their wardrobe. By using this Wardrobe Spotlight, the first 2 items will match the buyer's news feed preferences and their catalogue filter. The other 3 items will be the most favorite ones from the seller wardrobe ("What is "Wardrobe Spotlight"?", n.d.).

However, to become the seller, sellers need to have a PayPal account to sell on the Vinted app (O'Connell, 2018). Some of the users will face that second-hand clothes or accessories are damaged.

2.4 Comparison between the Existing Systems

System Future	Similar Existing System				Proposed System
	Media social viral (WhatsApp and Facebook)	LetGo	Carousell	Vinted	DiLet
Description	Social media refers to websites and app – designed to allow people to share content quickly, efficiently, and in real-time	A simple and basic mobile app and website that offered to sell or buy the item to others in local place	A community marketplace that sells and buys a product or various types of items which not only the new product, but it is also offered second-hand products	The clothes exchanges app was founded in Lithuania in 2008. This app is strictly offered to buy, sell, or exchange the second-hand clothes or accessories	A system that provide a platform for UNIMAS students to sell or give away their personal item or school materials to who is needs
Premium	Yes	Yes	Yes	Yes	No
Instant Message	Yes	Yes	Yes	Yes	No
Unisex	Yes, available for both female and male	Yes, available for both female and male	Yes, available for both female and male	No, available only for female	Yes, available for both female and male

Available and Not Available Country	WhatsApps – all countries are available to use it except for North Korean, China, Cuba, United Arab Emirates, Iran, and Syria -Facebook apps- all countries are available except for China, Cuba, Iran, Syria, North Korea, Bangladesh, Egypt, Mauritius, Pakistan, and Vietnam	-Canada, the United States, and some other countries -Not available in Malaysia	-Australia, Canada, Hong Kong, Indonesia, New Zealand, Philippines, Singapore, Taiwan, and Malaysia	-United States, Germany, France, United Kingdom, Czech Republic, Australia, Poland, and Lithuania. -Not available in Malaysia	Available in Malaysia especially for UNIMAS students
Various of item's Categories	Yes	Yes	Yes	No	Yes

Period of use the item	Sometimes mentioned	Sometimes mentioned in Product descriptions.	Sometimes mentioned in Product descriptions.	Sometimes mentioned in Product descriptions.	Provide product's period of use the item
Visibility Features	Yes	Yes	Yes	Yes	No
Deal methods	-Meeting up	Meeting up	-Meeting up -Shipping	-Meeting up -Shipping	-Meeting up -Deliver -Self Pickup
Advantages	-Users are only focused on UNIMAS students -Various of item's types -Product details such as a period of users have mentioned	-Has artificial intelligent to category the items belong to, so the users only filled in the product's price and details -Has geotagging, for the users to meet up with each other's -Various of item's types	-Has provided differences form depends on categories of items. -Various of item's types -Provided Bump and top Spotlight campaign which are the premium visibility features that help to promote seller listing in Carousell	-Has high security for register an account which the first registers either using an email address or Facebook account, then need to verify by using the phone -Provided Wardrobe Spotlight (premium) to the users for selling their items faster, wherein 7 days in a row, the buyer	-Users is only focus on UNIMAS students -Has functions about period of used, so the students can know either the items are worth it to grab it -Various of item's types

		-Provided premium feature a listing to the seller to double up their sales. The items will be sent to the top of feeds and make it stand out with eye-catching details such as product title, price, etc.		will see 5 listings from seller wardrobe in dedicated spots on their news	
Disadvantages	-Not all UNIMAS students have the chance to grab the second-hand items -Facebook: Users need to pay if want to create an advertisement	-Not available in Malaysia - The deal methods are only meeting up, where users need to make a negotiation where need to meet - Users need to pay a fee for the services (premium)	-Users are too wide and might take time to pass down the item - Users need to pay a fee for the services (premium)	-Not available in Malaysia -Item is only focus on Clothes and Accessories -Buyers need to pay a fee of 3% to 8% of the item's price - Users need to pay a fee for the services (premium)	-No Visibility features -No instant message, users can contact the seller by clicked on the link that provided by users -No geotagging

TABLE 2.1: COMPARISON BETWEEN THE EXISTING SYSTEMS AND PROPOSED SYSTEM

This proposed system is only available for UNIMAS students also provided unisex users which available for male and female. This is important because for UNIMAS students, not only female or male wants to grab second-hand item. All of them is given a chance to grab the second-hand item. Only Carousell existing system is available in Malaysia. Even though the app is available, but this app is involved wide users and most of UNIMAS students just target their juniors to hand down their item. This also can cause problems if the buyers are far away from UNIMAS because of limits of time or does not have transport to ship its. The senior's item can be various types of items – mouse, hangers, clothes, notes, rice cooker, fans etc. So, this system will provide more than one category for UNIMAS students. This system also provided the period of used of the item which the sellers must filled in the form because to ensure that the item is worth it to grab. However, this system does not have visibility features which means the promoted item (premium user) wants to sell their item quickly at their items will become primary in front page. This system also does not provide the instant message because the buyers can view the contact number that provided from the seller. For seller to meet up with the buyer, this system does not provide the geotagging because most of the students know about the place of their university.

2.5 Summary

This chapter is discussed about the justification of the objectives where is done by literature review and studies on existing let go item sites in terms of features, functions, and characteristics. The explanation or review of one existing system that UNIMAS students used which is no platform and another of three existing systems were conducted and view of differences between systems were summarized in table. From this chapter, we know that the similar existing systems has been developed and the systems are readily available to the users with the wide range of features, but not all the features can be utilised. This is because the systems are expensive and needs the more required of time to solve it. Hence, this project would be a better solution and give the advantages towards the existing system that always UNIMAS students used every year.

Chapter 3: Requirement Analysis and Design

3.1 Introduction

Through the background study and review of the existing online let go of item systems, user requirements are defined and identified. Requirement analysis is by gathering the information from the questionnaire that filled by the target users also carried out by capture a complete and consistence pictures of system, some particular of features and functions that should provide to meet the user requirements and overcomes the shortcomings of existing systems that are identified in the previous chapter. Use case diagram, activity diagram, and sequence diagram are used to model the dynamics behaviour of proposed systems. Entity-relationship diagram (ERD) specifies the attributes of entities and relationships between entities involved in the proposed system, which will be implemented in the databases. The non-functional prototype will be developed to depict the system design. The prototype servers the flow of the proposed system and portrays the user design.

3.2 User requirements

User requirements often referred to as user needs, describe to what the user does with the system, like what activities the user must be able to perform. In the DiLet system, there are two groups of users, which are users and administrators. Users refer to the UNIMAS students, where UNIMAS students can become the seller (let go the item) and buyer (grab the second-hand item) that provided from proposed system. The administrator refers to the system user, who has the power to enforce the terms and conditions that ordinary users comply with.

Based on the results gathered from the questionnaire and the study of existing systems, the basis of user requirements is established. Additional user requirements are identified to satisfy the needs of the proposed system. Below show the details of the requirements are discussed as follows:

(i) Users:

- A user who becomes a seller (let go item) be able to fill all the item details in the systems.
- Users shall be able to add item in the cart.
- User (let-go item) shall be able to update or edit the item details.
- User (grab second-hand item) shall be able to gather the information about the item details.
- User (let-go item) shall be able to view listing item in their profile.
- The user shall be able to report to the administrator, such as the seller is cheating about the price or the seller does not come at the pick point.

(ii) Administrator:

- The administrator shall be able to view the complaint reports received.
- The administrator shall be able to verify the reports.
- The administrator shall be able to delete unnecessary complaint report.
- The administrator shall be able to view user details.
- The administrator shall be able to delete user details.

3.3 System Requirement

This section will discuss the minimum system requirements that have to full fill for the proposed system. The system requirements are to ensure the system users have satisfactory experiments while using the proposed system. The system requirement consists of hardware requirements and software requirements.

3.3.1 Hardware Requirement

The minimum hardware requirement to use the DiLet systems shown in Table 3.1 below:

Aspect	Minimum Requirement
Processor	Dual-Core 1.6GHz
RAM	512 Mb
Resolution	1024x768

TABLE 3.1: HARDWARE REQUIREMENTS

3.3.2 Software Requirement

The minimum requirement to use the DiLet let go item online systems shown in Table 3.2 below:

Aspect	Minimum Requirement
Operating system	Windows 7
Web Browser	• Google Chrome • Mozilla Firefox

TABLE 3.2: SOFTWARE REQUIREMENTS

3.4 Requirement Analysis

Requirement Analysis is accomplished to determine the functional requirements of the proposed system. The use case diagram, activity diagram, and sequence diagram are used to perform the analysis thoroughly. Besides, the questionnaire also has been conducted for this project.

3.4.1 Questionnaire

The questionnaire is usually distributed to the target group with intention a set of questions: opened-ended questions or closed-ended questions to gather the information from the respondent's opinions regarding the topics or issues. For this project, the questionnaire has been distributed to UNIMAS students to collect the information about the existing systems and proposed system also to enhance the website further. The questionnaire that has distributed to UNIMAS students has been attached in Appendix A for reference. The answer from the respondents was collected and will be discussed in this section.

The total number of respondents is 60. At the beginning of the questionnaire, the details of the respondents were captured which the respondents either final year students or not. There were 43 numbers of the final year students while the others 21 were not in the final year. Below is the graph that the total number of respondents for the final year students and verse visa:

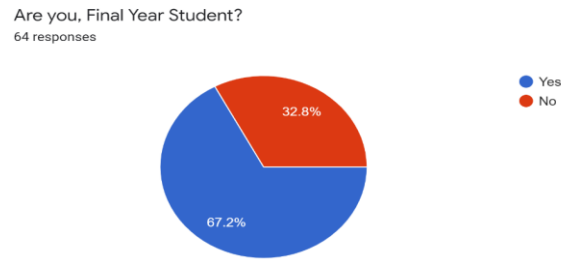


Figure 3.1: Total number of respondents

The next question was to gather the respondents how they solved the problem. From the results, the highest solutions that the respondents used are by using WhatsApp which there are 26 respondents were select that answer. Then followed by 15 respondents using Facebook, 9 respondents using Instagram, 4 respondents using twitter, 2 of respondents using apps, there is 1 respondent using website which is mudah.my, there also have others answer that the respondent gives: throw away the item, give it to people nearby, used all of the above, did not know, Facebook and WhatsApp. Below shows the graph of the respondents solved the solution:

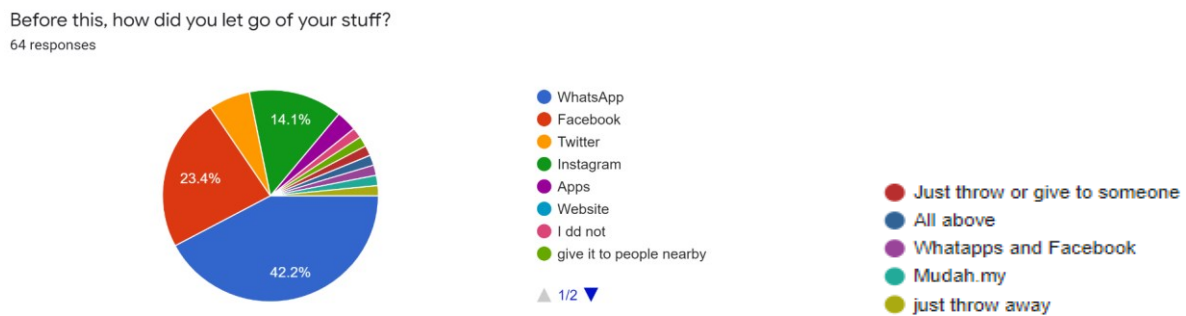


Figure 3.2: Methods that the respondents used

The next questions are to either the respondents familiar or know about the existing systems. These questions also want to gather whether the respondents are experienced with the let go item system. Below shows that 44 respondents have known about the website/apps and the others 19 respondents do not know, and 1 of the responded are not answered it and we can assume that he/she is unsure about it. Then, the list of existing systems that responded familiar with, were 42 answered yes and the others 22 answered no to Carousell, Vinted, and Letgo. Most of the responded have

heard about the app/website, but not all of them has the experienced using those app/websites. There are 38 respondents answered yes while 26 respondents answered no. The responded if the existing system is helpful to the respondents also collected, the answered yes and no is given the same amount which 29 respondents while others 6 not answered the question, maybe can be assumed that the respondents are unsure. The diagram below shows the respondents are react to the existing systems:

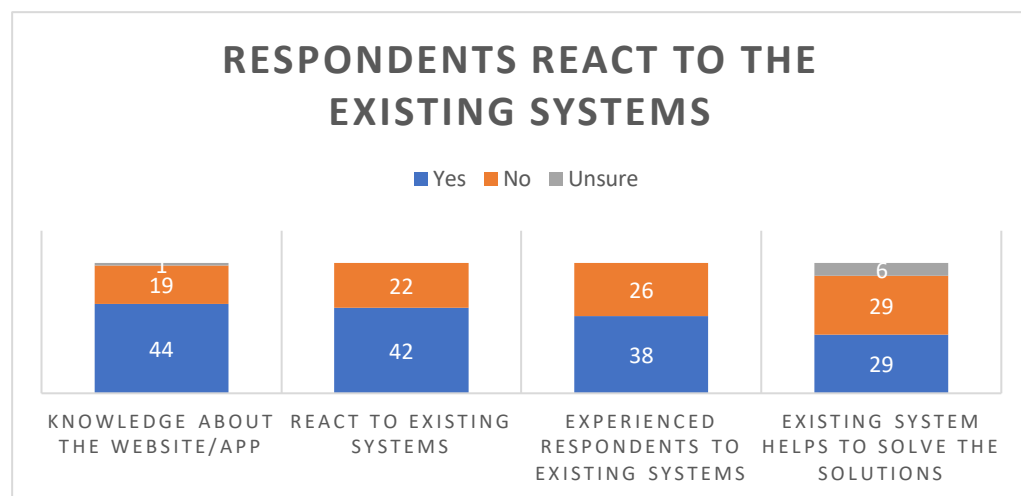


Figure 3.3: The respondents' knowledge about the website/app, the respondents react to existing systems, Experienced respondents to existing systems, and the existing system helps to solve the solutions

Below is the graph if the app/website is user friendly, where if this existing system are asy to understand to used, where the respondents need to fill the rank 1 (hard to understand) to 5 (easy to use):

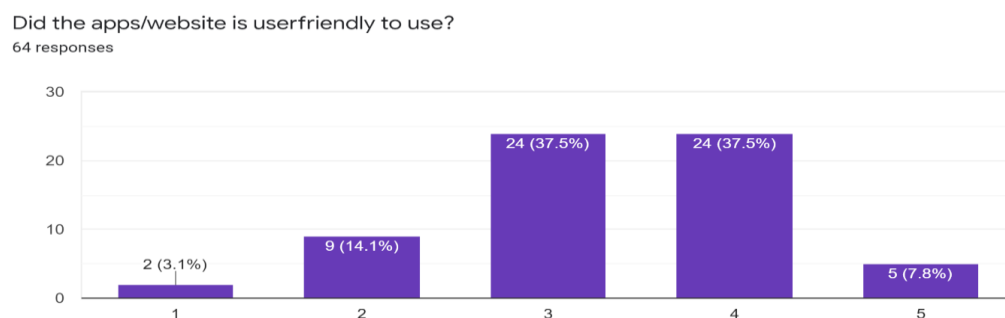


Figure 3.4: The user friendly of existing systems

The next question is about the respondents whether has item to let go. There are 58 respondents answered yes while the others 6 is no. There have the kind of item that the respondents need to select: Electronic (Rice Cooker, Iron, Water Heater, etc), Books & Stationary (Old Note, A4 paper, etc), Accessories, Wardrobe (Clothes, Shoes, etc), Kitchen & Appliances (Plates, Cups, etc), Toiletries, Vehicles (Bicycle, Motorcycle, etc). Below shows the graph of types of item that respondents want to let go:

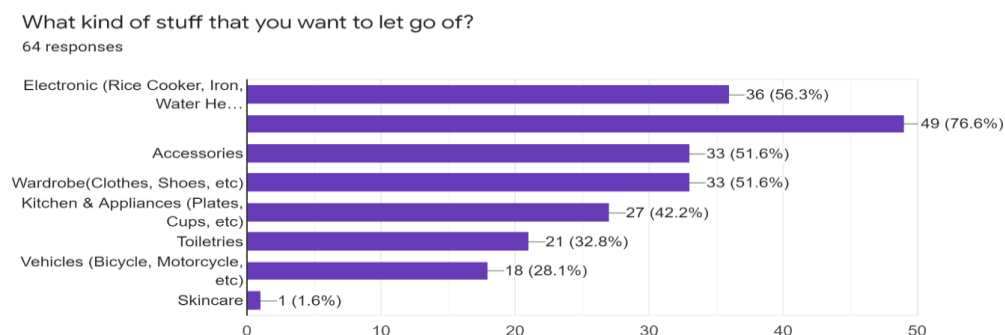


Figure 3.5: Graph of Item's Types

There also the reasons why the respondents want to let go the item: The item is difficult to carry back to home, The item is still in good condition to throw away, The item only around 75% are used, The item does not need to use anymore, and Not able to bring all the item home/college's store. Below shown the graph that the respondents have responded:

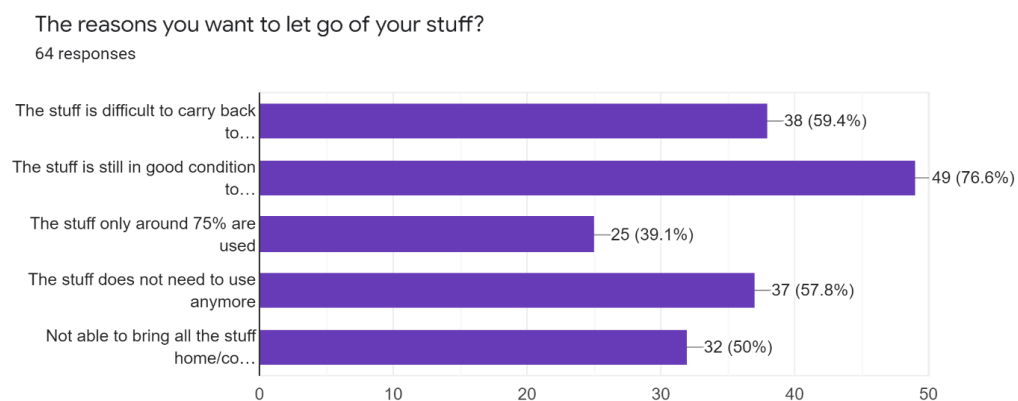


Figure 3.6: Graph of reasons to let go item

From the results, the respondents that will grab the second-hand item also has responded 46 answered yes while 17 answered no. There are the types of item that the respondents are looking for: Electronic (Rice Cooker, Iron, Water Heater, etc), Books & Stationary (Old Note, A4 paper, etc), Accessories, Wardrobe (Clothes, Shoes, etc), Kitchen & Appliances (Plates, Cups, etc), Toiletries, Vehicles (Bicycle, Motorcycle, etc):

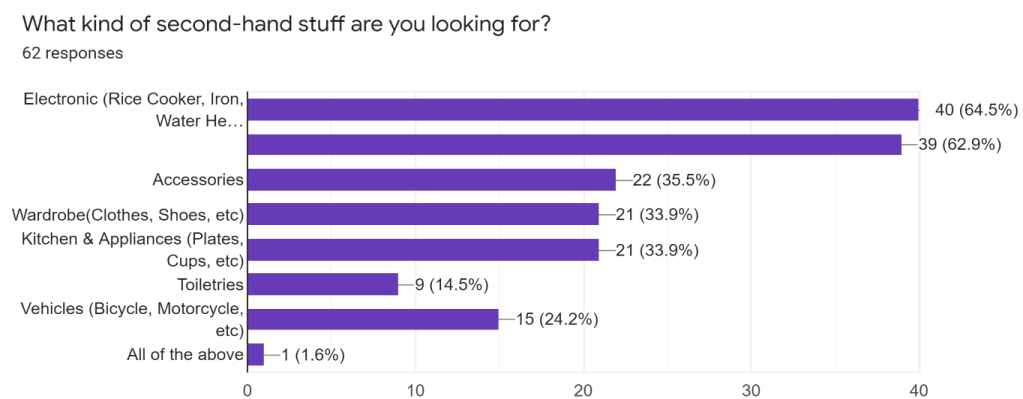


Figure 3.7: Graph for grab the types of second-hand item

From all the information gather from the respondents that them agree to have a website to let go of their item. Below shows the graph of the respondent about to have a website to let go item:

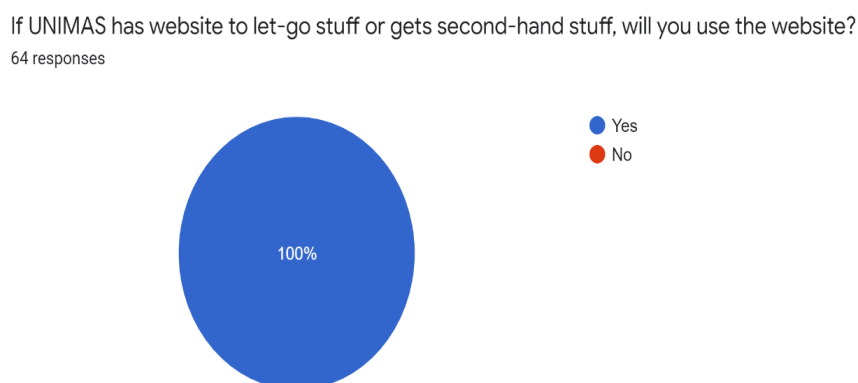


Figure 3.8: Respondents agree to have a let go item website

3.4.2 Use Case Diagram

Use case diagram model the functionality of a system using actors and use cases, which a high-level overview of the relationships between use cases, actors, and systems. Figure 3.1 shows the use case diagram of the proposed system:

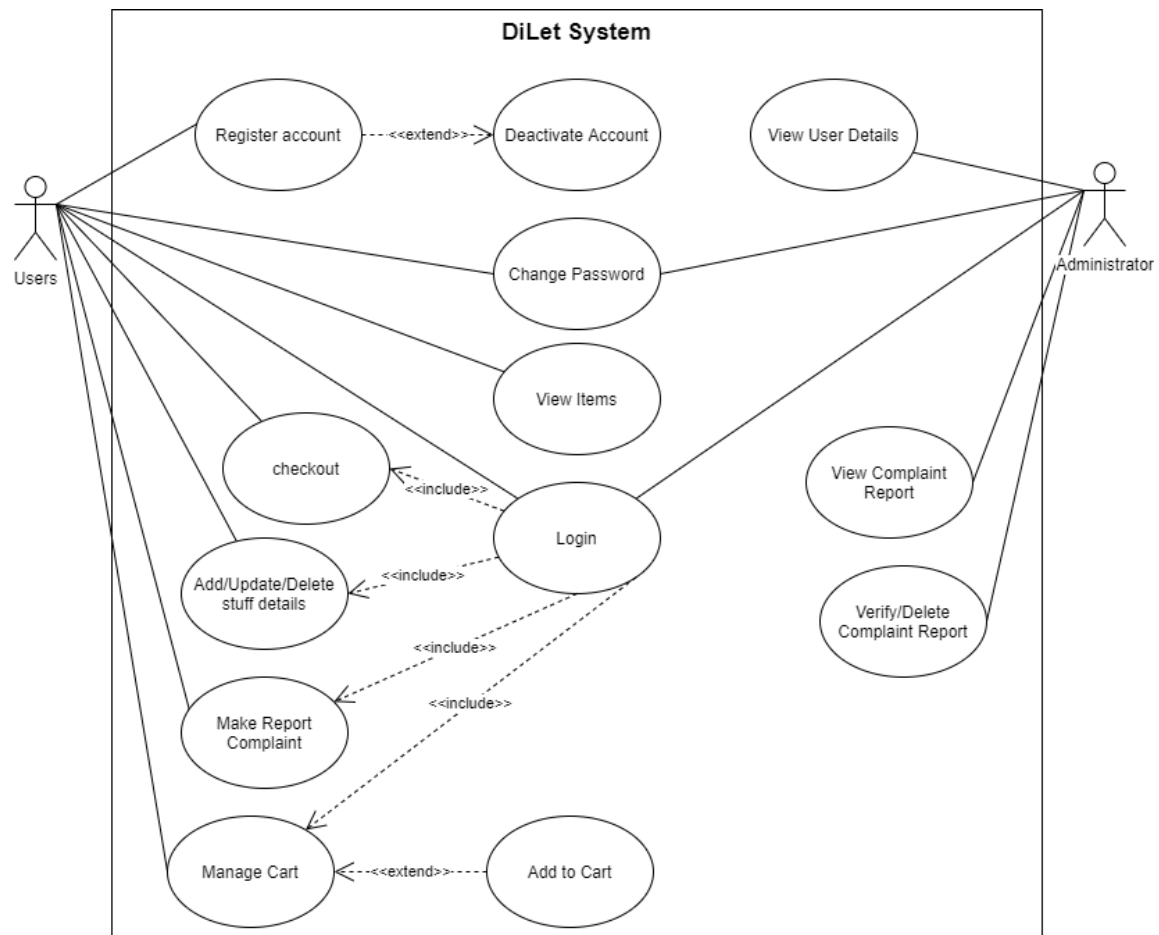


Figure 3.9: Use Case Diagram

In this system, there are two types of actor which are users (seller and buyer) and administrator. Both actors can view the item in the system – can search and select the categories of item. Both actors also can manage their account where they can change the password, but only for the users (buyer and seller) can deactivate their account. Users (buyers) can choose not to login the system. But only the login user can view the contact info if they want to grab the item that they want. However, there are limitation functions are provided for them. For the users (students), they can register the account and can login to the system by using the username and password that have

been created. Users who are login can become the seller, where they can add, update, and delete item's details. They need to fill the item's details form that provided by system. Users who are buyers, they can add the items in the cart list and can submit complaint report if have unsatisfying events occurred. For the admin, admin can view the complaint report details that send by the users. Admin also can verify the report from pending to complete or from complete to pending and delete the unnecessary report. Admin also can view and delete the user details.

3.4.3 Activity Diagram

The activity diagram illustrates the flow of control in the proposed system.

The system processes involving user are described below:

- Step 1:** Users can view items without login into the system.
- Step 2:** Users who want to become seller or buyer must register if he/she does not have own account.
- Step 3:** User logs into the system by using a username and password.
- Step 4:** An authenticated user will be redirected to the user's home page. At the user home page, users can choose to perform either of these actions: View items, sort by alphabet, prices, dates, and categories, manage cart, manage personal profile, manage account settings.
- Step 5:** Users can select **Categories** and choose to view which type of items. There are eight types of categories offered by the system: Electronic, Books & Stationaries, Wardrobe, Kitchen & Appliances, Accessories, Toiletries, Furniture, and Others. Categories results will be displayed based on the type of chosen.
- Step 6:** Users can select **Search by Types** to search for a type of items by specifying the categories she/he is looking for. Categories results are displayed, and the details of items are stated.
- Step 7:** The user that only login can select **Add to Cart** to manage his/her shopping cart.

- Step 8:** The user who already registers into the system, he/she can become a seller or buyer. For the seller, she/he can select ***Sell*** to let go their items. She/he needs to fill the details about their items. They also need to upload the picture of their items.
- Step 9:** The seller can update the status of the items if the items from available to sold.
- Step 10:** The user who wants to grab the items, she/he can view the item quantity or status item which is available or sold out.
- Step 11:** Users could select a ***Complaint*** if any unsatisfied events occurred during the purchase such as report about the seller.
- Step 12:** Users can select ***Account Settings*** to view his/her account details, change the password and deactivate the account.
- Step 13:** Users can log out of the system by clicking the logout button.

The system processes involving **administrator** are described below:

- Step 1:** Administrator login to the system by entering his/her username and password.
- Step 2:** The administrator can view all complaint reports submitted by users.
- Step 3:** The administrator can view all user details.
- Step 4:** The administrator can verify pending or complete reports.

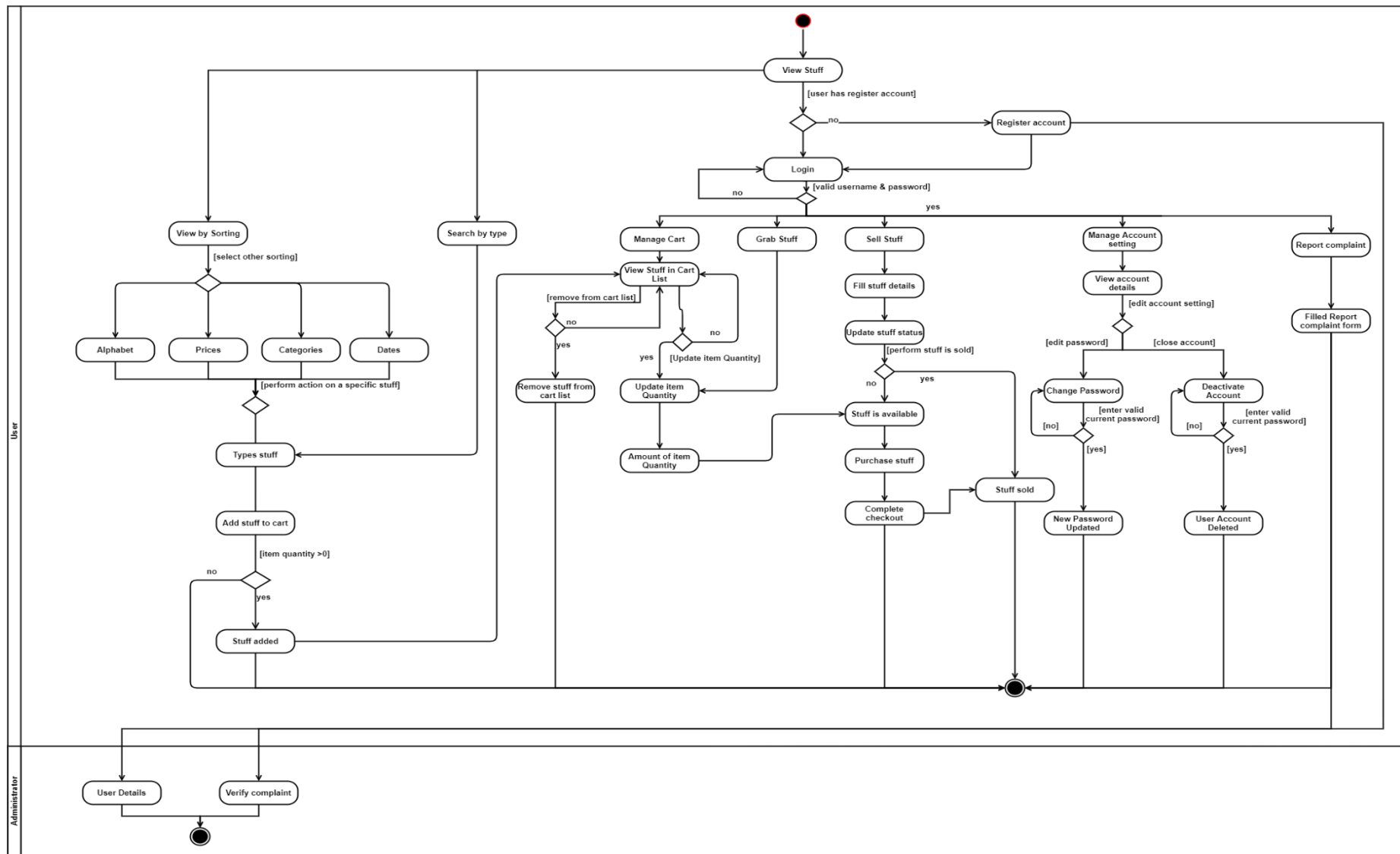


Figure 3.10: Activity Diagram

3.4.4 Sequence Diagram

A sequence diagram provides a graphical representation of interactions between system objects and event sequences between objects to yield a certain outcome.

1) Register Account

The actor that involved in Figure 3.11 is either sellers or buyers. First, users need to fill all the requirements that the form has provided. If the users missed one of the required fills, the popup message will be appeared until the users filled all the requirement. If the users are already having an account, the popup message “Already has account” will displayed. If the user is the new user, new account will be created.

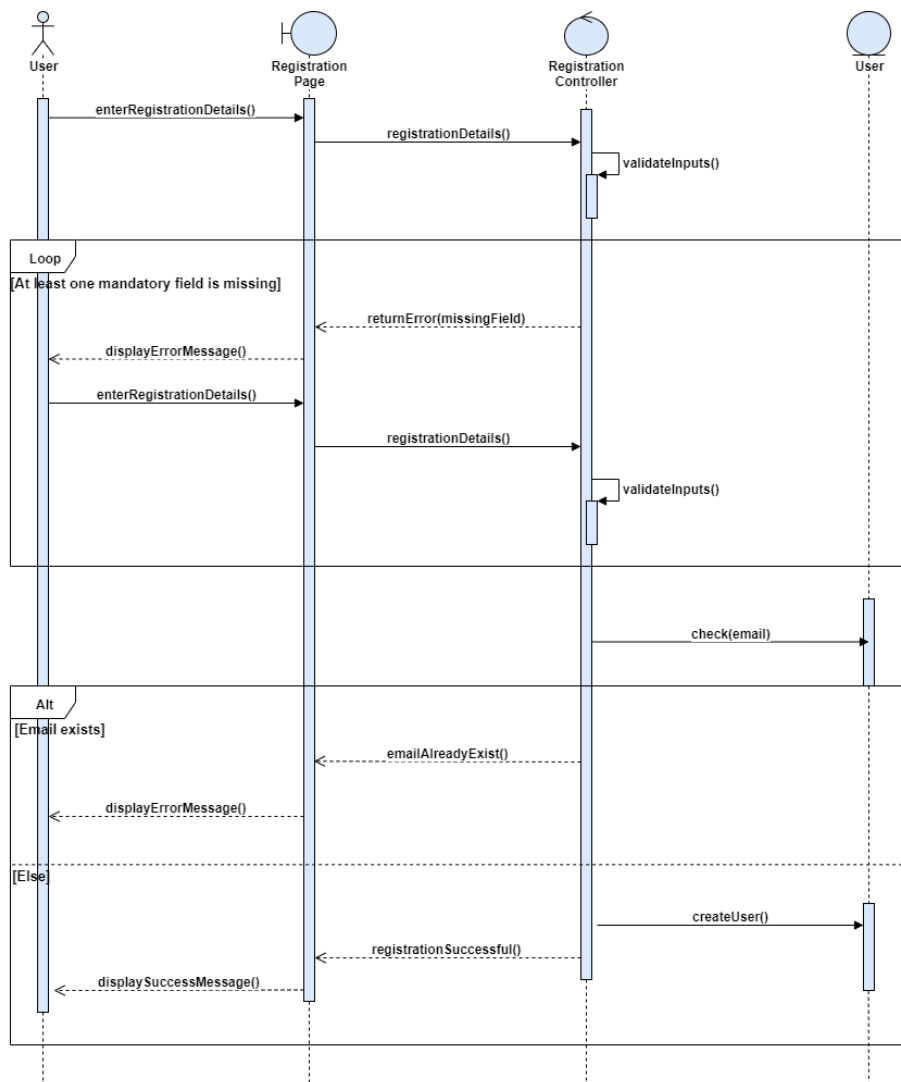


Figure 3.11: Sequence Diagram for Register Account

2) Login

The actor in Figure 3.12 is involved seller, user, and administrator can login into the system by using username and password that created. If the users filled the invalid email or password, popup “Either username or password is invalid”. If the system validates the username and password, the users will directly to the homepage.

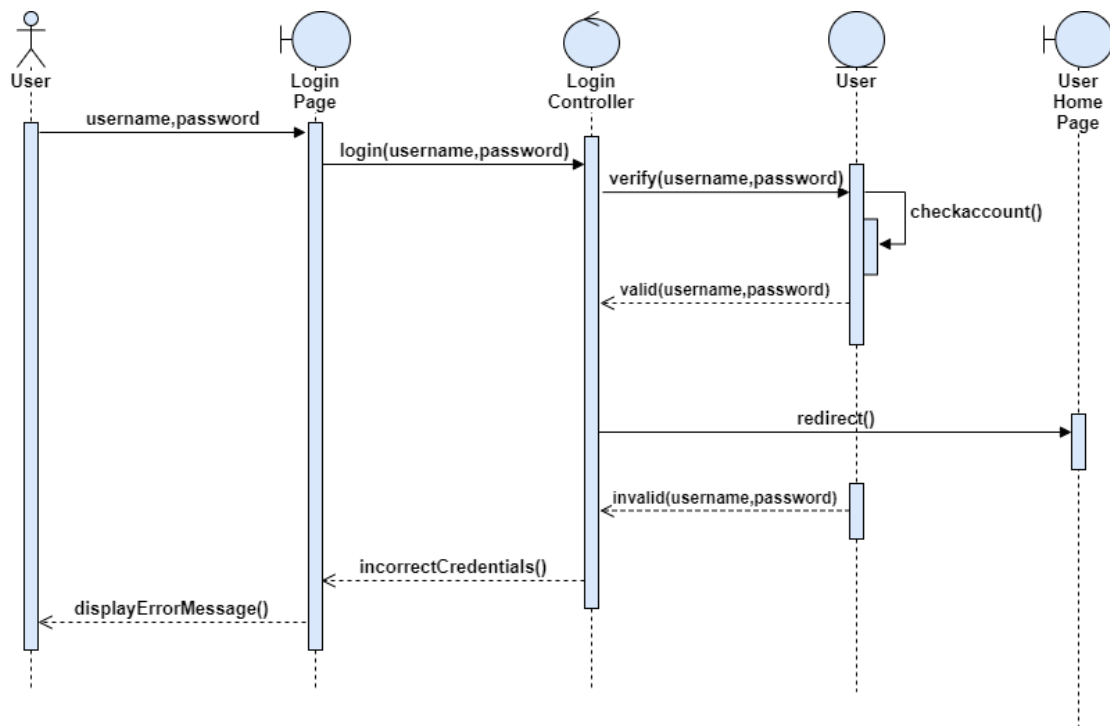


Figure 3.12: Sequence Diagram for Login

3) Change Password

The Figure 3.13 below shows the actors which are sellers, buyers, and administrator who want to change their password. User must click the “Change Password”, the system will provide the form to users to fill up. After the system can verify the new password, users can use the new password. If the users give invalid old password or the “password” and “confirm password” is not matched, then the password will not be updated.

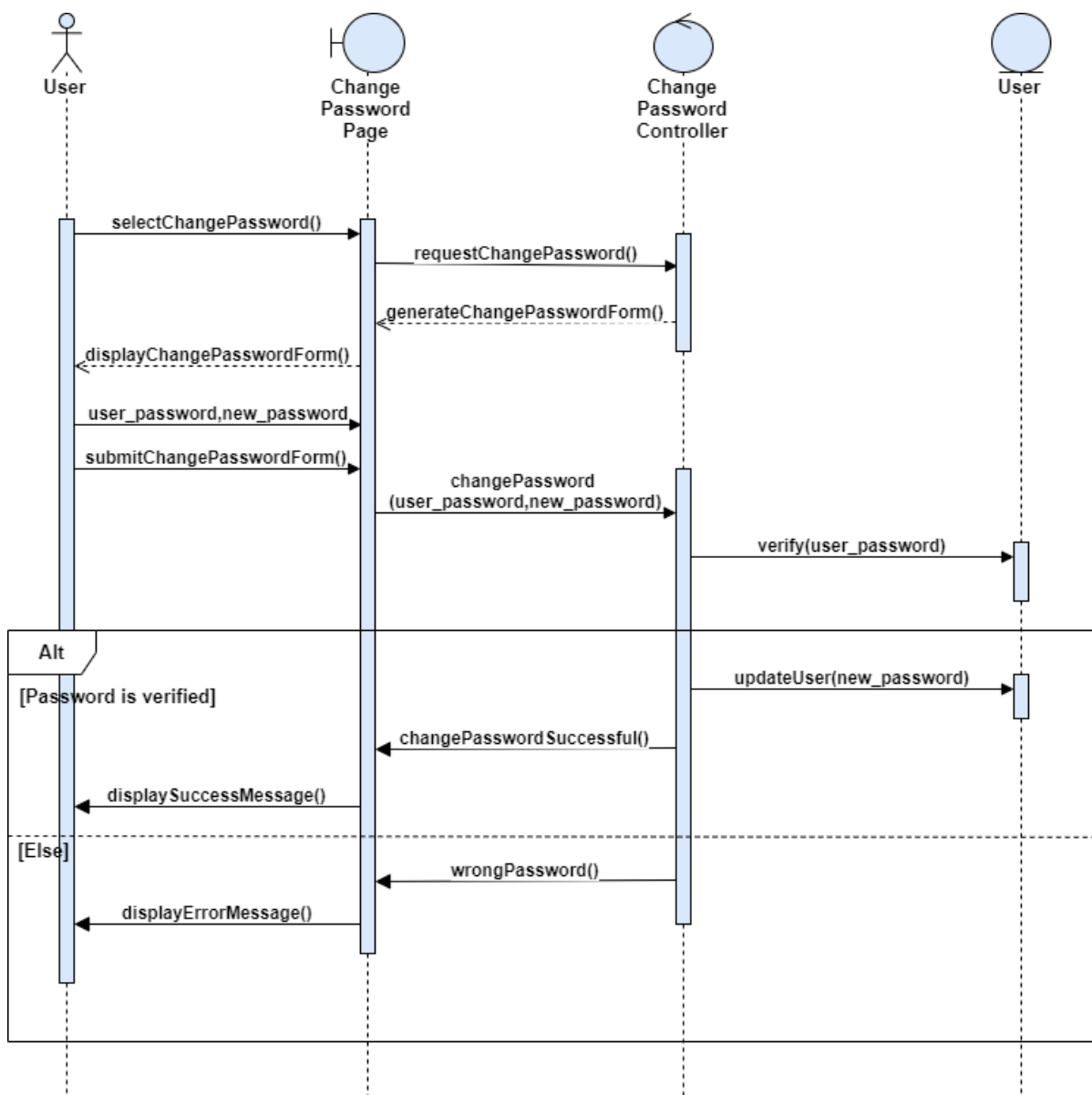


Figure 3.13: Sequence Diagram for Change Password

4) Deactivate Account

The actor in Figure 3.14 is sellers and users who want to deactivate their account. User hit the “Deactivate Account” button, the deactivate form will be generated. For the confirmations, user must key in their password to verify. After the system can verify the password matched with the record, the account will be deactivated. If the users key in the wrong password, users are not able to deactivate their account.

