ONLINE GROCERY SHOPPING MANAGEMENT SYSTEM (GroSMas)

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UNIVERSITI TEKNIKAL MALAYSIA MELAKA

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This report is submitted in partial fulfilment of the requirements for the Bachelor of Computer Science (Database Management)

FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

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DECLARATION

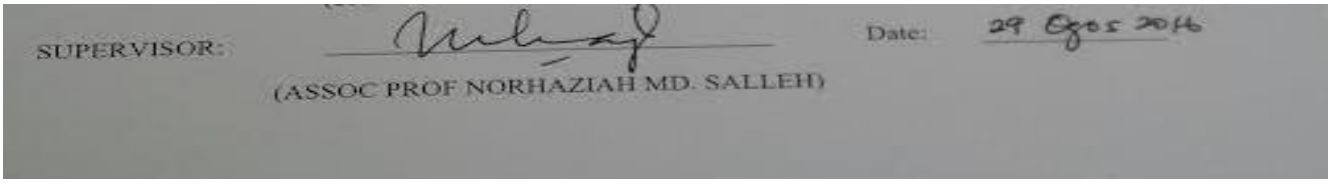
I hereby declare that this project report entitled

ONLINE GROCERY SHOPPING MANAGEMENT SYSTEM (GroSMas)

Is written by me and is my own effort and that no part has been plagiarized without citations

STUDENT : _____Sabreeena…_____ Date: __29 Ogos 2016_

(SABREENA BINTI SAHARUDDIN)



ABSTRAK

Majoriti daripada kita lebih gemar untuk membeli-belah pada setiap hari tetapi apabila ianya berkaitan dengan barangan keperluan dapur, kebanyakan daripada kita lebih gemar untuk membelinya pada hujung minggu kerana suasananya yang lebih relaks dan lebih mudah untuk memilih produk dengan selesa. Tetapi kini dengan hanya meluangkan masa sebanyak lima minit dihadapan computer, anda akan dapat setiap barang keperluan dapur anda tanpa perlu bersusah-payah untuk memandu kereta ke kedai berdekatan dan mencari tempat parker kereta mahupun bersusah-apayah untuk beratur membayar barangan anda di kaunter. Tujuan projek ini dijalankan adalah untuk mengurangkan masa yang diperlukan bagi pelanggan untuk mendapatkan barangan keperluan mereka di kedai runcit berdekatan dan juga untuk membantu pihak pentadbiran kedai runcit dalam pengurusan stok dan kewangan mereka. Projek ini juga turut diinspiraskan untuk mengetengahkan perniagaan runcit masyarakat tempatan pada orang ramai. Maklumbalas yang telah diperolehi daripada Kedai Runcit Ranjini telah menunjukkan bahawa GroSMas telah membantu mereka dalam hal pentadbiran dengan lebih efisien.

ABSTRACT

Majority of us like to shop almost every day but when it comes to groceries, many people prefer to do it on holidays or weekends because the atmosphere is relaxed and it is easier to select a product. But with just five minutes in front of a computer, we can get all our grocery items without the hassle of having to drive to the store, struggling to get parking and long queues at payment counters. The basis of this project is to reduce the time consume by customer to purchase their grocery items in physical store and to help grocery store administrator to manage their store's stock and financial efficiently. The idea of this project too was to bring up local grocery store to the community and thus, it will help the local people to succeed in grocery business. The feedback achieved by Kedai Runcit Ranjini has shown that GroSMas has helped them to manage their administration more efficiently now.

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CHAPTER I

INTRODUCTION

1.1 Project Background

Majority of us like to shop almost every day but when it comes to groceries, many people prefer to do it on holidays or weekends because the atmosphere is relaxed and it is easier to select a product. But with just five minutes in front of a computer, we can buy rice, fish and vegetables without the hassle of having to drive to the store, struggling to get parking and long queues at payment counters. With just a few clicks of the mouse, all the necessary groceries will arrive directly at the front door of our house. Easy, right?. Everything is possible with the pace of information technology at the moment. Not just clothes, shoes, accessories, books and household items are available online and even almost all grocery needs now can also be obtained by accessing the Internet.

Nowadays, many companies, either big or small or stores need to have their own commercial website, any serious business cannot boost up and reaches all over the world unless they have a website. A website will allow a company to be recognize by people all over the world to know what's their business or product. A fast spreading business will help you to increase your business sales and more success. People nowadays find that it is easier for them to do their shopping online and get whatever they need from home. Furthermore,

the reason to let more people to buy online goods from online website is because the one line grocery stores have a wider range of products and various kind of the same product meanwhile the online store doesn't.

The Online Grocery Shopping Management System (GroSMAs) is a computerized system that is built to manage customer information and its administration, information of ordering and delivery process. It is meant to provide the customers with information in real-time to make their task more engaging and less stressful. All the necessary groceries will arrive directly at the front door of customer house.

GroSMAs is an easier alternative to buy your grocery. This system can be very effective for the working mothers since they can get their grocery items at any time and anywhere. The items available in online grocery might have a unique brands or product compared to the local store. Online shopping should be a comfortable and enjoyable process for everyone since they doesn't need to move from their comfort zone. GroSMAs also act as the new and creative way to shop. Shopping is no longer need a lot of your time and effort.

E-shopping has been a successful business in the present days, every business should have its own website. This is the best way to recognize what the customer need as this website will consist of all kind of grocery items which will give you a lesser time and most importantly is, save your budget by doing the comparison. GroSMAs has several benefit that will widen their ranger of target customer and in addition, GroSMas can help people to get their grocery item by just a click without having to go through the traffic and hustling to find a parking. This system will save more many customer in terms of their time, effort and it will serve as a good engine for spreading their business.

1.2 Statement of Problem

The problem statement that we have identified for this project are:

1.2.1 Time consuming for customer to purchase their groceries in physical store.

1.2.2 Customer who is far from physical store can't purchase the item in store.

1.2.3 Administration has difficulty to manage account.

1.3 Statement of Objective

Several objectives have been outlined as the counter measure of the problem identified earlier. The objectives are:

1.3.1 To reduce the time taken for the customer to purchase their groceries item in physical store.

1.3.2 To widen the target market of the store.

1.3.3 To reduce data lost and improve the data security.

1.4 Project Scope

Module	Description
Customer	System will allow customer to become a member of this Online Grocery Shopping (GroSMas) first, before they start with their online shopping. Customer is then required to login by using their registered username and password. Next, this module will allow customer to add and delete their shopping cart. It will also save the shopping cart list for any references.
Administrator	System will allow admin to keep track of customer's information for the delivery process and payment process. Other than that, this module will allow admin to update the stock available in store for customer's information
Order	This module will save all order that have been made by customer through this system. This module is also link to the financial module and delivery module for the delivery process.
Financial	System will calculate the total price in customer's shopping cart to allow them to make the payment through their debit card. This system too will allow admin to calculate the monthly profit and next month projection calculation for company financial development.

1.5 Project Significance

GroSMas management system will be beneficial for both vendor and customer as both will gain benefit in terms of time saving and keeping record of their transaction and order. Specifically for vendor, it will be easier for them to keep their data safely and widen their market target. Thus, it will increase their rate of sales. Meanwhile for customer, this system will definitely help them to save their time to buy their daily needs in just one click.

1.6 Expected Output

1.6.1 Multi-dimensional searching result based on various category and product name

1.6.2 Accurate monthly sales report that can be print out

1.6.3 Accurate and retrievable sales record from previous month.

1.7 Conclusion

In conclusion, GroSMas will be a very useful system for the community as it will be convenient for a busy lifestyle housewife and a working individual who need to run their household. By understanding the concept of online shopping, there is always an opportunity to develop new features and strategies into the current online shopping system.

New business strategies can be invented, improved and implemented into the current business world mainly in Malaysia with the success of this project as it can also help to boost the local brand to spread their business into e-commerce industry by raising awareness among the community.

CHAPTER II

PROJECT METHODOLOGY AND PLANNING

2.1 Introduction

Chapter two of this report will briefly explain on database development methodology and the planning for Online Grocery Shopping Management System (GroSMAs).

The right techniques need to be choose to ensure that the system development will run smoothly. The framework of the system need to be well interpret and manage. AGILE method was chosen as it is much more efficient compare to other

methodology. This also will ensure that each part of the system will function accordingly and the quality of the system can be maintained.

2.2 Project Methodology

- **Database Lifecycle (DBLC) Approach**

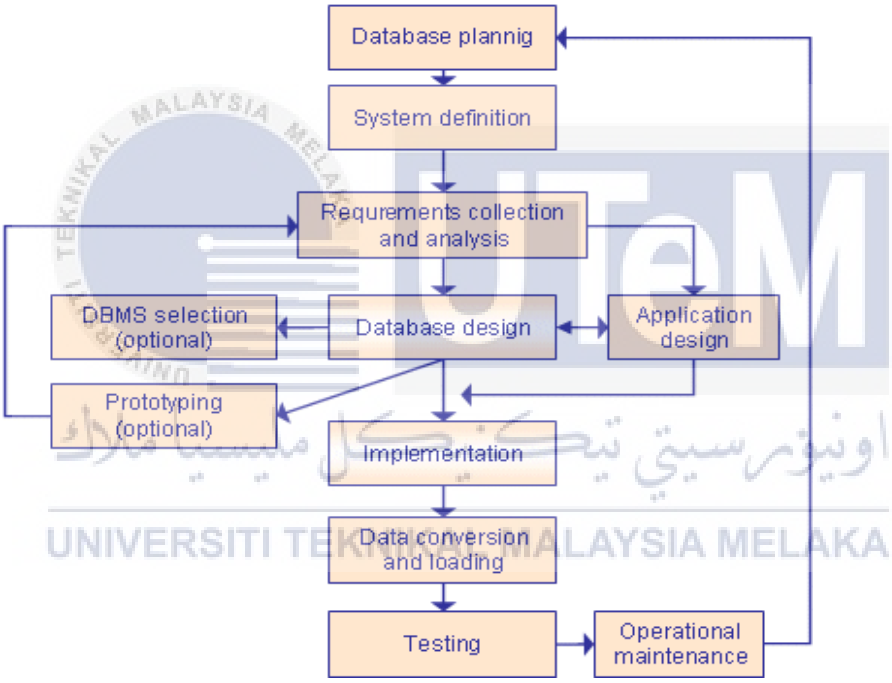


Figure 2.1 : The Database Application Lifecycle

Figure 2.2 : Agile Cycle

Agile model will be applied for the development of GroSMAs. Agile methodology is a very sensible path for software development with combination of iterative and incremental process model that focus more on the adaptability process and customer satisfaction by fast delivery of working software development. Agile method divide the product into small cumulative builds. These builds are provided in iteration which each of it will consistently last about one to three weeks. Every iteration involve in cross functional team working simultaneously in a wide are such as planning, requirement analysis, design, coding, unit testing and acceptance testing.

At the end of this iteration process, a working product will be displayed to the customer and stakeholder. Morevover, Agile method increases its benefit by developing a rapid functionality and demostration using minimum requirement resources.

2.3 Project Schedule and Milestones

This sub chapter, the project schedule and milestone is very important in developing a system. As it is a guideline for the system developer to achieve their obejctives and goal of the project. This is also to ensure that the cost and time of the project will not be overdue. The project schedule and milestones for this system is as stated at Table 2.1 and Table 2.2.

Table 2.1: PSM 1 Project Milestone

Milestone	Expected Documents	Date
Analysis	1) System's flow chart 2) System's requirements	22nd -26th February 2016
Development	1) SQL statement on database creation, trigger and system related dimenison. 2) System's interface	29th February – 30th May 2016
Testing and Evaluation	1) Test case document 2) System documentation 3) Project Report	1st June b – 6th June 2016

Figure 2.2: PSM 1 Project Schedule

No	*Activity*	*Week*														
		1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*
1.	Discussion project title with supervisor. Proposed suitable title to supervisor															
2.	Submit Proposal															
3.	Proposal Presentation															
4.	Proposal correction and improvement															
5.	Chapter 1															
6.	Chapter 2															
7.	Chapter 3															
8.	Chapter 3 Demonstration Chapter 4															
9.	Chapter 4 Demonstration															
10.	Demonstration															
11.	Project Demonstration															
12.	Final Report Presentation															

2.4 Conclusion

This chapter discuss on the literature and project methodology that is used to define the planning of this project. This chapter cover on the introduction of the chapter, This chapter is covered on introduction of the chapter, domain for the system, existing system and comparison of the existing system, project methodology, project requirement which is including the software requirement, hardware requirement and other requirement, and project schedule and milestone.

CHAPTER III

ANALYSIS

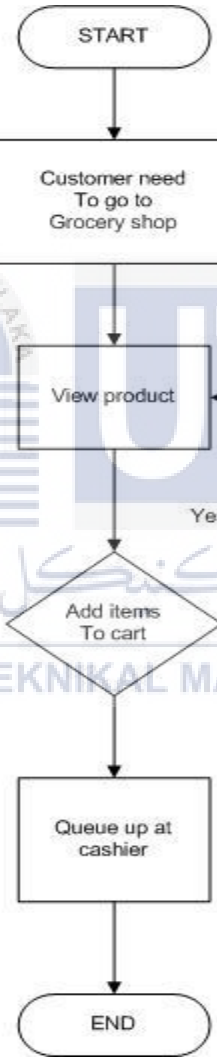
3.1 Introduction

The current system that has been developed by Gail Doss, Brian Hanley and Linda Stancil has made local grocery to a whole new level as the vision of the system is to automate grocery ordering by ordering through their website and delivers the groceries to the customer's home.

The application of this system is restricted to customers within the delivery area of the store and customers is required to login the entry screen on the website upon each assessment. Once the login is successful, customer will be able to choose any items on the screen to their electronic shopping cart from the menu screen. Next, when their order is completed, customer will need to checkout from the process to make their payment and select their delivery time for their items to be delivered. There is a premium charged for delivery service added at checkout.

3.2 Problem Analysis

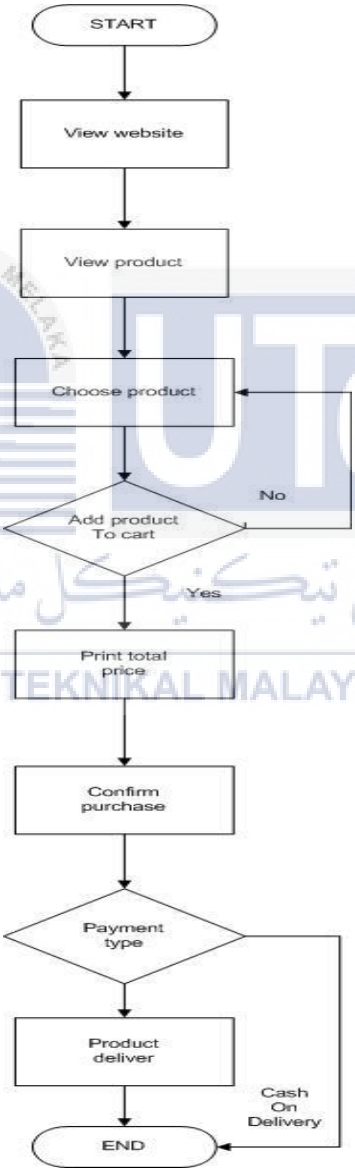
3.2.1 Current method flow



The existing system that is used by most grocery store takes a long time and require physical movement for the customer to shop. As stated above, customer need to drive to the store, find themselves the parking space and then enter the shop to select the

items that they need. Customer will put all products that they want to purchase in their shopping cart and queue up at the payment counter to pay their shopping cart items.

3.3 The proposed improvement



As for the proposed system, customer can save a lot of their time and energy to buy their grocery items. They don't need to physically be at the store and they don't need to spend time looking around at the store to find their desired grocery items.

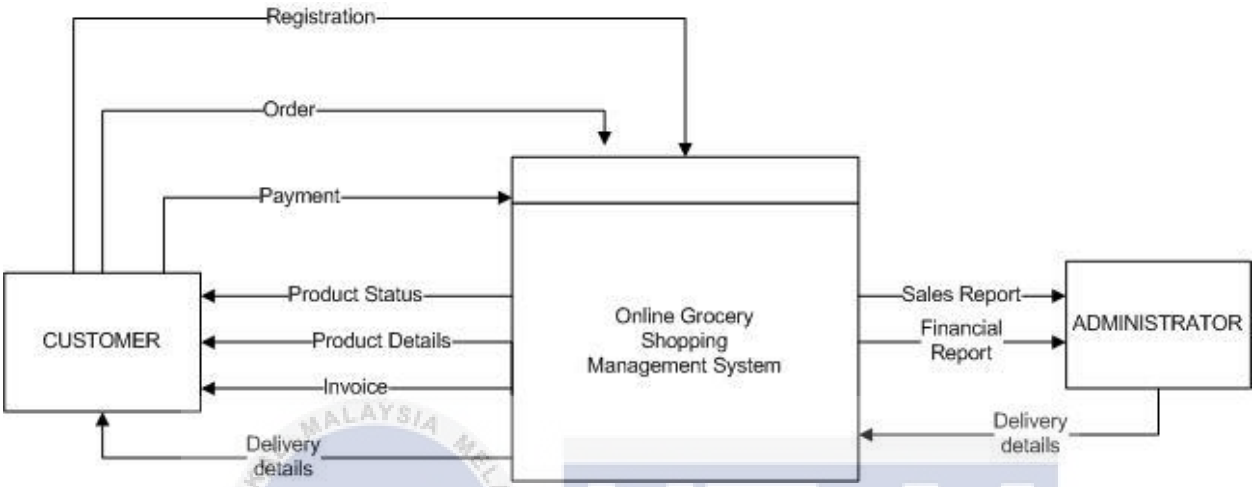
With GroSMas, customer can view, select and purchase their desired items by just one click and the grocery store will deliver the items to them at home.

3.4 Requirement analysis of the to-be system

3.4.1 Functional Requirement

- Record customer's information during registration.
- Store product's data in the system
- Generate bar graph for monthly profit
- Allow multiple search to reduce time consume

