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**BITS**

**FINAL REPORT**

**PROJECT TITLE:**

UTeM MARKET PLACE

**GROUP NUMBER:**

G07

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ABSTRACT

UTeM Market Place (UMP) is an android application that developed mainly for the UTeM’s staff and students. The purpose to develop this application is to create a platform for the UTeM’s student and staff to shop and sell items in a comfortable, secure and convenient. Besides, this application also aims to encourage UTeM’s students and staffs to start their business. Furthermore, UTeM’s students and staffs are also able to sell their prelove items via this application. Basically, UMP consists of five modules which are (i) authentication module, (ii) Market module, (iii) user module, (iv) administrator module and (v) payment module. In this project, android studio and Java programming language are used to develop this application. For first time users, they must register themselves before login to the system. After login to the application, users are able to buy and sell items. Furthermore, administrators are responsible for managing the items sell in the application.

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# 1.0 CHAPTER I: INTRODUCTION

## 1.1 INTRODUCTION

The project is about the mobile application-based system named UTeM Market Place in Universiti Teknikal Malaysia Melaka (UTeM) focus on the all the members of UTeM. We observe that UTeM do has a proper market place for UTeM’s students and staffs to shop and sell that is in Facebook but we want to deliver this Market in another platform that is mobile application in Android platform for all the people in UTeM.

From the past 2 decades, the use of mobile devices has greatly increased, that has led to ease of carrying out day to day activities. Nowadays, wireless networks have taken over the entire world. Business and financial transactions can now be done easily and securely at anywhere and anytime. Using the internet, connections can be established easily with any devices almost anywhere in the world and can share information amongst them. The daunting tasks faced in daily lives can now be accomplished by only a few of clicks on our Smartphone. Traditional shopping is a tedious and time consuming job. Besides, in traditional shopping, the customer had to wait in long queues at the cash counter. The cashier scans barcode for every individual product and then generates the bill. This consumes lot of time and energy of both the shopper as well as cashier.

As a result, we want to create a platform or place for the all member of UTeM to shop and sell. To reduce the load, we will design this project in android application. So that, the all member of UTeM can access to this application at anywhere and anytime. So that, all member of UTeM also can sell their unwanted property in the application, this also allows them to start their business. In order to provide convenience payment, online payment is also will provided in this application.

This project will be designed, developed and delivered by a team of four. A person is assigned to be a project manager who is taking the responsibility to ensure overall team’s work progress and contribution. The tasks are assigned to each member evenly. There are five main modules in our project, so we have divided each module to one member of our group. Each member will responsible to complete one module. The module of this project includes Authenticate module, user module, market module, payment module and administrator module.

## 1.2 BUSINESS PROCESS

This system is built into android application and all users with android smartphone are able to use it. UTeM Market Place is able to download by all the UTeM’s staff and students. Registration is required for first time users. All users must login into the application before using this application. Users are able to buy and sell items through this application. Catalogs of items can be viewed by users to select the items they want to purchase. After select the item, they are able to choose the ways of payment and also upload the image of receipt or proof of payment to the system after they made a payment. Besides, users are also able to market their prelove items to this application. However, approval from administrator is required before the items can be marketed. Furthermore, users are also able to edit and update their details in this application.

### 1.3 PROBLEM STATEMENT

1. The existing member of UTeM Market Platform is not convenient such as you need to access into Facebook and join the market place group to post an item for sell.
2. Normally a young entrepreneur which is student has no idea about how to start their own business because lack of confidence and experience so new entrepreneur will be reduce from time to time in the near future.
3. Usually student does not want to keep their items such as computer accessories, home appliances, furniture and books, so this market place allows them to sell their items.

## 1.4 OBJECTIVE

1. To create a platform for the UTeM’s students and staffs to shop and sell items in a more comfortable, secure and convenient place.

* The registration and verification will be needed for those users who want sell their items as this is to ensure the security of application and also help to build up the trustiness of buyer to buy from them, so this will prevent from scam.

2. To encourage UTeM’s students and staffs to start their own business.

* With UTeM market place, young entrepreneurs which is student can sell their items easily with low cost of advertisement and this will lower their sales capital to start business.

3. To allow UTeM’s students and staffs to sell their unwanted items.

* UTeM’s students and staffs that sell their unwanted items in this application, they can earn some profit and also avoid waste of item by selling to the people who needed. The unwanted items, such as washing machine, chairs, table and so on will undergoing an examine process that is necessary which can prevent spoilt unwanted item sell in the application.

## 1.5 PROJECT SCOPE

The scope of this project is focus on how to help the students and staffs sell their reusable item online. Reusable items such as reference books, clothes and accessories are suitable for UTeM Market Place. The purpose of this project is to make sure that the UTeM Market Place can bring more benefits for student and staff on to learn how to start business. The project is proposed to be implemented in UTeM main campus which consist of FTMK,FKEKK,FKP and FKE and focusing on both students and staff.

## 1.6 PROJECT SIGNIFICANCE

**1. Improve Efficiency**

UTeM’s student and staff do not need to waste their time by going the market to shop and also do not need to find a place to start their business.

**2. Portable**

a. Easy to install the application in every smart phone.

b. The application can be used at everywhere.

**3. Obtain the desire item easily**

UTeM’s students and staffs can buy their desire item easily by only log in into the application installed in smartphone and search for the item and just need to few click on it to buy and pay.

## 1.7 HARDWARE AND SOFTWARE

### 1.7.1 SOFTWARE

**a. Android studio**

Android studio is platform that used to develops android application that contain android development kit (sdk) it also give a preview of developing application before debugging.

**b. Microsoft 365**

Microsoft 365 is a bundle of Microsoft tools. Microsoft consist Microsoft word used to document the project process and write document

### 1.7.2 HARDWARE

a. Laptop

b. Smartphone

## 1.8 CONCLUSION

This application will provide a secure and proper platform for the UTeM’s students and staffs to buy and sell items. This will help them to save time as they can shop at everywhere and anything time by using their smartphone. Besides, this application also simplifies the process of shopping and selling by just a few clicks. Furthermore, this application also provides a better ways to view and compare the price of items.

In this project, the target users are divided into 2 which are administrators and users. The modules in application are five: authentication module, payment module, user module, market module and administrator module. Administrators are participant in authentication module and administrator module, whereas users are participant in authentication module, payment module, user module and market module.

In conclusion, UTeM Market Place is able to help the UTeM’s staff and students to shop easily and also start their business by selling items in this application.

# 2.0 CHAPTER II: METHODOLOGY

## 2.1 SYSTEM DEVELOPMENT METHODOLOGY

A software development methodology or system development methodology in software engineering is a framework that used to structure, plan and control the process of developing an information system. The following methodologies such as Agile Software Development, Crystal Methods, Dynamic System Development Model(DSDM), Extreme Programming(XP), Feature Driven Development(FDD), Joint Application Development(JAD), Lean Development(LD), Rapid Application Development(RAD), Rational Unified Process(RUP), Scrum, System Development Life Cycle(SDLC), and Waterfall(a.k.a Traditional) are well known software development.

For the proposed application, we choose to use Agile Methodology. The benefits of this methodology is Agile offer its simplest form, offers a lightweight framework for helping teams, given a constantly evolving functional and technical landscape maintain a focus on the rapid delivery of business value. Hence, Agile Method is capable of significantly reducing the overall risk associated with software development.

In particular, agile Software Development Methodology accelerates the delivery of initial business value, and through a process of continuous planning and feedback, is able to ensure that value is continuing to be maximized throughout the development process. As a result, of this iterative planning and feedback loop, teams are able to continuously align the delivered software with desired business needs, easily adapting to changing requirements throughout the process. By measuring and evaluating status based on the undeniable truth of working, testing software, much more accurate visibility into the actual progress of projects is available. This method is able to address the progress of development more vivid to customers.

The Agile methodology allow for changes to be made after the initial planning. Re-writes to the program, as the client decides to make changes, are expected. But in waterfall, once a step has been completed, developers can’t go back to a previous stage and make changes. The Agile methodology allows developer to make changes. It is easier to add features so that will keep developer up to date with the latest development in the industry. Waterfall methodology relies heavily on initial requirements. However, if these requirements are faulty in any manner, the project is doomed. In Agile, at the end of each sprint, projects priorities are evaluated. This allows clients to add their feedback so they ultimately get the product they desire. Where as in Waterfall, if a requirement error is found, or a change needs to be made, the project has to start from the beginning with all new code.

## 2.2 System development technique

Agile methodology is the one that our group chooses for system development technique. Agile software development describes a set of principles for software development under which requirements and solutions evolve through the collaborative effort of self-organizing cross functional teams. It advocates adaptive planning, evolutionary development, early delivery, and continuous improvement, and it encourages rapid and flexible response to change.

## 2.3 CONCLUSION

For this proposed project, the system development methodology used is Agile Methodology. The reason is Agile speed up the delivery of initial business value, and through a process of continuous planning and feedback. Agile offer simplest form and lightweight framework for helping teams and given a constantly evolving functional. The Agile methodology also allows making changes after the initial planning. Hence, Agile methodology helps our system to perform better and easy to implement.

# 3.0 CHAPTER III: SYSTEM ANALYSIS

## 3.1 ANALYSIS OF CURRENT SYSTEM

### 3.1.1 ANALYSIS

Actually, when this project is conducted, there is no actual application exist in UTeM. However, we found that UTeM do has a market place for UTeM students and staffs to shop and sell that is in Facebook. From this observation, we have come out with an idea about creating another platform or place for UTeM staff and students to use which is the mobile application in Android platform.

In Facebook, UTeM does have a few groups which are created purposely for shopping and selling in UTeM. Some groups are closed group which means that UTeM students and staff will have to become the members of that particular group if they want to view the items from that group. Besides, some group are public group which means everyone can view the posts in that group but only the members are able to comment on it. In order to sell the products, the seller will have to post their advertisement of products on the timeline of the group. If the members wanted to buy that particular product, they will have to send a private message to that seller to place their orders. In addition, the payment mostly done by bank in or cash on delivery (CoD) and the delivery of product can be done at UTeM or delivery through parcel. Furthermore, if the members had to know more details on that product, they can just leave a comment on that particular post.

There are a lot of products sell in group of Facebook market place of UTeM such as laptop, ticket of UTeM’s event, shoes, and accessories. There are various methods of posts that the sellers use to promote their products which are video, photo or text. Posting photos of products is the most common way used by the seller in UTeM. Besides, there are some administrators in the group who responsible for managing the group. Administrators are responsible for the approval of post and members of the group and also delete the inappropriate comments.

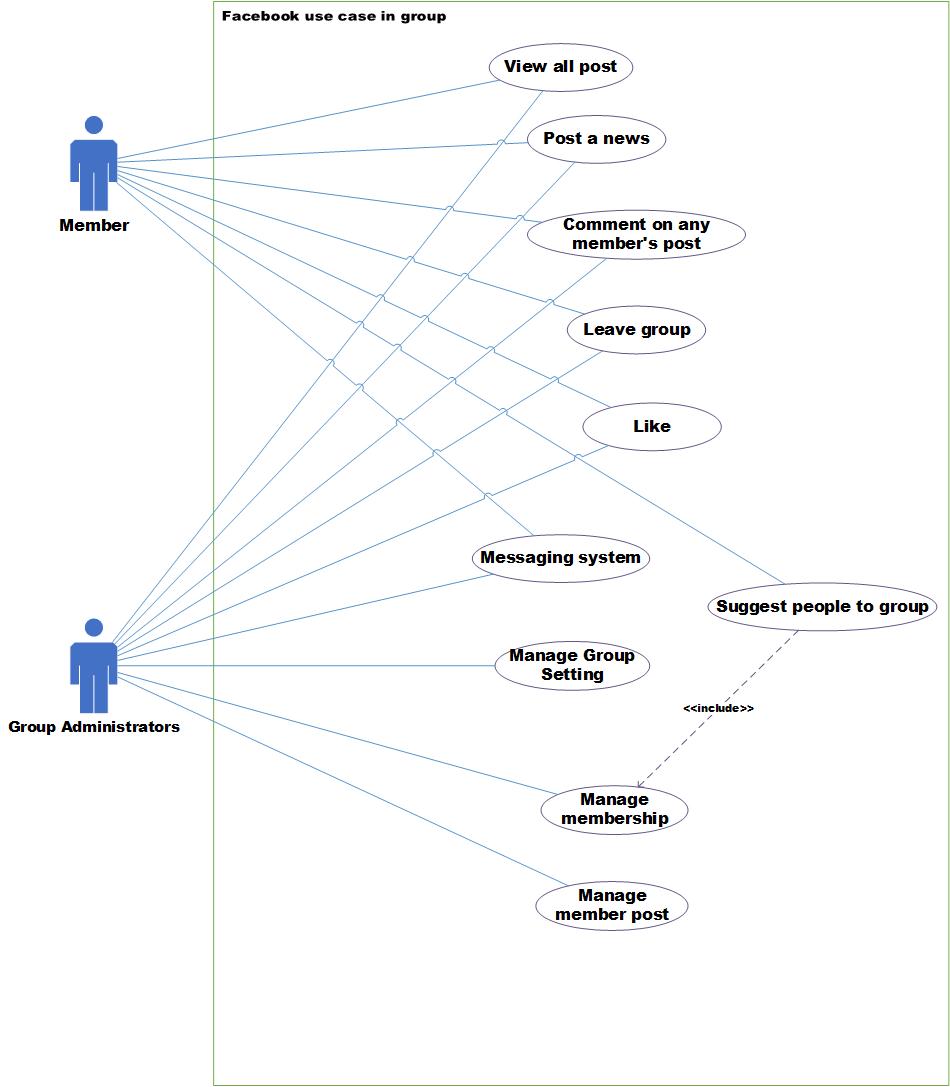


FIGURE 1

### 3.1.2 Problem Occur in Current System

There are some problems faced in the platform shopping offered by Facebook. Firstly, Facebook doesn’t have any proper way to manage the posts which has been updated by the sellers. The products are not well organized in the Facebook; the posts are only arranged by time when the seller posted it. This will cause the members feel difficult to view the products because there are no other ways for them to find their desire products. Besides, the timeline of the group also look messy since the products are not well categorized.

