ADDURA ONLINE ORDERING SYSTEM

NIK IFFAH NABILAH BINTI NIK HUSSIN

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

BORANG PENGESAHAN STATUS TESIS

JUDUL: ADDURA ONLINE ORDERING SYSTEM

SESI PENGAJIAN: SESI 2015/2016

Saya NIK IFFAH NABILAH BINTI NIK HUSSIN mengaku membenarkan tesis (PSM/Sarjana/Doktor Falsafah) ini disimpan di Perpustakaan Fatulti Teknologi Maklumat dan Komunikasi dengan syarat-syarat kegunaan seperti berikut:

1. Tesis dan projek adalah hakmilik Universiti Teknikal Malaysia Melaka.
2. Perpustakaan Fakulti Teknologi Maklumat dan Komunikasi dibenarkan membuat salinan untuk tujuan pengajian sahaja.
3. Perpustakaan Fakulti Teknologi Maklumat dan Komunikasi dibenarkan membuat salinan tesis ini sebagai bahan pertukaran antara institusi pengajian tinggi.
4. ** Sila tandakan (/)

_____	SULIT	(Mengandungi maklumat yang berdarjah keselamatan atau kepentingan Malaysia seperti yang termaktub di dalam AKTA RAHSIA RASMI 1972)
_____	TERHAD	(Mengandungi maklumat TERHAD yang telah ditentukan oleh organisasi/badan di mana penyelidikan dijalankan)
___/___	TIDAK TERHAD	

_____
(TANDATANGAN PENULIS)

Alamat tetap: No.46, Jalan Jaya 13,
Rini Heights, 81300 Skudai,
Johor Bahru, Johor.

Tarikh: 29 AUGUST 2016

_____
(TANDATANGAN PENYELIA)
ROSLEEN BINTI ABDUL SAMAD

Tarikh: 29/8/2016

CATATAN: * Tesis dimaksudkan sebagai Laporan Akhir Projek Sarjana Muda (PSM)
** Jika tesis ini SULIT atau TERHAD, sila lampirkan surat daripada pihak berkuasa.

ADDURA ONLINE ORDERING SYSTEM

NIK IFFAH NABILAH BINTI NIK HUSSIN

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

FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

2016

DECLARATION

I hereby declare that this project report entitled

ADDURA ONLINE ORDERING SYSTEM

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

STUDENT : _____ Date : 29 AUGUST 2016

(NIK IFFAH NABILAH BINTI NIK HUSSIN)

I hereby declare that I have read this project report and found this project report is sufficient in term of the scope and quality for the award of Bachelor of Computer Science (Database Management) With Honours.

SUPERVISOR : _____ Date : 29/8/2016

(PN. ROSLEEN BINTI ABD SAMAD)

DEDICATION

To my parent, En. Nik Hussin Bin Mat and Pn. Nooriani Binti Ahmad,

To my beloved supervisor, Pn Rosleen Binti Abd Samad,

And to the fellowship friends of BITD, who gives co-operation and knowledge sharing in completing this project.

Thank you so much.

ACKNOWLEDGEMENT

Grateful to Allah S.W.T with His gift of His grace, I can also complete this final project of Addura Online Ordering System successfully without any problems.

I would like to thanks Pn Rosleen Binti Abd Samad for assist me throughout my study to complete this project successfully.

I would like to thanks my beloved parents and friends who have been supportive and help me throughout my final year project.

Thank You.

ABSTRACT

This project is known as Addura Online Ordering System. This system is specifically design to assist the order and product management in Addura Cosmetic & Spa located in Bandar Baru Uda, Johor Bahru, Johor. The problem for their current system is they record all the product details in a log book and order details from customer in a receipt that written manually. This system allow customer to make order of the product and allow the staff to manage their products information. Methodology used for this system is Database Life Cycle (DBLC). To develop this system, the software used are Adobe Dreamweaver CS5, Notepad++, Oracle 11g Enterprise, Microsoft Word 2013 and Microsoft Visio 2010. For hardware used to develop this system are personal computer, Intel Pentium 2.30GHz, 6.0GB random access memory and 64-bit operating system.

ABSTRAK

Projek ini dikenali sebagai *Addura Online Ordering System*. Sistem ini dibangunkan khas bagi memudahkan pengurusan pesanan bagi Addura Kosmetik & Spa yang terletak di Bandar Baru Uda, Johor Bahru, Johor. Permasalahan sistem semasa ialah mereka merekodkan semua butiran produk di dalam buku log dan butir-butir pesanan daripada pelanggan dalam satu resit yang ditulis secara manual. Sistem ini membolehkan pelanggan untuk membuat pesanan produk dan membolehkan kakitangan untuk menguruskan maklumat produk. Kaedah yang digunakan untuk sistem ini adalah *Database Life Cycle (DBLC).* Untuk membangunkan sistem ini, perisian yang digunakan adalah Adobe Dreamweaver CS5, Notepad ++, Oracle 11g Enterprise, Microsoft Word 2013 dan Microsoft Visio 2010. Bagi perkakasan yang digunakan untuk membangunkan sistem ini adalah komputer peribadi, Intel Pentium 2.30GHz, 6.0GB memori capaian rawak dan sistem operasi 64-bit.

TABLE OF CONTENTS

CHAPTER II PROJECT METHODOLOGY AND PLANNING

CHAPTER III ANALYSIS

CHAPTER IV DESIGN

CHAPTER V IMPLEMENTATION

CHAPTER V I TESTING

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

DBMS	-	**Database Management System**
DBLC	-	**Database Life Cycle**
DFD	-	**Data Flow Diagram**
ERD	-	**Entity Relationship Diagram**
GUI	-	**Graphic User Interface**
PHP	-	**Hypertext Preprocessor**
RAM	-	**Random Access Memory**
UTeM	-	**Universiti Teknikal Malaysia Melaka**

LIST OF ATTACHMENTS

CHAPTER I

INTRODUCTION

1.1 Project Background

This system is developed to facilitate the customer to make order of the product systematically and quickly. It is used by the customer to make an order for each product.

Prior to this, they are using manually log books and only paper to record customer order. Implementation of this system provides easy to use and reliable for system to generate the receipt that display the total price of the product. Besides, the system can record the customer details and store the staff personal details information. In addition, this system also can calculate the total price of the product purchase.

Otherwise, from this inventory system, the stock item can easy calculate and more systematically. In addition, when using the manual as a log book it is a waste of time employing. Furthermore, it is not systematic and well-kept because data loss. Conventionally, currently the staff still using manual method in process the product list and recorded customer data which is by using papers as the references for staff and employer. Other than that, this system make for inventory which is item registration, or new item recorded. Otherwise, it might be easier to staff to calculate the stock and profit of this product by monthly and yearly. This system is well organized and all data is stored in database to prevent data loss. All the details that entered by the users will be stored in Oracle database.

1.2 Problem statement(s)

i. **The product does not systematically being record in the system.**
For example, they record all the product order from customer and keep it in files. By using the previous system, the staff did not know the exact time to restock all the product order from suppliers thus it will causes the staff will have difficulties to view current product order and list of product in the stock.

ii. **Difficult to calculate the total price of product bought by customer.**
If the calculating of the total price of the product calculated manually, the mistake will occur.

iii. **Has a problem to calculate the total stock of each product.**
This will be very difficult for management to make a decision on determining product stock.

1.3 Objective

i. To provide complete information about the product details.
ii. To be display the exact total price of product purchase by customer.
iii. To accurately display the total stock in hand for each product.

1.4 Scope

The scope consists of user scope and system scope.

1.4.1 User scope

The user scope involves staff and clients.

1.4.1.1 Staff

The person which is responsible for product management, inventory management and order management.

- Sign in and sign out to the system.
- View list of order.
- Search order.
- Update and archived order records.
- Manage the product information (cost, quantity, type) purchase by the customer.
- Restock the product.

1.4.1.2 Clients

- Sign in and sign out to the system.
- Buy online product.
- View the list of product details provided.

1.4.2 System scope

The system scope consists of staff management, customer management, inventory management, product management, order management, payment, receipt and delivery status.

1.4.2.1 Staff Management

- This module provides information of the staff. System able to insert, update, delete and view staff information.

1.4.2.2 Customer Management

- This module provides convenience in managing customer details. Staff can add customer into the list one by one or customer can insert their own information by online. Customer data will be archived when the customer has exceed the time limit. Overall, this module provides staff with a lot of alternative in altering customer data.

1.4.2.3 Inventory Management

- The system able to check the stock remaining of product quantity for each item. The lowest limit of amount of product need to be purchase from the supplier if the quantity is low.
- Admin need to update the newly added quantity of the product.

1.4.2.4 Product Management

- The system will be able to insert, update and delete the information of the product.
- The system will be able to allow customer to view the list of the product.

1.4.2.5 Order Management

- Let the customer add and update new order for many different product through online purchase. Hence, staff is able to view customer order and customer details.
- Automatically calculate the total price of the customer order.
- Staff can update the order status once they receive the payment.
- Customer can check the order status whether successful or not.

1.4.2.6 Payment

- Provide checking on the order status whether the payment successful or not. Payment can be made through online banking or self-service banking.

1.4.2.7 Receipt

- The system able to generate receipt that display the total price of the product.

1.4.2.8 Delivery Status

- Admin need to update customer tracking number after they received customer payment.
- Customer can check their tracking number in the webpage after 24 hours of their payment.

1.5 Project Significance

This online system will help the users to make the order of the product faster and easier. User can order product at anytime and anywhere from their place using internet browser. The system provides a user-friendly interface to help the retrieval and management of the product information easily. This is achieved through the configuration of the system with a database that has allowed the system to be able to store a very large record efficiently and effectively. The system ensures all the data are stored safely and ready to be displayed accordingly. As a result, this enables staff of Addura Cosmetics to save a lot of time and energy to be spend on other meaningful works.

In addition, Addura Online Ordering System ensures all the documents generated such as list of product, order details and receipt will be follow the Addura Cosmetics rules. Thus, the detail of documentation generated will be relevant in accordance with the requirements.

1.6 Expected output

The anticipated outcomes from Addura Online Ordering System are :

i. New computerized system to replace the manual order process.
ii. Order monitoring and altering for staff to keep track on customer's order for all the product.
iii. Accurate counting and calculation based on customer's respective order.

1.7 Conclusion

Chapter I analyze the introduction of the project named Addura Online Ordering System. Addura Online Ordering System generally is a system that implemented to transform Addura Cosmetics manual order process into a new and advance system. Introduction to the project is a good starting point for the need to coordinate the work effectively.

Chapter II will discuss how the project is plan and what methodology will be used to attain the aims as stated in this chapter.

CHAPTER II

PROJECT METHODOLOGY AND PLANNING

2.1 Introduction

Database Life Cycle (DBLC) will be applied for the development of Addura Online Ordering System. DBLC contains six phases. First, initial study phase is to analyze company situation, define problems and constraints, define objectives and define scope. Second, database design phase to makes sure final product meets requirements, create conceptual design, logical design and physical design and the selection of DBMS. The next phase is implementation and loading which is installing the DBMS, use data definition language to create database schemes and load or convert the data. The next phase is operation which is producing the required information flow. The last phase is maintenance and evaluation which will carry out with introducing the changes and make the enhancement. This system will be developing using PHP as scripting language for a web development, Oracle 11g as a database server, and Dreamweaver for creation of website and application.

2.2 Project Methodology

According to Russell Kay (n.d), System Development Life Cycle (SDLC) is the overall process of developing information systems through a multi-step process from investigation of initial requirements through analysis, design, implementation and maintenance. There are many different models and methodologies, but each generally consists of a series of defined steps or stages. As a specific type of information system, Database Design can be modeled using a similar SDLC type approach, sometimes referred to as DBLC or the Database Development Life Cycle. As in the SDLC approach, DBLC consists of several iterative steps (which vary slightly depending on the model used). However, the overall approach is the same : A top down approach to designing a database. The methodology used to develop Addura Online Ordering System is Database Life Cycle (DBLC). This methodology that moves accurately starting with one stage then into the next stages. The following are the stages included :

2.2.1 Initial Study

For the initial study phase the process is to analyze company situation, identify problems and constraint, define the objective and define scope and boundaries. This process is very important stage because before develop the system, developer must getting the requirement from user through interview. Developer also need to know the objective and scope based on requirement get from the client. Retrieved (n.d) from https://wikis.engrade.com/databaselifecycledblc/dbase-initial-study. To complete this phase, interview has been done to owner of Addura Cosmetic & Spa, Bandar Baru Uda, Johor Bahru. In the interview, many useful information gain which data used for design and implementation.

2.2.2 Database Design

According to Nguyen Kim Anh (n.d), database design stage is focusing on the DBMS software selection, conceptual design, logical design and physical design. In the conceptual design stage, data modelling is used to create an abstract database structure that represents real-world objects of the most realistic way possible. The conceptual model must embody a clear understanding of the project and its functional areas. In this stage also describe about DBMS software selection and type of software will be used to develop the system. Further, the physical design is representing of a system showing the system internal and external entities, and the flow data onto out of these entities. Then, designers must focus on information needs such as what the existing system can do and what the proposed system to be can be done. It is better than existing system. In addition, logical design is to abstract representation of the data flow, inputs and output of this system for example Entity Relational Diagram Model (ERD).

2.2.3 Implementation and Loading

According to Aaron (2011, March 04), implementation and loading are on third stage in DBLC. After DBMS are selected then should be implementing with installing the DBMS. Developer can create database and the data must be loaded into the database tables. The information will be loaded to make tables and characterized the relationship furthermore associate the database with the selected language. After the database has been created, the data must be loaded into the database tables. This phase of the DBLC also requires that the database performances evaluated security standards set up, backup and recovery procedures put in place, data integrity enforcement. Data may have to be imported from other relational databases, non-relational databases, flat files, legacy systems, or even manual paper.

2.2.4 Testing and Evaluation

According to Aaron (2011, March 04), testing and evaluations. This phase requires that the database is tested again for performance. Testing also requires that the administrator also test integrity, security and multi-user load. Testing and performance tuning occurs in parallel with the testing and performance tuning of the application programs. Sometimes, the performance degradation of the database is due to the inefficient code in the application program. After the testing and evaluation stage, it can go through the operational stage. This stage include every one of the clients in Addura Online Ordering System that will utilize the framework. This stage also include the environmental factor, such as hardware and hardware environment in which the database exits, can have a significant impact on database performance.

2.2.5 Operation

At this stage, the database is considered to be operational and the database, its management, its users, and the application programs constitute a complete information system. During the operational phase, the database is accessed by the users and application programs, new data is added, the existing data is modified and some obsolete data is deleted. Retrieved (2016, 23 February) from http://www.myreadingroom.co.in/notes-and-studymaterial/65-dbms/506-database-development-life-cycle.html

2.2.6 Maintenance and Evaluation

According to Aaron (2011, March 04), Maintenance and evolution is the last stage in the methodology and it also life time stage. The system developer will perform routine maintenance to the Addura Online Ordering System some of the required periodic maintenance activities included such as following :-

- Database backup and recovery
- Performance tuning
- Database design modifications
- Database access management
- Database audits (access audits, usage audits, security audits, etc.)
- Hardware maintenance
- DBMS Software upgradation.

2.3 Project Schedule and Milestone

Table 2.1 Project Schedule and Milestone

Date	Activity
22 Feb- 4 Mar	**Initial study (chapter 1)** - Business rules - Identify problems and constraints - Define objective - Define scope and boundaries - Write document
7-13 Mar	**Database Design (Chapter 2)** - Create conceptual design - DBMS software selection - Create the logical Design - Create the physical design
14 Mar – 25 April	**Implementation and Loading (chapter 3)** - Install the DBMS - Create the database - Load and convert the data - Project Demo & Chapter 3

26 April- 23 May	**Testing and evaluation (chapter 4)** - Test the database - Fine-tune the database - Evaluate the database and its application - Project Demo & Chapter 4 - Project Demo & Psm report
24 May – 27 May	**Operation (Chapter 5)** - Produce the require information flow
28 May- 3 Jun	**Maintenance and Evaluation (Chapter 6)** - Introduce the chance - Make enhancement - Backup and recovery - Final presentation

2.3.1 Gantt Chart

Refer Appendix A : Figure 2.1 : Gantt Chart Activity.

2.4 Conclusion

This chapter is discussing how the project is planning and what the suitable methodology will be used. Each developer should decide on a lifecycle model which is appropriate for the project process.

Chapter III will focus on identifying the problems of the system, the technical feasibility and implementation.

CHAPTER III

ANALYSIS

3.1 Introduction

System analysis will mostly focus on identifying the problems of the system, the technical practicability and implementation. Design and analysis of the system is the most important phase to develop the best system in order to meet the needs of clients.

The process of this analysis, Entity Relationship Diagram (ERD), Data Flow Diagram (DFD) and Flow Chart is created. The number of table in the database information system will be determined.

3.2 Problem Analysis

Addura Online Ordering System is an ordering system for customer to make order for Addura Cosmetic product. There is arise some problems where the management of sales and orders that cannot be avoided. Among the problems was record all the entry and sale of products manually using log book that are less effective and technical errors when orders and sales often happens the effect of a less systematic and system access. Here is the flow how this old system work on make an order for purchase product process :

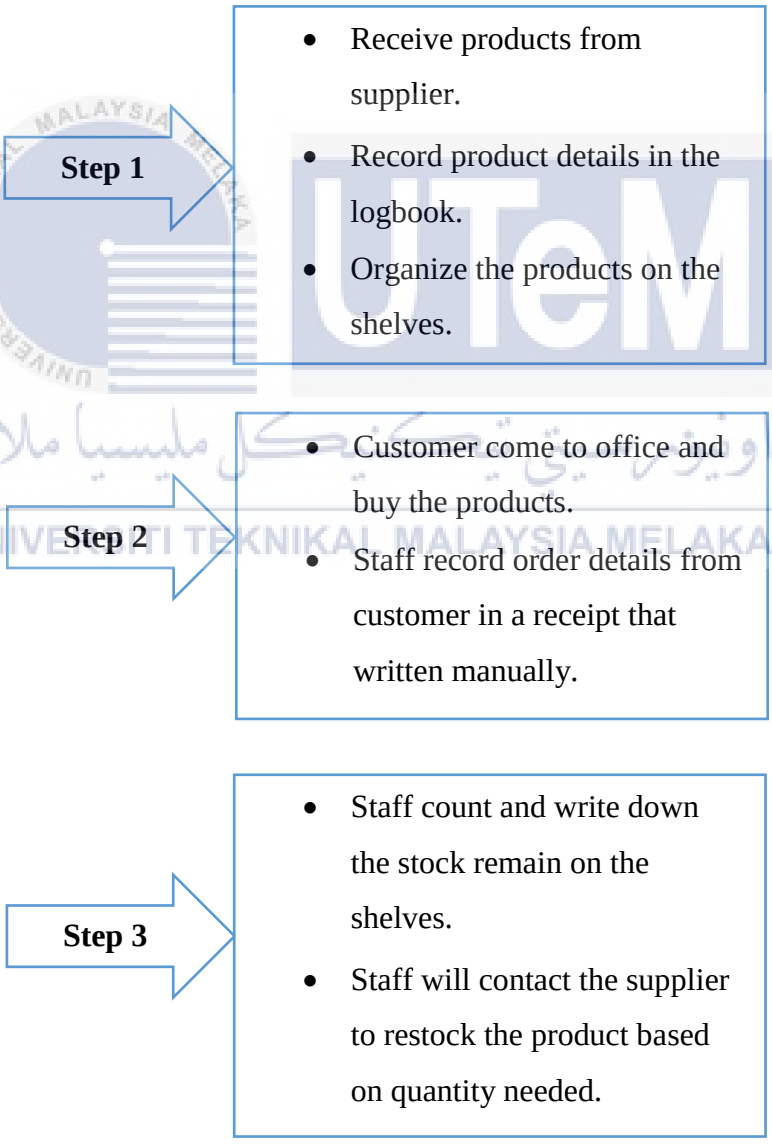


Figure 3.1: Flow of Business for Staff

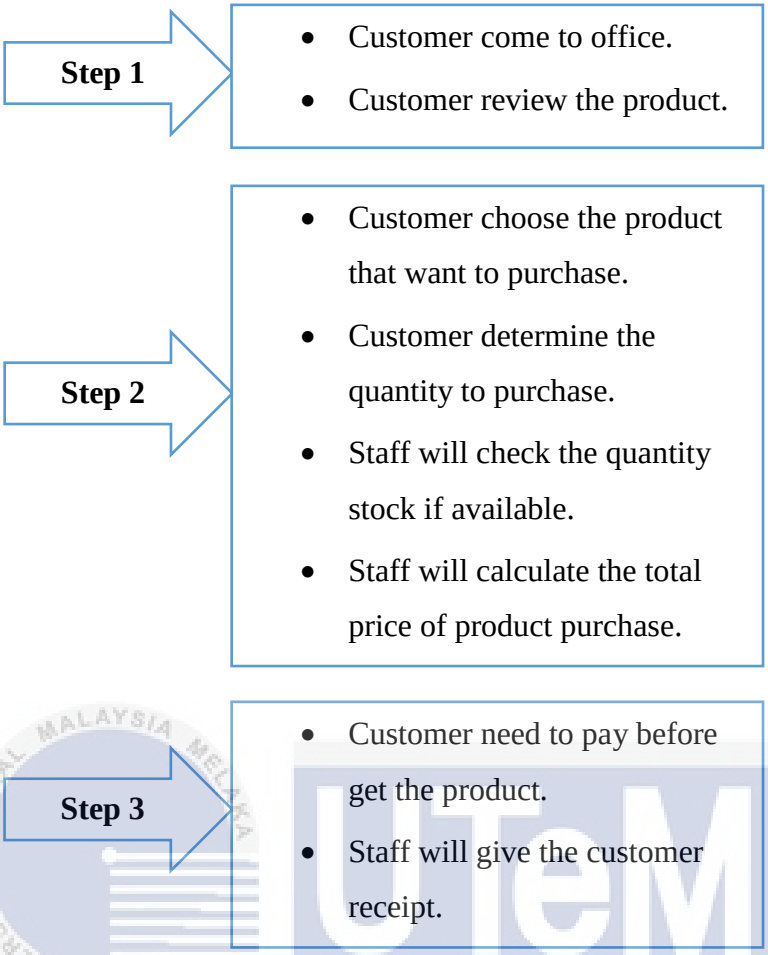


Figure 3.2 : Flow of Business for Customer

3.3 The Proposed Improvements/Solutions

This section illustrates the Flow Chart and Data Flow Diagram (DFD) for the system developed. The flow chart in Figure 3.3 until Figure 3.6 shows the customer and the staff activities regarding the system.

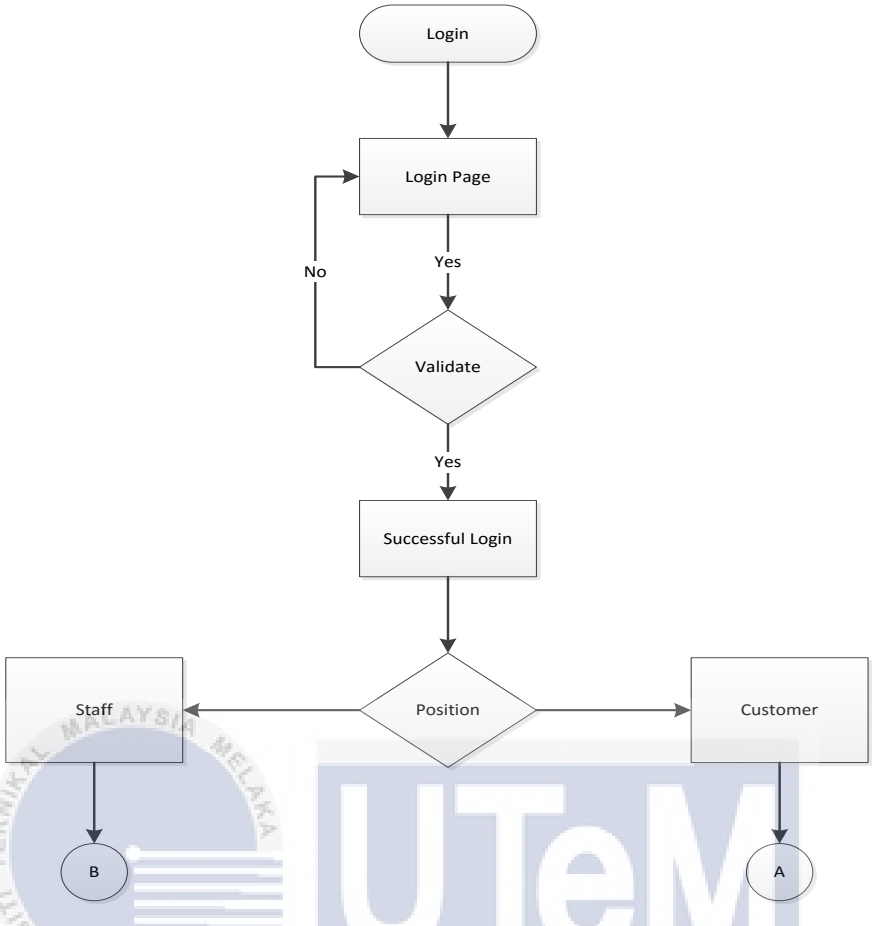


Figure 3.3 : Flow Chart for Login Activities

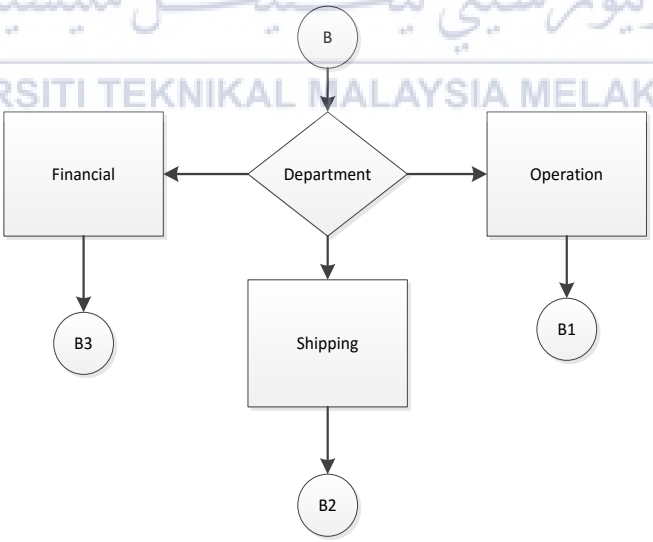


Figure 3.4 : Flow Chart for Staff

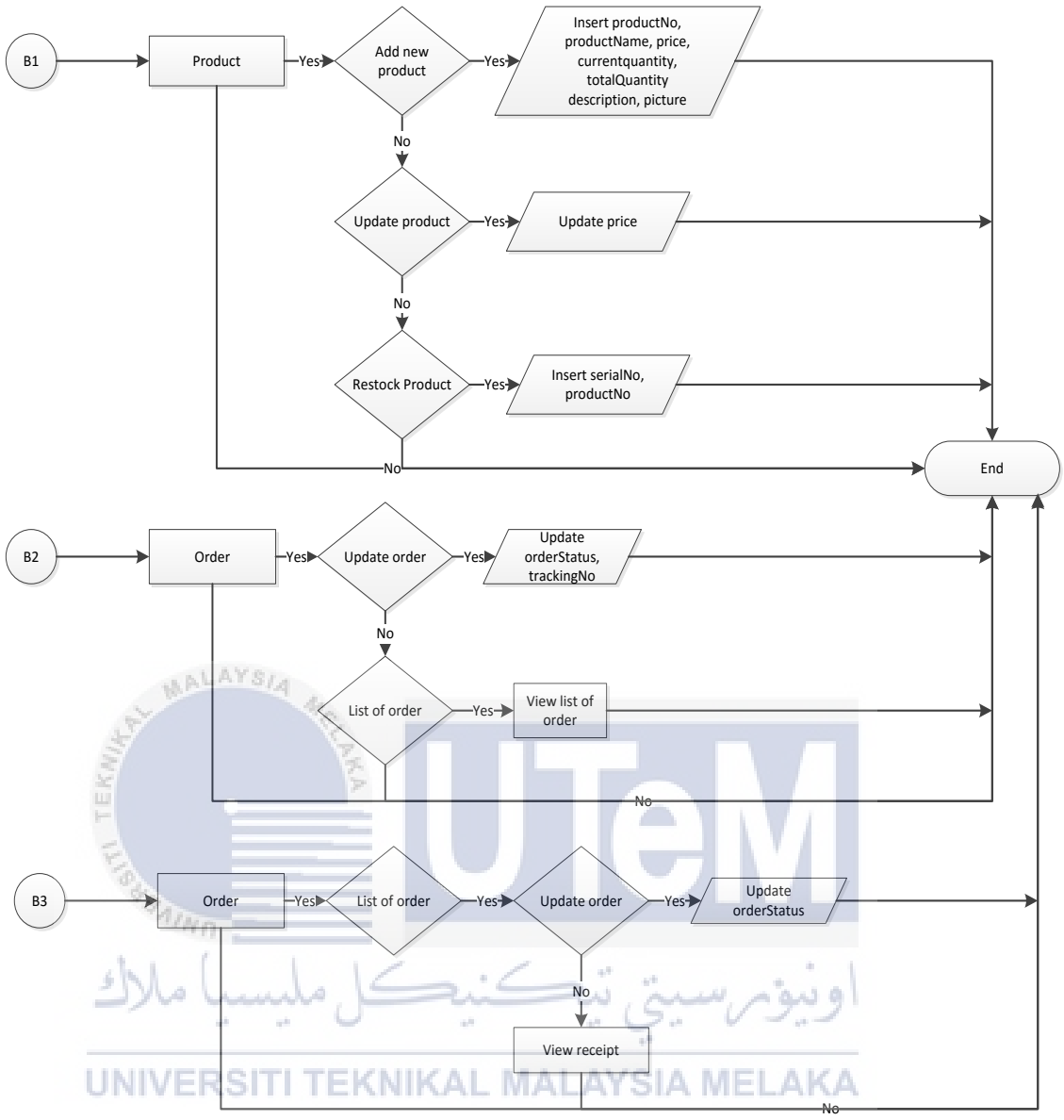


Figure 3.5 : Flow Chart for Staff Activities

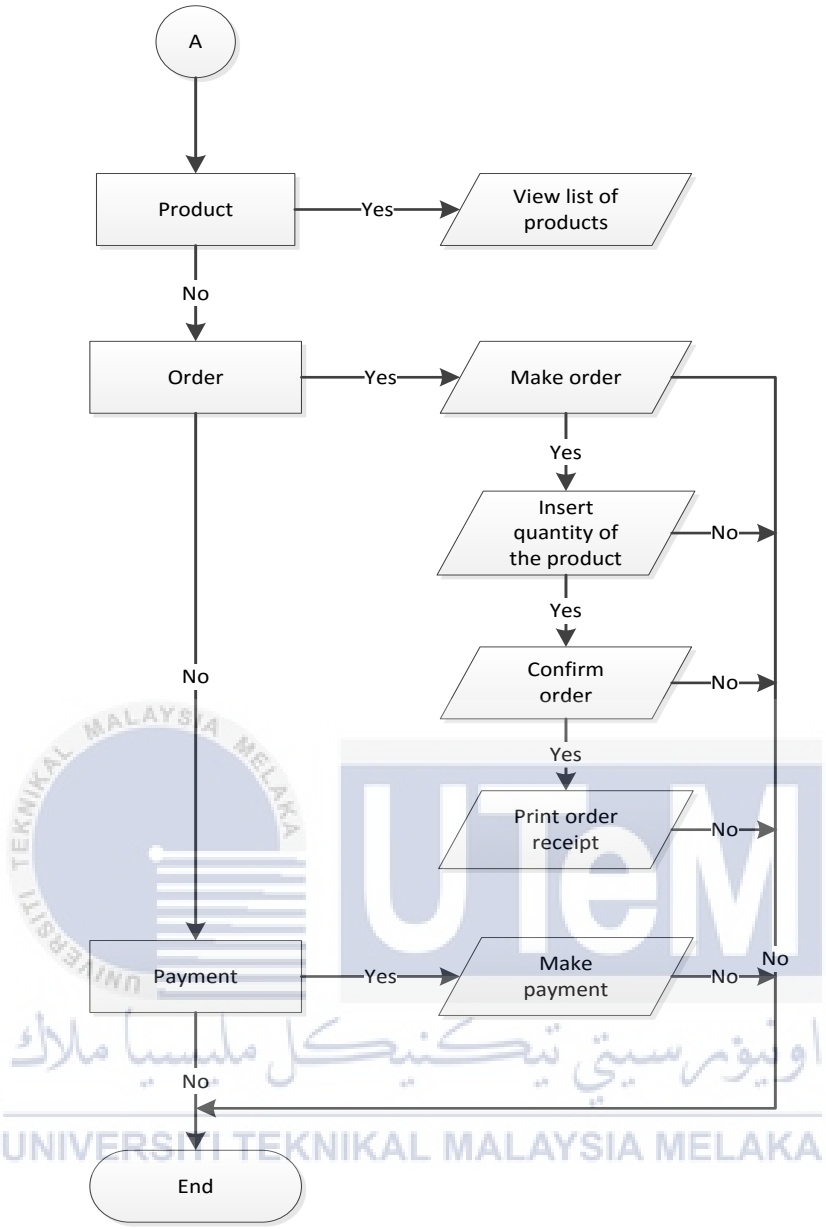


Figure 3.6 : Flow Chart for Customer Activities

3.4 Requirement analysis of the to-be system

In this section, requirement are divide by two category which are functional requirement and non-functional requirement.

