E-ADUAN LOST AND FOUND ITEM

NABILAH BINTI SHAMSHUR AZAM

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

BORANG PENGESAHAN STATUS TESIS*

JUDUL : E-ADUAN LOST AND FOUND ITEM

SESI : 2016

Saya NABILAH BINTI SHAMSHUR AZAM

mengaku membenarkan tesis Projek Sarjana Muda ini disimpan di Perpustakaan Fakulti 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 194 Apartment Bank Negara Malaysia, Jalan SS15/4e, 47500 Subang Jaya, Selangor Darul Ehsan.

Tarikh: 26/08/2016

(TANDATANGAN PENYELIA)

Encik Yahaya Bin Abd Rahim

Tarikh: 26/08/2016

CATATAN: * Tesis dimaksudkan sebagai Laporan Projek Sarjana Muda (PSM)

** Jika tesis ini SULIT atau TERHAD, sila lampirkan surat daripada pihak berkuasa

E-ADUAN LOST AND FOUND ITEM

NABILAH BINTI SHAMSHUR AZAM

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

E-ADUAN LOST AND FOUND ITEM

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

STUDENT : _____ Date : 26/08/2016
(NABILAH BINTI SHAMSHUR AZAM)

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 : 26/08/2016
(EN YAHAYA BIN ABD RAHIM)

DEDICATION

Dear Beloved Parents

Shamshur Azam Bin Musa and Noraini Binti Abu Seman

Thank you because always supporting me with a lot of motivation.

Dear Lecturers and Supervisor

Thank you for a guidance, patience, encouragement and supervision to enable me to finish this project.

Dear Friends

Thank you for all knowledge, support, and encouragement.

ACKNOWLEDGEMENTS

"In the name of Allah, Most Gracious, Most Merciful"

Alhamdullillah, firstly I want to show my gratitude to Allah The Almighty for giving me the strength and good health to complete my final year project in Bachelor of Computer Science (Database Management).

Thank you to my beloved parents Encik Shamshur Azam Bin Musa and Puan Noraini Binti Abu Seman who have been giving me support and motivation from the very beginning I enter Universiti Teknikal Malaysia Melaka until I finish my whole study over here.

My thanks are also dedicated to my supervisor, Sir Yahaya Bin Abd Rahim for giving assistant to complete this project successfully. He had thought me a lot and also given me a moral supports to ensure that I successfully finish my project.

Lastly, thank you to all of my friends who had helped a lot in my project. Without their contribution, it is impossible for me to complete my project. Thank you so much also to all that have helped me directly or indirectly to complete my project.

ABSTRACT

This project is known as e-Aduan Lost and Found Item System (e-ALFI). This system will be used by people that lost their item in UTeM area and it helps to computerize the manual method of reporting the lost item. This system will keep the information of the owner, lost item report and hand in the item in the system in order to make the process of matching the data run smoothly. The benefits of this system are, it can be used by people who lost the item in UteM area with no time constraints by report online at any time. In addition, it also provides the flexibility for the people to check status of lost item report online and make an appointment after their item is found. This system can be accessed at anywhere that has an internet connection and an electronic device. This system is the web based with PHP programming language and connected to an Oracle database. The method that has been chosen is Database Life Cycle as a guide to solve consistently every stage of development of e-Aduan Lost and Found Item. The software that involved in the development of e-Aduan Lost and Found Item is WampServer which containing Apache and PHP, Oracle 11g Express Edition, Brackets as a text editor, Windows and Mozilla Firefox as web-browser.

ABSTRAK

Sistem yang dicadangkan dikenali sebagai sistem e-Aduan Lost and Found (e-ALFI). Sistem ini akan digunakan oleh orang yang kehilangan barang di kawasan UTeM dan ia membantu mengkomputerkan kaedah manual melaporkan barang yang hilang. Sistem ini akan menyimpan maklumat pemilik, laporan kehilangan barang, dan barang yang dijumpai ke dalam sistem untuk memudahkan proses memadankan data berjalan dengan lancar. Kebaikan sistem ini ialah, ia boleh digunakan oleh orang yang kehilangan barang di kawasan UTeM tanpa kekangan masa untuk membuat laporan dalam talian pada bila-bila. Di samping itu, ia juga memberi fleksibiliti kepada pengguna yang kehilangan barang untuk menyemak status laporan barang yang hilang dalam talian dan membuat temujanji selepas barang mereka ditemui. Sistem ini boleh diakses di mana-mana sahaja yang mempunyai sambungan internet dan peranti elektronik. Sistem ini adalah berasaskan web dengan bahasa pengaturcaraan PHP dan disambungkan ke pangkalan data Oracle. Metodologi yang telah dipilih adalah *Database Life Cycle*, digunakan sebagai panduan untuk menyelesaikan secara konsisten setiap peringkat pembanguann e-Aduan Lost and Found Item. Perisian yang terlibat dalam pembangunan e-Aduan Lost and Found Item adalah *WampServer* yang mengandungi *Apache* dan *PHP, Oracle 11g Express Edition, Brackets* sebagai teks editor, *Windows* dan *Mozilla Firefox* sebagai pelayar web.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

e-ALFI	-	e-Aduan Lost and Found Item
DBMS	-	Database Management System
GUI	-	Graphic User Interface
PHP	-	Hypertext PreProcessor
RAM	-	Random Access Memory
FR	-	Functional Requirement
NFR	-	Non-Functional Requirement
DFD	-	Data Flow Diagram
ERD	-	Entity Relationship Diagarm
SMS	-	Short Message Service

LIST OF ATTACHMENTS

CHAPTER I

INTRODUCTION

1.1 Project Background

Nowadays, information technology or IT has become a kind of technology that is no stranger to the world of technology in Malaysia. The information technology systems in our country is increasing rapidly. Many organizations include the government agency or private involved in the use of information technology. Other than getting the information on the internet, people can use it as their platform to interact with other people and solve many kinds of problem that arises. The project that will be developing is about e-Aduan lost and found items system. This project can help people on an easy way to handle the lost and found item in UTeM area. By having this platform, people that having a problem lost their belonging can report it through this website. This website can be used by people especially community of UTeM. People sometimes tend to forgot where they put their important belonging and sometimes it accidently dropped somewhere. When this happen, they do not know where should they go to report and get their belonging back. Therefore, e-Aduan lost

and found items system tend to be a solution for them where they can look for their lost items by providing detail of their lost items. The informant also can make an appointment through this system after the status of the reported item is found. By having an e-Aduan lost and found items system, people have a solution and also a platform to report on their lost items. This project was proposed because there is no fix platform for the people in the UTeM to find their lost items around. They just post in the facebook and sometimes the detail are not properly provided. The main objective of e-Aduan lost and found item system is to develop a medium for the report on lost items where the data of lost and found items will be placed in one specific database.

Nowadays, a computerized system is popularly used in the developed country as it applies in all types of industry. E-aduan Lost and Found beats the method of paperwork where all lost and found were record in the paper. On this platform, all report and record of lost and found are computerized, thus eliminating loss of data through rough handling by the staff of the security office, and this makes an investigation of the lost and found items relatively easier. With this system, it is hoped that the problem can be simplified and solve in an easy way.

1.2 Problem Statements

The following are the issues that have been identified:

i. The method of calling or meeting the security officer to report on lost and found items is not applicable in some situation because a report only can made during an office hours and sometimes the information of lost items are not complete. Besides, the use of manual process using paper files and log book to record a lost and found item have a negative impact such as delayed access to information, unavailability of information, misplaced files and damaged files. Furthermore, currently, there is no web-based system for an online report on lost items in UTeM with a specific database

to store the report. The absence of both of this will make people difficult to make a report on a lost item and manage the report digitally.

ii. The owner of the item does not have the flexibility to keep in touch with their reported item where they cannot check their lost item anytime without calling the security office.

iii. Management of the lost item is not effective because there is no specific database to keep the data.

1.3 Objective

This project have the following objectives:

i. **To develop a web-based application about a report on lost and found items with a user-friendly interface for UTeM where the data of lost and found items will be placed in one specific database.**

- The online web based application will easy the people to report the lost items because people nowadays prefer an online application and it can be accessed at any time and everywhere.

ii. **To provide a flexibility where informant can check their status of lost item and make an appointment to pick their item.**

- By developing this web based application, the user can check their items status through their account and make an appointment based on their available time to verify and pick up the item.

iii. **To prepare a computerized platform for staff to manage the report of lost and found items and easy process of producing and analyzing of overall reports.**

- By having this web-based application, there is no more keeping the report in the computer file or log book. Staff just need to keep updated with a new report and update the status of found items if there have a match with the items found. The job to analyze also easy and convenient because there has one specific database that keeps the report for lost and found item.

1.4 Scope

The scope of the project are includes:

- Scope of System Functionality
- Scope of User
- Scope of Technologies
- Scope of Database Features

1.4.1 Scope of System Functionality

The system functionality that includes in e-Aduan Lost and Found Items are:

1. **Registration**

   The first time registration is needed for a new user. User need to give a details contact information in case the staff needs to contact the owner if anything happens regarding the lost item.

2. **Make a report on lost item**

After the registration, informant able to log in and make a report on lost item. They need to provide a detail information of their lost item.

3. **Make an appointment after status of item is found**

   Informant can make an appointment to verify and pick up their item. They need to set an appointment based on their available date to verification and pick up the item.

1.4.2 Scope of User

The system consist of two user which includes:

1. **Staff**

   Staff in this system is the person who handles the lost and found item. The duties of a staff are to manage item category, manage item that hand-in to them and manage lost item report. Staff can check the item category that they want to add by search the name of the item category before they add a new item category. Staff also can add a new item that hand-in to the system and match the lost item with the hand-in item

2. **Informant**

   The informant is the person who makes a report using this website. The informant are included student, staff, and outsider who lost their item in UTeM. The informant needs to register before they can make any report on lost item. Informant can check the current status of a report through online and make an appointment if the status of an item is found and need verification.

1.4.3 Scope of Technologies

Table 1.1: Type of Technologies Used for e-Aduan Lost and Found Item

Number	Type of technologies	Technologies used in e-ALFI
1	Programming Language	Hypertext Prepocessor (PHP) language and Javascript
2	Database Management System (DBMS)	Oracle 11g Express Edition
3	Operating System	Windows 10 64 bits
4	Documentation 1. Entity Relationship Diagram (ERD) 2. Proposal and Final report 3. Gantt Chart	 1. Microsoft Visio 2012 2. Microsoft Word 2013 3. Microsoft Project 2013

1.4.4 Scope of Database Features

The database features will apply a data integrity where every table must have a primary key and the column of the primary key should be a unique and not null.

1.5 Project Significance

The project significance generally focuses on the development of a system that is efficient in management and updating the data, managing the lost item report and it has advantages where it can be accessed at any time with an internet connection. This project has a significance where it enables user to report a lost item through online while staff can manage the data of lost and found item in computerized.

Furthermore, it also can reduce the time for a user to make a writing report in the security office. The user can save time by filling the detail of the report and sent it through the website. User need to register and login to the system before make any lost item report. Therefore, it is no worried if they do not have time to go to the security office. In addition, implementation of this project can reduce the use of many papers. E-Aduan Lost and Found Items is beneficial for the people who is lost their item in UTeM area. The scope of the user for this system is staff, student, and outsider. They just need to use a computer or device to connect to the internet and browse the website to report on their lost items by providing the detail needed. They also can make an appointment through this system if the lost item status is found.