Secondly, the members need to send the private message to place their orders. This is very inconvenient since the seller might not reply the member’s message in instant, sometimes the members have to wait few hours for the reply or the confirmation for their orders. The efficiency is lower because the buyers can’t place their order directly to the seller and they do not know when the seller will reply their messages.

Next, shopping at Facebook is also not secure. Since the record of shopping will not be taken down, there is the possibility that the buyer will get a low quality products or being cheated by the sellers. The protection of buyer is low and do not have any guarantee to prove that the product is genuine.

## 3.2 ANALYSIS OF PROPOSED SYSTEM

Currently, UTeM does not own any official shopping application that allows the students and staff to use. So, we are going to develop a market place for the students and staff in UTeM. For now, mostly UTeM’s students and staffs sell their things in Facebook group. So, our group would like to develop an application naming UTeM Market Place.

**UTeM Market Place**

The proposed UTeM Market Place is actually a platform for UTeM’s students and staffs to sell item or any used item which does not need anymore. This system made up of two main parts which is database and mobile application. This system will be serving two types of users.

The first type of user are the admins, where they can manage the system for updating, maintaining parts and they also watch the other two type of users for any suspicious activity such as selling a dangerous item.

The next type of users is normal user as they can either a seller or a buyer in this application. Seller must register to the system in order to start their sell. Seller must register with a valid matric number and identification card number as this for verification purposed and security for buyer convenient as they know from whom they are buying. For buyer, they need to directly transfer to the seller and upload the proof. The system will update the status to seller that someone already paid for the item. As for now, we cannot handle the payment as this need better technical skill and need to rent the payment gateway.

Lastly, this system will be easy to use because this system aspired by establish online shopping application such as lelong.com and lazada.com.

## 3.3 STRUCTURE CHART OF PROPOSED SYSTEM

## 3.3.1 USE CASE DIAGRAM

Figure 2 shows the use case diagram of the proposed system. From the diagram, there are 2 actors involve which are administrator and user. As an administrator, he/she can perform administrator module which is approving the items to be market. For users, they are able to buy, search, view, and sell items in module market. Besides, users are also able to change the details of account in user module. When the users want to purchase items, they can select the way of payment and also upload the proof of payment in payment module. All the actors must authenticate themselves in Authenticate module before perform any function.



FIGURE 2

## 3.4 WORK BREAKDOWN

## These are the work allocation for all members

|  |  |  |
| --- | --- | --- |
| Name | Position | Description |
| Teh Hon Chee | Project Manager  Programmer | * Has overall responsibility to plan, budget, oversee and execute all aspects of the project. * Supervise team members and distribute tasks * Stay focus and ensure the long-term success. * Facilities the problem solving and decision making process. * Make sure the job of each member is done * Program the application with codes. |
| Loh Feng Mei | Tester | * Review and contribute to the test plans * Review and assessing requirements and design specification * Set up test environment and assist system administration * Execute and log the test, evaluate the result and document problems found. * Monitor the testing and test environment. |
| MUHAMAD SAFWAN BIN AHMAD | Software Engineer  Programmer | * Gets information and determines the requirements. * Developing documentation, UML diagram. * Design system specifications, standards. * Program the application with codes. |
| NOR HASNATUL AIN BINTI MOHD JAILANI | System Analyst | * Interact with the customers to know their requirements * Interact with designers to convey the possible interface of the software * Interact/guide the coders/developers to keep track of system development * Perform system testing with sample/live data with the help of testers * Implement the new system * Prepare High quality Documentation |

TABLE 1

## 3.5 GANTT CHART

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Activity/Week | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| Prepare proposal |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Prepare report progress 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Prepare report progress II |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Prepare report progress III: System demonstration and poster |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Review for Exhibition, Final Report & Log Book |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Product and Poster Exhibition |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Submit Final Report & LogBook |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

## 3.6 CONCLUSION

This chapter is discussing about the analysis of current system, problems that encounter by current system and also the proposed system. Generally, we found that UTeM’s staffs and students are using Facebook as a platform to sell and buy items which is not a convenient platform. This is because shopping at Facebook does not have any guarantees to ensure that the items are available as do not have any records are taken down. Besides, the items or products display at Facebook group is not organized, this make the buyers feel difficult on viewing the product. In addition, there are no proper ways to order as the buyer can only leave a message or send a private message to the seller. The seller might not reply the message immediately and this causes ineffectiveness of shopping. Hence, UTeM Market Place will be the solution of these problems.

# 4.0 CHAPTER IV: SYSTEM DESIGN

## 4.1 Introduction

System design is the process of defining the architecture, components, modules, interface, and data for a system to satisfy specified requirements. System design is very important during the early stage of the project. A proper plan must be planned to ensure that all the requirements are met.

System architecture is the fundamental and unifying system structure defined in terms of system elements, interfaces, processes, constraints and behaviors. System architecture also acts as a skeleton of system that helps to explain consistently and design efficiently complex system. System architecture is important in developments of software projects. This is because it able to provide guidance and structure to the later phase of system design and also provide a way to address the alternate form of system, substructure and module, and also complexity of system. Besides, it also may provide some clues to emergent behavior. Furthermore, system architecture also provides simpler way to understand complex system.

Database design also importance in development a software project. Database design is the structure that a database uses to plan, store and manage the transaction data. A good database design is required in ensuring the consistent of data, elimination of data redundancy, efficient execution of queries and high performance application. In addition, a well-designed database is able to ensure the ease of access, retrieval of information and also the safety of data.

## 4.2 System Architecture

The diagram below shows the flow and the architecture of the application.



FIGURE 3

## 4.3 Database Design

An entity relationship diagram (ERD) shows the relationships of entity sets stored in a database. The diagram below shows connection between each table and the relationship between each table.

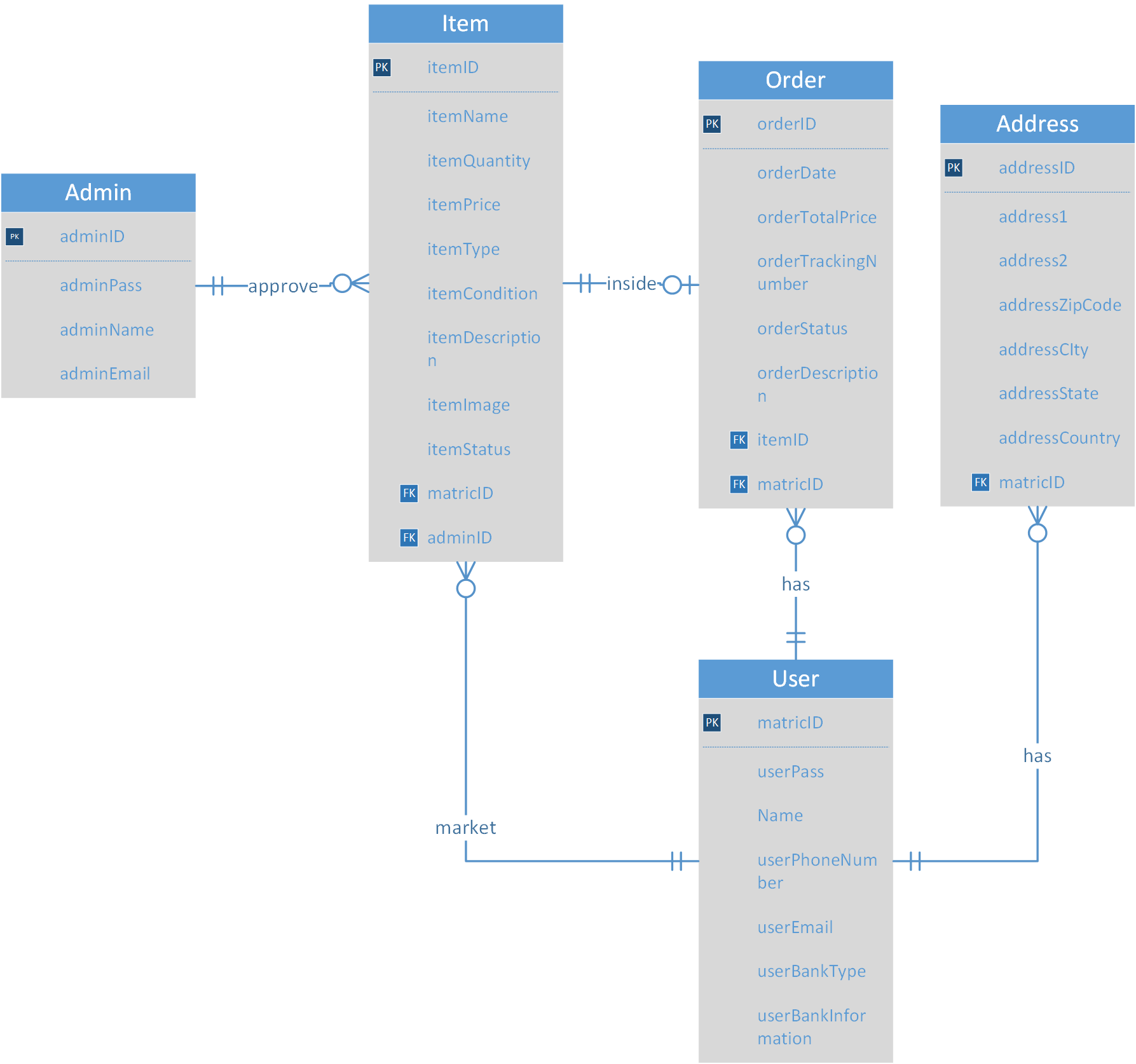


FIGURE 4: ERD diagram

## 4.3.2 Data Dictionary

This table includes the details of the attribute in the table admin. Admin table has 4 attributes that are adminID, adminPass, adminName & adminEmail. adminID is used to specify a uniqueness of the admin. adminPass is the password used to login into the UTeM Market Place admin site. adminName used to specify the name of the admin. adminEmail is the username used to login into the UTeM Market Place admin site.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| TABLE NAME | ATTRIBUTE NAME | CONTENTS | TYPE | FORMAT | RANGE | REQUIRED | PK OR FK | FK REFERENCED TABLE |
| ADMIN | adminID | Admin unique code | VARCHAR (10) | XXXXXXXXXX | NA | Y | PK |  |
|  | adminPass | Admin’s password | VARCHAR (15) | XXXXXXXX | NA | Y |  |  |
|  | adminName | Admin’s name | VARCHAR (45) |  |  |  |  |  |
|  | adminEmail | Admin’s email  Used to login into admin site | VARCHAR (45) | Xxxxxxxxx@xxxx.com | NA | Y |  |  |

TABLE 2: ADMIN TABLE

This table includes the details of the attribute in the table user. User table has 7 attributes that are matricID, userPass, Name, userPhoneNumber, userEmail, userPhoneNumber, userEmail, userBankInformation & userBankType. matricID is the unique number owned by UTeM’s students and staffs. userPass is the password used to login into the UTeM Market Place user site. Name is the name of the user. userPhoneNumber is the user’s contact number. userEmail is the user’s contact email. userBankInformation is the user’s bank account number. userBankType is the user’s bank which is related with the user’s bank account number provided.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| TABLE NAME | ATTRIBUTE NAME | CONTENTS | TYPE | FORMAT | RANGE | REQUIRED | PK OR FK | FK REFERENCED TABLE |
| USER | matricID | User’s Matric number | VARCHAR (10) | XXXXXXXXXX | NA | Y | PK |  |
|  | userPass | User’s password | VARCHAR (30) | XXXXXXXX… | NA | Y |  |  |
|  | Name | User’s name | VARCHAR (45) | Xxxxxxxxxxxxx… | NA | Y |  |  |
|  | userPhoneNumber | User’s phone number | VARCHAR (15) | Xxxxxxxxxxxxx… | NA | Y |  |  |
|  | userEmail | User’s email | VARCHAR (45) | Xxxxxxxxxxxxx… | NA | Y |  |  |
|  | userBankInformation | User’s bank account number | VARCHAR (20) | Xxxxxxxxxxxxx… | NA | Y |  |  |
|  | userBankType | User’s bank which is related to the user’s bank account | VARCHAR (20) | Xxxxxxxxxxxxx… | NA | Y |  |  |

TABLE 3: USER TABLE

This table includes the details of the attribute in the table address. Address table has 7 atrributes that are addressID, address1, addressZipCode, addressCity, addressState, addressCountry, matricID & addressID is the unique code for every address. address1 is the user’s address without zip code, city name, state name and country. addressZipCode is the zip code of the user’s address. addressCity is the city of the user’s address. addressState is the state of the user’s address. addressCountry is the country of the user’s address. matricID is the user’s matric id which is used to identified the address is own by which user.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| TABLE NAME | ATTRIBUTE NAME | CONTENTS | TYPE | FORMAT | RANGE | REQUIRED | PK OR FK | FK REFERENCED TABLE |
| ADDRESS | addressID | Address’s id | INT (10) | XXXXXXXXXX | NA | Y | PK |  |
|  | address1 | User’s address information which include house number and street | VARCHAR (150) | Xxxxxxxxxxxxx… | NA | Y |  |  |
|  | addresZipCode | Zip Code of the Address | VARCHAR (5) | XXXXXXXXXX | NA | Y |  |  |
|  | addressCity | City of the Address | VARCHAR (20) | XXXXXXXXXX | NA | Y |  |  |
|  | addressState | State of the Address | VARCHAR (20) | XXXXXXXXXX | NA | Y |  |  |
|  | addressCountry | Country of the Address | VARCHAR (15) | XXXXXXXXXX | NA | Y |  |  |
|  | matricID | Matric number of the user | VARCHAR (10) | XXXXXXXXXX | NA | Y | FK | USER |