3.4.1 Functional Requirement (Process Model)

The functional requirement is relates to the system's functionality. The functional requirement was divided into function of the system and Data Flow Diagram.

3.4.1.1 Function of the System

Table 3.1: Functional Requirement

FR_No	Requirement	Description
1	Authenticate User	- The system is able to login and logout through the system. - The system is able to verify and validate the username and password.
2	Product Management	- The system is able to add the latest new product information. - The system is able to update the existing product information. - The system is able to delete the product that are not offered anymore. - The system is able to add quantity stock to product.
3	Customer Management	- The system is able to add the new client registration. - The system is able to update the existing client information. - The system is able to view the client details. - The system is able to calculate total price that have been ordered by each client.

4	Order Management	- The system is able to add the new order. - The system is able to calculate the total price based on quantity and product price. - The system is able to delete the order that are not confirm. - The system is able to view the order details. - The system is able to calculate and update the current quantity based on total order.
5	Payment Management	- The system is able to add the new payment information. - The system is able to made payment by two category which are cash deposit and online banking. - The system is able to select payment type. - The system is able to view the payment details.
6	Reporting	- The system is able to generate multiple report - The system is able to generate specific report duration by month or year. - The system is able to print the report details.

3.4.1.2 Data Flow Diagram (DFD) for the Proposed System

A Data Flow Diagram (DFD) is the "flow" of information through a data, demonstrating its process. A DFD is utilized as a preparatory step to make a review of the system. So context diagram, level 0, and level 1 of the DFD have been illustrate from Figure 3.7 until Figure 3.12.

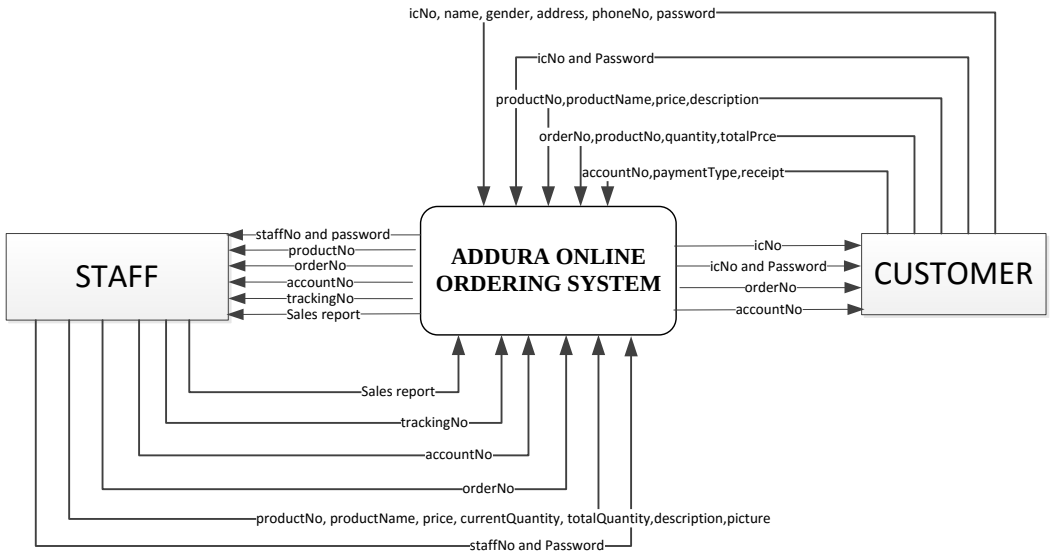


Figure 3.7 : Context Diagram for Addura Online Ordering System

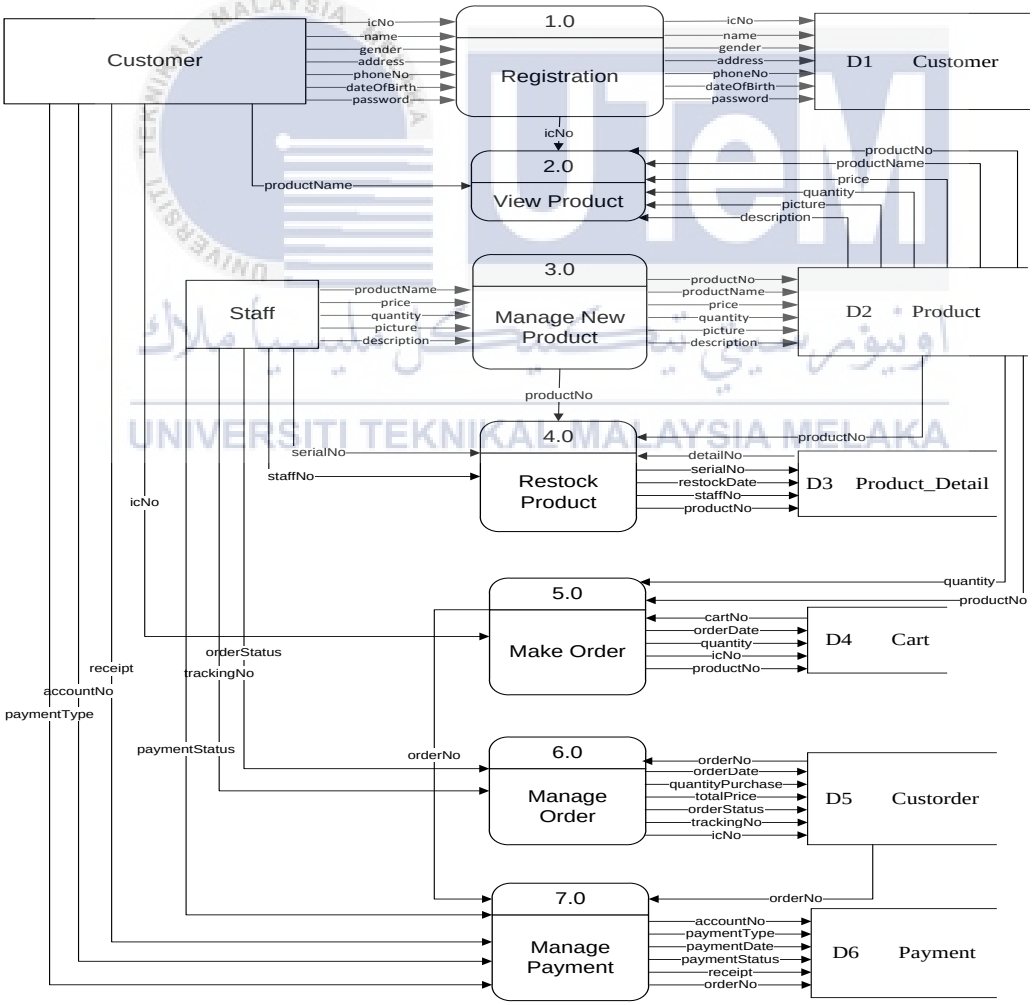


Figure 3.8 : DFD Level 0 for Addura Online Ordering System

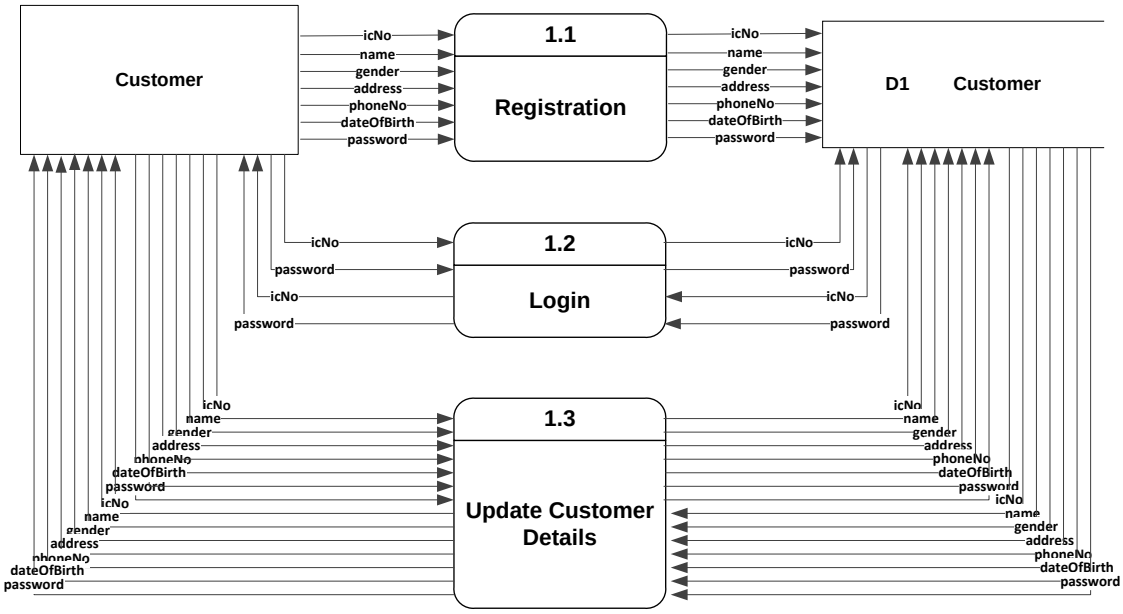


Figure 3.9 : DFD Level 1 for Process 1.0 Registration

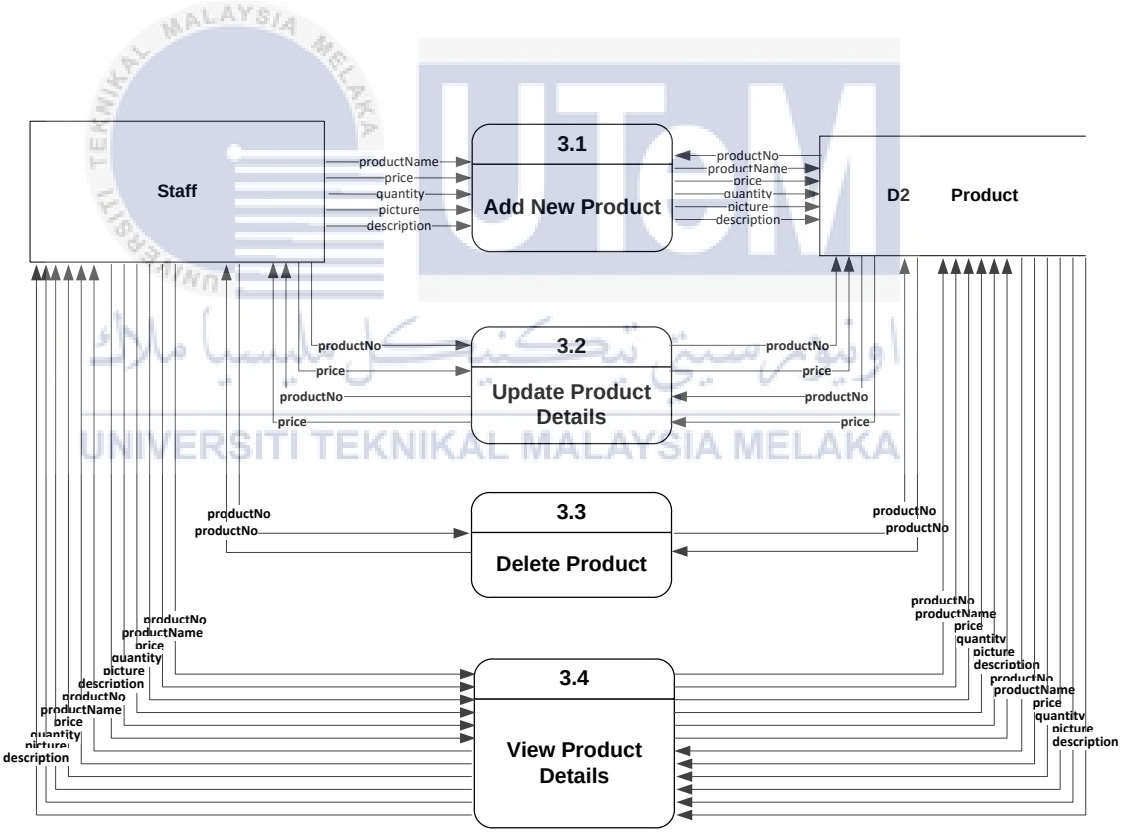


Figure 3.10 : DFD Level 1 for Process 3.0 Manage New Product.

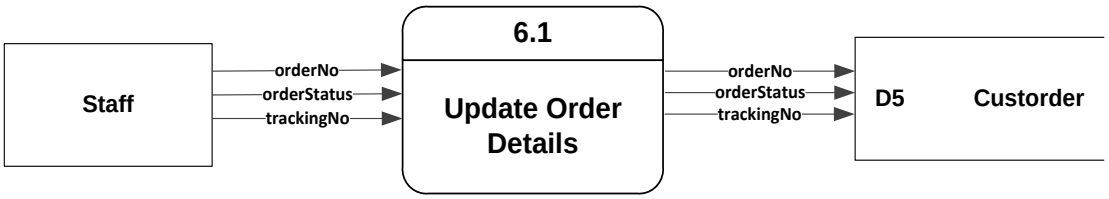


Figure 3.11 : DFD Level 1 for Process 6.0 Manage Order.

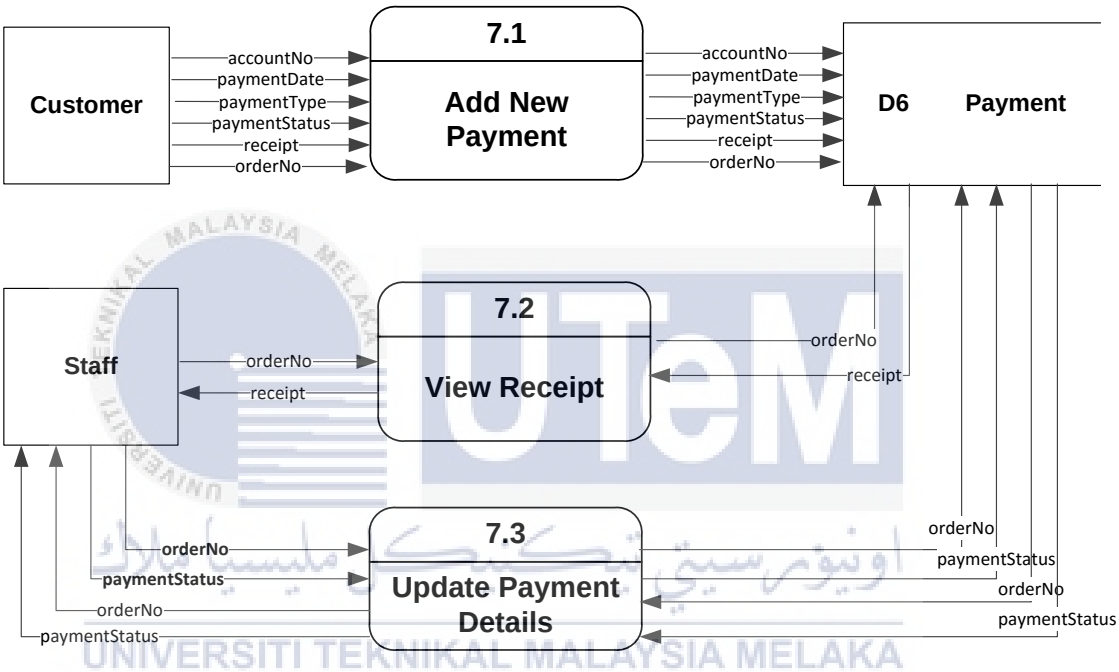


Figure 3.12 : DFD Level 1 for Process 7.0 Manage Payment.

3.4.2 Non-Functional Requirement

A non-functional requirement is a requirement that specifies criteria that can be used to judge the operation of a system. Table 3.2 show the non-functional requirement.

Table 3.2: Non-Functional Requirement

NFR_No	Requirement	Description
1	Response Time	- Time taken to receive information. - Response time is below than 10 second.
2	Audit and Control	- Record any changes the data of clients for the purpose of audit as well as the date, time, and the operation is performed
3	Usability	- This system are easy to use because the system have familiar interface transaction system and the flow are simple step by step.
4	Safety	- Not causing harm, injury or damage to users.
5	Integrity	- Preserving data contents and structures, especially when failures occur.
6	Efficiency	- Taking minimal time, effort, resources or cost to create, or operating a solution.
7	Database	- Structure, efficiency and integrity of stored data.
8	Correctness	- Doing calculations with exact and correct based on a predetermined formula.

3.4.3 Others Requirement

Describe confirmation of usage for software, hardware and network requirements that will be used in this development.

3.4.3.1 Software Requirement

This entire software is divided into two which is for client and server software requirements. Table 3.3 shows the software requirement for the server and the client.

Table 3.3 : Software Requirement for the Server and the Client.

Software Requirement	
Server	Client
• Adobe Dreamweaver CS5 • Wamp Server 2.5 • Microsoft Office Visio 2010 • Microsoft Office Word 2010 • Microsoft Office Power Point 2010 • Notepad++ • Google Chrome • Microsoft Windows 10 Pro	• Microsoft Window Operating System • Google Chrome

3.4.3.2 Hardware Requirements

The hardware requirements for the server and the client are shown in Table 3.4.

Table 3.4 : Hardware Requirement for the Server and the Client.

Hardware Requirement	
Server	Client
• Personal Computer. • Hard disk minimum 100 GB free disk space. • Random Access Memory (RAM) minimum memory required is 2 GB. • Printer.	• Personal Computer. • Hard disk minimum 300 MB free disk space. • Random Access Memory (RAM) minimum memory required is 512 MB. • Printer.

3.4.3.3 Others Requirement

i) Google Chrome

ii) Internet access

3.5 Conclusion

As conclusion, analysis covers all function including the data requirement, software and hardware requirement, and activity diagram of the system. The collections of the requirement are defined to implement the project successfully. The software requirement that is important for developing this project consists of the project development using Oracle 11g.

Chapter IV will discuss about design of the project.

CHAPTER IV

DESIGN

4.1 Introduction

Database Design is the procedure of delivering a point by point information model of a database. There are several techniques used for describing the system design of the system. These techniques are shown by using Entity Relationship Diagram (ERD), business rules, data dictionary and normalization, selection of Database Management System (DBMS), and the Graphical User Interface (GUI).

4.2 System Architecture Design

The two-tier architecture consists of two-tiers which are client computers and database servers. Figure 4.1 demonstrate two-tier architecture.

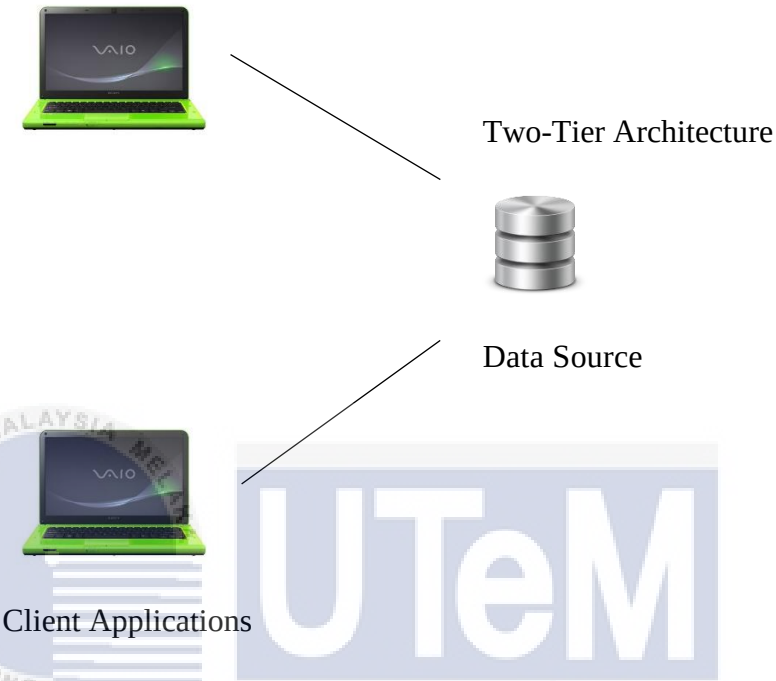


Figure 4.1 : Two-Tier Architecture

4.3 Database Design

4.3.1 Conceptual Database Design

This section consist of two subsection which are Entity Relationship Diagram (ERD) and business rules. Entity Relationship Diagram (ERD) is a used to describe the data and information that to be stored in the database.

4.3.1.1 Entity Relationship Diagram (ERD)

Figure 4.2 show the Entity Relationship Diagram for Addura Online Ordering System.

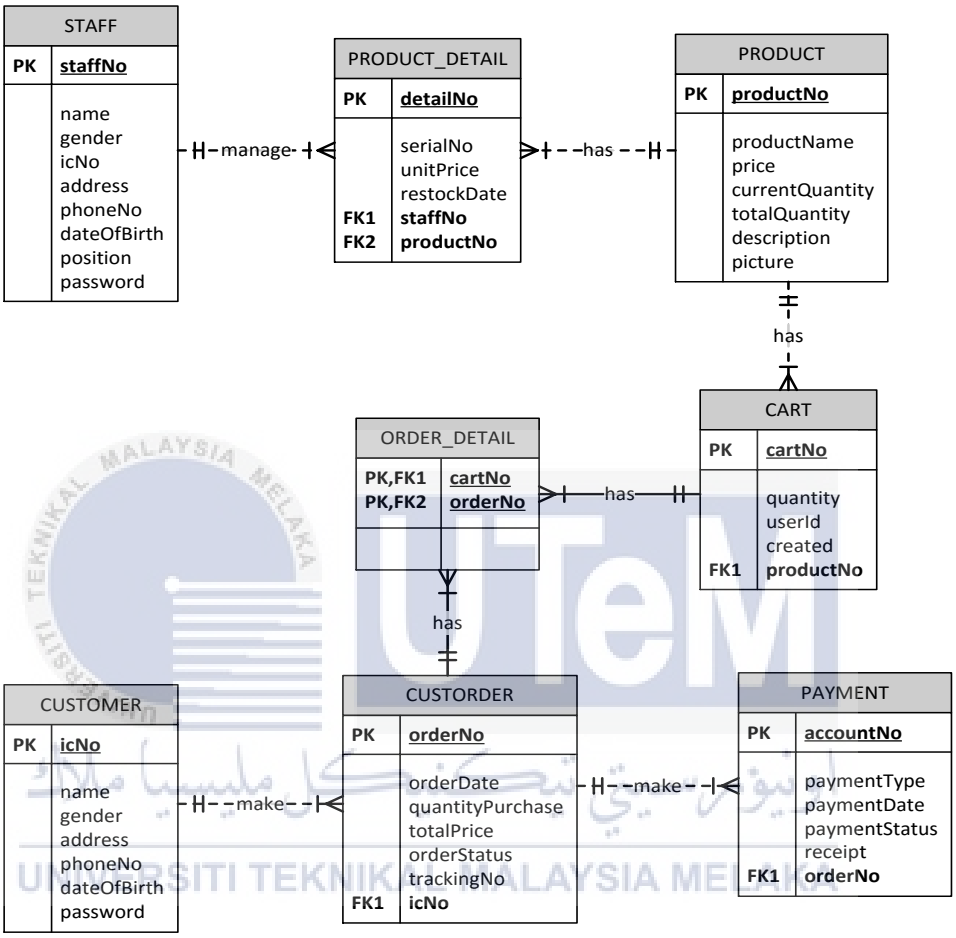


Figure 4.2 : ERD for Addura Online Ordering System.

4.3.1.2 Business Rule

Table 4.1 are business rules of Addura Online Ordering System that explains the relationship between each entity based on the ERD showed.

Table 4.1 Business Rules

Business Rule	Description
1	Each customer can make a lot of order.
	One order can only have one customer.
2	One order can have many different product and quantities.
	Each product can receive a lot of order in one time.
3	Each staff can manage many products.
	One product can be managed by many staff.
4	Each account can have many order.
	Each order can have one account.

4.3.2 Logical Database Design

Logical design is divided by data dictionary, conceptual design using normalization and query design.

4.3.2.1 Data Dictionary

Table 4.2 until Table 4.9 shows the data dictionary of table staff, customer, custorder, order_detail, product, product_detail, cart, payment of Addura Online Ordering System.

Table 4.2 : Table Staff

No.	Name	Data Type	Length	Primary Key	Foreign Key
1	staffNo	VARCHAR2	10	Yes	
2	name	VARCHAR2	100		
3	gender	VARCHAR2	10		
4	icNo	VARCHAR2	20		
5	address	VARCHAR2	100		
6	phoneNo	VARCHAR2	12		
7	dateOfBirth	DATE			
8	position	VARCHAR2	50		
9	password	VARCHAR2	20		

Table 4.3 : Table Customer

No.	Name	Data Type	Length	Primary Key	Foreign Key
1	icNo	VARCHAR2	20	Yes	
2	name	VARCHAR2	100		
3	gender	VARCHAR2	10		
4	address	VARCHAR2	100		
5	phoneNo	VARCHAR2	12		
6	dateOfBirth	DATE			
7	password	VARCHAR2	20		

Table 4.4 : Table Product

No.	Name	Data Type	Length	Primary Key	Foreign Key
1	productNo	VARCHAR2	10	Yes	
2	productName	VARCHAR2	100		
3	price	VARCHAR2	10		
4	currentQuantity	NUMBER			
5	totalQuantity	NUMBER			
6	description	VARCHAR2	1000		
7	picture	BLOB			

Table 4.5 : Table Product_Detail

No.	Name	Data Type	Length	Primary Key	Foreign Key
1	detailNo	VARCHAR2	10	Yes	
2	serialNo	VARCHAR2	20		
3	unitPrice	VARCHAR2	10		
4	restockDate	DATE			
5	staffNo	VARCHAR2	10		Yes
6	productNo	VARCHAR2	10		Yes

Table 4.6 : Table Cart

No.	Name	Data Type	Length	Primary Key	Foreign Key
1	cartNo	VARCHAR2	20	Yes	
2	quantity	NUMBER			
3	userID	VARCHAR2	20		
4	created	DATE			
5	productNo	VARCHAR2	20		Yes

Table 4.7 : Table Order_Detail

No.	Name	Data Type	Length	Primary Key	Foreign Key
1	cartNo	VARCHAR2	10	Yes	Yes
2	orderNo	VARCHAR2	10	Yes	Yes

Table 4.8 : Table Payment

No.	Name	Data Type	Length	Primary Key	Foreign Key
1	accountNo	VARCHAR2	20	Yes	
2	paymentType	VARCHAR2	20		
3	paymentDate	DATE			
4	paymentStatus	VARCHAR2	50		
5	receipt	BLOB			
6	orderNo	VARCHAR2	10		Yes

Table 4.9 : Table Custorder

No.	Name	Data Type	Length	Primary Key	Foreign Key
1	orderNo	VARCHAR2	10	Yes	
2	orderDate	DATE			
3	quantityPurchase	NUMBER			
4	totalPrice	VARCHAR2	20		
5	orderStatus	VARCHAR2	100		
6	trackingNo	VARCHAR2	20		
7	icNo	VARCHAR2	20		Yes

4.3.2.2 Conceptual Design using Normalization

This conceptual design using normalization. It shows all the eight table with attribute, primary key and foreign key for each tables.