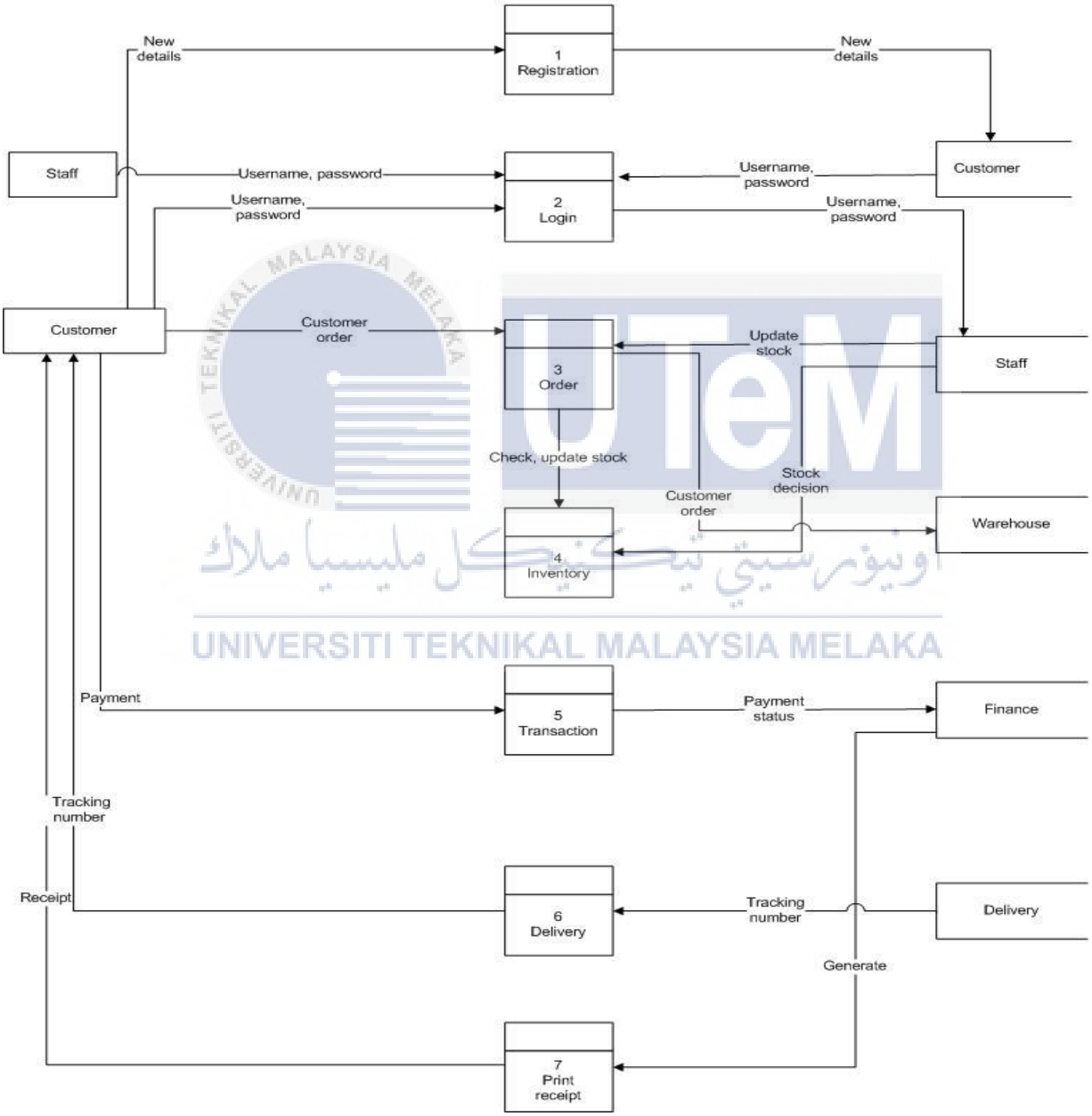
3.4.1.1 Context Diagram



3.4.1.1.1 Data Flow Diagram

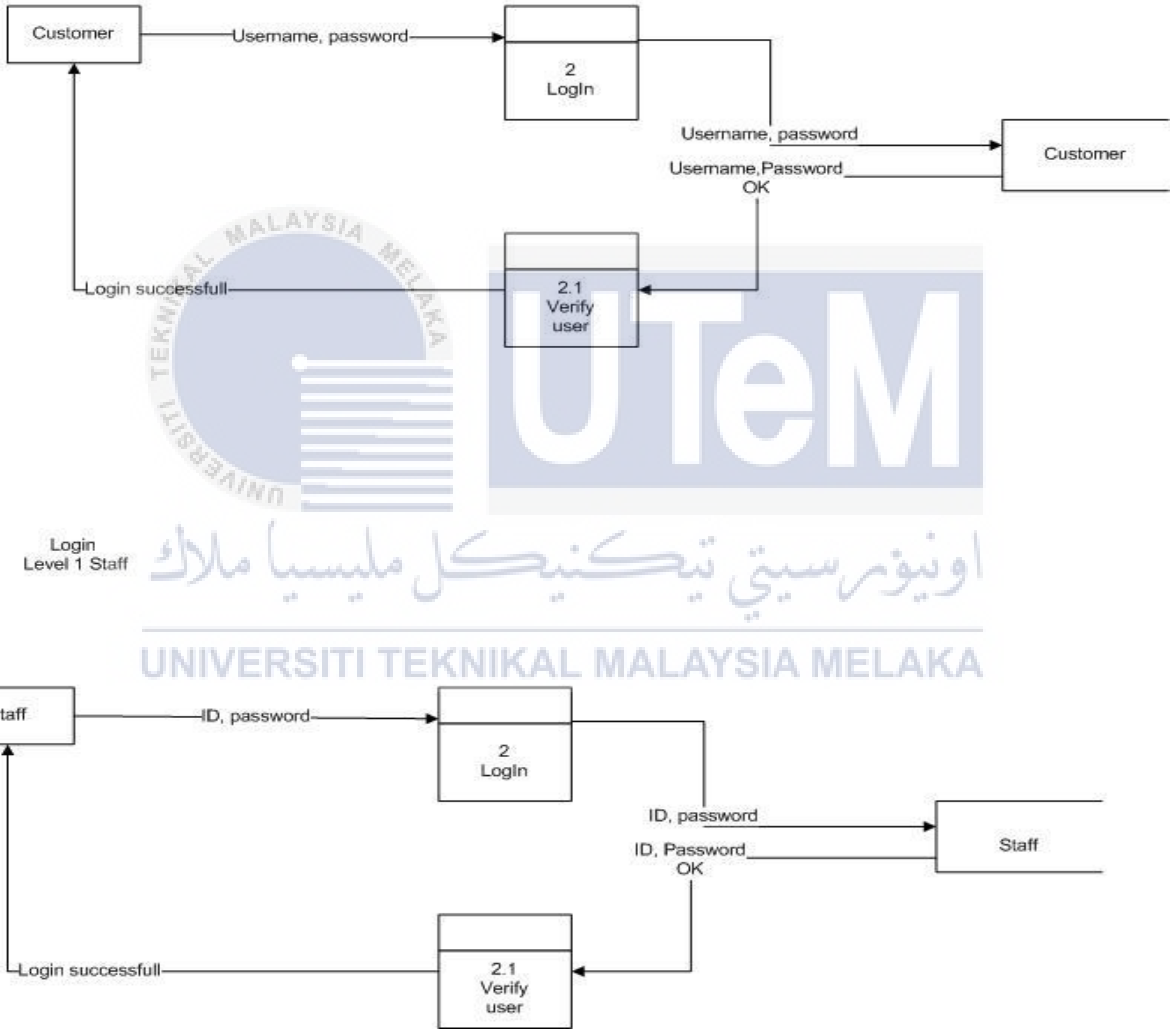
3.4.1.1.1.1 Level 0

Level 0



3.4.1.1.1.2 Level 1 Login

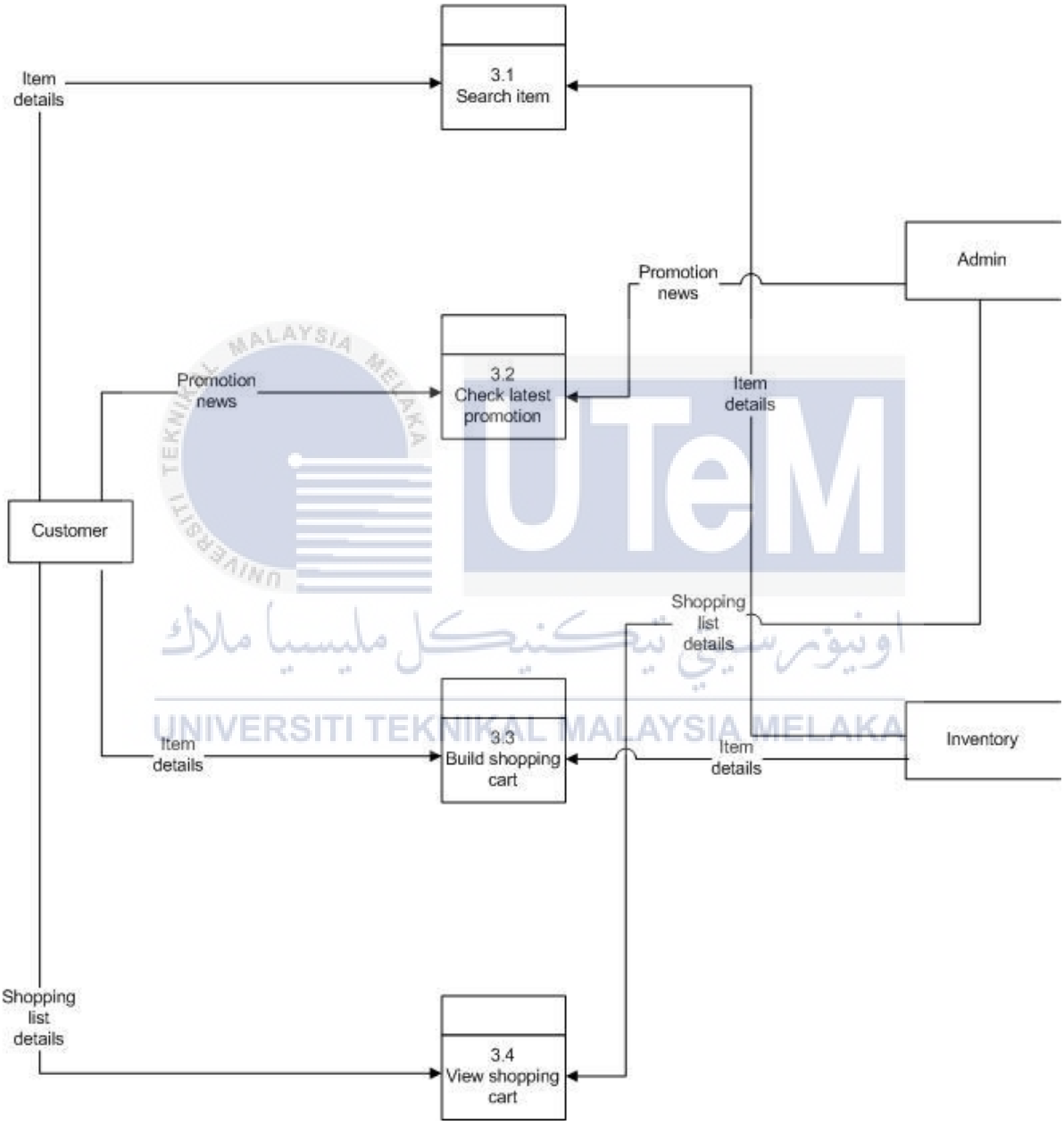
Login
Level 1 Customer



Login
Level 1 Staff

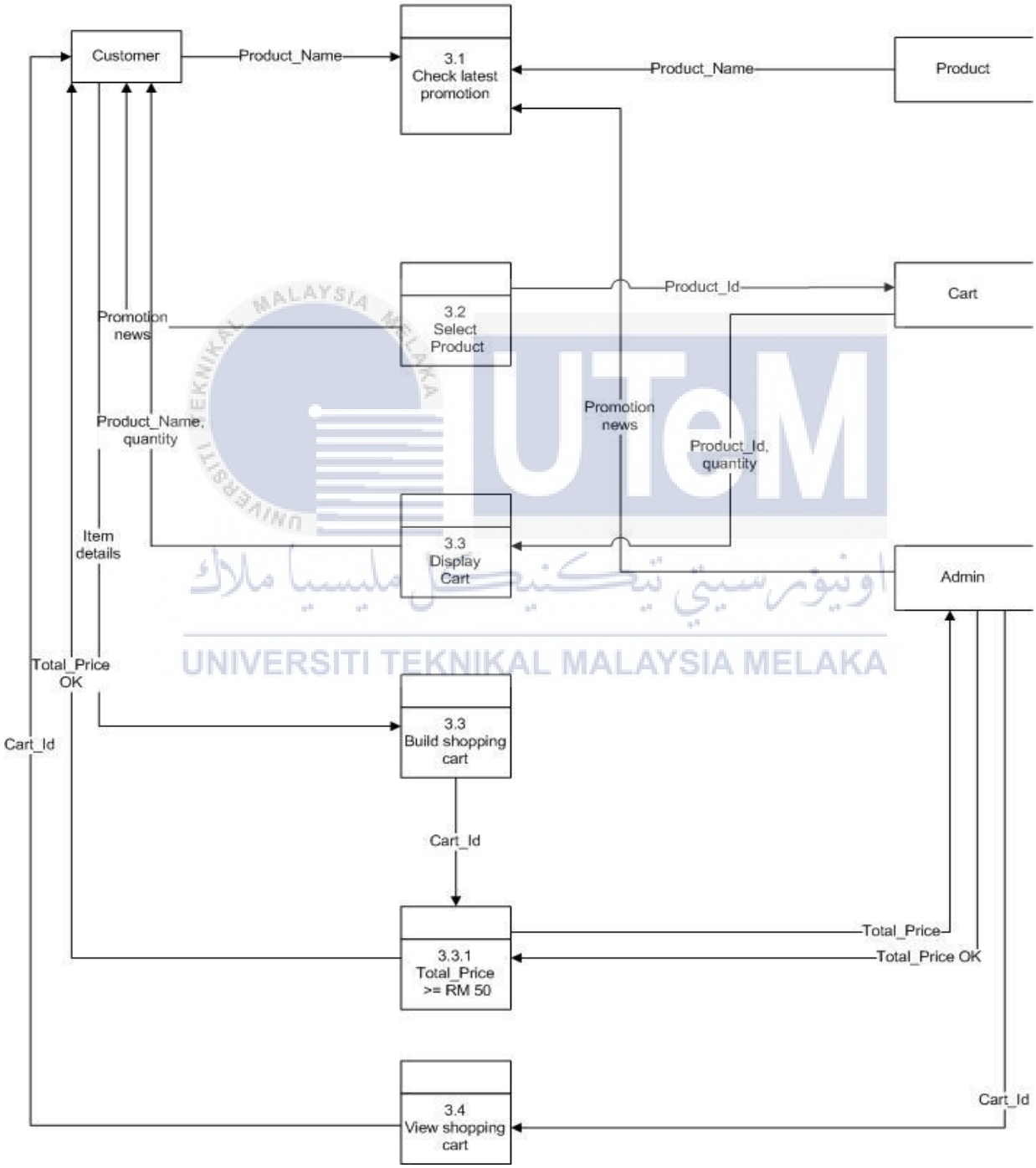
3.4.1.1.1.2 Level 1 Order

DFD Process 2:
Order Level 1

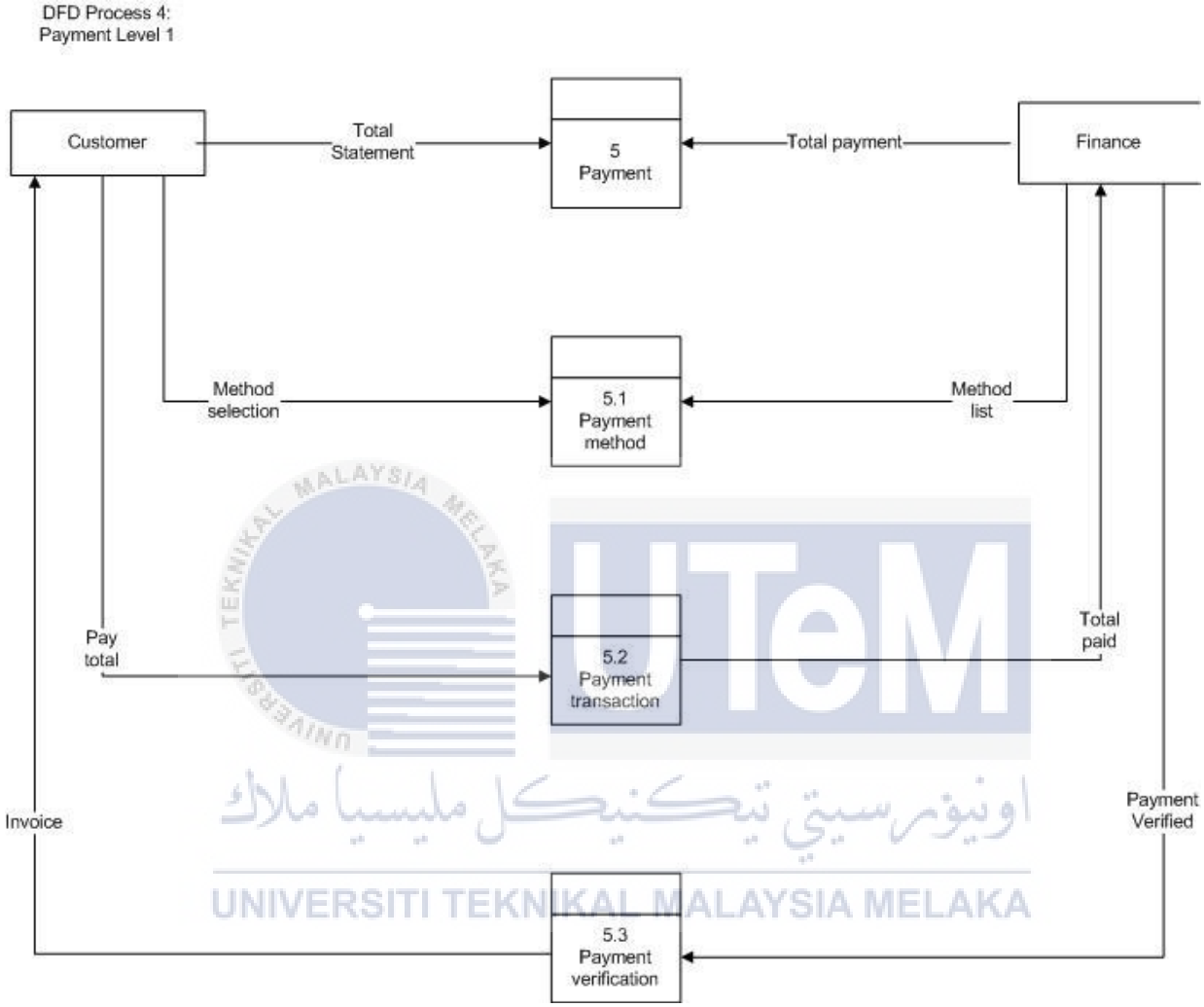


3.4.1.1.1.2 Level 2 Order

DFD Process 3: Order Level 2

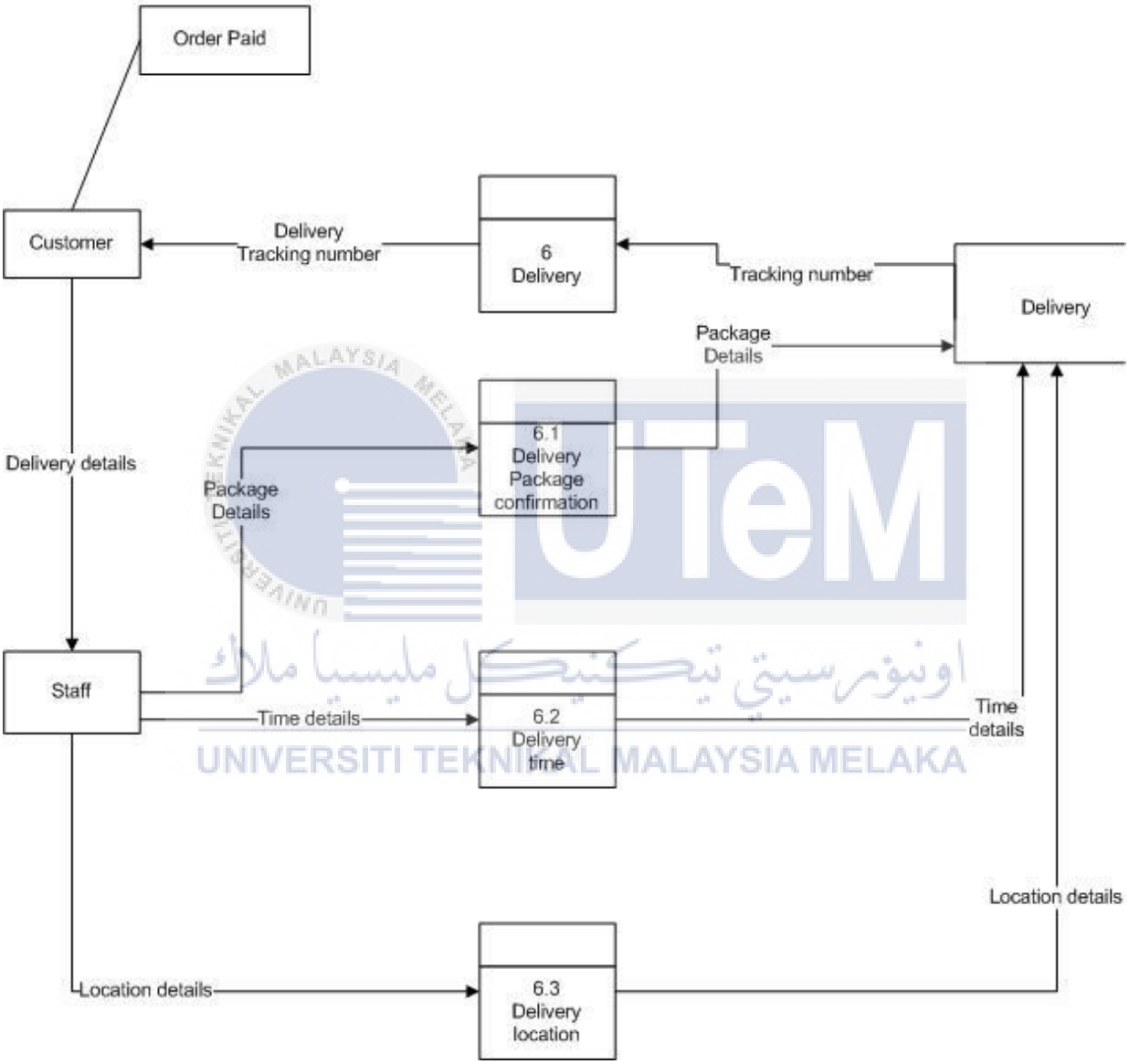


3.4.1.1.1.2 Level 1 Payment



3.4.1.1.1.2 Level 1 Delivery

DFD Process 4:
Delivery Level 1



3.4.2 Non-functional Requirement

- Security of customer and company's details
- Flexibility between system components
- Recoverability in shorter time

3.4.3 Other Requirement

3.4.3.1 Software that will be used

- Windows 10 Enterprise – As operating system.
- Adobe Dreamweaver CS5 – As PHP language platform.
- Oracle 11g Release 2 – As system DBMS.
- Java Development Tool Kit.
- SQL Developer
- Instant Client.
- Microsoft Word 2013- For system documentation.
- Microsoft Project 2010 – To develop Gantt Chart and project schedule.
- Microsoft Office Visio 2007 – For conceptual model designing.

3.4.3.2 Hardware that will be used

- HP - Laptop
- Intel® Core ™ i5-3230M 2.60 GHz – Processor
- 64-bit OS – System type
- 4.00 GB - RAM

3.5 Conclusion

Data analysis technique plays a big role to have a good understanding of the system structure and the data organizations. Thus, data analysis should be done first before developing a system to ensure that developer knows how complex is the system in the real world and also to allow them to provide data complexity on a computer that can be accessed by multiple users.

Based on this analysis, we can conclude that the current system can be improved with a few changes to make it more efficient and beneficial to users. This can be done by improving some functionality and add a few more functions to improve the current system.

CHAPTER IV

DESIGN

4.1 Introduction

Database design is a process to produce a detailed data model of a system database. The logical data model produced is consist of all the needed logical and physical design as well as physical storage parameters that is required to generate a design in Data Definition Language (DDL) that will be used to create a database. The conceptual design which is the Entity Relationship Diagram (ERD) of the project is illustrated to generate an idea of the to-be system to be more understandable by the developer. In addition, the condition of the system will become more clearer with the help of the Business Rule. The Data Dictionary of the Entity Relationship Diagram (ERD) is provided in this chapter as well. Data Dictionary is consist of all the entities attributes with its format and type as well as the primary key of the entity. Therefore the Data Definition Language will be produced based on the conceptual and logical design of the database.

4.2 System Architecture Design

System architecture is very essential in a project as it is to describe the design thoroughly and structure of computer network or system for that specific project. A specific method is needed to manage and connect these items together in a solid way.

The main components in a system architecture is processing power, storage, connectivity and user experience. The complexity of the system varies widely and depends on the business requirements, funcing and resource availability.

The architecture of Online Grocery Shopping Management System (GroSMas) is consist of three-tier architecture which consist of a client-tier, middle tier and database tier. The client tier is where the user needs to use a web browser to access the system. Meanwhile, for the middle tier is where the application server will iteract with the database server to access or save any data into the system. Below is the diagra of the three-tier archictecture.