1.6 Expected output

A new based computerized system for reporting and managing a lost and found item is very user-friendly especially for end-user and staff that handle. By using this system, it will save time and increase the efficiency in terms of making a report and keeping the detail of lost and found item in the database.

1.7 Conclusion

This project will beneficial for all type of user where it help to shorten the time to report the lost item and it also eases for managing the lost and found item. The next chapter will discuss the project methodology and planning for e-Aduan Lost and Found Item.

CHAPTER II

PROJECT METHODOLOGY AND PLANNING

2.1 Introduction

Chapter two is about project methodology and planning for e-Aduan Lost and Found Item. Project methodology is the method that involves in the project and how that method will be conducted in order to achieve the objectives. A series of choices about what information or data to gather and choices about how to analyze the information and data gathered are known as the methodology. The methodology consists an approach to software development, a set of techniques and notations to structure the development process. For this project, Database Life Cycle (DBLC) methodology has been selected.

2.2 Project Methodology

In this project, Database Life Cycle is chosen as the database development life cycle. DBLC is iterative compared to the Software Development Life Cycle (SDLC) which is sequential. In fact, the DBLC never ends because the database has monitoring, modification, and maintenance process. These activities continue long after a database has been implemented and it will encompass the lifetime of the database. Database Life Cycle (DBLC) contains six phases, which are, database initial study, database design, implementation and loading, testing and evaluation, operation, and maintenance and evaluation.

In database initial study, the current system's operation is investigated to identify the reason of the current system fails. For the real situation, the e-Aduan Lost and Found Item system which about a proper report on lost item through online is not existed yet in UTeM, but the situation are investigated among the current system that already exist outside the organization. This system will be developed a web-based application that enables report on lost and found items with a user-friendly interface where the data of lost and found items will be placed in one specific database. The online web based application will easy the people to report the lost items because people nowadays prefer an online application and it can be accessed at any time and everywhere. A proposed database system also is able to interact with the existing system that already have in the UTeM. This system also able to share the data with the user. The scope user of the system is limit only for student, staff, and outsider that have lost an item in UTeM area. This system can keep the report detail in the database and the details are accessible by staff that handles lost and found item. User able to see their history of a report by login to their account. The report status will be updated by staff if there have an item matching. There is six entity that includes for this system which includes informant (the user that reporting the lost item), staff, item category, lost report which is the detail report for an item that lost, item hand in and appointment.

The second phase is database design which is focused on the design of the database model that will support organization operations and objectives. This is the most critical DBLC phase where the final product must meet user and system requirements of e-Aduan Lost and Found Item system. The process of database design is mostly related to the analysis and design of an entire system. In this phase, the

activities are include creating the procedures that help transform the data within the database into useful information.

The third phase in DBLC is implementation and loading. The database design output is a series of guidance about the creation of tables, attributes, domains, views, indexes, security constraints, and storage and performance guidelines. In this phase there are include install the DBMS, create the database and load or convert the data. In this phase, the Oracle 11g release two and SQL developer were installed. The database for the e-Aduan Lost and Found Items system was constructed with a suitable amount of storage. This construction includes the storage group, table spaces, and the tables. After the database has been created, the data was loaded into the database tables.

The fourth phase is testing and evaluation where decisions were made to ensure integrity, security, performance and recoverability of database. Tests and fine-tunes the database in testing and evaluation to ensure that it performs as expected. In this phase there were includes test the database, fine-tune the database, and evaluate the database and its application program. Test the database to ensure the data integrity is enforced through the right use of primary key and foreign key rules for each table. Database performance is difficult to evaluate as there is no common rule for database performance measure. Environmental factor such as the hardware and software environment can give impact on database performance. To ensure the data contained in the database are protected against loss, backup and recovery plans are needed.

The fifth phase in DBLC is operation. The database considered being operational when it is passed the evaluation stage. At this point, the database, its management, its users and its application programs were considered as a complete information system.

The sixth phase is maintenance and evolution. The routine maintenance activities include preventive maintenance which is backup, corrective maintenance which is recovery, adaptive maintenance which is enhancing performance, adding entities and attribute, and assignment of access permissions and their maintenance for new and old users. All these activities are needed when the complete system of e-Aduan Lost and Found Items is developed.

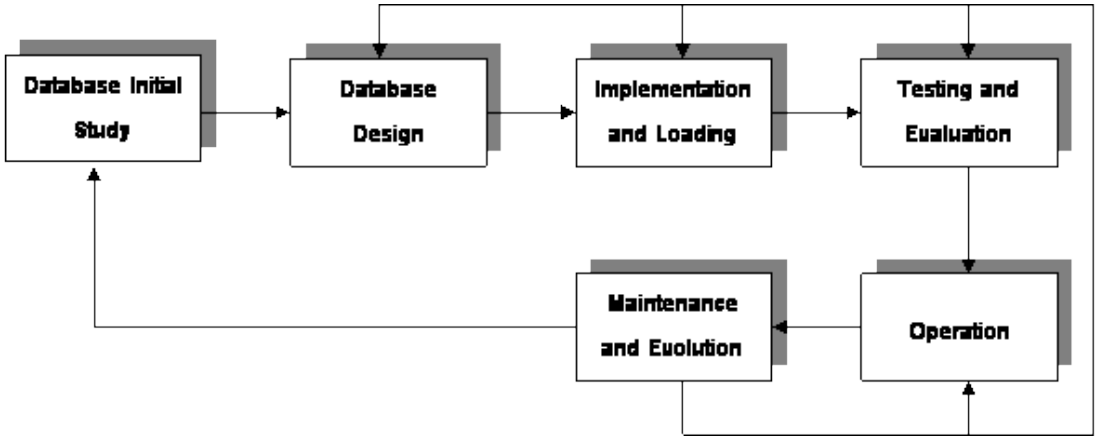


Figure 2.1: Structure of Database Life Cycle (DBLC)

2.3 Project Schedule and Milestone

Project schedule and the milestone is for planning and for keeping the project on track. It will become a guideline for the progress of the project and also show the dependencies between two or more tasks that have to be developed. Every task has to be completed on time to make sure the project can be delivered on time. Table 2.1 shows the schedule of the project.

Table 2.1: Project Schedule and Milestone

Milestones	Expected Documents	Dates
1. Proposal PSM and Introduction	1. Project Background 2. Problem Statement 3. Objective 4. Scope 5. Project Significance 6. Expected Output	07-March-2016

2. Problems identification and analysis	1. Flow chart of the current system 2. Flow chart of the system 3. DFD of the system 4. Requirement of the proposed system (Functional, non-functional and devices)	14-March-2016
3. Conceptual design of the proposed system	1. A complete ERD and Business rules	21-March-2016
4. Logical design of the proposed system	1. Data dictionary 2. Normalization forms (if any) 3. Query design	24-March-2016
5. Physical design of the proposed system	1. DBMS selection 2. Usage of stored procedure, triggers, and other related database objects. 3. Security mechanism 4. Database contingency	28-March-2016
6. System development environment setup	1. Installation step, admin login and start database services. 2. All database object are created.	04-April-2016
7. Database Implementation	1. DDL/DCL statements present in the chosen DBMS for all database objects.	18-April-2016
8. Final Presentation	1. Full system 2. PSM report.	30-May-2016

9. Correction draft report	1. Correction of PSM report	06-June-2016

2.4 Conclusion

The overall of this chapter explain the method that uses in developing e-Aduan Lost and Found Items system. The project methodology use in this project is Database Life Cycle (DBLC). This method consists of six phases which are important for the database based system. The detail of project schedule and milestone also have been describing. The next chapter is Analysis which will explain about problem analysis and requirements analysis of the system.

CHAPTER III

ANALYSIS

3.1 Introduction

The analysis phase is important to get a clear view of the develop system. In this chapter, the requirements analysis of the e-Aduan Lost and Found Items are explained in detail. This chapter will give a view on the process and operation of the proposed system. This chapter also will show several diagrams which include flowchart, a context diagram, and data flow diagram.

3.2 Problem analysis

Problem analysis is important as it provides an understanding of the problem that happens. The observation on the current manual method in reporting of lost and found has been done in order to get information for the develop system. Currently, the report on lost and found item is manually managed by staff. Figure 3.1 shows the flow of the informant's report for the current manual method.

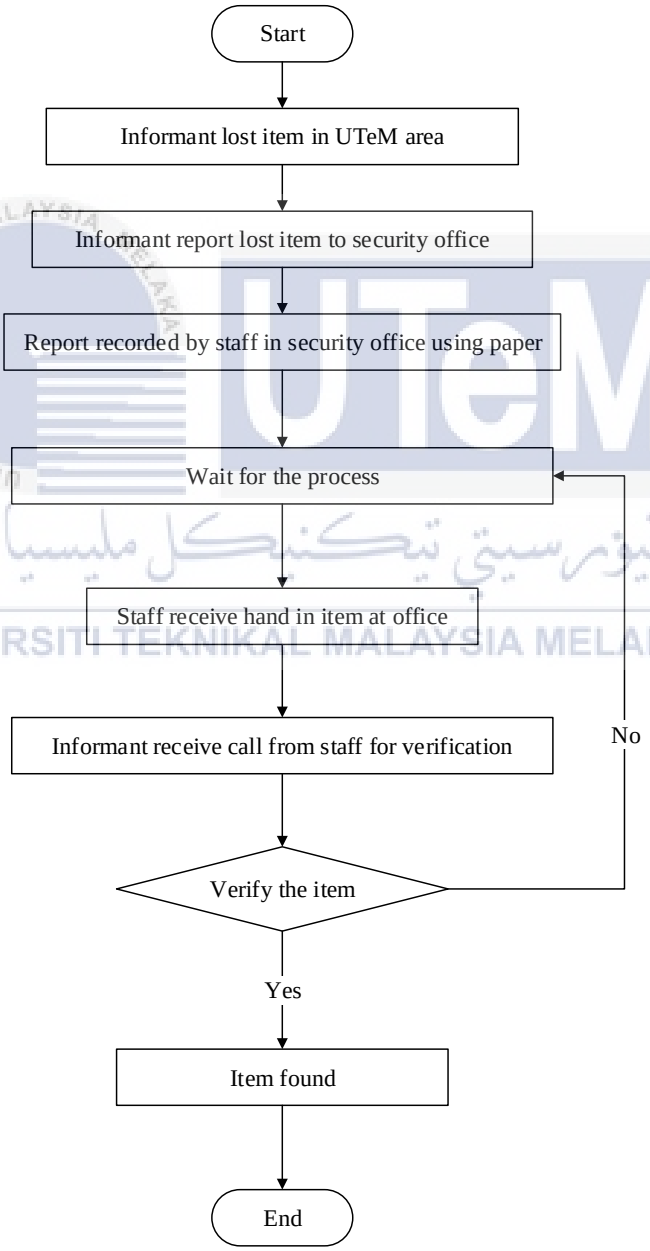


Figure 3.1: Flowchart of current manual method for Reporting Lost Item in UTeM

3.3 The proposed improvements/ solutions

This project proposes to change the conventional method of the report on lost and found item to a digital where the user can access the report form on the website with a flexible time and place. By having this e-Aduan Lost and Found Items, the way to manage and reporting on lost and found item can be improved and more efficient. This web-based system also has a specific database where all the data of lost and found will be located in it. When a specific database exists for reporting the lost and found item, the job to analyse the data become more easy and convenient.