Staff (staffNo, name, gender, icNo, address, phoneNo, dateOfBirth, position, password)
Primary key staffNo

Customer (icNo, name, gender, address, phoneNo, dateOfBirth, password)
Primary key icNo

Product (productNo, productName, price, currentQuantity, totalQuantity, description, picture)
Primary key productNo

Product_Detail (detailNo, productNo, staffNo, serialNo, restockDate)
Primary key detailNo
Foreign key productNo references Product (productNo)
Foreign key staffNo references Staff (staffNo)

Cart (cartNo, productNo, quantity, userID, created)
Primary key cartNo
Foreign key productNo references Product (productNo)

Order_Detail (orderNo, cartNo)
Primary key orderNo, cartNo
Foreign key orderNo references Custorder (orderNo)
Foreign key cartNo references Cart (cartNo)

Custorder (orderNo, orderDate, quantityPurchase, totalPrice, orderStatus, trackingNo, icNo)
Primary key orderNo
Foreign key icNo references Customer (icNo)

Payment (accountNo, paymentType, paymentDate, paymentStatus, orderNo, receipt)
Primary key accountNo
Foreign key orderNo references Custorder (orderNo)

4.3.2.3 Query Design

Examples of query design is as follows:

- Simple SQL Query

select orderNo, orderDate, quantityPurchase, totalPrice, orderStatus, trackingNo, icNo from custorder where orderNo = $orderNo order by orderStatus;	Search the product and display the order details based on orderNo.

- Join Multiple Table SQL Query

select o.orderNo, o.orderDate, o.quantityPurchase, o.totalPrice, o.orderStatus, p.accountNo, o.icNo from custorder o, payment p, customer c where o.icNo = c.icNo and o.orderNo = p.orderNo and o.orderStatus = 'Receipt Uploaded' order by o.orderno;	Display the order details based on orderStatus.

- Aggregate Query

select to_char(p.paymentDate,'MM-YYYY')as MONTHS, SUM(o.quantityPurchase * o.totalprice) as TOTAL_SALES from custorder o,payment p where o.orderNo = p.orderNo group by to_char(p.paymentDate,'MM-YYYY') order by to_char(p.paymentDate,'MM-YYYY') desc;	Select total sales based on monthly sales.

4.3.3 Physical Database Design

Physical design is consist of three categories which are DBMS selected, trigger and stored procedure.

4.3.3.1 DBMS Selected

According to Meta S.Brown (2015, June 30), Oracle 11g Database is the first database planned for huge business cross section enrolling, the most versatile way to deal with regulate information and applications. The database has legitimate structures and physical structures. Since the physical and reliable structures are separated, the physical supply of data can be directed without affecting the path to logical storage structures.

4.3.3.2 Trigger

As a part of final year project for database management (BITD) student, a number of trigger before and after should be constructed a written in section 4.3.3.2.1 and 4.3.3.2.2 respectively.

4.3.3.2.1 Trigger Before

Table 4.10 show that the trigger for trigger before. Please refer Appendix B for others coding of trigger before.

Table 4.10 : Table Trigger Before

No.	Trigger Name	Description

1	create or replace TRIGGER beforeInsertStaff
	BEFORE INSERT ON staff
	FOR EACH ROW
	BEGIN
	IF (:new.staffNo IS NULL)THEN SELECT staff_seq.nextval
	INTO (:new.staffNo) FROM DUAL;
	END IF;
	IF (:new.position = 'Marketing') THEN
	:new.staffNo := TO_CHAR('M')||:new.staffNo;
	ELSIF (:new.position = 'Shipping') THEN
	:new.staffNo := TO_CHAR('S')||:new.staffNo;
	ELSIF (:new.position = 'Operation') THEN
	:new.staffNo := TO_CHAR('OP')||:new.staffNo;
	ELSIF (:new.position = 'Financial') THEN
	:new.staffNo := TO_CHAR('F')||:new.staffNo;
	ELSE RAISE_APPLICATION_ERROR (-20100,'Sorry not available.');
	END IF;
	END;
		A trigger is done to produce a unique number to be used as the primary key for table staff.

4.3.3.2.2 Trigger After

Table 4.11 show that the trigger for trigger after.

Table 4.11 : Table Trigger After

No.	Trigger Name	Description

1	create or replace TRIGGER AfterInsertProductDetail
	AFTER INSERT ON product_detail
	FOR EACH ROW
	BEGIN
	UPDATE product
	SET currentQuantity = currentQuantity + 1
	WHERE productNo =:new.productNo;
	END;
		This trigger occurs after inserted data in table product_detail. This triggers do a calculation related to product quantity after restock the product.

2	create or replace TRIGGER AFTERINSERTPAYMENT
	AFTER INSERT ON payment
	FOR EACH ROW
	BEGIN
	UPDATE CUSTORDER
	SET orderStatus = 'Receipt Uploaded'
	WHERE orderNo = :new.orderNo;
	END;
		This trigger occurs after inserted data in table payment. This triggers will set the column orderStatus to 'Receipt Uploaded'.

3	create or replace TRIGGER AfterInsertCart
	AFTER INSERT ON CART
	FOR EACH ROW
	BEGIN
	UPDATE product
	SET currentQuantity = totalQuantity - :new.quantity
	WHERE productNo =:new.productNo;
	END;
		This trigger occurs after inserted data in table cart. This triggers do a calculation related to product quantity after make an order.

4	create or replace TRIGGER AFTERUPDATECART
	AFTER UPDATE OF quantity ON CART
	FOR EACH ROW
	BEGIN
	UPDATE PRODUCT
	SET currentQuantity = currentQuantity - 1
	WHERE productNo = :new.productNo;
	END;
		This trigger occurs after updated data in table cart. This triggers do a calculation related to product quantity.

5	create or replace TRIGGER
	AFTERDELETECUSTORDER
	AFTER DELETE ON CUSTORDER
	FOR EACH ROW
	BEGIN
	DELETE FROM PAYMENT WHERE orderNo =
	:old.orderNo;
	INSERT INTO CUSTORDERHISTORY
	values(:old.orderNo, :old.orderDate,
	:old.quantityPurchase, :old.totalPrice, :old.orderStatus,
	:old.trackingNo, :old.icNo);
	end;
		This trigger occurs after deleted data in table custorder. This triggers will insert the data into custorderhistory table.

4.3.3.3 Stored Procedure

Store procedure that are implement to this project consist of four type which are select, insert, update and delete.

4.3.3.3.1 Procedure Insert

Table 4.12 show that the stored procedure for insert. Please refer Appendix C for others coding of procedure insert.

Table 4.12: Table Procedure Insert

No.	Procedure Name	Description

1	create or replace PROCEDURE customerInsert
	(v_icNo VARCHAR2,
	v_name VARCHAR2,
	v_gender VARCHAR2,
	v_address VARCHAR2,
	v_phoneNo VARCHAR2,
	v_dateOfBirth VARCHAR2,
	v_password VARCHAR2)
	IS BEGIN
	INSERT INTO CUSTOMER (icNo, name,
	gender,address, phoneNo, dateOfBirth, password)
	VALUES
	(v_icNo,v_name,v_gender,v_address,v_phoneNo,
	to_date(v_dateOfBirth,'yyyy-mm-dd'), v_password);
	END;
		This procedure occurs before insert data in table customer.

4.3.3.3.2 Procedure Update

Table 4.13 show that the stored procedure for update.

Table 4.13 : Table Procedure Update

No.	Procedure Name	Description
1	create or replace PROCEDURE customerUpdate (v_icNo VARCHAR2, v_name VARCHAR2, v_gender VARCHAR2, v_address VARCHAR2, v_phoneNo VARCHAR2, v_dateOfBirth DATE, v_password VARCHAR2) IS BEGIN UPDATE customer SET name = v_name, gender = v_gender,address = v_address, phoneNo = v_phoneNo, dateOfBirth = v_dateOfBirth, password = v_password WHERE icNo = v_icNo; END;	This procedure occurs before update customer data in table customer.
2	create or replace PROCEDURE orderUpdate (v_orderNo VARCHAR2, v_orderStatus VARCHAR2, v_trackingNo VARCHAR2) IS BEGIN UPDATE custorder SET orderStatus = v_orderStatus, trackingNo = v_trackingNo WHERE orderNo = v_orderNo; END;	This procedure occurs before update orderStatus and trackingNo in table custorder.

3	create or replace PROCEDURE statusUpdate (p_orderNo VARCHAR2, p_orderStatus VARCHAR2) IS BEGIN UPDATE custorder SET orderStatus = p_orderStatus WHERE orderNo = p_orderNo; END;	This procedure occurs before update orderStatus in table custorder.
4	create or replace PROCEDURE cartUpdate (p_productNo VARCHAR2, p_quantity VARCHAR2) IS BEGIN UPDATE cart SET quantity = p_quantity WHERE productNo = p_productNo; END;	This procedure occurs before update quantity in table cart.

5	create or replace PROCEDURE staffUpdate
	(v_name VARCHAR2,
	v_gender VARCHAR2,
	v_icNo VARCHAR2,
	v_address VARCHAR2,
	v_phoneNo VARCHAR2,
	v_dateOfBirth DATE,
	v_position VARCHAR2,
	v_password VARCHAR2)
	IS BEGIN
	UPDATE staff SET name = v_name, gender =
	v_gender, icNo = v_icNo, address = v_address,
	phoneNo = v_phoneNo, dateOfBirth = v_dateOfBirth,
	position = v_position, password = v_password
	where staffNo = staffNo;
	END;
		This procedure occurs before update staff data in table staff.

6	create or replace PROCEDURE productUpdate (p_productNo VARCHAR2, p_productName VARCHAR2, p_price VARCHAR2) IS BEGIN UPDATE product SET productName = p_productName,price = p_price WHERE productNo = p_productNo; END;	This procedure occurs before update product data in table product.

4.3.3.3.3 Procedure Delete

Table 4.14 show that the stored procedure for delete.

Table 4.14 : Table Procedure Delete

No.	Procedure Name	Description

1	create or replace PROCEDURE cartDelete
	(p_productNo VARCHAR2,
	p_userID VARCHAR2)
	IS BEGIN
	DELETE cart WHERE productNo = p_productNo and
	userID = p_userID;
	END;
		This procedure occurs before delete data in table cart.

2	create or replace PROCEDURE custorderDelete (p_orderNo VARCHAR2) IS BEGIN DELETE custorder WHERE orderNo = p_orderNo; END;	This procedure occurs before delete data in table custorder.

4.3.3.3.4 Procedure View

Table 4.15 show that the stored procedure for view.

Table 4.15 : Table Procedure View

No.	Procedure Name	Description
1	create or replace procedure viewOrder(v_id in varchar2, v_username in VARCHAR2, myrc out sys_refcursor) as begin open myrc for select co.orderNo,co.orderDate,co.icNo,cu.name,cu.address,cu.phoneNo,p.productNo,p.productName,cr.quantity,p.price,(cr.quantity * p.price) AS Total,co.quantityPurchase,co.totalPrice from custorder co,product p,customer cu,cart cr where co.icNo = cu.icNo and cr.productNo = p.productNo and co.orderNo = v_id and cu.icNo = v_username and CREATED >= sysdate - (5/1440) order by co.orderNo desc; end;	This procedure is to view the order details before confirmation.

2	create or replace procedure viewMonthly(myrc out sys_refcursor) as
	begin open myrc for
	select to_char(p.paymentDate,'MM')as MONTHS,
	SUM(o.quantityPurchase * o.totalprice) as TOTAL_SALES
	from custorder o,payment p
	where o.orderNo = p.orderNo
	group by to_char(p.paymentDate,'MM')
	order by to_char(p.paymentDate,'MM') desc;
	end;
		This procedure is to view the sales report monthly.

3	create or replace procedure viewRestock(myrc out sys_refcursor) as
	begin open myrc for
	select to_char(pd.restockDate,'yyyy-mm') AS MONTH,COUNT(pd.serialNo) as TOTAL_RESTOCK
	from,product_detail pd
	group by pd.restockDate
	order by to_char(pd.restockDate,'yyyy-mm') desc;
	end;
		This procedure is to view report of product restock.

4	create or replace procedure viewSubtotal(v_id in varchar2, myrc out sys_refcursor) as begin open myrc for SELECT p.productNo,p.productName,p.price,c.quantity,c.quantity * p.price AS subtotal FROM cart c LEFT JOIN product p ON c.productNo = p.productNo where CREATED >= sysdate - (5/1440) and userID = v_id; end;	This procedure is to view the subtotal price of customer list of order before checkout.

5	create or replace procedure viewYearly(myrc out sys_refcursor) as
	begin open myrc for
	select to_char(p.paymentDate,'yyyy')as YEARS, SUM(o.quantityPurchase * o.totalprice) as TOTAL_SALES
	from custorder o,payment p
	where o.orderNo = p.orderNo
	group by to_char(p.paymentDate,'yyyy')
	order by to_char(p.paymentDate,'yyyy') desc;
	end;
		This procedure is to view sales report yearly.

6	create or replace procedure viewOrderFinancial(myrc out sys_refcursor) as begin open myrc for select o.orderNo, o.orderDate, o.quantityPurchase, o.totalPrice, o.orderStatus, p.accountNo, o.icNo from custorder o, payment p, customer c where o.icNo = c.icNo and o.orderNo = p.orderNo and o.orderStatus = 'Receipt Uploaded' order by o.orderno; end;	This procedure is to view list of order for financial department.

4.4 Graphical User Interface (GUI) Design

User interface design defines the interaction between user and system with input and output of the system. The main interface in this system is Home, Login, Customer, Product, Order, Payment and Report have been illustrate from Figure 4.3 until Figure 4.18.

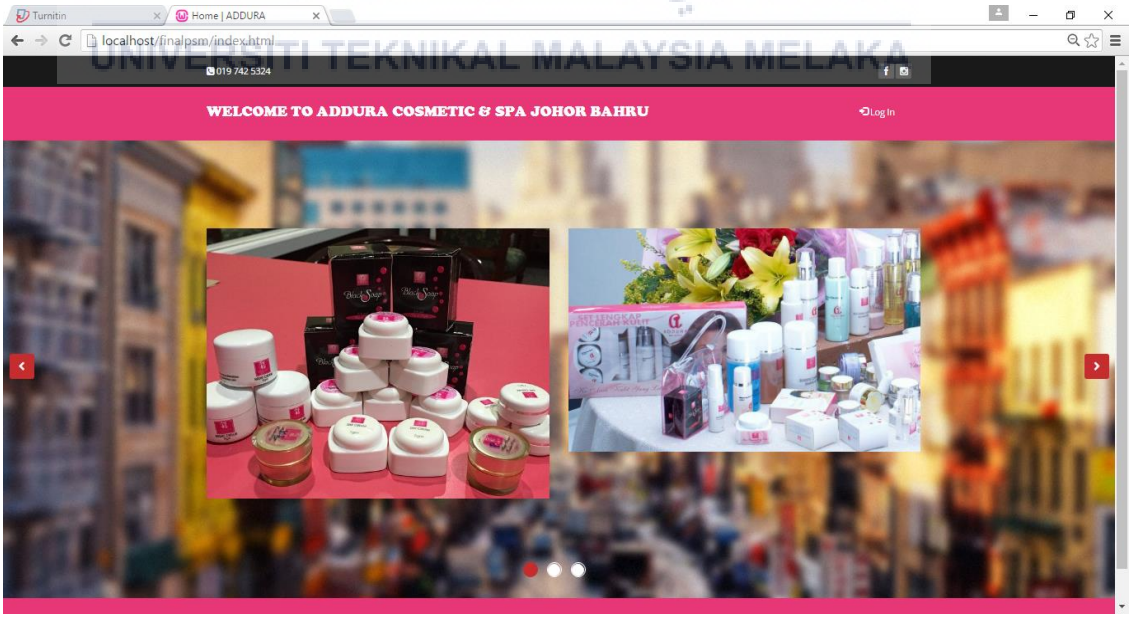


Figure 4.3 : Homepage for staff and customer

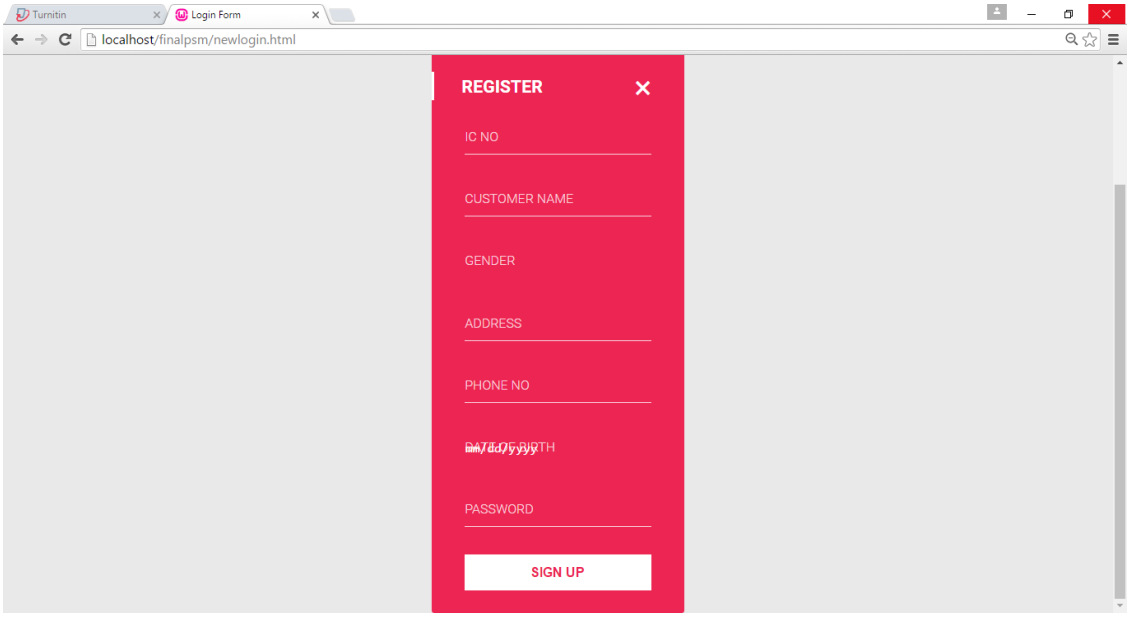


Figure 4.4 : Customer Registration Form

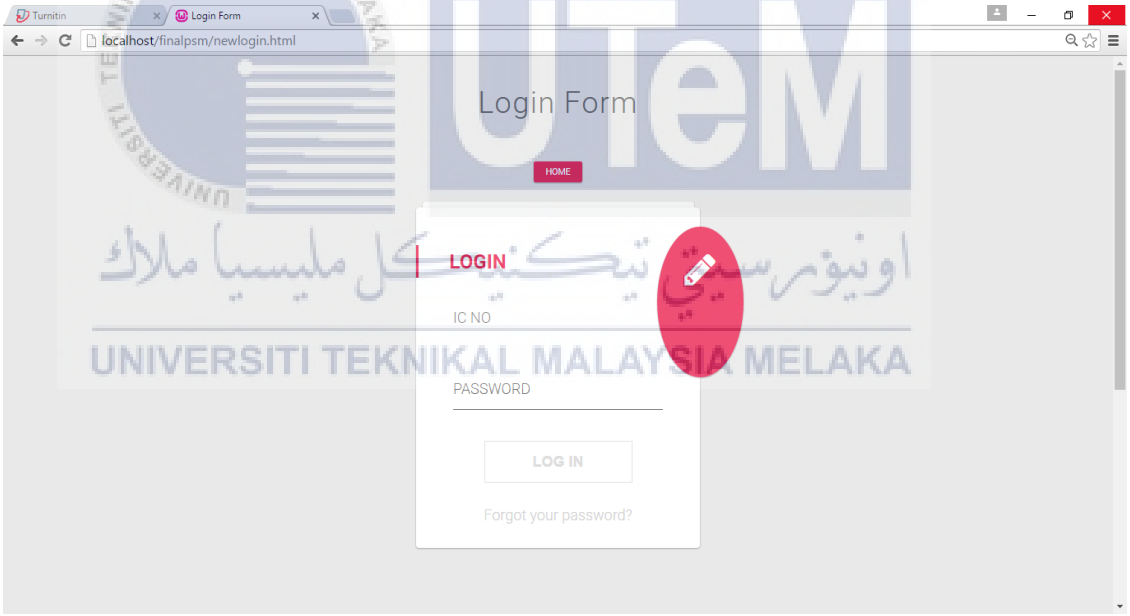


Figure 4.5 : Login Page for Staff and Customer

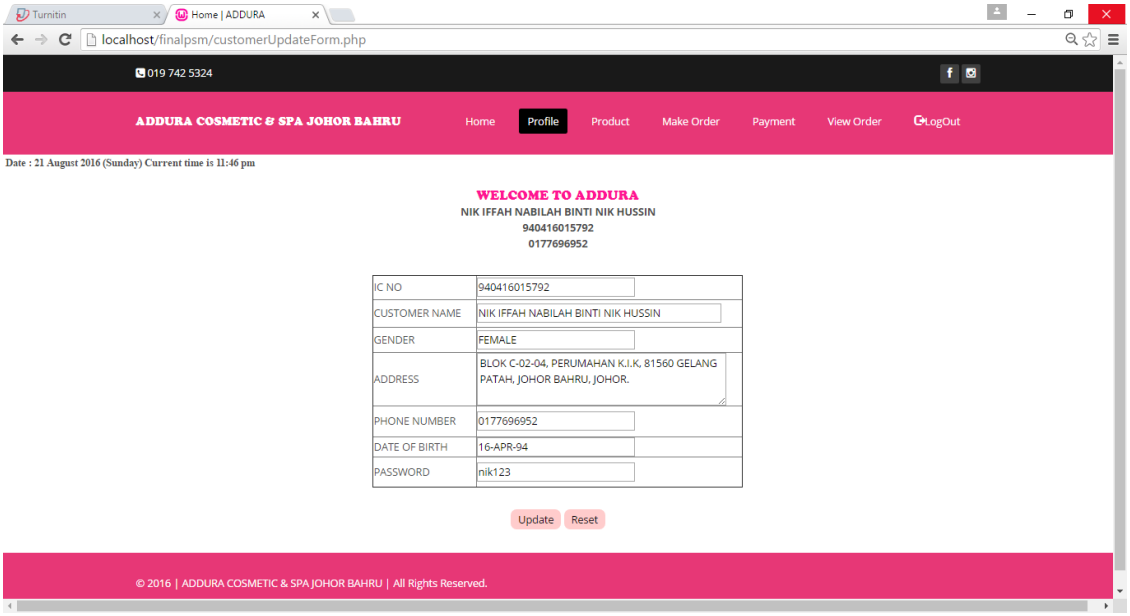


Figure 4.6 : Customer Update Profile Form

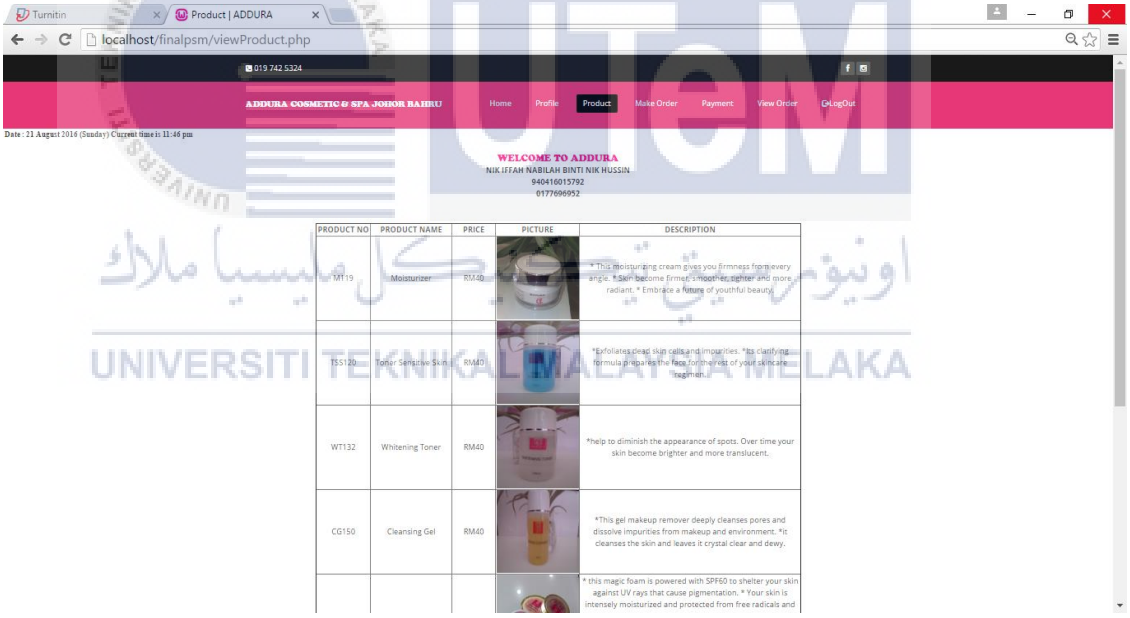


Figure 4.7 : Customer View List of Product

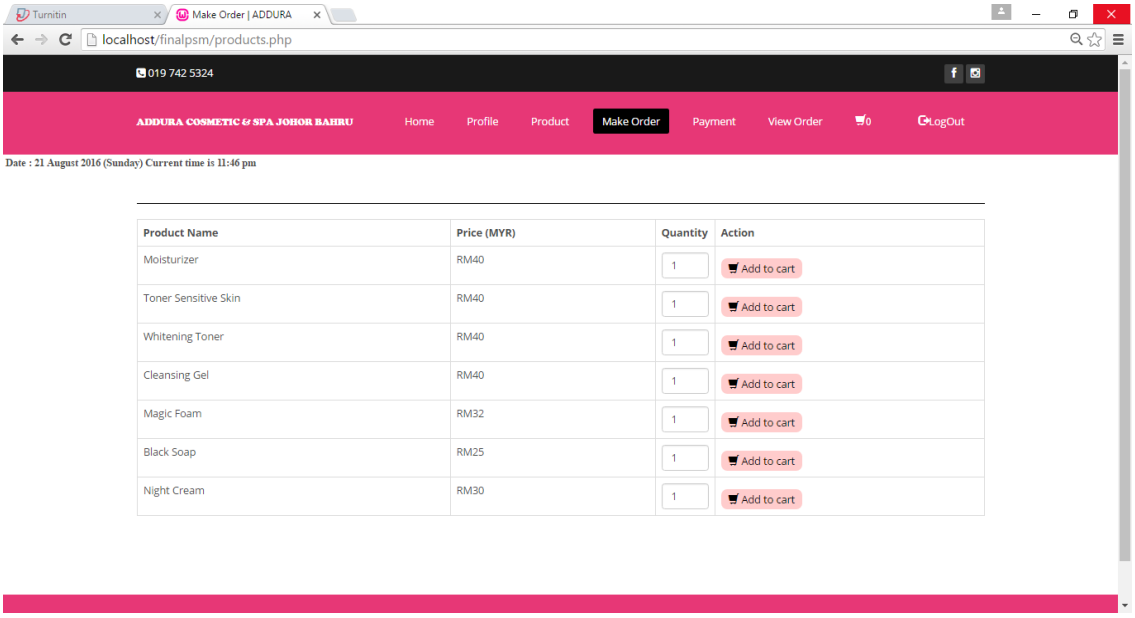


Figure 4.8 : Customer can make order

Figure 4.9 : Customer can print receipt after make order.