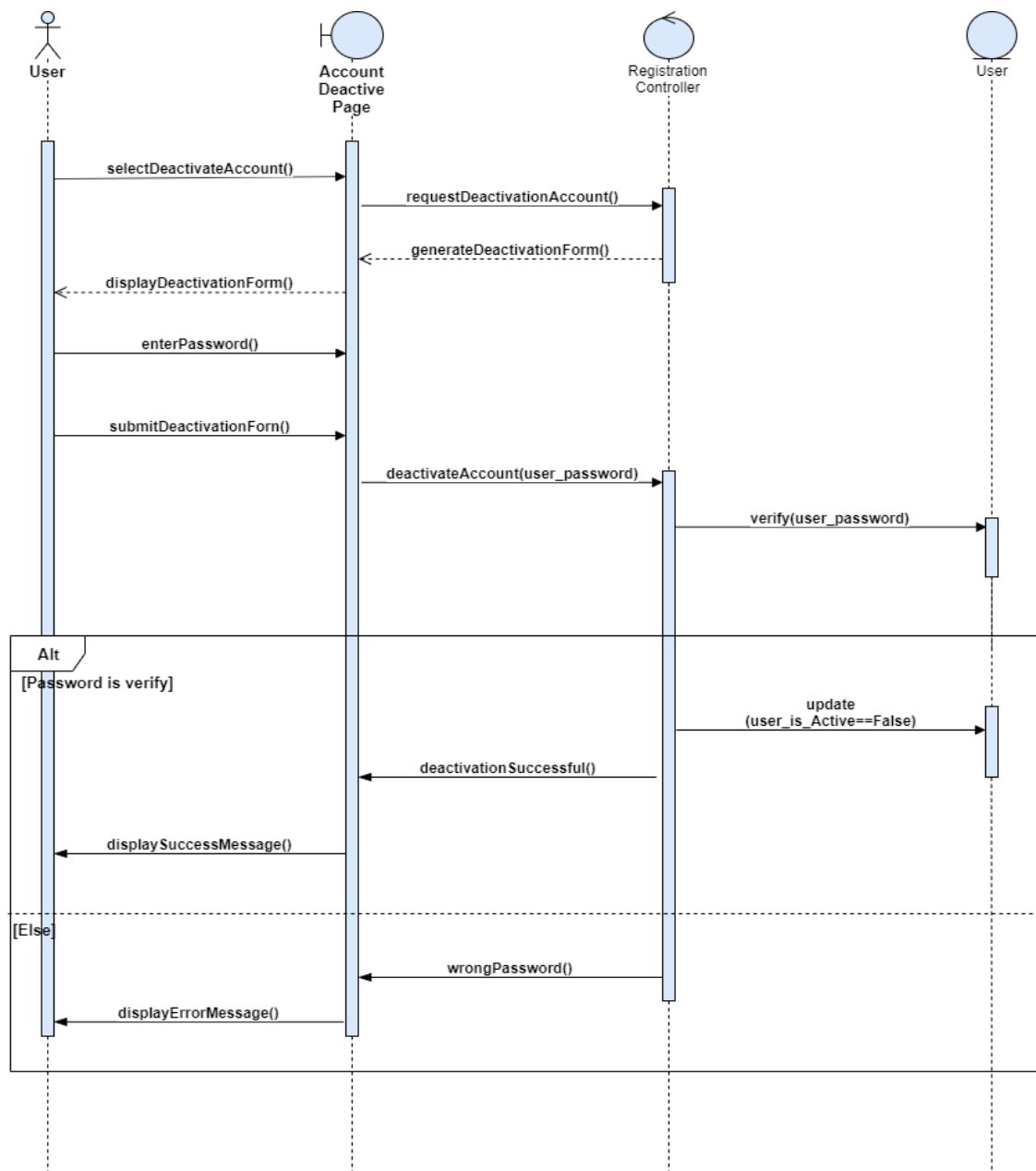


Figure 3.14: Sequence Diagram for Deactivate Account

5) View Item

The actor in this Figure 3.15 is for UNIMAS students who wants to view the items in the system with select sort by item's categories. Users can view the items by selected sort by price (ascending or descending), alphabet (ascending or descending), categories, and dates(latest or recently) that he/she wants, system will display all the related items. Users who love the items can add to cart, but this function is only for those students are log in into the system.

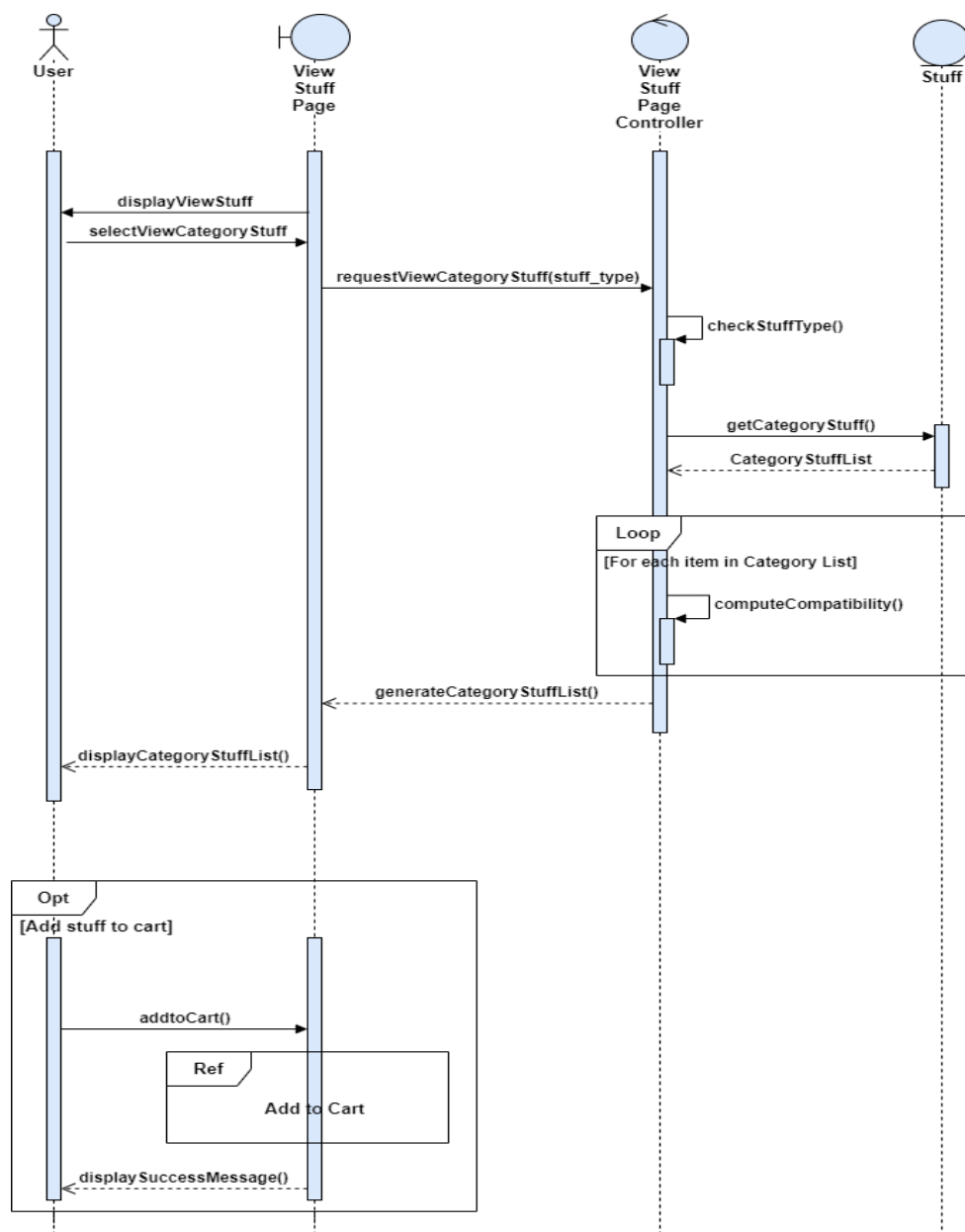


Figure 3.15: Sequence Diagram for View Item

6) Search by Type of Item

The Figure below shows that the user which are the students can use the search function for them to get the types of items that they want. The system will display the related type that the user has key in. Users also can add to cart for the items, but this function limits for those who are login to the system only.

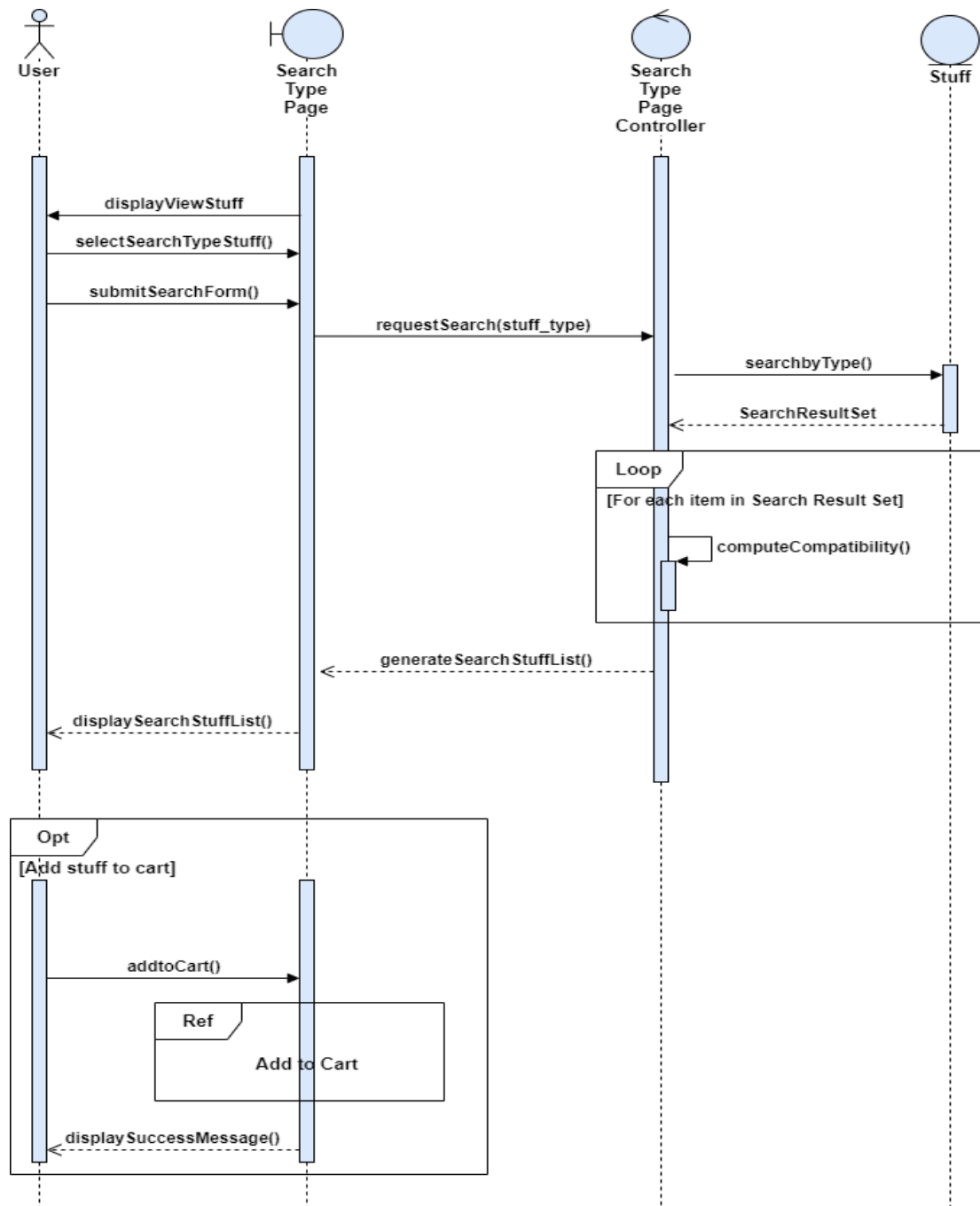


Figure 3.16: Sequence Diagram for Search by Category Item

7) Add/Update/Delete Item

The actor in figure below is for the sellers. Seller can click “Sell” button to add the items, and items details form will be generated. User need filled all the requirements in the form. Then clicked the sell to promote their personal belongings. User also can update the items if the items are available or sold out. If the items are not used anymore, user can delete or remove the items from the list.

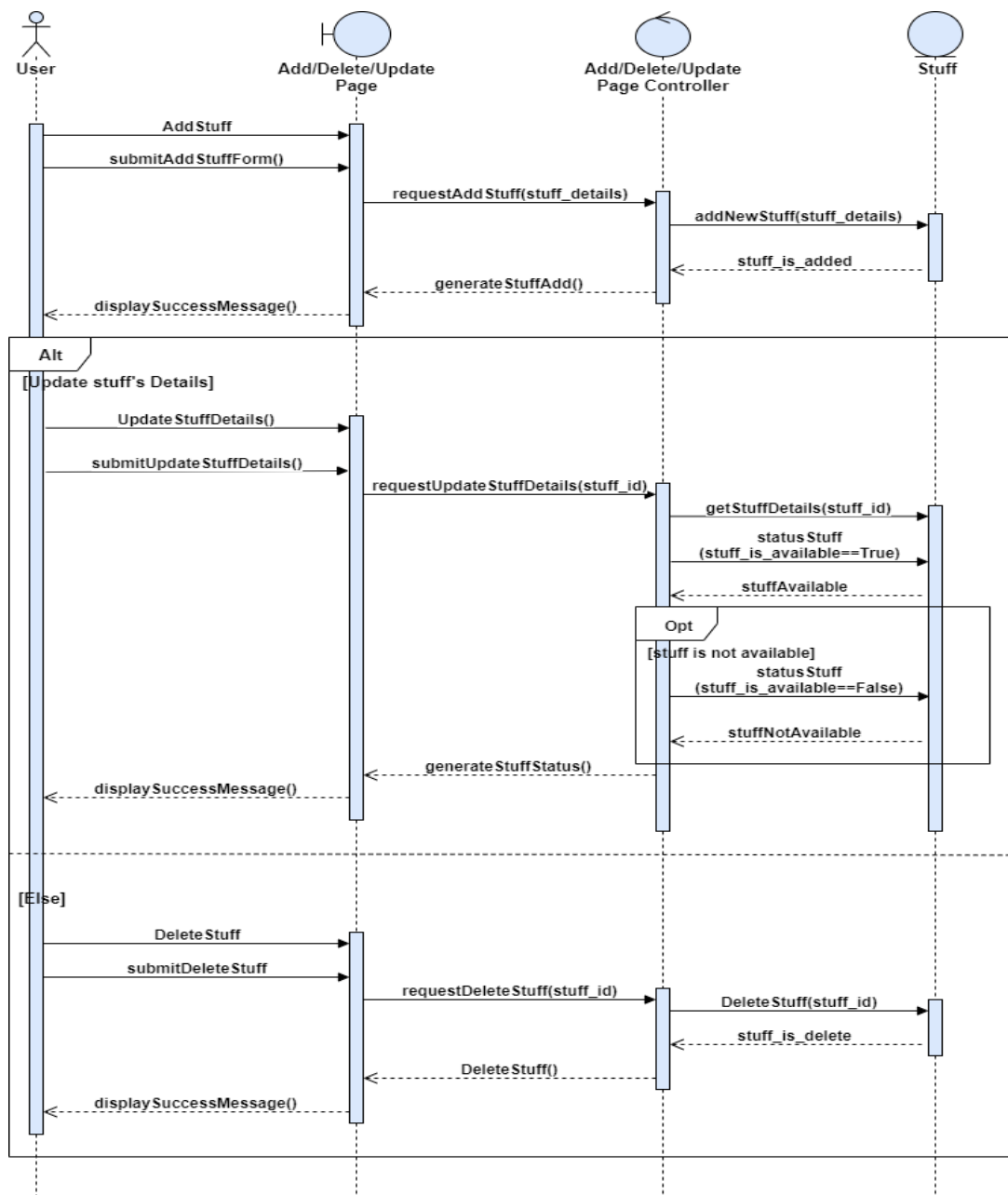


Figure 3.17: Sequence Diagram for Add/Update/Delete Item

8) Manage Cart

The actor in this Figure 3.18 is for buyer to manage their cart, this is only for actor that has an account. User can view their cart list also can update item's quantity and remove items form their cart list.

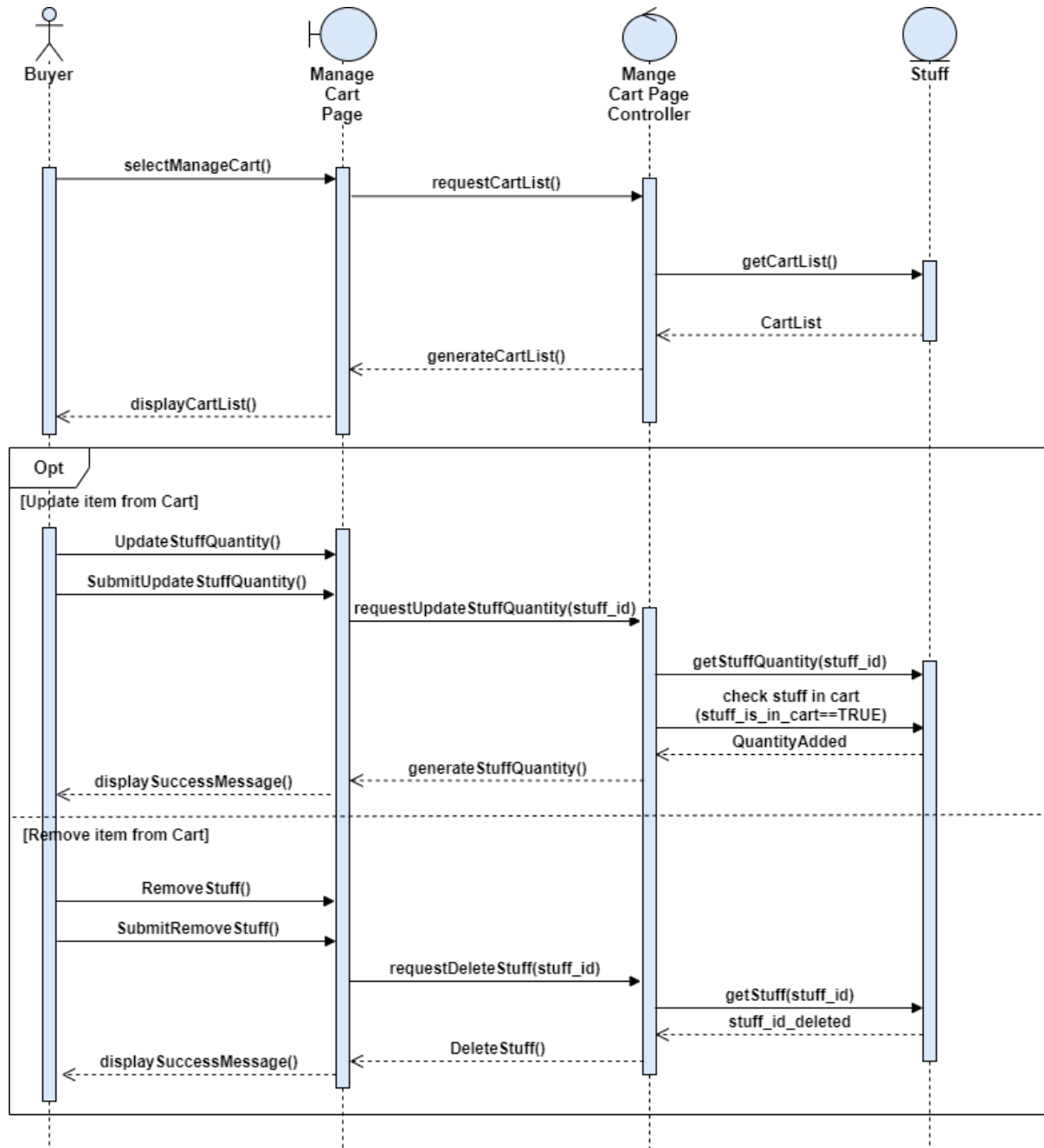


Figure 3.18: Sequence Diagram for Manage Cart

9) Check out

Figure below is for buyer who want to check out the item. This payment method is just for cash. User only can check out if item is in the cart list and have an account.

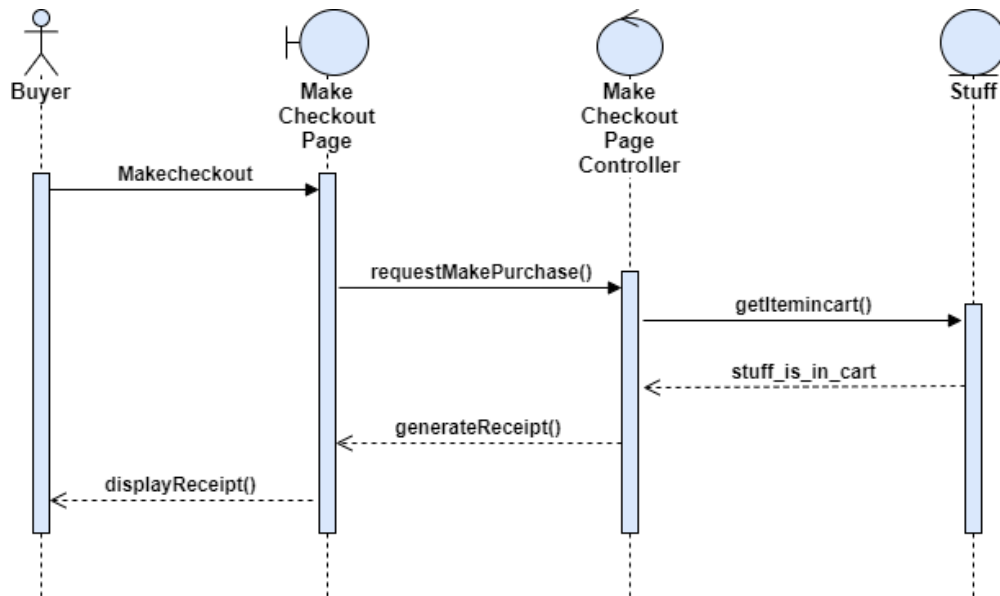


Figure 3.19: Sequence Diagram for Manage Cart

10) Add to Cart

The figure below shows for buyer want to add item in their cart list. The item can be added if the quantity is still available and users is login to the system.