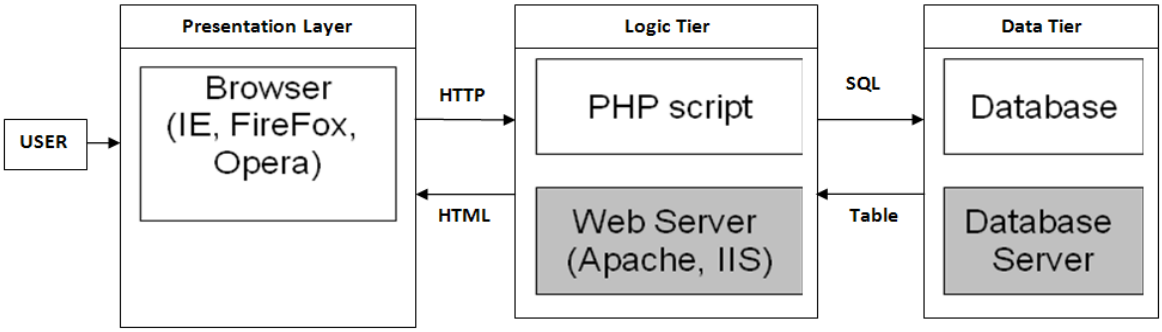


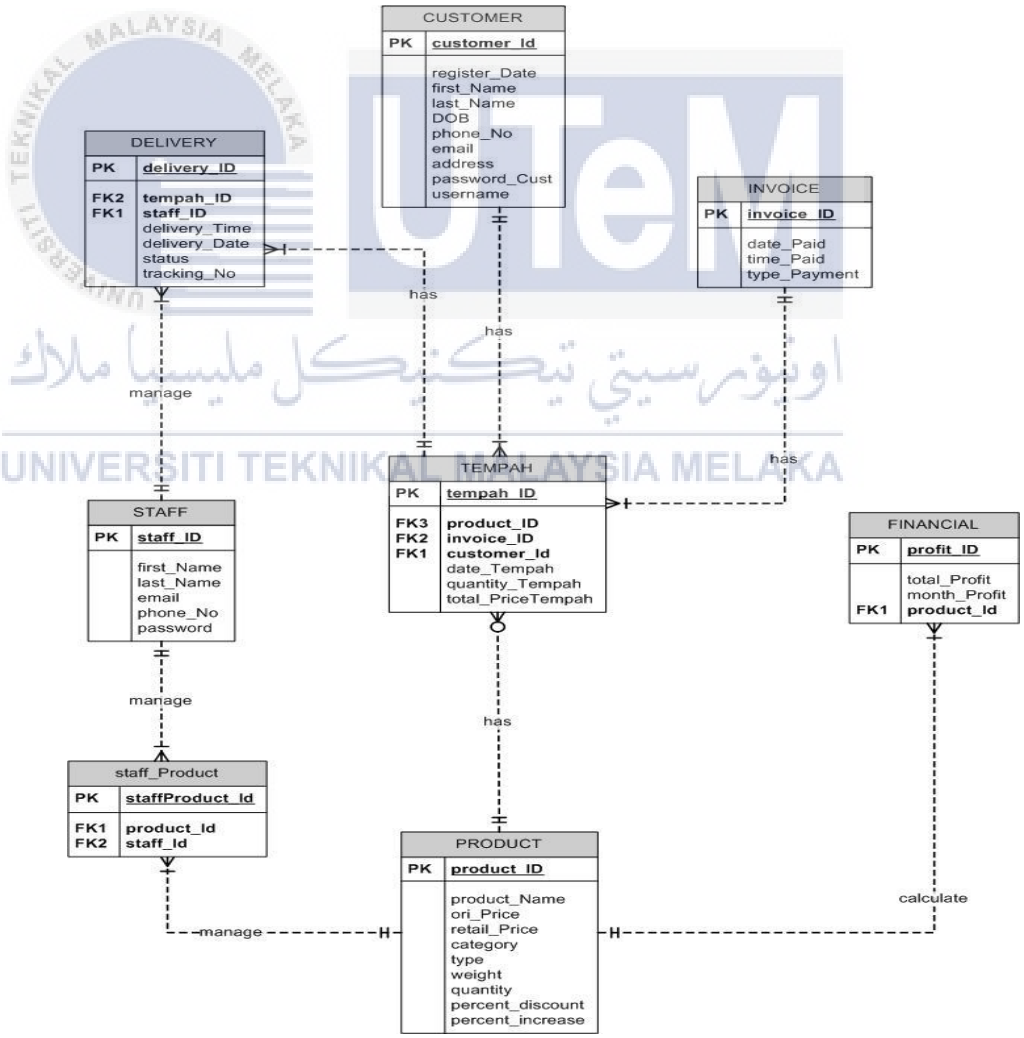
Figure 4.1: Three tier architecture design

4.3 Database Design

4.3.1 Conceptual Design

Data modelling is used in conceptual design phase to build and abstruse structure to appear as a real-world object in the most realistic way. Whereby the conceptual model is to described a clear understanding of the business and its functional aspect.

i) Entity Relationship Diagram



ii) Business Rules

1. A CUSTOMER may have one or many ORDER while an ORDER must be associated with one and only CUSTOMER.
2. A DELIVERY is associated with one or many ORDER while an ORDER must have one and only DELIVERY
3. An ORDER can be associated with one or many PRODUCT while a PRODUCT may receive one or many ORDER.
4. An ORDER may have one and only TRANSACTION method while TRANSACTION method may have one or many ORDER.
5. An ORDER can generate one or manyFINANCIAL report while a FINANCIAL report may generate from one and only ORDER.
6. A STAFF may manage one or many PRODUCT while a PRODUCT is managed by one and only STAFF.

4.3.2 Logical Design

Attribute	Data Type	Constraint	Table Name	FK Reference Table	Example
Customer_Id	VARCHAR2 (10)	Primary Key	Customer	-	483
register_Date	SYSDATE	NULL	Customer	-	02-Jun-2016
First_Name	VARCHAR2 (20)	NULL	Customer	-	Dania
Last_Name	VARCHAR2 (20)	NULL	Customer	-	Saharuddin
DOB	DATE	NULL	Customer	-	09-Sep-1999
Phone_No	VARCHAR2 (15)	NULL	Customer	-	0127171772

Email	VARCHAR2 (30)	NULL	Customer	-	dania@gmail.com
Address	VARCHAR2 (50)	NULL	Customer	-	No: 22 Jalan Masjid 3/69
password_Cust	VARCHAR2 (10)	NULL	Customer	-	12345
username	VARCHAR2 (20)	NULL	Customer	-	dan
delivery_Id	VARCHAR2 (10)	Primary Key	Delivery	-	221
date_Deliver	DATE	NULL	Delivery	-	27-MAY-16
time_Deliver	VARCHAR2 (10)	NULL	Delivery	-	1200
Status	VARCHAR2 (20)	NULL	Delivery	-	Processing
tracking_No	VARCHAR2 (20)	NULL	Delivery	-	GR12819189
tempah_Id	VARCHAR2 (10)	Foreign Key	Delivery	Tempah	627
profit_Id	VARCHAR2 (10)	Primary Key	Financial	-	823
total_Profit	NUMBER (8,2)	NULL	Financial	-	7809
month_Profit	VARCHAR2 (10)	NULL	Financial	-	November
invoice_Id	VARCHAR2 (10)	Primary Key	Invoice	-	825
transact_Id	VARCHAR2 (10)	Foreign Key	Invoice	TRANSACTION	
tempah_Id	VARCHAR2 (10)	Foreign Key	Invoice	TEMPAH	627
date_Paid	SYSDATE	NULL	Invoice	-	02-JUN-16
product_Id	VARCHAR2 (10)	Primary Key	Product	-	384
name_Product	VARCHAR2 (20)	NULL	Product	-	Yeosss

ori_Price	NUMBER (5,2)	NULL	Product	-	5.5
category_Product	VARCHAR2 (30)	NULL	Product	-	Beverages
type_Product	VARCHAR2 (10)	NULL	Product	-	Liquid
Weight	NUMBER (5,2)	NULL	Product	-	3
Quantity	NUMBER	NULL	Product	-	23
percent_Increase	NUMBER (5,2)	NULL	Product	-	12
percent_Discount	NUMBER (5,2)	NULL	Product	-	5
retail_Price	NUMBER (5,2)	NULL	Product	-	16.5
staff_Id	VARCHAR2 (10)	Primary Key	Staff	-	141
first_Name	VARCHAR2 (30)	NULL	Staff	-	Sarah
last_Name	VARCHAR2 (30)	NULL	Staff	-	Ali
Email	VARCHAR2 (30)	NULL	Staff	-	sarah@gmail.com
phone_No	VARCHAR2 (15)	NULL	Staff	-	0192818281
Address	VARCHAR2 (50)	NULL	Staff	-	No: 90 Jalan Teratai, Melaka
password_admin	VARCHAR2 (10)	NULL	Staff	-	12345
status	VARCHAR2 (10)	NULL	Staff	-	DRIVER
staffProduct_Id	VARCHAR2 (10)	Primary Key	staff_Product	--	-
staff_Id	VARCHAR2 (10)	Primary Key/ Foreign Key	staff_Product	-	STAFF

product_Id	VARCHAR2 (10)	Primary Key/ Foreign Key	Staff_Product	-	PRODUCT
tempah_Id	VARCHAR2 (10)	Primary Key	Tempah	-	625
customer_Id	VARCHAR2 (10)	Foreign Key	Tempah	-	462
delivery_Id	VARCHAR2 (10)	Foreign Key	Tempah	-	02-JUN-16
date_tempah	DATE	NULL	Tempah	-	
quantity_Tempah	NUMBER	NULL	Tempah	-	80
total_priceTempah	NUMBER (6,2)	NULL	Tempah	-	640
product_Id	VARCHAR2 (10)	Foreign Key	Tempah	PRODUCT	326
invoice_Id	VARCHAR2 (10)	Foreign Key	Tempah	INVOICE	825

Table 4.1: Table Assigning Data Dictionary

Query Design

1. Join queries: Procedure is used to view data from different tables

4.3.3 Physical Design

1. Selection of DBMS

Oracle 11g is used as this system's DBMS to implement the knowledge in using Oracle 11g.

2. Usage of stored procedure, triggers and other.

2.1 Most trigger that has been implemented in this system is to auto generate ID for each table

2.2 Insert, Update, Delete and Select operation is used by using stored procedure.

2.3 Stored procedure is much more efficient and secure as it will only display and allow certain attribute to be diplay and use

3. Security Mechanism

3.1 GroSMas data and system is well secured by using the security mechanism where staff can only login and use the system after correct ID and password inserted.

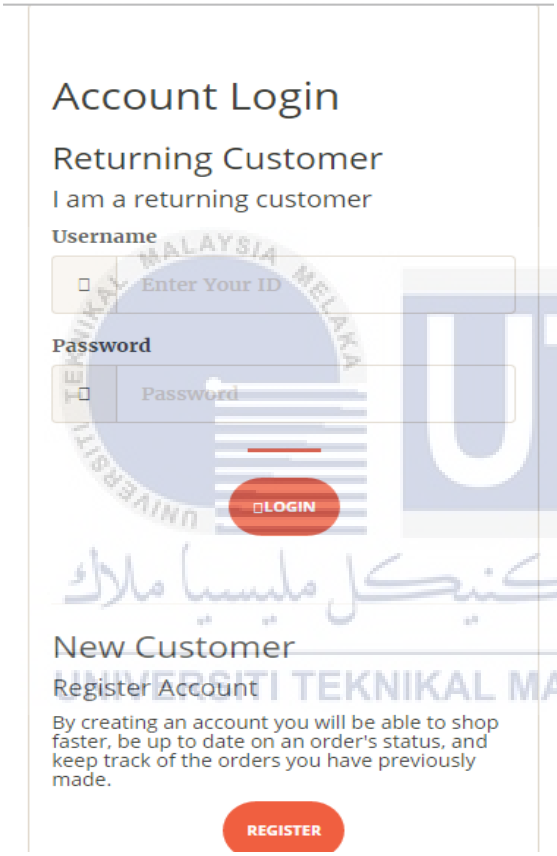
3.2 Meanwhile for customer, they can only proceed their shopping session if they have register as a member in the system.

3.3 This is to ensure that there will be no phony transaction will be made in the system

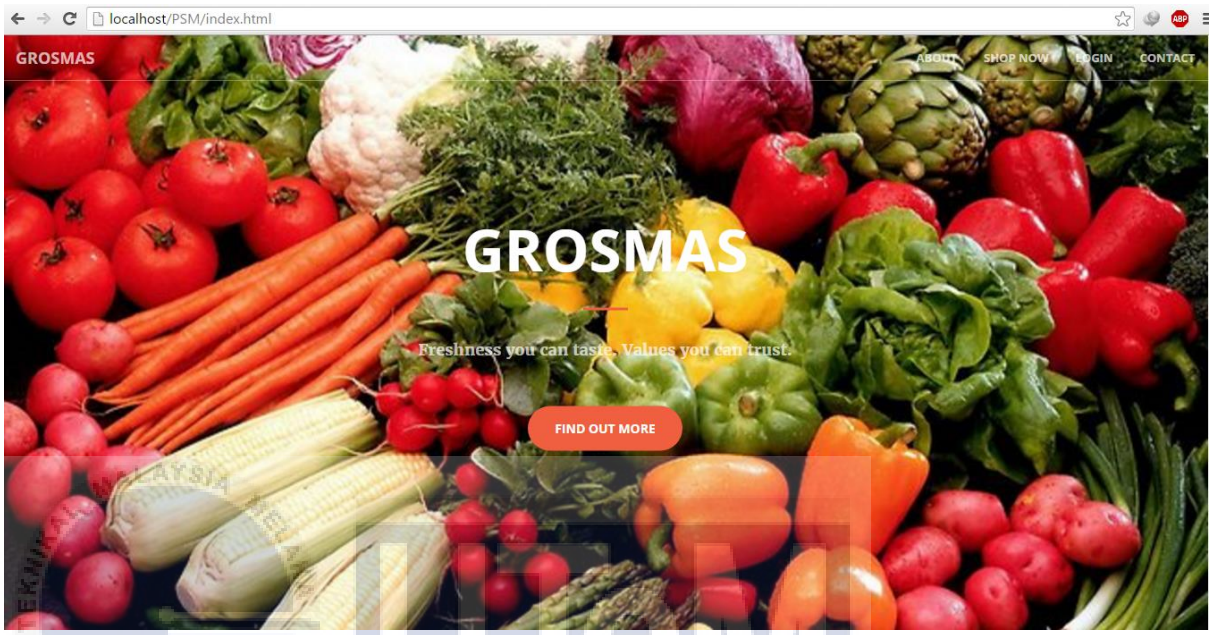
4. Database Contingency

4.4 Graphical User Interface (GUI) Design

1. Login

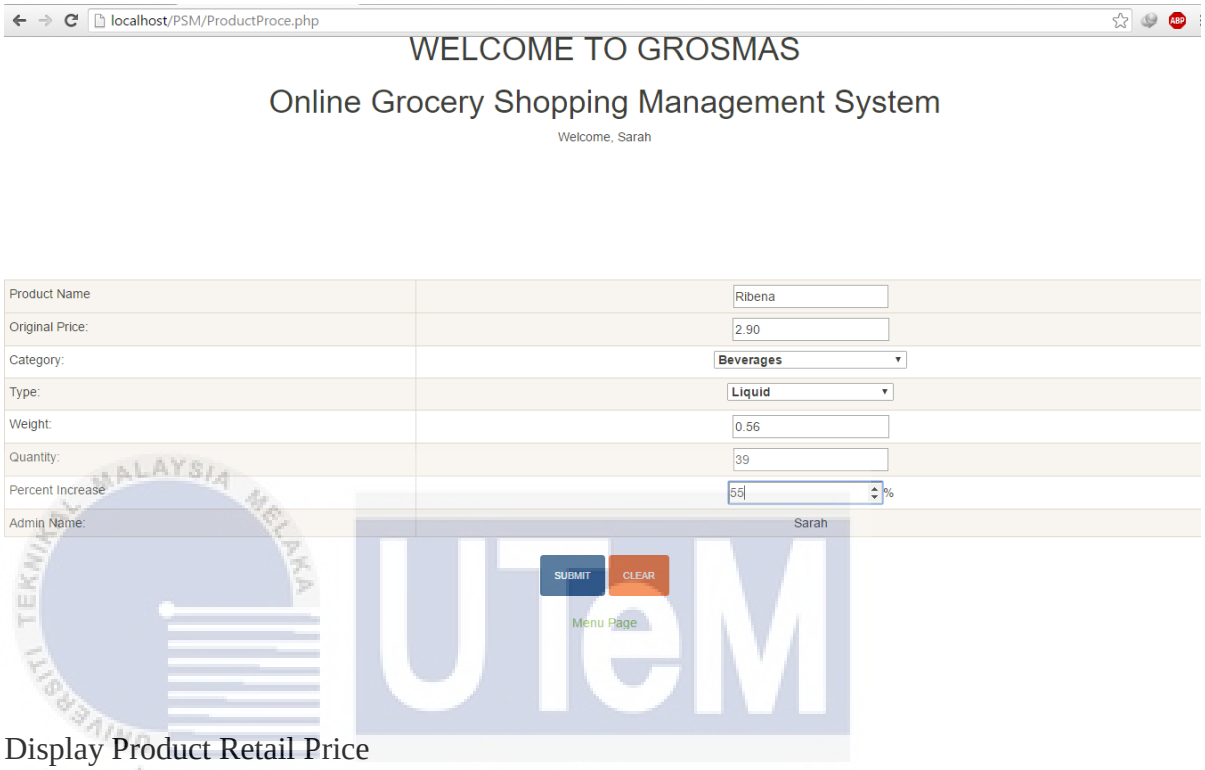


2. Home Page

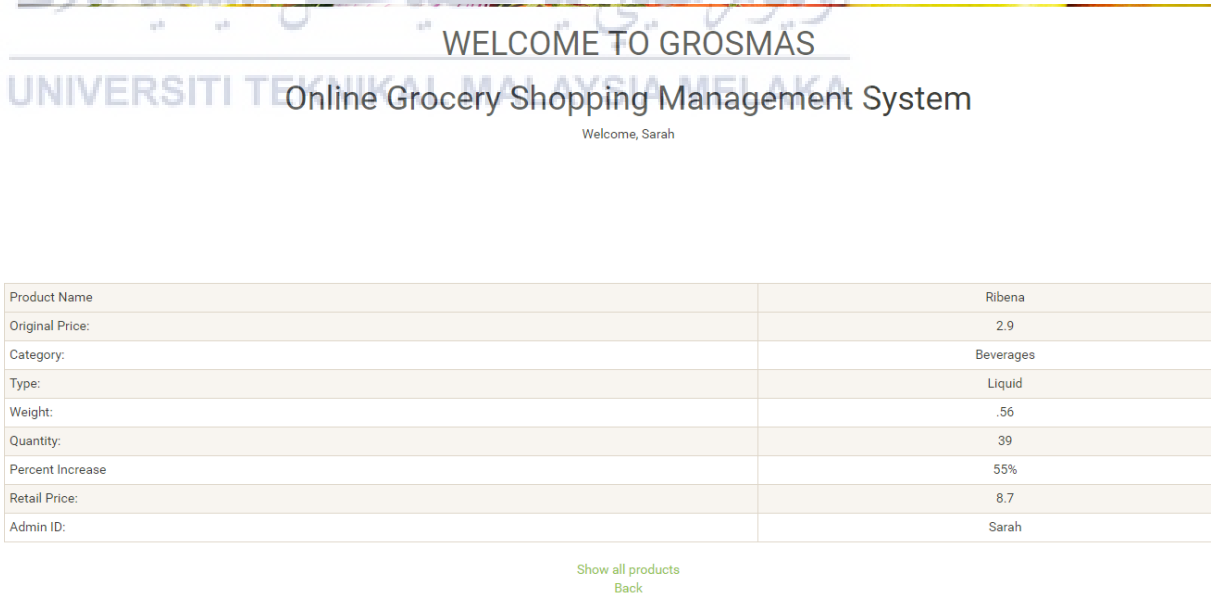


3. Registration

4. Add Product



5. Display Product Retail Price



6. View Product

Product Details

Welcome, Sarah

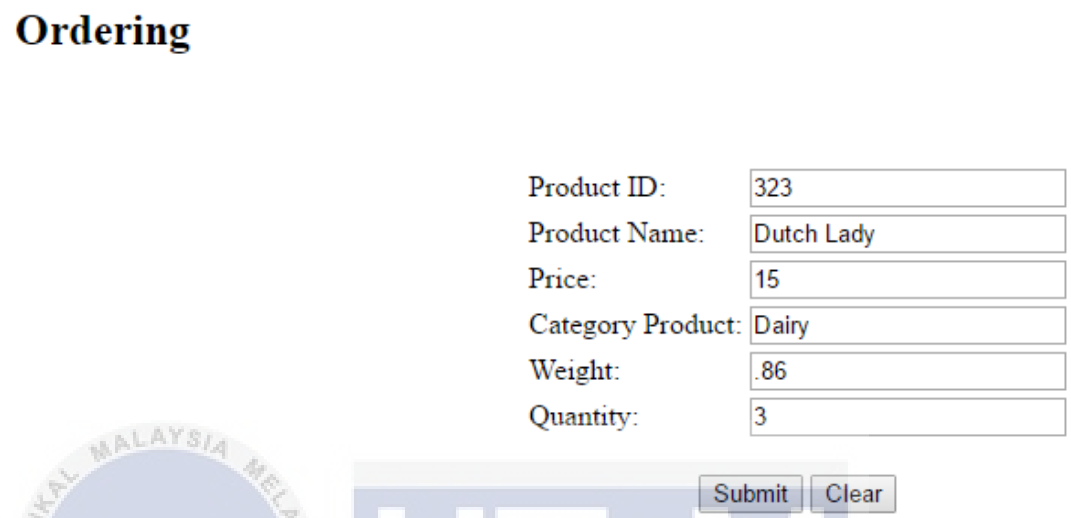
Product ID	Product Name	Original Price	Product Category	Product Type	Weight	Quantity	Increase %	Retail Price	UPDATE	DELETE
321	Dutch Lady	19	Dairy	Liquid	.86	20	40	15	UPDATE	DELETE
322	Dutch Lady	19	Dairy	Liquid	.86	20	40	15	UPDATE	DELETE
324	Seri Murni	6.5	Canned/Jarred Goods	Liquid	1.1	35	80	30	UPDATE	DELETE
326	Clean&Clear	4.5	Personal Care	Liquid	.8	80	60	8	UPDATE	DELETE
327	Chicken	3	Meat	Solid	2.1	39	20	7	UPDATE	DELETE
325	Daisy	5.5	Dairy	Solid	.5	67	90	6	UPDATE	DELETE
364	Ayam Brand	7.5	Canned/Jarred Goods	Liquid	2.1	67	50	375	UPDATE	DELETE
365	Spritzer	5.5	Beverages	Liquid	3	23	34	187	UPDATE	DELETE
401	Ribena	2.9	Beverages	Liquid	.56	39	55	8.7	UPDATE	DELETE
383	Lingam	7.2	Canned/Jarred Goods	Liquid	.8	86	90	21.6	UPDATE	DELETE
381	Daisy	3	Bread/Bakery	Liquid	5	34	56	9	UPDATE	DELETE
382	Daisy	3	Bread/Bakery	Liquid	5	34	56	9	UPDATE	DELETE
385	Clenx	3.9	Dry/Baking Goods	Liquid	7	45	23	11.7	UPDATE	DELETE
323	Dutch Lady	19	Dairy	Liquid	.86	23	40	15	UPDATE	DELETE
384	Yeosss	5.5	Beverages	Liquid	3	23	12	16.5	UPDATE	DELETE
386	Maggie	3.2	Canned/Jarred Goods	Solid	.9	90	20	9.6	UPDATE	DELETE

7. Select Product

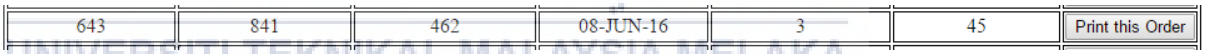
View Product

No	Product Name	Price	Category	Weight	Quantity	Action
1	Dutch Lady	15	Dairy	.86	20	Buy
2	Dutch Lady	15	Dairy	.86	20	Buy
3	Seri Murni	30	Canned/Jarred Goods	1.1	35	Buy
4	Clean&Clear	8	Personal Care	.8	80	Buy
5	Chicken	7	Meat	2.1	39	Buy
6	Daisy	6	Dairy	.5	67	Buy
7	Ayam Brand	375	Canned/Jarred Goods	2.1	67	Buy
8	Spritzer	187	Beverages	3	23	Buy
9	Ribena	8.7	Beverages	.56	39	Buy
10	Lingam	21.6	Canned/Jarred Goods	.8	86	Buy
11	Daisy	9	Bread/Bakery	5	34	Buy
12	Daisy	9	Bread/Bakery	5	34	Buy
13	Clenx	11.7	Dry/Baking Goods	7	45	Buy
14	Dutch Lady	15	Dairy	.86	23	Buy
15	Yeosss	16.5	Beverages	3	23	Buy
16	Maggie	9.6	Canned/Jarred Goods	.9	90	Buy

8. Ordering



9. Order Details



4.5 Conclusion

Design phase is very essential for system development as it will ensure that all requirements will be fulfilled and to ensure that databases will be fully implemented.