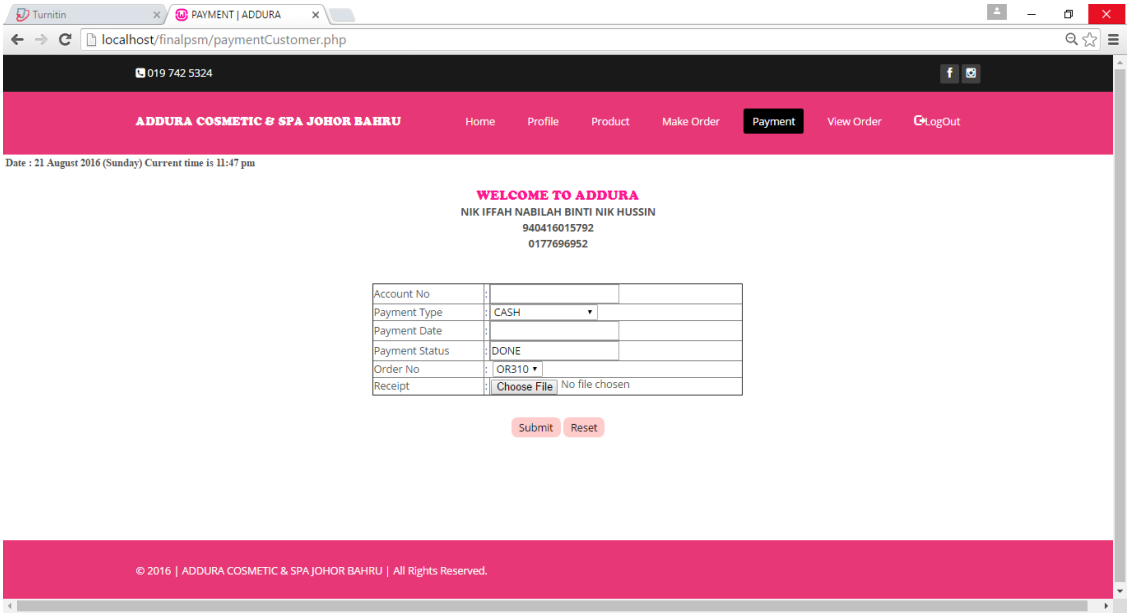


Figure 4.10 : Customer can make payment

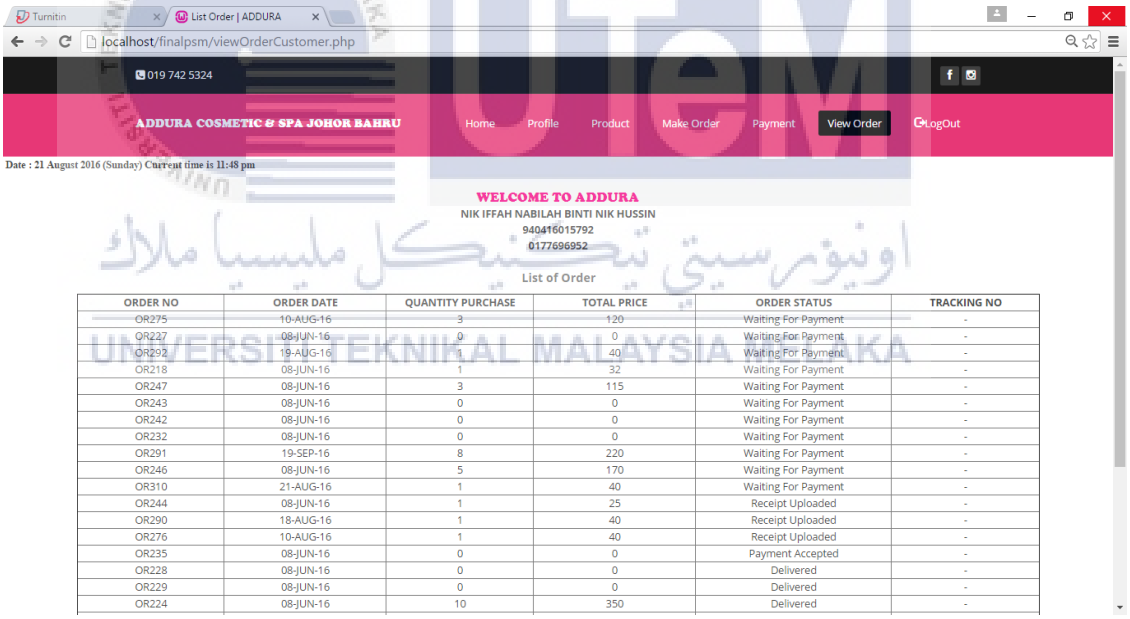


Figure 4.11 : Customer can view list of order

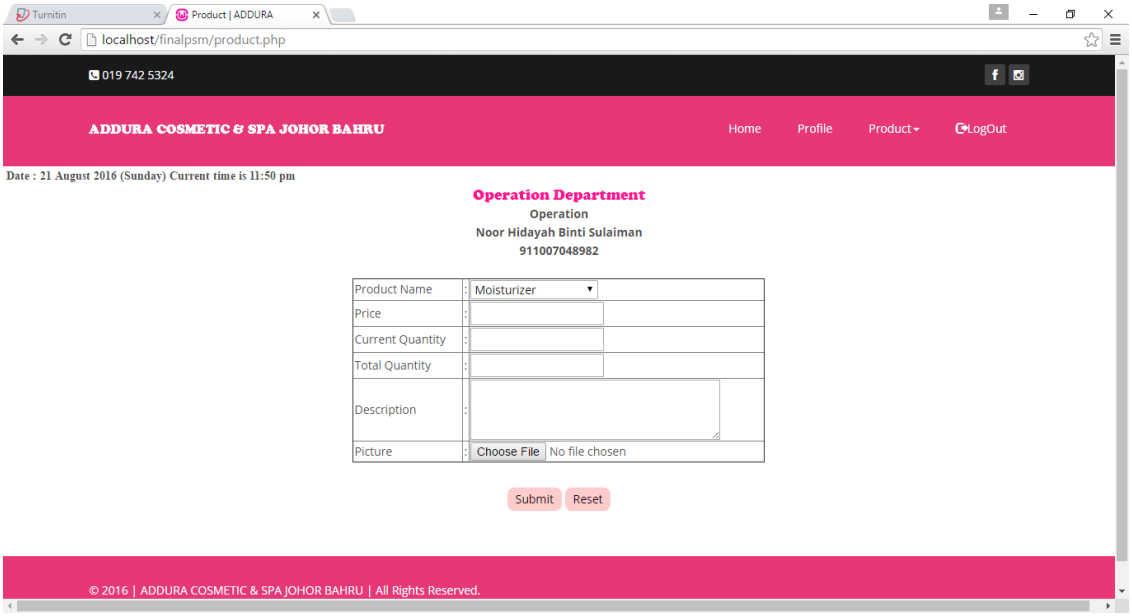


Figure 4.12 : Staff can add new product

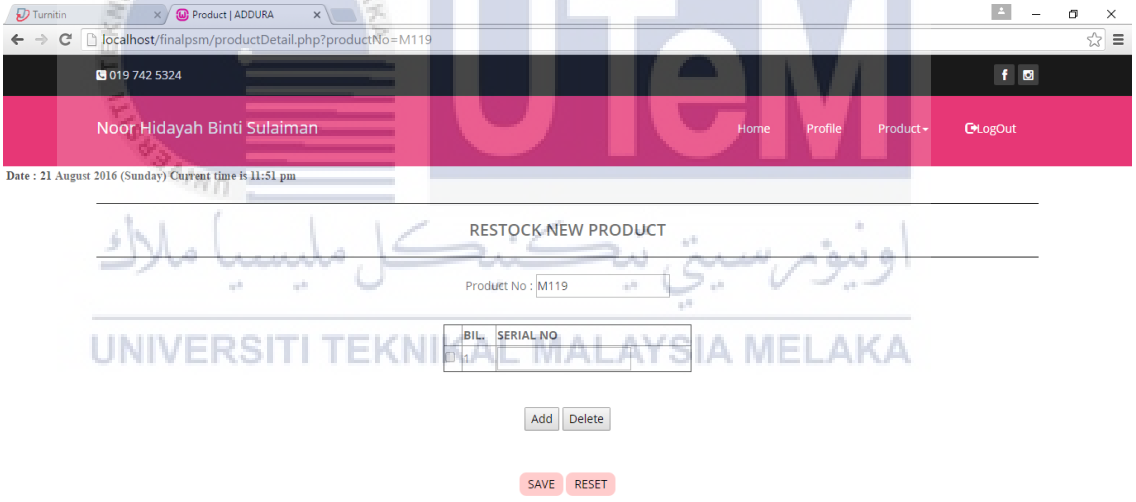


Figure 4.13 : Staff can restock product based on product serial number.

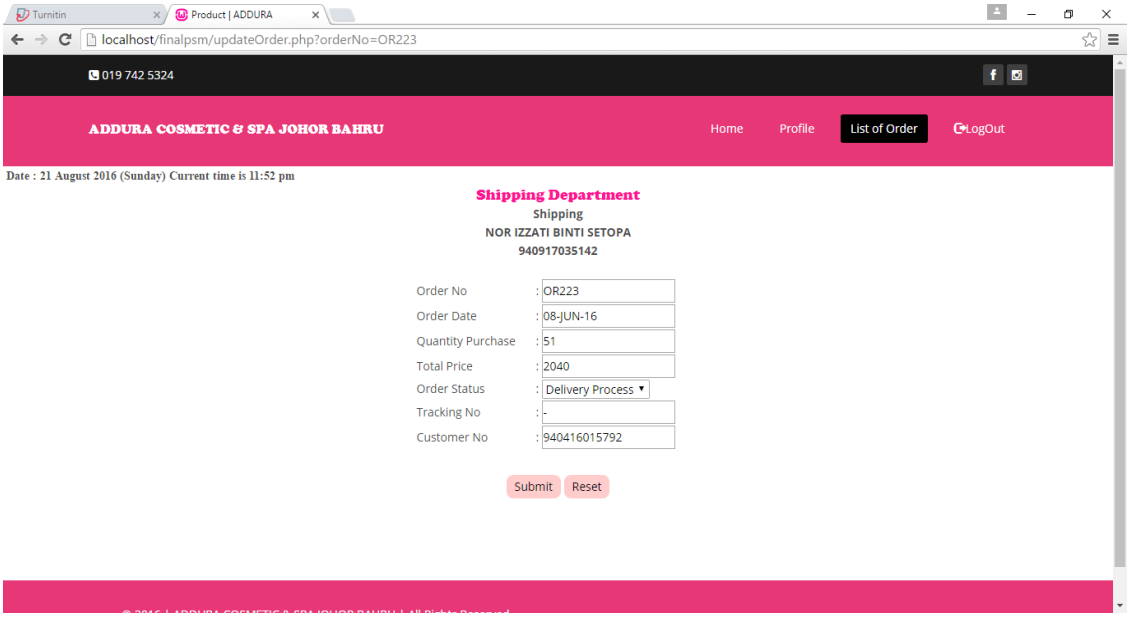


Figure 4.14 : Staff can update order status based on order number.

Month	Total Sales
08-2016	400
07-2016	0
06-2016	104105
04-2016	0

Figure 4.15 : Monthly Sales Report

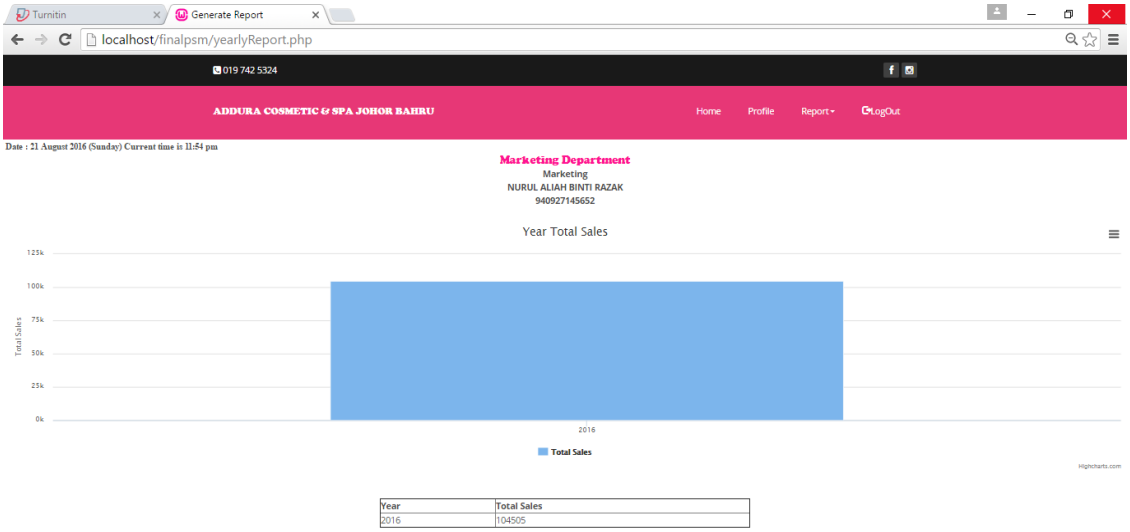


Figure 4.16 : Yearly Sales Report

Figure 4.17 : Error handling for login.

Figure 4.18 : Error handling for registration.

4.5 Conclusion

This chapter mainly discussed on logical and physical design that have been provide in this document, the overall of the database structure have been created with the specific module that will be develop in Oracle 11g DBMS. Overall view of the conceptual design, it shows the relationship for each entity that depending with each other.

Chapter VI will discuss of ways to build databases and systems to support the objectives that have been proposed.

CHAPTER V

IMPLEMENTATION

5.1 Introduction

This chapter will discuss about the implementation of the Addura Online Ordering System. Implementation of the system implemented after the planning and design done in the previous stage.

5.2 System Development Environment Setup

Software environment must be set up before the system began to develop. The system and the database organization will be presented in the system which will be the necessary access point.

The server need to have the web server which is the Wamp Server. After that, the server need to require the Oracle 11g Connector to integrate between information that inserted through interface and the SQL Database. Figure 5.1 show the system framework of Addura Online Ordering System.

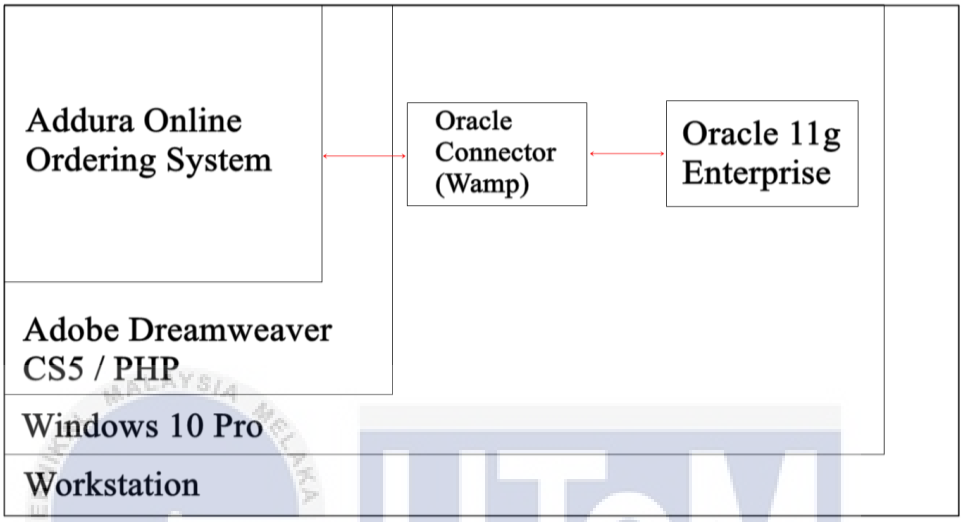


Figure 5.1 : Addura Online Ordering System Framework

5.3 Database Implementation

In the database implementation, database creation is done in which Oracle 11g is installed in Windows 10 Pro. The database will be tested with the example database queries, for example, joins, and sub-query to verify the information in database is right.

5.3.1 Installation of Oracle 11g Enterprise

Database installation is done in which Oracle 11g. This report gives instruction to install Wamp version 2.5 database on Microsoft Windows environment. The installation steps of Oracle 11g have been illustrate from Figure 5.2 until Figure 5.13.

Steps:

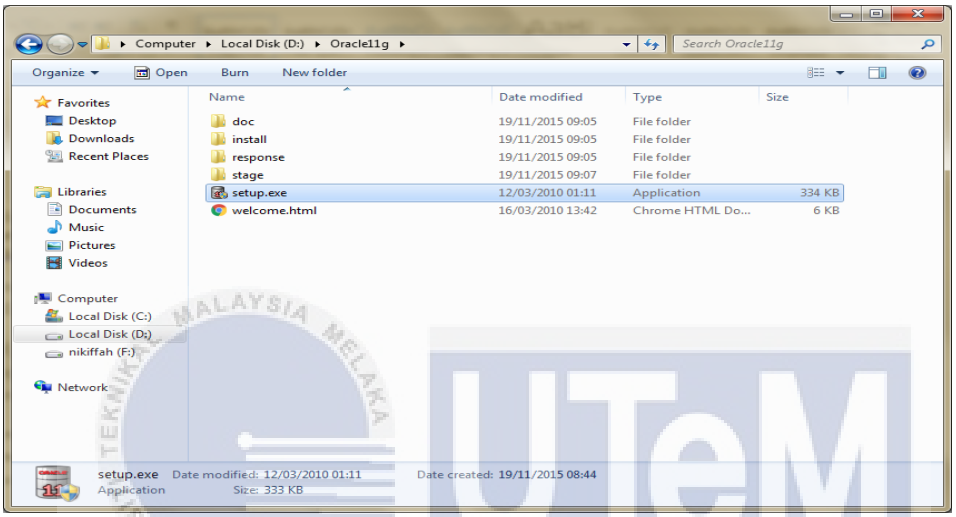


Figure 5.2 : File setup.exe location

1) Launch the Oracle Installer.
2) Go to the database directory and double click on the file *setup.exe*.

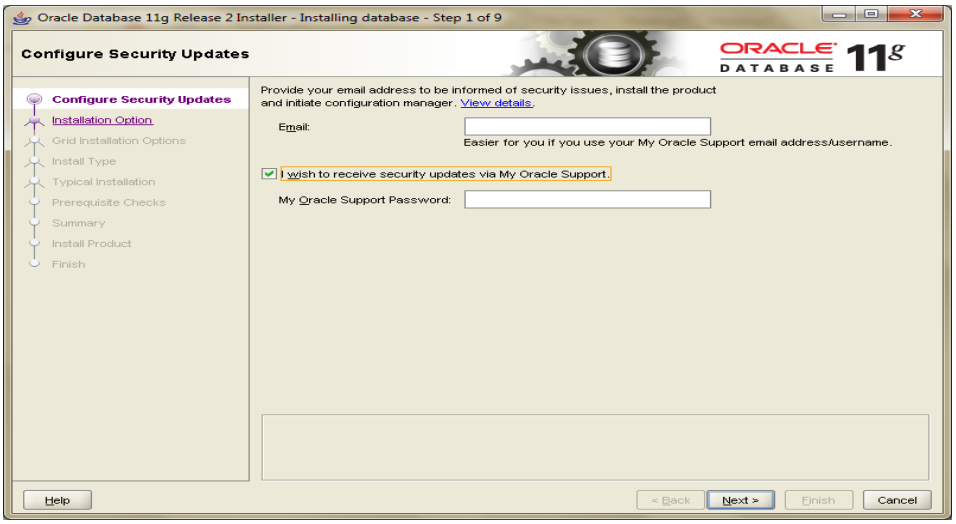


Figure 5.3 : Configure Security Updates

3) Click the button, and it pop-up the following warning:

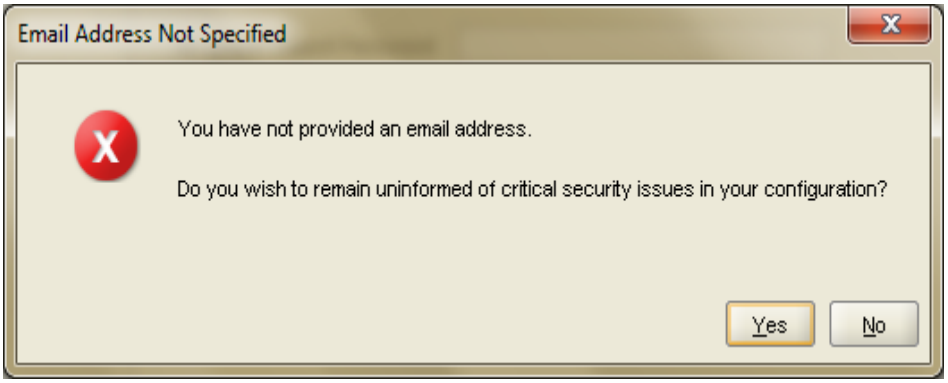


Figure 5.4 : Warning – Email Address Not Specified

4) Click the "Yes" button.

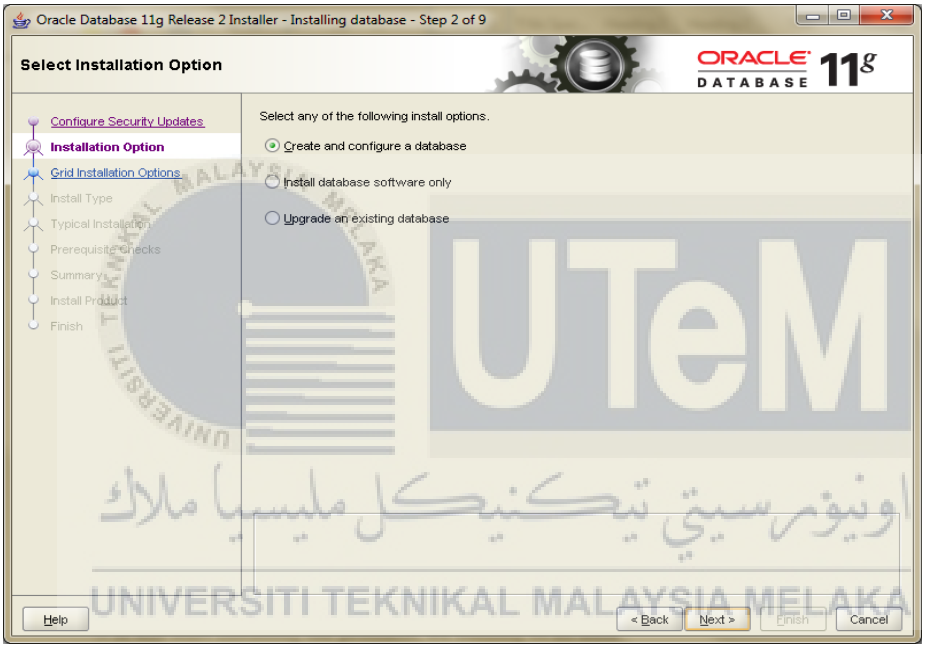


Figure 5.5 : Select Installation Option

5) Ensure that the "Create and configure a database" check button is selected.
6) Then click the Next button.

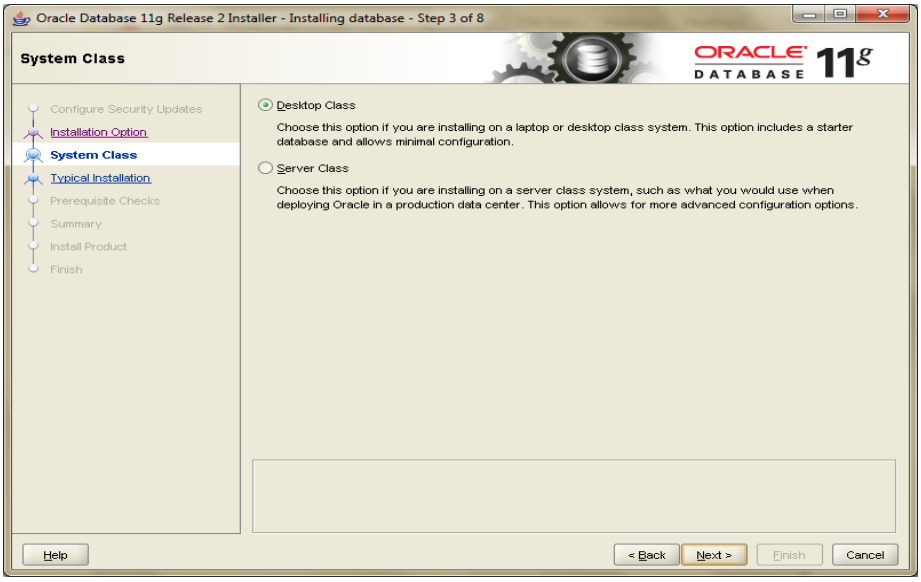


Figure 5.6 : System Class

7) Ensure that "Desktop Class" check button is selected.
8) Then click the Next button.

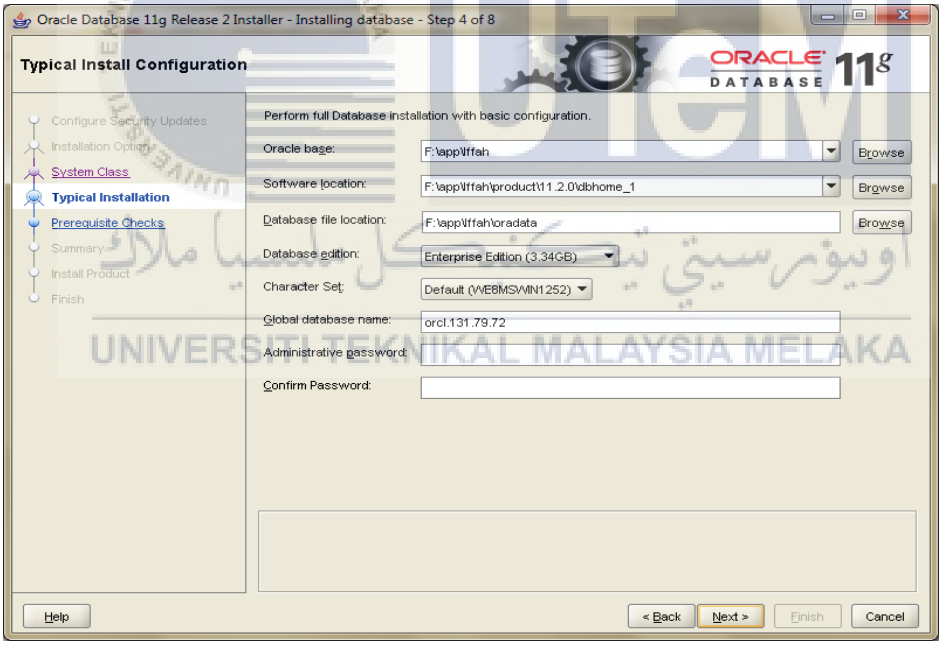


Figure 5.7 : Typical Installation Configuration

9) After all filed have been entered, click the Next button.

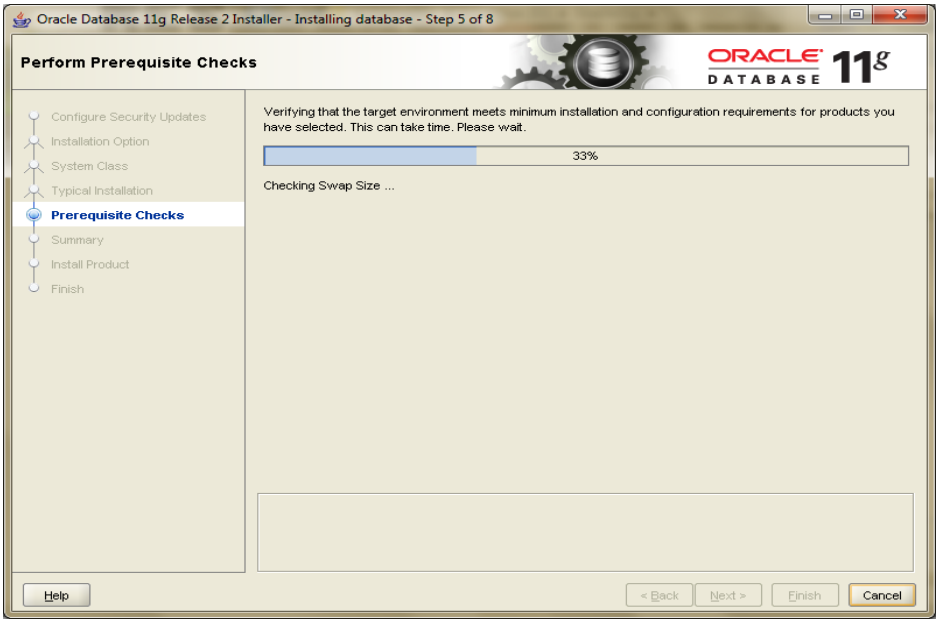


Figure 5.8 : Perform Prerequisite Checks

10) Checking all the prerequisite. After all checks pass, the following summary screen appear.

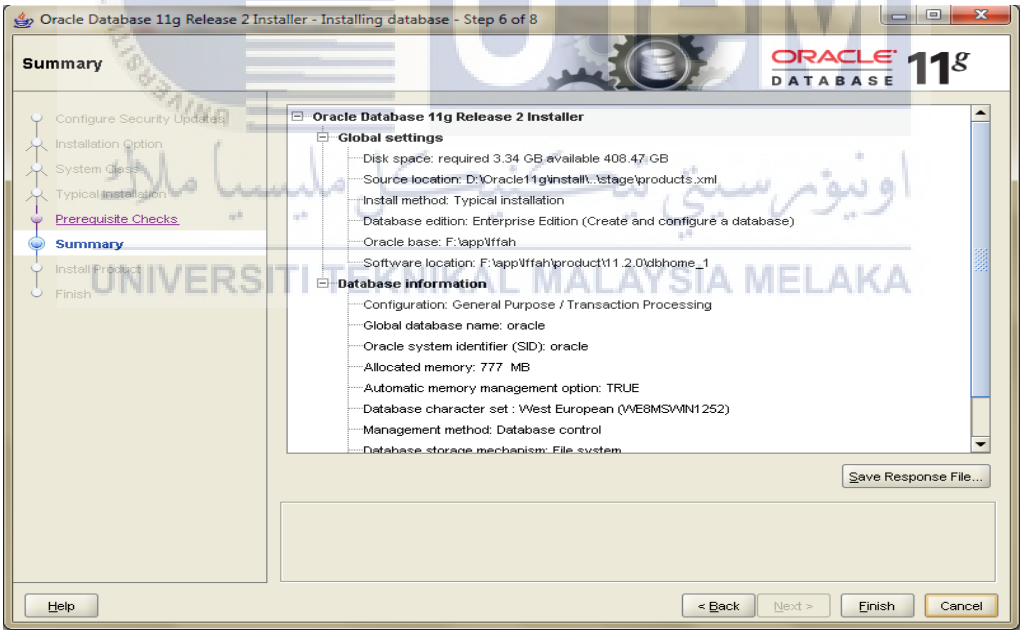


Figure 5.9 : Summary

11) After reviewing the installation options, click the Finish button to begin installation.