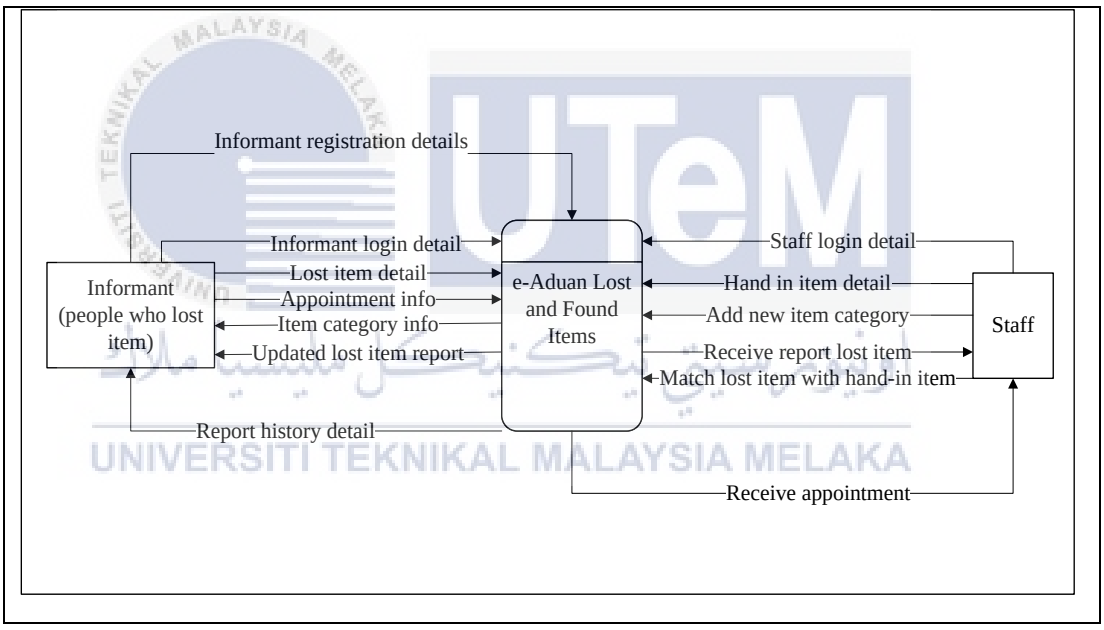


Figure 3.2: Context diagram for e-Aduan Lost and Found Item

3.4 Requirement analysis of the to-be-system.

Requirement analysis is about describing in detail the functional requirement, non-functional requirement and others requirement for e-Aduan Lost and Found Item.

3.4.1 Functional Requirement (Process Model)

A functional requirement is a function that should have in the system. The function can include a set of inputs, behaviour and output. The list of functional requirement for this system is shown in table 3.1 below.

Table 3.1: Functional Requirement for e-Aduan Lost and Found Items

FR No.	Requirement	Description
FR 1_1	Registration	The system should allow a non-register user to create a secure account.
FR 1_2		The system should require the detail of the user such as user id, password, name, email address and telephone number.
FR 1_3		The system must confirm the user id and password are acceptable.
FR 1_4		The system must store the detail in the database.
FR 2_1	Login	The system should enable the staff and the user to login to the system by giving a valid user id and password.
FR 2_2	Logout	The system shall enable the users to exit or logout from the website at any time.

FR 3_1	Make a new report of lost item	User need to login and fill in the detail information of the lost item.
FR 3_2		User must read and agree with term and condition then the form can be submitted.
FR 4_1	View report history	The system shall allow a registered and logged-in user to view report made within their account.
FR 4_2		The system shall display the detail information of each report such as the date of report submitted, item category reported, and status of that reported item.
FR 5_1	Cancel report from current list of report	The system enable user to cancel the previous report from the list of report in history.
FR 6_1	Update user account information	The system shall allow a registered user to update the contact information such as email address and telephone number.
FR 7_1	Staff can add new items hand in to the system	Staff can add new items details that hand in to the security office.
FR 8_1	Staff can update status lost item	Staff need to login to the system to enable them to change the status of report by match the lost item with item hand-in in to office.
FR 9_1	Search for registered item category for checking	The system shall allow staff to search for item category name that already register before add new item category. The result should display the item category id, item category name, and date created.
FR 10_1	Staff can view all the appointment	The system should enable staff to view all the appointment made by the user.

FR 11_1	Contact	The system must enable user to view various ways of contacting the security office.
FR 12_1		The system should display the address, telephone number, fax and email of organization.

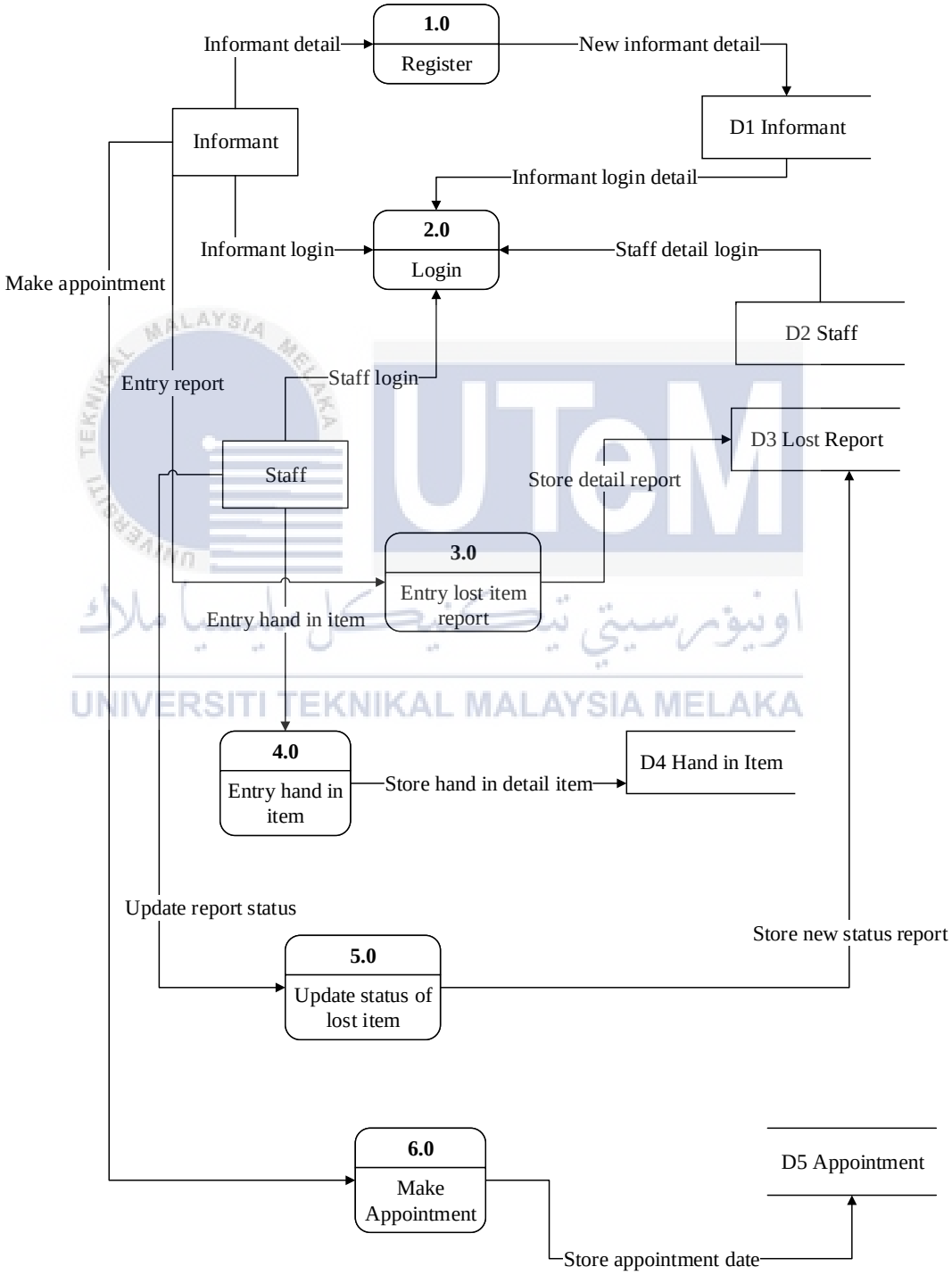


Figure 3.3: DFD Level 0 for e-Aduan Lost and Found Item

3.4.2 Non-functional Requirement

A non-functional requirement is a requirement that specifies criteria to measure the operation of a system. Non-functional requirements are about how a system is supposed to be. Non-functional requirements are also known qualities of a system.

3.4.2.1 Performance and Throughput

Table 3.2: Performance and Throughput for system

NFR No.	Requirement	Description
NFR 1	The Response Time	Database Update (Respond Time: 10 seconds – measured from completion of input data item on screen to getting acknowledgment.) Delays due to network traffic will be offset from timing measurement. Response time must be within maximum 10 seconds for each query.

3.4.2.2 Integrity

Table 3.3: Integrity for system

NFR No.	Requirement	Description
NFR 2	Data Integrity	Consistency- Data must be consistent at all sites for 24/7 between all interfacing components. Ensure the integrity of the system from accidental and malicious damage.

3.4.2.3 Reliability and Availability

Table 3.4: Reliability and Availability for system

NFR No.	Requirement	Description
NFR 3_1	Hardware	The system must be able to interact and adapt to the hardware
NFR 3_2	Availability	The system should be able to be accessed by the end-user whenever it is requested.
NFR 3_3	Failure Rate	The system might fail to accomplish the request from the end-user for 3-5 times.

3.4.2.4 Security

Table 3.5: Security for system

NFR No.	Requirement	Description
NFR 4_1	Standard Authentication Mechanism	Unauthorized user is not allowed to access the system and data. The system should include Password Authentication Protocol.
NFR 4_2	Data encryption	All communications between the system's server and clients must be encrypted

3.4.2.5 Usability

Table 3.6: Usability for system

NFR No.	Requirement	Description
NFR 5_1	Point and click data entry	All standard table based data entry for the system should provide the point and click selection mechanism.
NFR 5_2	Informative error message	If the user entered a wrong information, then there are error messages pop up will give a hint to the user to re-enter back the information.

NFR 5_3	Well-formed graphical user interfaces	The interface use must be understandable and make the user feels comfortable when they were interacting with the system.

3.4.2.6 Maintainability

Table 3.7: Maintainability for system

NFR No.	Requirement	Description
NFR 6	Maintenance	The system should be able to adapt to the changes of new technology and easy to fix if there is an error.

3.4.3 Other Requirements

Another requirement also important in order to make sure the system able to be developed in a suitable working environment. The other requirements for e-Aduan Lost and Found Item have included software requirement and hardware requirement. The list description of other requirements for e-ALFI is shown in table 3.8 and 3.9.