TABLE 4: ADDRESS TABLE

This table includes the details of the attribute in the table order. Order table has 8 attributes that are orderID, orderDate, orderTotalPrice, orderTrackingNumber, orderStatus, orderDescription, itemID, matricID & orderID is the unique number of the order. orderDate is the date of the order confirmed. orderTotalPrice is the total price of the order. orderTrackingNUmber is the tracking number of the order. orderStatus is the status of the order. orderDescription is the description of the order. itemID used to identify what item is inside the order. matricID used to identify who make the order.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| TABLE NAME | ATTRIBUTE NAME | CONTENTS | TYPE | FORMAT | RANGE | REQUIRED | PK OR FK | FK REFERENCED TABLE |
| ORDER | orderID | Order code | INT (11) | XXXXXXXXXX | NA | Y | PK |  |
|  | orderDate | Date of order | DATE | DD-MON-YYYY | NA | Y |  |  |
|  | orderTotalPrice | Total price of order | DOUBLE (6,2) | ####.## | 0.00-9999.00 | Y |  |  |
|  | orderTrackingNumber | Tracking number of order | VARCHAR (20) | XXXXXXXXXXXX | NA | Y |  |  |
|  | orderStatus | Status of order | VARCHAR (10) | XXXXXXXXXX | NA | Y |  |  |
|  | orderDescription | Description of order | VARCHAR (15) | Xxxxxxxxxxxxx… | NA | Y |  |  |
|  | itemID | Item code | INT (11) | XXXXXXXXXX | NA |  | FK | ITEM |
|  | matricID | Matric number | VARCHAR (10) | XXXXXXXXXX | NA |  | FK | USER |

TABLE 5: ORDER TABLE

In item table has 11 attributes that are itemID, itemName, itemQuantity, itemPrice, itemType, itemCondition, itemDescription, itemImage, itemStatus, matricID & adminID. itemID is the unique code of the item. itemName is the name of the item. itemQuantity is the quantity of the item. itemPrice is the price of the item. itemType is the type of the item. itemCondition is the condition of the item. itemDescription is the description of the item. itemImage is the image path of the item. itemStatus is the status of the item. matricID used to identify who selling this item. adminID used to identify allowed the item to searchable by user.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| TABLE NAME | ATTRIBUTE NAME | CONTENTS | TYPE | FORMAT | RANGE | REQUIRED | PK OR FK | FK REFERENCED TABLE |
| ITEM | itemID | Item code | INT (11) | XXXXXXXXXX | NA | Y | PK |  |
|  | itemName | Item name | VARCHAR (45) | Xxxxxxxxxxxxx… | NA | Y |  |  |
|  | itemQuantity | Quantity of item | INT (3) | ### | 0-999 | Y |  |  |
|  | itemPrice | Price of item | DOUBLE (6,2) | ####.## | 0.00-9999.00 | Y |  |  |
|  | itemType | Type of item | VARCHAR (10) | XXXXXXXXXX | NA | Y |  |  |
|  | itemCondition | Condition of item | VARCHAR (10) | XXXXXXXXXX | NA | Y |  |  |
|  | itemDescription | Description of item | VARCHAR (100) | Xxxxxxxxxxx… | NA |  |  |  |
|  | itemImage | Image path of item | VARCHAR (10) | XXXXXXXXXX | NA | Y |  |  |
|  | itemStatus | Status of item | VARCHAR (100) | XXXXXXXXXX… | NA | Y |  |  |
|  | matricID | Matric number | VARCHAR (10) | XXXXXXXXXX | NA | Y | FK | USER |
|  | adminID | Admin unique code | VARCHAR (10) | XXXXXXXXXX | NA |  | FK | ADMIN |

TABLE 6: ITEM TABLE

## 4.4 Module Integration and Interface Design

Implementation of the UTeM Market Place is an application which is in android platform. The following diagram shows the implementation of the system into the application as a prototype.

### 4.4.1 Login Page

Login or sign up is needed before entering this application. Figure 5 and Figure 6 show the login page and sign up form respectively.

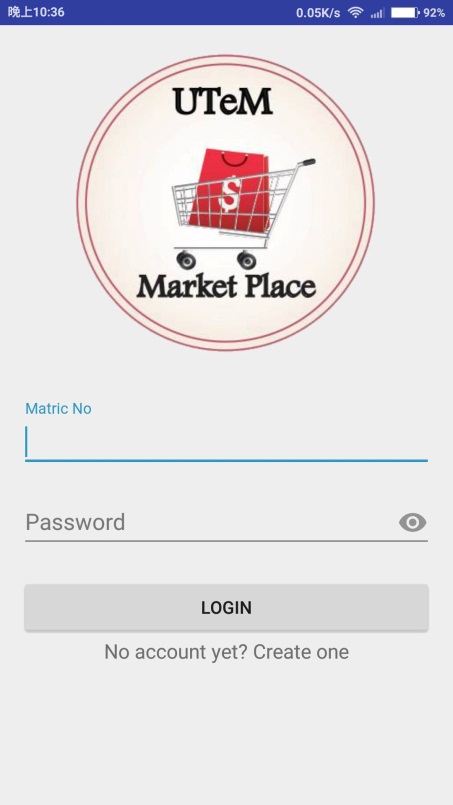
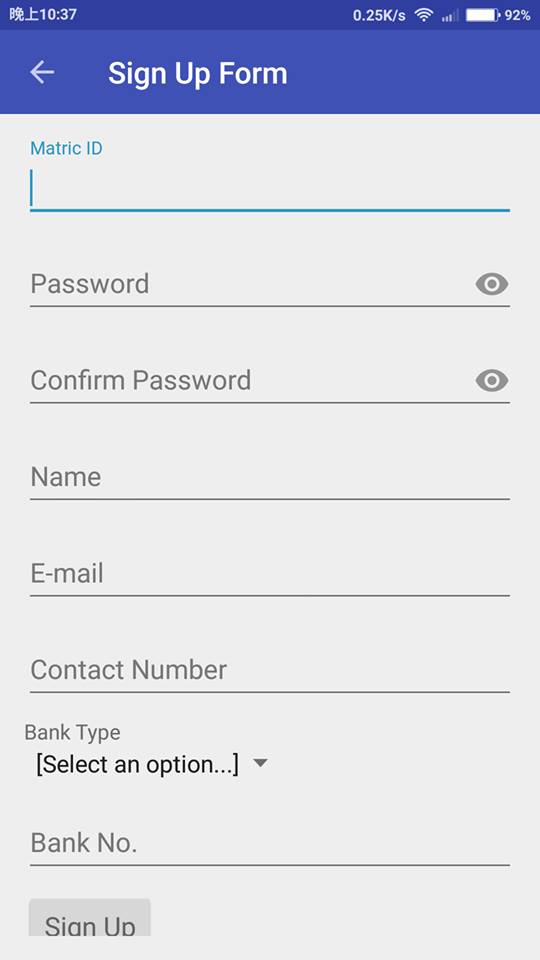
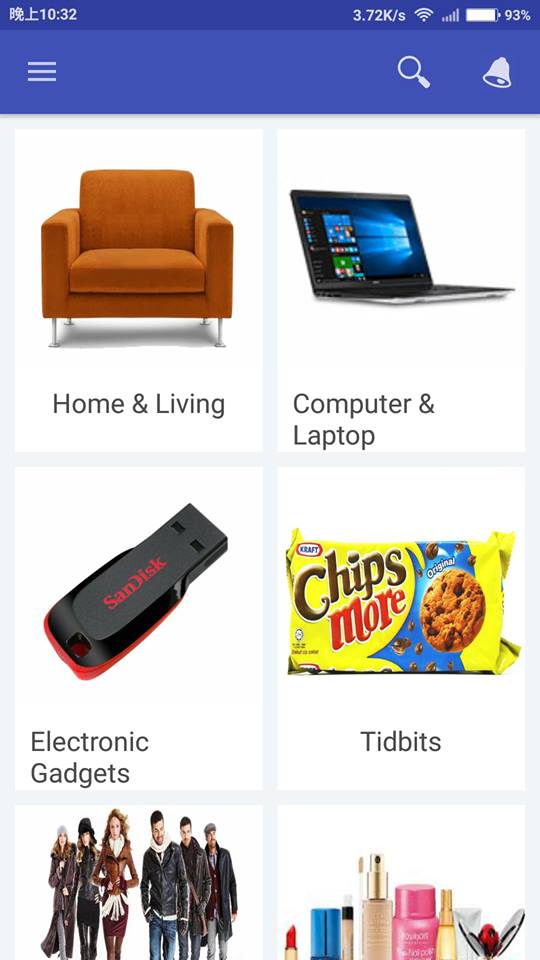
 

Figure 5: Login Page Figure 6: sign up form

### 4.4.2 Main Page

Figure 7 shows the main page show the category of items which are: Home & Living, Computer & Laptop, Electronic Gadgets, Tidbits, Fashion, Health and Beauty, Media & Book and Other.

 Figure 7: Main Page

### 4.4.3 Search Page

Figure 8 shows the search page of the application where the users are able to search the items by items name using the search bar.

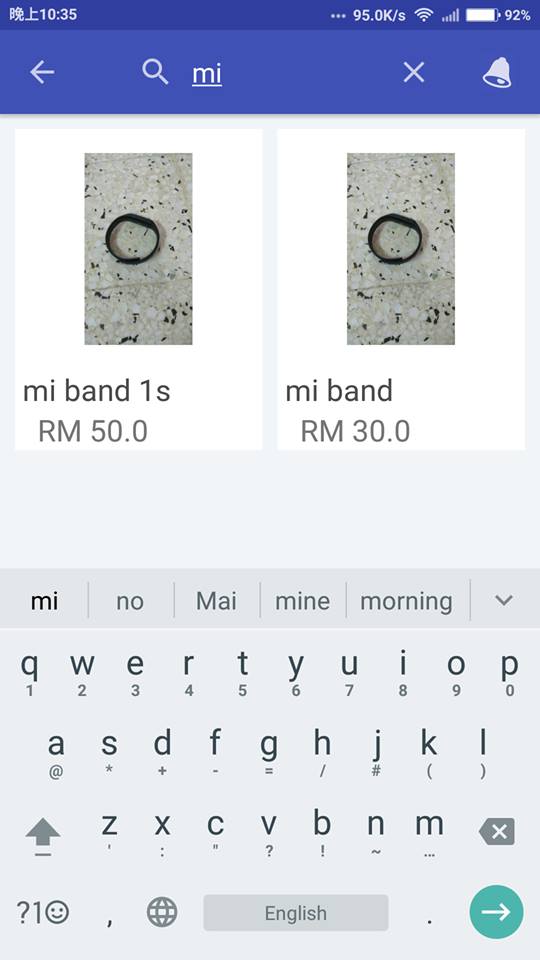


Figure 8: Search Page

### 4.4.4 View Item Details

Figure 9 shows the page of item details where the users are able to view the details of selected items and click buy now if the user wants to purchase that item.

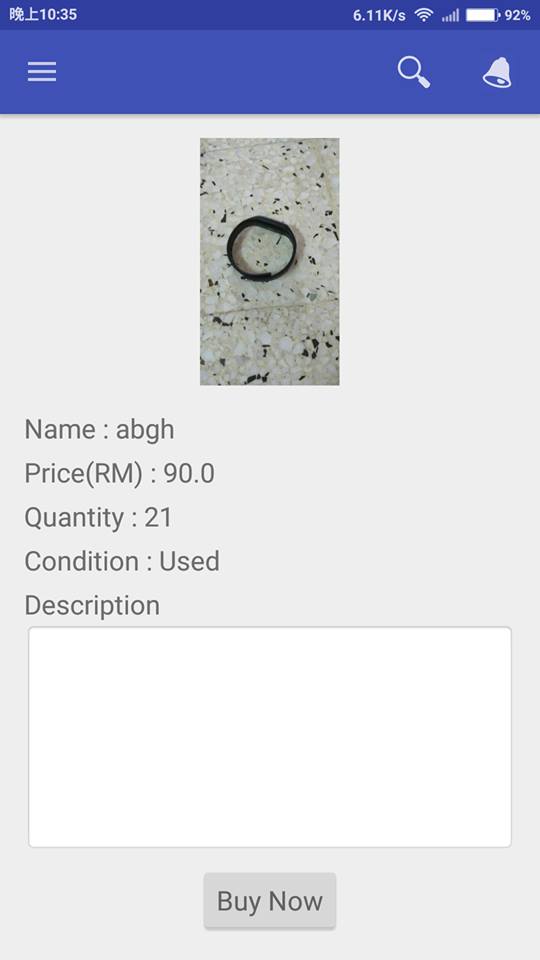


Figure 9: View Item Details page

### 4.4.5 Purchase Page

Figure 10 shows the purchase page that enables the user to purchase items by clicking purchase button.

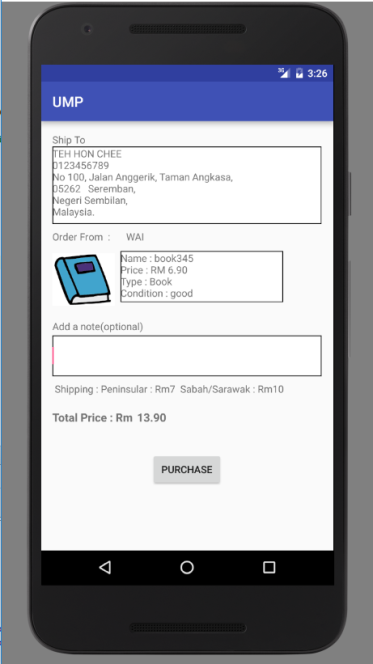


Figure10: Purchase Item Page

### 4.4.6 Order Page

Figure 11 shows the Order page where the user uploads the proof of payment and save their order record.