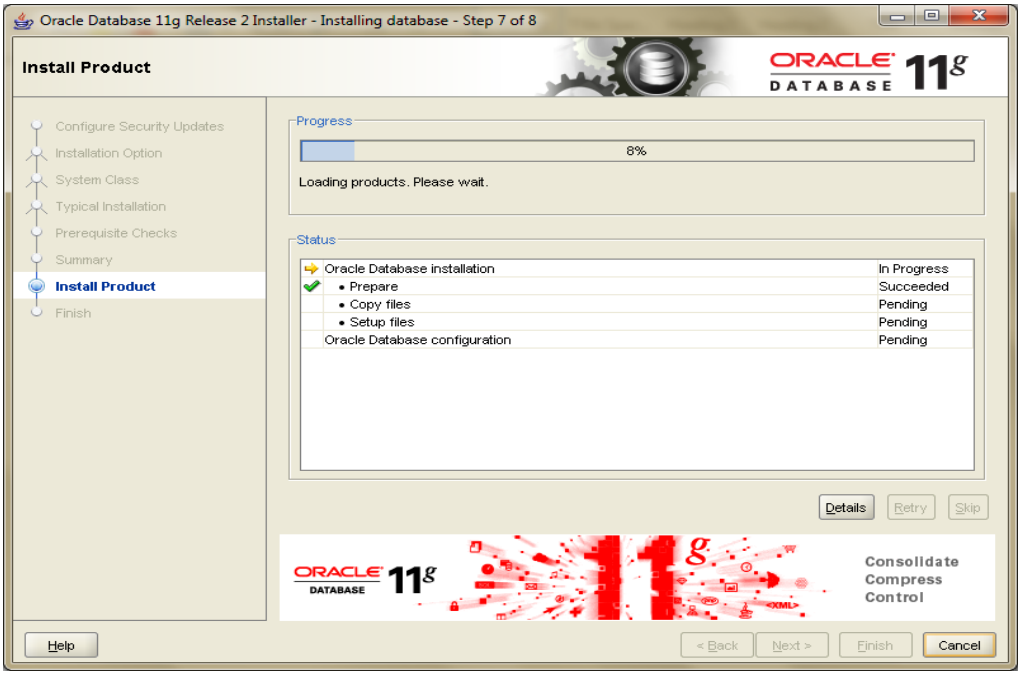


Figure 5.10 : Installation Product

12) The progress window shows up.

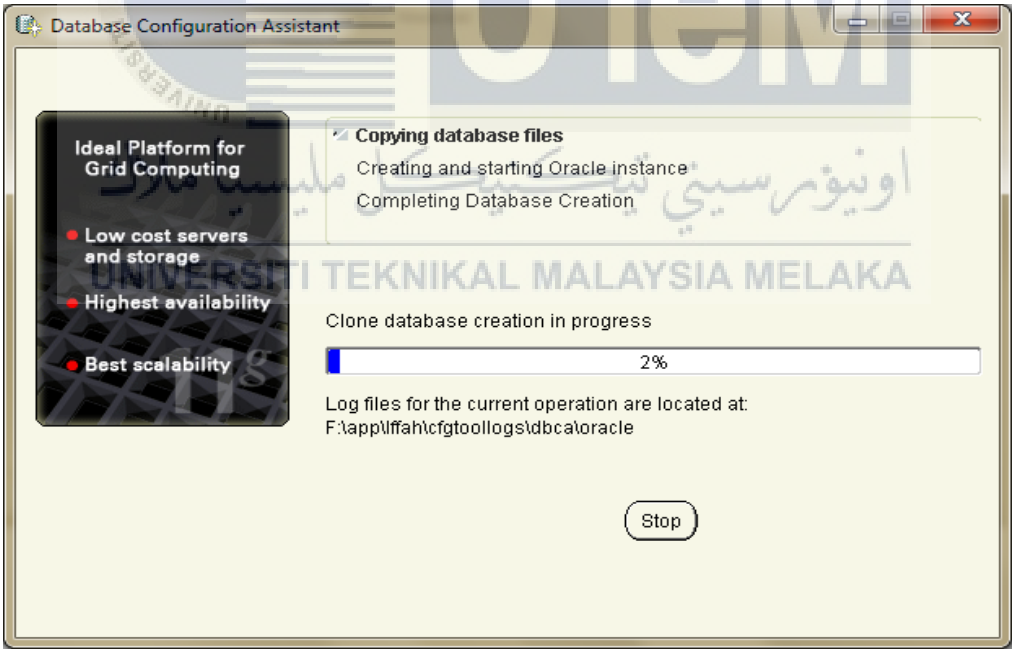


Figure 5.11 : Database Configuration Assistant

13) The Configuration Assistant window shows up. Database is presently being created.

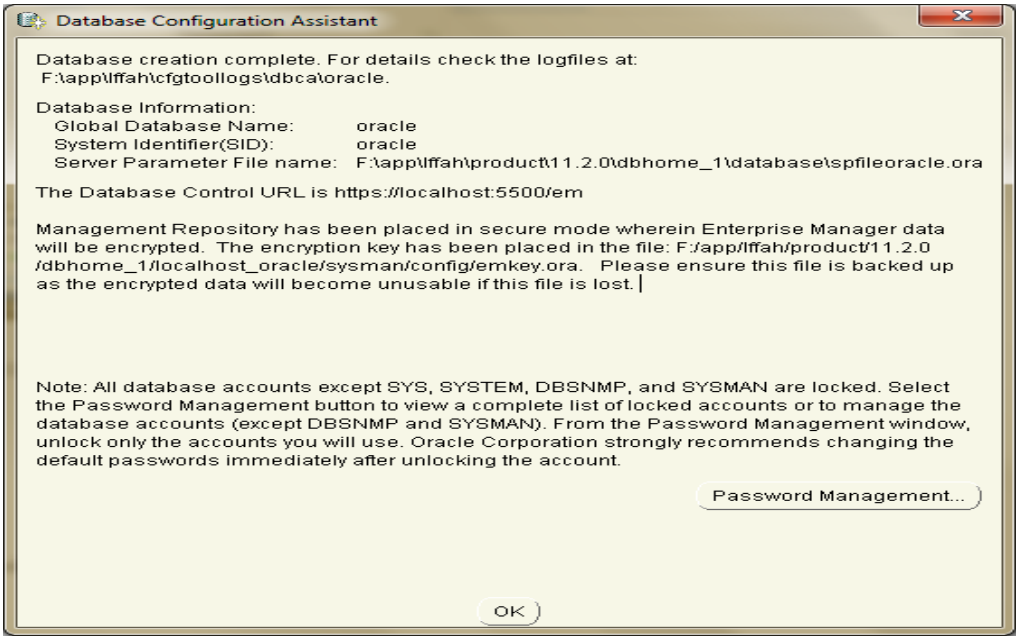


Figure 5.12 : Database Configuration Assistant

14) Click OK.

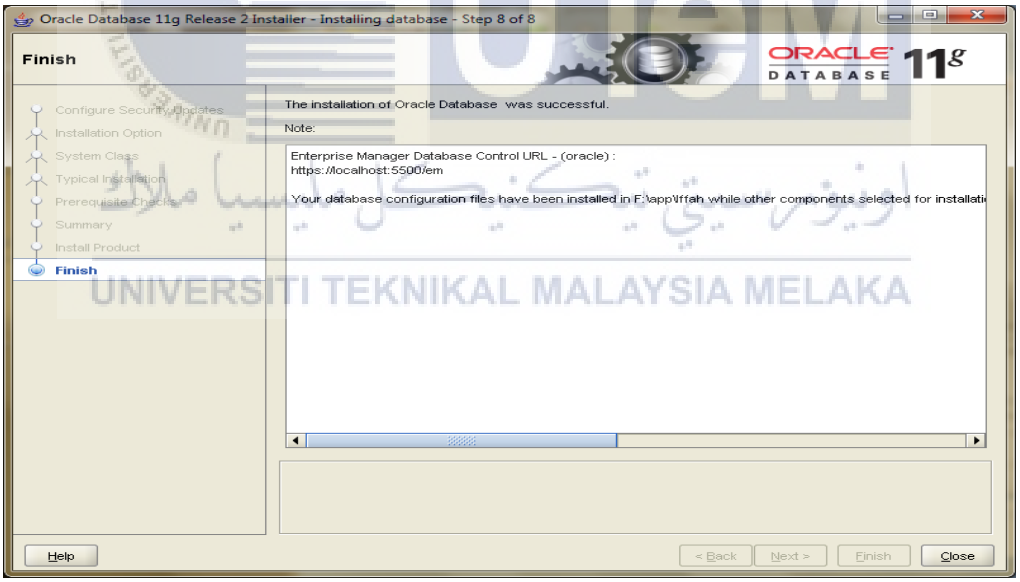


Figure 5.13 : End of Installation

15) Click the "Close" button, and the Oracle installer will exit.

5.3.2 Testing Database Installation

To test the installation works are complete including :

When you click ‘close’ button from the past segment, a program open the Database Control URL is as of now launched. If this does not happen, open a program and enter the following URL:

https://iffah-pc:5500/em/console/database/instance/repDown?target=oracleIffah&type=oracle_database

Figure 5.14 show that the Database Control Home Page shows up. Installation successful.

Figure 5.14 : Database Instance

5.3.3 Installation of Database Server WAMP.

Figure 5.15 until Figure 5.25 show the installation of Database Wamp Server 2.5.

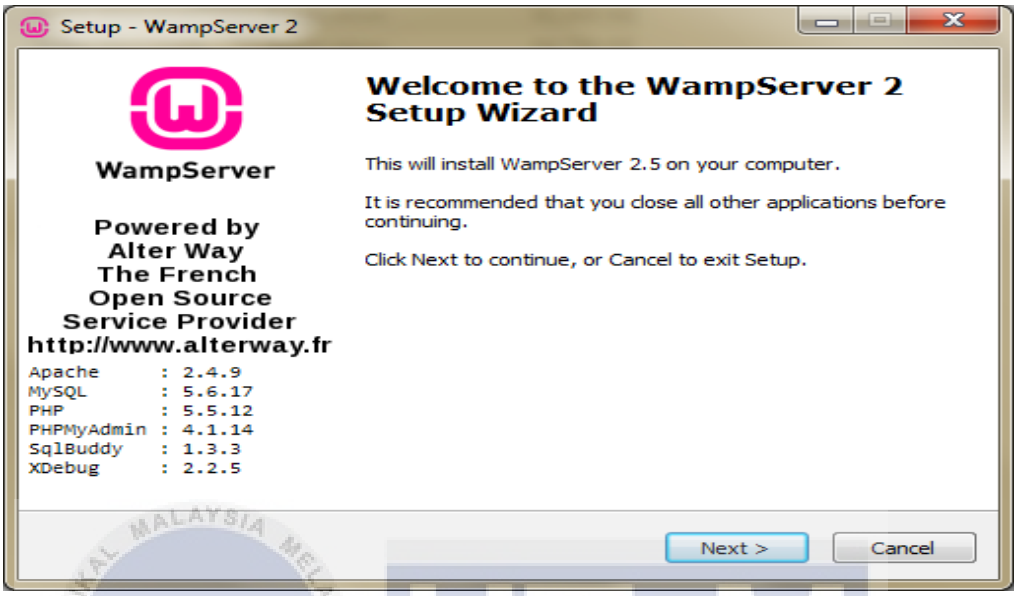


Figure 5.15 : Install Wizard - Welcome Page WampServer

1) Click on Next button.

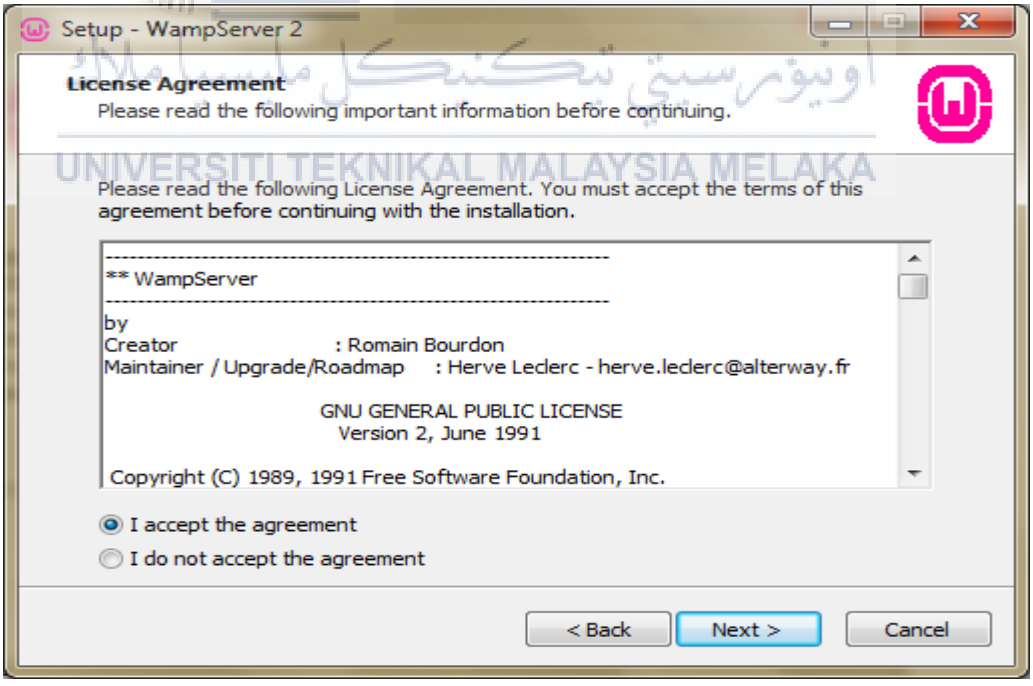


Figure 5.16 : Install Wizard - License Agreement

2) Select “I accept the agreement” then click Next button.

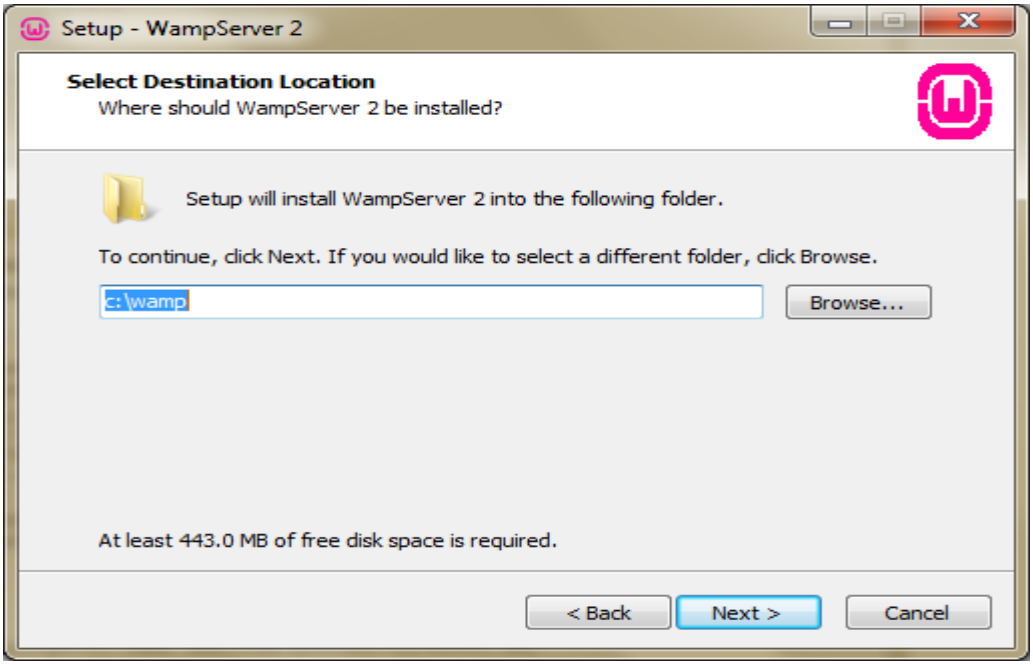


Figure 5.17 : Install Wizard – Select Destination Location

3) Choose WAMP installation folder. By default it c:\wamp then click Next button.

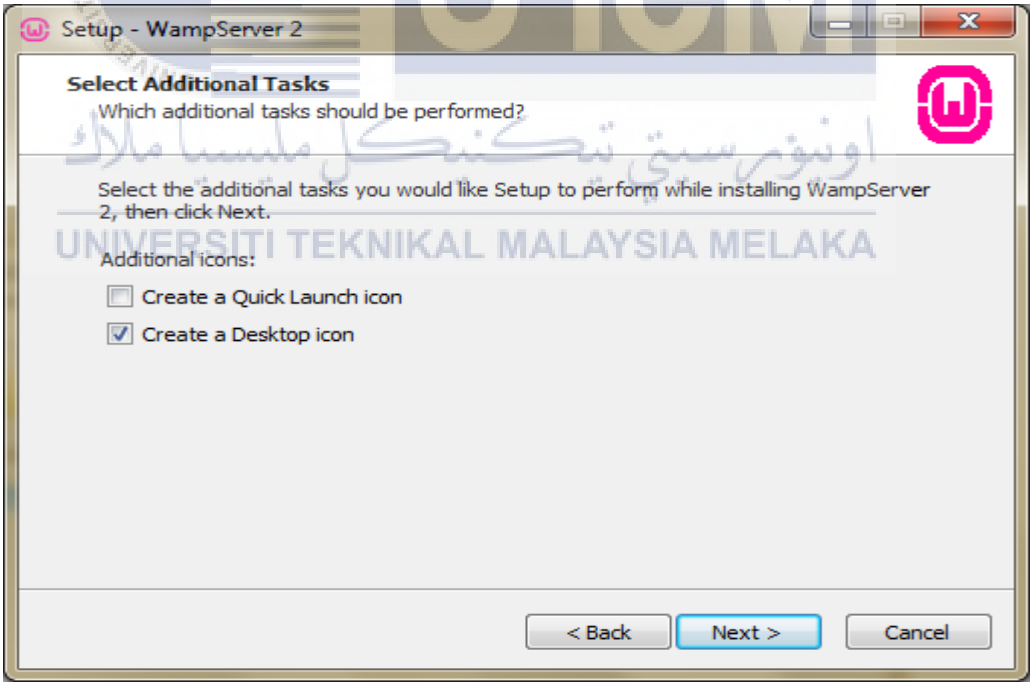


Figure 5.18 : Install Wizard – Select Additional Tasks

4) Choose “Create a Desktop icon” then click on the Next button.

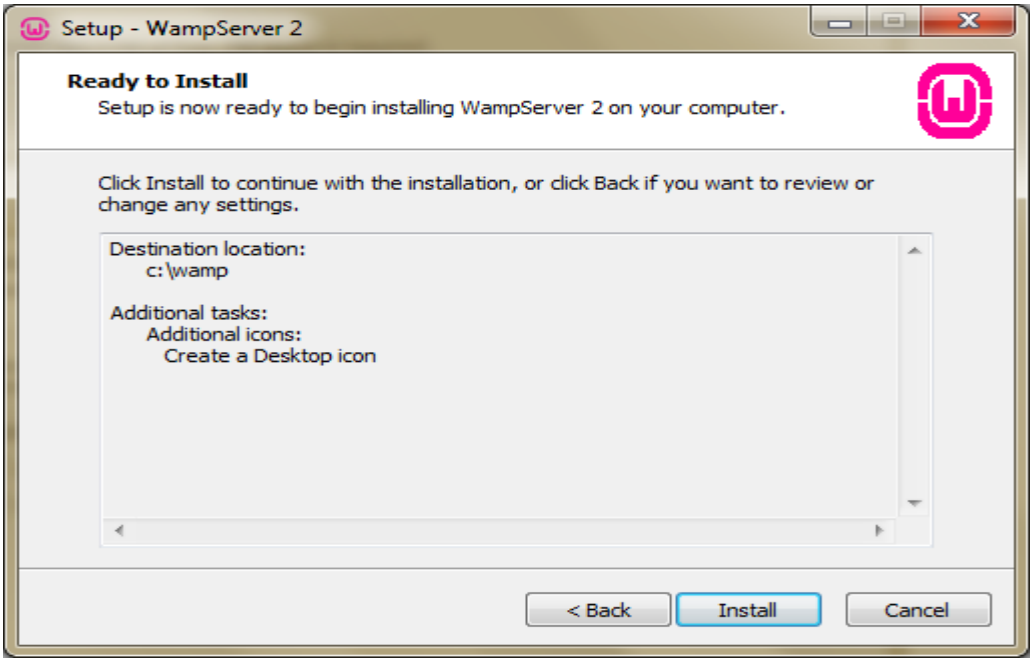


Figure 5.19 : Install Wizard – Ready to Install

5) Now, it is ready to install. Click on the Install button to start the installation.

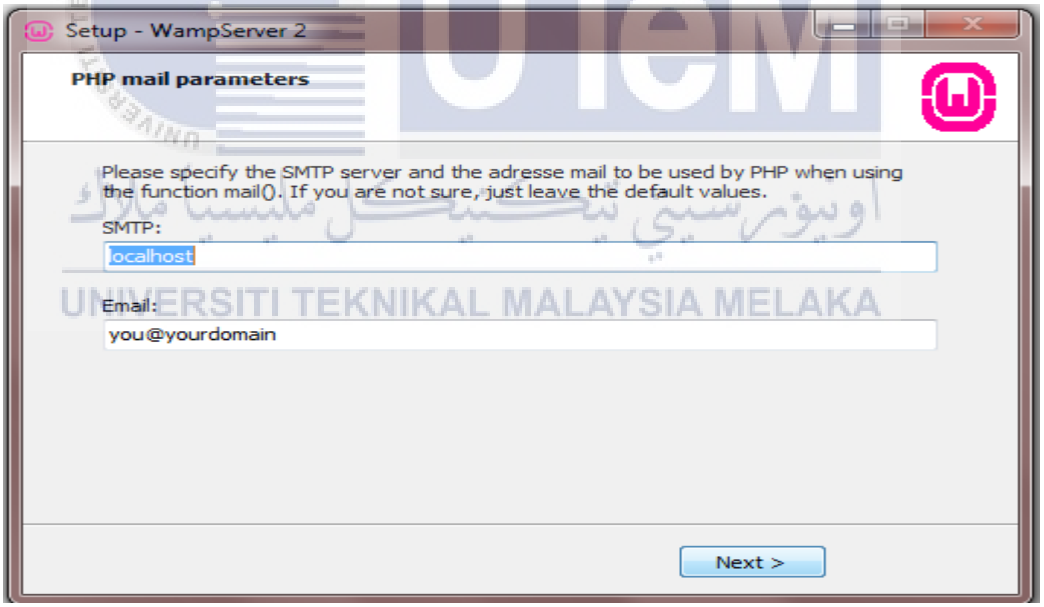


Figure 5.20 : Install Wizard – PHP mail parameters

6) Default SMTP is localhost and email is you@yourdomain. Keep it as what it is and click on the Next button.

Figure 5.21 : Install Wizard – Completing the WampServer Setup Wizard

7) Tick on the checkbox "Launch WampServer 2 now". So, it will immediate launch wampserver. Then, click Finish button.

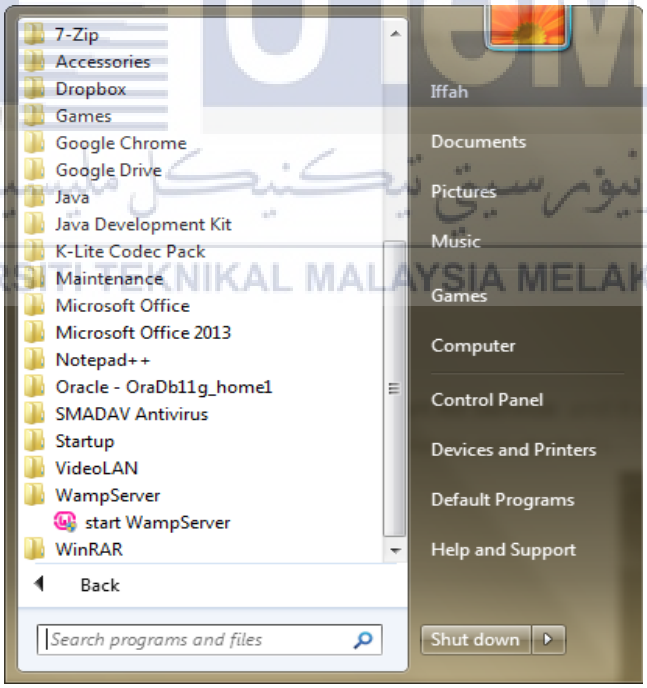


Figure 5.22 : Install Wizard – Start WampServer

8) Go to Start -> All Program -> WampServer folder then click on "start WampServer".

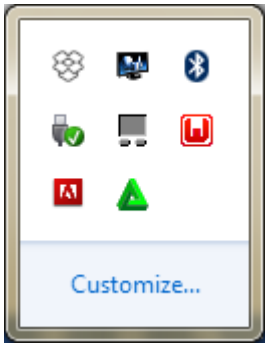


Figure 5.23 : Install Wizard - WampServer

9) Initially Wamp icon is Red. That's mean no services are running.

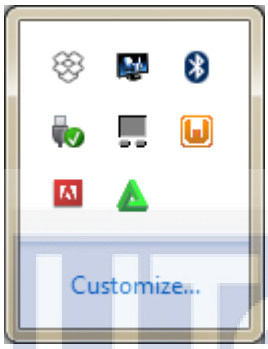


Figure 5.24 : Install Wizard - WampServer

10) When click on "Start All Services", Wamp icon turn to Orange means that Wamp already running but not all services are started.

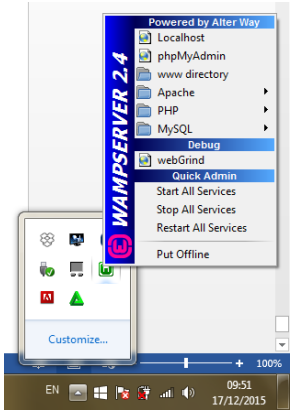


Figure 5.25 : Install Wizard – WampServer Started

11) The Wamp icon turn to Green means that all services are started.

5.3.4. Configure Database Connection

Every process in Addura Online Ordering System was done through the session. For every script, user name, password and the database name have been included. Figure 5.26 show the configuration database code.

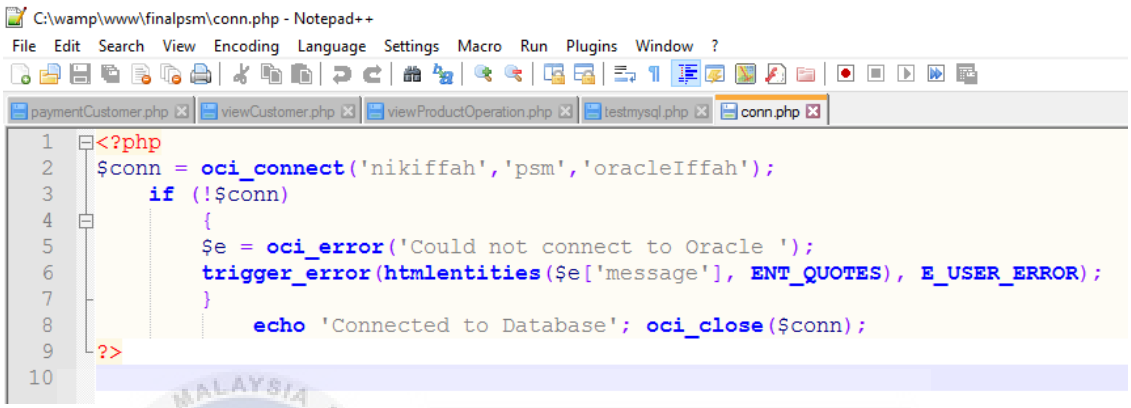


Figure 5.26 : conn.php Configuration Database Code.

To configure the database connection of Addura Online Ordering System, there are approaches to access to the database through a web browser. The following Figure 5.27 until Figure 5.28 are the step to access into the database.

Step 1 :

Open the web browser and type in : http://localhost.

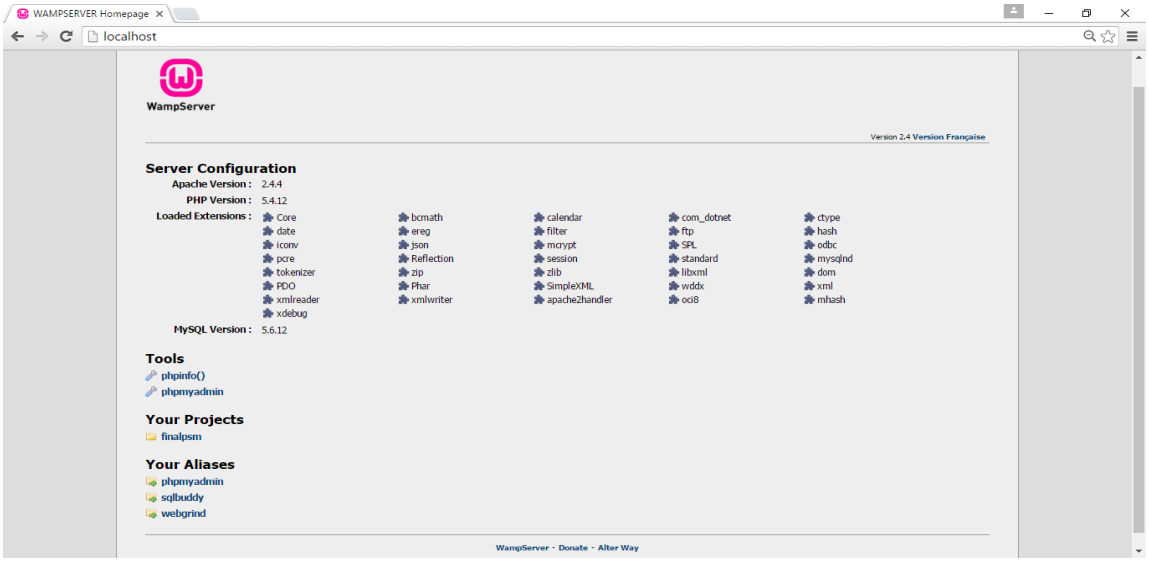


Figure 5.27 : Wamp Server Configuration for Windows.