3.4.3.1 Software Requirement

Table 3.8: Software Requirements

Software	Description
WampServer	A web developement environment that allows to create a web applications with Apache2, PHP and the extension of oracle database.
Oracle 11g Express Edition	Oracle is the database use for this peoject.
PHP	A scripting language for producing the website.
Brackets	A text editor and source code editor to write programming language to develop a system.
Microsoft Word 2013	Used to write the proposal and full report of the project.
Microsoft Visio 2013	Mcrosoft Visio is a diagrammig software. This software used to draw the context diagram, DFD and ERD for the project.
Microsoft Project 2013	Used to create gantt chart for the project schedule and milestones.

3.4.3.2 Hardware Requirement

Table 3.9: Hardware Requirements

Hardware	Specification
Processor	Intel Core i3-3120M, 2.5GHz
Hard Disk	500GB
Memory (RAM)	2GB and above
Printing Device	Hp ink jet

3.5 Conclusion

In this chapter, the problem analysis for e-Aduan Lost and Found Item has been explaining. The requirements of the project have been determined in order to build the system. The next chapter is Chapter 4 will explain detail about Design for the system.

CHAPTER IV

DESIGN

4.1 Introduction

This chapter describes a comprehensive architecture and design for the system in different aspects. This chapter is divided into several sub-topic which include system architecture, database design, and graphical user interface. The system architecture will explain on the hierarchical view of the system. Database design is explaining about conceptual, logical and physical design. The conceptual database design is about business rules and ERD while the logical database design is about data dictionary of a database table. The last sub-topic of this chapter explains about navigation flow, input and output of the GUI.

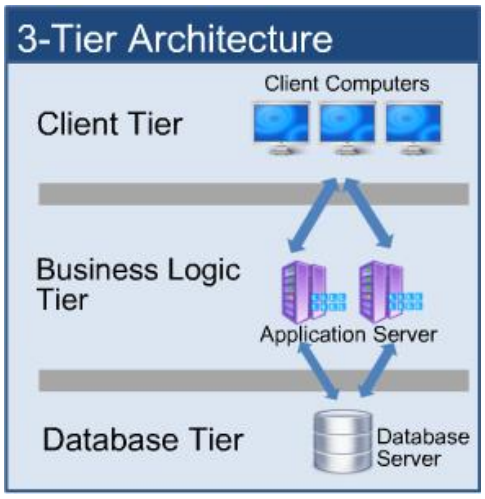
4.2 System Architecture Design

The architecture views the e-Aduan Lost and Found is based on 3-tier client-server. 3-tier application is an application program that is organized into three major parts which are distributed to a different place or places in a network. The three parts are:

1. The workstation or presentation interface (client application or web browser)
2. The business logic (transaction server)
3. The database server and programming related to managing it

In a typical 3-tier application, the application user's workstation contains the programming that provides the graphical user interface (GUI) and application-specific entry forms or interactive windows or web browser.

Business logic is located on a local area network (LAN) server. The business logic acts as the server for client requests from workstations. In turn, it determines what data is needed (and where it is located) and acts as a client in relation to the third tier of programming that might be located on another dedicated database server. The third tier includes the database and a program to manage read and write access to it. A 3-tier application uses the client/server computing model.



Figures 4.1: System Software Architecture Based on 3-Tier Architecture

4.3 Database Design

Database design can be divided into two which is conceptual design and logical design. Database design will produce a details data model of a database.

4.3.1 Conceptual Design

E-Aduan Lost and Found Item use an Oracle as its database management system in managing the data. In the conceptual design, data modeling used to create an abstract structure that represents a real-world object in a realistic way. The conceptual design must be a software and hardware independent so that the system can be set up in any platform chosen later.

a. Entity Relaionship Diagram (ERD)

An entity relationship diagram (ERD) is an abstract conceptual representation of structured data. Entity-relationship modeling is a relational schema database modeling, used in software engineering to produce a semantic data model of a system. ERD for this system is shown in Figure 4.2.

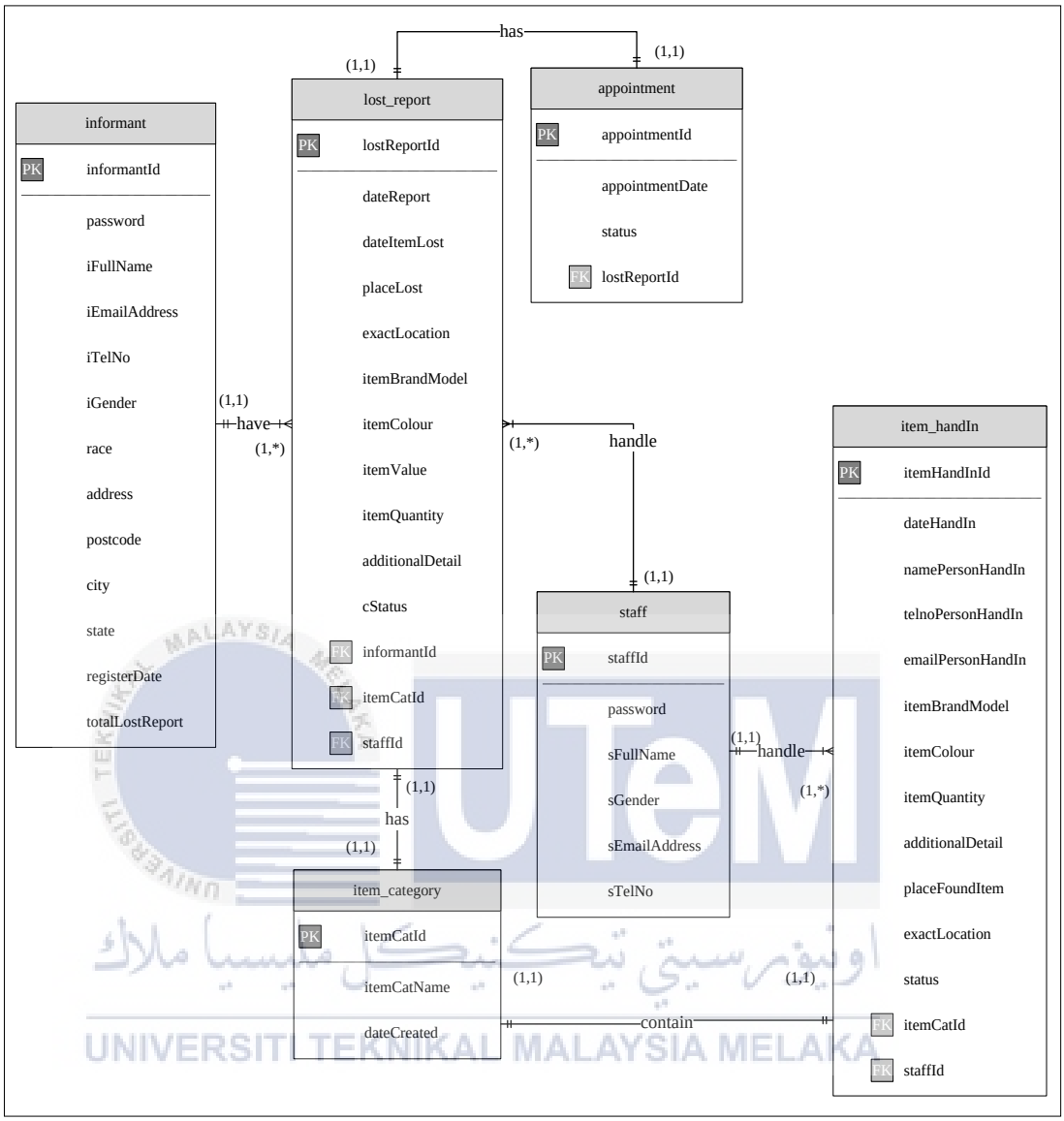


Figure 4.2: ERD for e-Aduan Lost and Found Item

b. Business Rules

The business rule is the one that launches a process, makes decisions on which of the available paths in the process to take and in the end finishes the process. There is business role for e-Aduan Lost and Found Item in the following:

One **informant** has one or many **lost_report.**

One or many **lost_report** may belong to one **informant.**

One **staff** handled one or many **lost_report.**

One or many **lost_report** handled by one **staff.**

One **lost_report** has only one **item_category.**

Only one **item_category** has in **lost_report.**

One **lost_report** contain only one **appointment**

Only one **appointment** will contain in one **lost_report.**

One **staff** handle one or many **item_handIn.**

One or many **item_handIn** handled by one **staff.**

One **item_handIn** contain only one **item_category.**

Only one **item_category** contain in one **item_handIn.**

4.3.2 Logical Design

Table 4.1: Data Dictionary for informant

Attribute Name	Data Type	Length	Constraint	FK Reference Table
informantId	VARCHAR2	20	PK	-
password	VARCHAR2	20	-	-

iFullName	VARCHAR2	100	-	-
iEmailAddress	VARCHAR2	100	-	-
iTelno	VARCHAR2	14	-	-
iGender	VARCHAR2	10	-	-
race	VARCHAR2	20	-	-
address	VARCHAR2	100	-	-
postcode	VARCHAR2	5	-	-
city	VARCHAR2	20	-	-
state	VARCHAR2	20	-	-
registerDate	DATE		-	-
totalLostReport	NUMBER	5	-	-

Table 4.2: Data Dictionary for staff

Attribute Name	Data Type	Length	Constraint	FK Reference Table
staffId	VARCHAR2	20	PK	-
password	VARCHAR2	20	-	-
sFullName	VARCHAR2	100	-	-
sGender	VARCHAR2	10	-	-
sEmailAddress	VARCHAR2	100	-	-
sTelno	VARCHAR2	14	-	-

Table 4.3: Data Dictionary for item_category

Attribute Name	Data Type	Length	Constraint	FK Reference Table
itemCatId	VARCHAR2	10	PK	-
itemCatName	VARCHAR2	40	-	-
dateCreated	DATE	-	-	-

Table 4.4: Data Dictionary for lost_report

Attribute Name	Data Type	Length	Constraint	FK Reference Table
lostReportId	VARCHAR2	20	PK	-
dateReport	VARCHAR2	20	-	-
dateItemLost	DATE	-	-	-
placeLost	NUMBER	5	-	-
exactLocation	VARCHAR2	20	-	-
itemBrandModel	VARCHAR2	20	-	-
itemColour	VARCHAR2	100	-	-
itemValue	VARCHAR2	100	-	-
itemQuantity	VARCHAR2	14	-	-
additionalDetail	VARCHAR2	10	-	-
cStatus	VARCHAR2	20	-	-
informantId	VARCHAR2	100	FK	informant
itemCatId	VARCHAR2	5	FK	item_category
staffId	VARCHAR2	20	FK	staff

Table 4.5: Data Dictionary for appointment

Attribute Name	Data Type	Length	Constraint	FK Reference Table
appointmentId	VARCHAR2	20	PK	-
appointmnetDate	DATE	15	-	-
status	VARCHAR2	30	-	-
lostReportId	VARCHAR2	20	FK	lost_report

Table 4.6: Data Dictionary for item_handIn

Attribute Name	Data Type	Length	Constraint	FK Reference Table
itemHandInId	VARCHAR2	20	PK	-
dateHandIn	DATE	-	-	-
namePersomHandIn	VARCHAR2	100	-	-
telnoPersomHandIn	VARCHAR2	14	-	-
emailPersomHandIn	VARCHAR2	100	-	-
itemBrandModel	VARCHAR2	10	-	-
itemColour	VARCHAR2	20	-	-
itemQuantity	VARCHAR2	4	-	-
additionalDetail	VARCHAR2	200	-	-
placeFoundItem	VARCHAR2	20	-	-
exactLocation	VARCHAR2	200	-	-
itemCatId	VARCHAR2	10	FK	item_category
staffId	VARCHAR2	20	FK	staff

4.3.3 Physical Design

In physical design, the design of logical database will be turned into the target software file. The Database Management System (DBMS) that use for e-Aduan Lost and Found Item is Oracle 11g Express Edition release two. The usage of stored procedures, triggers, and other related database objects for this system is very important for the efficiency. The security mechanism such a privileges, password and user-level security are applied for e-Aduan Lost and Found Item.