CHAPTER V

IMPLEMENTATION

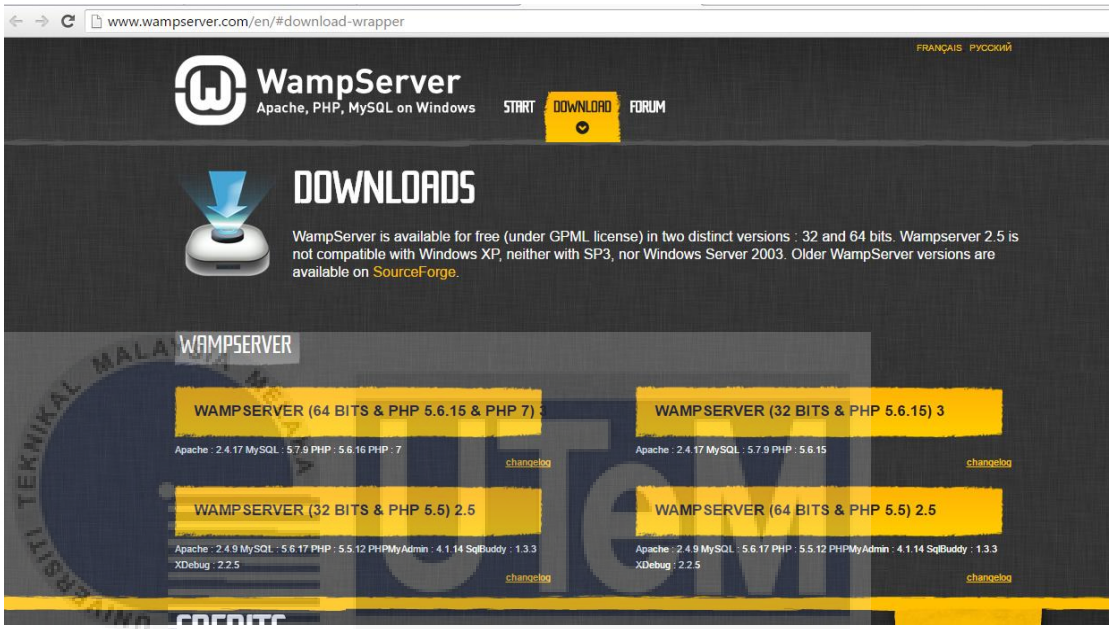
5.1 Introduction

This chapter will biefly described on how the installation of the server and DBMS is done and how each database code is implemented to ensure the system run effectively. In GroSMas, wamp server and Adobe Dreamweaver CS5 is used for the system deliveration. Written code process is divided by two in this system. The written code is consist of PHP language and Oracle database SQL. The interface of this system is developed by using Adobe Dreamweaver CS5 version.

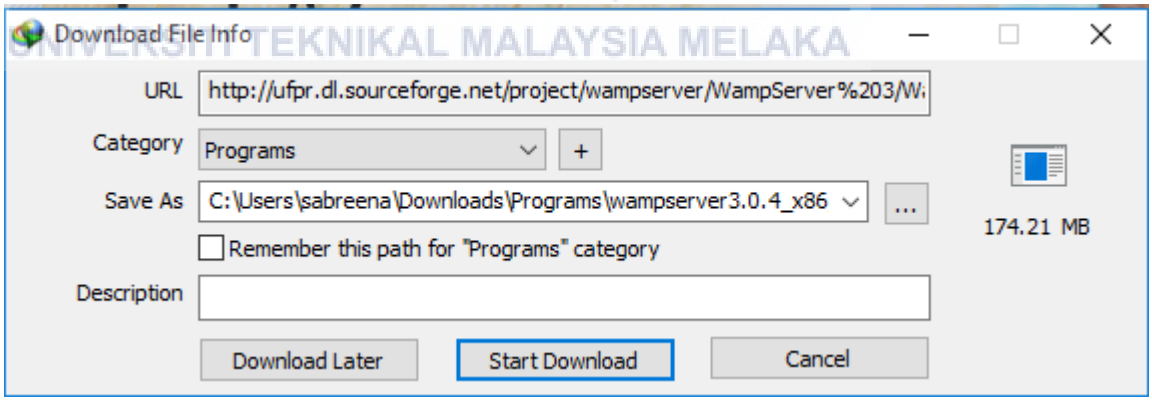
5.2 System Development Environment Setup

5.2.1 Wamp Server Installation

1. Download wamp server from the website. Click on the ‘download’ link at the main navigitaion on the official site.

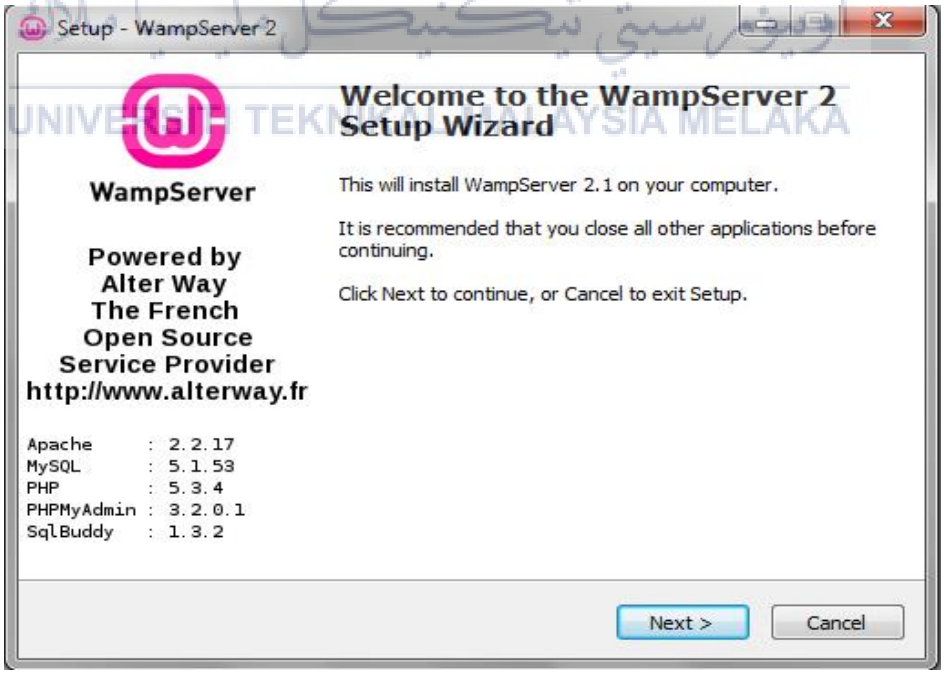


2. Click on the ‘Start Download’ button to install the server and to save the file in any location in the hard drive.

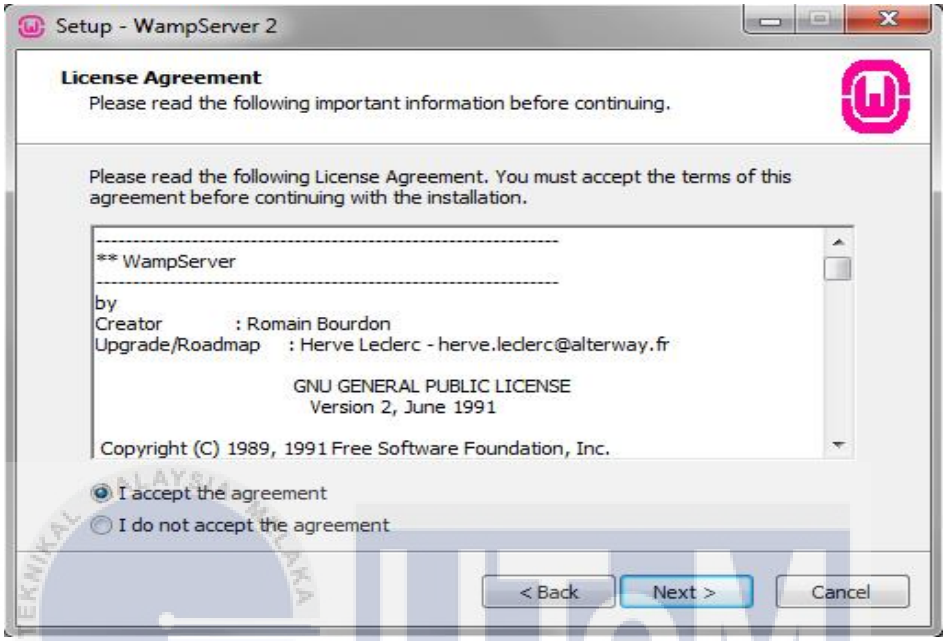


3. Download of wamp server is complete and this file can be seen on the download folder.

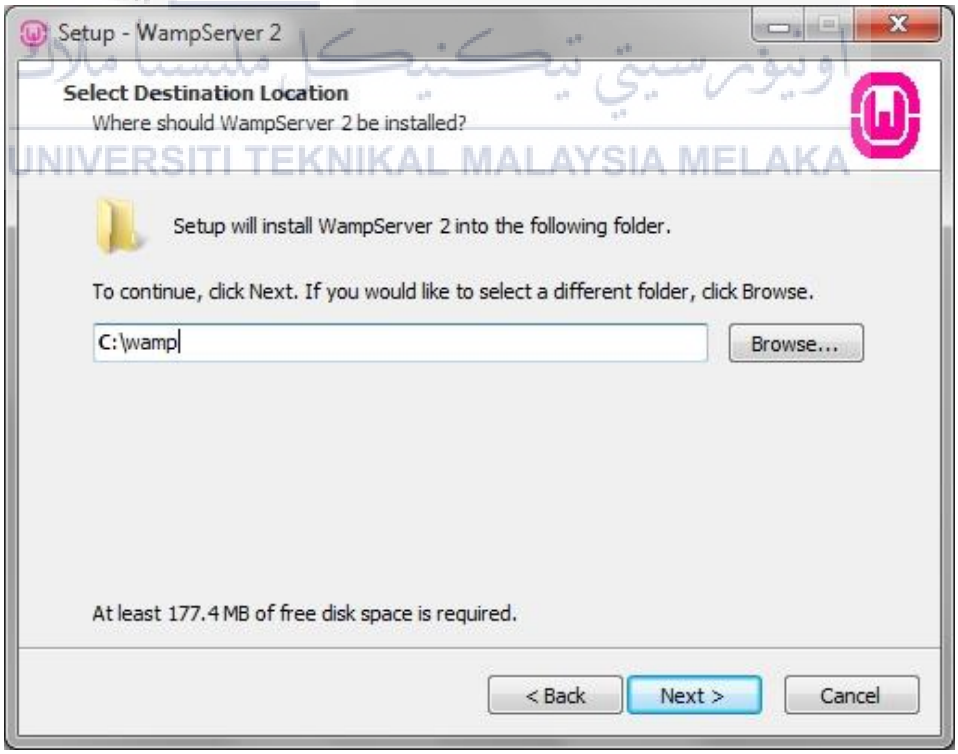
4. Click on the 'Run' button and and the startup will appear.



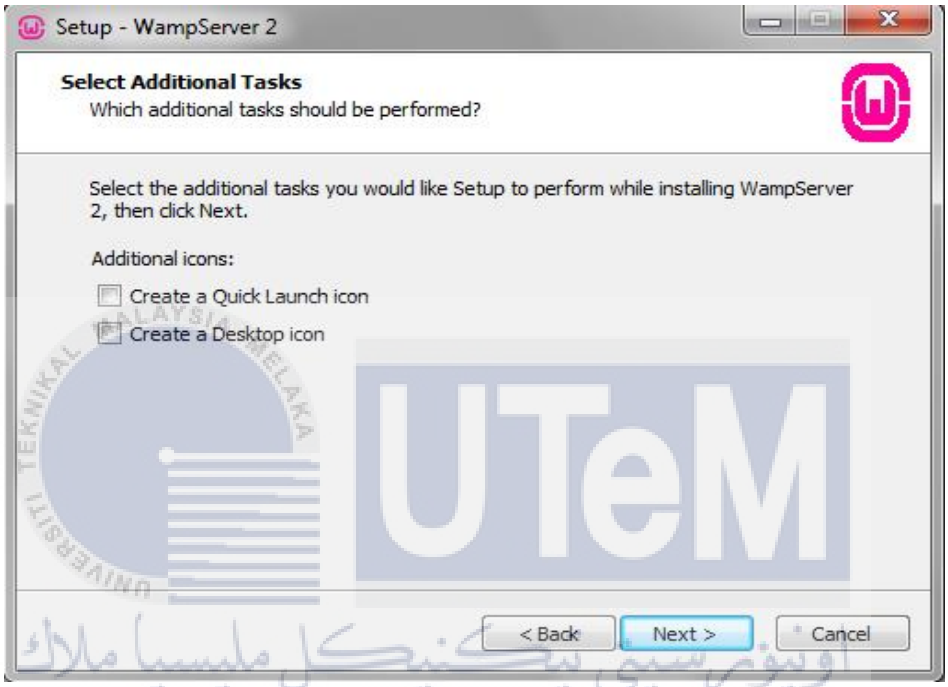
5. To proceed with the next step, you need to click on the agree button and then click on ‘Next’



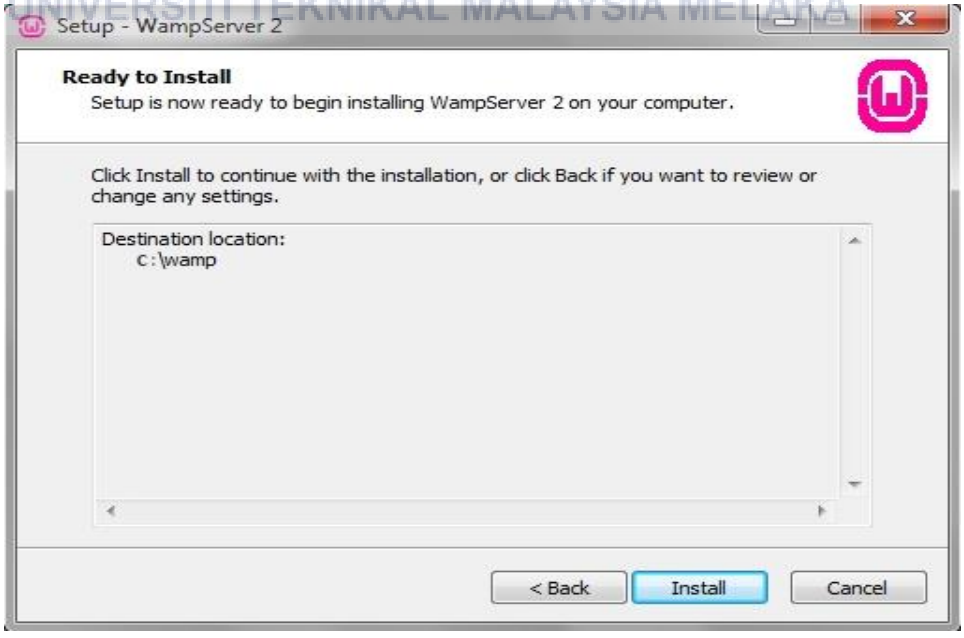
6. The wamp server file must be located in C drive to ensure that the system can be run effeciently.



7. A ‘ Select Additional Tasks’ dialog will appear on the screen right after the ‘Next’ button is clicked. An additional function can be done while the installation process. The following option will appear for your own setup.
   - Create a Quick Launch icon
   - Create a Desktop icon.

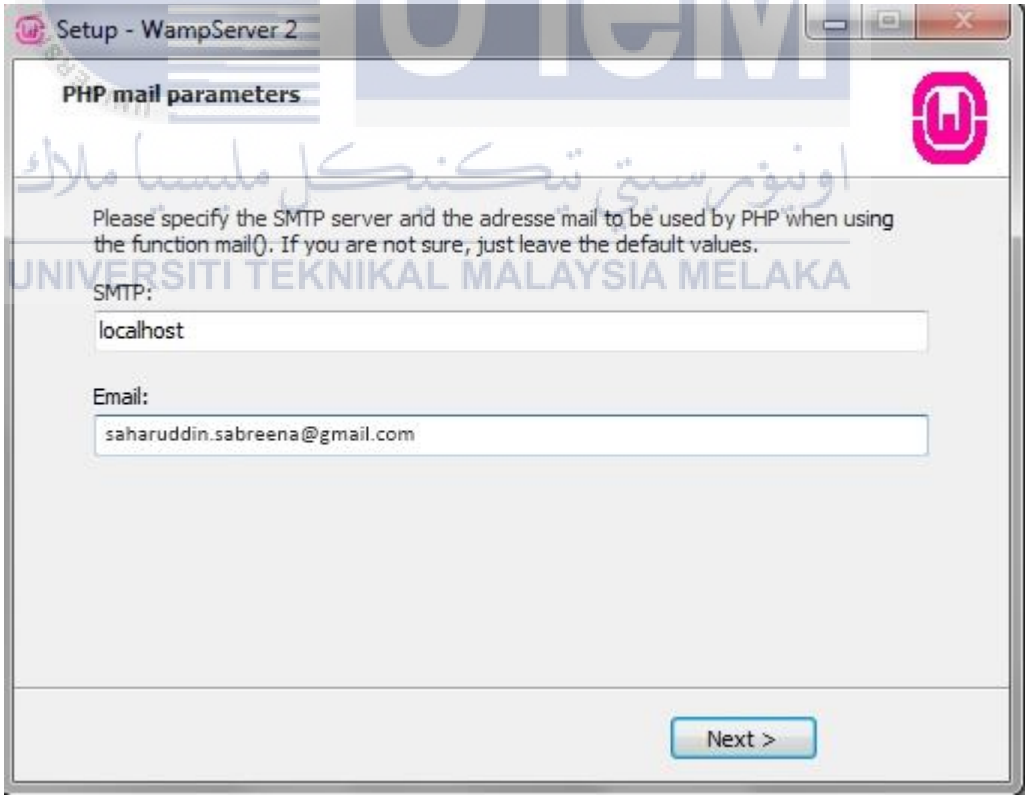


8. Click on ‘Install’ button to start the installation.

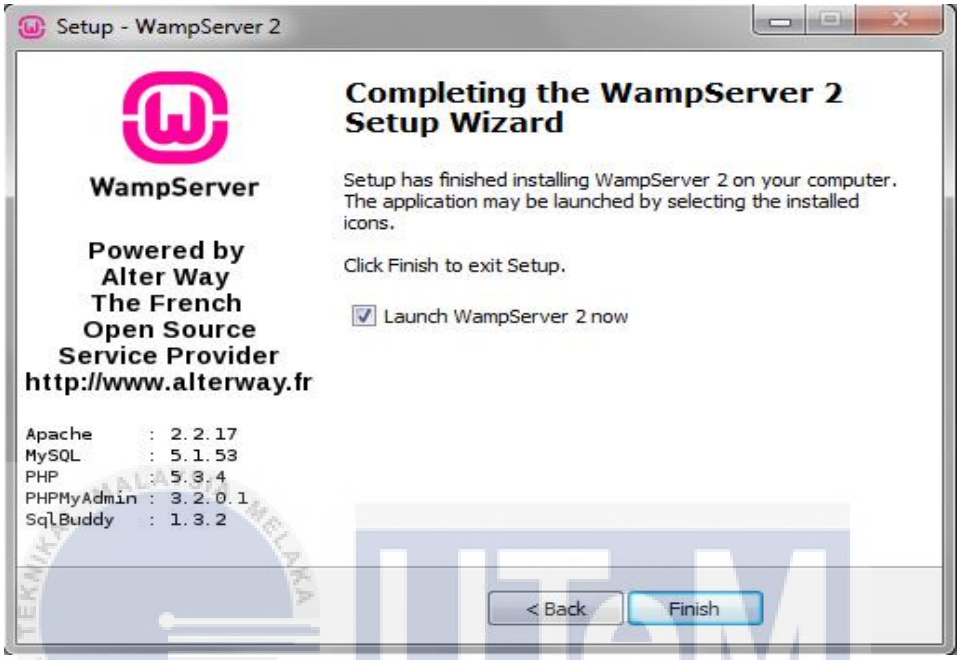


9. A ‘Windows Firewall’ dialog will appear. Click on ‘Allow Access’ by leaving default options to proceed for PHP mail parameters.

10. Filled in the SMTP server and the address mail to be used by PHP in the section . Then, click on ‘Next’ after filled in the required information.