Step 2 :

If the screen below appears, it is indicate that WAMP successfully installed on computer.

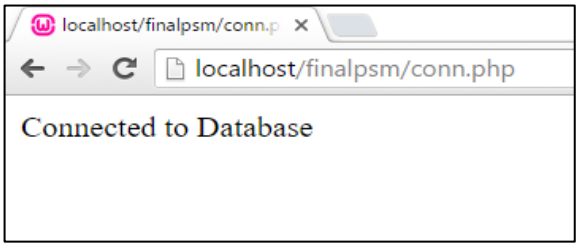


Figure 5.28 : Wamp Connect With Database.

Step 3 :

Navigate to localhost/finalpsm/conn.php.

5.3.5 Data Definition Language (DDL)

Data Definition Language (DDL) contain script for create table and constraint that include in database implementation for Addura Online Ordering System.

5.3.5.1 Create Table

Addura Online Ordering System contained eight tables which are Staff, Customer, Product, Product_Detail, Cart, Custorder, Order_Detail and Payment table. All the tables were used to store the related information to implement Addura Online Ordering System.

Table 5.1 : Create Table Staff

TABLE STAFF
CREATE TABLE STAFF (staffNo VARCHAR2(10) NOT NULL PRIMARY KEY, name VARCHAR2(100), gender VARCHAR2(10), icNo VARCHAR2(20), address VARCHAR2(100), phoneNo VARCHAR2(12), dateOfBirth DATE, position VARCHAR2(50), password VARCHAR2(20));

Table 5.2 : Create Table Product

TABLE PRODUCT
CREATE TABLE PRODUCT (productNo VARCHAR2(10) NOT NULL PRIMARY KEY, productName VARCHAR2(100), price VARCHAR2(10), currentQuantity NUMBER, totalQuantity NUMBER, description VARCHAR2(1000), picture BLOB);

Table 5.3 : Create Table Product_Detail

TABLE PRODUCT_DETAIL
CREATE TABLE PRODUCT_DETAIL (detailNo VARCHAR2(10) NOT NULL PRIMARY KEY, productNo VARCHAR2(10), staffNo VARCHAR2(10), serialNo VARCHAR2(20), unitPrice VARCHAR2(10), restockDate DATE, FOREIGN KEY (staffNo) REFERENCES STAFF (staffNo), FOREIGN KEY (productNo) REFERENCES PRODUCT (productNo));

Table 5.4 : Create Table Customer

TABLE CUSTOMER
CREATE TABLE CUSTOMER (icNo VARCHAR2(20) NOT NULL PRIMARY KEY, name VARCHAR2(100), gender VARCHAR2(10), address VARCHAR2(100), phoneNo VARCHAR2(12), dateOfBirth DATE, password VARCHAR2(20));

Table 5.5 : Create Table Custorder

TABLE CUSTORDER
CREATE TABLE CUSTORDER (orderNo VARCHAR2(10) NOT NULL PRIMARY KEY, orderDate DATE, quantityPurchase NUMBER, totalPrice VARCHAR2(20), orderStatus VARCHAR2(100), trackingNo VARCHAR2(20), icNo VARCHAR2(20), FOREIGN KEY (icNo) REFERENCES CUSTOMER (icNo));

Table 5.6 : Create Table Payment

TABLE PAYMENT
CREATE TABLE PAYMENT (accountNo VARCHAR2(20) NOT NULL PRIMARY KEY, paymentType VARCHAR2(25), paymentDate DATE, paymentStatus VARCHAR2(50), orderNo VARCHAR2(10), receipt BLOB, FOREIGN KEY(orderNo) REFERENCES custorder (orderNo));

Table 5.7 : Create Table Order_Detail

TABLE ORDER_DETAIL
CREATE TABLE ORDER_DETAIL (orderNo VARCHAR2(10) NOT NULL, cartNo VARCHAR2(10) NOT NULL, PRIMARY KEY(orderNo,cartNo), FOREIGN KEY (orderNo) REFERENCES CUSTORDER (orderNo), FOREIGN KEY (cartNo) REFERENCES CART (cartNo));

Table 5.8 : Create Table Cart

TABLE CART
CREATE TABLE CART (cartNo VARCHAR2(20) NOT NULL PRIMARY KEY, productNo VARCHAR2(20), quantity number, userID VARCHAR2(20), created DATE, FOREIGN KEY (productNo) REFERENCES PRODUCT (productNo));

5.3.5.2 Create Constraint

Constraint is use to define an integrity constraint that restricts the values in a database. Addura Online Ordering System was used the primary key constraint. Table 5.9 show the coding for create constraint.

Table 5.9 : Create Constraint

Constraint
ALTER TABLE CUSTOMER ADD CONSTRAINT pk_icNo PRIMARY KEY (icNo, phoneNo); ALTER TABLE STAFF ADD CONSTRAINT pk_staffNo PRIMARY KEY (staffNo, icNo, phoneNo);

5.3.6 Data Manipulation Language (DML)

Data Manipulation Language (DML) contains sample of coding of Addura Online Ordering System on how to use SQL statement for insert, update, delete, commit and rollback.

i. Insert Statements

Insert into table Staff :

- INSERT INTO STAFF VALUES (‘M0001’, ’Noor Hidayah Binti Sulaiman’, ‘Female’, ’901007135654’, ’No. 66, Jalan Setia ¼, Taman Setia Indah, 81770 Johor Bahru, Johor’, ’0136968754’, ’07-OCT-1990’, ’Marketing’, ’hidayah90’);

- INSERT INTO STAFF VALUES (‘F0003’, ’Siti Nur Farahin Binti Umar’, ’Female’, ’940812017882’, ’Blok D-03-05, Perumahan K.I.K, 81560 Gelang Patah, Johor’, ’0145651345’, ’12-AUG-1994’, ’Financial’, ’ct123’);

- INSERT INTO STAFF VALUES (‘S0005’, ’Muhd Afiq Bin Siran’, ’Male’,’831004015171’, ’No. 46, Jalan Jaya 13, Tmn Mutiara Rini, 81300 Skudai, Johor’, ’0177696952’, ’04-OCT-1983’, ’Shipping’, ’afiq83’);

Insert into table Customer :

- INSERT INTO CUSTOMER VALUES (’551024035434’, ‘Nur Hasimah Binti Nordin’, ‘Female’, ’No. 90, Jalan Setia 8/9, Taman Setia Indah, 81770 Johor Bahru, Johor’, ’0197691558’, ’24-OCT-1955’, ’hasimah456’);

- INSERT INTO CUSTOMER VALUES (’790130015028’, ‘Nooriani Binti Ahmad’, ‘Female’, ’No. 10, Jalan Jaya 5, Rini Heights, 81300 Skudai, Johor’, ’0167909179’, ’30-JAN-1959’, ’ani123’);

- INSERT INTO CUSTOMER VALUES (’940416015792’, ‘Suzana Binti Ali’, ‘Female’, ’No. 90, Jalan Ibrahim 3, Taman Munshi Ibrahim, 81770 Johor Bahru, Johor’, ’0167890890’, ’16-APR-1994’, ’ana94’);

Insert into table Product :

- INSERT INTO PRODUCT VALUES (’NC001’, ‘Night Cream’, ‘RM35’, 100, 100, ‘Restores hydration to instantly reduce the appearance of fine lines and wrinkles’, ‘nc.jpeg’);

- INSERT INTO PRODUCT VALUES (’DC008’, ‘Day Cream’, ‘RM30’,
  100, 100, ‘Day cream that suitable for skin problem such as pigmentation and acne’, ‘dc.jpeg’);

- INSERT INTO PRODUCT VALUES (’M006’, ‘Moisturizer’, ‘RM40’, 100, 100, ‘This moisturizing cream gives you firmness from every angle’, ‘m.jpeg’);

Insert into table Product_Detail :

- INSERT INTO PRODUCT_DETAIL VALUES (’DETAIL001’, ‘NC001’, ‘OP009’, ‘100000890’, ‘RM35’, ’27-JUL-2016’);

- INSERT INTO PRODUCT_DETAIL VALUES (’DETAIL002’, ‘DC008’, ‘OP009’, ‘122227690’, ‘RM30’, ’01-JUN-2016’);

- INSERT INTO PRODUCT_DETAIL VALUES (’DETAIL003’, ‘M006’, ‘OP009’, ‘100002889’, ‘RM40’, ’25-JUN-2016’);

Insert into table Cart :

- INSERT INTO CART VALUES (’CART001’, ‘NC001’, 1, ‘940416015792’, ’04-MAY-2016’);

- INSERT INTO CART VALUES (’CART002’, ‘DC008’, 1, ‘940416015792’, ’04-MAY-2016’);

- INSERT INTO CART VALUES (’CART003’, ‘M006’, 2, ‘790130015028’, ’17-JUN-2016’);

Insert into table Custorder :

- INSERT INTO CUSTORDER VALUES (’OR010’, ’04-MAY-2016’, 1, ‘RM35’, ’Waiting For Payment’, ’-‘, ‘940416015792’);

- INSERT INTO CUSTORDER VALUES (’OR011’, ’04-MAY-2016’, 1, ‘RM30’, ’Waiting For Payment’, ’-‘, ‘940416015792’);

- INSERT INTO CUSTORDER VALUES (’OR025’, ’17-JUN-2016’, 2, ‘RM80’, ’Waiting For Payment’, ’-‘, ‘790130015028’);

Insert into table Payment :

- INSERT INTO PAYMENT VALUES (’151017357391’, ‘Online Transfer’, ’05-MAY-2016’, ‘Done’, ‘OR010’, ’receipt1.jpeg’);

- INSERT INTO PAYMENT VALUES (’8053877853’, ‘Online Transfer’, ’04-MAY-2016’, ‘Done’, ‘OR011’, ’receipt2.jpeg’);

- INSERT INTO PAYMENT VALUES (’101011151953’, ‘Online Transfer’, ’17-JUN-2016’, ‘Done’, ‘OR025’, ’resit.jpeg’);

ii. Update Statement

- UPDATE cart
  SET quantity = p_quantity
  WHERE productNo = p_productNo;

- UPDATE custorder
  SET orderStatus = v_orderStatus, trackingNo = v_trackingNo
  WHERE orderNo = v_orderNo;

- UPDATE product
  SET productName = p_productName,price = p_price
  WHERE productNo = p_productNo;

- UPDATE custorder
  SET orderStatus = p_orderStatus
  WHERE orderNo = p_orderNo;

iii. Delete Statements

- DELETE cart
  WHERE productNo = p_productNo and userID = p_userID;

- DELETE custorder
  WHERE orderNo = p_orderNo;

- DELETE product
  WHERE productNo = p_productNo;

iv. Rollback Statements

ROLLBACK;

v. Commit Statements

COMMIT;

5.3.7 Database Maintenance

Database maintenance activities to keep the database running smoothly. Database library is used to store data in a real format.

i. Alter and Delete Table

ALTER TABLE product
MODIFY totalquantity NUMBER(5,0);
DROP TABLE product;

ii. Alter and Delete Constraints

ALTER TABLE payment ADD CONSTRAINT accountNo ;
DROP CONSTRAINT accountNo;

5.4 Conclusion

Conclusion, progress of the implementation is discuss in this chapter. For the next chapter, we will start to test the system.

Chapter VI will explain on the testing and results of this project.

CHAPTER VI

TESTING

6.1 Introduction

The last activity to be cover of this system is testing. The objective of testing is to make sure that the end result meets the business and user requirements. Other than that, this chapter will be describe about test plan which contain of test organization, test schedule and test environment. The test strategy will cover about classes of tests. For testing, it was included in test description and test data. More clarifications about all these will be clarified in the following sub point of this part.

6.2 Test Plan

Test plan is describing the testing scope and activities. The test plan contain of test organization, test environment and test schedule. Test organization is determination the client that include in the testing procedure. Test environment contain of the area or spot to complete the testing process and test schedule includes the testing steps or tasks, the target start and end dates, and responsibilities.

6.2.1 Test Organization

Test organization is the group of individuals which testing the system through testing procedure. The Addura Online Ordering System will be tried by system developer, staff and customer. System developer is the individual who is responsible in developing Addura Online Ordering System while project supervisor is the individual who supervises the work of system developer. Table 6.1 demonstrates the list of tester which will test the system and their task.

Table 6.1 : Test Organization Chart

Tester ID	Title / Position	Responsibilities
Tester 1	System Developer	Developers identify any bugs and record the results of test content for any upgrading in present time or adding new requirement by the user. Before the system present to the end user, the developer must guarantee that the system will run easily and effectively.
Tester 2	Staff	Act about as end customer for admin and staff of the system and give their criticism.
Tester 3	Customer	Act about as end client for customer that buy the product from the system and give their feedback. Every one of the opinion will be a guide for improve the system.

6.2.2 Test Environment

A test environment is a setup of software and hardware which perform the test on Addura Online Ordering System. It is an online based system than the system needs to be tested using localhost port and it is consists of all the situations, conditions, and attractions by surrounding and influencing the testing of software.

6.2.2.1 Environment Setup

Managing and arranging the stage to check that the framework can run successfully for Addura Online Ordering System. The application work space will be shown in Table 6.2.

Table 6.2: Application Workspace Specification

Environment Specification	Description
Operating System	Windows 10 Pro
Processor	Intel Pentium 2.30GHz
Random Access Memory (RAM)	6 GB
Database	Oracle 11g
Server	Apache Web Server
Server-scripting	PHP

6.2.2.2 Software Application

Software application describe every element which had been connected into the Addura Online Ordering System. Applications of the system will be shown in Table 6.3.

Table 6.3 Application environment in Addura Online Ordering System.

System Application	Authenticate User Customer Management Product Management Order Management Payment Management Reporting

6.2.2.3 System Software

System software is the tools which have been applied and implemented into this system. Table 6.4 demonstrates all the system software of Addura Online Ordering System.

Table 6.4 System Software of Addura Online Ordering System.

System Software	Windows 10 Pro Oracle 11g Enterprise Edition Wamp Server 2.5 Notepad++ Google Chrome (web browser) Adobe Dreamweaver CS5

6.2.2.4 System Hardware

System hardware is the equipment which has been apply and implement into this system. Table 6.5 will demonstrates the used hardware being developed of Addura Online Ordering System.

Table 6.5 System Hardware of Addura Online Ordering System

System Hardware	Laptop, mouse, keyboard, printer and external hard disk.

6.2.3 Test Schedule

Test schedule is the methodology of testing all the information collected in the length of time which has been set. The target behind test schedule is to ensure each and every testing activity by whom and when those have been perform. Table 6.6 shows the test timetable for developer of Addura Online Ordering System.

Table 6.6 Test schedule of Addura Online Ordering System Module

Module	Test Activity	Duration	Cycle (Times)
Login	Integration testing, unit testing and user acceptance	1 days	10
Design Interface	Integration testing, unit testing and user acceptance	1 days	7
Customer Management	Integration testing, unit testing and user acceptance	2 days	10
Product Management	Integration testing, unit testing and user acceptance	3 days	11
Order Management	Integration testing, unit testing and user acceptance	8 days	10
Payment	Integration testing, unit testing and user acceptance	3 days	8
Sales Reporting	Integration testing, unit testing and user acceptance	2 days	7
Error handling	Integration testing, unit testing and user acceptance	3 days	15

6.3 Test Strategy

According to Amir Ghahrai (2008, November 9), test strategy will accomplish the targets or objectives for this system. The procedure included deal with the desires from begin until the developer proceeds with the following strides through the system improvement. The methodologies that will be utilized are Black-box and White-box approaches.

Black-box test definitely utilize information of the internal structure. Black-box test design is generally describe as concentrating on testing functional requirements.

White-box test concentrates particularly on utilizing internal knowledge of the product to manage the selection of test data. This testing methodology looks into the subsystem of an application.

Table 6.7 Black-box vs White-box

Black-box testing	**White-box testing**
Testing the application based on its behavior.	Testing the application by using internal structure of the coding of application.
Testers involve in this type of testing.	Developer and testers will involve in this type of testing.

6.3.1 Classes of tests

According to Rehman Zafar (2012, March 20), there are three sorts of test which are security testing, error handling and user acceptance test.

i. Security Test

This test is to make sure only the authorize user of Addura Online Ordering System can access into the system.

ii. Error Handling Test

Error handling test is to verify that the system will allow just right data from the client. The error message will appear if any wrong information that entered by the client.

iii. User Acceptance Test

This test is to guarantee that this system is easy to understand for the clients which is the staff, administrator or customer of Addura Online Ordering System. The system GUI must be clear and convenient for user to use based on IT knowledge level among them.

6.4 Test Design

There are two type of test design which are test description and test data. Test description will describe the test case, expected result, and test data about user acceptance.

6.4.1 Test Description

Test description consist of reported which complete to identify the test case and expected result for every module. This test will recognize the test case to be actualized for this project.

6.4.1.1 User Authentication Management

Table 6.8 Test Description of Log In Module

Test Case ID	Description	Testing Type	Expected Result
TC_01-1	Invalid Username/ Invalid Password	Unit testing / Integration	'Invalid username or password' message will appear.
TC_01-2	Username blank / Password blank	Unit testing / Integration	'Please fill out this field' message appeared.
TC_01-3	Valid Username and Password	Unit testing / Integration	User can log in to the system successfully.

6.4.1.2 Registration of New Customer

Table 6.9 Test Description of Sign Up Form Module

Test Case ID	Description	Testing Type	Expected Result
TC_02-1	All fields are blank	Unit testing / Integration	'Please fill out this field' message will appear for each field.
TC_02-2	Valid input for each field	Unit testing / Integration	New customer register successfully saved in the database.

6.4.1.3 Registration of New Product

Table 6.10 Test Description of Product Form Module

Test Case ID	Description	Testing Type	Expected Result
TC_03-1	All fields are blank	Unit testing / Integration	'Please fill out this field' message will appear for each field.
TC_03-2	Valid input for each field	Unit testing / Integration	New product register successfully saved in the database.

6.4.1.4 Manage Update Customer Profile

Table 6.11 Test Description of Update Customer Profile Module

Test Case ID	Description	Testing Type	Expected Result
TC_04-1	Update selected data.	Unit testing / Integration	'Successfully Updated' message will appear.
TC_04-2	icNo cannot update.	Unit testing / Integration	The field of the identity card number cannot be click.

6.4.1.5 Manage New Order

Table 6.12 Test Description of Add Order Form Module

Test Case ID	Description	Testing Type	Expected Result
TC_05-1	Select product quantity	Unit testing / Integration	'Product was added to your cart' message will appear for each purchase and calculate the subtotal product price.
TC_05-2	Click remove product button	Unit testing / Integration	'Product was removed from your cart' message will appear and minus the subtotal price.
TC_05-3	Click checkout button	Unit testing / Integration	Calculate the total product price.
TC_05-4	Click confirm button	Unit testing / Integration	New order successfully saved in the database and display receipt of product purchase.

6.4.1.6 Manage Search Order

Table 6.13 Test Description of Search Order Module

Test Case ID	Description	Testing Type	Expected Result
TC_06-1	Field are blank	Unit testing / Integration	'Please fill out this field' message will appear for each field.
TC_06-2	Valid input for the field	Unit testing / Integration	Shows the order details based on input.
TC_06-3	Invalid input for the field	Unit testing / Integration	Does not shows the order details.

6.4.1.7 Manage Restock Product

Table 6.14 Test Description of Restock Product Module

Test Case ID	Description	Testing Type	Expected Result
TC_07-1	All fields are blank	Unit testing / Integration	'Please fill out this field' message will appear.
TC_07-2	Valid input for each field	Unit testing / Integration	New quantity product successfully saved in the database.

6.4.1.8 Manage Archived Order

Table 6.15 Test Description of Archived Order Module

Test Case ID	Description	Testing Type	Expected Result
TC_08-1	Click archived button	Unit testing / Integration	'Do you want to archived?' message will appear.
TC_08-2	Valid input for the field	Unit testing / Integration	'Done archived' message will appear.

6.4.1.9 Manage Transaction Payment

Table 6.16 Test Description of Transaction Payment Form Module

Test Case ID	Description	Testing Type	Expected Result
TC_09-1	All fields are blank	Unit testing / Integration	'Please fill out this field' message will appear.
TC_09-2	Valid input for each field	Unit testing / Integration	New payment information successfully saved in the database.

6.4.1.10 Manage Sales Reporting

Table 6.17 Test Description of Sales Reporting Module

Test Case ID	Description	Testing Type	Expected Result
TC_10-1	Select sales reporting type	Unit testing / Integration	Go to page reporting selected.

6.4.2 Test Data

Test data was utilized for confirmation of the expected result.

6.4.2.1 User Authentication Management

Table 6.18 Test Data of Log In Module

Column Name	TD_01-1	TD_01-2	TD_01-3
Test Case ID	TC_01-1	TC_01-2	TC_01-3
User ID	nikiffah		940416015792
Password	nik123		nik1234
Result Test Data	Log in failed. Invalid username and password	Log in failed. Username and password are required to access into the system.	User log in successfully.

6.4.2.2 Registration of New Customer

Table 6.19 Test Data of Customer Form Module

Column Name	TD_02-1	TD_02-2
Test Case ID	TC_02-1	TC_02-2
Customer Form	User does not filled up the fields. icNo : Name : Gender : Address : PhoneNo : DateOfBirth : Password :	User filled up the fields with the correct value. icNo : 940416015792 Name : Nik Iffah Nabilah Binti Nik Hussin Gender : Female Address : Blok C-02-04, Perumahan K.I.K, 81560 Gelang Patah, Johor Bahru, Johor. PhoneNo : 0177696925 DateOfBirth : 16-APR-1994 Password : nik1234
Result Test Data	Error handling will appear that tell the user to fill up the fields.	All the data successfully saved into the database.

6.4.2.3 Registration of New Product

Table 6.20 Test Data of Product Form Module

Column Name	TD_03-1	TD_03-2
Test Case ID	TC_03-1	TC_03-2
Product Form	Users does not filled up the fields. ProductNo : ProductName : Price : CurrentQuantity : TotalQuantity : Description : Picture :	Users filled up the fields with the correct value. ProductNo : M119 ProductName : Moisturizer Price : RM40 CurrentQuantity : 100 TotalQuantity : 100 Description : Embrace a future of youthful beauty. Picture : moisturizer.jpg
Result Test Data	Error handling will appear that tell the user to fill up the fields.	All the data successfully saved into the database.

6.4.2.4 Manage Update Customer Profile

Table 6.21 Test Data of Update Customer Profile Module

Column Name	TD_04-1	TD_04-2
Test Case ID	TC_04-1	TC_04-2
Customer Form	User update the selected data. icNo : 940416015792 Name : Nik Iffah Nabilah Binti Nik Hussin Gender : Female Address : Blok C-02-04, Perumahan K.I.K, 81560 Gelang Patah, Johor Bahru, Johor. PhoneNo : 0177696925 DateOfBirth : 16-APR-1994 Password : nik123	User identity card number cannot be updated. icNo : 940416015792
Result Test Data	Will save new data into database.	Cannot update the data.

6.4.2.5 Manage New Order

Table 6.22 Test Data of Add Order Form Module

Column Name	TD_05-1	TD_05-2	TD_05-3	TD_05-4
Test Case ID	TC_05-1	TC_05-2	TC_05-3	TC_05-4
Staff Form	User select product quantity in add to cart. ProductName : Moisturizer Quantity : 1	User click button remove product in order details. ProductName : Moisturizer Quantity : 1 Subtotal : RM40	User click button checkout in order details. ProductName : Moisturizer Quantity : 1 Subtotal : RM40 Total : RM40	User click button confirm in order details. ProductName : Moisturizer Quantity : 1 Subtotal : RM40 Total : RM40
Result Test Data	Will save new data into database.	All the data successfully deletes from the database.	Will automatically navigate to confirm order page.	All the data successfully saved into the database.

6.4.2.6 Manage Search Order

Table 6.23 Test Data of Search Order Module

Column Name	TD_06-1	TD_06-2	TD_06-3
Test Case ID	TC_06-1	TC_06-2	TC_06-3
Staff Form	Users does not filled up the fields. Search Order here :	Users filled up the fields with the correct value. Search Order here : OR273	Users does not filled up the fields with the correct value. Search Order here : delivered
Result Test Data	Error handling will appear that tell the user to fill up the fields.	Will automatically navigate to order details page based on user selection and show the data.	Will automatically navigate to order details page and does not show the data.

6.4.2.7 Manage Restock Product

Table 6.24 Test Data of Restock Product Module

Column Name	TD_07-1	TD_07-2
Test Case ID	TC_07-1	TC_07-2
Restock Product Form	User does not filled up the fields. ProductNo : SerialNo :	Users filled up the fields with the correct value. ProductNo : M119 SerialNo : 7938503285
Result Test Data	Error handling will appear that tell the user to fill up the fields.	All the data successfully saved into the database.

6.4.2.8 Manage Archived Order

Table 6.25 Test Data of Archived Order Module

Column Name	TD_08-1	TD_08-2
Test Case ID	TC_08-1	TC_08-2
Staff Form	User click button archived in list of order. Order No : OR273	Users filled up the fields with the correct value. Order No : OR273
Result Test Data	Will automatically navigate to archived page based on user selection.	All the data successfully archived into the database.

6.4.2.9 Manage Transaction Payment

Table 6.26 Test Data of Transaction Payment Module

Column Name	TD_09-1	TD_09-2
Test Case ID	TC_09-1	TC_09-2
Staff Form	Users does not filled up the fields. accountNo : paymentType : paymentDate : paymentStatus : orderNo : receipt :	Users filled up the fields with the correct value. accountNo : 101011151953 paymentType : Online Banking paymentDate :10-AUG-2016 paymentStatus : Done orderNo : OR273 receipt : receipt.jpg
Result Test Data	Error handling will appear that tell the users to fill up the fields.	All the data successfully saved into the database.

6.4.2.10 Manage Sales Reporting

Table 6.27 Test Data of Sales Reporting Module

Column Name	TD_10-1
Test Case ID	TC_10-1
Staff Form	Users select sales reporting type reportType : monthly sales
Result Test Data	Will automatically navigate to reporting page based on user selection and show the current sales reporting based on selection.

6.5 Test Results and Analysis

Test results and analysis is to test the system possibly it is in achievement or fail condition and all predicts output from the Addura Online Ordering System to verify it will function effectively.

6.5.1 User Authentication Management

Table 6.28 Test Result and Analysis of Log In Module

Module / Component		**Result**		
Test Case ID	**Test Data ID**	**Description**	**Success**	**Fail**
TC_01-1	TD_01-1	User IC and Password not exist	√	
TC_01-2	TD_01-2	User IC and Password fields are blank	√	
TC_01-3	TD_01-3	Valid User IC and Password	√	

6.5.2 Registration of New Customer

Table 6.29 Test Result and Analysis of Customer Form Module

Module / Component		Result		
Test Case ID	**Test Data ID**	**Description**	**Success**	**Fail**
TC_02-1	TD_02-1	All fields blank	√	
TC_02-2	TD_02-2	Valid data for all fields	√	

6.5.3 Registration of New Product

Table 6.30 Test Result and Analysis of Product Form Module

Module / Component		Result		
Test Case ID	**Test Data ID**	**Description**	**Success**	**Fail**
TC_03-1	TD_03-1	All fields blank	√	
TC_03-2	TD_03-2	Valid data for all fields	√	

6.5.4 Manage Update Customer Profile

Table 6.31 Test Result and Analysis of Update Customer Profile Form Module

Module / Component		Result		
Test Case ID	**Test Data ID**	**Description**	**Success**	**Fail**
TC_04-1	TD_04-1	Update the selected data.	√	
TC_04-2	TD_04-2	Identity card number cannot update.	√	

6.5.5 Manage New Order

Table 6.32 Test Result and Analysis of Add Order Form Module

Module / Component		Result		
Test Case ID	**Test Data ID**	**Description**	**Success**	**Fail**
TC_05-1	TD_05-1	Select product quantity.	√	
TC_05-2	TD_05-2	Click remove product button.	√	
TC_05-3	TD_05-3	Click checkout button.	√	
TC_05-3	TD_05-4	Click confirm button.	√	

6.5.6 Manage Search Order

Table 6.33 Test Result and Analysis of Search Order Module

Module / Component		Result		
Test Case ID	**Test Data ID**	**Description**	**Success**	**Fail**
TC_06-1	TD_06-1	Fields blank.	√	
TC_06-2	TD_06-2	Valid input for the fields.	√	
TC_06-3	TD_06-3	Invalid input for the fields.	√	

6.5.7 Manage Restock Product

Table 6.34 Test Result and Analysis of Restock Product Form Module

Module / Component		Result		
Test Case ID	**Test Data ID**	**Description**	**Success**	**Fail**
TC_07-1	TD_07-1	All fields blank.	√	
TC_07-2	TD_07-2	Valid input for all fields.	√	

6.5.8 Manage Archived Order

Table 6.35 Test Result and Analysis of Archived Order Module

Module / Component		Result		
Test Case ID	**Test Data ID**	**Description**	**Success**	**Fail**
TC_08-1	TD_08-1	Click archived button.	√	
TC_08-2	TD_08-2	Valid input for the field.	√	

6.5.9 Manage Transaction Payment

Table 6.36 Test Result and Analysis of Transaction Payment Module

Module / Component		Result		
Test Case ID	**Test Data ID**	**Description**	**Success**	**Fail**
TC_09-1	TD_09-1	All fields blank.	√	
TC_09-2	TD_09-2	Valid input for the field.	√	

6.5.10 Manage Sales Reporting

Table 6.37 Test Result and Analysis of Sales Reporting Module

Module / Component		Result		
Test Case ID	**Test Data ID**	**Description**	**Success**	**Fail**
TC_10-1	TD_10-1	Select sales reporting type.	√	

6.6 Conclusion

The connection between the customer and the system are the most important to be understand. The great connection between the system and database will guarantee that all customer were easy to retrieve and manipulate data. Each stage has been describe in details in this chapter.