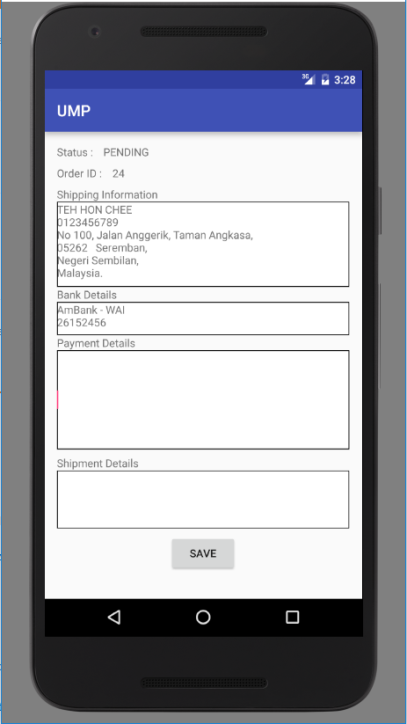


Figure 11: Order page

### 4.4.7 Market New Item

Users are able to market their items by entering the detail as shown in Figure 12.



Figure 12: Market New Item Page

### 4.4.8 Update Item Page

Users are able to update the details of their marketed items as shown as figure 13.

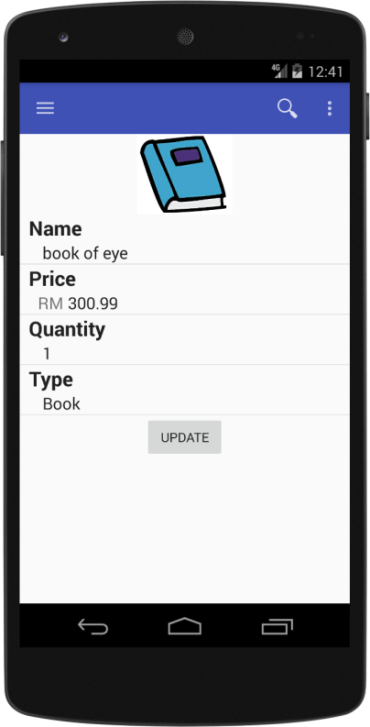


Figure 13: Update Item Page

### 4.4.9 Approve Item Page

Figure 14 shows the approve item page that involve only the administrator.

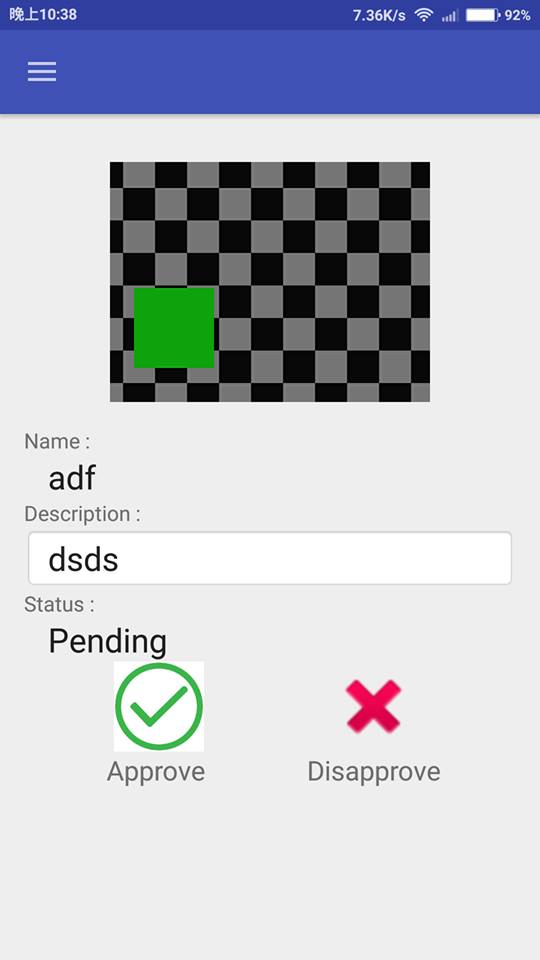


Figure 14: Approve Item Page

### 4.4.10 Account Setting Page

Figure 15 and Figure 16 shows the account setting for user and administrator respectively.

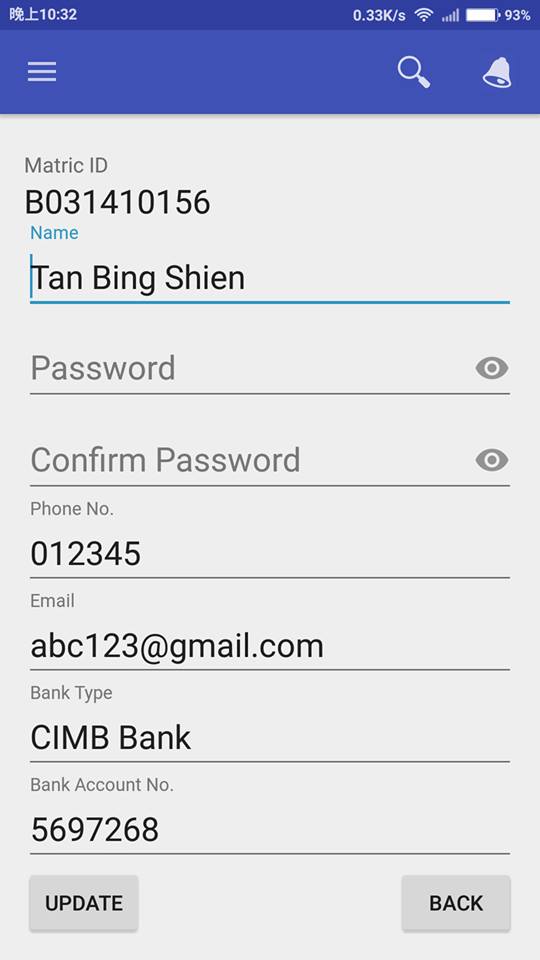
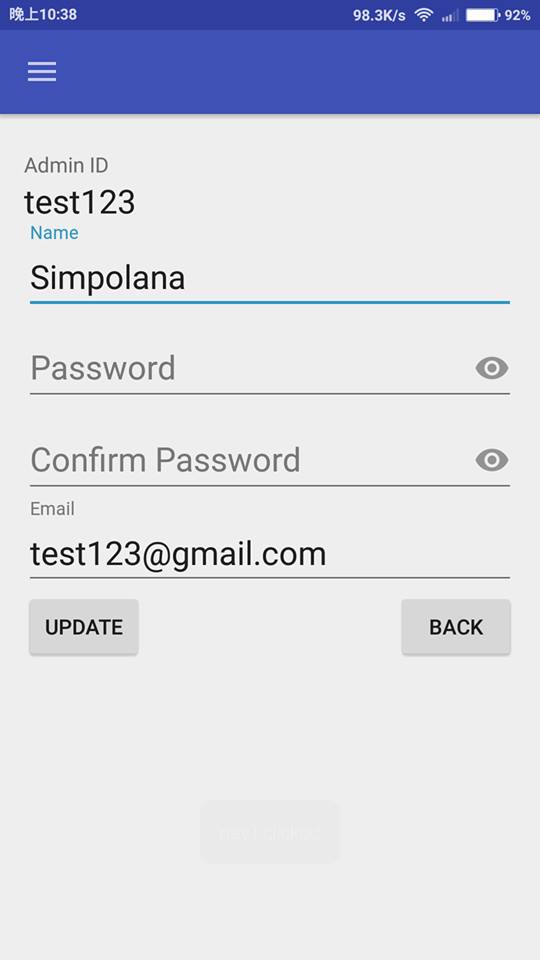
 

Figure 15: User Account setting Figure 16: Admin account setting

### 4.4.11 View the ordered item

Users are to view their ordered items as shown in Figure 17.

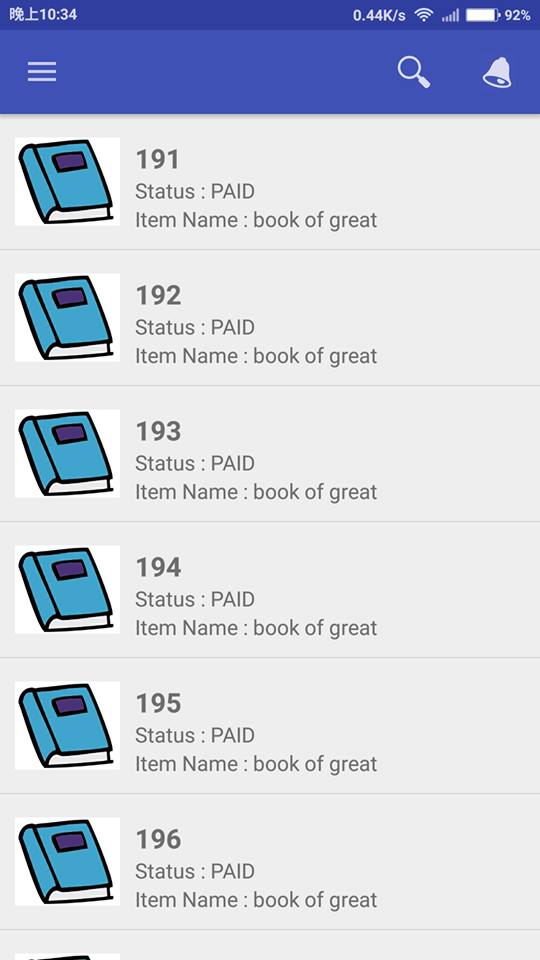


Figure 17: Ordered items page

## 4.5 System Design

### 4.5.1 Sequence Diagram

#### 4.5.1.1 Authenticate Module

Authenticate module has 2 functions that allow user signup as an authorized user and allow authorized user accesses to UTeM Market Place.

##### 4.5.1.1.1 Signup Function

This function allows UTeM students and staffs to become an authorized user to access into the application.

Sequences Diagram:

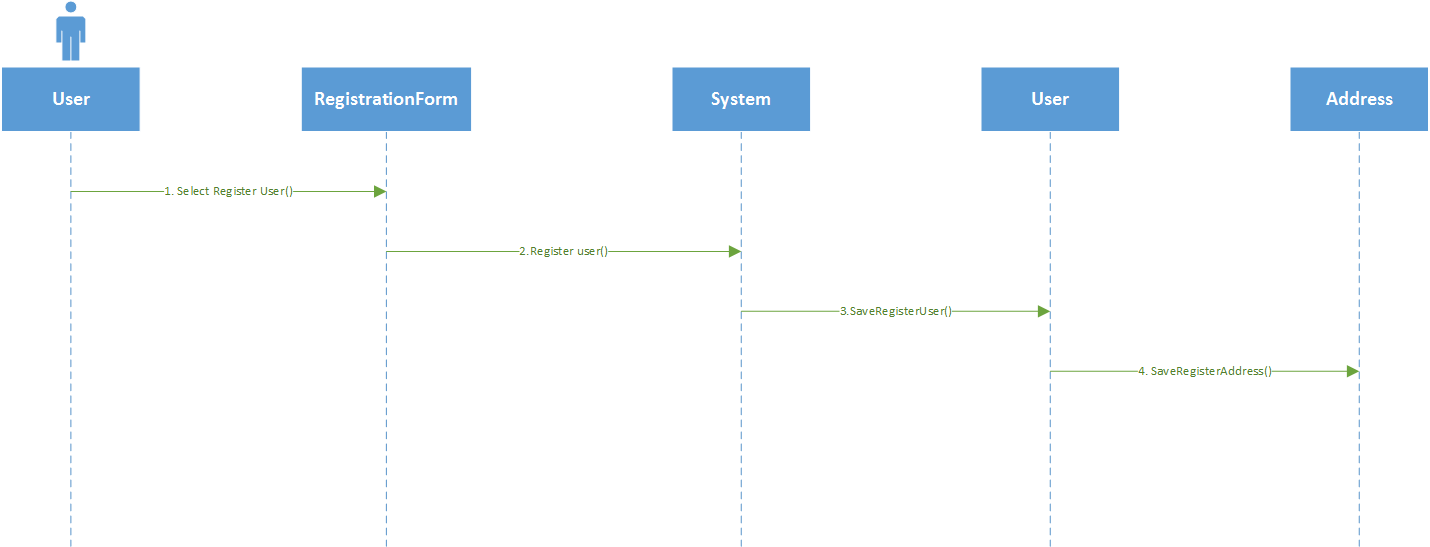


Figure 18: signup sequence diagram

Class diagram:

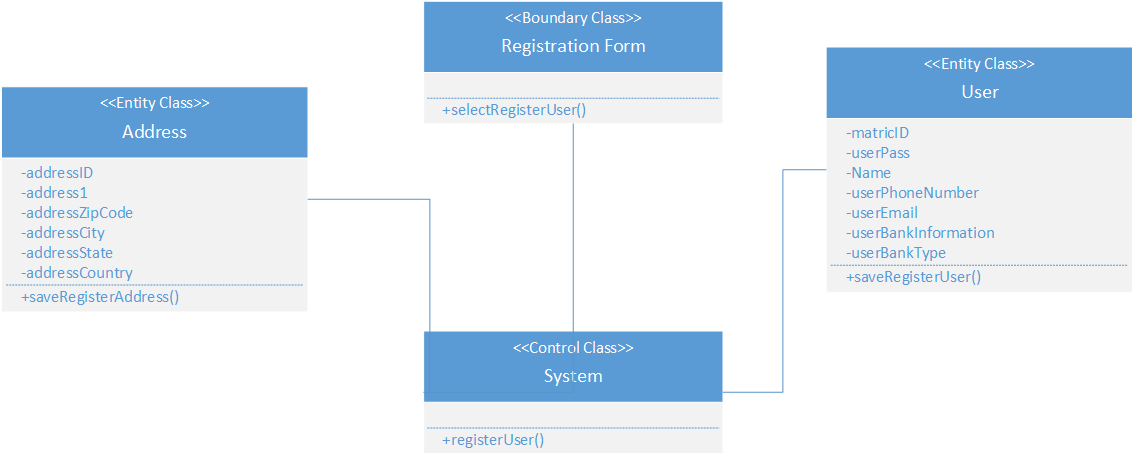


Figure 19: Signup Class Diagram

##### 4.5.1.1.2 Login Function

This function allows authorized user to access into UTeM Market Place and able to prevent unauthorized user to access into the application.