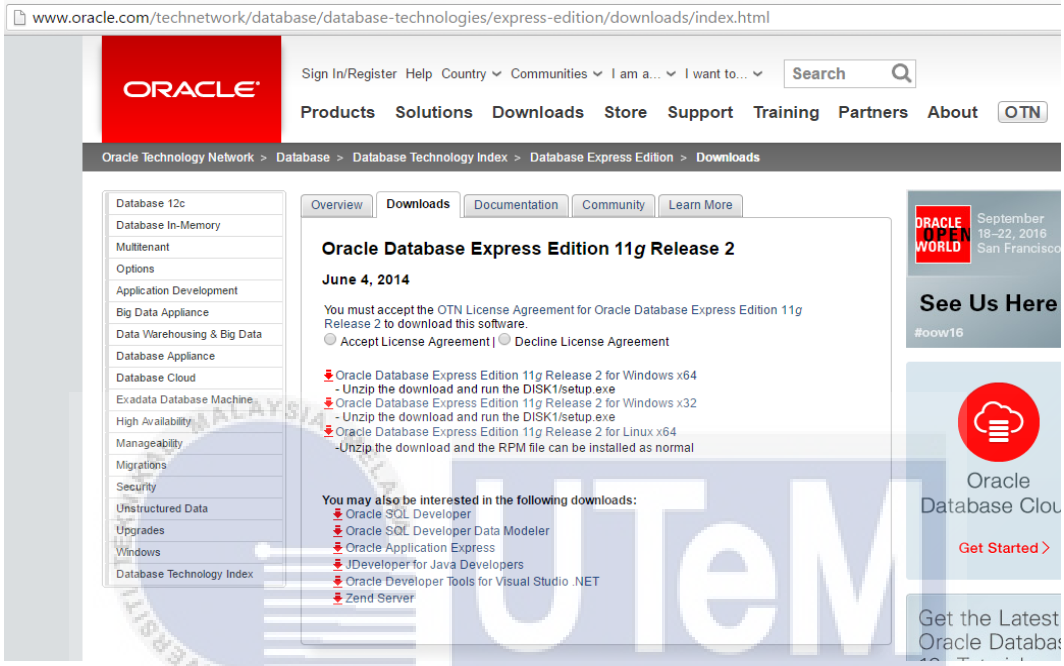


11. Click ‘Finish’ to start Wamp Server or ‘Launch WampServer 2 now’ check-box to start WampServer automatically right after the installation has completed.



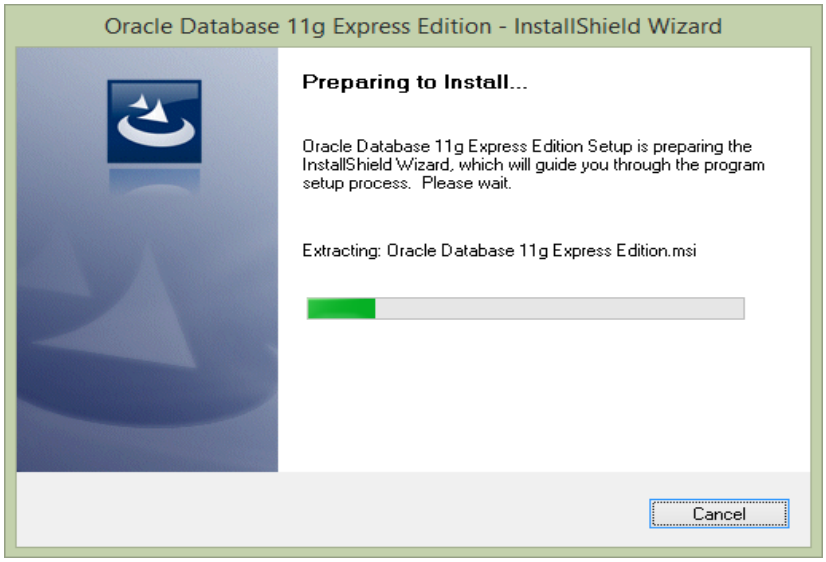
5.2.2 Oracle 11g Release 2 Installation

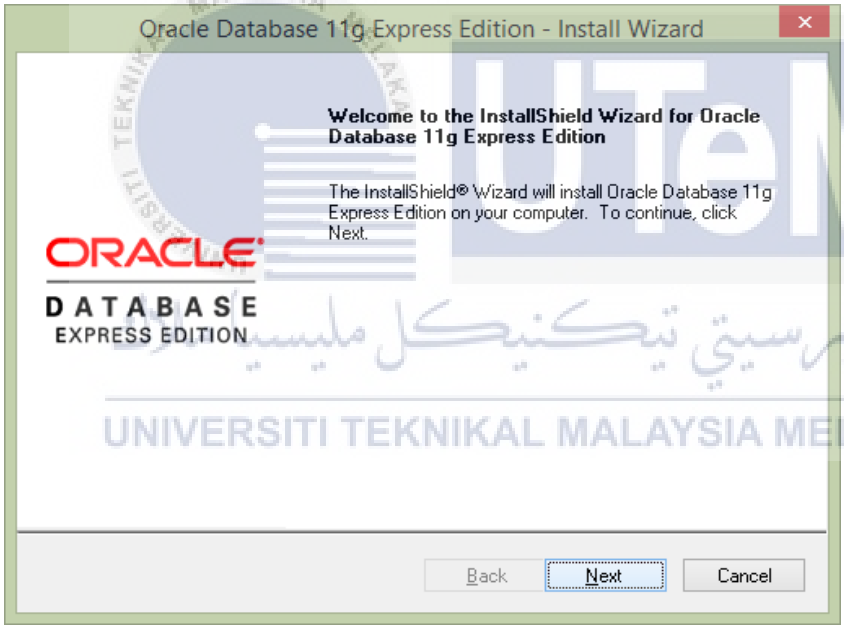
1. To download the DBMS, go to the official website and click on the compatible Oracle 11g version with your laptop.



2. Click on the 'Setup' icon after you are done downloading it.

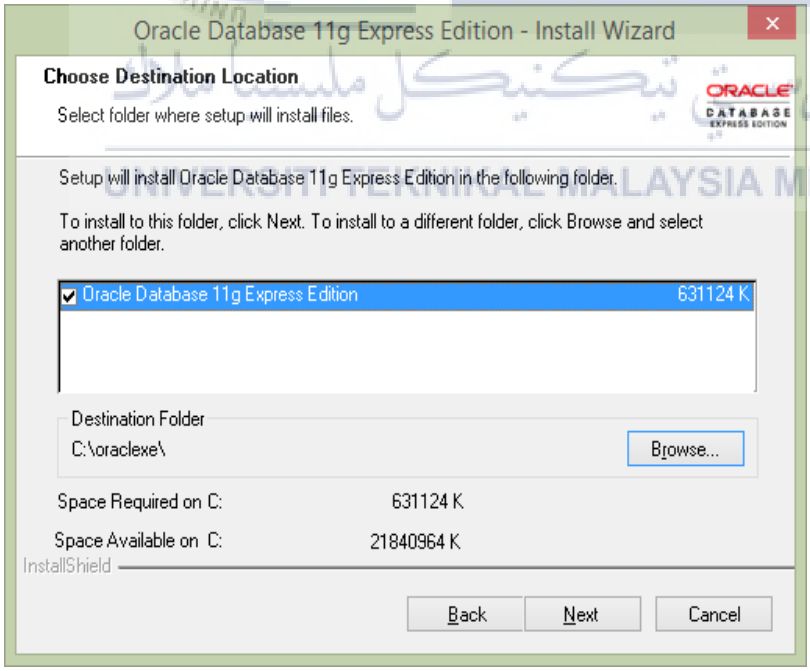
3. Wait until the installation is done



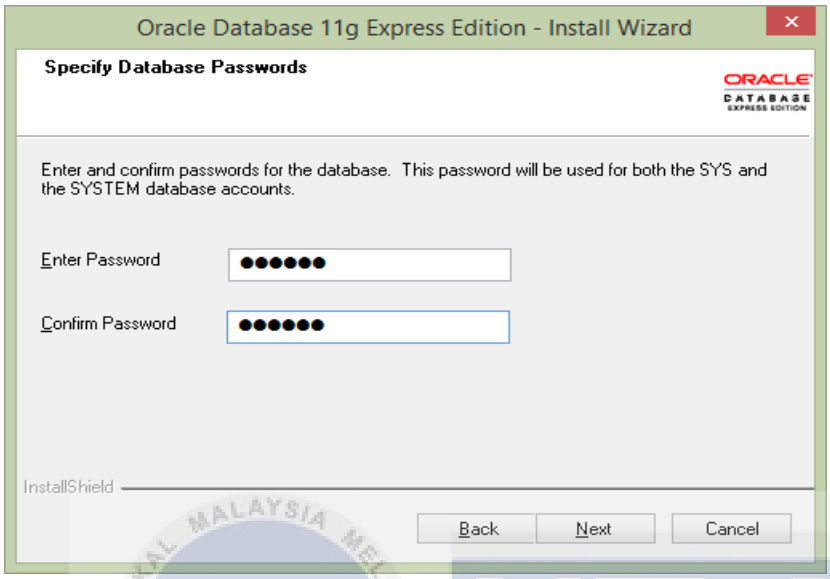


4. Click on the ‘I accept the terms in the license agreement’ button to continue the installation process.

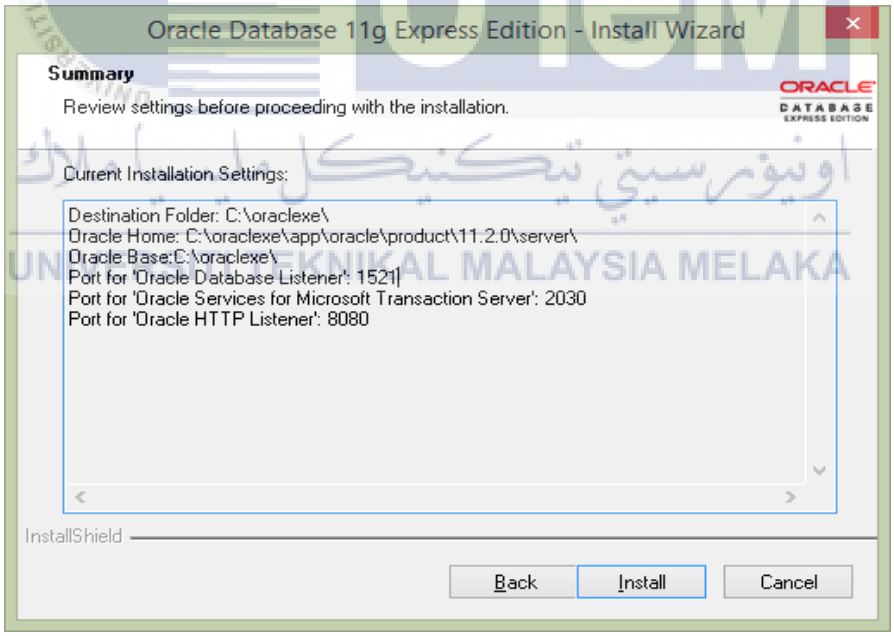
5. Choose the destination folder for the DBMS.

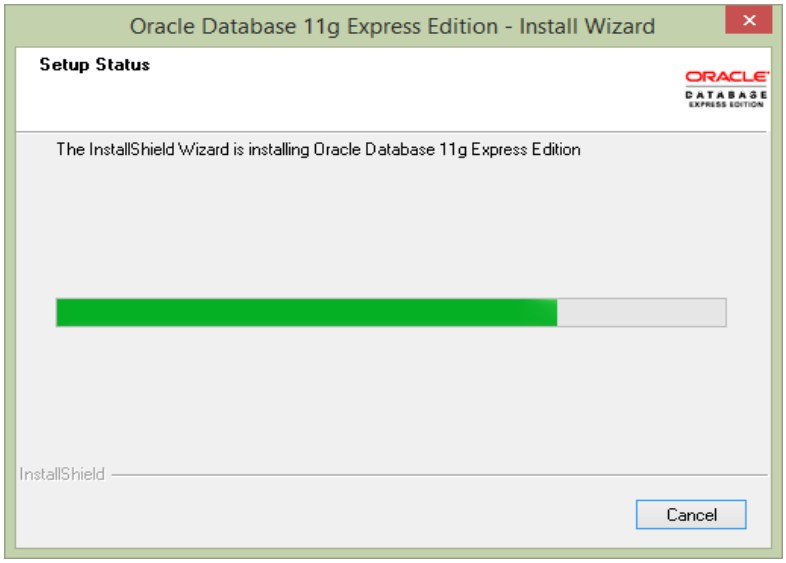


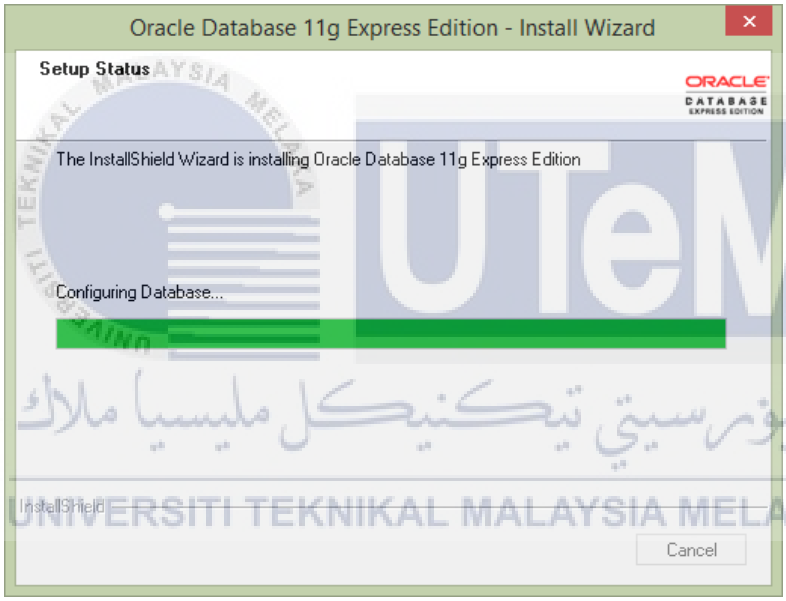
6. Enter your password and conform it to the database. Click ‘Next’ button to continue.



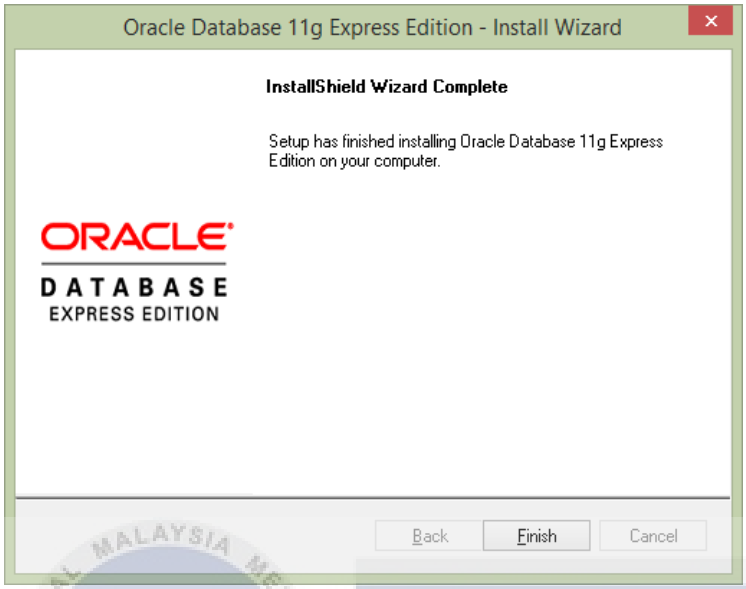
7. Click ‘Install’ button to continue with the installation.







7. Click on the 'Finish' button after the installation process is complete.



5.3 Database Implementation

GroSMas system consist of eight main tables. Some of the activities are including :

1. Database Definition Language (DDL)

Create Database :

Database is enter in SQL statement or PL/SQL command and click Run to see the results.

a) Create Tables :

1) Customer

```
CREATE TABLE CUSTOMER(
CUSTOMER_ID VARCHAR2 (10) PRIMARY KEY,
REGISTER_DATE DATE,
FIRST_NAME VARCHAR2 (20),
```

```
    LAST_NAME VARCHAR2 (20),
    DOB DATE,
    PHONE_NO VARCHAR2 (15),
    EMAIL VARCHAR2 (30),
    ADDRESS VARCHAR2 (50),
    PASSWORD_CUST VARCHAR2(10),
    USERNAME VARCHAR2 (10),
);
```

2) Tempah

```
CREATE TABLE TEMPAH (
TEMPAH_ID VARCHAR2 (10) primary key,
Customer_Id VARCHAR2(10),
Date_Tempah DATE,
Quantity_Tempah NUMBER,
Total_PriceTempah NUMBER (6,2),
Product_Id VARCHAR2(10),
Invoice_Id VARCHAR2(10),
PRIMARY KEY (tempah_Id)
);
```


3) Product

```
CREATE TABLE PRODUCT
  (     PRODUCT_ID VARCHAR2(10) PRIMARY
KEY,
        NAME_PRODUCT VARCHAR2(20),
        ORI_PRICE NUMBER(5,2),
        RETAIL_PRICE NUMBER (5,2),
        CATEGORY_PRODUCT VARCHAR2(10),
        TYPE_PRODUCT VARCHAR2(10 BYTE),
        WEIGHT NUMBER(5,2),
        QUANTITY NUMBER,
        PERCENT_INCREASE NUMBER(5,2),
        PERCENT_DISCOUNT NUMBER(5,2)
)
```

4) Financial

```
CREATE TABLE FINANCIAL
  (     PROFIT_ID VARCHAR2,
        TOTAL_PROFIT NUMBER(8,2),
        MONTH_PROFIT VARCHAR2,
        PRODUCT_ID VARCHAR2,
);
```

5) Delivery

```
CREATE TABLE DELIVERY
  (     DELIVERY_ID VARCHAR2,
        DATE_DELIVER DATE,
        TIME_DELIVER VARCHAR2,
        STATUS VARCHAR2,
        TRACKING_NO VARCHAR2,
        TEMPAH_ID VARCHAR2,
  );
```


6) Invoice

```
CREATE TABLE INVOICE
  (     INVOICE_ID VARCHAR2 NOT NULL,
        DATE_PAID DATE DEFAULT (sysdate),
        TYPE_PAY VARCHAR2,
 PRIMARY KEY (INVOICE_ID)
```

7) Staff

```
CREATE TABLE STAFF
  (     STAFF_ID VARCHAR2 PRIMARY KEY,
        FIRST_NAME VARCHAR2,
        LAST_NAME VARCHAR2,
        EMAIL VARCHAR2,
        PHONE_NO VARCHAR2,
```

```
        ADDRESS VARCHAR2,
        PASSWORD_ADMIN VARCHAR2,
        STATUS VARCHAR2,
);
```

8) Staff_Product

```
CREATE TABLE STAFF_PRODUCT
  (     STAFFPRODUCT_ID VARCHAR2 PRIMARY
KEY,
        STAFF_ID VARCHAR2,
        PRODUCT_ID VARCHAR2,
         FOREIGN KEY (STAFF_ID)
          REFERENCES STAFF (STAFF_ID),
         FOREIGN KEY (PRODUCT_ID)
 REFERENCES PRODUCT (PRODUCT_ID)
);
```

b) Create Sequences and Trigger

1) Customer

- Sequence

```
CREATE SEQUENCE CUSTOMER_seq
 START WITH     401
INCREMENT BY   1;
```

- Trigger

```
CREATE OR REPALCE TRIGGER
TRIG_CUSTOMER_ID
BEFORE INSERT ON CUSTOMER
FOR EACH ROW
BEGIN
IF(:NEW.CUSTOMER_ID IS NULL)THEN
```

```
SELECT CUSTOMER_seq.NEXTVAL
INTO(:NEW.CUSTOMER_ID)
FROM DUAL;
END IF;
END;
```

2) Tempah

- Sequence

```
CREATE SEQUENCE TEMPAH_seq
 START WITH     601
INCREMENT BY   1;
```

- Trigger

```
CREATE OR REPALCE TRIGGER
TRIG_TEMPAH_ID
BEFORE INSERT ON TEMPAH
FOR EACH ROW
BEGIN
IF(:NEW.TEMPAH_ID IS NULL)THEN
SELECT TEMPAH_seq.NEXTVAL
INTO(:NEW.TEMPAH_ID)
FROM DUAL;
END IF;
END;
```


3) Product

- Sequence

```
CREATE SEQUENCE PRODUCT_seq
 START WITH     301
INCREMENT BY   1;
```

- Trigger

```
CREATE OR REPALCE TRIGGER
TRIG_PRODUCT_ID
BEFORE INSERT ON PRODUCT
FOR EACH ROW
BEGIN
IF(:NEW.PRODUCT_ID IS NULL)THEN
SELECT PRODUCT_seq.NEXTVAL
INTO(:NEW.PRODUCT_ID)
FROM DUAL;
END IF;
END;
```

- Trigger to calculate retail price

```
CREATE OR REPALCE TRIGGER
TRIG_PRODUCT_RETAILPRICE
BEFORE INSERT ON PRODUCT
FOR EACH ROW

begin
IF(:NEW.PRODUCT_ID IS NULL)THEN
SELECT PRODUCT_seq.NEXTVAL
INTO(:NEW.PRODUCT_ID)
FROM DUAL;
END IF;

:new.retail_Price := :new.ORI_PRICE *
:new.PERCENT_INCREASE;


END;
```

4) Financial

- Sequence

```
CREATE SEQUENCE FINANCIAL_seq
 START WITH     401
INCREMENT BY   1;
```

5) Delivery

- Sequence

```
CREATE SEQUENCE DELIVERY_seq
 START WITH     201
INCREMENT BY   1;
```

- Trigger

```
CREATE OR REPALCE TRIGGER
TRIG_DELIVERY_ID
BEFORE INSERT ON DELIVERY
FOR EACH ROW
BEGIN
IF(:NEW.DELIVERY_ID IS NULL)THEN
SELECT DELIVERY_seq.NEXTVAL
INTO(:NEW.DELIVERY_ID)
FROM DUAL;
END IF;
END;
```