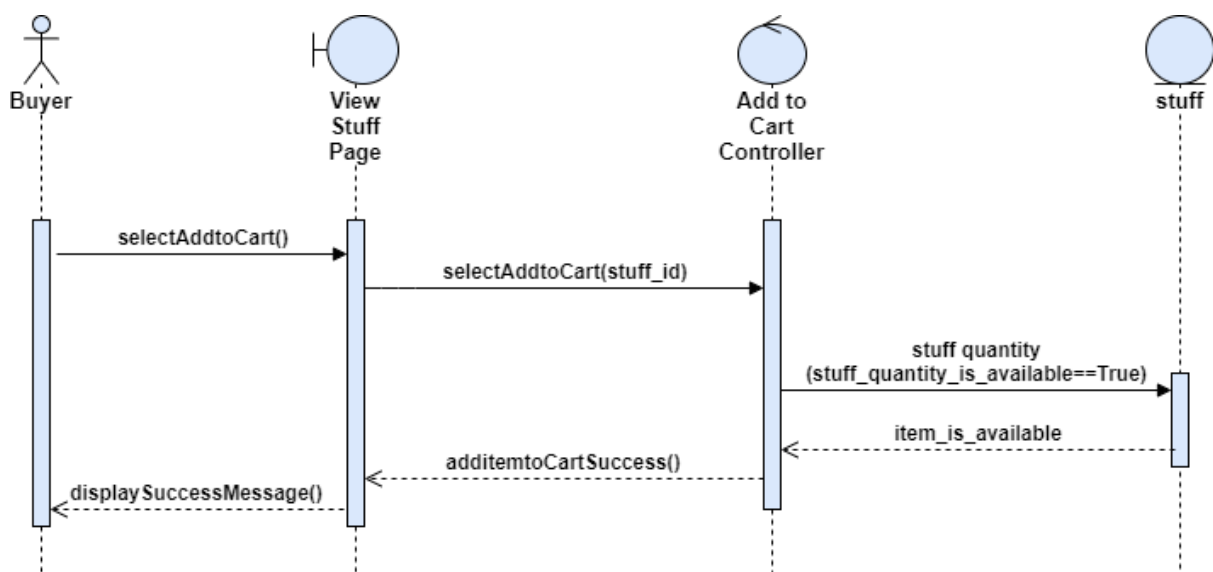


Figure 3.20: Sequence Diagram for Add to Cart

11) Complaint Report

The actor in this Figure 3.21 is for buyer who are login in the system, to make a complaint about the seller. User can submit the complaint report by selecting the type of complaint and description. After all the requirements are filled up, the new report will create be created in the system.

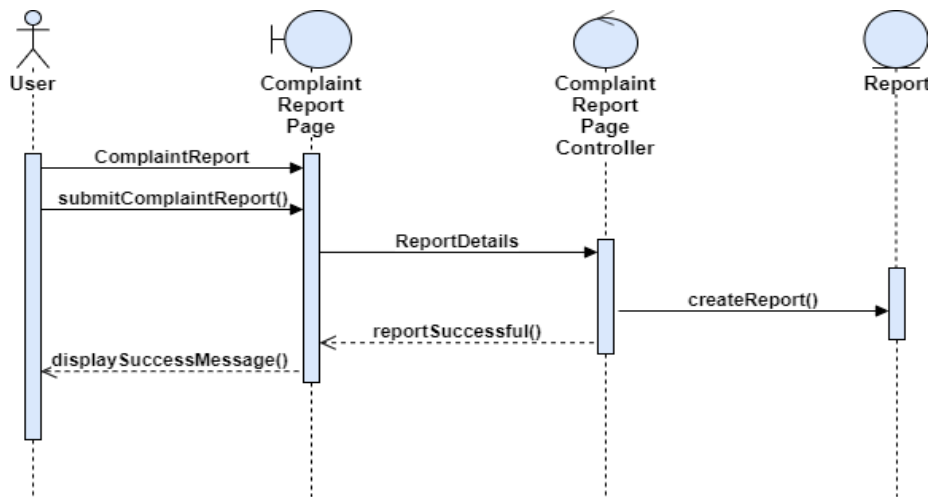


Figure 3.21: Sequence Diagram for Complaint Report

12) View User Details

The figure below is for administrator who would like to view the user details. Administrator can select the user's details and the system will display the user information.

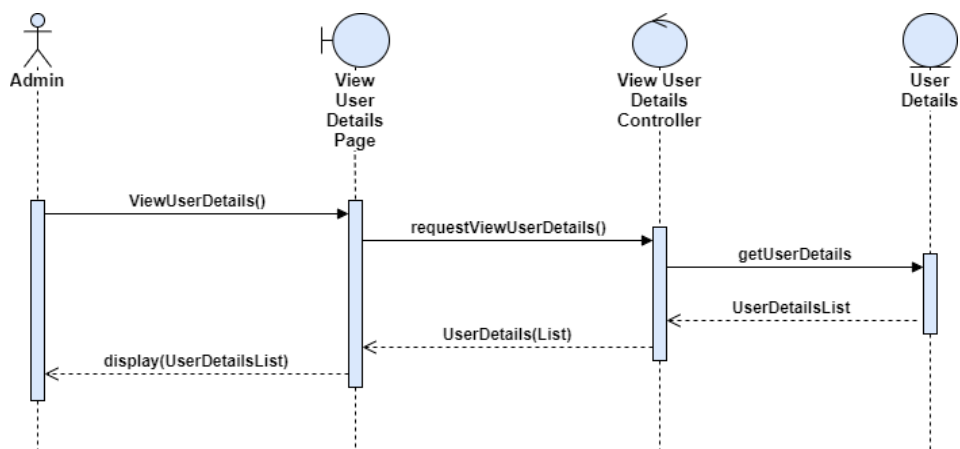


Figure 3.22: Sequence Diagram for View User Details

13) Verify Complaint Report

The actor in this figure is for administrator. The user can select the report details to view if any new report is created. After the admin view the report, admin can send warning email manually based on the complaint are created. Admin can verify the report from pending to complete or from complete to pending. After this process, the system will update the report. The report will be solved after the report status is Complete.

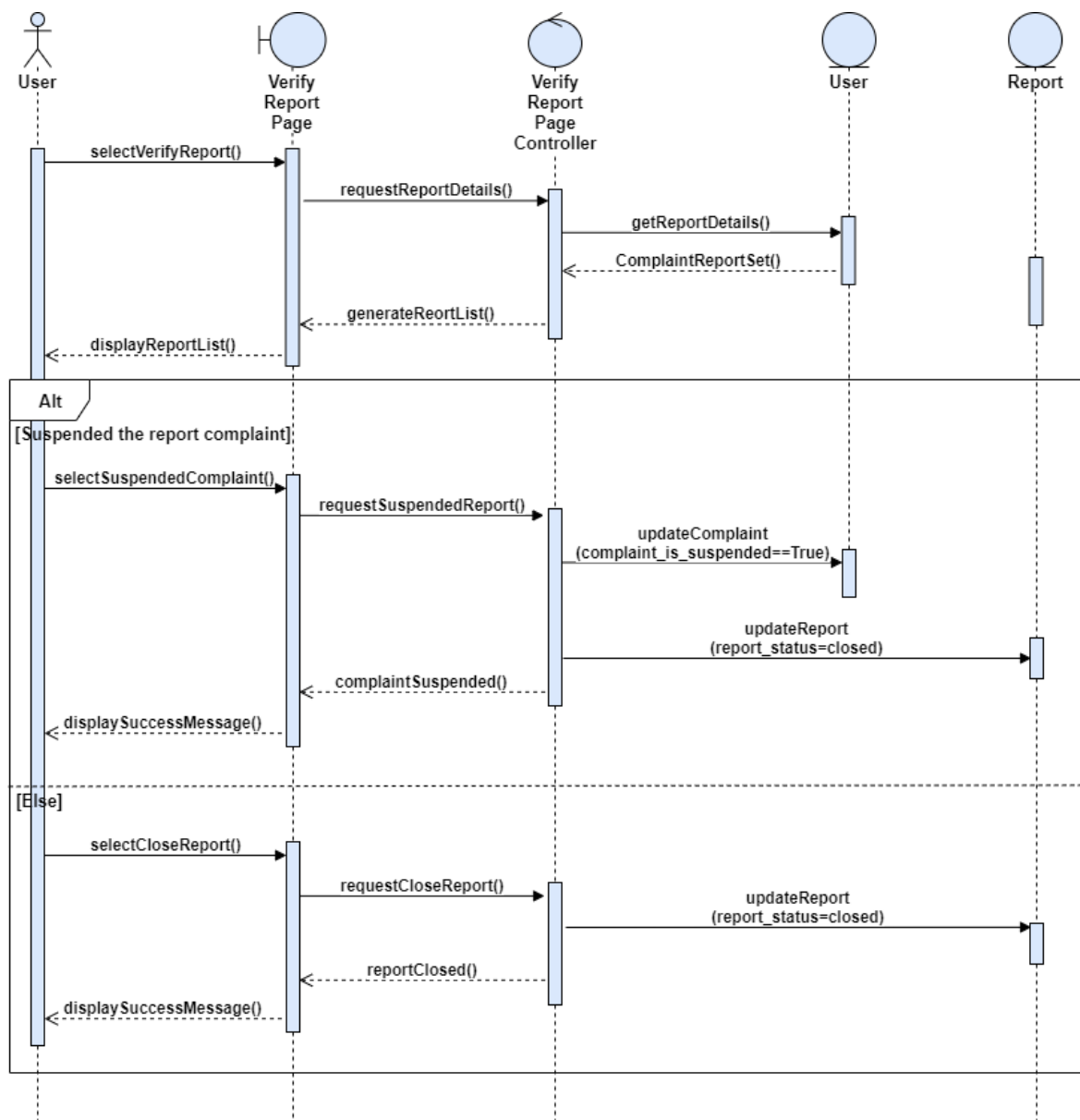


Figure 3.23: Sequence Diagram for Verify Complaint Report

3.5 User Description

1) Register an account

Short Description	The users register to become a member
Actor(s)	Seller (s) or Buyer (s)
Basic Flow	1.User must open the website by using web browser 2.The users clicked on sign up button to register 3.The register form will be displayed to users
Alternative Flow	None
Requirement(s)	Users must study in UNIMAS
Pre-Condition	The users do not have account
Post-Condition	The user's account will be recorded

TABLE 3.3: USER DESCRIPTION FOR REGISTER AN ACCOUNT

2) Login

Short Description	The user login into the system
Actor(s)	Seller (s) or Buyer (s) or Admin
Basic Flow	1.User must open the website by using web browser 2.The users clicked on sign in button to login 3.The login form will be displayed to users
Alternative Flow	None
Requirement(s)	Users must have an account for seller and buyer
Pre-Condition	The user enters the correct username and password
Post-Condition	The seller and buyer will be redirect to the store page while for admin will redirect to complaint report details page

TABLE 3.4: USER DESCRIPTION FOR LOGIN

3) Change Password

Short Description	The user wants to change their password to the new password
Actor(s)	Seller (s) or Buyer (s) or Admin
Basic Flow	1.User clicked on change password button 2.The change password form will be displayed to users
Alternative Flow	None
Requirement(s)	Users must have an account for seller and buyer Users must login into the system
Pre-Condition	The users must enter the correct current password
Post-Condition	The new password is will be successfully created

TABLE 3.5:USER DESCRIPTION FOR CHANGE PASSWORD

4) Deactivate Account

Short Description	The user wants to delete their account
Actor(s)	Seller (s) or Buyer (s)
Basic Flow	1.User clicked on deactivate account button 2.The deactivate account form will be displayed to users
Alternative Flow	None
Requirement(s)	Users must have an account Users must login into the system
Pre-Condition	The user enters the correct current password
Post-Condition	The user's account will be deleted from system

TABLE 3.6:USER DESCRIPTION FOR DEACTIVATE ACCOUNT

5) View Items

Short Description	The user wants to view items in the system by clicking the image
Actor(s)	Seller (s) or Buyer (s)
Basic Flow	1.User can view item by clicked the item's image 2.If user want to view full details in one page, users need to click view all page button 3.The item details will be appeared
Alternative Flow	1.User can view the item before login but that will be limitation information about the item 2.User who are login can view full item details in one page by clicking view full details
Requirement(s)	User must login into the system
Pre-Condition	None
Post-Condition	The users successfully view the items

TABLE 3.7: USER DESCRIPTION FOR VIEW ITEMS

5.1) Alternative Flow for View Item without login into the system

Short Description	The user wants to view items in the system without login
Actor(s)	Seller (s) or Buyer (s)
Basic Flow	1.User can view item but not all the details will be shown
Alternative Flow	1.User can view the item after login
Requirement(s)	Users must study at the UNIMAS
Pre-Condition	None
Post-Condition	The users successfully view the items

TABLE 3.8: USER DESCRIPTION FOR ALTERNATIVE VIEW ITEMS WITHOUT LOGIN

5.2) Alternative Flow for View full details Item in one page

Short Description	The user wants to view full item details in one page
Actor(s)	Seller (s) or Buyer (s)
Basic Flow	1. User can view item by clicked the item's image 2. User want to view full details in one page, users need to click view all page button 3. The item details will be appeared
Alternative Flow	1. User can view item by clicking item image
Requirement(s)	User must login into the system
Pre-Condition	None
Post-Condition	The users successfully view the items

TABLE 3.9: USER DESCRIPTION FOR ALTERNATIVE VIEW ITEMS WITH FULL DETAILS IN ONE PAGE

6) Add Item

Short Description	The user wants to sell their item
Actor(s)	Seller (s)
Basic Flow	1. User clicked on the sell button 2. The add item form will be appeared to the user
Alternative Flow	None
Requirement(s)	User must login into the system The item must be second-hand stuff
Pre-Condition	The user must have the item to let go
Post-Condition	The users successfully add item to the system

TABLE 3.10: USER DESCRIPTION FOR ADD ITEM

7) Update Item

Short Description	The user wants to update their item form the list
Actor(s)	Seller (s)
Basic Flow	1.User clicked on profile button 2.The item that user listed will be appeared 3.User can click the item image 4.User can click the update status button 5.The update form will be appeared to user
Alternative Flow	1.User can click the image then choose the update status button
Requirement(s)	User must login into the system
Pre-Condition	User must have sold item in Listing list.
Post-Condition	The users successfully update item to the system

TABLE 3.11: USER DESCRIPTION FOR UPDATE ITEM

7.1) Alternative Flow for Update Item

Short Description	The user wants to update their item status form the list
Actor(s)	Seller (s)
Basic Flow	1.User clicked on profile button 2.The item that user listed will be appeared 3.User can click the item's image 4.User can click the update status button
Alternative Flow	1.User can click the image then choose the update button
Requirement(s)	User must login into the system
Pre-Condition	User must have sold item in Listing list.
Post-Condition	The users successfully update status item to the system

TABLE 3.12: USER DESCRIPTION FOR ALTERNATIVE UPDATE ITEM STATUS

8) Delete Item

Short Description	The user wants to delete their item form the list
Actor(s)	Seller (s)
Basic Flow	1.User clicked on profile button 2.The item that user listed will be appeared 3.User can click the item's image 4.User can click the delete button
Alternative Flow	None
Requirement(s)	User must login into the system
Pre-Condition	User must have sold item in the Listing list
Post-Condition	The users successfully delete item from the system

TABLE 3.13: USER DESCRIPTION FOR DELETE ITEM

9) Add to Cart

Short Description	The user wants to add item in cart list
Actor(s)	Buyer (s)
Basic Flow	1.User clicked on item image 2.User click on the view full details button 3.The full details of item will be appeared to the user 4.User can click add to cart button
Alternative Flow	None
Requirement(s)	User must login into the system
Pre-Condition	Item quantity is bigger than 0
Post-Condition	The users will redirect to the cart list page

TABLE 3.14: USER DESCRIPTION FOR ADD TO CART

10) Manage Cart – Update Item in Cart List

Short Description	The user wants to update item quantity in the cart list
Actor(s)	Buyer (s)
Basic Flow	1.User clicked on Your Cart button 2.The cart list will be appeared to the user 3.User clicked on the update quantity button 4.The update quantity form will be appeared
Alternative Flow	None
Requirement(s)	User must login into the system
Pre-Condition	Item is in the cart
Post-Condition	The users successfully update item quantity to the cart list

TABLE 3.15: USER DESCRIPTION FOR UPDATE ITEM QUANTITY IN CART LIST

11) Manage Cart – Remove Item from Cart List

Short Description	The user wants to remove item in the cart list
Actor(s)	Buyer (s)
Basic Flow	1.User clicked on Your Cart button 2.The cart list will be appeared to the user 3.User clicked on the remove button
Alternative Flow	None
Requirement(s)	User must login into the system
Pre-Condition	Item is in the cart
Post-Condition	The users successfully remove item from the cart list

TABLE 3.16: USER DESCRIPTION FOR REMOVE ITEM FROM CART LIST

12) Checkout Item

Short Description	The user wants to checkout item from the cart list
Actor(s)	Buyer (s)
Basic Flow	1.User clicked on Your Cart button 2.The cart list will be appeared to the user 3.User clicked on the checkout button
Alternative Flow	None
Requirement(s)	User must login into the system
Pre-Condition	Item is in the cart
Post-Condition	The users successfully checkout the item

TABLE 3.17: USER DESCRIPTION FOR CHECKOUT ITEM FROM CART LIST

13) Make Report

Short Description	The user wants to create complaint report if unsatisfied event occurred during the purchase process
Actor(s)	Seller (s) or Buyer (s)
Basic Flow	1.User clicked on Report button 2.The report complaint form will be appeared to the users
Alternative Flow	None
Requirement(s)	User must login into the system
Pre-Condition	None
Post-Condition	The report will be sent to the admin

TABLE 3.18: USER DESCRIPTION FOR CREATE COMPLAINT REPORT

14) View User Details

Short Description	The user wants to view user details in the system
Actor(s)	Admin
Basic Flow	1.User clicked on view user details button 2.The user details will be appeared to the users
Alternative Flow	None
Requirement(s)	User must login into the system
Pre-Condition	Seller or Buyer has registered an account
Post-Condition	The admin successfully views user details

TABLE 3.19: USER DESCRIPTION FOR VIEW USER DETAILS

15) View Complaint Reports

Short Description	The user wants to view complaint reports in the system
Actor(s)	Admin
Basic Flow	1.User clicked on view complaint report button 2.The complaint report will be appeared to the users
Alternative Flow	None
Requirement(s)	User must login into the system
Pre-Condition	Seller or Buyer has sent the complaint report form
Post-Condition	The admin successfully views user complaint report

TABLE 3.20: USER DESCRIPTION FOR VIEW COMPLAINT REPORT

16) Verify Complaint Report

Short Description	The user wants to verify complaint reports in the system
Actor(s)	Admin
Basic Flow	1.User clicked on view complaint report button 2.The complaint report will be appeared to the users 3.User clicked on action button to update the status of report from pending to complete or from complete to pending
Alternative Flow	None
Requirement(s)	User must login into the system
Pre-Condition	Seller or Buyer has sent the complaint report form
Post-Condition	The admin successfully updates status report

TABLE 3.21: USER DESCRIPTION FOR VERIFY COMPLAINT REPORT

17) Delete Complaint Report

Short Description	The user wants to delete unnecessary complaint reports in the system
Actor(s)	Admin
Basic Flow	1.User clicked on view complaint report button 2.The complaint report will be appeared to the users 3.User clicked on delete button
Alternative Flow	None
Requirement(s)	User must login into the system
Pre-Condition	Seller or Buyer has sent the complaint report form
Post-Condition	The admin successfully deletes complaint report

TABLE 3.22: USER DESCRIPTION FOR DELETE COMPLAINT REPORT

3.6 Database Design

For this proposed system, the database design will be shown with the help of class diagram.

This diagram use to visualize the database of the proposed system.

3.5.1 Class Diagram

Figure 3.24 show the class diagram of the proposed system. Since the system is used to store the items and users record in the database, the diagram is including with the attributes needed for the system and the operation occur.

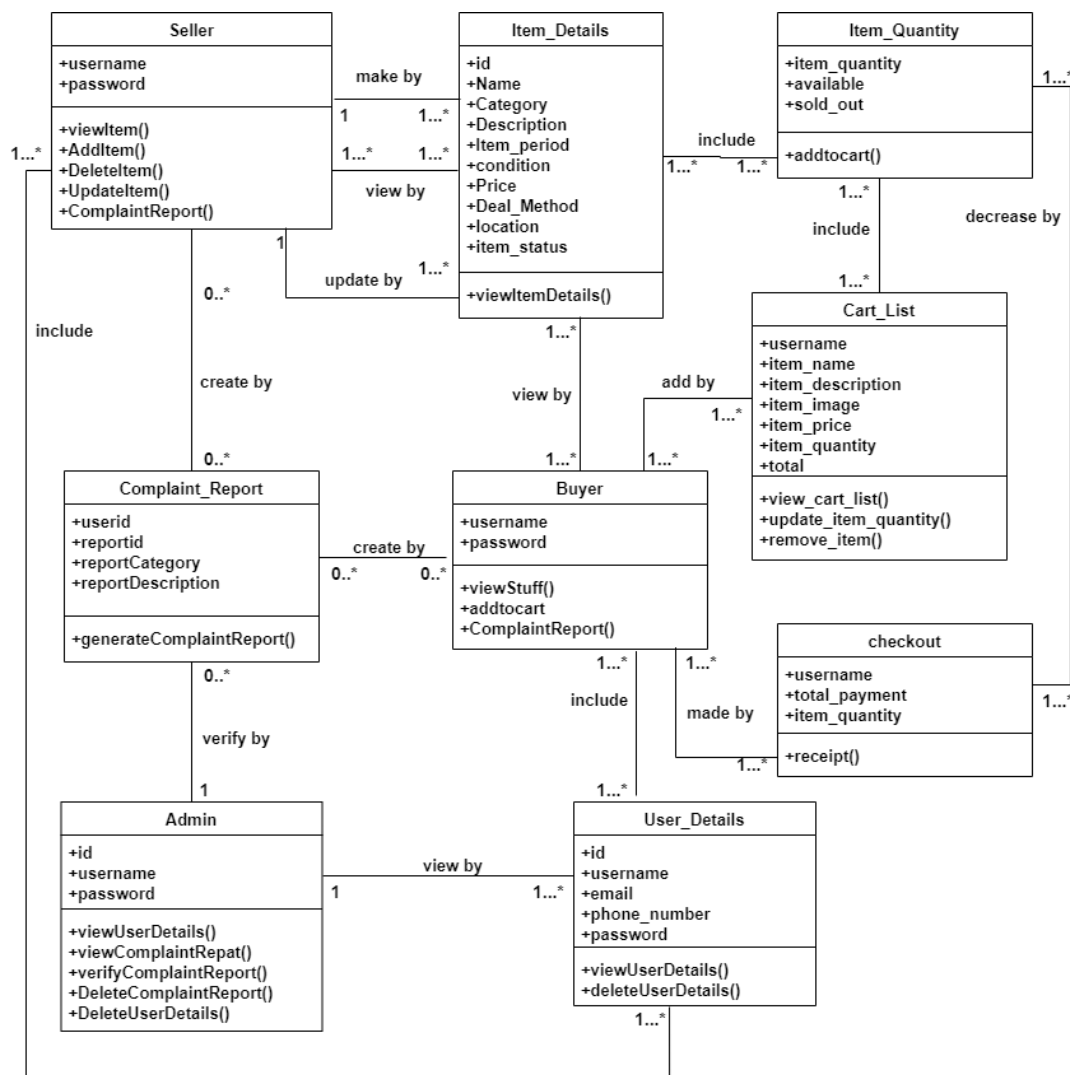


Figure 3.24: Class Diagram

3.6 Interface Design

Interface design for the proposed system has been designed as a reference in developing a proposed system. Interface is designed to give an idea on how the proposed system will look like such as login system, homepage, register form for users, report and so on.