Sequence Diagram:

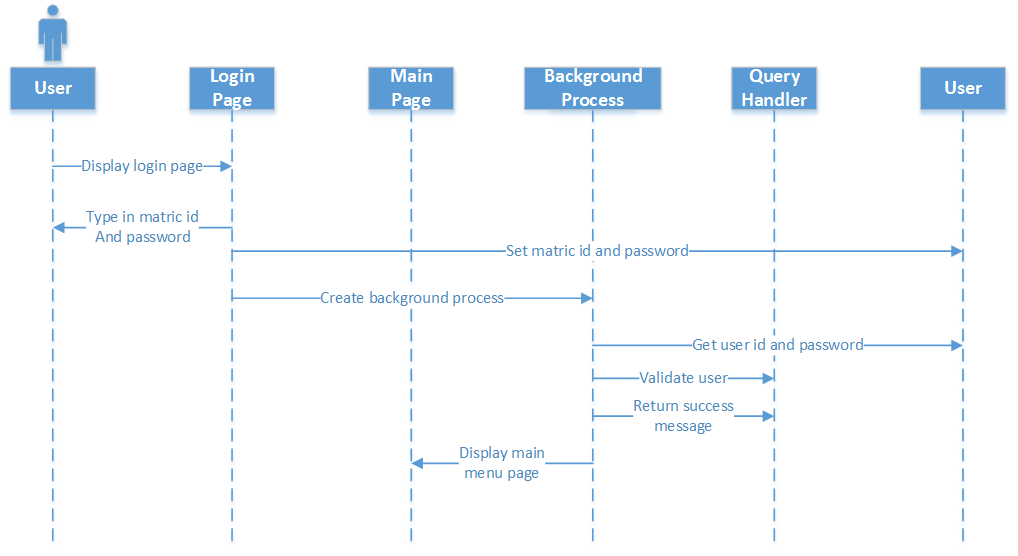


Figure 20: Login Sequence Diagram

Class Diagram:

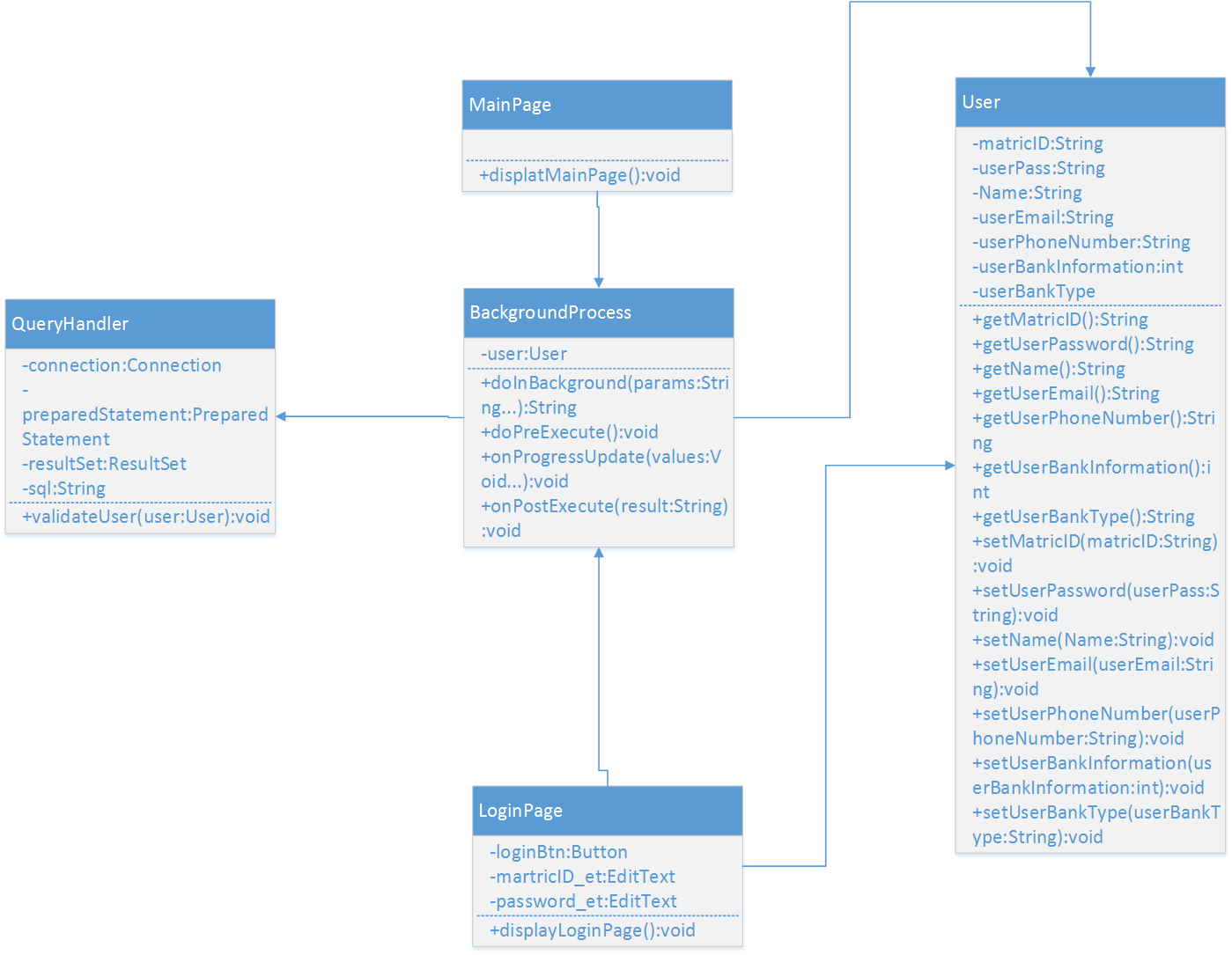


Figure 21: Login Class Diagram

### 4.5.1.2 Administrator Module

Admin module has 2 functions that allow admin to approve a pending item that are to be market and update admin’s account information.

##### 4.5.1.2.1 Approve item Function

This function allows admin to approve pending item. Admin change the status of the item from pending to either approve or unapproved.

Sequence Diagram:

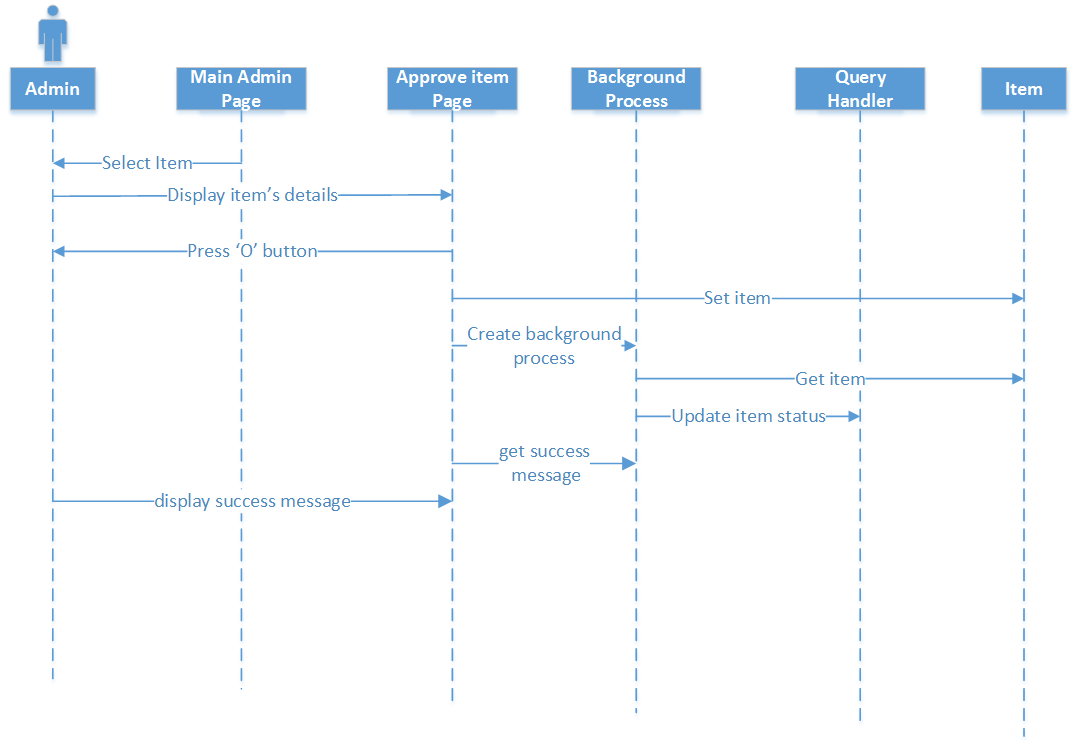


Figure 21: Approve Item Sequence Diagram

##### 4.5.1.2.2 Update admin’s account information Function

This function allows admin to update him/herself account details. Admin open the account page and edit the desired field then press update button to update their account details.

Sequence Diagram:

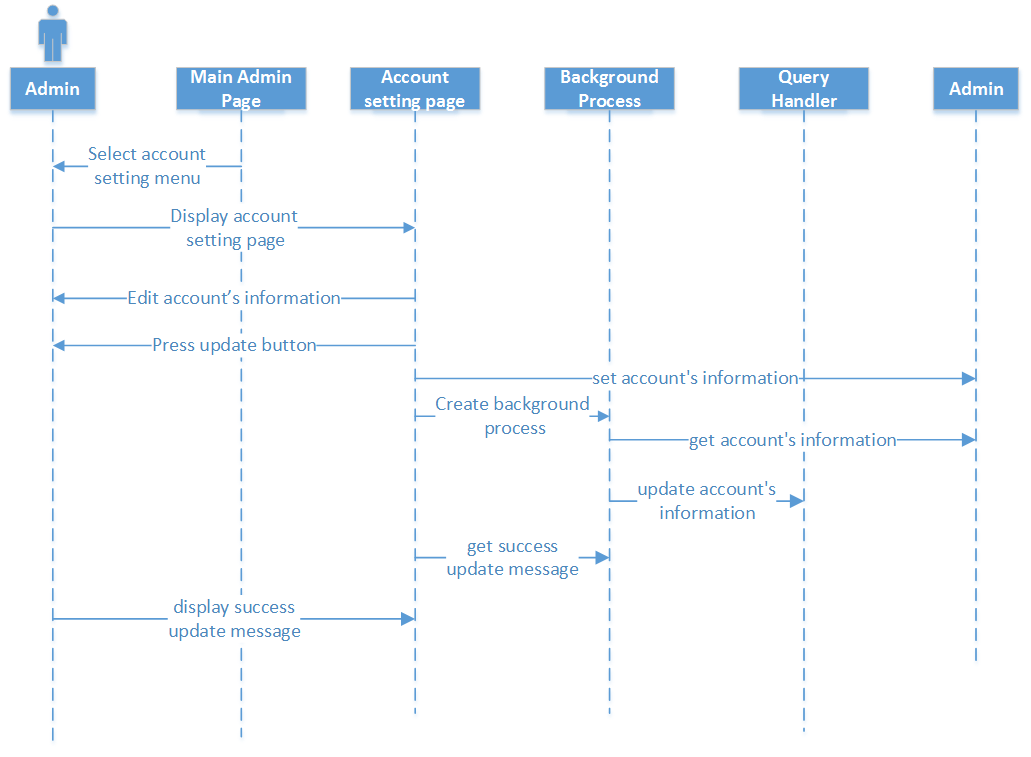


Figure 23: Update Admin Account Sequence Diagram

##### 4.5.1.2.3 Overall Class diagram:

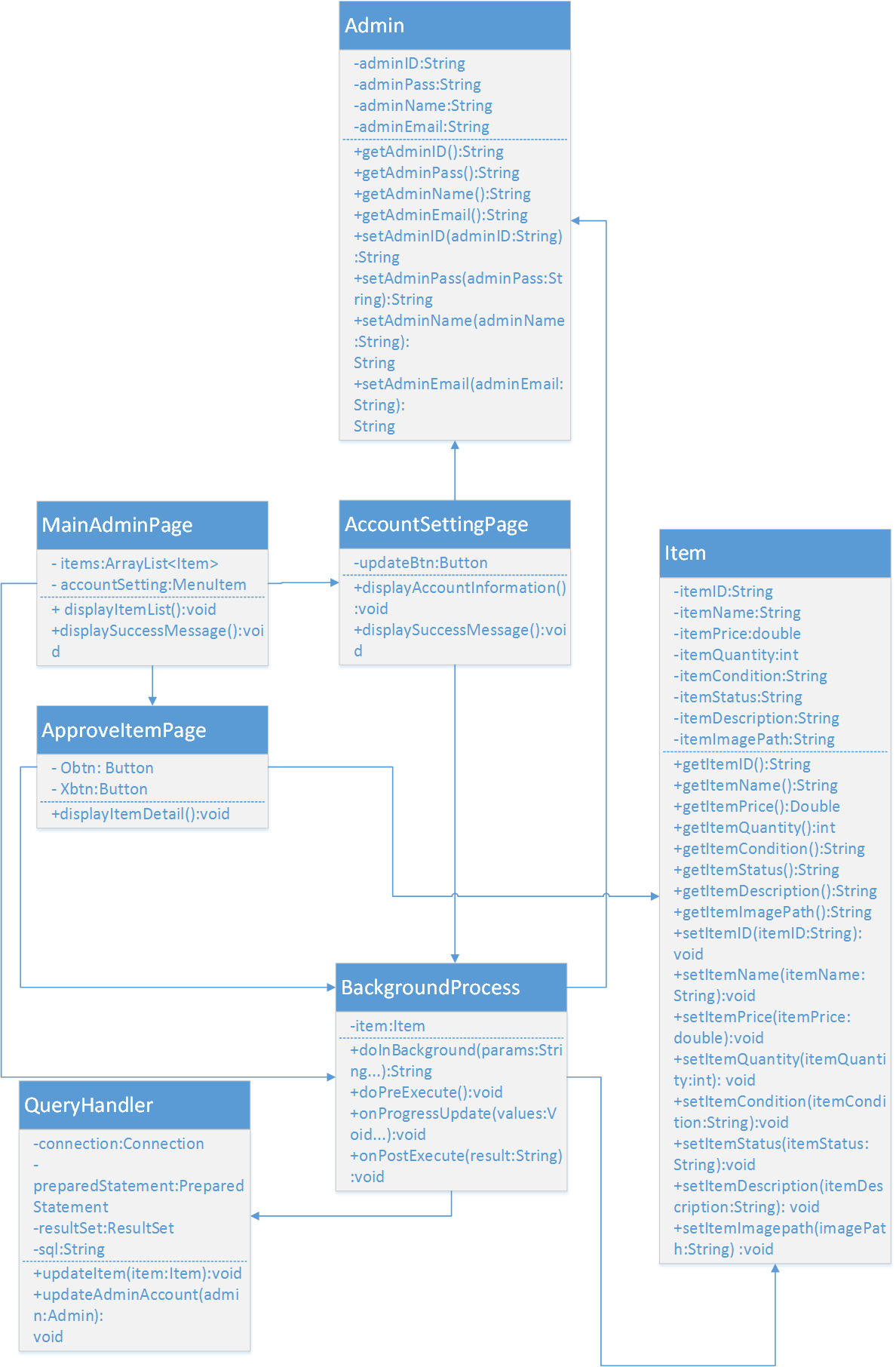


Figure 24: Admin Module Overall Class Diagram

#### 4.5.1.3 User Module

User module has 1 function that allows user to view, add, update and delete user’s account information.

##### 4.5.1.3.1 View, add, update and delete function.

Users able to open the account detail page and edit him/her account information.  
Sequence Diagram:

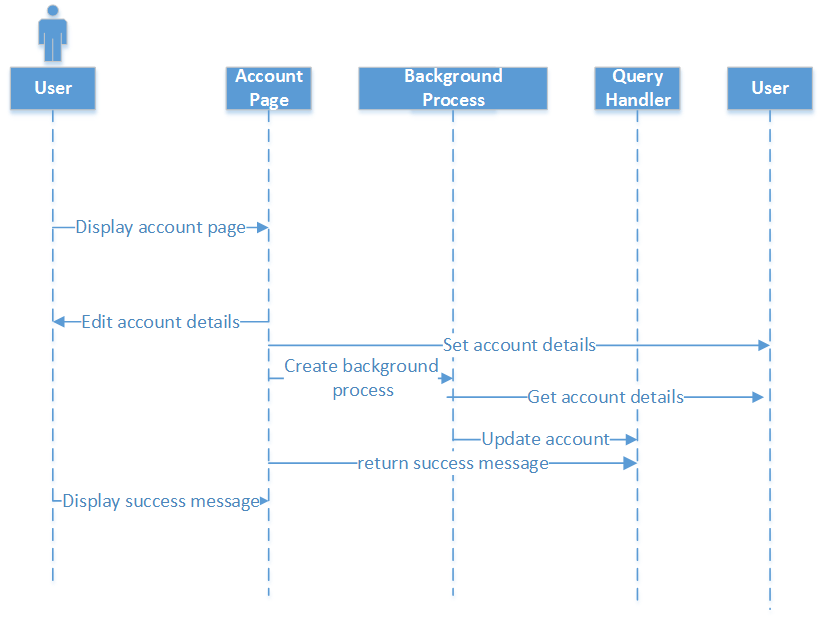


Figure 25: View, Add, Update & Delete User Sequence Diagram

Class Diagram:

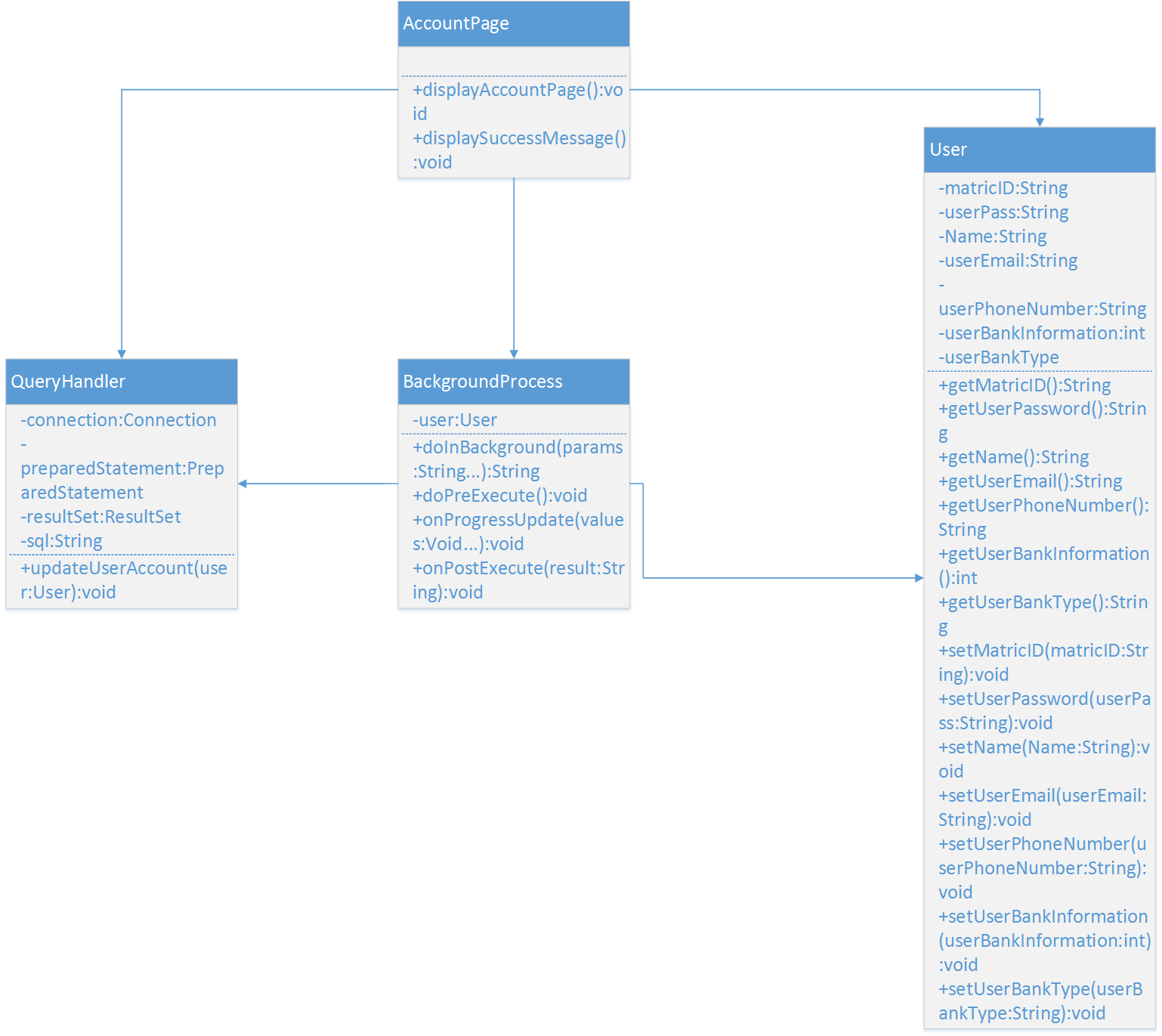


Figure 26: View, Add, Update & Delete User Class Diagram

### 4.5.1.4 Market Module

Market module has 4 functions that allow user to sell an item, allow seller to view, update and delete items that are currently marketing by him/herself, allow user to view an item that is currently marketing and allow user to buy an item. Payment module will be joined together with market module as it is a continuous process of market module.

##### 4.5.1.4.1 Sell Item Function

This function allow user to sell an item in UTeM Market Place. User required filling in the required field and pressing button as a procedure to sell an item. UTeM Market Place will gather the item’s information and save into the database for further use.

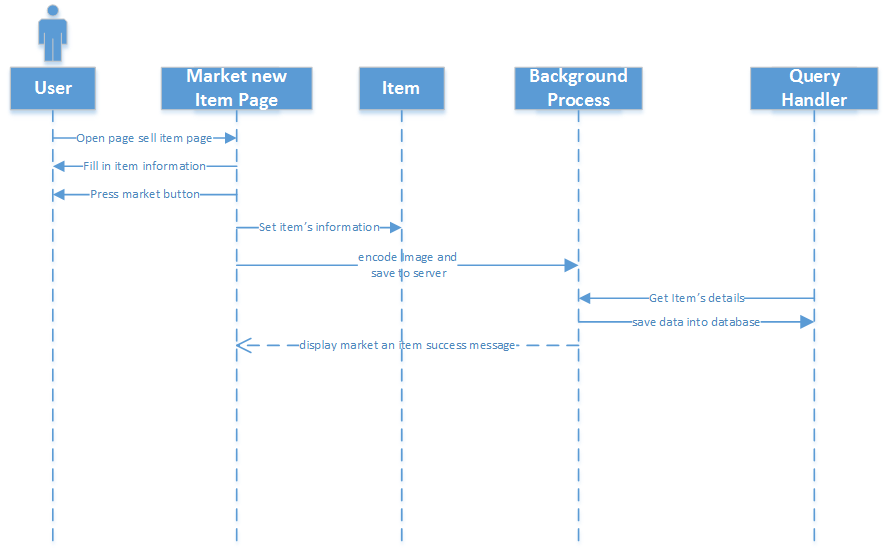


Figure 27: Sell Item Sequence Diagram

Class diagram:

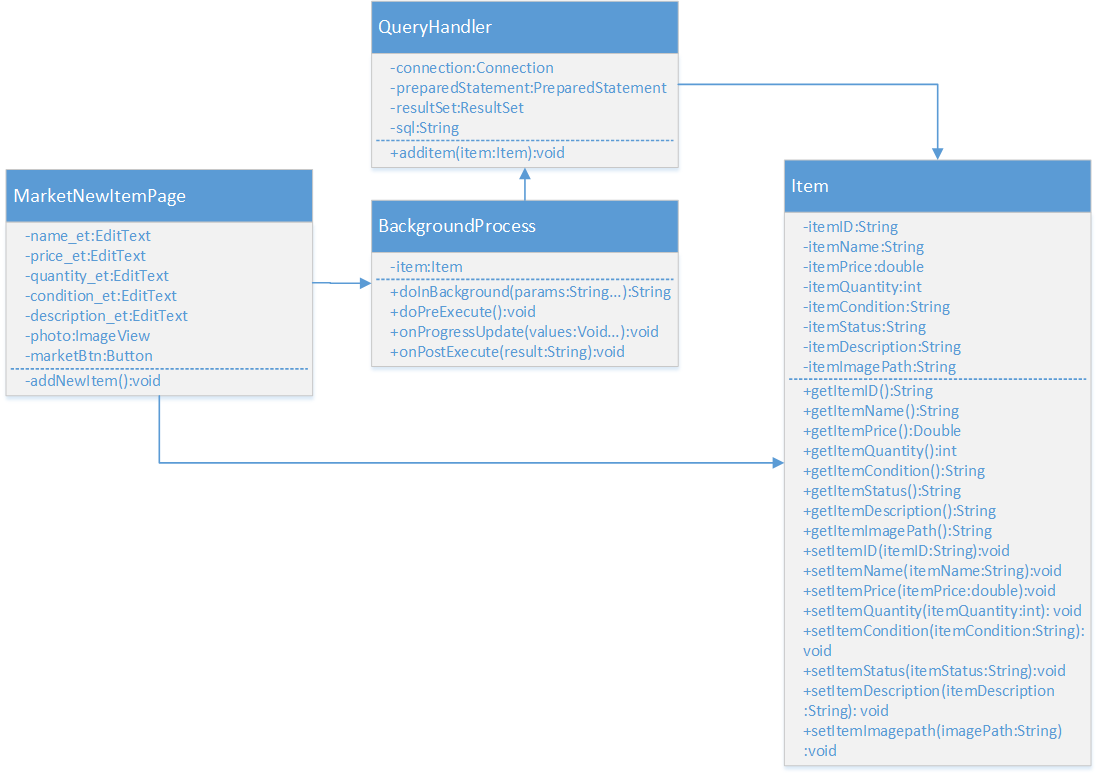


Figure 28: Sell Item Class Diagram

##### 4.5.1.4.2 View, update and delete item Function

This function allow user to monitor the item marketed by the user him/herself, update the items which is marketed by the user him/herself and delete the item that is currently marketing in the UTeM Market Place. The procedure to do so is user open the marketed item list in UTeM Market Place to view or monitor the item then user could either delete the item from UTeM Market Place or update the item’s information.