6) Invoice

- Sequence

```
CREATE SEQUENCE INVOICE_seq
 START WITH     601
INCREMENT BY   1;
```

- Trigger

```
CREATE OR REPALCE TRIGGER
TRIG_invoice_ID
BEFORE INSERT ON INVOICE
FOR EACH ROW
BEGIN
IF(:NEW.INVOICE_ID IS NULL)THEN
SELECT INVOICE_seq.NEXTVAL
INTO(:NEW.INVOICE_ID)
FROM DUAL;
END IF;
END;
```


7) Staff

- Sequence

```
CREATE SEQUENCE STAFF_seq
 START WITH     101
INCREMENT BY   1;
```

- Trigger

```
CREATE OR REPALCE TRIGGER
TRIG_STAFF_ID
BEFORE INSERT ON STAFF
FOR EACH ROW
BEGIN
IF(:NEW.STAFF_ID IS NULL)THEN
```

```
SELECT STAFF_seq.NEXTVAL
INTO(:NEW.STAFF_ID)
FROM DUAL;
END IF;
END;
```

8) Staff_Product

- Sequence

```
CREATE SEQUENCE STAFFPRO_seq
 START WITH     501
INCREMENT BY   1;
```

- Trigger

```
CREATE OR REPALCE TRIGGER
TRIG_STAFFPRO_ID
BEFORE INSERT ON STAFF_PRODUCT
FOR EACH ROW
BEGIN
IF(:NEW.STAFFPRODUCT_ID IS NULL)THEN
SELECT STAFFPRO_seq.NEXTVAL
INTO(:NEW.STAFFPRODUCT_ID)
FROM DUAL;
END IF;
END;
```


c) Create Procedure

1) Customer

- Insert

```
create or replace procedure
proce_customer_insert
(
 cu_customer_first_name in varchar2,
```

```
 cu_customer_last_name in varchar2,
 cu_customer_dob in varchar2,
 cu_customer_phone_No in varchar2,
 cu_customer_email in varchar2,
 cu_customer_address in varchar2,
 cu_customer_password_Cust in varchar2,
 cu_customer_username in varchar2
)

IS
begin
insert into
customer(register_date,first_name,last_nam
e,dob, phone_No, email, address,
password_Cust, username)
values (sysdate, cu_customer_first_name,
cu_customer_last_name,
to_date(cu_customer_dob,'yyyy-mm-dd'),
cu_customer_phone_No,
cu_customer_email,cu_customer_address,
cu_customer_password_Cust,
cu_customer_username);
commit;
end;
```


- Delete

```
create or replace PROCEDURE
DELETEcustomer(
cust_Id IN customer.customer_Id%TYPE
)
IS
BEGIN
DELETE FROM customer WHERE
customer_Id=cust_Id ;
END;
```

- Select

```
create or replace procedure
selectCustomer(myrc out sys_refcursor) as
begin
  open myrc for select * from Customer;
end;
```

-

2) Tempah

- Insert

```
create or replace procedure
proce_tempah_insert
(
 t_cust_Id in customer.customer_Id%type,
 t_product_Id in product.product_Id%type,
 t_invoice_Id in invoice.invoice_Id%type,
 t_date_tempah in varchar2,
 t_quantity_tempah in
tempah.quantity_tempah%type,
 t_total_PriceTempah in
tempah.total_PriceTempah%type)
is
begin
insert into tempah(customer_Id,product_Id,
invoice_Id,date_tempah, quantity_tempah,
total_PriceTempah)
values (t_cust_Id, t_product_Id,t_invoice_Id,
to_date (t_date_tempah ,'yyyy-mm-
dd'),t_quantity_tempah,
t_total_PriceTempah);
commit;
end;
```

- Update

```
create or replace PROCEDURE
UPDATEtempah (
v_id tempah.order_Id%TYPE,
v_tarikh tempah.tarikh%TYPE,
v_time tempah.time%TYPE,
v_address tempah.address%TYPE)
IS
BEGIN
UPDATE tempah SET order_Id=v_id,
tarikh=v_tarikh,
time=v_time,address=v_address WHERE
order_Id=v_id;
COMMIT;
END;
```

- Select

```
create or replace procedure
selectTempah(myrc out sys_refcursor) as
begin
 open myrc for select * from Tempah;
end;
```


3) Product

- Insert

```
create or replace procedure
proce_product_insert
(

 pr_NAME_PRODUCT in
product.NAME_PRODUCT%type,
 pr_ORI_PRICE in product.ORI_PRICE%type,
```

```
 pr_CATEGORY_PRODUCT in
product.CATEGORY_PRODUCT%type,
 pr_TYPE_PRODUCT in
product.TYPE_PRODUCT%type,
 pr_WEIGHT in product.WEIGHT%type,
 pr_QUANTITY in product.QUANTITY%type,
 pr_PERCENT_INCREASE in
product.PERCENT_INCREASE%type)

is
begin
insert into product(NAME_PRODUCT,
ORI_PRICE, CATEGORY_PRODUCT,
TYPE_PRODUCT, WEIGHT,QUANTITY,
PERCENT_INCREASE)
values (pr_NAME_PRODUCT,
pr_ORI_PRICE,pr_CATEGORY_PRODUCT,
pr_TYPE_PRODUCT,
pr_WEIGHT,pr_QUANTITY,
pr_PERCENT_INCREASE);
commit;
 end;
```

- Update

```
create or replace PROCEDURE
UPDATEproduct(
PRODUCT_ID IN
PRODUCT.PRODUCT_ID%TYPE,
NAME_PRODUCT IN
PRODUCT.NAME_PRODUCT%TYPE,
ORI_PRICE IN PRODUCT.ORI_PRICE%TYPE,
CATEGORY_PRODUCT IN
PRODUCT.CATEGORY_PRODUCT%TYPE,
TYPE_PRODUCT IN
PRODUCT.TYPE_PRODUCT%TYPE,
WEIGHT IN PRODUCT.WEIGHT%TYPE,
QUANTITY IN PRODUCT.QUANTITY%TYPE,
PERCENT_INCREASE IN
PRODUCT.PERCENT_INCREASE%TYPE,
```

```
RETAIL_PRICE IN
PRODUCT.RETAIL_PRICE%TYPE)
IS
BEGIN
UPDATE PRODUCT SET
PRODUCT_ID=PRODUCT_ID,NAME_PRODUC
T=NAME_PRODUCT, ORI_PRICE=ORI_PRICE,
CATEGORY_PRODUCT=CATEGORY_PRODUC
T,
TYPE_PRODUCT=TYPE_PRODUCT,
WEIGHT=WEIGHT,
QUANTITY=QUANTITY,PERCENT_INCREASE=
PERCENT_INCREASE,
RETAIL_PRICE=RETAIL_PRICE WHERE
PRODUCT_ID=PRODUCT_ID;
COMMIT;
END;
```

- Delete

```
create or replace PROCEDURE
DELETEproduct(
pro_Id IN product.product_Id%TYPE)
IS
BEGIN
DELETE FROM product WHERE
product_Id=product_Id ;
END;
```

- Select

```
create or replace procedure
selectProduct(myrc out sys_refcursor) as
begin
  open myrc for select * from Product;
end;
```

4) Delivery

- Insert

```
create or replace procedure
proce_delivery_insert
(
 d_date_deliver in varchar2,
 d_time_deliver in
delivery.time_deliver%type,
 d_status in delivery.status%type,
 d_tracking_no in
delivery.tracking_no%type)

is
begin
insert into delivery(date_deliver,
time_deliver, status, tracking_no)
values (to_date (d_date_deliver ,'yyyy-mm-
dd'),d_time_deliver, d_status,
d_tracking_no);
commit;
end;
```


5) Staff

- Insert

```
create or replace procedure
proce_staff_insert
(
 s_first_name in staff.first_name%type,
 s_last_name in staff.last_name%type,
 s_email in staff.email%type,
 s_phone_No in staff.phone_No%type,
 s_address in staff.address%type,
 s_password_admin in
staff.password_admin%type,
 s_status in staff.status%type
 )
```

```
is
begin
insert into staff(first_name, last_name
,email, phone_No,
address,password_admin,status)
values (s_first_name,s_last_name, s_email,
s_phone_No, s_address,
s_password_admin,s_status);
commit;
end;
```

2. Data Manipulation Language (DML)

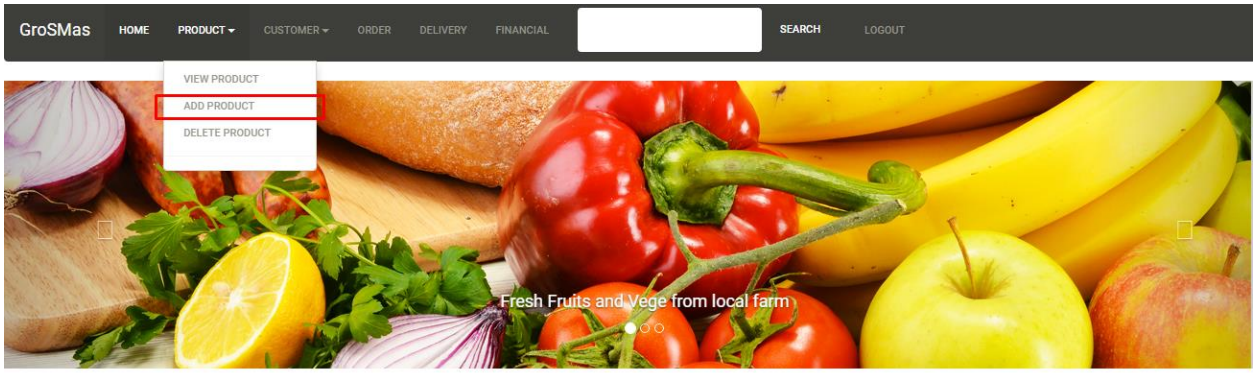
a) Product data is inserted by using stored procedure

```
create or replace procedure proce_product_insert
(

pr_NAME_PRODUCT in product.NAME_PRODUCT%type,
pr_ORI_PRICE in product.ORI_PRICE%type,
pr_CATEGORY_PRODUCT in product.CATEGORY_PRODUCT%type,
pr_TYPE_PRODUCT in product.TYPE_PRODUCT%type,
pr_WEIGHT in product.WEIGHT%type,
pr_QUANTITY in product.QUANTITY%type,
pr_PERCENT_INCREASE in product.PERCENT_INCREASE%type)

is
begin
insert into product(NAME_PRODUCT, ORI_PRICE, CATEGORY_PRODUCT,
TYPE_PRODUCT, WEIGHT,QUANTITY, PERCENT_INCREASE)
values (pr_NAME_PRODUCT, pr_ORI_PRICE,pr_CATEGORY_PRODUCT,
pr_TYPE_PRODUCT, pr_WEIGHT,pr_QUANTITY, pr_PERCENT_INCREASE);
commit;

end;
```



b) A trigger is created to calculate the retail price of the product.

```
CREATE OR REPALCE TRIGGER TRIG_PRODUCT_RETAILPRICE
BEFORE INSERT ON PRODUCT
FOR EACH ROW


begin
IF(:NEW.PRODUCT_ID IS NULL)THEN
SELECT PRODUCT_seq.NEXTVAL
INTO(:NEW.PRODUCT_ID)
FROM DUAL;
END IF;
```

:new.retail_Price := :new.ORI_PRICE * :new.PERCENT_INCREASE;

END;

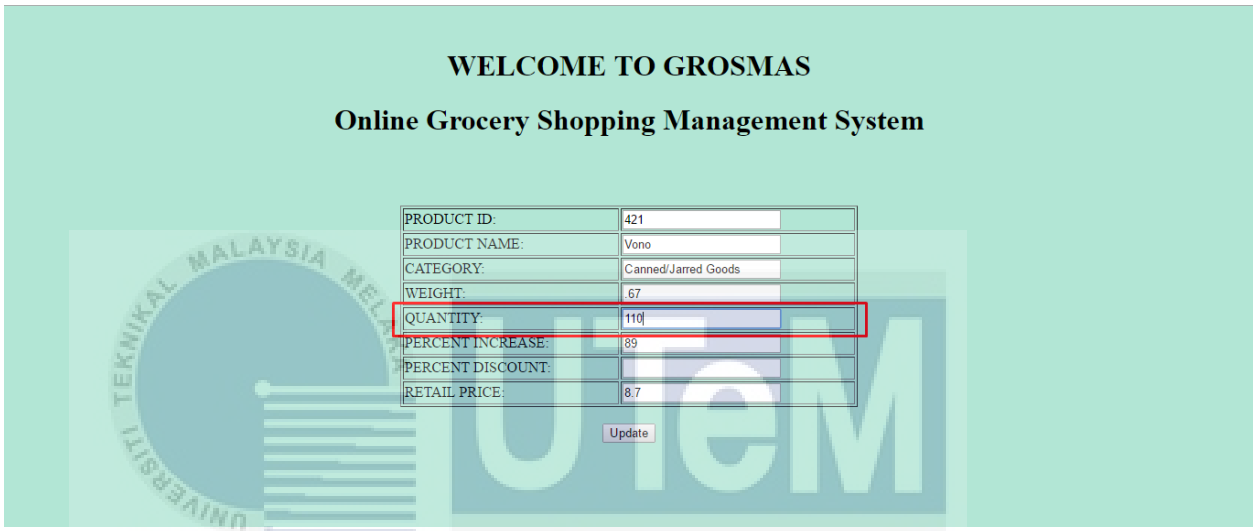
Update

a) Update process of product is done by using stored procedure


```
create or replace PROCEDURE UPDATEproduct(
PRODUCT_ID IN PRODUCT.PRODUCT_ID%TYPE,
NAME_PRODUCT IN PRODUCT.NAME_PRODUCT%TYPE,
ORI_PRICE IN PRODUCT.ORI_PRICE%TYPE,
CATEGORY_PRODUCT IN PRODUCT.CATEGORY_PRODUCT%TYPE,
TYPE_PRODUCT IN PRODUCT.TYPE_PRODUCT%TYPE,
WEIGHT IN PRODUCT.WEIGHT%TYPE,
QUANTITY IN PRODUCT.QUANTITY%TYPE,
PERCENT_INCREASE IN PRODUCT.PERCENT_INCREASE%TYPE,
RETAIL_PRICE IN PRODUCT.RETAIL_PRICE%TYPE)
IS
BEGIN
UPDATE PRODUCT SET
PRODUCT_ID=PRODUCT_ID,NAME_PRODUCT=NAME_PRODUCT,
ORI_PRICE=ORI_PRICE, CATEGORY_PRODUCT=CATEGORY_PRODUCT,
```

```
TYPE_PRODUCT=TYPE_PRODUCT, WEIGHT=WEIGHT,
QUANTITY=QUANTITY,PERCENT_INCREASE=PERCENT_INCREASE,
RETAIL_PRICE=RETAIL_PRICE WHERE PRODUCT_ID=PRODUCT_ID;
COMMIT;

END;
```



421	Vono	2.9	Canned/Jarred Goods	Liquid	.67	110	89	8.7	UPDATE	DELETE

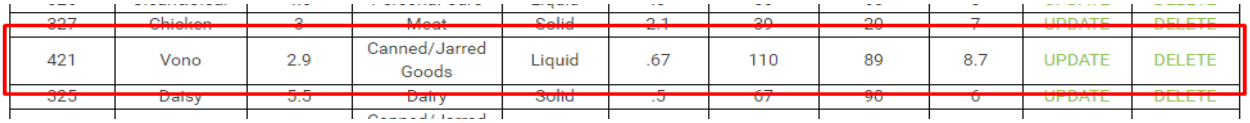
Delete

b) Delete product process is done by using stored procedure

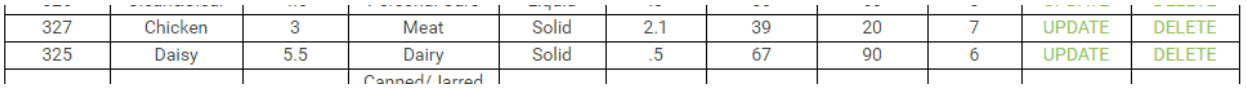
```
create or replace PROCEDURE DELETEproduct(
pro_Id IN product.product_Id%TYPE)

IS
BEGIN
DELETE FROM product WHERE product_Id=product_Id ;

END;
```



327	Chicken	3	Meat	Solid	2.1	39	20	7	UPDATE	DELETE
421	Vono	2.9	Canned/Jarred Goods	Liquid	.67	110	89	8.7	UPDATE	DELETE
325	Daisy	5.5	Dairy	Solid	.5	67	90	6	UPDATE	DELETE



327	Chicken	3	Meat	Solid	2.1	39	20	7	UPDATE	DELETE
325	Daisy	5.5	Dairy	Solid	.5	67	90	6	UPDATE	DELETE

5.4 Conclusion

This chapter is a summarized of the main system environment and the main part of how the system flow. A set of Database Definition Language (DDL) and Data Manipulation Language (DML) has been showed as a record. A set of trigger and stored procedure is a proof that this system has achieved the standard quality that is required by the management.

CHAPTER VI

TESTING

6.1 Introduction

Testing is very important procedure in developing a system as it will identify the effectiveness and recognize any defect in the system. This chapter will briefly describe the testing procedure that have been done for GroSMas system to document the usefulness of this system and state any lack in this system.

6.2 Test Plan

A test plan is comprised of a detailed procedure that define who participated, how and when the testing is performed and what type of test has been used on GroSMas system. This test plan should consist of various scenarios for every possible situation and problem that will be experienced by the user.

6.2.1 Test Organization

Testing organization is involved with users that will test on how the system should be conducted before it is ready for the client to use. This organization will test on the same medium of the system that is including its operating system, software and hardware to ensure that the system is follows the current requirement of the industry.

Below is the users that is involved during the testing phase:

i) Administrator

Responsibilities:

- Add and update stock and product in the store
- View report for store management

ii) Customer

Responsibilities:

- Create account to shop
- Add item to cart
- Pay through online banking

6.2.2 Test Environment

The test environment of this testing is consist of the nature of the tester performed the testing and also the setup of the programming and equipment tool used by the tester. This environment is including the setup of software and hardware of the system. Table 6.1 shows the minimum requirement of the environment required by the tester.

Table 6.1: Test Environment

Environment Specification	Description
Operating System	Windows 7 Profesional
Processor	Intel Core i5
Random Access Memory (RAM)	4.00 GB
System Type	64 bit
Database	Oracle
Server	WampServer 2.4
Server-scripting	PHP

6.2.3 Test Schedule

Test schedule is very essential in testing plan to ensure that each tester is well arranged and accommodated with all of the test execution.

Table 6.2: Test Schedule

Module/Component	Activity	Duration	Start Date	End Date
System Login	i) Test unit integration ii) Testing iii) User acceptance	5 times / day	11/07/2016	13/07/2016
Registration Module	i) Test unit integration ii) Testing	4 times/ day	14/07/2016	17/07/2016
Ordering Module	i) Test unit integration ii) User acceptance	3 times/ day	14/07/2016	16/07/2016
Management Module	i) Test unit integration ii) Testing iii) User acceptance	3 times/ day	18/07/2016	20/07/2016
Report Module	i) Test unit integration ii) Testing iii) User acceptance	2 times/ day	21/07/2016	22/07/2016

6.3 Test Strategy

Test strategy is where the project testing design is described. The objective of this testing strategy is to ensure that all participant involved achieve their objectives in this system. There are a few types of testing method but for this system, only two method is used which are as stated below:

i) Alpha Testing

Alpha testing is a test that takes place at the developer's site. This test is done at the early stage of the software development before it is release to the client. Alpha testing is only performed by a group of independent design team and any changes from the testing result can be done before it undergo Beta testing.

ii) Beta Testing

Beta testing is the second step in software testing where a group of intended user will test the system by themselves. The feedback of this group of user will be forwarded back to the developer for final changes before it is relaesed to the actual client.

6.3.1 Classes of Tests

System testing can be divided into several classes which is output correctness testing, security testing, error handling, and user acceptance testing.

i) Security Test

Security testing is a type of non-functional testing where it is done to ensure that the system's information is secured from any vlunerable to attack. This testing is also important to ensure that the system can not be hack or encrypt by any unauthorized user.

ii) Error Handling Test

Error handling testing is important test that will determine whether the system is able to function properly when there is incorrect transaction occur in the system. A good error handling system will give a message to the user indicating the correct way on how to use the system.

iii) Output Correctness Test

This test is important to ensure that the input inserted is parallel with the output.

iv) User Acceptance Test

User acceptance test is also known as beta testing where it is done at the last phase of the software testing process. This testing is important to ensure that it can

manage required task in real-world situation. It is also important to ensure that the system is user friendly and user is comfortable with the GUI as the user will be in wide range of IT knowledge level, age and races.

6.4 Test Design

There are two parts of test design which is teset description and test data.

6.4.1 Test Description

Test description is where the activities required for the system is done and the result will be documented to identify the expected result of the system. Table 6.3 until table 6.6 shows the cases that have been carried out and expected result for each system modules.

Table 6.3: Test Description for User Login

Test Case ID	Description	Testing Type	Expected Result
TC_01-1	Invalid Username/ Invalid password	Unit Testing/ Integration	'Invalid Username or Password' message will popped up.
TC_01-2	Invalid Username	Unit Testing/ Integration	'Invalid Username or Password'

			message will popped up.
TC_01-3	Invalid Password	Unit Testing/ Integration	'Invalid Username or Password' message will popped up.
TC_01-4	Username blank/ Password blank	Unit Testing/ Integration	'Please Fill All the Field' message popped up.
TC_01-5	Valid Username and Password	Unit Testing/ Integration	Successful login message will appear and direct user to the next page.

Table 6.4: User Registration Module

Test Case ID	Description	Testing Type	Expected Result
TC_02-1	All fields blank	Unit Testing/ Integration	'Please Fill All the Field' message popped up.
TC_02-2	All fields has filled in	Unit Testing/ Integration	Successfully register new customer and direct to the next page.

Table 6.5: Ordering Module

Test Case ID	Description	Testing Type	Expected Result
TC_03-1	Quantity field is blank	Unit Testing/ Integration	'Please Enter Your Quantity' message popped up.
TC_03-2	All field is filled in with value	Unit Testing/ Integration	Succesffuly ordered item and direct to the next page

Table 6.6: Product Registration Module

Test Case ID	Description	Testing Type	Expected Result
TC_04-1	All field is blank	Unit Testing/ Integration	'Please Fill Out This Field' message popped up at each field.
TC_04-2	Percentage increase field is blank	Unit Testing/ Integration	'Please Fill Out This Field' message popped up at each field.
TC_04-3	All field is inserted with valid input	Unit Testing/ Integration	Succesffuly registered item and direct to the next page.