4.3.3.1 Data Definition Language (DDL)

Data Definition Language (DDL) is used to create database and cs. User views will be designed for a particular purpose to control access on part of one and another database. The DDL is most used to create, alter and drop the database and the object of the database. The objects of the database are includes indexes, schemas, tables, views, and sequences. DDL statement will create and compile to produce an output.

```
CREATE TABLE informant
(informantId VARCHAR2(20) not null,
password VARCHAR2(20),
iFullName VARCHAR2(100),
iEmailAddress VARCHAR2(100),
iTelno VARCHAR2(14),
iGender VARCHAR2(10),
race VARCHAR2(20),
address VARCHAR2(100),
postcode NUMBER(5),
city VARCHAR2(20),
state VARCHAR2(20),
registerDate DATE default sysdate,
totalReportLost NUMBER,
CONSTRAINT pk_informant PRIMARY KEY (informantId));
```

Figure 4.3: DDL for Create Table informant

```
CREATE TABLE staff
(staffId VARCHAR2(20) not null,
password VARCHAR2(20) default 'abc1234',
sFullName VARCHAR2(100),
sGender VARCHAR2(10),
sEmailAddress VARCHAR2(100),
sTelno VARCHAR2(14),
CONSTRAINT pk_staff PRIMARY KEY (staffId));
```

Figure 4.4: DDL for Create Table staff

```
CREATE TABLE item_category
(itemCatId VARCHAR2(10) not null,
itemCatName VARCHAR2(40),
dateCreated DATE default sysdate,
CONSTRAINT pk_itemCategory PRIMARY KEY (itemCatId));
```

Figure 4.5: DDL for Create Table item_category

```
CREATE TABLE lost_report
(lostReportId VARCHAR2(20) not null,
dateReport DATE default sysdate,
dateItemLost VARCHAR2(10),
placeLost VARCHAR2(20),
exactLocation VARCHAR2(200),
itemBrandModel VARCHAR2(50),
itemColour VARCHAR2(40),
itemValue NUMBER(6,2),
itemQuantity NUMBER(4),
additionalDetail VARCHAR2(200),
cStatus VARCHAR2(20) default 'IN PROCESS',
CONSTRAINT pk_lostReport PRIMARY KEY (lostReportId),
informantId REFERENCES informant(informantId),
itemCatId REFERENCES item_category(itemCatId),
staffId REFERENCES staff(staffId));
```


Figure 4.6: DDL for Create Table lost_report

```
CREATE TABLE appointment
(appointmentId  VARCHAR2(20) not null,
appointmentDate VARCHAR2(15),
status VARCHAR2(30),
CONSTRAINT pk_appointment PRIMARY KEY (appointmentId),
lostReportId REFERENCES lost_report(lostReportId));
```

Figure 4.7: DDL for Create Table appointment

```
CREATE TABLE item_handIn
(itemHandInId VARCHAR2(20) not null,
dateHandIn DATE default sysdate,
namePersonHandIn VARCHAR2(100),
telnoPersonHandIn VARCHAR2(14),
emailPersonHandIn VARCHAR2(100),
itemBrandModel VARCHAR2(10),
itemColour VARCHAR2(20),
itemQuantity NUMBER(4),
additionalDetail VARCHAR2(200),
placeFoundItem VARCHAR2(20),
exactLocation VARCHAR2(200),
CONSTRAINT pk_itemHandIn PRIMARY KEY (itemHandInId),
itemCatId REFERENCES item_category(itemCatId),
staffId REFERENCES staff(staffId));
```

Figure 4.8: DDL for Create Table item_handIn

4.4 Graphical User Interface (GUI) Design

4.4.1 Navigation Design

Navigation design is to navigate through the e-Aduan Lost and Found Item and perform actions, which available in the system. A consistent and predictable set of navigation buttons will provide the user a sense of system organization. The navigation design of e-ALFI is shown in Figure 4.8.

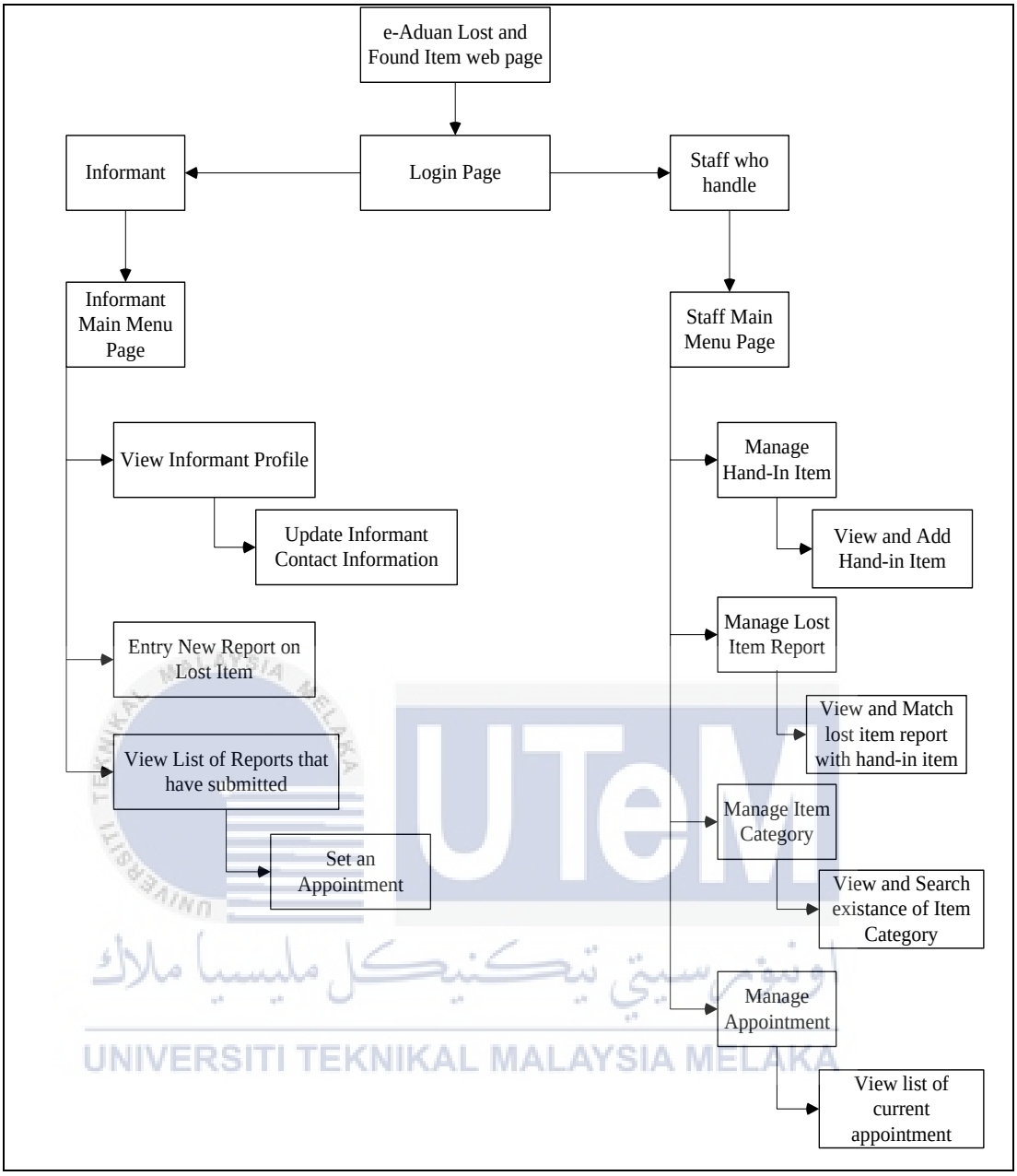


Figure 4.9: Navigation Design for e-Aduan Lost and Found Item

4.4.2 Input Design

Input design is to define types of input in the interface design of the system such as text field, text area, numbers, alphanumeric and others. The input validation is important to make sure the data will be saving to the database. The input design for this system are Registration, Login, Lost Item Report, and Appointment as shown in Figure 4.9 until Figure 4.13 below:

Figure 4.10: Registration Form Interface

Table 4.7: Registration Form Input Design

Field Name	Field Type	Data Type	Validation Rules
User Id	Text field	VARCHAR2	Required field
Password	Text field	VARCHAR2	Required field At least 6 characters in length

Confirm Password	Text field	VARCHAR2	Required field
Full Name	Text field	VARCHAR2	Required field
Email Address	Text field	VARCHAR2	Required field
Telephone No	Text field	VARCHAR2	Required field
Gender	Drop Down list	VARCHAR2	Required field
Race	Drop down list	VARCHAR2	Required field
Address	Text area	VARCHAR2	Required field
Postcode	Text field	NUMBER	Required field
City	Text field	VARCHAR2	Required field
State	Drop Down List	VARCHAR2	Required field
SEND	Button		Go to main page.

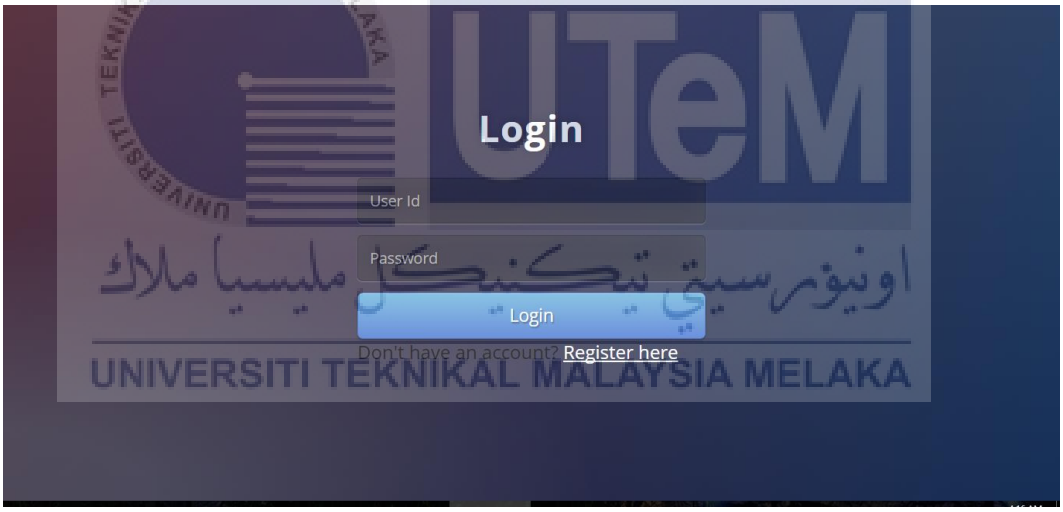


Figure 4.11: Login Form Interface

Table 4.8: Login Form Input Design

Field Name	Field Type	Data Type	Validation Rules
User Id	Text field	VARCHAR2	Required field
Password	Text field	VARCHAR2	Required field
Login	Button		Go to staff or informant main page.