Sequence diagram:

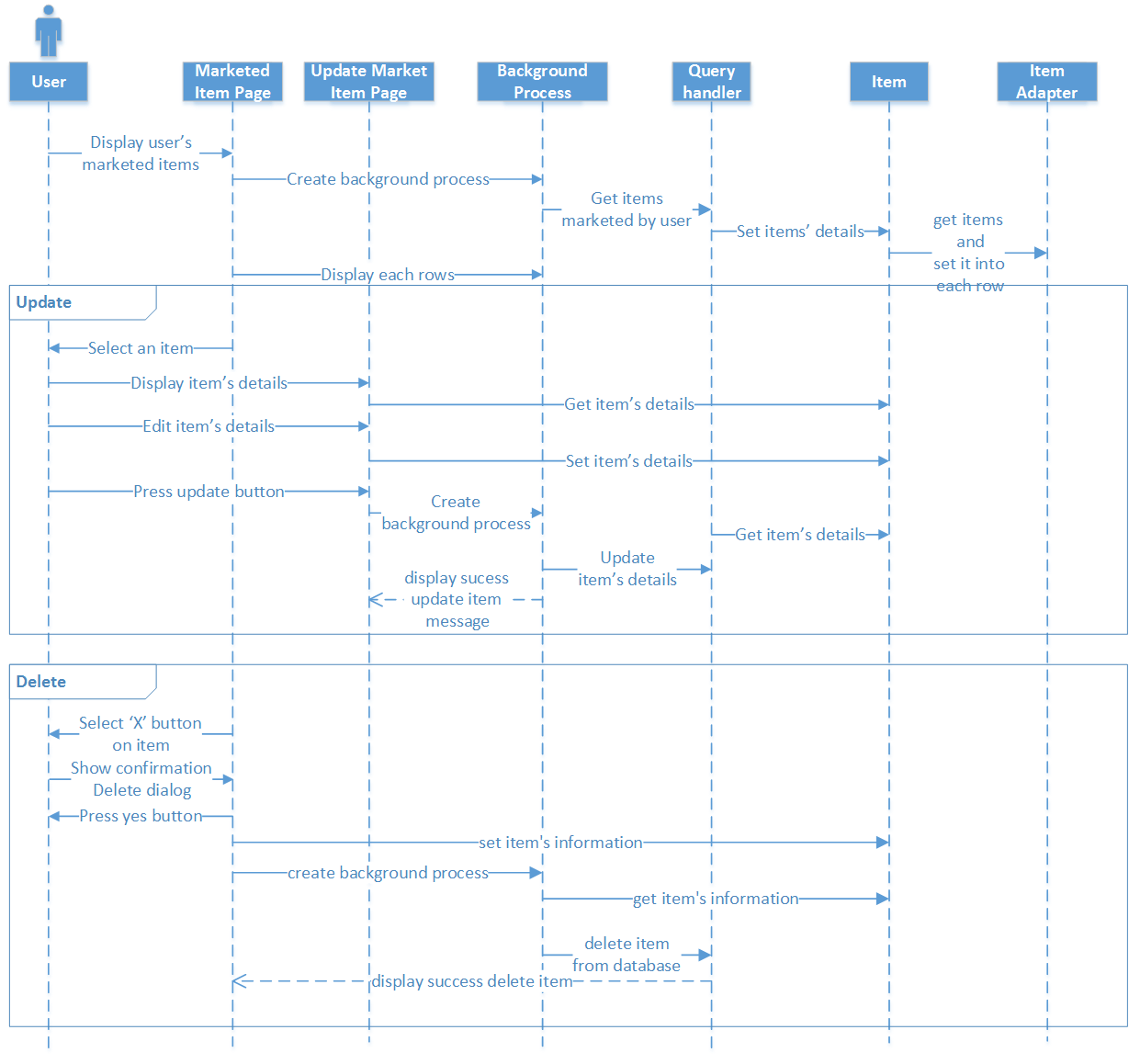


Figure 29: View, update and delete item sequence diagram

Class diagram:



Figure 30: View, update and delete item class diagram

##### 4.5.1.4.3 View and buy item Function

Users able search for an item and then view the item’s details. Next user could buy an item and the application will generate an order.

Sequence Diagram:

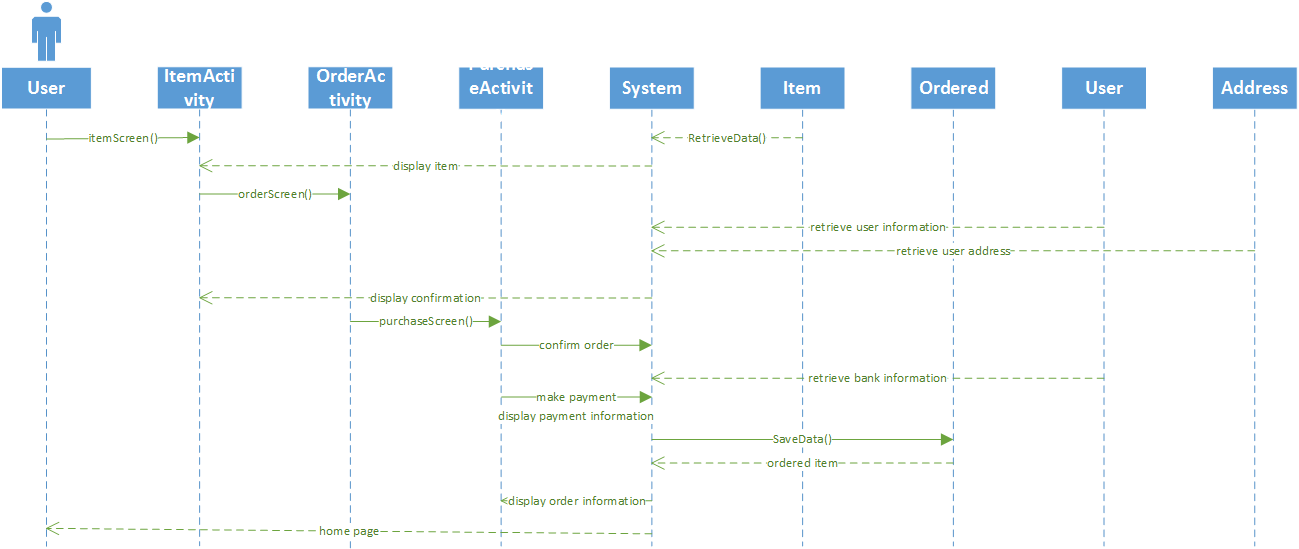


Figure 31: View and buy item sequence diagram

Class diagram:

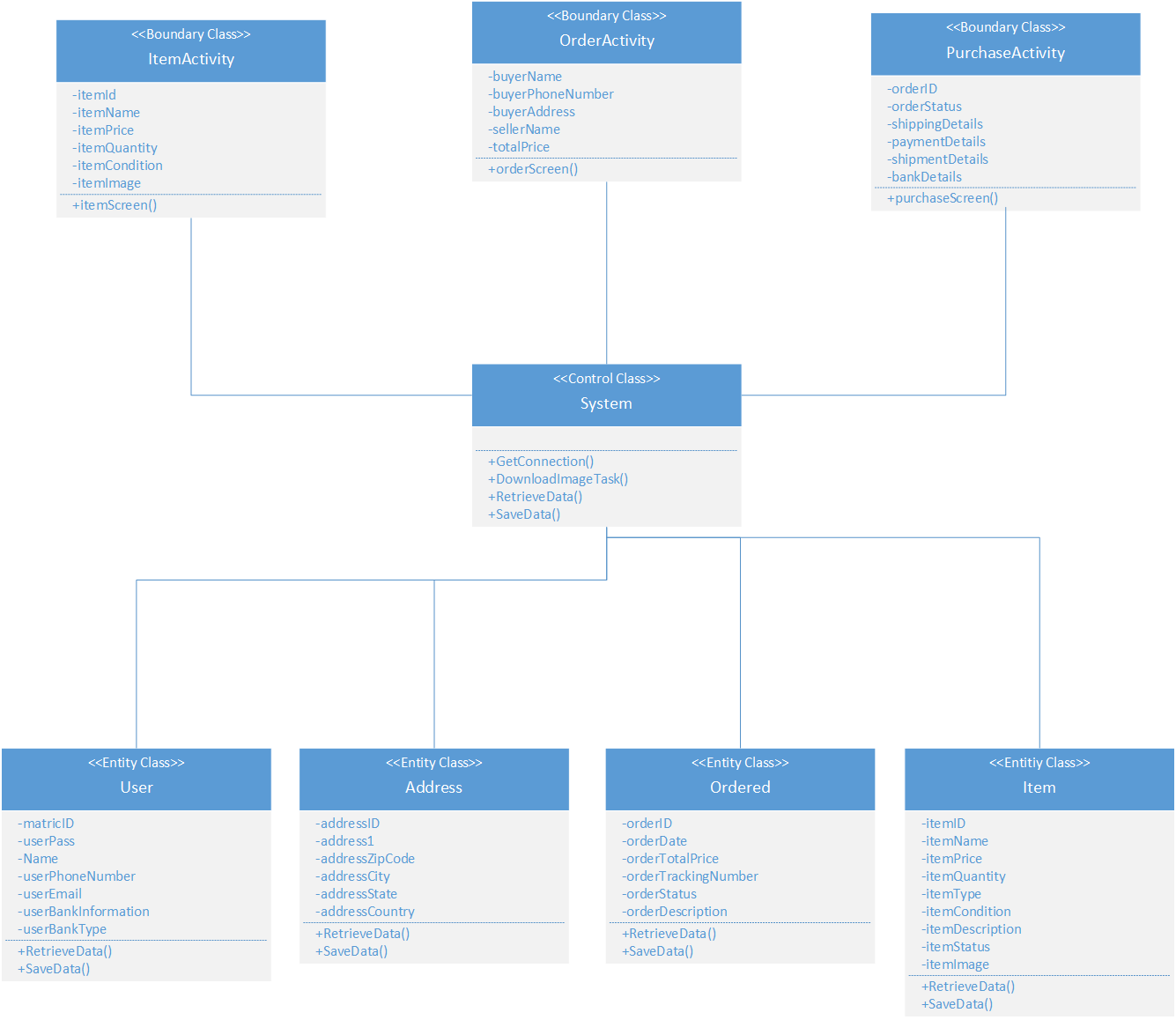


Figure 32: View and buy item class diagram

### 4.5.2 Flow Chart

The following figures show the flow of system of each module.

#### 4.5.2.1 Authentication

**C:\Users\Hasnatul\Documents\Education\Sem V (September 2016-February 2017)\Workshop II\application.png**

Figure 33: Authentication

#### 4.5.2.2 Validation of Administrator and user

C:\Users\Hasnatul\Documents\Education\Sem V (September 2016-February 2017)\Workshop II\main.png

Figure 34: Validation of Admin and user

#### 4.5.2.3 User Main Menu

C:\Users\Hasnatul\Documents\Education\Sem V (September 2016-February 2017)\Workshop II\user_main.png

Figure 35: Main Menu

#### 4.5.2.4 Administrator Main Menu

C:\Users\Hasnatul\Documents\Education\Sem V (September 2016-February 2017)\Workshop II\admin_main.png

Figure 36: Admin Main Menu

#### 4.5.2.5 Update and view account user and administrator

**C:\Users\Hasnatul\Documents\Education\Sem V (September 2016-February 2017)\Workshop II\view_account.png**

Figure 37: Update and view account user and administrator

#### 4.5.2.6 View and search Item

C:\Users\Hasnatul\Documents\Education\Sem V (September 2016-February 2017)\Workshop II\view_item.png

Figure 38: View and search Item

## 4.6 Conclusion

In conclusion, we had described about the overall view and the flow of our application. Some diagrams are used to describe more details and perceptive about the overall flow and view design of our system.

There are several diagrams included in this chapter: sequence diagram, class diagram and flow chart to explain about the flow and framework of this application. In addition, the diagrams explain the functionality and the integration between the modules. These diagrams are able to present the clear and vivid vision about the background process and flow between the modules.

In the database design, entity relationship diagram and data dictionary are used to explain the relationship and interactive between the table in database. Furthermore, data dictionary explains about the data type, attributes and format used throughout the flow of this application.

# 5.0 Chapter 5: System Implementation

## 5.1 Introduction

This section is about the implementation of the system. System implementation is the process of defining how the system should build and ensuring that system is operational and used, ensuring that the information system meets quality standard. The purpose of System Implementation can be summarized as follows: making the new system available to a prepared set of users (the deployment), and positioning on-going support and maintenance of the system within the Performing Organization (the transition).

UTeM Market Place has five main modules which are authenticate module, user module, market module, payment module and administrator module. Each of these modules has different functions and the implementation of these modules is crucial in this system implementation.

## 5.2 System Development Environment

UTeM Market Place is an android mobile application. This application can be run on any smartphones that support android software. During this process, the applications that use to build this application are Android studio, MySQL workbench 6.3 CE as database. For documentation, Microsoft Office 365 is used.

### 5.2.1 Android Studio

Android Studio is the official Integrated Development Environment (IDE) for Android app development based on IntelliJ IDEA. On top of IntelliJ’s powerful code editor and developer tools, Android Studio offer features that enhances productivity when building Android apps. Applications were developed in Java programming language using the Android software development kit (SDK).

### 5.2.2 MySQL Workbench 6.3 CE

The project used MySQL workbench 6.3 CE to build the database server. MySQL Workbench provides DBAs and developers an integrated tools environment for database design and modeling, SQL development, database administration and database migration.

### 5.2.3 Microsoft Office 365

This project use Microsoft Word and Microsoft Visio. A high quality report is developed by using Microsoft Word. Designing ERD, sequence diagram and flow chart are created using Microsoft Visio.

## 5.3 System Configuration Management

In this part, it will configure what software to use and to install it.