3.6.1 User Interfaces

The user interfaces are a non-functional prototype where it has shown the demonstrating flows and visual layout of the elements that users expected to interact with the proposed system.

(i) User

Index page

The index page in this proposed system is to view the items where is the first page that presented to the user. Users can view the items without login and can know the seller details especially the seller's contact number. He/she can directly contact the seller or make the purchased even though the user is not login.

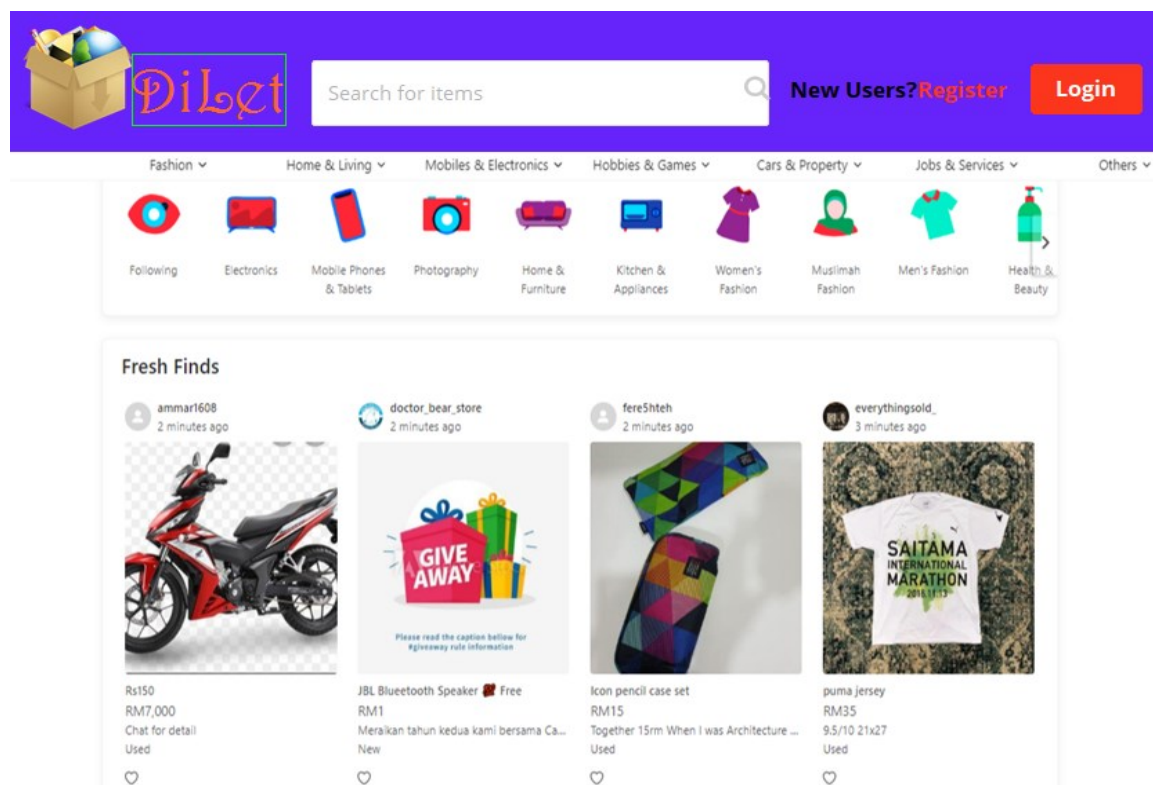


Figure 3.25: Index Page of DiLet

Register Page

The user who wants to become the seller, he/she need to register the account. The sign-up form is displayed to allow the user to create an account.

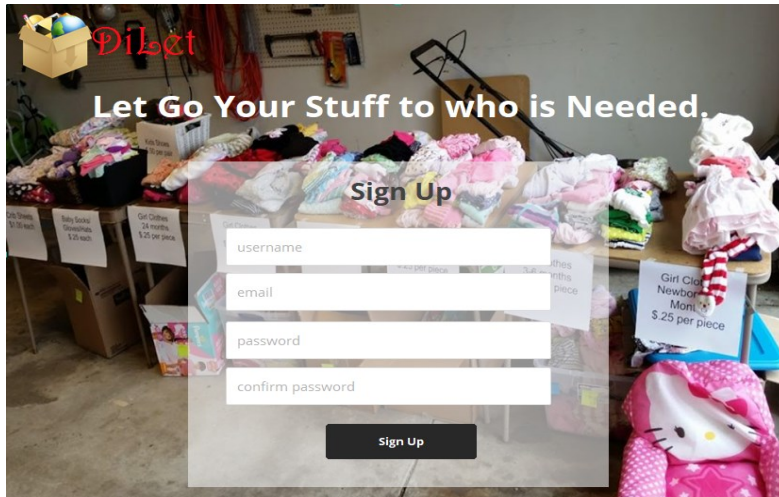


Figure 3.26: Register Page for DiLet

Login Page

User login to the system by entering the correct username and password.

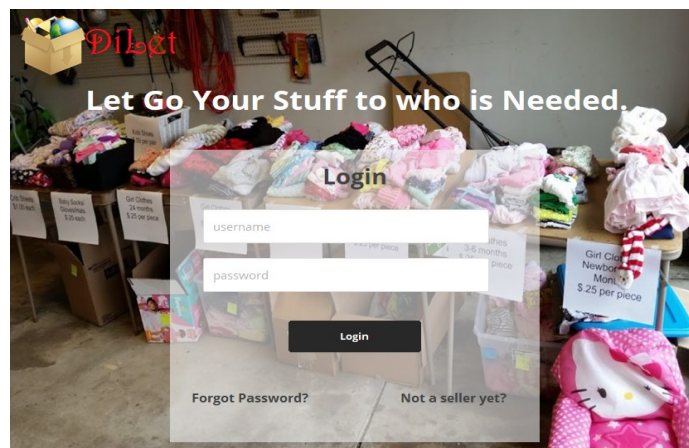


Figure 3.27: Login Page for DiLet

Page After Login

After the user already login to the system, they will direct to the homepage.

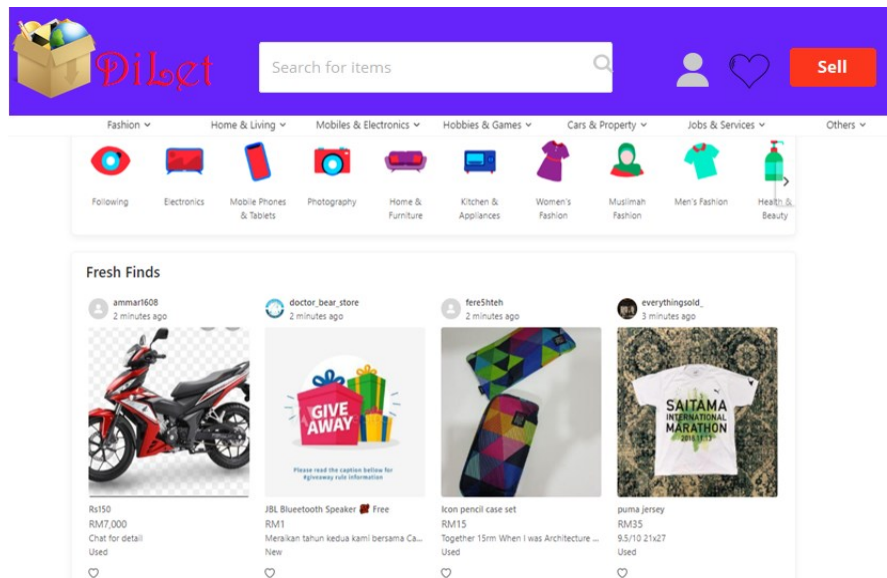


Figure 3.28: Page After Login for DiLet

Top Navigation Bar

The top navigation bar is suited at the top of the page. Tabs available have the search items, where has two modes of searching mechanism: basic search and advance search. The drop-down menu will display my profile, account setting, complaint report, and logout. The love icon is for the user to view the favourite list that he/she has marked as favourite. The right corner button is for the user who wants to let go of their items. If the user clicks on the DiLet icon, it will redirect to the user's homepage.

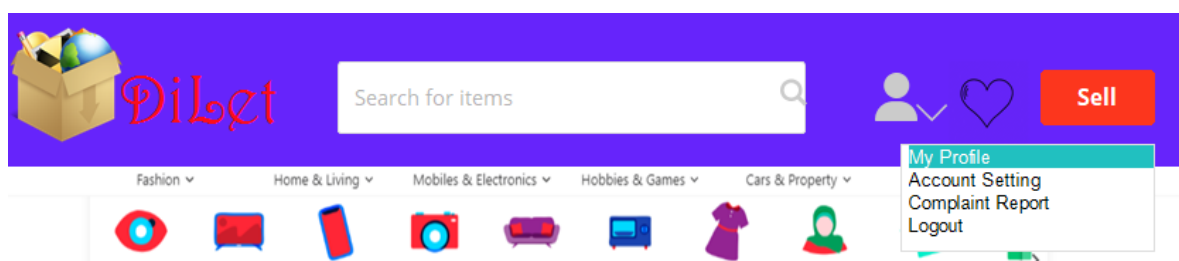


Figure 3.29: Tab Navigation Bar for DiLet

Add New Item Page

After the user already creates an account, the user can let go of their items. He/she can add the item's details in the provided form. The seller can decide whether the items that he/she want to let go is free or not, or request to pick up at their places or select the meet point and add the location where they need to meet. The seller also can choose the payment methods whether he/she want to cash, online banking or either of them is fined.

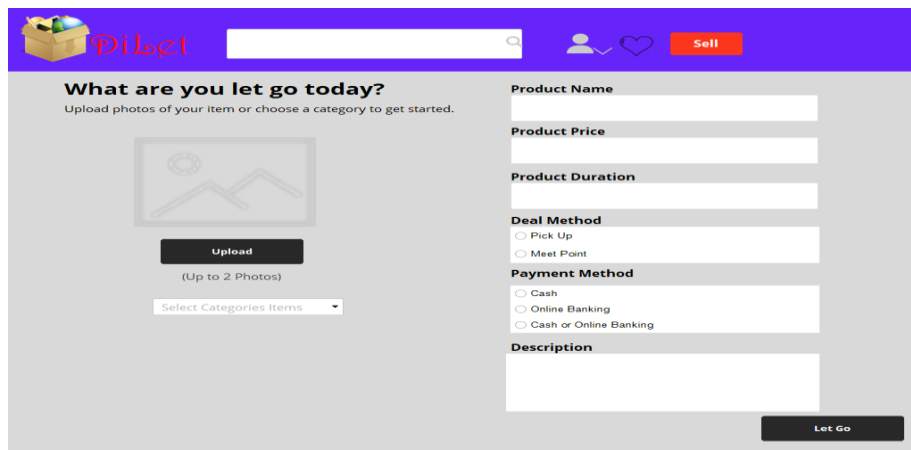


Figure 3.30: Add New Item Page for DiLet

Delete and Update Page

The seller can delete the item's details if the item is already done in the purchase process. He/she also can update the item's status like the item is already sold or still available for the user to grab it.

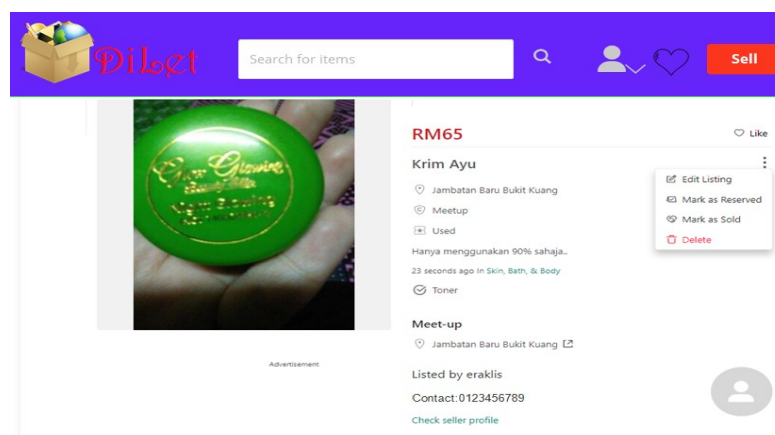
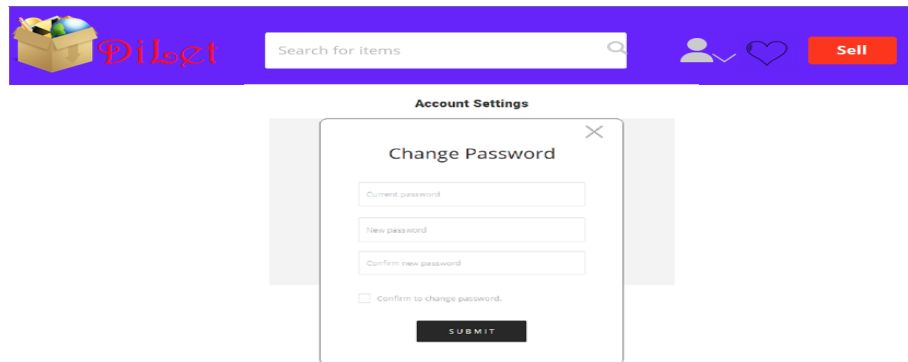


Figure 3.31: Delete and Update Item page for DiLet

Account Setting Page

On this page, users can view his/her general account details and it provided the options to choose either to change the password or deactivate the account.

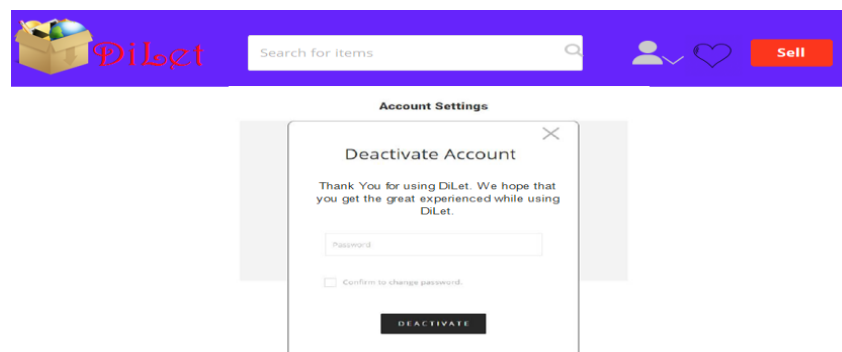
Change Password Page



The screenshot shows the DiLet website interface. At the top is a purple navigation bar with the DiLet logo, a search bar, and user icons. Below the navigation bar, a modal window titled 'Account Settings' is open, displaying the 'Change Password' form. The form includes three input fields: 'Current password', 'New password', and 'Confirm new password'. Below these fields is a checkbox labeled 'Confirm to change password.' and a 'SUBMIT' button.

Figure 3.32: Change Password Page for DiLet

Deactivate Account Page



The screenshot shows the DiLet website interface. At the top is a purple navigation bar with the DiLet logo, a search bar, and user icons. Below the navigation bar, a modal window titled 'Account Settings' is open, displaying the 'Deactivate Account' form. The form includes a message: 'Thank You for using DiLet. We hope that you get the great experienced while using DiLet.' followed by a 'Password' input field. Below the input field is a checkbox labeled 'Confirm to change password.' and a 'DEACTIVATE' button.

Figure 3.33: Deactivate Account page for DiLet

Complaint Report Page

If the users have discovered misbehaviour with another user, he/she can submit the complaint form. The user needs to choose the reason for reporting and brief to describe the complaint. The reason provided in this proposed system is the conditioning items is not good as the mention, seller or buyer did not come to the meet point location, seller or buyer did not come after making an online payment, and lastly, sellers cheat about the price.

Figure 3.34: Complaint Report Page for DiLet

(ii) Administrator

Top Navigate Bar

For the administrator page, at the right corner, a drop-down menu will be displayed upon clicking, provided the administrator to select the options between to change the password or logout from the system. The administrator can select to view users or to view the complaint report.

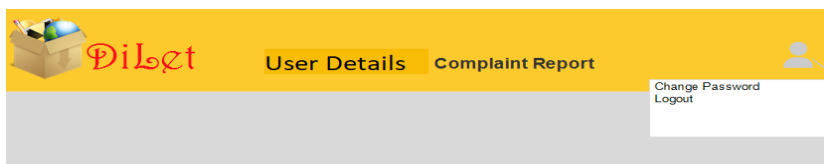


Figure 3.35: Top Navigation Bar for Administrator page

View User Details

The user details will generate after the admin click on the User Details button. For this report, the admin can view the user id, username, email, contact info. The seller can delete the user's details if the users still misbehave after give a warning.

User id	Username	Email	phone number	Delete
001	Adam	adam@gamil.com	0123589764	Delete
005	Ayue	ayue@gmail.com	0142589637	Delete

Figure 3.36: User's Details Report Page for DiLet

View Complaint Report Page

The list of the complaint report submitted by the users will be displayed to the administrator by clicking the “Complaint Report” button. Admin can view the report id, username who is created the report, seller name which have been reported, report category, and so on. Admin also can verify the complaint report by clicking the status “uncomplete” to “complete. If the complaint report is not necessary, admin can delete the report by clicking the delete button.



No	Username	Seller Name	Category	Status	Delete
1.	ain	badrun	Seller or Buyer did not come to meet point location	complete	Delete
2.	Ayue	Adam	The condition of stuff is not good as the mention	complete	Delete
3.	Darwisy	ain	Seller cheats about the price	uncomplete	Delete
4.	azlina	dayaa	Seller or Buyer did not come after online payment	uncomplete	Delete

Figure 3.37: View Complaint Report Page for DiLet

3.7 Summary

Chapter 3 discussed requirements analysis and system design activities performed in the Rapid Application Development (RAD) methodology phase of requirement planning and system design. Definition of user requirements and system requirements is completed with support of use case diagram, activity diagram, and sequence diagrams for requirement analysis. For the database design of the system are using the class diagram. For the design of the system the logical and physical design of the proposed system is outlined using the prototype development of the proposed system.

Chapter 4: Implementation

The main objective in this Chapter 4 is to describe the procedure and process involved in implementing the proposed system, DiLet system. Details of design are fully elaborated in the previous chapter. In this chapter, the whole idea of developing the proposed system, including the software used to develop the system, will be discussed from the beginning. In order to use the software, it will explain what software is used and how to install and set up the software. In addition, the users using the proposed system will be further explained based on their role in the system. Other than that, the explanation of the system functions in the proposed system is also included in this chapter.

4.1 Installation and Configuration of System's Components

The software needed to develop the system is XAMPP, PhpMyAdmin and Brackets. The software used must be properly installed and configured before starting to develop the proposed system. This is to ensure that the process in developing the proposed system is working well.

4.1.1 XAMPP

XAMPP stands for Cross-Platform (X), Apache (A), MySQL (M), PHP (P) and Perl (P) is an open source cross-platform web server. It is a simple and lightweight distribution to develop a web application and perform testing purposes (Dvorski, 2007). That makes it easier for a developer to later edit and update a system. In addition, XAMPP has been used to allow developers to test their work on their own computers without access to the internet. XAMPP must be enabled first before beginning the web development. As XAMPP is free, it can download it from the official website or from any other source. Users only need to open and run the application after download is complete. Then, after the installation is completed, users will be shown a XAMPP control panel while the users choose to open it. To start the development of the web, Apache and MySQL must start during the development period. The purpose is to instruct XAMPP to start the connection to the Apache Web Server and MySQL

database, otherwise the development cannot be carried out. Figure 4.1 shows the layout of the XAMPP Control Panel.

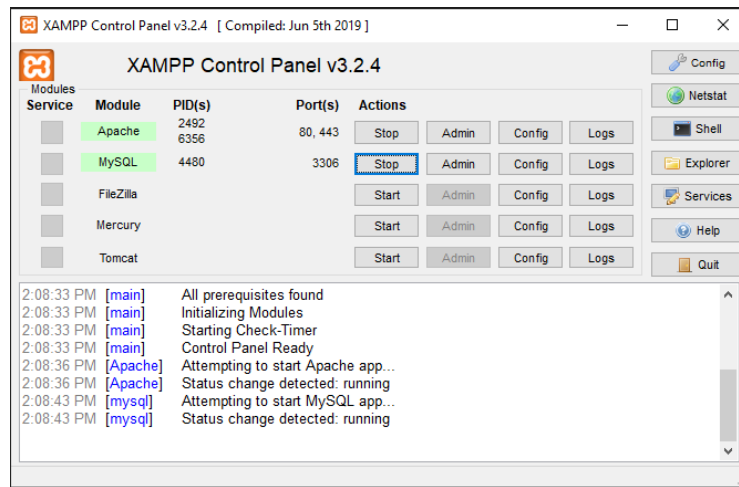


Figure 4.1: XAMPP Control Panel

Once both Apache and MySQL are running, type localhost in the web browser to check if all the components installed are running well. The web page will be directly to *localhost/xampp* as shown in Figure 4.2 and show the information of the installed version and components if it is well installed. For this proposed system, the version of installed XAMPP is 7.3.19 also PHP is version 7.3.19.