Chapter VII will conclude all of the activities that have been implemented through the development of Addura Online Ordering System.

CHAPTER VII

CONCLUSION

7.1 Introduction

This last chapter will explain about the conclusion of this project. Addura Online Ordering System has been developed effectively within the time given. This chapter will be divide into a few sub topic and firstly it will explain about the weaknesses and strengths of this system. For the weaknesses, the developed will enhance this system at whenever to make this system more viable and helpful for the client. Recommendations on how this system can be enhanced will be expressed in next sub topics which is suggestions for development. To wrap things up, this chapter likewise will express the commitment of this project in the last sub topic.

7.2 Observation on Weaknesses and Strengths

Each system has an own advantages and disadvantages of the procedure the system. Advantages are being available about the system strength and disadvantages are available about the system weakness.

7.2.1 System Strength

A few points of advantages of this system have been identified. Among them are:

I. Easily dealing with all the information included in this Addura Online Ordering System utilizing the computerized system. All information data will be kept from being lost instead of paper records which easily being harmed.

II. Data is more secure by putting all the data in a centralized database. The database is provided to allow storage and retrieval of data to be generated.

III. The system has a different level of access that allows all parties involved to navigate those according to their level of access.

7.2.2 System Weaknesses

A few points of weaknesses of this system have been identified. Among them are:

I. Among the flaws in this system is does not have much security on the database which backup and recovery if a problem occurs. This is important if something unmanageable happens to the system in the future.

II. If the product is out of stock, there is no notification that can notify the staff to restock the product.

III. If staff want to archive the order data, they need to click the button. Don't have a system that can automatically archived the data after a certain time.

7.3 Propositions for Improvement

For proposed elements, there are a few suggestions to improve the system :

I. Implement password security by using encryption, to avoid intrusions occur. Passwords stored in the database must be in a condition that is safe and is only known by the user itself. And if a user forgets a password, then the admin will reset the password with a default password and after successfully entering the system users need to change the password.

II. Send notification via email to the user upon purchase. The email contains purchase information and can be used as a reference source for warranty in the event of damage after purchase.

III. Make this system as an mobile phone application, with the goal that it can be utilize and access by more clients as these days majority of Malaysian citizen have an smart phone which can be utilized to get to the web application.

7.4 Project Contribution

There are many contributions that have been traced if using this system. One of his contributions is able to facilitate the work of purchasing Addura Cosmetics products. The buyer does not need to come to a place and meet face to face to buy this cosmetics anymore. Thus it saves time, energy and money if the system is launched to the public and they just need internet network only. The second contribution is that after seeing the specifications of the product, the purchaser may continue through online transactions. So it can increase the amount of the product purchase. Finally, the system can generate various sales reports to the Manager for the purposes of analysis and reference. Among the reports that can be generated is sales by month and year.

7.5 Conclusion

In a conclusion, this system has succeeds in achieving its objectives. The objectives of this project are to provide complete information about the product details. Second objective is to be display the exact total price of product purchase by customer. Last objective is to accurately display the total stock by hand for each product. This project is built using DBLC methodology.

The conclusion that can be made was this system has been successfully developed and have meet the requirements mentioned at the earlier stage of the system development. Yet, there are still a few weaknesses in specific parts of the system that need to be improved in the future. The improvement makes the system better and more comprehensive. Nevertheless, this system has achieved the entire objectives.

REFERENCES

Brown, M. S. (n.d.). *Next-Generation Databases Take On Big Data Management Challenges*. Retrieved from Forbes: http://www.forbes.com/sites/metabrown/2015/06/30/next-generation-databases-take-on-big-data-management-challenges/#2d54532c2d23

Designing Database. (n.d.). Retrieved from http://www2.amk.fi/digma.fi/www.amk.fi/opintojaksot/0303011/1142845462205/1142847774995/1142849037295/1143037341377.html

Ghahrai, A. (2008, NOVEMBER 9). *Test Strategy and Test Plan*. Retrieved from Testing Excellence: http://www.testingexcellence.com/test-strategy-and-test-plan/

Introduction to Very Large Database. (n.d.). Retrieved from https://docs.oracle.com/cd/B28359_01/server.111/b32024/intro.htm

Phases in Database Development Life Cycle. (2011, March 4). Retrieved from http://www.avcs.co.uk/phases-in-database-development-life-cycle-2/

APPENDIX A : Figure 2.1 : Gantt Chart Activity

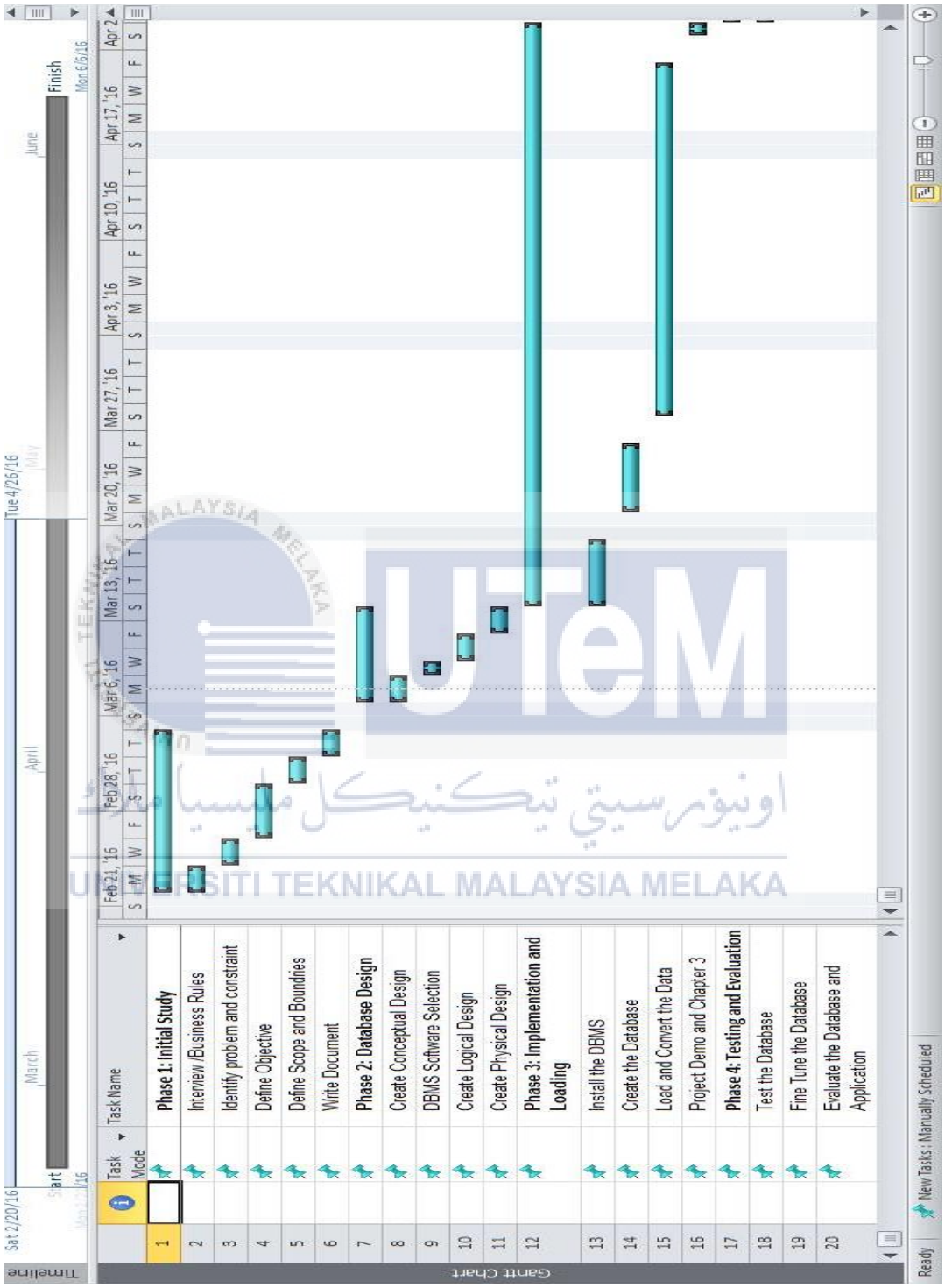


Figure 2.1 : Gantt Chart Activity

APPENDIX B : Table 4.10 : Table Trigger Before

No.	Trigger	Description

2	create or replace TRIGGER beforeInsertProduct
	BEFORE INSERT ON product
	FOR EACH ROW
	DECLARE
	dummy INTEGER;
	BEGIN
	IF (:new.productNo IS NULL)THEN
	SELECT product_seq.nextval INTO (:new.productNo)
	FROM DUAL;
	END IF;
	IF (:new.productName = 'Black Soap') THEN
	:new.productNo := TO_CHAR('BS')||:new.productNo;
	ELSIF (:new.productName = 'Moisturizer') THEN
	:new.productNo := TO_CHAR('M')||:new.productNo;
	ELSIF (:new.productName = 'Day Cream') THEN
	:new.productNo := TO_CHAR('DC')||:new.productNo;
	ELSIF (:new.productName = 'Night Cream') THEN
	:new.productNo := TO_CHAR('NC')||:new.productNo;
	ELSIF (:new.productName = 'Magic Foam') THEN
	:new.productNo := TO_CHAR('MF')||:new.productNo;
		A trigger is done to produce a unique number to be used as the primary key for table product.

	ELSIF (:new.productName = 'Whitening Toner') THEN
	:new.productNo := TO_CHAR('WT')||:new.productNo;
	ELSIF (:new.productName = 'Toner Sensitive Skin')
	THEN
	:new.productNo := TO_CHAR('TSS')||:new.productNo;
	ELSIF (:new.productName = 'Cleansing Gel') THEN
	:new.productNo := TO_CHAR('CG')||:new.productNo;
	END IF;
	SELECT COUNT(*)
	INTO dummy
	FROM product
	WHERE productName = :new.productName;
	IF (dummy > 0) THEN
	Raise_application_error(-20002, 'ALREADY
	EXIST:'||:new.productName);
	END IF;
	END;	

3	create or replace TRIGGER beforeInsertProductDetail BEFORE INSERT ON product_detail FOR EACH ROW DECLARE d_id product_detail.detailNo%TYPE; BEGIN	A trigger is done to produce a unique number to be used as the primary key for table product_detail.

	SELECT detail_seq.nextval INTO d_id FROM DUAL; :new.detailNo :='DETAIL'||d_id; END;	

4	create or replace TRIGGER beforeInsertCart
	BEFORE INSERT ON CART
	FOR EACH ROW
	DECLARE
	c_id cart.cartNo%TYPE;
	BEGIN
	SELECT cart_seq.nextval INTO c_id FROM DUAL;
	:new.cartNo :='CART'||c_id;
	update product
	set currentquantity = currentquantity - :new.quantity
	where productNo = :new.productNo;
	exception when others then
	if sqlerrm like 'ORA 02290:%(NIKIFFAH.PROD_CHK)%' then
	raise_application_error(-20202,'Insufficient quantity on hand');
	else
	raise;
	end if;
	END;
		A trigger is done to produce a unique number to be used as the primary key for table cart. This trigger will take the current quantity of each product selected.

5	create or replace TRIGGER beforeInsertOrder BEFORE INSERT ON custorder FOR EACH ROW DECLARE o_id custorder.orderNo %TYPE; BEGIN SELECT order_seq.nextval INTO o_id FROM DUAL; :new.orderNo :='OR'||o_id; :new.orderDate := to_char(sysdate,'DD-MON-YY'); END;	A trigger is done to produce a unique number to be used as the primary key for table order.

APPENDIX C : Table 4.12 : Table Procedure Insert

No.	Procedure	Description
2	create or replace PROCEDURE orderInsert (v_quantityPurchase VARCHAR2, v_totalPrice VARCHAR2, v_status VARCHAR2, v_trackingNo VARCHAR2, v_icNo VARCHAR2) IS BEGIN INSERT INTO CUSTORDER (orderDate, quantityPurchase, totalPrice, orderStatus, trackingNo, icNo) VALUES (sysdate,v_quantityPurchase,v_totalPrice,v_status, v_trackingNo,v_icNo); END;	This procedure occurs before insert data in table custorder.
3	create or replace PROCEDURE paymentInsert (p_accountNo VARCHAR2, p_paymentDate VARCHAR2, p_paymentType VARCHAR2, p_paymentStatus VARCHAR2, p_orderNo VARCHAR2) IS BEGIN	This procedure occurs before insert data in table payment.

	INSERT INTO PAYMENT (accountNo,paymentDate,paymentType,paymentStatus, orderNo) VALUES (p_accountNo,to_date(p_paymentDate,'yyyy-mm-dd'), p_paymentType,p_paymentStatus,p_orderNo); END;	
4	create or replace PROCEDURE staffInsert (v_name VARCHAR2, v_gender VARCHAR2, v_icNo VARCHAR2, v_address VARCHAR2, v_phoneNo VARCHAR2, v_dateOfBirth VARCHAR2, v_position VARCHAR2, v_password VARCHAR2) IS BEGIN INSERT INTO STAFF(name, gender, icNo, address, phoneNo, dateOfBirth,position, password) VALUES (v_name,v_gender,v_icNo,v_address,v_phoneNo, to_date(v_dateOfBirth,'yyyy-mm-dd'),v_position, v_password); END;	This procedure occurs before insert data in table staff.

APPENDIX D

USER MANUAL FOR CUSTOMER

1. For the first time user, need to register to use the system.

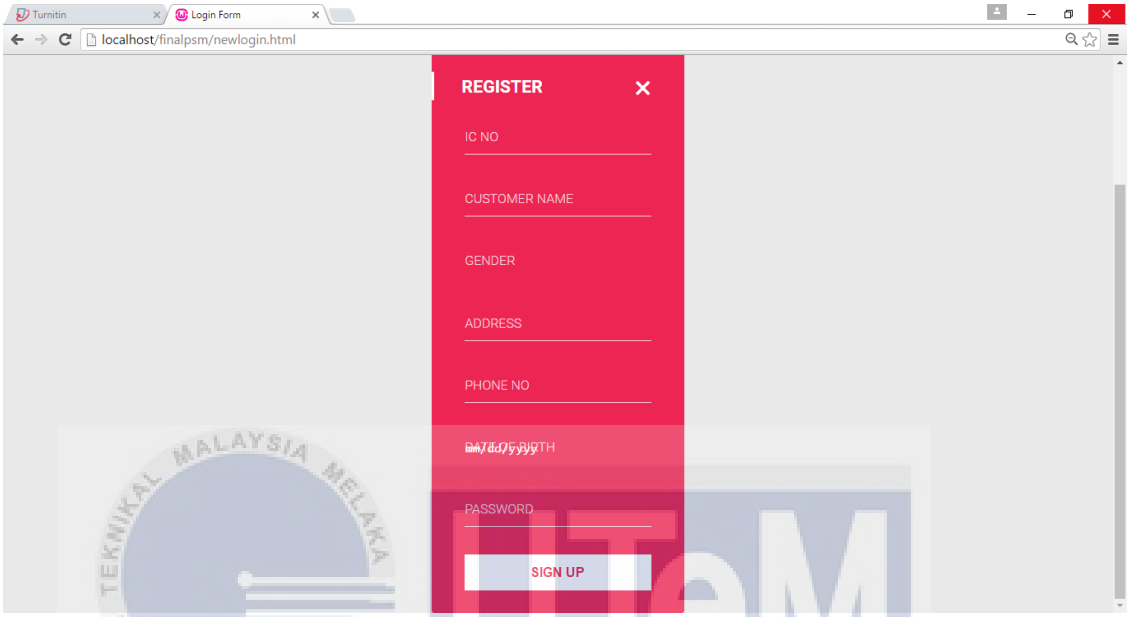


Figure D.1 Register Page

2. Insert Username and Password to login the system.

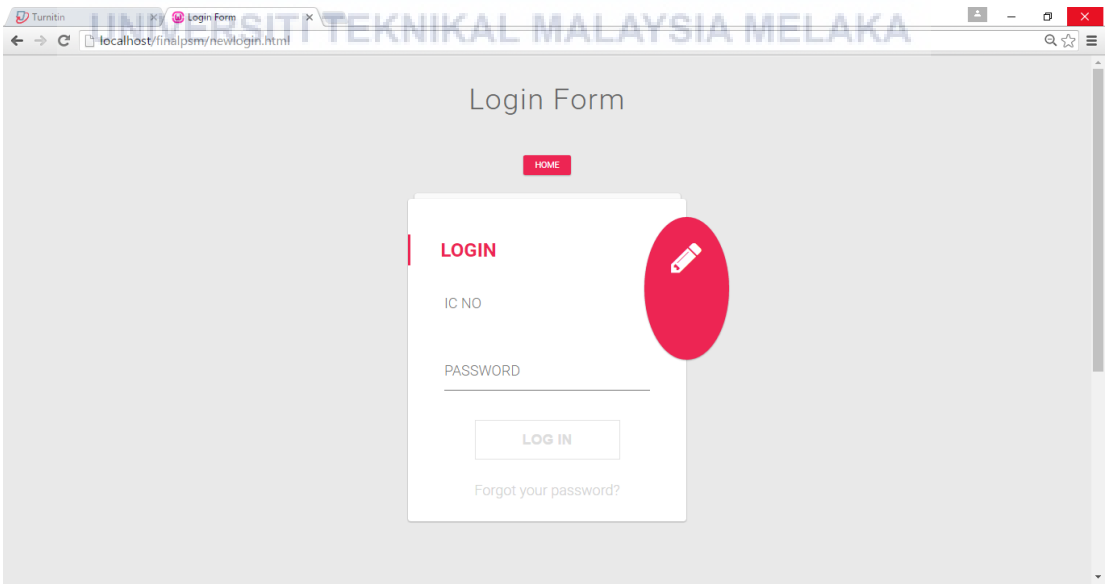


Figure D.2 Login Page

3. Figure D.3 is the homepage of the system, the user can select profile, make order, payment or view order.

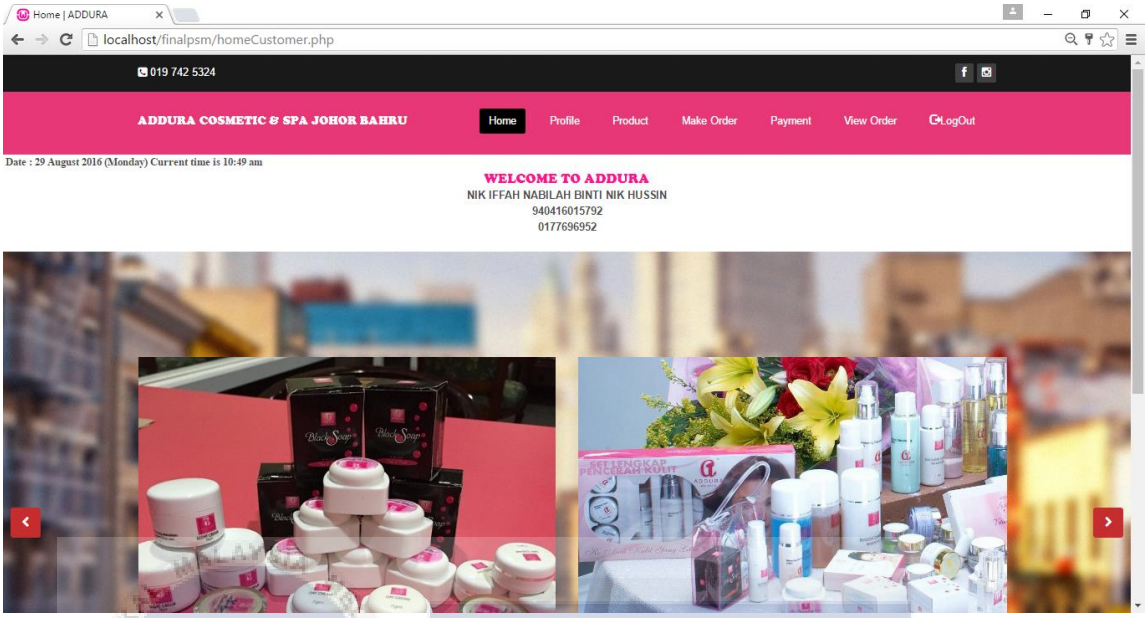


Figure D.3 Customer Menu Bar

4. In Figure D.4 is show the interface to update profile customer. Fill up the form then update to the system. The data will save in the database.

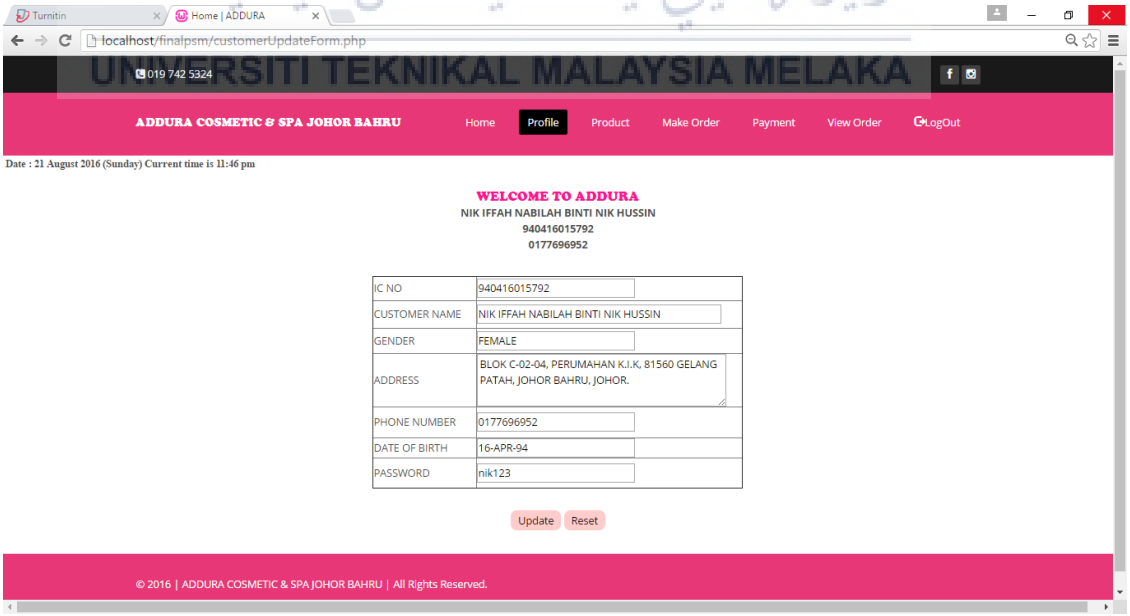


Figure D.4 Customer Update Profile Page

5. To view the product detail, user can click Product.

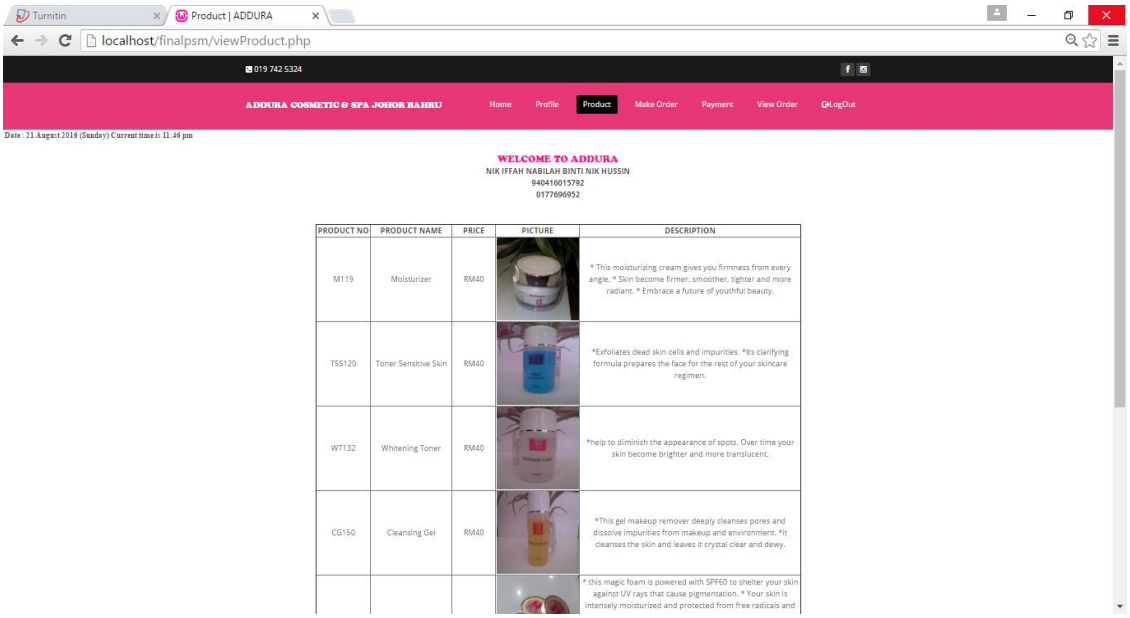


Figure D.5 View Product Detail

6. To make order, customer can insert the quantity and then click on the add to cart button.

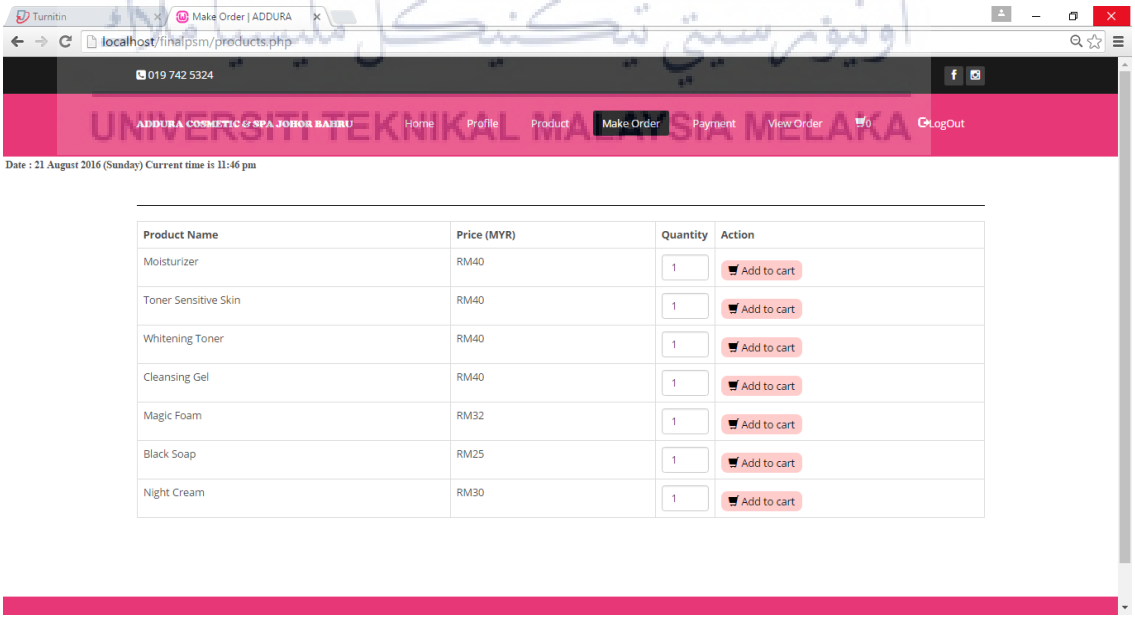


Figure D.6 Make Order

7. Customer can print order receipt after done make order.

Figure D.7 Print Order Receipt

8. To make the payment, user need to enter account number, payment date, choose order number and upload payment receipt as prove.