### 5.3.1 Android Studio

1. Download the Android Studio and SDK file from <https://developer.android.com/sdk/index.html>
2. Run the installer file in desired drive
3. Accept all terms with the condition and then complete the installing.

### 5.3.2 MySQL Workbench 6.3 CE

1. Download the MySQL workbench from

<https://dev.mysql.com/downloads/windows/installer>

1. To install MySQL Workbench, right click the MSI file and select the install item from the pop-menu, or double-click the file
2. In the Setup Type window, choose a Complete or Custom installation. To use all features of MySQL Workbench choose the Complete option
3. Accept all terms with the conditions and then complete the installing.

### 5.3.3 Microsoft Office 365

1. Download the Microsoft Office from <https://www.office.com>
2. Install and run the Microsoft setup
3. Accept all terms with the conditions and then complete the installing.

## 5.4 Security Characteristics

UTeM Market Place instills the security element such as authentication, confidentiality and integrity. Authentication is the process of the uniquely identifying clients of the application and services. Confidentiality also referred to as privacy, is the process of making sure that the data remains private and confidential, and that it cannot be viewed by unauthorized users. Integrity is the guarantee that data is protected from accidental or deliberate (malicious) modification.

1. Authentication  
   UTeM Market Place has authentication module that allows authorized user to use the application. Users need to register an account in order to be a validate user. Registration account need user information such as matric id, password, name, phone number, email, bank information and bank type. After that, users able to access the application by using matric id as the identification and password as the key to access to the application. All information of user is save into database server. The application validates and verifies username and password before user can access the application. Without authentication, anyone can access the application. Thus, authentication act as identification of user before they can access into the application.
2. Confidentiality  
   Besides that, our application support confidentiality of data by allowing only authorized user such as able to approve item before it is market on the application. Certain module remains private to users but not to admin. User cannot simply bypass the item validating process. Our application validates and verifies admin by their unique admin id and password when they login into the application. User cannot access the admin module.
3. Integrity  
   Last but not least, our application provides data integrity. In market module, user can update their items. User need to access into application first, then update items’ information. Integrity of data is protected by our application with verification and validation of matric id. The verification of those data allow database server update the new information added by user. Moreover, modification of updated item will not successful when user use invalidated id or password because our application only accepts validated id or password.

## 5.5 Conclusion

During System Implementation, it is essential that everyone involved in the implementation and work together to provide better products. Often the performance of deployment efforts impacts the operation and execution of the implementation system. From implementation phase, the deliverables of installation and conversion plans is deployed successfully.

UTeM Market Place can be install via smartphones that support Android and it may be best suit to those who love to shop online especially for student and staff UTeM. This system is fully developed by MySQL workbench 6.3 CE and Android Studio. Besides that, the system support security services by the developer to ensure that an unauthorized user cannot disclose and modify data.

# 6.0 CHAPTER 6: SYSTEM TESTING

## 6.1 TESTING METHOD

In this project, we are using black box testing to ensure the quality of application. Black box testing is a software testing techniques in which functionality of the software under test is tested without looking at the internal code structure, implementation details and knowledge of internal paths of the software. The testers can be independent party and does not required technical knowledge; hence the testing is balanced and unprejudiced. Besides, black box testing also helps to identify vagueness and contradictions in functional specification.

## 6.2 TEST RESULT ANALYSIS

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Functional Requirement | Test Requirement | Pre-condition | Test Data | Step | Expected Result | Actual Result | Test Status (P/F) |
| Authenticate module | Validate the user is able to login with valid username and password | The application is installed | Matric ID:”B031410154”  Password: “abc123” | Step 1:  Enter the Matric ID and password  Step 2 :  Click on button “Login”  Step 3:  Validate the login | Login successfully | Login successfully | Pass |
| Validate that the required  information are  not empty when  registration | Matric ID: “B031410141”  Password: “abc123”  Confirm password: “abc123”  Name: Loh Feng Mei  Email: [juneloh94@yahoo.com](mailto:juneloh94@yahoo.com)  BankType: “CIMB”  BankNo:12345678 | Step 1:  Click on “create one” from login screen.  Step 2:  Enter all information required in sign up form except the contact no.  Step 3:  Click button “Sign up” | Registration Failed | Registration Failed | Pass |
| Validate that the password enter in the sign up form is match with the password entered at confirm password field. | Matric ID: “B031410141”  Password: “abc123”  Confirm Password:  “abc456”  Name:  Loh Feng Mei  Email: [juneloh94@yahoo.com](mailto:juneloh94@yahoo.com)  Conatct Number:  01124270021  BankType: “CIMB”  BankNo:  12345678 | Step 1:  Click on “create one” from login screen.  Step 2 :  Enter all information as list at test data  Step 3:  Click button “Sign up” | Display error message | Display Messenger  “Password not match” | Pass |
|  | Validate an error message pop out when the format of email address is not valid |  | Matric ID: “B031410222”  Password: “abc123”  Confirm Password:  “abc123”  Name:  Hasna  Email:  Hasna93yahoo  Conatct Number:  01124270021  BankType: “CIMB”  BankNo:  12345678 | Step 1:  Click on “create one” from login screen.  Step 2 :  Enter all information as list at test data  Step 3:  Click button “Sign up | Display an error message  “ Invalid email address” | Display an error message  “ Invalid email address” | Pass |
| Validate that error message displayed when the format of contact number is not valid | Matric ID: “B031410223”  Password: “abc123”  Confirm Password:  “abc123”  Name:  Hasna  Email:  Hasna93@yahoo.com  Conatct Number:  00132323223213BankType: “CIMB”  BankNo:  12345678 | Display an error message  “ Invalid Contact Number” | Display an error message  “ Invalid Contact Number” | Pass |

TABLe

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Functional Requirement | Test Requirement | Pre-condition | Test Data | Step | Expected Result | Actual Result | Test Status (P/F) |
| User module | Validate that the error message is pop out when the field in account page left blank | User must login successfully into the application | Name:  Loh Feng Mei  Password: “abc123”  Confirm Password:  “abc123”  Email: [juneloh94@yahoo.com](mailto:juneloh94@yahoo.com)  Conatct Number:  01124270021  BankType: “CIMB” | Step 1:  Enter all information except the Bank Account No.  Step 2:  Press Update | Error message pop out | Error message pop out | Pass |
| Validate that the error message is pop out when the password and the confirm password do not match | Name:  ClaireLi  Password: “abc123”  Confirm Password:  “abc456”  Email: [juneloh94@yahoo.com](mailto:juneloh94@yahoo.com)  Conatct Number:  01124270021  BankType: “CIMB”  Bank Account No:  12345678 | Step 1:  Enter all the information  Step 2:  Enter different password in field confirm password.  Step 3:  Press Update | Error message pop out | Error message pop out | Pass |
| Validate that the success message displayed when the account details is successfully updated. | Name:  Loh Feng Mei  Password: “abc123”  Confirm Password:  “abc123”  Email: [juneloh94@yahoo.com](mailto:juneloh94@yahoo.com)  Conatct Number:  058088376  BankType: “CIMB”  Bank Account No:  12345678 | Step 1:  Enter all information except the Bank Account No.  Step 2:  Press Update | Success message pop out | Success message pop out | Pass |

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| --- | --- | --- | --- | --- | --- | --- | --- |
| Functional Requirement | Test Requirement | Pre-condition | Test Data | Step | Expected Result | Actual Result | Test Status (P/F) |
|  | Validate that the image of item can be uploaded | User is login to the application | None | Step 1:  Select to upload image  Step 2:  Choose the image | Image upload successful | Image upload successful | Pass |
| Market module | Validate that the error message pop out when all the fields are not completely filled | Name:  Laptop  Type:  Electronic  Quantity: 5  Condition:  Good | Step 1  Select to view marketing item  Step 2:  Select to update information of items  Step 3:  Press Update button | Error message pop out | Error message pop out | Pass |
| Validate that the user is able to update its marketed items | Name:  Laptop  Type:  Electronic  Quantity: 5  Price: 1000  Condition:  Good  Description  Good performance | Item updated | Item Updated | Pass |
| Validate that the user is able to view the marketing items | None | Select to view marketing items | Item is displayed | Item is displayed | Pass |
| Validate that the user is able to delete the marketing items | Button: “X” | Step 1:  Select to view marketing items  Step 2:  Select item that want to delete by press the “X” button | Item is deleted | Item is deleted | Pass |
| Validate that the user is able to buy an item | Button “Buy Now” | Select an item to buy | Item is added in the order list | Item is added in the order list | Pass |
| Validate that the user is able to search item with key words. | Book | Enter the keyword at the search bar | All Item related to key words are displayed | All Item related to key words are displayed | Pass |

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| --- | --- | --- | --- | --- | --- | --- | --- |
| Functional Requirement | Test Requirement | Pre-condition | Test Data | Step | Expected Result | Actual Result | Test Status (P/F) |
| Payment module | Validate the user is able to view their address and seller information and confirm order | User must login to the application and click button “buy now” for a particular item | None | User click button “purchase” to confirm the order | User success to make payment | User success to make payment | Pass |
| Validate that admin able to view payment record | View button | Step 1The admin log in to the system  Step 2 The admin click view button  Step 3 The application display payment record of user  Step 4 The admin view the payment record | All payment records are displayed | All payment records are displayed | Pass |
| Validate that the user is able to update the payment proof | None | Step 1: Select the screenshot or image of payment proof.  Step 2:  Press “Upload” | Payment proof is updated | Payment proof is updated | Pass |

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| --- | --- | --- | --- | --- | --- | --- | --- |
| Functional Requirement | Test Requirement | Pre-condition | Test Data | Step | Expected Result | Actual Result | Test Status (P/F) |
| Admin module | Validate that the admin is able to update the status of items. | Admin must login into the application | Button “Approve”  Or  Button  “Disapprove” | Step 1:  Select to display items details  Step 2:  Select the button whether to approve item or disapprove item. | The status of item is successfully updated | The status of item is successfully updated | Pass |
| Validate that the admin able to delete the item | Button “X” | Step 1 Admin choose item to delete  Step 2 Click on delete button  Step 3 The application pop up a message  Step 4 Click confirm button | Admin success to delete item | Admin success to delete item | Pass |
| Verify that the admin able to update account information | Name:  Claire Li  Password:  Abc123  Confirm Password:  Abc123 | Step 1  Select to update the account  Step 2  Enter the new information  Step 3  Press update button | Admin update account successful | Admin update account successful | Pass |

## 6.3 SYSTEM CONSTRAINTS

The limitation of this project is shortage of time which is only 15 week to carry out research and develop the application. Hence, all team members found difficulty to follow the schedule of the project due to the tight schedule. We spend a lot of time to study and research on this project. Besides, there also a lot of paper works need to follow up. Since all the team members live in different places, we seldom have a meeting to discuss our system. However, we do come out a solution by using Teamviewer to have a remote meeting. Overall, the project is considered as successful and just facing some shortage of time and resources.

## 6.4 CONCLUSION

As a conclusion, there is a lot of part still need to improve. Software testing is importance before deliver the project because we all make mistakes. Some of those mistakes are unharmed, but some of them are dangerous. Testing also able to provide confidence to the customer as the quality of application is ensured. In this project, we are using black box testing method and test cases to deliver our test result.

According to the testing result our application had success in all testing phase. However, testing process is endless chain, which mean that there might still have some problems and errors will occur since the testing process just run through 3 times. After the testing phase, maintenance and upgrade will be carried out to produce a more quality application.

# 7.0 CHAPTER 7: PROJECT CONCLUSION

## 7.1 SYSTEM ADVANTAGES AND COMMERCIAL VALUES

UTeM Market Place is developed as a mobile app that runs on Android platform. Firstly, this application can run or function without any external device to activate it. Secondly, the interface in this application is user friendly since the interface is simple and consistent. Hence, users are able to learn effectively and efficiently. Thirdly, users are also able to compared the price of each items offered easily. The application provide search function for the user to search the related items and this reduce the efforts to find the price of items one by one. Besides, this application also saves the time because the buyer do not need to waste their time go to the market. Furthermore, the buyers can order at any time and everywhere as long as they have installed this application in their smartphone.

## 7.2 SYSTEM WEAKNESS

However, this application UTeM Market Place (UMP) does had the weakness. This application is run for android smartphone only and it is not applicable for iOS smartphone or other platform. Besides, payment gateway does not available in this application too. This is due to the time constraints and the complicated integration between payment gateway and application. Furthermore, if internet connectivity is weak, the application will take some time to respond and this will cause impatient of users. In addition, the user interface is simple it does not look fancy and professional as other application available in app store. Hence, this will provide an impression that this application is not safe and trustable. Last but not least, UMP also do not have cart for user to add cart.

## 7.3 SUGGESTIONS FOR SYSTEM IMPROVEMENT

This application needs improvement to ensure the smoothness of system and increase the commercial value. First of all, UTeM Market Place (UMP) needs to improve its flexibility to provide a better convenient shopping environment for user. For example, UMP should have add to cart function to enable the user to collect more items in cart and then pay only one time for multiple items. Besides, UMP also can use GPS system to track the location of delivered items. So that the user are able to track their items accurately and estimate the time of items delivered to user. User interface also need to be enhanced to gain the confidence from user. In addition, online banking also should provide in this application to facilitate the payment of users so that they do not need to bank in manually or pay cash.

## 7.4 CONCLUSION

In conclusion, this application may have some weakness, but it still can improve the shopping platform of UTeM. In addition, UTeM Market Place (UMP) was built to provide a place or platform for the UTeM’s staffs and students to shop, encourage small business and a place to sell their prelove items. The weaknesses might improve and enhanced and this report is capable to act as guidance for the next undergraduate student to get a better ideas and improve this project for their Workshop II project. This application has a potential to become a useful and professional shopping platform in UTeM and this will greatly increase the convenience of UTeM’s staff and student in shopping.