Figure 4.12: Lost Item Report Form Interface

Table 4.9: Lost Item Report Form Input Design

Field Name	Field Type	Data Type	Validation Rules
User Id	Text field	VARCHAR2	Disable field
Date Lost Item	Calender	VARCHAR2	Required field
Place Lost Item	Drop down list	VARCHAR2	Required field
Detail Place	Text area	VARCHAR2	Required field

			Maximum 200 characters.
Item Category	Drop down list	VARCHAR2	Required field
Item Brand/Model	Text field	VARCHAR2	Required field
Item Colour	Drop Down list	VARCHAR2	Required field
Item Value	Text field	NUMBER	Required field
Item Quantity	Text field	NUMBER	Required field Numeric input only
Additional Detail Item	Text area	VARCHAR2	Required field Maximum 200 characters.
Small box	Check box		Required field
SEND	Button		Go to main menu.
RESET	Button		Empty test fields

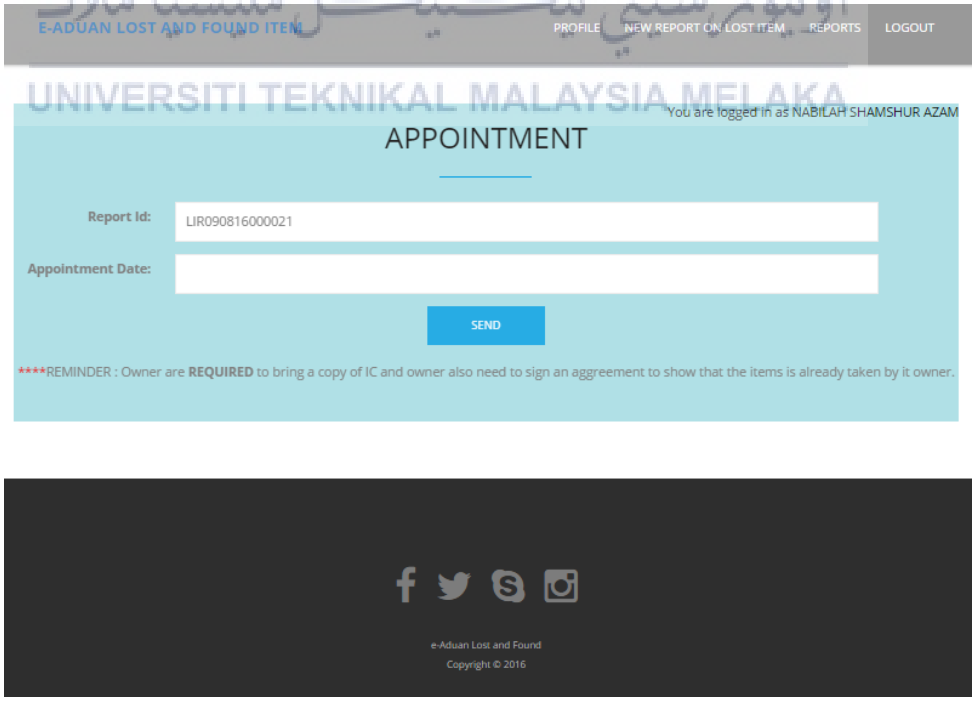


Figure 2: Appointment Form Input Design

Table 4.10: Appointment Form Input Design

Field Name	Field Type	Data Type	Validation Rules
Appointment Date	Calender	VARCHAR2	Required field
SEND	Button		Go to lost item report list.

4.4.3 Output Design

Output design produces the view of users want from the system. The output comes from the input that user gives (Akhbar, 2012). Output design for this system is the collection of the lost item reports that informant submit through the system.

Figure 4.14: List of Lost Item Reports of Informant

4.5 Conclusion

Chapter 4 consists of System Architecture Design, Database Design that consist of Conceptual Design, Logical Design and Physical Design, and Graphical User Interface (GUI) Design. Next in Chapter 5 is about Implementation.

CHAPTER V

IMPLEMENTATION

5.1 Introduction

In this chapter, the implementation detail will be discussed. The first most important in the development stage is system development environment setup. An effective development environment requires adequate tools. The decision on suitable software in this step is very important and need to be select carefully based on the project needed. The implementation environment used to support the e-Aduan Lost and Found Item system was Microsoft windows 10 and the main scripting languages used were PHP/JavaScript. Wamp server and Mozilla Firefox were used to execute the system while Oracle 11g Release 2 Express Edition is for the database.

5.2 System Development Environment setup

Setting up an effective development environment is the most important thing that needs to be considered before the development of the system start. An effective development environment can help speed up the software development process and improve final product quality.

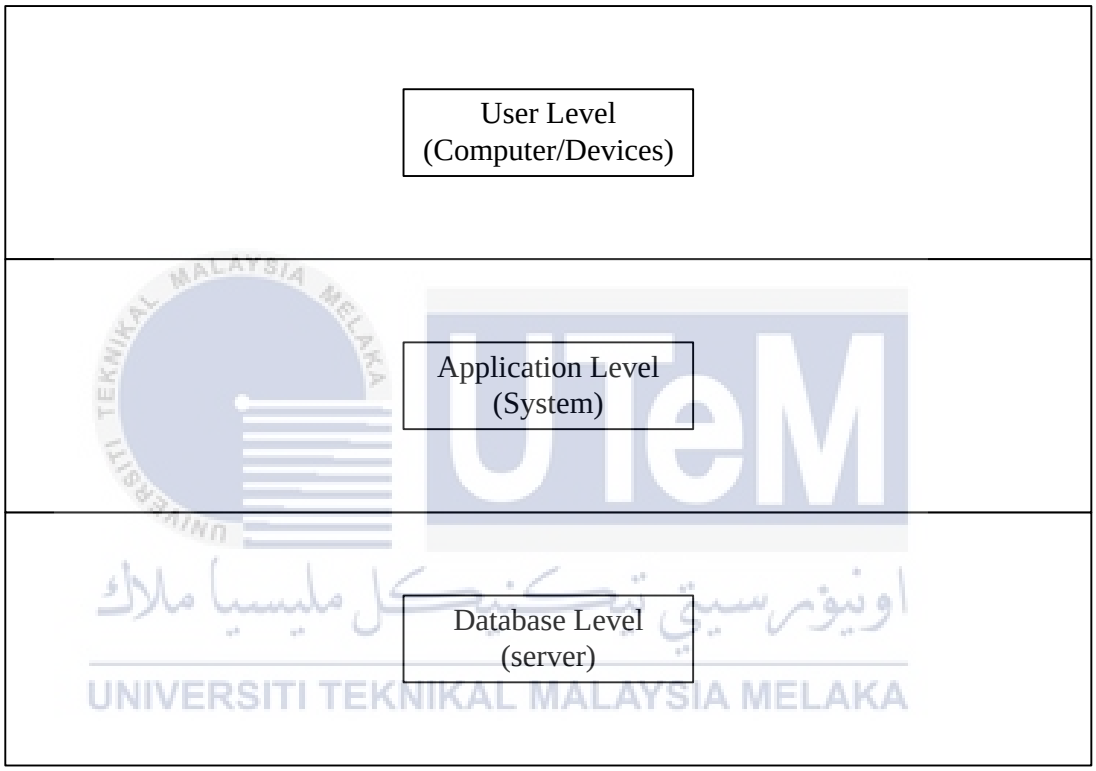


Figure 5.1: Software Development Environment Setup for e-ALFI

Software development environment setup that shown in Figure 5.1 is using three tier which is client or user, application and database server. At the user level, it is important to focus on the function of the interface displayed to the user, the devices used at this stage such as computer or laptop to illustrate the system function. The system level connects the user interface (input) to the system database. In the database server, all the user data will be stored. Data can be manipulated in the event of changes.

Windows 10 used as a platform to set up and develop the e-Aduan Lost and Found Item. The development tool that used to develop e-Aduan Lost and Found Item

is WampServer version 2.4. WampServer is a Windows web development environment that allows the developer to create web applications with Apache2, PHP, and a MySQL database. For this e-Aduan Lost and Found Item, the database use is Oracle 11g Release 2 Express Edition. The SQL developer uses as a development tool for the database. After complete installing the WampServer, test the installation in localhost.

The database environment setup for e-Aduan Lost and Found Item is started by installing the Oracle 11g Express Edition. After installing the Oracle database set the password for the SYS and SYSTEM database accounts. For e-Aduan Lost and Found Item, the user PSM was created with the password and all privilege PSM user was granted. Setup the PHP extension in WampServer by editing the php.ini to enable the connection between WampServer and Oracle database. Configure the connection in SQL Developer for PSM user to enable easy management on the related database.

For e-Aduan Lost and Found Item, the PSM database was created to store the data that user input and submit through the website. The database objects that involve for e-ALFI are database triggers, stored procedures, tables, and sequences. The table that created for e-ALFI is staff, informant, item_category, lost_report, handInItem and appointment.