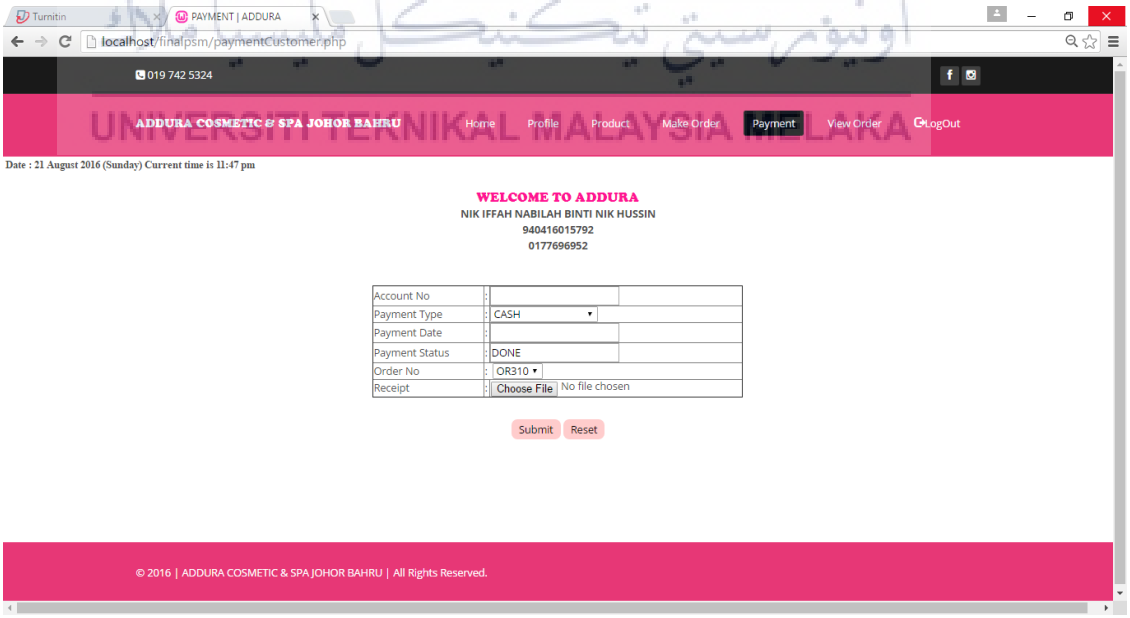
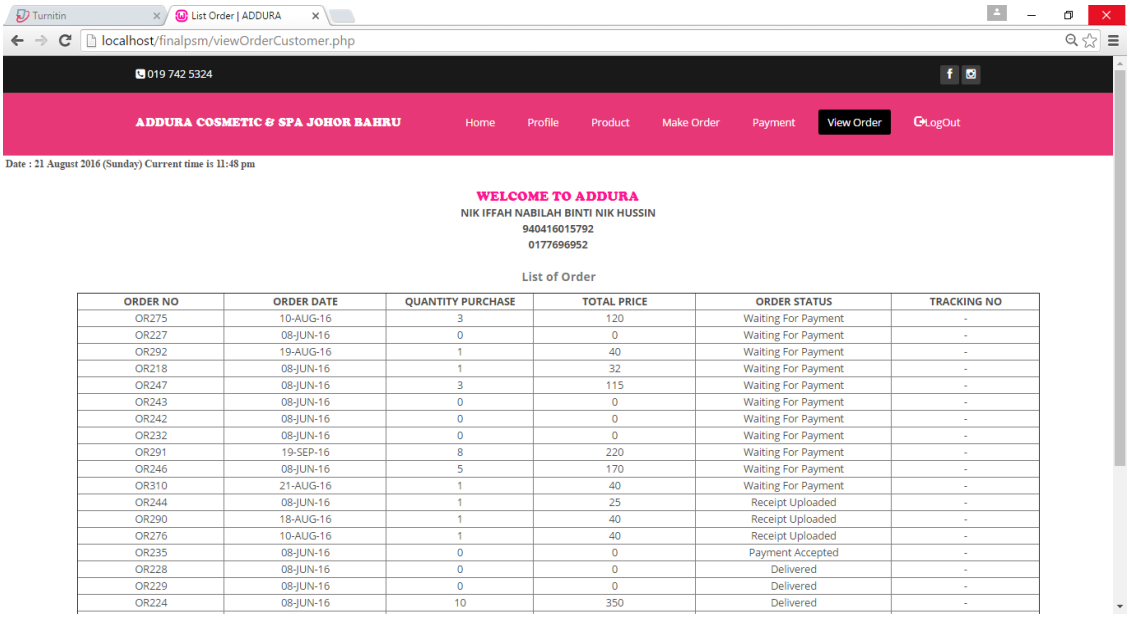


Figure D.8 Make Payment Page

9. Customer can view list of order to check their order status and tracking number.



ORDER NO	ORDER DATE	QUANTITY PURCHASE	TOTAL PRICE	ORDER STATUS	TRACKING NO
OR275	10-AUG-16	3	120	Waiting For Payment	-
OR227	08-JUN-16	0	0	Waiting For Payment	-
OR292	19-AUG-16	1	40	Waiting For Payment	-
OR218	08-JUN-16	1	32	Waiting For Payment	-
OR247	08-JUN-16	3	115	Waiting For Payment	-
OR243	08-JUN-16	0	0	Waiting For Payment	-
OR242	08-JUN-16	0	0	Waiting For Payment	-
OR232	08-JUN-16	0	0	Waiting For Payment	-
OR291	19-SEP-16	8	220	Waiting For Payment	-
OR246	08-JUN-16	5	170	Waiting For Payment	-
OR310	21-AUG-16	1	40	Waiting For Payment	-
OR244	08-JUN-16	1	25	Receipt Uploaded	-
OR290	18-AUG-16	1	40	Receipt Uploaded	-
OR276	10-AUG-16	1	40	Receipt Uploaded	-
OR235	08-JUN-16	0	0	Payment Accepted	-
OR228	08-JUN-16	0	0	Delivered	-
OR229	08-JUN-16	0	0	Delivered	-
OR224	08-JUN-16	10	350	Delivered	-

Figure D.9 View Order Status

USER MANUAL FOR STAFF

1. Insert Username and Password to login the system.

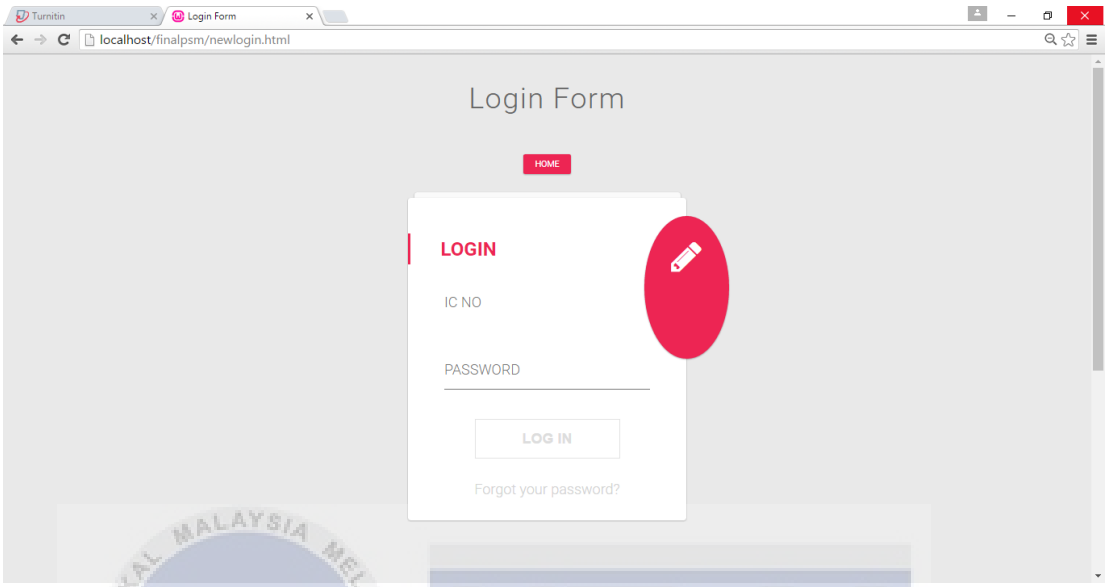


Figure D.10 Login Page

2. Figure D.11 is the homepage for staff from department operation. In this page, user can select Profile or Product.

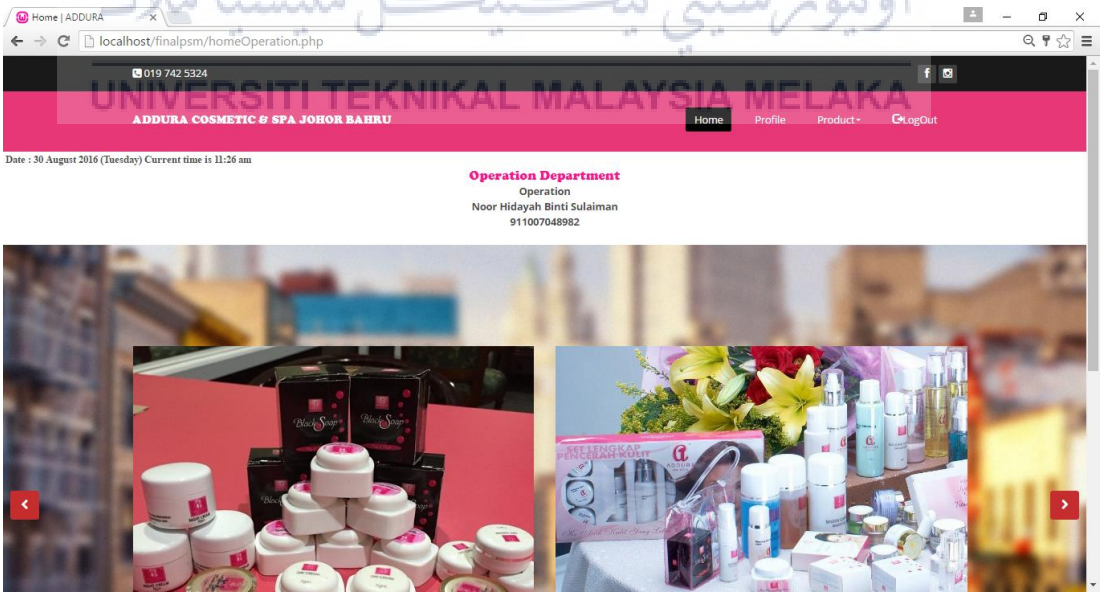


Figure D.11 Operation Staff Homepage

3. In Figure D.12 is show the interface to update profile. Fill up the form then update to the system. The data will save in the database.

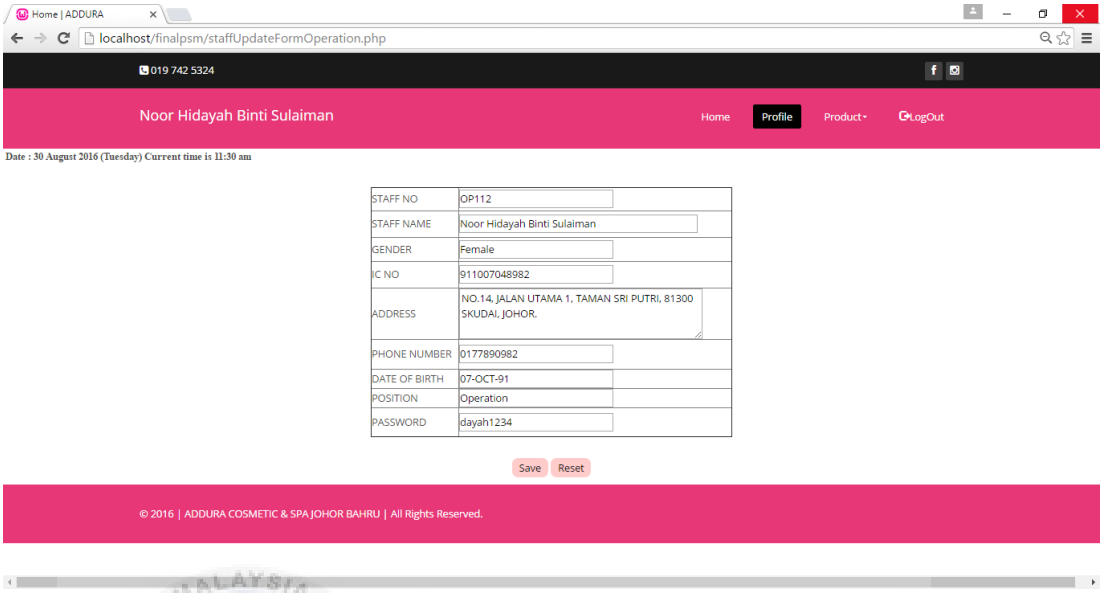


Figure D.12 Staff Update Profile Page

4. To add new product, user can click Add New Product. Then, choose product name, insert price, current quantity, total quantity, description and upload product picture.

Figure D.13 Add New Product

5. User can click on View Product to view the product details. If user want to restock the product, click on Restock button.

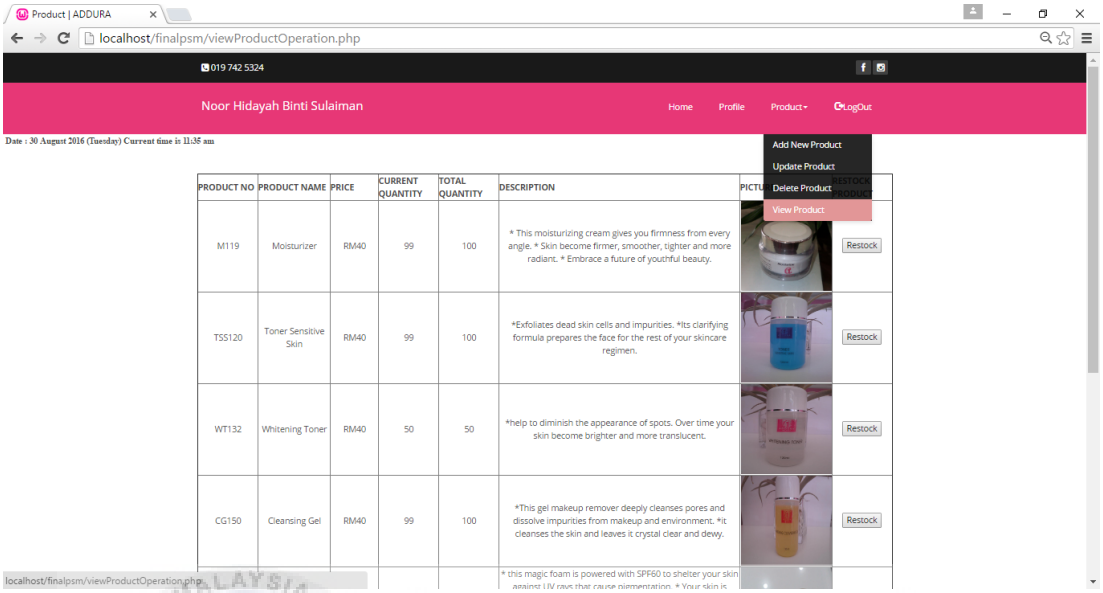


Figure D.14 View Product Details

6. User need to insert serial number of the product item. Click Add button to insert others serial number.

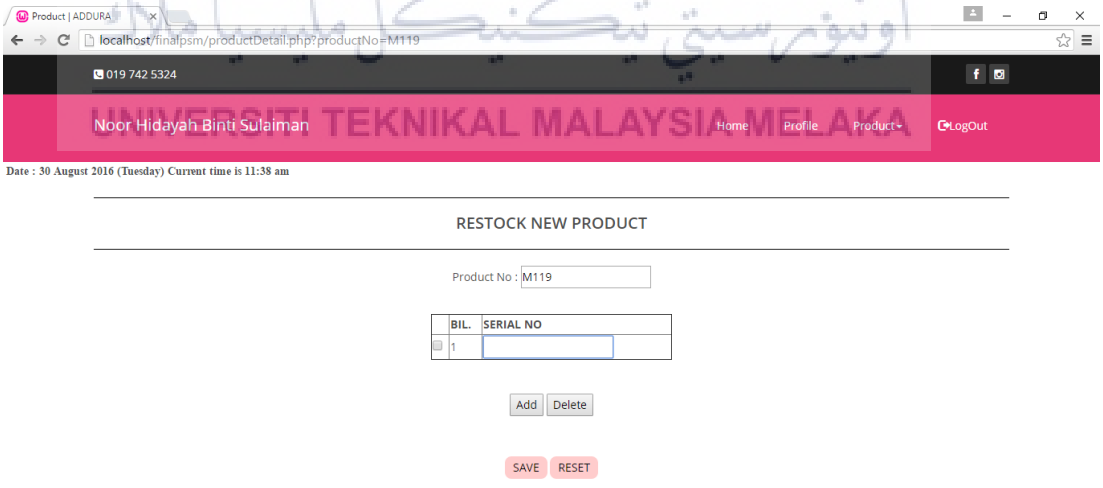
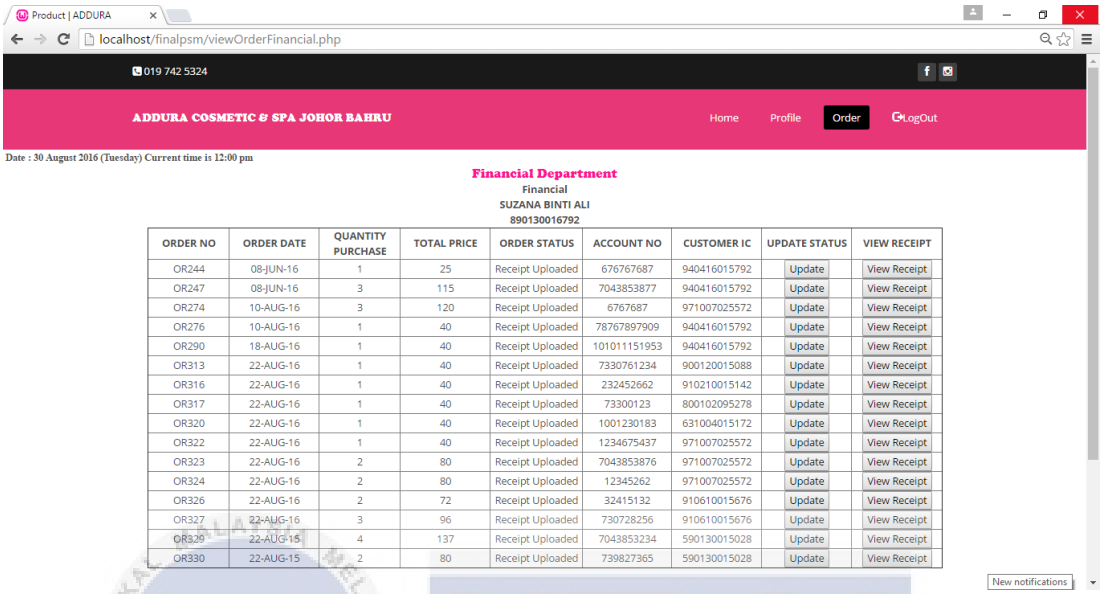


Figure D.15 Restock Product

7. After customer upload the receipt as a prove of payment, staff from financial department can view list of order based on order status ‘Receipt Uploaded’ and click the View Receipt button to view the receipt payment.



ORDER NO	ORDER DATE	QUANTITY PURCHASE	TOTAL PRICE	ORDER STATUS	ACCOUNT NO	CUSTOMER IC	UPDATE STATUS	VIEW RECEIPT
OR244	08-JUN-16	1	25	Receipt Uploaded	676767687	940416015792	Update	View Receipt
OR247	08-JUN-16	3	115	Receipt Uploaded	7043853877	940416015792	Update	View Receipt
OR274	10-AUG-16	3	120	Receipt Uploaded	6767687	971007025572	Update	View Receipt
OR276	10-AUG-16	1	40	Receipt Uploaded	78767897909	940416015792	Update	View Receipt
OR290	18-AUG-16	1	40	Receipt Uploaded	101011151953	940416015792	Update	View Receipt
OR313	22-AUG-16	1	40	Receipt Uploaded	7330761234	900120015088	Update	View Receipt
OR316	22-AUG-16	1	40	Receipt Uploaded	232452662	910210015142	Update	View Receipt
OR317	22-AUG-16	1	40	Receipt Uploaded	73300123	800102095278	Update	View Receipt
OR320	22-AUG-16	1	40	Receipt Uploaded	1001230183	631004015172	Update	View Receipt
OR322	22-AUG-16	1	40	Receipt Uploaded	1234675437	971007025572	Update	View Receipt
OR323	22-AUG-16	2	80	Receipt Uploaded	7043853876	971007025572	Update	View Receipt
OR324	22-AUG-16	2	80	Receipt Uploaded	12345262	971007025572	Update	View Receipt
OR326	22-AUG-16	2	72	Receipt Uploaded	32415132	910610015676	Update	View Receipt
OR327	22-AUG-16	3	96	Receipt Uploaded	730728256	910610015676	Update	View Receipt
OR329	22-AUG-15	4	137	Receipt Uploaded	7043853234	590130015028	Update	View Receipt
OR330	22-AUG-15	2	80	Receipt Uploaded	739827365	590130015028	Update	View Receipt

Figure D.16 View List of Order

8. Staff view the receipt payment.

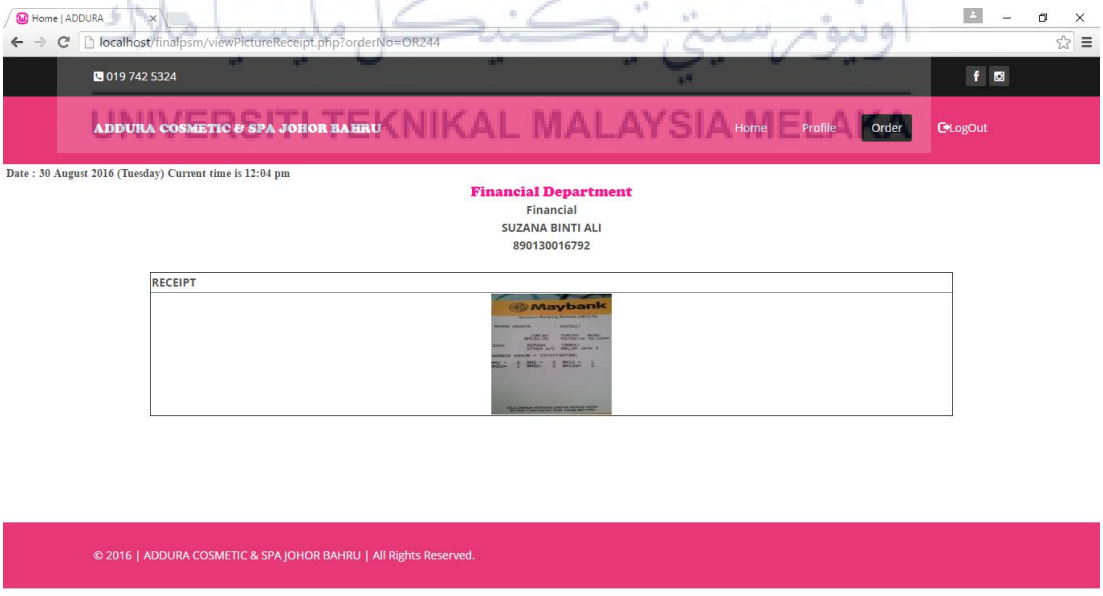


Figure D.17 View Receipt

9. After view the receipt payment, staff need to update the order status which is ‘Payment Accepted’.

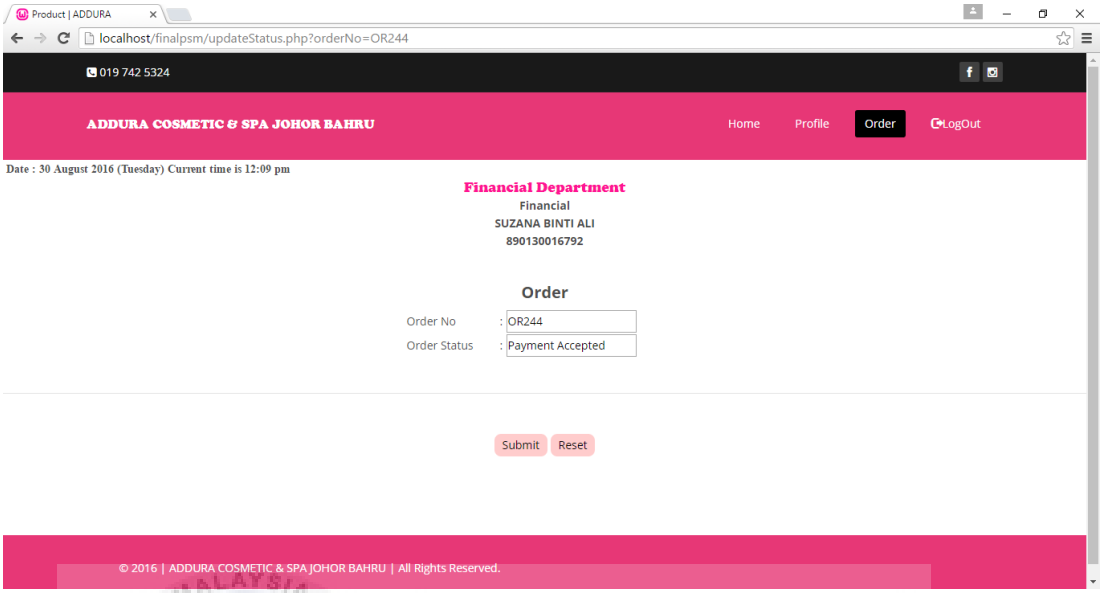
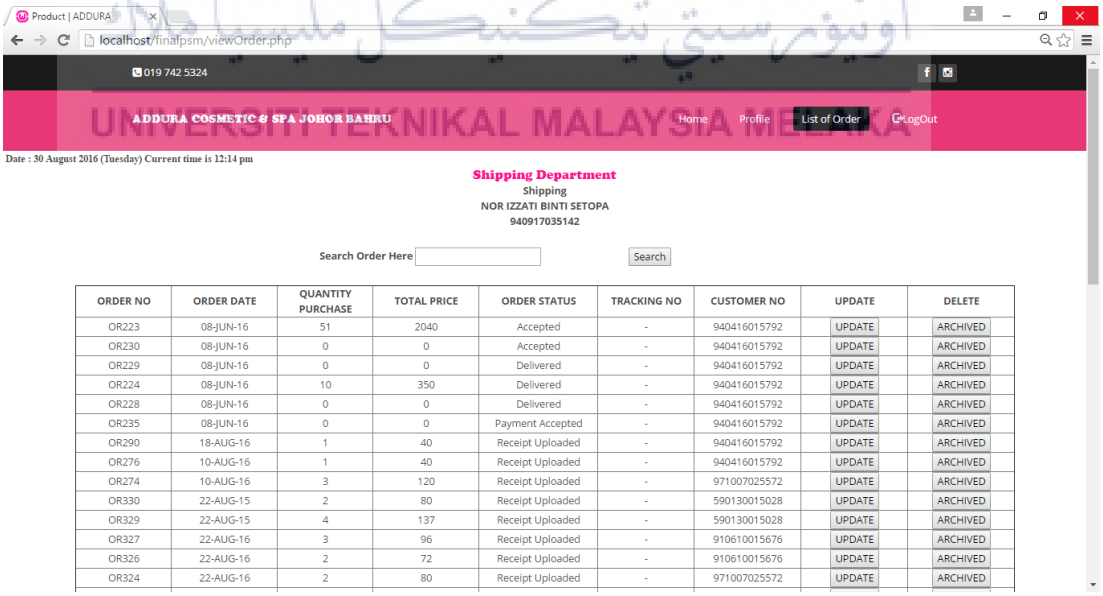


Figure D.18 Update Order Status

10. Staff from shipping department can view list of order and can click on update button or archived button.



ORDER NO	ORDER DATE	QUANTITY PURCHASE	TOTAL PRICE	ORDER STATUS	TRACKING NO	CUSTOMER NO	UPDATE	DELETE
OR223	08-JUN-16	51	2040	Accepted	-	940416015792	UPDATE	ARCHIVED
OR230	08-JUN-16	0	0	Accepted	-	940416015792	UPDATE	ARCHIVED
OR229	08-JUN-16	0	0	Delivered	-	940416015792	UPDATE	ARCHIVED
OR224	08-JUN-16	10	350	Delivered	-	940416015792	UPDATE	ARCHIVED
OR228	08-JUN-16	0	0	Delivered	-	940416015792	UPDATE	ARCHIVED
OR235	08-JUN-16	0	0	Payment Accepted	-	940416015792	UPDATE	ARCHIVED
OR290	18-AUG-16	1	40	Receipt Uploaded	-	940416015792	UPDATE	ARCHIVED
OR276	10-AUG-16	1	40	Receipt Uploaded	-	940416015792	UPDATE	ARCHIVED
OR274	10-AUG-16	3	120	Receipt Uploaded	-	971007025572	UPDATE	ARCHIVED
OR330	22-AUG-15	2	80	Receipt Uploaded	-	590130015028	UPDATE	ARCHIVED
OR329	22-AUG-15	4	137	Receipt Uploaded	-	590130015028	UPDATE	ARCHIVED
OR327	22-AUG-16	3	96	Receipt Uploaded	-	910610015676	UPDATE	ARCHIVED
OR326	22-AUG-16	2	72	Receipt Uploaded	-	910610015676	UPDATE	ARCHIVED
OR324	22-AUG-16	2	80	Receipt Uploaded	-	971007025572	UPDATE	ARCHIVED

Figure D.19 List of Order

11. Staff need to update the order status from ‘Payment Accepted’ to ‘Delivery Process’ and tracking number.

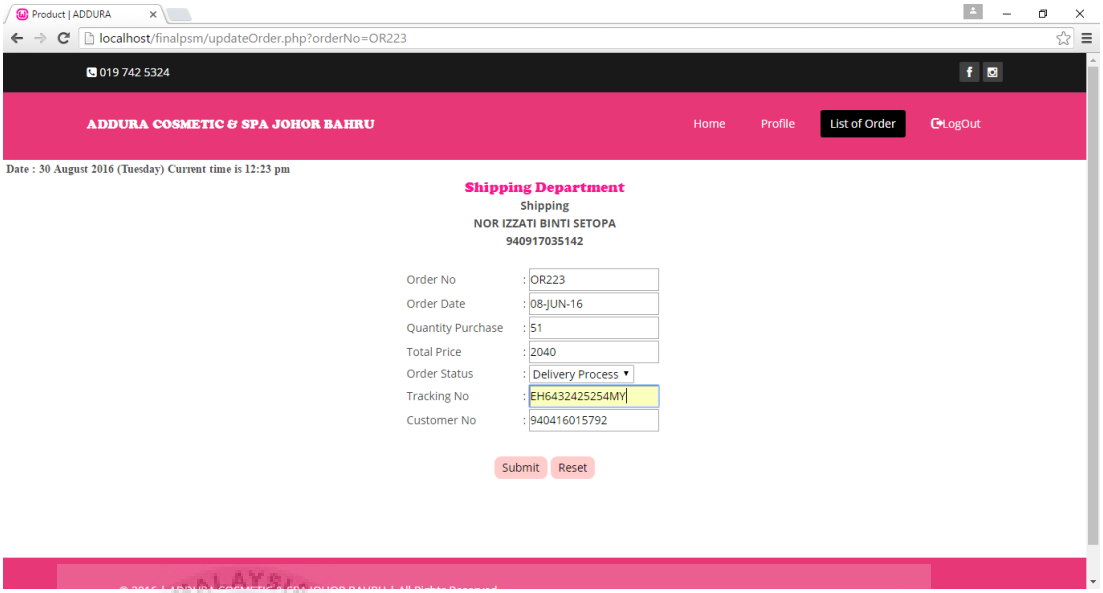


Figure D.20 Update Order Details