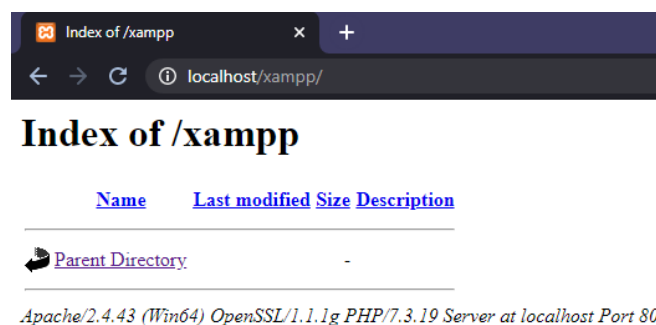


Figure 4.2: Index of XAMPP

4.1.2 PHPMyAdmin

PHPMyAdmin is an open source and free tool written in PHP language. It was intended to manage MySQL administration over the web. With PHPMyAdmin may be performed some operations such as managing database, tables, column, relationships, and permission. It also

allows users to execute the SQL statements to create a table for the database. Figure 4.3 shows a database created in PHPMyAdmin for the proposed system which contains all the table required for the proposed system.

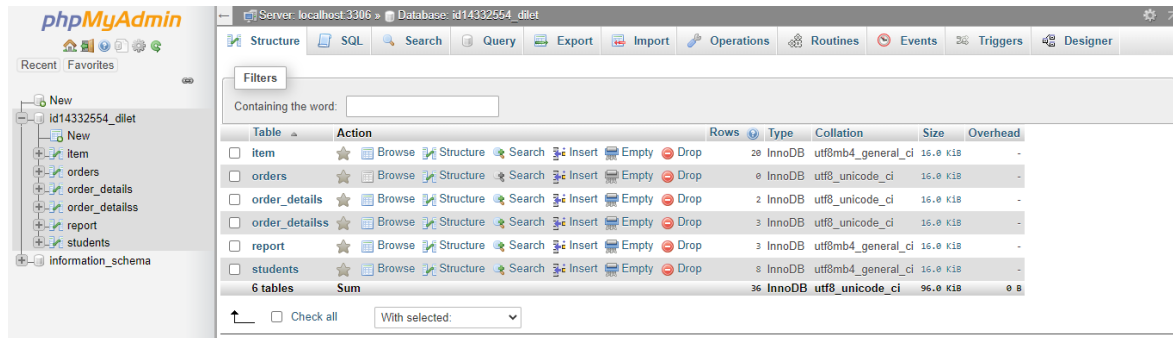


Figure 4.3: Screenshot of the database created in DiLet system

4.1.3 Brackets

Brackets is a code editor that use to write HTML, CSS, PHP, JavaScript and more. It allows multiple open files in a single window that make it easier for the proposed system to use a code while writing. Brackets is used to write a code to this proposed system. Figure 4.4 shows an example code that is writing using Brackets.

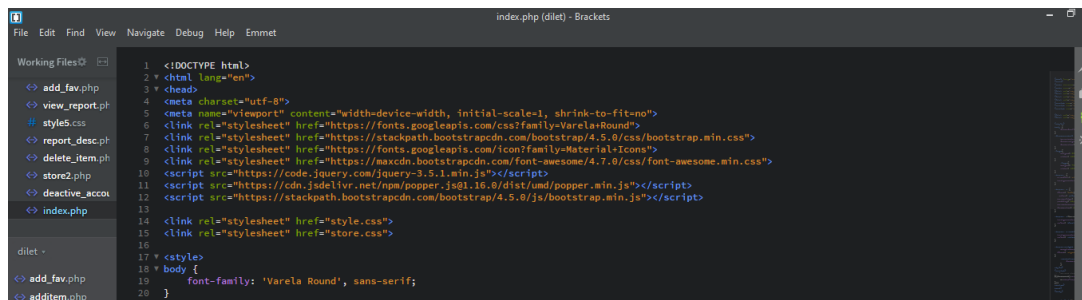


Figure 4.4: Screenshot of developing of the proposed system using Brackets

4.2 Defining Users of the Systems

As mentioned in the previous chapter, there are list of users that will use the system which are admin, buyers, and sellers. The roles of the user are categorized based on their accessibility to the system. Figure 4.5 shows the hierarchy of the user for this proposed system.

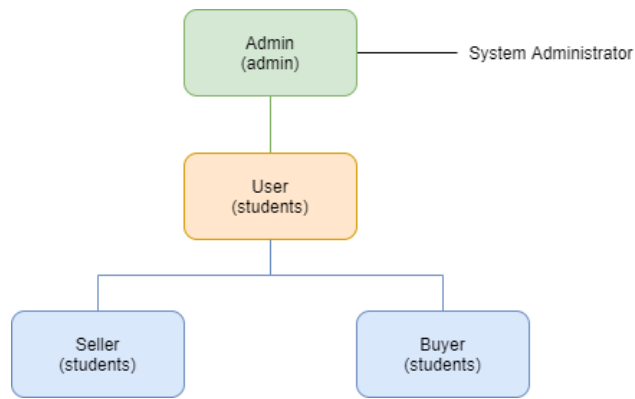


Figure 4.5: User hierarchy for DiLet system

4.2.1 System Administrator

As shown in Figure 4.5, the system Administrator is the admin. The system administrator in this proposed system is including view user details, view the complaint report, reset password, verify complaint report, and delete complaint report or user details.

4.2.2 Users

Users are divided into two which is seller and buyer as shown in Figure 4.5. Both have an authority doing a basic function which managing the item. Each user needs to register an account to buy and sell item. For the buyer, the roles can view the item, view item in category, reset password, add, update item quantity, or remove item from cart and create complaint report. For the seller, they can sell the item like add, delete, or update the item. Both users can view items by sorting, reset password also make a complaint report.

4.3 System Functions

Each user will have a different functionality and limitation of access to the system in this system. Figure 4.6 shows all modules and their submodules in a system based on the type of user.

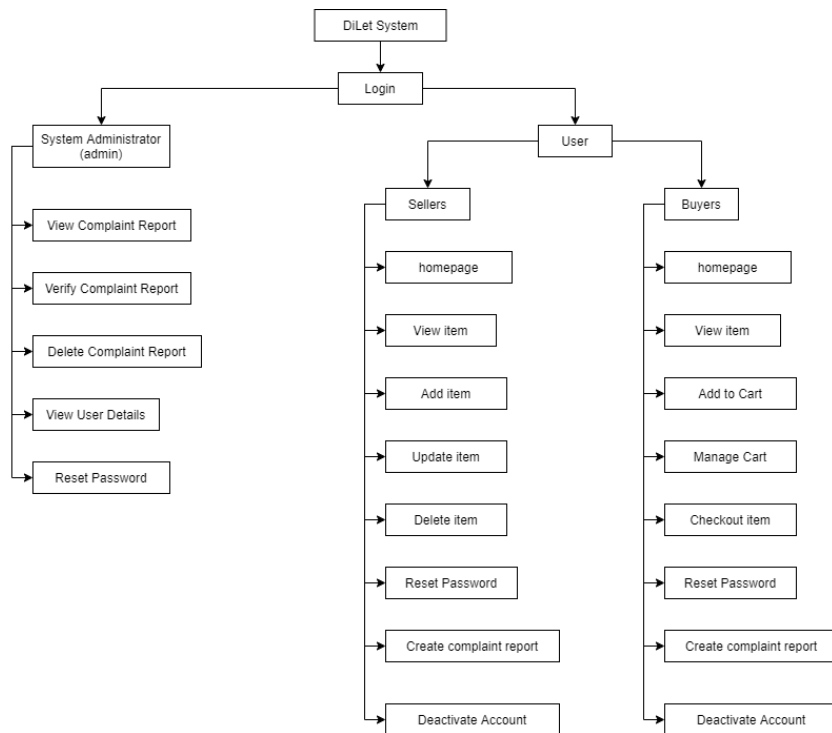


Figure 4.6: System module and sub module for DiLet system

4.3.1 Index page

This is index page for user can view before login to the system.

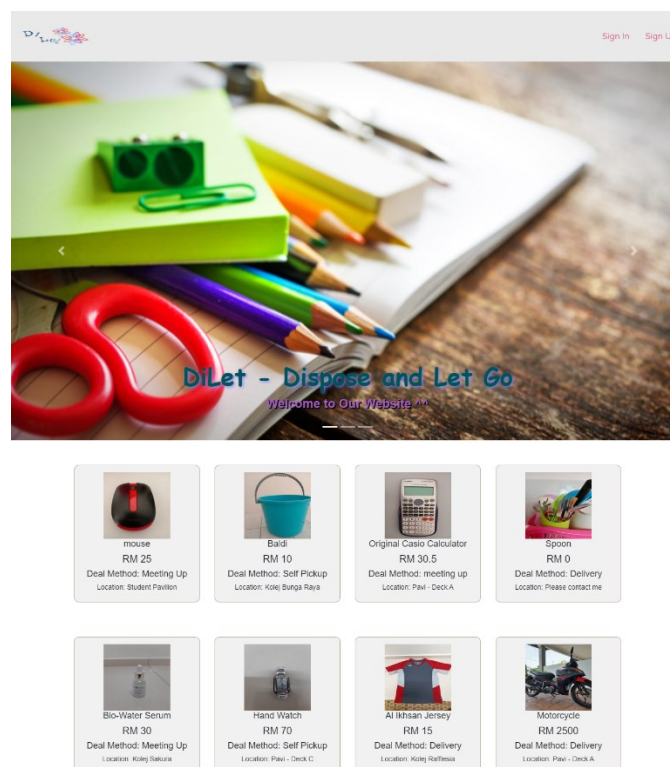
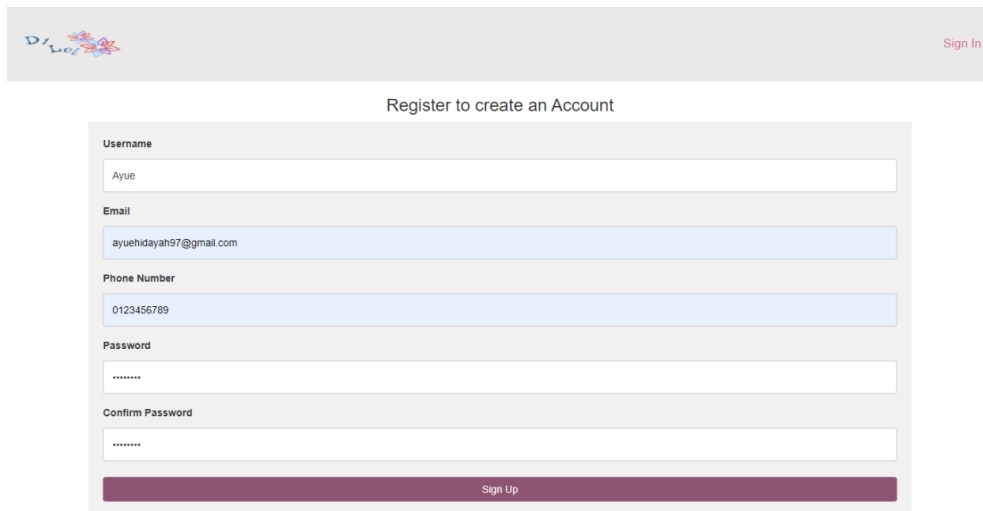


Figure 4.7: Index page

4.3.2 Register Page

The users need to create an account to gain an access to the system. The user can register in the same form whether they want to be a buyer or a seller. The interface of the register page of both is shown in Figure 4.8.

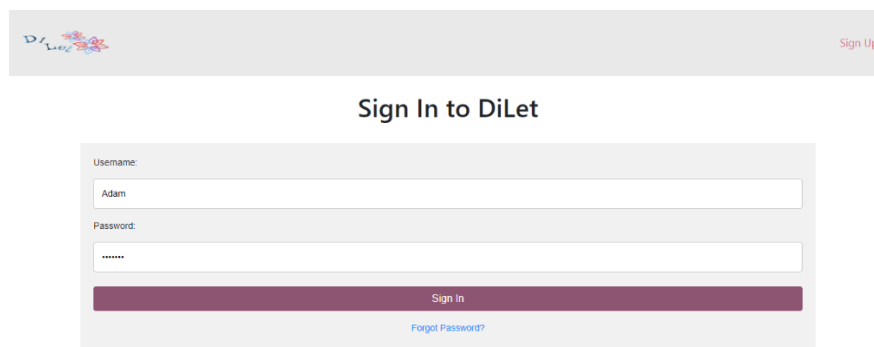


The screenshot shows a web interface for a registration page. At the top, there is a header bar with a logo on the left and a "Sign In" link on the right. Below the header, the main heading is "Register to create an Account". The registration form consists of several input fields: "Username" (containing "Ayue"), "Email" (containing "ayuehidayah97@gmail.com"), "Phone Number" (containing "0123456789"), "Password" (containing "*****"), and "Confirm Password" (containing "*****"). At the bottom of the form is a purple "Sign Up" button.

Figure 4.8 Register page

4.3.3 Login Page

Login is a process for the user to access the system. Only registered users will be allowed to log in and have access to the system. The proposed system has login page, as shown in Figure 4.9, for the user to verify the key in their username and password. It is also about classifying the user based on their device usability. After the user enters the system, they will be taken to the homepage based on their roles. There are 2 type of user which are users and admin, both can use the same login page.



The screenshot shows a web interface for a sign-in page. At the top, there is a header bar with a logo on the left and a "Sign Up" link on the right. Below the header, the main heading is "Sign In to DiLet". The sign-in form consists of two input fields: "Username:" (containing "Adam") and "Password:" (containing "*****"). At the bottom of the form is a purple "Sign In" button. Below the button is a link that says "Forgot Password?".

Figure 4.9: Sign in page

4.3.4 Homepage

The homepage will different based on the role. The below show the homepage for the user.

This homepage interface is created for both buyer and seller. If users want to buy an item, they can view the item details and the contact number is provided by clicking the image product. If they want to sell the item, just simple clicked the sell button.

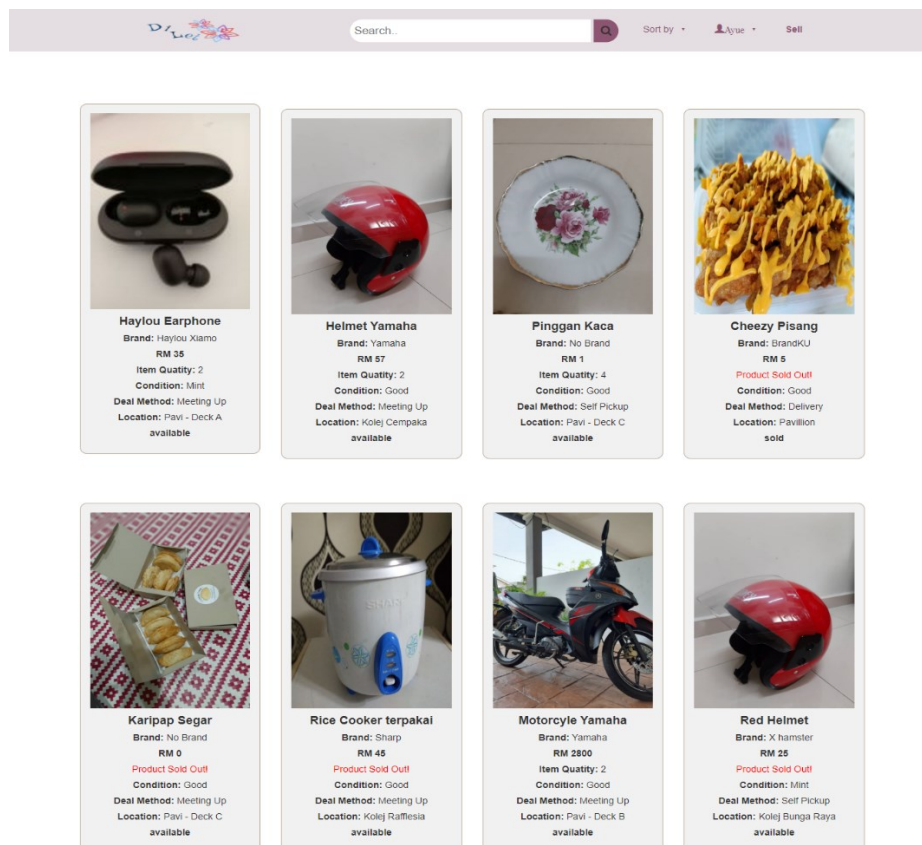


Figure 4.10: Homepage

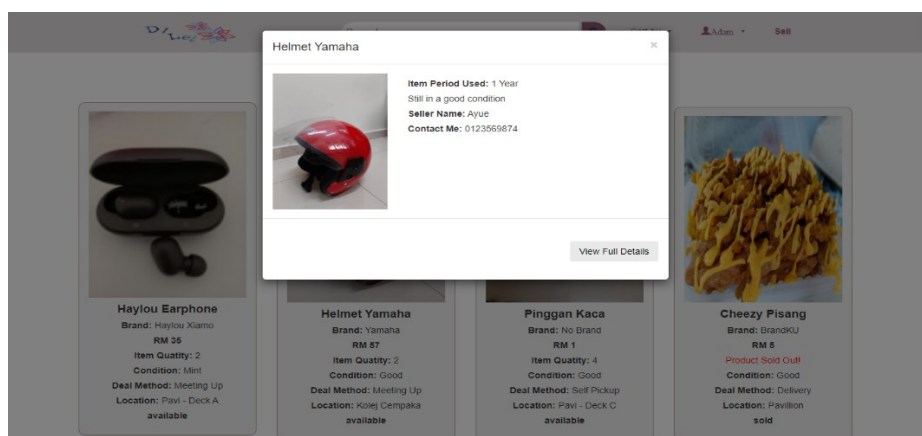


Figure 4.11: view item details

4.3.5 Add item

The seller can sell their item by clicking the sell button. The seller needs to fill all the information about the item that is required as shown in Figure 4.12. This is for the seller to give information about their item to the buyers. The buyers who are attracted to their item can contact the seller.



Sort by

Ayue

Sell

What are you listing today

Product Image: *

Choose File | eraphone2.jpg



Product Name: *

Product Price (RM): *

Product Quantity: *

Product Type: *

Product Categories: *

Electronic

Product Brand: *

Product Period: *

Product Condition: *

Mint

Deal Method: *

☒ Meeting Up ☐ Self Pickup ☐ Delivery

Location: *

Product Description: *

The item is still in a good condition

Seller Name

Phone Number: *

Status Item: *

Available

Sell Now

Powered by 000webhost

Figure 4.12: Add item page

4.3.6 Update or delete item page

The seller can update their item availability by clicking the update status button. If the seller wants to delete the item, the seller can just click the delete button and item will delete from the system. Figure 4.13 shows the update or delete interface.

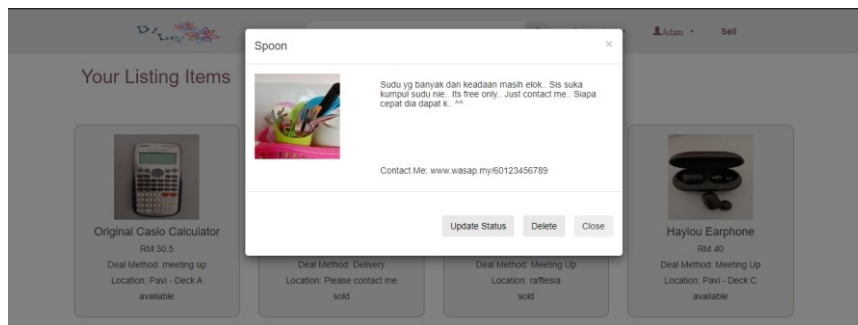


Figure 4.13: Update or delete item

4.3.7 Create complaint report

The users who are not satisfied the progress of sell or buy item can make a report to send to the admin. The interface of complaint report for both seller and buyer are similar as shown in Figure 4.14. The users need to fill all the required.

A screenshot of a "Complaint Form" page. At the top, there's a header with a search bar and navigation links. Below the header, the form is titled "Complaint Form" with a subtext "Tell us... We will try to solve it...". The form contains several input fields: "UserName:" with the value "Ayue", "Seller Name:" with the value "Adam", "Report Categories:" with a dropdown menu showing "Cheating about Price", "Description:" with the text "The seller increase the item price", and "Evidence Image:" with a "Choose File" button and a preview of a file named "complaint.jpg". A "submit" button is located at the bottom right of the form. At the very bottom, there is a small text "Powered by 000webhost".

Figure 4.14: Complaint form page

4.3.8 Change Password

User can change their current password to new password. There are two type of change password page, which one for user and the other one is for admin. The Figure 4.15 and Figure 4.16 below show that user and admin need to fill form to change their password.

Change Password

Current Password

New Password

Confirm Password

Submit

Figure 4.15: Change Password for user page

Figure 4.16 show the admin change password page.

Change Password

Current Password

New Password

Confirm Password

Submit

Figure 4.16: Change Password for admin page

4.3.9 Deactivate Account

The interface below shown the users want to delete their account especially final year students. After they sold old their items, they can delete their account.

Deactivate Account

Current Password

Confirm Password

Submit

Figure 4.17: Deactivate Account page

4.3.10 View or delete Complaint Report

The report that has been created from the user can be view by the admin. The admin can view the complaint report, verify report if the report is already complete and delete unnecessary report. Below is show the interface of view or delete item of complaint report.