5.3 Database Implementation

This section will describe the database implementation for system especially suing SQL query. The following are the example of a query that involves in this system during the development.

i) SELECT Statement

This query is to show all the data in item_category table.

```
SELECT * FROM item_category;
```

Figure 5.2: An Example of SELECT statement

ii) WHERE Clause

This query shows all the data from lost_report with the status VERIFICATION.

```
SELECT * FROM lost_report WHERE cStatus =
'VERIFICATION';
```

Figure 5.3: An Example of WHERE clause

iii) ORDER BY clause

```
SELECT lostReportId, dateReport, dateItemLost,
placeLost, exactLocation, itemBrandModel,
itemColour, itemValue, itemQuantity,
additionalDetail, cStatus, staffId, itemCatId,
informantId
 FROM lost_report
ORDER BY dateReport DESC;
```

Figure 5.4: An Example of an ORDER BY clause

iv) Data Definition Language (DDL) Statement

Data Definition Language (DDL) will be used to create database and database objects.

```
CREATE TABLE item_category
(itemCatId VARCHAR2(10) not null,
```

```
itemCatName VARCHAR2(40),
dateCreated DATE default sysdate,
CONSTRAINT pk_itemCategory PRIMARY KEY (itemCatId));
```

Figure 5.5: An Example of DDL Statement

v) TRIGGER clause

```
CREATE OR REPLACE TRIGGER updateTotalLostReport_trig
AFTER INSERT ON lost_report
FOR EACH ROW
declare
v_counter NUMBER;
BEGIN
SELECT count(*)
INTO v_counter
FROM informant
WHERE informantId = :new.informantId;

IF (v_counter = 0) THEN
INSERT INTO informant (informantId, totalLostReport)
VALUES
(:new.informantId, 1);
ELSE
UPDATE informant
SET totalLostReport = nvl (totalLostReport,0) + 1
WHERE informantId  = :new.informantId;
END IF;
END;
```

Figure 5.6: TRIGGER total lost report for each informant

vi) PROCEDURE clause

```
CREATE OR REPLACE PROCEDURE insert_informant_proc
(v_informantId VARCHAR2, v_password VARCHAR2,
v_iFullName VARCHAR2, v_iEmailAddress VARCHAR2,
v_iTelno VARCHAR2, v_iGender VARCHAR2,
```

```
v_race VARCHAR2, v_address VARCHAR2, v_postcode
NUMBER, v_city VARCHAR2, v_state VARCHAR2)
IS
BEGIN
INSERT INTO informant (informantId, password,
iFullName, iEmailAddress, iTelno, iGender, race,
address, postcode, city, state)
VALUES (v_informantId, v_password, v_iFullName,
v_iEmailAddress, v_iTelno, v_iGender, v_race,
v_address, v_postcode, v_city, v_state);
END;
```

Figure 5.7: PROCEDURE insert new informant

5.4 Conclusion

In conclusion, the implementation describes detail about configuration and management of the software, hardware and network setup for e-Aduan Lost and Found Item. The information gathered will be used for the next chapter which is testing. In the next chapter, the system will be tested to define weather the development has reached the objective that has been stated before. Testing will help to detect weaknesses that can be used for improvement the system.

CHAPTER VI

TESTING

6.1 Introduction

The previous chapter explaining about the implementation for e-Aduan Lost and Found Item project. This chapter describing testing phase for e-Aduan Lost and Found Item. The testing will perform after the implementation phase was performed where the source code has been generated. In this phase, the error can be detected before the system delivers to the end user. This fault can cause from the lack in the application software or by the application specification. For example, incorrect results can cause by error occurred in the construction phase or from an algorithm that is wrongly defined in the specification (Hamizah, 2010).

This chapter will explain in detail about test plan, test strategy, test design and the test result and analysis. In order to verify the reliability of the system, User acceptance test (UAT) was conducted. The UAT involved the real data and the participation of the end user. To get feedback for the system, the system will deliver

to the end user. Errors should be corrected in the testing phase. After completing this test phase, it is hoped that the users of the e-Aduan Lost and Found Item will able to operate the system as what user's expected.

6.2 Test Plan

A test plan consists other tests that examine the different aspects and characteristic of the system. The set of test should be planned carefully by studying the functionality and characteristic of the system in order to identify suitable test cases that provide a good outcome for the stability and reliability of the system.

6.2.1 Test Organization

In test organization, a test group has been built to perform the test activities throughout the testing process. The people that participating in the testing activities are responsible for managing, execute, design, check, witness and resolve the testing activities. For this project, the developer will act as the tester of the system. The developer is the suitable person to test the whole system because the developer knows the procedures and function of the codes, modules, and architecture of the system.

The other test group for this system is the end-user which is the student of UTeM. The end-user testing is important for the developer to identify the minor errors of the system. Table 6.1 show the individuals who are involved in the testing phase of e-Aduan Lost and Found Item system.

Table 6.1: Testers Involve in Testing

Tester ID	Title / Post	Responsibility
Tester1	System Developer	Responsible for developing, document, manage and test the system. The developer also involves in conducting both unit testing and integration testing.
Tester2	Software Tester	Responsible to prepare the test plan to each component of the system and implement the test strategy. Software tester also needs to detect the error of the system and provide feedback to system developer.
Tester3	End User	Conduct User Acceptance Testing (UAT) to ensure system meet the requirement and validate the function of the system.

6.2.2 Test Environment

The system development environment consists of a number of interaction pieces such as system tools, frameworks in which the tools operate and rules or guidelines for operation (Hamizah, 2010). The test environment is the hardware and software environment in which test will be run. The development environment is involve the operating system of Windows 10.

Table 6.2: User Personal Computer Configuration.

System Configuration	Specification
Operating System	Window 10 Pro
Database	Oracle 11g release 2
Web Server	Apache
Hard Disk Space	500 GB

RAM	2 GB of RAM or higher
Processor	Intel® Core™ i3 3110M Processor
Display of the screen	15.6 inch (1366 x 768)
Printer	Any compatible printer (recommended HP printer)
Other Software	Mozilla Firefox 47.0.1

The basic of the system testing environment set-up will contains of the following:

i. Personal Computer
ii. Database: Oracle 11g Express Edition
iii. Software: Adobe Dreamweaver CS5
iv. Operating System: Window 10 Pro

6.2.3 Test Schedule

The testing schedule is set based on the complexity of the function. The test schedule is needed to ensure that the tests are carried out properly. It is also used to manage the time and duration for the tester to test the system. Table 6.3 shows the test schedule of e-Aduan Lost and Found Item for end-user.

Table 6.3: Testing Schedule Specification for end-user

Module / Component	Activity	Duration / Cycles	Test Start Date	Test End Date
Login	Unit, Integration, User Acceptance	1 day / 4 times	10 Aug 2016	10 Aug 2016
Lost Item Report Form	Unit, Integration, User Acceptance	1 day / 7 times	11 Aug 2016	11 Aug 2016

Update Contact Information Form	Unit, Integration, User Acceptance	1 day / 5 times	12 Aug 2016	12 Aug 2016
Set an appointment date	Unit, Integration, User Acceptance	1 day / 6 times	12 Aug 2016	12 Aug 2016

Table 6.4 shows the test schedule of e-Aduan Lost and Found Item for Staff that handle the lost and found item.

Table 6.4: Testing Schedule Specification for Staff.

Module / Component	**Activity**	**Duration / Cycles**	**Test Start Date**	**Test End Date**
Login	Unit, Integration, User Acceptance	1 day / 4 times	10 Aug 2016	10 Aug 2016
Add new hand-in Item	Unit, Integration, User Acceptance	1 day / 7 times	11 Aug 2016	11 Aug 2016
Match lost item Report	Unit, Integration, User Acceptance	1 day / 6 times	11 Aug 2016	11 Aug 2016
Search item category	Unit, Integration, User Acceptance	1 day / 4 times	12 Aug 2016	12 Aug 2016
Add new item category	Unit, Integration, User Acceptance	1 day / 7 times	12 Aug 2016	12 Aug 2016

6.3 Test Strategy

Test strategy is important because its enables the developer to use different testing techniques that are suitable for the system. It is also necessary for managing and controlling risk within the testing component of the system. System developer needs to define the test strategy which consists testing approach and testing methodology, before designing the test case. The purpose of a test strategy is to notify some key issue to the person who involve in the testing process. There are two test strategy were used in e-Aduan Lost and Found Item which include White Box Testing and Black Box Testing.

1. Black-Box Testing

The black box testing is about selecting the test case based on the functional specification of the system. Tester does not require any knowledge of the code of the system that will be tested. This black box testing will cover the functional and User Acceptance Testing (UAT) for e-Aduan Lost and Found Item.

2. White-Box Testing

White-box testing is also called glass-box testing which exposes the internal part of the system. There are many techniques available in white-box testing because the problem of intractability is eased by specific knowledge and attention on the structure of the system (Pan, 1999). In the white box testing, test cases are selected based on the program structure or implementation of the system. The person who involves requires knowledge of the program structure and implementation. It usually to ensure the code works as expected and well perform. (Azliha, 2013)

6.3.1 Classes of Tests

This system project phases present classes that have been involved in the testing procedure and tasks. Below are components of the testing.

i. Unit Testing

Each module or component of the e-Aduan Lost and Found Item will be tested according to its functionality. The code of each component will be checked to ensure the correctness.

ii. Integration Testing

This test is done to confirm that the system may function properly between its applications. This test needs a proper parameter and data are correctly passed between applications in e-Aduan Lost and Found Item.

iii. System Testing

System testing is done to confirm that each component in this project will function properly and the data are correctly processed by the individual system

iv. Security Testing

The purpose of security testing for e-Aduan Lost and Found Item is to identify and remove system flaws that may potentially lead to security violations, and validating the effectiveness of security measures. In e-Aduan Lost and Found Item, security measure had been applied in front-end level where an authorized person will only able to login to the system.

v. Error handling Testing

The purpose of error handling test is to ensure that e-Aduan Lost and Found Item only accept right input from the user. The error message will appear if any wrong input entered or unfilled required value.

vi. User Acceptance Testing

This test is done by end-user to perform a final acceptance for e-Aduan Lost and Found Item. UAT also is to ensure user and component of the system will function correctly.

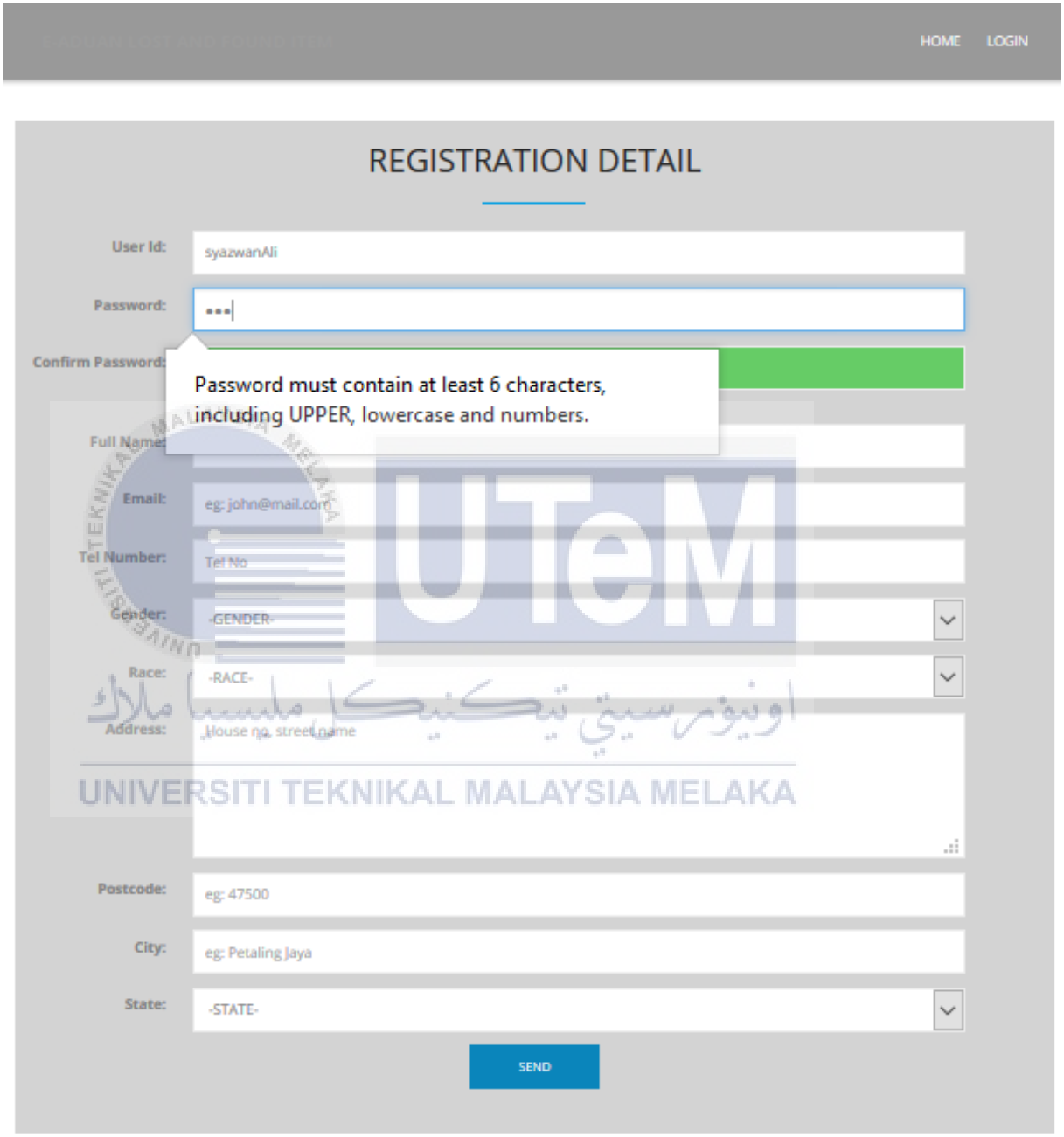


Figure 6.1: Register Form Testing

Figure 6.2 shows end-user (staff, student, and outsider) register form testing of e-Aduan Lost and Found Item. User is required to fill all the information for

registration in e-Aduan Lost and Found Item. If user fails to fill it, the message will appear as shown in Figure 6.2.