6.4.2 Test Data

Test data is where the data is should contain both correct and false data that is tested for all possible situation that can occur in real-world scenarios. The data is including functional data to produce the expected result in the test. Table 6.7 up to Table 6.10 shows the test data that has been implemented during the test.

Table 6.7: Test Data for User Login

Column Name	Test Case ID	Username/ID	Password	Test Result
TD_01-1	TC_01-1	Sarah	abcdef	Invalid Username or Password
TD_01-2	TC_01-2	Salmah	12345	Invalid Username
TD_01-3	TC_01-3	Sarah	1gfsdfg	Invalid Password
TD_01-4	TC_01-4			Please Fill All the Field
TD_01-5	TC_01-5	Sarah	12345	Successfully Login

Table 6.8: Test Data for User Registration Module

Column Name	Test Case ID	First Name	Last Name	Username	Birthday	Telephone Number	Email	House Address	Password	Test Result
TD_02-1	TC_02-1									Please Fill All the Field
TD_02-2	TC_02-2	Salmah	Hassan	Sally	06-May-1990	019919190	salmah@gmail.com	No: 67, Jalan Suarasa, Cheras, 43300, Selangor	abcd123	Invalid Username

Table 6.9: Test Data for Ordering Module

Column Name	Test Case ID	Product ID	Product Name	Price	Category	Weight	Quantity	Test Result
TD_03-1	TC_03-1	326	Clean & Clear	8.00	Personal Care	0.8		Please Enter Your Quantity
TD_03-2	TC_03-2	326	Clean & Clear	8.00	Personal Care	0.8	2	Successfully ordered item

Table 6.10: Test Data Product Registration

Column Name	Test Case ID	Product Name	Original Price	Category	Type	Weight	Quantity	Percent Increase	Retail Price	Test Result
TD_04-1	TC_04-1									Please Fill Out This Field
TD_04-2	TC_04-2	Lingam	7.20	Canned/Jarred Goods	Liuid	0.8	86			Please Fill Out This Field
TD_04-3	TC_04-3	Lingam	7.20	Canned/Jarred Goods	Liuid	0.8	86	90	21.60	Item successfully registered

6.5 Test Result and Analysis

Test result is the result obtained during the testing activities by the tester. This test analysis is including the input inserted during the test activities and the expected output from the input if the system operate effectively and whether it needs to be fixed or upgraded before it is out for the market use. Table 6.11 up to table 6.14 shows the result that is obtained from the system testing activities.

Table 6.11: Test Result and Analysis for User Login

Module/ Component		Result		
Test Data ID	**Test Case ID**	**Description**	**OK**	**Failed**
TD_01-1	TC_01-1	Invalid Username or Password	√	
TD_01-2	TC_01-2	Invalid Username	√	
TD_01-3	TC_01-3	Invalid Password	√	
TD_01-4	TC_01-4	Username and Password field is left blank	√	

Table 6.12: Test Result and Analysis for User Registration

Module/ Component		Result		
Test Data ID	**Test Case ID**	**Description**	**OK**	**Failed**
TD_02-1	TC_02-1	All field is left blank	√	

Table 6.13: Test Result and Analysis for Ordering

Module/ Component		Result		
Test Data ID	**Test Case ID**	**Description**	**OK**	**Failed**
TD_03-1	TC_03-1	All field is left blank	√	

Table 6.14: Test Result and Analysis for Product Registration

Module/ Component		Result		
Test Data ID	**Test Case ID**	**Description**	**OK**	**Failed**
TD_04-1	TC_04-1	All field is left blank	√	
TD_04-2	TC_04-2	Percent increase field is left blank	√	

6.6 Conclusion

This chapter is a summary of how the system developed has meet the client's requirements. Several testing method has been performed to identify defect and errors as many as possible to ensure that the end-user will not find any difficulty to use this system. Last but not least, the result obtained during alpha and beta testing is one of the best testing strategy as it can help the developer to improve the system before it is used by the end-user and to ensure that the system meets their requirement.

CHAPTER VII

CONCLUSION

7.1 Introduction

This chapter is the last chapter for GroSMas development system. It comprise of the weakness and strengh of this system and the feedback from outside respondent on what they think of this system as well as an appreciation section for those who have contributed during GroSMas development.

7.2 Observation on Weakness and Strengths

There is always a room for improvement for each thing that has been created and for GroSMas, weakness and strenght of this system has been analysed based on a short interview session during the testing.

7.2.1 Weakness of GroSMas

Although there are several weakness that have been identified in GroSMas system. The user still did not find it to be a difficulty for them to use it. Below are the weakness that have been identified:

- User cant select the product available by its category

7.2.2 Strenght of GroSMas

GroSMas is designed and developed more to be beneficial for the store management and it is believe that it has helped local grocery store to manage their product more efficiently. Below is the list of GroSMas strenghth:

- Administrator can easily calculate, save and advertise their product retail price.
- Administrator can easily manage their product available with just one click.
- Administrator can easily monitor their sales report based on the graph analysis.

7.3 Proposition for Improvement

Technology developed rapidly over the year and thus there is always a high demand by the society to ease their daily task over the year. For GroSMas, there are several ways on how to improve the system to ensure that it is helpful for the store administrator and also to the community.

One of the improvement can be done for GroSMas is to allow it to generate more report for the store. This report can be generated not only by month but also by product that is purchased by their customer. A report based on the statistic of delivery places that is from the customer address too can help with the store management to operate more efficiently in the future.

Meanwhile for customer perspective, a search column based on the menu of what they are planning to cook will be more beneficial for them as this can help the customer to not overspend on their grocery shopping. This way can also help the customer to cut down their time during the grocery shopping.

7.4 Contribution

A heartiest appreciation and a big thank you to my supervisor, Assoc Prof NorHaziah Md. Salleh for always assist me whenever i encountered any difficulty in completing the system and help me to complete this project successfully. Thank you to Faculty of Information and Communication Technology of Universiti Teknikal Malaysia Melaka's lecturers for guiding me throughout the semester in completing this project and thank you to the board of lecturers for Projek Sarjana Muda (major in Database) for the guideline and reminder along the completion of the project**.**

I would like to thank to Kedai Runcit Ranjini administration staff for spending some time to test on GroSMas system and thank you to Encik Muhammad ZulHelmi Bin Mohamad Ramly and Encik Muhammad Syahmi bin Saparuddin for willing to spend some time to test on the system.

A big thank you and appreciation to my beloved parents, Puan Noor Lidah Bt Abd. Aziz and Encik Saharuddin Bin Ahmad Chasmin for the endless support and motivation given in completing this project. And not to forget to my beloved husband, Encik Muhammad Hambali Bin Tobiaany for always supporting me and be there whenever I am down.

I would like to thank to all my friends and classmate for not hesitate to help me whenever I encounter any problem in completing this project. And thank you to everyone who have assisted and supporting me, directly or indirectly in ensuring the success of this project.

7.5 Conclusion

Last but not least, GroSMas has been well developed as it has achieved its main objectives which is to reduce the time taken for customer to purchase their groceries goods in nearby physical store and for the store to widen their target market.

GroSMas has also create an awareness to local grocery store on how to fully utilised current technology in order to increase in their business sales. This is also important to bring up local grocery store to the community.

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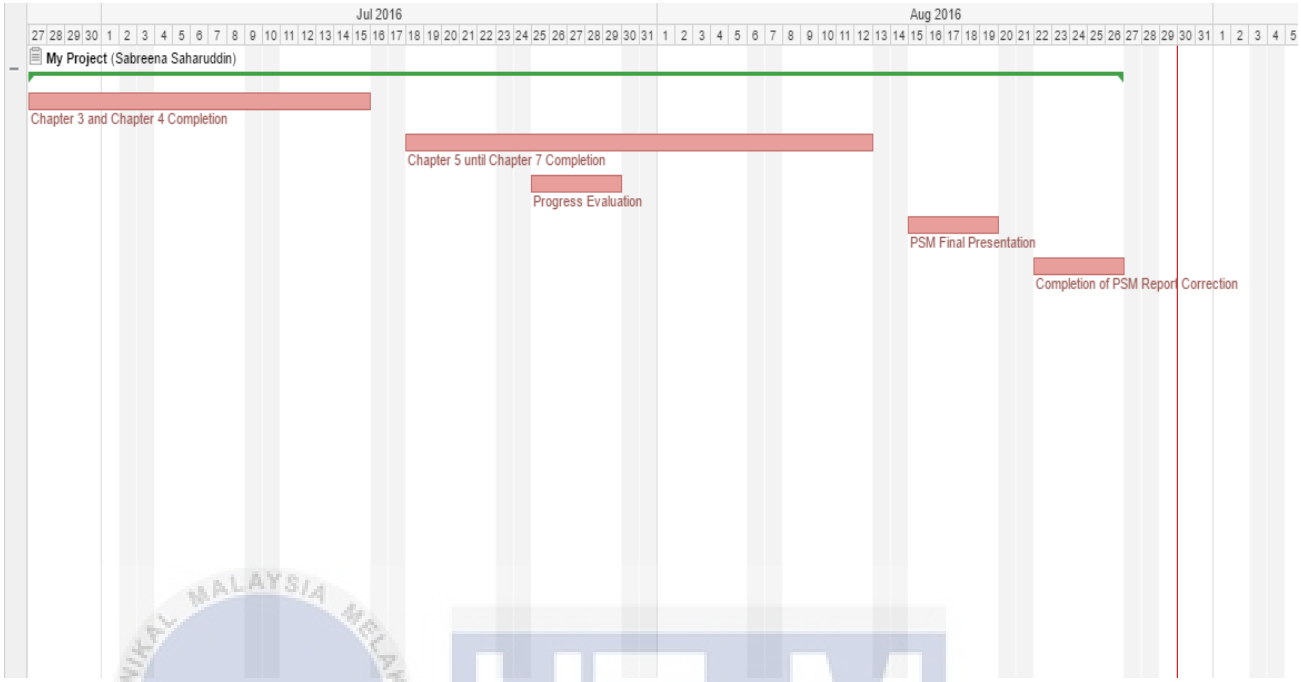
APPENDICES

Figure 2.2: PSM1 Project Schedule

No	*Activity*	*Week*														
		1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*
1.	Discussion project title with supervisor. Proposed suitable title to supervisor															
2.	Submit Proposal															
3.	Proposal Presentation															
4.	Proposal correction and improvement															
5.	Chapter 1															
6.	Chapter 2															
7.	Chapter 3															
8.	Chapter 3 Demonstration Chapter 4															
9.	Chapter 4 Demonstration															
10.	Demonstration															
11.	Project Demonstration															
12.	Final Report Presentation															

Figure 2.3: PSM 2 Gantt Chart



User Manual

1. Customer Registration

   - Customer need to click on ‘Login’ button on the Home Page.
   - Click on ‘Register’ button in order to use the system.
   - Fill in all details required for the registration.
   - Click on ‘Register’ button on the bottom of the page to register.

2. Login

   a. Customer

   - Customer is required to click on ‘Login’ button on the Home Page.
   - Customer need to enter their registered username and password.
   - If login is successful, customer will be directed to the Home Page.
   - If login is unsuccessful, customer will return back to the Login Page.

   b. Admin

   - Admin is required to click on ‘Login’ button on the Home Page.
   - Admin need to enter their registered ID and password.
   - If login is successful, admin will be directed to the Home Page.
   - If login is unsuccessful, admin will return back to the Login Page.

3. Admin Add Product

   - Admin need to click on ‘Product’ button and choose ‘Add Product’ to proceed with the product addition
   - All details in the Product Page is required to fill
   - Click on the ‘Submit’ button to save the new Product.
   - Admin will be directed to the Product List Page once the product addition is successful.

4. Admin Select Product

    - Admin need to click on ‘Product’ button and choose ‘View Product’ to proceed with the product selection.
    - All registered product will be displayed on the product list page.

5. Admin Calculate Retail Price

    - Admin need to click on ‘Product’ button and choose ‘Add Product’ to proceed with the product addition
    - All details in the Product Page is required to fill
    - Click on the ‘Submit’ button to save the new Product.
    - Admin will be directed to the newly added product page and retail price will be displayed.

6. Admin Delete Product

    - Admin need to click on ‘Product’ button and choose ‘Delete Product’ to proceed with the product addition
    - All registered product will be displayed on the product list page.
    - Click on the ‘Delete’ button on the right side of the page to delete any of the product.
    - Admin will be directed to the Product List Page once the product deletion is successful.

7. Customer Add Product to Cart

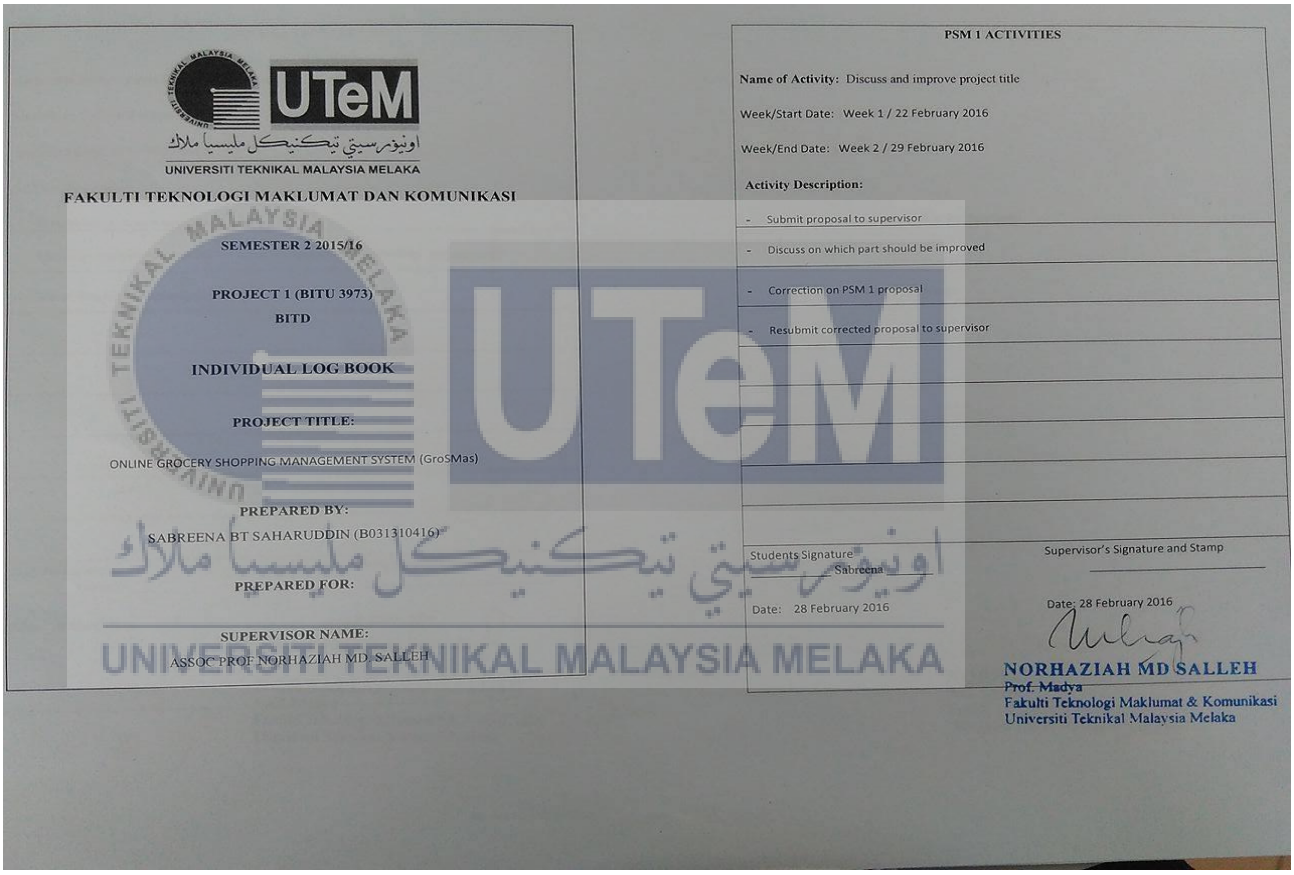
    - Customer need to click on ‘Shop’ button and click on the product categories shown for them to shop.
    - All available item for the specific product category will be displayed.
    - Customer need to click on the ‘Buy’ button to proceed with their shopping.
    - Customer will be directed to the next page where they should enter their desired amount for that specific product.
    - Click on ‘Submit’ button to proceed with shopping.
    - Customer will be directed to the total purchased page once ordering is successful.

8. Financial Monitor

    - Admin need to click on the ‘Financial’ button on the navigation bar.
    - Admin will be directed to a bar chart page to monitor store’s annual profit income.

Log Book

1. Semester 2



UNIVERSITI TEKNIKAL MALAYSIA MELAKA

FAKULTI TEKNOLOGI MAKLUMAT DAN KOMUNIKASI

SEMESTER 2 2015/16

PROJECT 1 (BITU 3973)

BITD

INDIVIDUAL LOG BOOK

PROJECT TITLE:

ONLINE GROCERY SHOPPING MANAGEMENT SYSTEM (GroSMas)

PREPARED BY:

SABREENA BT SAHARUDDIN (B031310416)

PREPARED FOR:

SUPERVISOR NAME:

ASSOC PROF NORHAZIAH MD. SALLEH

PSM 1 ACTIVITIES

Name of Activity: Discuss and improve project title

Week/Start Date: Week 1 / 22 February 2016

Week/End Date: Week 2 / 29 February 2016

Activity Description:

- Submit proposal to supervisor
- Discuss on which part should be improved
- Correction on PSM 1 proposal
- Resubmit corrected proposal to supervisor

Students Signature

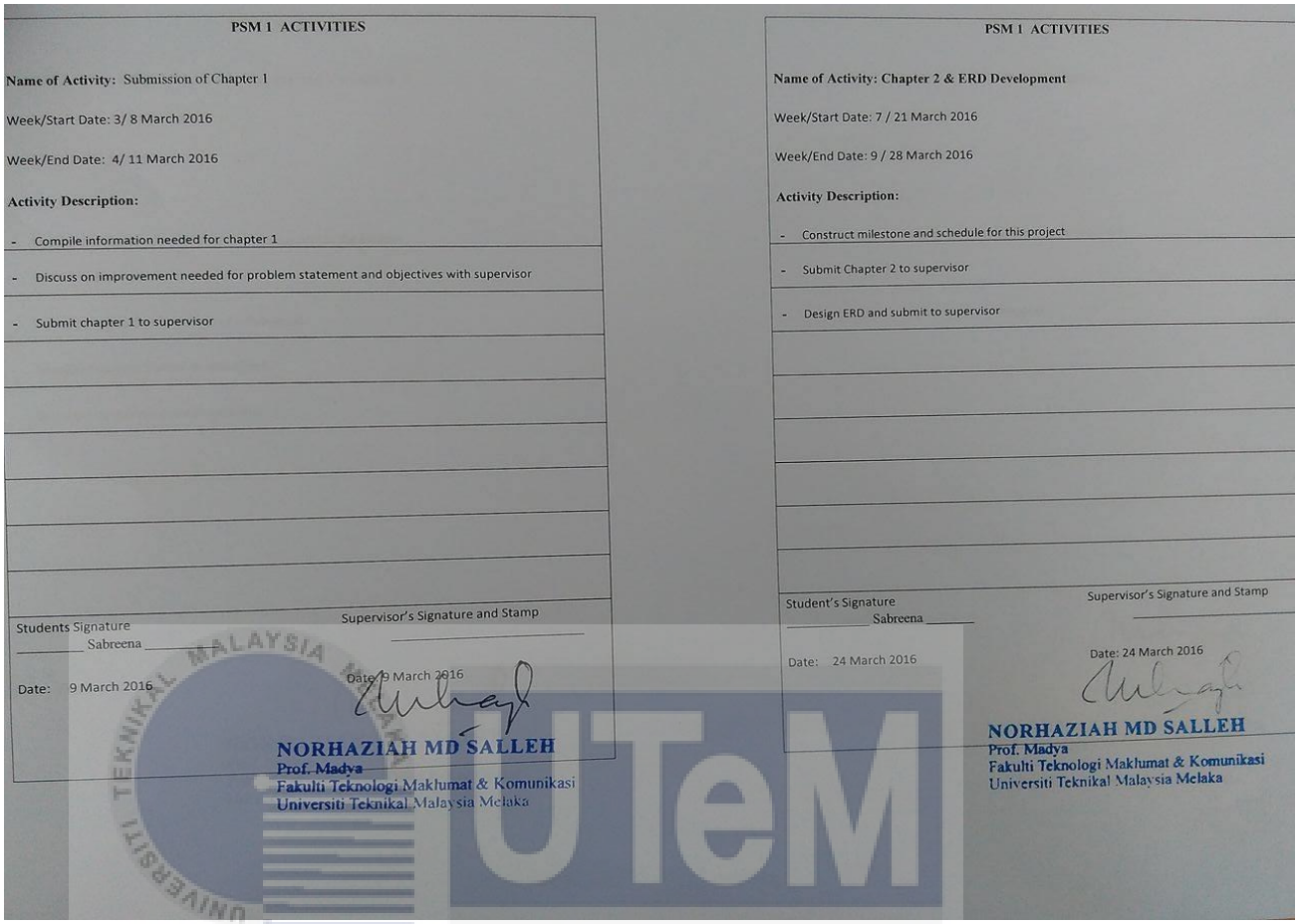
Sabreena

Date: 28 February 2016

Supervisor's Signature and Stamp

Date: 28 February 2016

NORHAZIAH MD SALLEH
Prof. Madya
Fakulti Teknologi Maklumat & Komunikasi
Universiti Teknikal Malaysia Melaka



PSM 1 ACTIVITIES

Name of Activity: Submission of Chapter 1

Week/Start Date: 3/ 8 March 2016

Week/End Date: 4/ 11 March 2016

Activity Description:

- Compile information needed for chapter 1
- Discuss on improvement needed for problem statement and objectives with supervisor
- Submit chapter 1 to supervisor

Students Signature: Sabreena

Date: 9 March 2016

Supervisor's Signature and Stamp

Date: 9 March 2016

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PSM 1 ACTIVITIES

Name of Activity: Chapter 2 & ERD Development

Week/Start Date: 7 / 21 March 2016

Week/End Date: 9 / 28 March 2016

Activity Description:

- Construct milestone and schedule for this project
- Submit Chapter 2 to supervisor
- Design ERD and submit to supervisor

Student's Signature: Sabreena

Date: 24 March 2016

Supervisor's Signature and Stamp

Date: 24 March 2016

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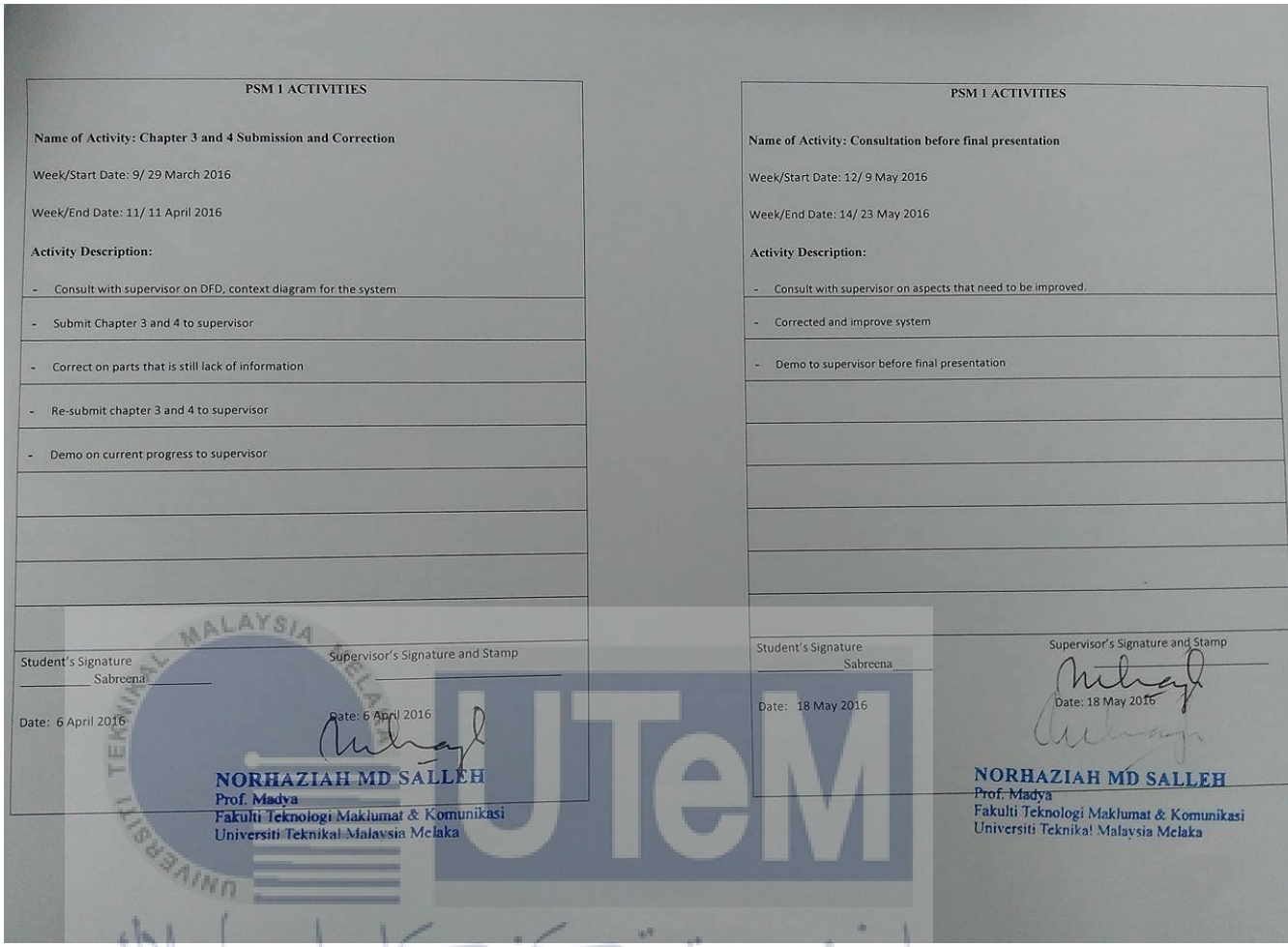

PSM 1 ACTIVITIES

Name of Activity: Chapter 3 and 4 Submission and Correction

Week/Start Date: 9/ 29 March 2016

Week/End Date: 11/ 11 April 2016

Activity Description:

- Consult with supervisor on DFD, context diagram for the system
- Submit Chapter 3 and 4 to supervisor
- Correct on parts that is still lack of information
- Re-submit chapter 3 and 4 to supervisor
- Demo on current progress to supervisor

Student's Signature
Sabreena

Date: 6 April 2016

Supervisor's Signature and Stamp

Date: 6 April 2016

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PSM 1 ACTIVITIES

Name of Activity: Consultation before final presentation

Week/Start Date: 12/ 9 May 2016

Week/End Date: 14/ 23 May 2016

Activity Description:

- Consult with supervisor on aspects that need to be improved.
- Corrected and improve system
- Demo to supervisor before final presentation

Student's Signature
Sabreena

Date: 18 May 2016

Supervisor's Signature and Stamp

Date: 18 May 2016

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2. Semester 3

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

FAKULTI TEKNOLOGI MAKLUMAT DAN KOMUNIKASI

SEMESTER 2 2015/16

PROJECT 1 (BITU 3973)

BITD

INDIVIDUAL LOG BOOK

PROJECT TITLE:

ONLINE GROCERY SHOPPING MANAGEMENT SYSTEM (GroSMas)

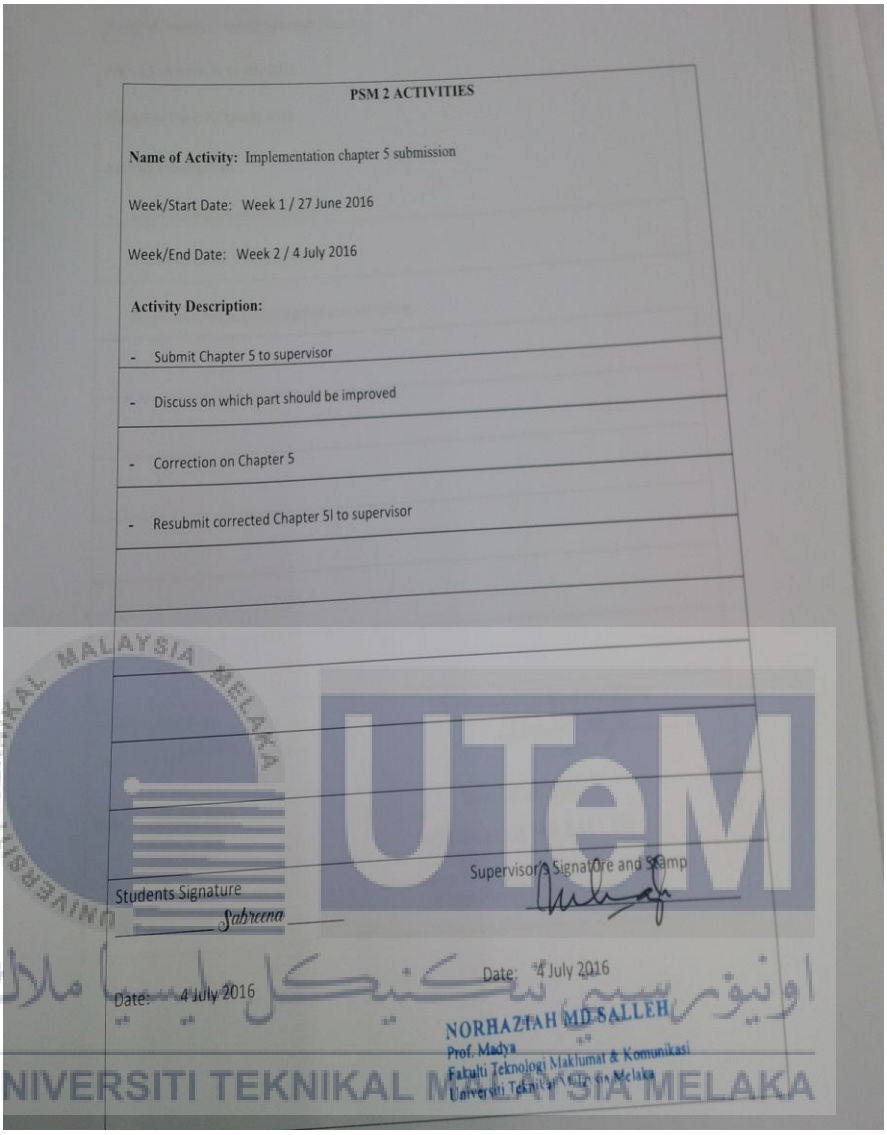
PREPARED BY:

SABREENA BT SAHARUDDIN (B031310416)

PREPARED FOR:

SUPERVISOR NAME:

ASSOC PROF NORHAZIAH MD. SALLEH



PSM 2 ACTIVITIES

Name of Activity: Implementation chapter 5 submission

Week/Start Date: Week 1 / 27 June 2016

Week/End Date: Week 2 / 4 July 2016

Activity Description:

- Submit Chapter 5 to supervisor
- Discuss on which part should be improved
- Correction on Chapter 5
- Resubmit corrected Chapter 5l to supervisor

Students Signature

Sabreena

Date: 4 July 2016

Supervisor's Signature and Stamp

Date: 4 July 2016

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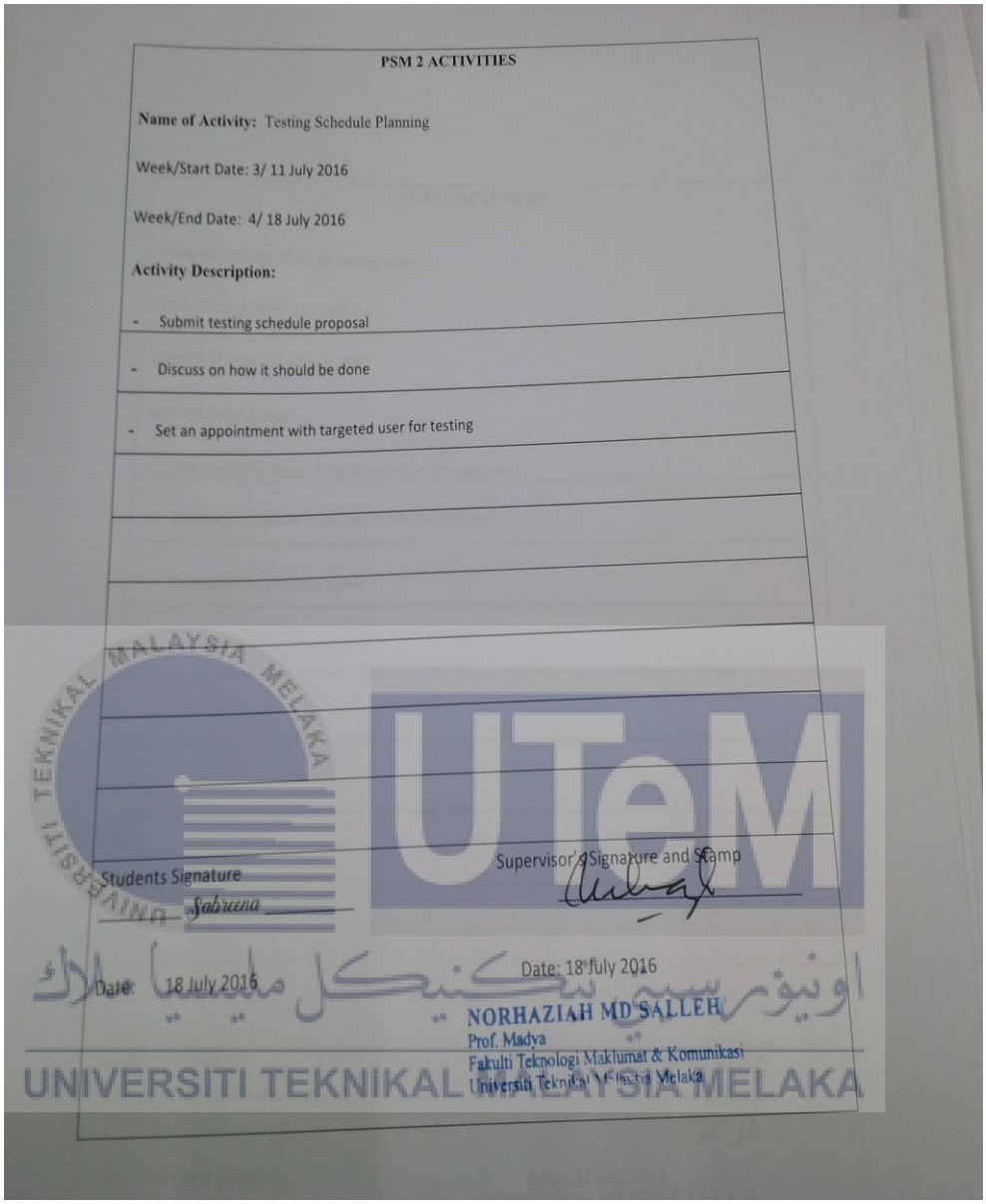

PSM 2 ACTIVITIES

Name of Activity: Testing Schedule Planning

Week/Start Date: 3/ 11 July 2016

Week/End Date: 4/ 18 July 2016

Activity Description:

- Submit testing schedule proposal
- Discuss on how it should be done
- Set an appointment with targeted user for testing

Students Signature

Sabrena

Date: 18 July 2016

Supervisor's Signature and Stamp

Date: 18 July 2016

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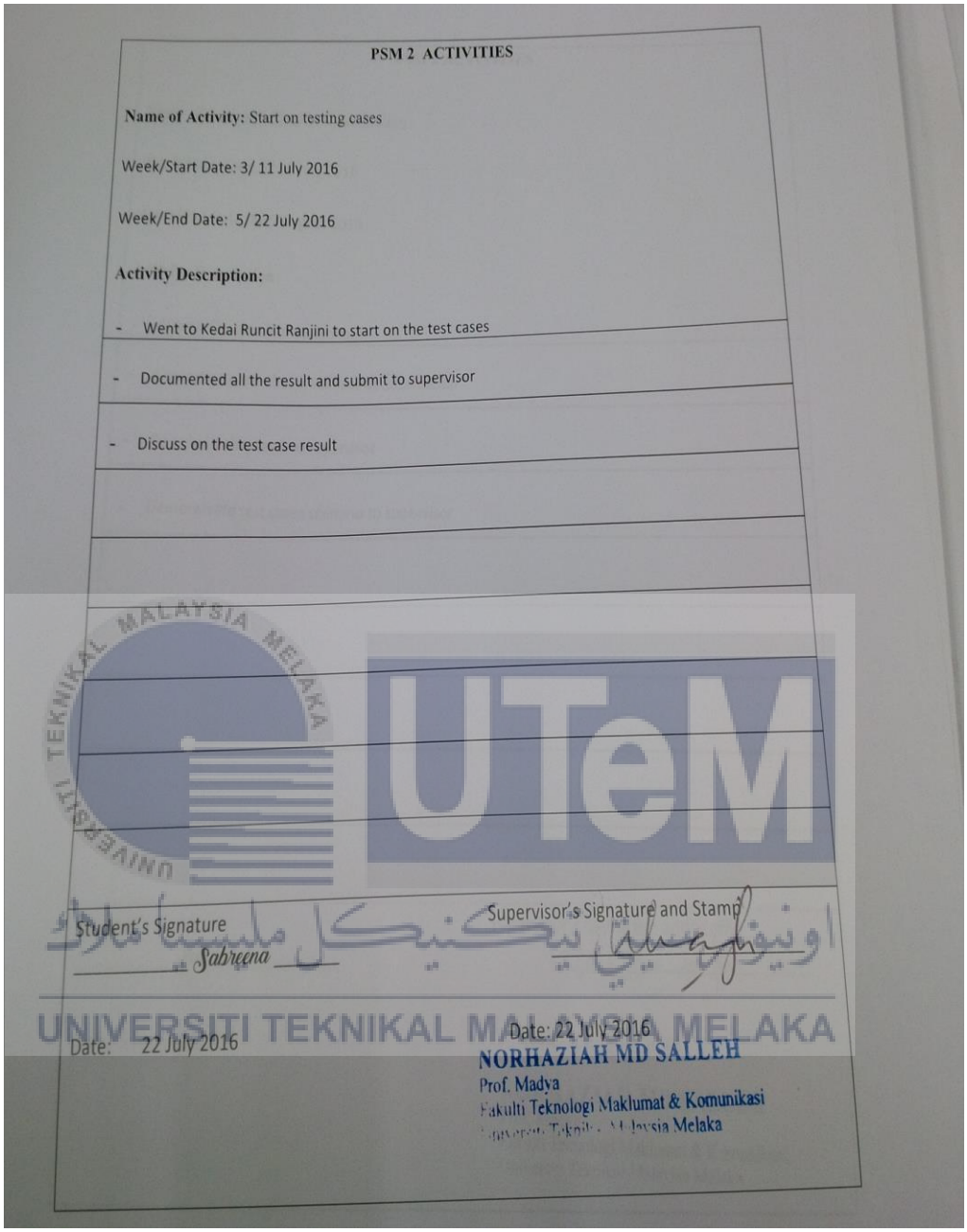

PSM 2 ACTIVITIES

Name of Activity: Start on testing cases

Week/Start Date: 3/ 11 July 2016

Week/End Date: 5/ 22 July 2016

Activity Description:

- Went to Kedai Runcit Ranjini to start on the test cases
- Documented all the result and submit to supervisor
- Discuss on the test case result

Student's Signature

Sabreena

Date: 22 July 2016

Supervisor's Signature and Stamp

Date: 22 July 2016

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PSM 2 ACTIVITIES

Name of Activity: Chapter 6 submission

Week/Start Date: 5/ 23 July 2016

Week/End Date: 6/ 5 August 2016

Activity Description:

- Submit Chapter 6 to supervisor
- Correct on parts that is still lack of information
- Re-submit chapter 6 to supervisor
- Demonstrate test cases scenario to supervisor

Student's Signature

Sabreena

Date: 5 August 2016

Supervisor's Signature and Stamp

Date: 5 August 2016

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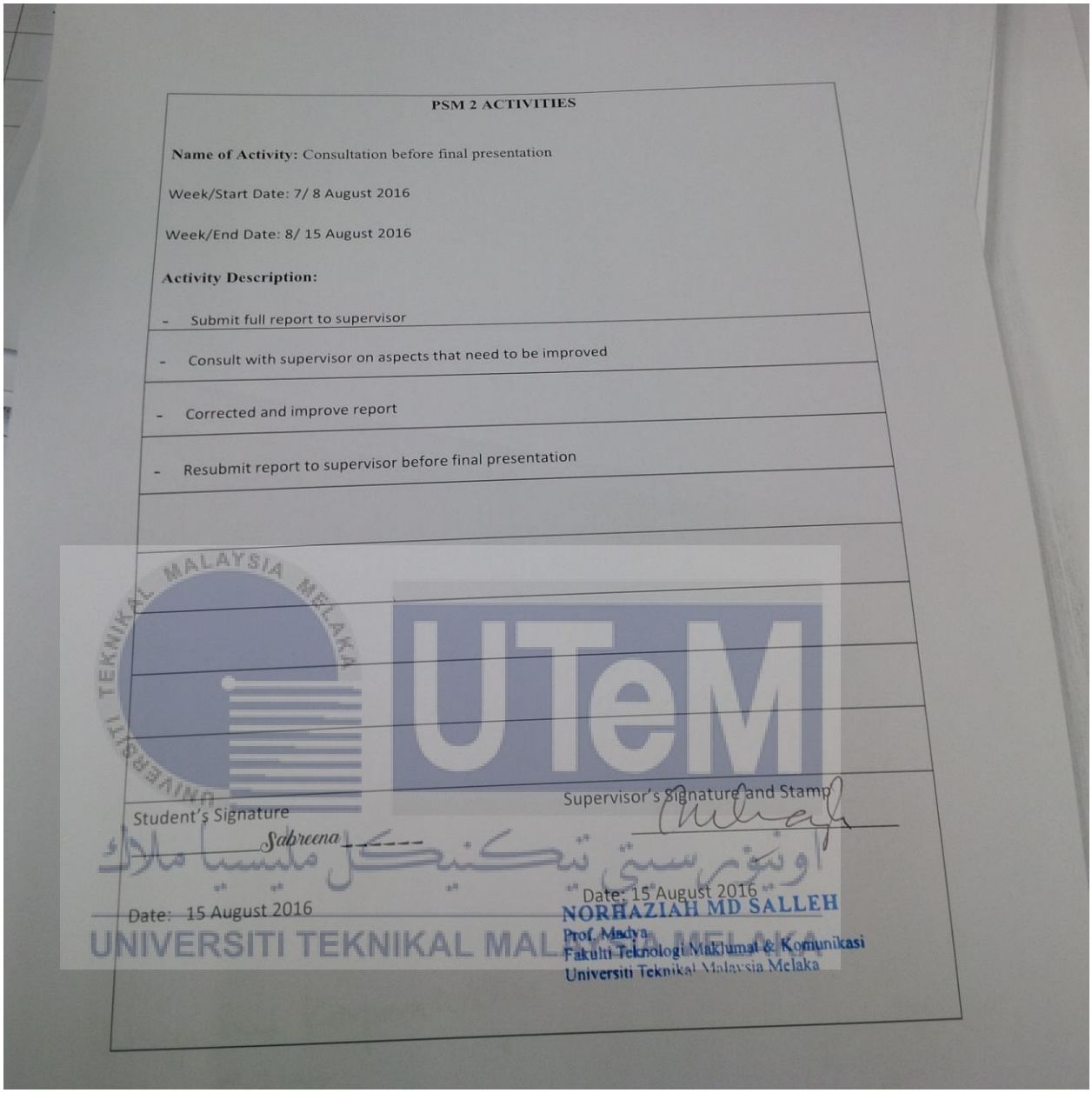

PSM 2 ACTIVITIES

Name of Activity: Consultation before final presentation

Week/Start Date: 7/ 8 August 2016

Week/End Date: 8/ 15 August 2016

Activity Description:

- Submit full report to supervisor
- Consult with supervisor on aspects that need to be improved
- Corrected and improve report
- Resubmit report to supervisor before final presentation

Student's Signature

Sabreena

Date: 15 August 2016

Supervisor's Signature and Stamp

Date: 15 August 2016

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