Report ID	Username	Seller Name	Report Type	Report Description	Evidence Image	Status	Action	Delete
3	Amani	Ayue	Item is in Bad Condition	The item is not the same as the one the seller sold. Seller name is adam...		pending	verify	Delete
4	Amani	Adam	Item is in Bad Condition	The item is not the same as the one the seller sold. Seller name is adam...		complete	verify	Delete
5	Ayue	harry	Cheating about Price	The price is increase after meet up		pending	verify	Delete

Powered by 000webhost

Figure 4.18: View or Delete Complaint Report

4.3.11 View Users Details page

Admin can view the user's details. The interface in Figure 4.19 shows the details of user. The admin can update delete the user account.

User ID	User Name	Password	Email	Phone Number	Delete
3	Adam	Adam1234	adam97@gmail.com	0145632892	Delete
5	ain	Ain67890	ain@gmail.com	0123456897	Delete
13	Ayue	Ayue6789	badrunhisyamnurhidayah@yahoo.com	0123456789	Delete
17	amani_najwaa	Najwa1997	najwanazhir97@gmail.com	0133868704	Delete
27	Izzati97	Zatizu97	amiezaeizatie97@gmail.com	0127552249	Delete
31	Aisyah	Aisyah78	aisyah97@gmail.com	0125897463	Delete
34	khalisa	Khalisa12	khalisa@gmail.com	0145289637	Delete

Figure 4.19: View User's Account page

4.3.12 View Cart Item Page

The users can view the item that they had added to the cart list. The interface below shows the details of items in the cart list. User can print the shopping cart details that proof the buyer want to buy the item from the seller. Its better the buyer shows the receipt that will be provide in checkout item page.

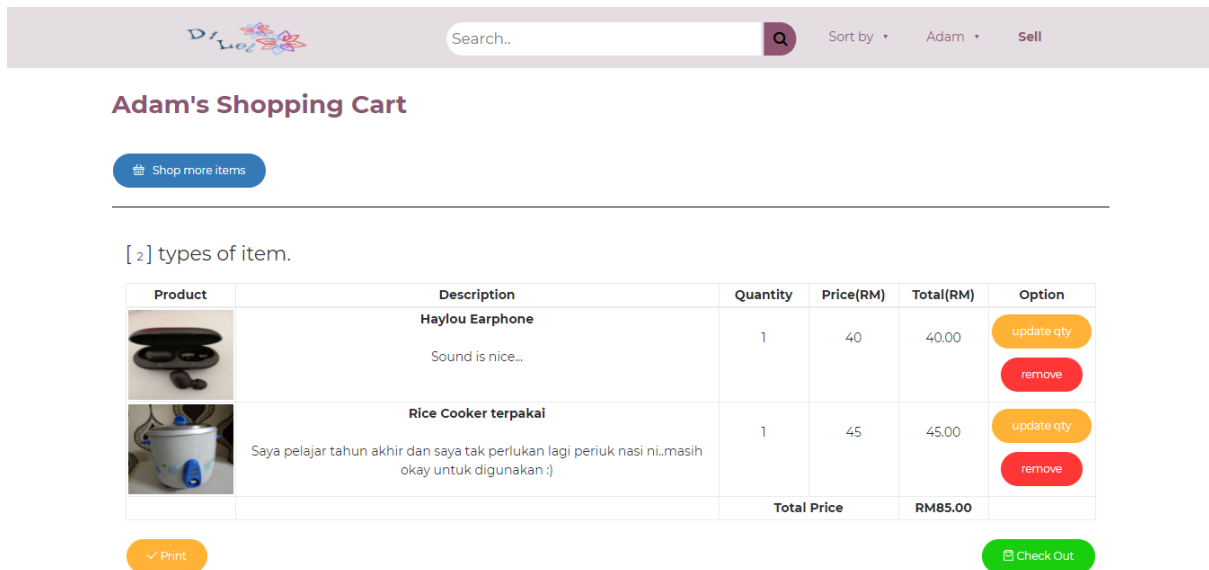


Figure 4.20: View User's Shopping Cart page

4.3.13 Update item quantity in cart list Page

Figure below shows the interface of edit item quantity page. User can choose the item quantity instead of key in the amount.

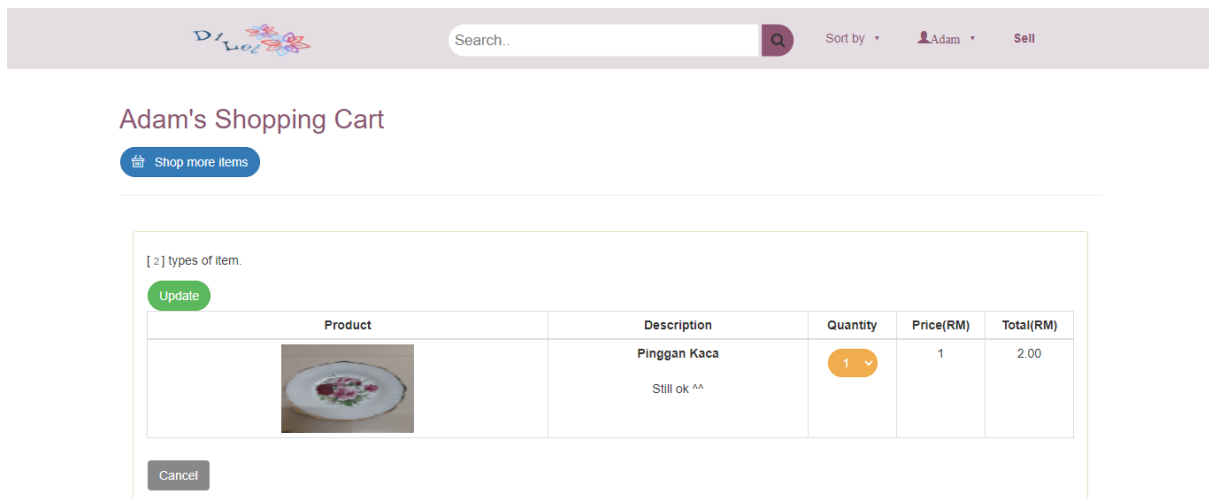


Figure 4.21: Update item quantity page

4.3.14 Checkout item Page

The interface below shows the checkout item page. In this page, there will be the receipt that proof the user has buy the item from the seller. The receipt can be printed by the user in case the seller will cheat about the item's information.

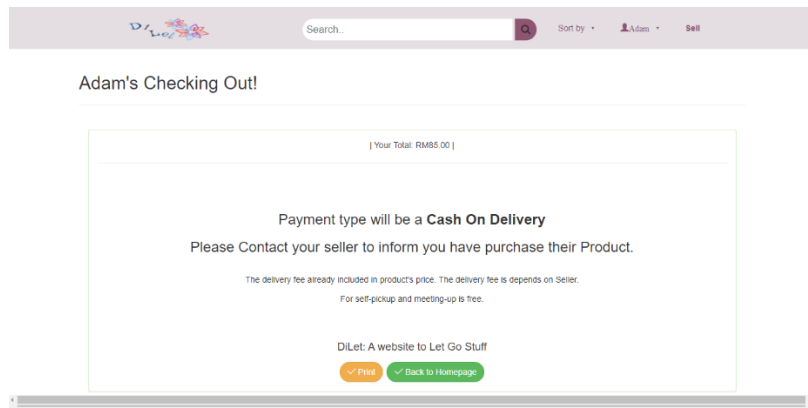


Figure 4.22: Checkout item page

4.3.15 Forgot Password Page

The interface below shows the forgot password page. If the users or admin forgot their password before login to system, the need to fill the valid username and email.

Figure 4.23: Forgot Password page

4.4 Summary

This chapter illustrated the stage of implementation of the DiLet system. This concludes all the needs in developing a system such as the software requirement. It then discusses the user who uses the system and explains more about the system functions for the proposed system. After the implementation phase of the proposed system has been completed, the system will be tested with the user to use the system, which will be explained in the next chapter.

Chapter 5: Testing

In this chapter, the system is being tested. The main purpose of this chapter is to discuss about the testing part in developing a system that is mentioned through the software methodology. Testing is done to make sure the developed system meets all the requirements and objectives of the project. The testing done is system testing, where a test case is used to determine whether the system meet the requirement nor functions correctly.

5.1 System Testing

System testing is the process of testing the system components based on a system functionality and specification. The system testing aims to verify whether specific requirements are met (Malaysian Software Testing Board, 2011). It consists of two tests which are both functional and non-functional tests. This is for testing of the proposed system's unit testing, usability testing, reliability testing and acceptance testing.

5.2 Functional Testing

Functional testing is a process which the system is tested to ensure the system conforms all the requirements. This testing is important as it is check and verifies each functionality or feature of the system to see whether it works perfectly along with the requirement specification. Functional testing requires a detailed testing to make sure the system is free of error and stable. This specific test will be carried out using test cases in the proposed system.

5.2.1 Unit Testing

Unit testing is the process of testing a single component (the smallest testable part) that focuses on testing the functionality. The unit testing 's main purpose is to take the smallest part of the testable unit in the system, separate it from the development system codes, and then determine whether it matches the expected outcome. In this unit testing, there will seven (7) use cases that will be used to test the system which are fill up registration form, login, fill up add item form, update item, deactivate form, send complaint form, verify complaint form, and reset password.

TABLE 5.1: TEST CASE FOR FUNCTIONALITY OF THE REGISTRATION FORM

Test Objective: To test the requirement of submission of the user's registration form								
Test ID	Test Case	Input Data	Expected Result	Actual Result	Pass /Fail	Severity of Defect	Summary of Defect	Comments
FR001	Submit the registration form by fill all the required information	Name=Adam Password=Adam2707 Confirm Password=Adam2707 Email=adam97@gmail.com Phone num=0145632892	User can submit the registration form	Registration is submitted and saved successfully	Pass	NULL	NULL	NULL
FR002	Submit the registration form without fill the required information	Name=Adam Password=Adam2707 Confirm Password=Adam2707 Email=EMPTY Phone num=0145632892	User unable submit the registration form	The validation to fill in the required field messages will appear	Pass	NULL	NULL	NULL
FR003	Submit the registration form with incorrect format in the required information	Name=Adam Password=adam27 Confirm Password=adam27 Email=adam97gmai.com Phone num=0145632892	User unable submit the registration form	The validation messages for incorrect format will appear "Password must contain a lower and uppercase letter, a number and minimum 8 characters" "Please include @ in your email"	Pass	NULL	NULL	NULL

Table 5.1 is to test the registration fill. The test if the user key in the correct input data such as name, password, confirm password, email, and phone number, the user will be able to send the form. Meanwhile, if the user put incorrect data, they cannot register as a member. The result has shown that the test case is pass.

TABLE 5.2: TEST CASE FOR FUNCTIONALITY OF THE LOGIN FORM

Test Objective: To test the functionality of the login function either it able to verify the authorized username and password								
Test ID	Test Case	Input Data	Expected Result	Actual Result	Pass /Fail	Severity of Defect	Summary of Defect	Comments
FL001	Verify the login function with valid username and password	Username=Adam Password=Adam2707 Username=admin Password=Admin123	User should be able to login to the system	User can login to the system and directly to their own homepage	Pass	NULL	NULL	NULL
FL002	Verify the login function with valid username and invalid password	Username=Adam Password=adam2707 Username=admin Password=Admin1234	User unable to login and access to the system	The incorrect username and password messages are appeared and return to login page	Pass	NULL	NULL	NULL
FL003	Verify the login function with invalid username and password	Username=adam Password=adam27 Username=Admin Password =Admin1234	User unable to login and access to the system	The incorrect username and password messages are appeared and return to login page	Pass	NULL	NULL	NULL

For table 5.2, the test case is for login function. This test case to ensure that the users can login to the system when they filled the correct data such as username and password. This test case result is pass, when the users key in the valid data, user can log into the system. Meanwhile, if the user gives the invalid data, the users cannot login to the system.

TABLE 5.3: TEST CASE FOR FUNCTIONALITY OF THE ADD ITEM FORM

Test Objective: To test the functionality of the add item function either it able to add item in system								
Test ID	Test Case	Input Data	Expected Result	Actual Result	Pass /Fail	Severity of Defect	Summary of Defect	Comments
FA001	Submit the add item form by fill all the required information	Item name=mouse Brand=Tiny Tech Item categories=Electronic Item price=RM25 Item quantity=2 Item type=mouse Item periods=6 months Item Condition=Good Deal method=meeting up Location=student pavilion Item status= available Seller name=Ayue	User should be able to add item in system	User can add the item and successfully message will be appeared	Pass	NULL	NULL	NULL
FA002	Submit the add item form without the required information	Item name=mouse Brand=EMPTY Item categories=Electronic Item price=RM25 Item quantity= EMPTY Item type=mouse Item periods=6 months Item Condition=EMPTY Deal method=meeting up Location=EMPTY Item status= available Seller name=Ayue	User unable to add item in the system	The validation to fill in the required field messages will appear	Pass	NULL	NULL	NULL

Test case in table 5.3 is for add the item in the system. The user needs to key in the data such as item name, brand, item category, price, periods of use, deal method, location, status availability and seller name. The seller name will auto fill the name same as the username. The test case is pass

because when the user key in all the information, the item can add to the system. If the user does not fill the all the required, the item cannot be added to the system.

TABLE 5.4: TEST CASE FOR FUNCTIONALITY OF THE UPDATE ITEM

Test Objective: To test the functionality of the update function either it able to update item								
Test ID	Test Case	Input Data	Expected Result	Actual Result	Pass /Fail	Severity of Defect	Summary of Defect	Comments
FU001	Enter item details by fill all the required information	Item name=mouse Brand=Tiny Tech Item categories=Electronic Item price=RM25 Item quantity=2 Item type=mouse Item periods=6 months Item condition=Mint Deal method=meeting up Location=student pavilion Item status= available	User should be able to update the details of the items in system	The details of item will update in the system	Pass	NULL	NULL	NULL
FU002	Enter item details by without fill all the required information	Item name=mouse Brand=EMPTY Item categories=Electronic Item price=RM25 Item quantity=EMPTY Item type=mouse Item periods=6 months Item condition=Mint Deal method=meeting up Location=EMPTY Item status= available	User should be unable to update the details of the items in system	The validation to fill in the required field messages will appear	Pass	NULL	NULL	NULL

Table 5.4 show to test the update of the item. User can update the item such as item name, brand, category, price, type, periods of used, deal method, location, and status availability. If the user key in all the required information, the item can update in the system. If the user did not fill all the requirements, the user cannot update the item. This result to this test case is pass.

TABLE 5.5: TEST CASE FOR FUNCTIONALITY OF DEACTIVATION FORM

Test Objective: To test the functionality of the user to delete their account.								
Test ID	Test Case	Input Data	Expected Result	Actual Result	Pass /Fail	Severity of Defect	Summary of Defect	Comments
FF001	Users enter the correct current password and confirmation password	Current Password=Adam1234 Confirm Password=Adam1234	User should be able to delete the account	The user account successfully deletes	Pass	NULL	NULL	NULL
FF002	Users enter the wrong current password	Current Password = adam123 Confirm Password = adam123	User should be unable to delete the account	The warning messages will appear “The current Password is not correct”	Pass	NULL	NULL	NULL
FF003	Users enter the correct current password, wrong confirmation password	Current Password=Adam1234 Confirm Password = adam123	User should be unable to delete the account	The warning messages will appear “The Password is not same”	Pass	NULL	NULL	NULL

Table 5.5 is to test the deactivate their account. The delete the account, user need to key in the correct current password and confirm password then the user can delete their account. If the users did not give the correct input, the account cannot be deleted. This test case shows the pass result.

TABLE 5.6: TEST CASE FOR FUNCTIONALITY OF SEND COMPLAINT FORM

Test Objective: To test the functionality of the user is it able to create a complaint report								
Test ID	Test Case	Input Data	Expected Result	Actual Result	Pass /Fail	Severity of Defect	Summary of Defect	Comments
FC001	Enter complaint details by fill all the required information	Report type= Item is in bad condition Seller name=Adam Report Description= Item cannot be used anymore, and the seller name is Ally. Evidence image=report.jpg Action=pending	User should be able to create report in system	User can create the report and successfully message will be appeared	Pass	NULL	NULL	NULL
FC002	Enter complaint details without fill all the required information	Report type= Item is in bad condition Seller name=EMPTY Report Description= EMPTY Evidence image=report.jpg Action=pending	User unable to create report in system	User cannot create the report and error message will be appeared	Pass	NULL	NULL	NULL

Table 5.6 is to test the functionality of the user to send the complaint report to the admin. Users need to fill all the required information such as report type, seller name, report description, and evidence image. If the users filled all the requirement, the complaint report can be sent. Meanwhile, if the user did not fill all the requirement, the report cannot be sent. This test case is successfully achieved.

TABLE 5.7: TEST CASE FOR FUNCTIONALITY OF RESET PASSWORD FORM

Test Objective: To test the functionality of reset password function for user using user's old password								
Test ID	Test Case	Input Data	Expected Result	Actual Result	Pass /Fail	Severity of Defect	Summary of Defect	Comments
FR001	Use user's old password to reset password for user.	Old password=Adam2707 New Password=Adam1234 Confirm Password=Adam1234	User can submit the reset password form and enable the set the new password for the user.	New password for user replaced and saved successfully.	Pass	NULL	NULL	NULL
FR002	Enter invalid old password to reset the password for user	Old password=Adam2045 New Password=Adam1234 Confirm Password=Adam1234	User unable to set a new password	New password for user cannot be replaces.	Pass	NULL	NULL	NULL
FR003	Enter invalid new password and confirm Password	Old password=Adam2045 New Password=Adam1234 Confirm Password=Adam4567	User unable to set a new password	New password for user cannot be replaces.	Pass	NULL	NULL	NULL

Table 5.7 is to test the user to change their password. Users need to fill their old password, new password, and confirm password. If the user filled the correct input data, users could change to their new password. If the user filled the wrong old password, users cannot change their password. Same goes if the user filled the wrong new password and confirm password, users cannot update their password. This test case is successfully achieved.

5.3 Non-Functional Testing

Non-functional testing is a testing that focused on the non-functional requirements. Non-functional requirements define the system's properties and constraints that may be more critical than functional requirements. In this proposed system, usability testing will be performed to test the functional testing.

5.3.1 Usability Testing

In usability testing, a testing is conducted to determine the interaction between the user and the program will be explained. The targeted users for this proposed system are the UNIMAS students. A questionnaire has been distributed through link and each respondent need to fill in their feedback with their responses and satisfaction level toward the proposed system. The link that have been shared is only for three (3) of faculties such as Faculty of Computer Science and Information Technology, Faculty of Cognitive Sciences and Human Development, and Faculty of Engineering. The numbers of response are 11 students contain of female and male. Below chart show the number of female and male respond.

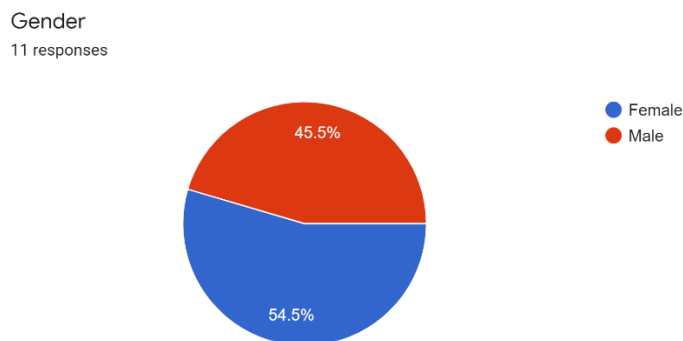


Figure 5.1: Questionnaire respond by gender

The number of female responds is 54.5% where is equal to 6 students while the number of male responds is 45.5% where is equal to 5 students. This link is already given to the specific students to response and collect the feedback.

Feedback from the respondents are analysed and the results are presented through the chart below. The questionnaire used will be attached in Appendices for further references.

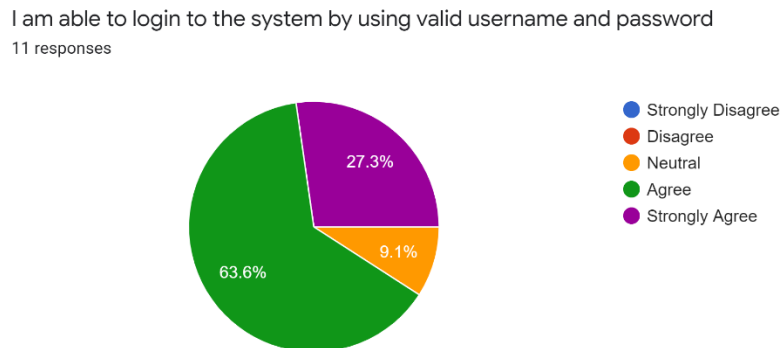


Figure 5.2: Testing result for the login functionality

Figure 5.2 shows the results for the test of login functionality. From the evaluation result, 63.6% of users are agree, 27.3% user is strongly agreed and 9.1 % of users feel neutral about the system's login function by using valid username and password. Thus, it shows that all the user can login and get an access into the system.

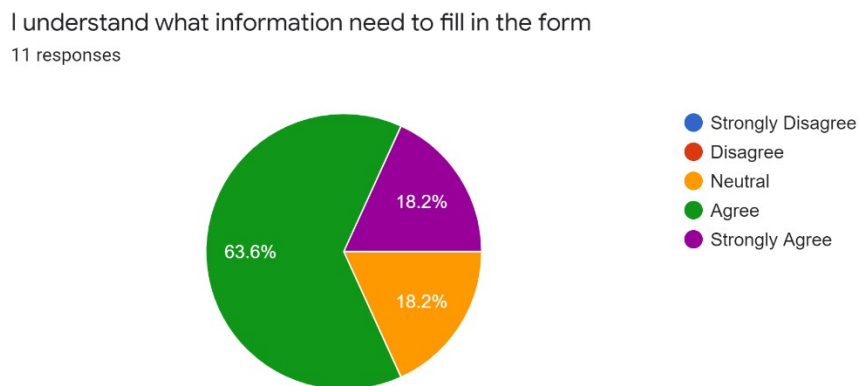


Figure 5.3: Testing result for the fill in information functionality

About 63.6% of user are agree that they are understand what information needs to fill in the system based on the evaluation result shown in Figure 5.3. In meanwhile, 18.2% user is strongly agreed and feel neutral in understanding on what information needs to fill in the system. Then, this

conclude that the user of this system is understood on what information that need to be fill in this system.

I understand how to add item and understand how to update and delete the item
11 responses

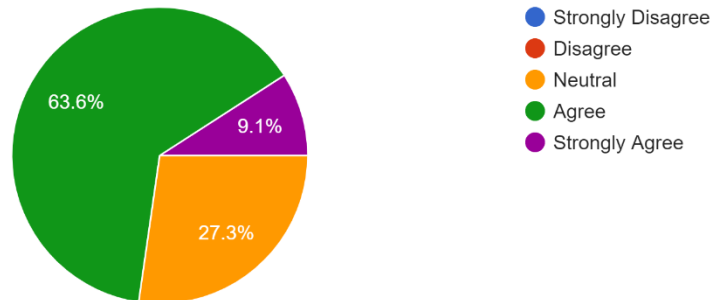


Figure 5.4: Testing result for handling item functionality

Based on Figure 5.4, 63.6% of user is agree and 9.1% of users are strongly agreed, and remaining 27.3% of user is feel neutral that they manage to handle the item that needed in the system by using add, update, and delete functions.

The function in the system are arranged properly
11 responses

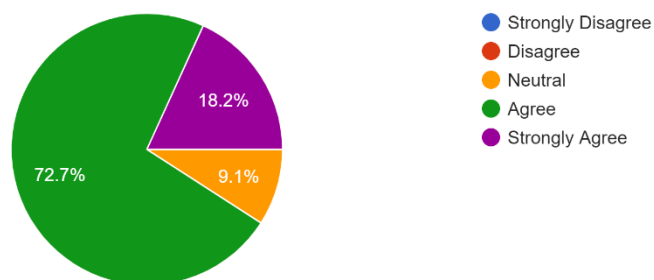


Figure 5.5: Testing result for usability of the function arrangement

Based on the evaluation result shown in Figure 5.5, almost all user with 72.7% of the user are agree with the function arrangement in this system. In meanwhile, 18.2% of the user are strongly agree with the function arrangement. But 9.1% of user feel neutral with the function arrangement. This is because some of them still not familiar with the system. Thus, this conclude that the user

agreed that the functions in the system are arranged properly but need an improvement regarding the function arrangement in the future.

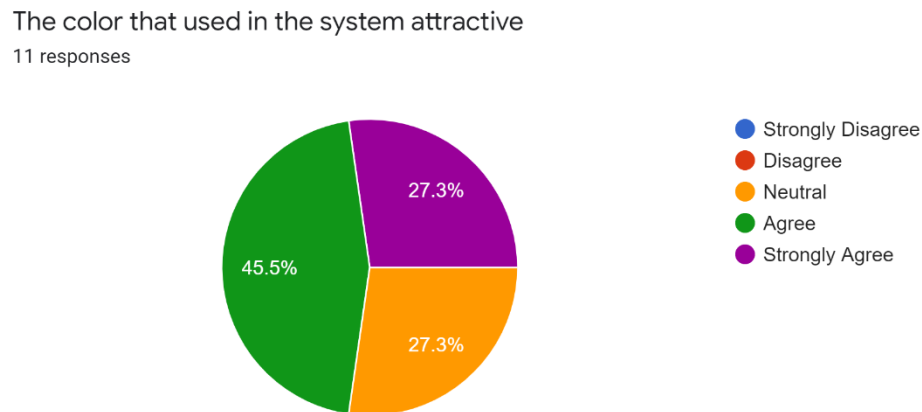


Figure 5.6: Testing result for usability of the colour use

As shown in Figure 5.6, 45.5% of user are agree and 27.3% of users are strongly agreed and feel neutral with the colour use in the system. Thus, this conclude that the colour used in this system is attractive to the user.

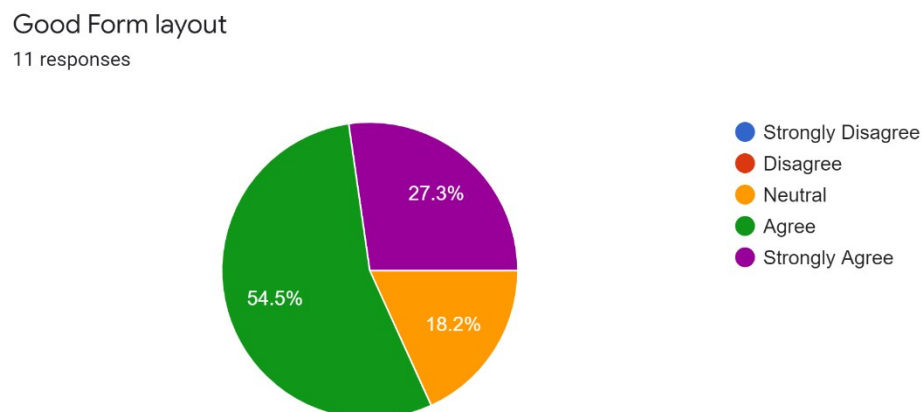


Figure 5.7: Testing result for usability of the form layout

Figure 5.7 shows that, 54.5% of the users are agree and 27.30% are strongly agreed that the form layout in the system is good. Remaining 18.2% of the user feel neutral with the form layout. So, this indicate that the form layout use in this system is a good layout.

The display page of the system is clear
11 responses

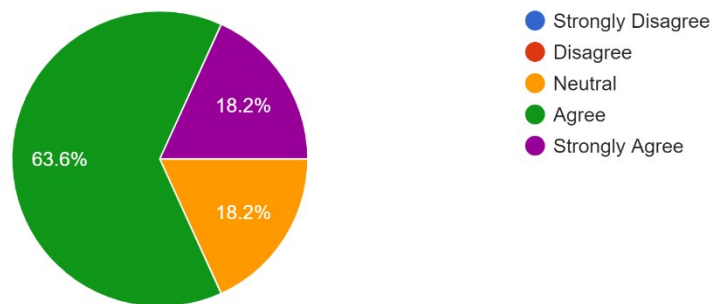


Figure 5.8: Testing result for usability of the display page

The evaluation result as shown in Figure 5.8 shows that 63.6% of the users are agree that the display page in the system is clear. This is supported by 18.3% of the users that strongly agreed and feel neutral with the display page of the system. Thus, it concluded that the display page of the system is clear to the user.

The system is effective
11 responses

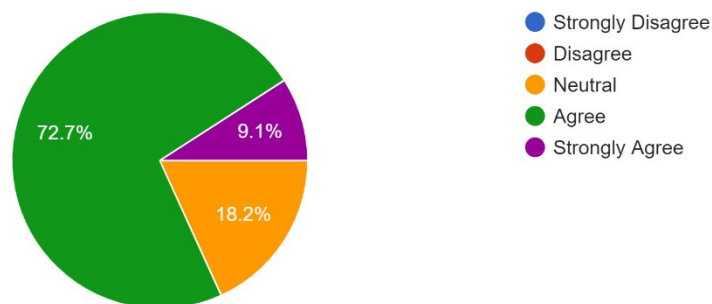


Figure 5.9: Testing result for overall function in the system

Based on Figure 5.9, 72.7% of the users are agree and 9.1% of the users are strongly agreed that the overall function in the system is effective. In meanwhile, 18.2% of the users are feel neutral with the function in the system. This indicate that the overall function in the system is effective to the user.

The system is useful for the users
11 responses

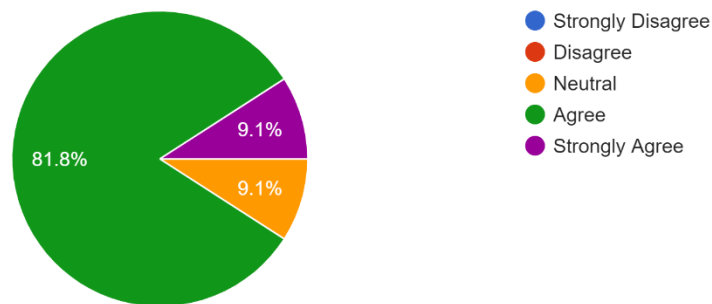


Figure 5.10: Testing result on convenience of the system for the user

Figure 5.10 shows that 81.8% of the users are agree with the system is useful to the user. 9.1% of the users are strongly agreed and feel neutral with the system. Thus, this conclude that the system is useful to the user.

5.4 Summary of Questionnaire

The questionnaire result is discussed and summarized in a bar chart graph based on the functionality and usability.

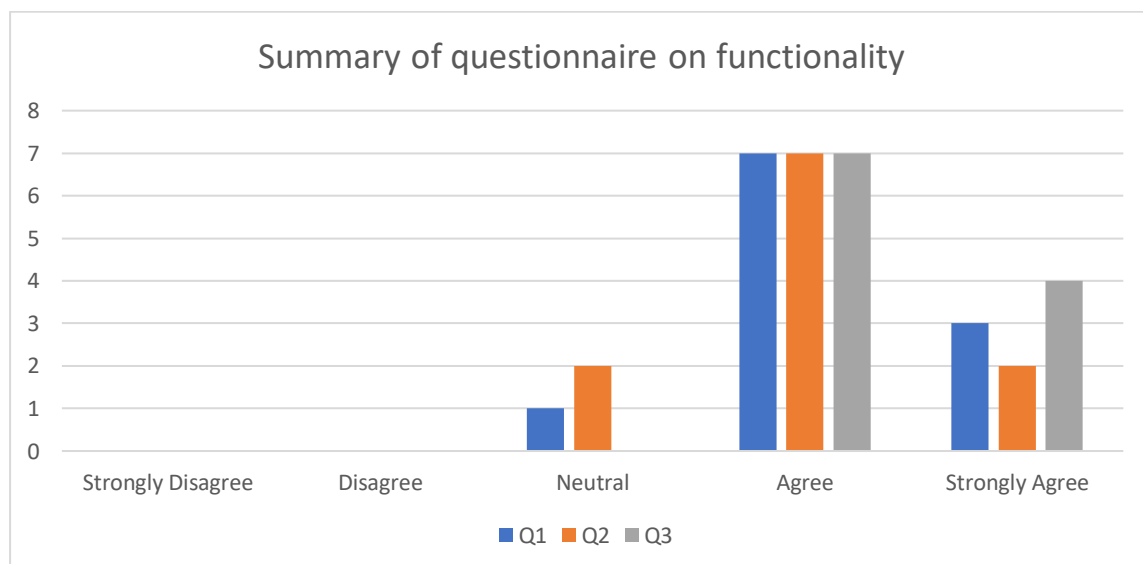


Figure 5.11: Summary of questionnaire on functionality

Figure 5.11 shows that most of the user are agree with the functionality of the system that help them in managing the items, easier to handle items anytime, clear view displaying the items

and others. Thus, this determine that the functionality of the system is good for the user for the time being. But an improvement is required to increase the functionality of the system in the future.

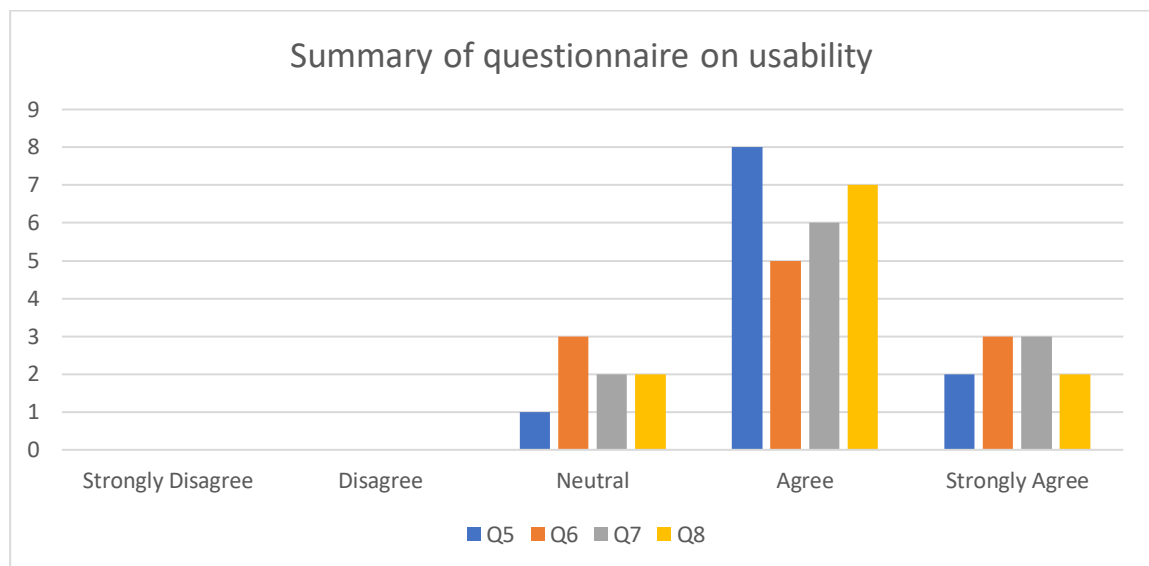


Figure 5.12: Summary of questionnaire on usability

Figure 5.12 shows that total number of users are agree on the usability of the system. This conclude that the system is useful and suitable to be use by the user.

5.5 Summary

The system has been evaluated and the quality of the system is being determined. As conclusion, the system testing includes the functional testing and non-functional testing. For the functional testing covered in this proposed system is unit testing while non-functional testing is usability testing. All testing that has been done through this phase is to ensure the system met the requirement specification and function well.

CHAPTER 6: CONCLUSION AND FUTURE WORKS

This chapter explains the completed project review system, DiLet. Project results are analysed and compared to project objectives to determine project achievement. Besides, any limitations that unable to be complete also will be include in this chapter. The limitation will be implemented as a future work for this project so that the project can be improved from time to time.

6.1 Achievements

DiLet system is developed to improve the activity of let go items by using the system. The objectives of DiLet system which have been successfully accomplished describe in table below.

Objectives	Achievements
To design a web-based system that acts as a platform to sell let-go item.	This is successfully improved to sell let-go item by using the proposed system.
To develop a web-based system that has the functionality based on the role access.	The proposed system has provided the function based on role access such as admin, seller, and buyer. These different roles can access the different functions of system.
To test the system by verifying performance and functionality before deployed to users.	This objective is already complete in the testing part. The users give the feedback to help the improvement of the system before deployed complete system to users.

TABLE 6.1: ACHIEVEMENT OF OBJECTIVES

6.2 Limitations and Constraints

The limitation and constraint of the system is the users need to use others app to communicate with each other, this is due the proposed system is not providing the message function. The sellers need to fill all add item manually. Buyers need to pay online banking manually or by its own if requested by the seller. This is because the proposed system is not providing the online banking form and to

ensure that the seller received the money and the buyers is satisfied with the item. The purposed system has suggested them to meet up to ensure they can view the product quality before purchased it. All the limitation stated will be included in the future work.

6.3 Future works

The list of future works:

1. Users can use message function in the system. This can reduce the time and easiest them to communicate.
2. There has the auto suggestion when the seller is filling the add to item form for example if the seller added the bucket picture, the item categories will auto be recommended that is a toiletry. This will be helpful for user and can reduce the time constraint.
3. The buyers can pay the money through online banking in the system. This might helpful is the user is not enough cash to pay to the seller.

6.4 Conclusion

The review for the complete system that has been developed for the students is discussed and concluded in this chapter. The system has met the objectives. As a conclusion, the platform of this system can be used to the students and students can know where to sell or purchase the second-hand items.

Appendix

- i. **Appendix A: Questionnaire Form for gained information of students to let go items.**



UNIVERSITI MALAYSIA SARAWAK
Faculty of Computer Science and Information Technology
Questionnaire Form
UNIMAS Web-based System for Let-go item (DiLet)

1. Are you, Final Year Student? *

Mark only one oval.

- ☐ Yes
☐ No

2. Before this, how did you let go of your stuff?

Mark only one oval.

- ☐ WhatsApp
☐ Facebook
☐ Twitter
☐ Instagram
☐ Apps
☐ Website
☐ Other: _____

3. Did you know or have heard about let go stuff app/website?

Mark only one oval.

- ☐ Yes
☐ No

4. Did you familiar with Carousell, Vinted, LetGo?

Mark only one oval.

- ☐ Yes
☐ No

5. Have you experienced using the let go stuff apps/website?

Mark only one oval.

- ☐ Yes
☐ No

6. If you have experienced, did the apps/website help to let go of your stuff?

Mark only one oval.

- ☐ Yes
☐ No

7. Did the apps/website is userfriendly to use?

Mark only one oval.

	1	2	3	4	5	
Hard to use	☐	☐	☐	☐	☐	Easy to use

8. Did you have the stuff to let go

Mark only one oval.

- ☐ Yes
☐ No

9. What kind of stuff that you want to let go of?

Check all that apply.

- ☐ Electronic (Rice Cooker, Iron, Water Heater, etc)
☐ Books & Stationary (Old Note, A4 paper, etc)
☐ Accessories
☐ Wardrobe(Clothes, Shoes, etc)
☐ Kitchen & Appliances (Plates, Cups, etc)
☐ Toiletries
☐ Vehicles (Bicycle, Motorcycle, etc)
☐ Other: _____

10. The reasons you want to let go of your stuff?

Check all that apply.

- ☐ The stuff is difficult to carry back to home
☐ The stuff is still in good condition to throw away
☐ The stuff only around 75% are used
☐ The stuff does not need to use anymore
☐ Not able to bring all the stuff home/college's store
☐ Other: _____

11. Did you often look for second-hand stuff?

Mark only one oval.

- ☐ Yes
☐ No

12. What kind of second-hand stuff are you looking for?

Check all that apply.

- ☐ Electronic (Rice Cooker, Iron, Water Heater, etc)
☐ Books & Stationary (Old Note, A4 paper, etc)
☐ Accessories
☐ Wardrobe(Clothes, Shoes, etc)
☐ Kitchen & Appliances (Plates, Cups, etc)
☐ Toiletries
☐ Vehicles (Bicycle, Motorcycle, etc)
☐ Other: _____

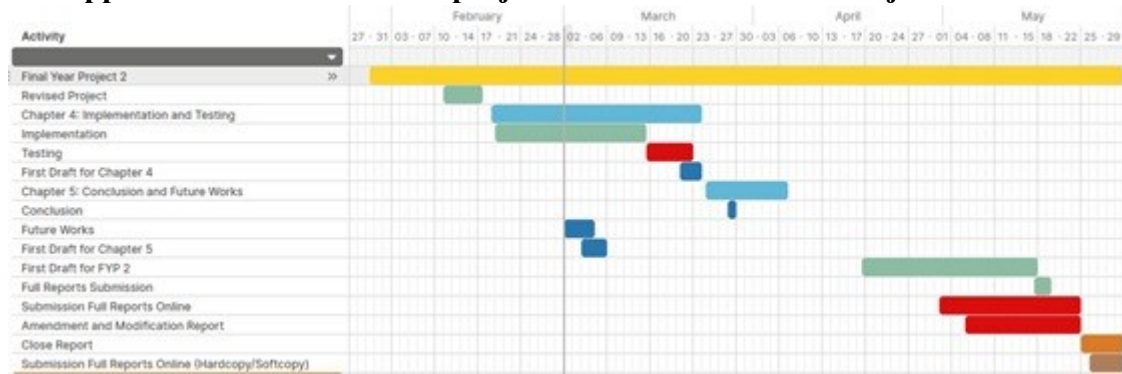
13. If UNIMAS has website to let-go stuff or gets second-hand stuff, will you use the website?

Mark only one oval.

- ☐ Yes
☐ No

End of Questionnaire

ii. Appendix B: Gantt Cart for project schedule Final Year Project 2



iii. Appendix C: Questionnaire Form to gain information about the system

DiLet - Let go Item Summary System

This form is to gather information about the user experienced with the system

* Required

1. Gender *

Mark only one oval.

- ☐ Female
☐ Male

Understand about the system

2. I am able to login to the system by using valid username and password *

Mark only one oval.

- ☐ Strongly Disagree
☐ Disagree
☐ Neutral
☐ Agree
☐ Strongly Agree

3. I understand what information need to fill in the form *

Mark only one oval.

- ☐ Strongly Disagree
☐ Disagree
☐ Neutral
☐ Agree
☐ Strongly Agree

5. I am able to add and remove favorite item from the list in the system *

Mark only one oval.

- ☐ Strongly Disagree
☐ Disagree
☐ Neutral
☐ Agree
☐ Strongly Agree

Interface and Design

6. The function in the system are arranged properly *

Mark only one oval.

- ☐ Strongly Disagree
☐ Disagree
☐ Neutral
☐ Agree
☐ Strongly Agree

7. The color that used in the system attractive *

Mark only one oval.

- ☐ Strongly Disagree
☐ Disagree
☐ Neutral
☐ Agree
☐ Strongly Agree

8. Good Form layout *

Mark only one oval.

- ☐ Strongly Disagree
☐ Disagree
☐ Neutral
☐ Agree
☐ Strongly Agree

9. The display page of the system is clear *

Mark only one oval.

- ☐ Strongly Disagree
☐ Disagree
☐ Neutral
☐ Agree
☐ Strongly Agree

Overall of the System

10. The system is effective *

Mark only one oval.

- ☐ Strongly Disagree
☐ Disagree
☐ Neutral
☐ Agree
☐ Strongly Agree

11. The system is useful for the users *

Mark only one oval.

- ☐ Strongly Disagree
☐ Disagree
☐ Neutral
☐ Agree
☐ Strongly Agree

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