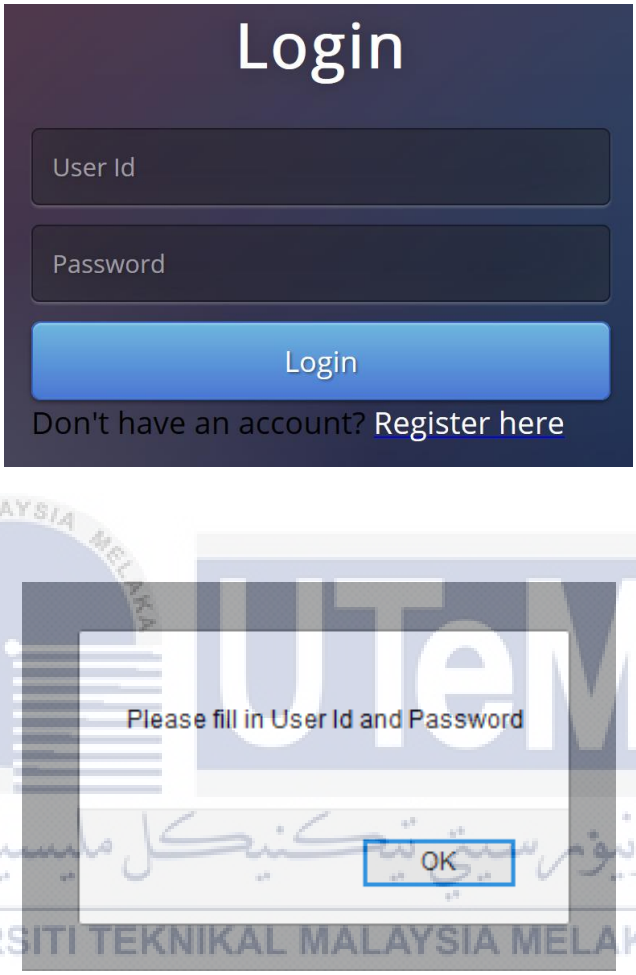


Figure 6.2: Login Form Testing

Figure 6.3 shows the login form testing for e-Aduan Lost and Found Item. The login is unsuccessful if User ID and password are not correct and if the login unsuccessful the error message will appear.

6.4 Test Design

Test design is divided into two which is test description and test data. The activities that required for the test design are documented test description and identifying the test data. Test description will explain about the test cases and expected result while test data will explains about the user acceptance test.

6.4.1 Test Description

Test description purpose is to identify the test case and expected result for each module which is designed and documented. A test case is a documented set of data input and operating condition required to run a test item together with expected result after execute. Below are the test cases and expected result for each module. Table 6.7 shows the test design specification for end-user.

Table 6.5: Test Design Specification

Module / Functional Component	Test Case ID	Test Case / Identification	Action	Expected Result
Register	e-ALFI_01_001	Unit, Integration, User Acceptance Testing	User register to continue the activities in the system	User able to register if all the required fields are fully filled.
	e-ALFI_01_002		User enter invalid password character	Registration failed.

			and invalid email	
	e-ALFI_01_003		User enter only user id and all fields are null.	Registration failed.
Login	e-ALFI_02_001	Unit, Integration, Error handling, User Acceptance Testing	User enter a valid user id and password.	The login is successful and main menu page will appear when a valid user ID and password is entered.
	e-ALFI_02_002		User enters invalid user id or invalid password or both	The login unsuccessful. The pop-up error message "Invalid user Id OR password" will appear.
	e-ALFI_02_003		User enters valid user id and password is null.	The login unsuccessful. The pop-up error message "Please fill in User Id and Password" will appear.

Lost Item Report Form	e-ALFI_03_001	Unit, Integration, User Acceptance	User filled all required field with specified condition.	System will submit and save the data in database.
	e-ALFI_03_002		User did not fully filled all required field.	The form will not submitted until all required fields are filled.
Update Contact Profile Form	e-ALFI_04_001	Unit, Integration, User Acceptance	User update the contact detail.	The system save the updated data in database.
Appointment Form	e-ALFI_05_001	Unit, Integration, User Acceptance	User need to select the appointment date.	The data will save into the database.
Add Hand-in Item Form	e-ALFI_06_001	Unit, Integration, User Acceptance	Staff need to fill all the item hand-in field.	The submitted data was save in the database.
Search existence item category name	e-ALFI_07_001	Unit, Integration, User Acceptance	Staff search the item category name.	System searches the data that entered and display the result.
Add Item Category Form.	e-ALFI_08_001	Unit, Integration, User Acceptance	Staff add new item	The new entered data is submit and

			category name.	successfully save in the database.
Match reported item with item hand-in	e-ALFI_09_001	Unit, Integration, User Acceptance	Staff check the item and the matched hand in item will display. Staff will match the item if the detail data is match.	The process of matching is successful.

6.4.2 Test Data

Test data is a set of data that created to test the e-Aduan Lost and Found Item. The data created are real sample for this system.

Table 6.6: Tested data for User Registration

COMPONENT : REGISTRATION			
Column Name	**Test Data 1**	**Test Data 2**	**Test Data 3**
Test Case ID	e-ALFI_01_001	e-ALFI_01_002	e-ALFI_01_003
User Id	nabilahAzam	nabilahAzam	nabilahAzam
Password	Nabilah1234	1234	
Confirm Passowrd	Nabilah1234	1234	
Full Name:	Nabilah shamshur azam	Nabilah shamshur azam	

Email	nabilahAzam@gmail.com	nabilahAzam	
Tel Number	0174480648	0174480648	
Address	194 Apartment BNM, Jln ss15/4e	194 Apartment BNM, Jln ss15/4e.	
City	Subang Jaya	Subang Jaya	
Result	User register successfully	User register failed because user enters the password and email incorrectly	User register failed because all field is NULL except user id field

Table 6.7: Tested data for User Login

COMPONENT : LOGIN			
Column Name	**Test Data 1**	**Test Data 2**	**Test Data 3**
Test Case ID	e-ALFI_02_001	e-ALFI_02_002	e-ALFI_02_003
Username	nabilahAzam	nabilahAzam	nabilahAzam
Password	Nabilah1234	nabilah	
Result Test Data	User login successfully.	User login failed because password does not match with the stored password in the database.	User login failed because password is NULL.

6.5 Test Result and Analysis

To ensure the system is tested well, all the results for each of the test case is documented. It is important to make a documentation because it may ease the developer to modify some part of the system and to produce the correct output and

system flow. Table 6.9 shows the test result and analysis for e-Aduan Lost and Found Item.

Table 6.8: Test result and analysis

Test Case ID	Tester ID	Result	This system is worst or great. (1=worst,5=great)
e-ALFI_01_001	Tester3	OK	3
e-ALFI_01_002	Tester3	OK	3
e-ALFI_01_003	Tester3	OK	3
e-ALFI_02_001	Tester3	OK	3
e-ALFI_02_002	Tester3	OK	3
e-ALFI_03_001	Tester3	OK	3
e-ALFI_03_002	Tester3	OK	3
e-ALFI_04_001	Tester3	OK	3
e-ALFI_05_001	Tester3	FAILED	3
e-ALFI_06_001	Tester3	OK	3
e-ALFI_07_001	Tester3	OK	3
e-ALFI_08_001	Tester3	OK	3

6.6 Conclusion

This chapter describes a testing for e-Aduan Lost and Found Item. The environment testing and test schedule to manage cycle and duration of the project were explained in detail. The selected strategy being used with test case identification, test cases and expected result for each test case individually have been explained in this section. The next chapter discusses about the conclusion of the project with an observation on strengths, weaknesses, and proposition for improvement to the project

CHAPTER VII

CONCLUSION

7.1 Introduction

The conclusion is the chapter for summing up the whole project. The conclusion, observation on weaknesses and strengths of the system that have been developing, propositions for its improvement in the future and its contributions. This chapter shows whether the project is successful cover the objectives and its scopes that stated earlier.

7.2 Observation on Weaknesses and Strengths

The weaknesses and strengths of "e-Aduan Lost and Found Item" will be described as follows.

For any kind of application or system that have been developed for any purpose, there must have strengths and weaknesses for each of it. However, this shall not be an excuse to make a better output for next development. The output that is something extraordinary and useful for the mankind will provide the strength for that output product. If there are weaknesses with the product, it should addresses out for a better future action so that it will become more meaningful output product.

7.2.1 System Strengths

There are the strength that can be emphasize to e-Aduan Lost and Found Item (e-ALFI) project development. The strength are includes:

i. Interface

One of the important element to attract user is the graphical user interface. The system must be a user-friendly interface with an appropriate combination of color and graphic to attract the user to use the system continuously. By having a user-friendly interface also, it may the help user to use the system easily.

ii. Database Security

Database use for e-ALFI is an authenticated database. It is protected by username and password and user need to login to enable them to use the database application.

7.2.2 System Weaknesses

Not all system that has been developing will face a success with no bugs and errors. Below is the weaknesses that have been identifying for e-Aduan Lost and Found Item:

i. The user can report only one item in one lost item report.
ii. The user does not have a notification in email or SMS.
iii. The user does not have the ability to upload their lost item photo to the system.
iv. The user may check their status of the lost item report only by login to the system.
v. The user does not have an access to view the item that already hand-in to the office and request claim if their item is found and have recorded in the system.

7.3 Propositions for Improvement

There are still much more parts of the system to be upgraded for the future. The improvement is still much as there are weaknesses in the website. All the weaknesses that have been addressed need to be highlighted to make e-Aduan Lost and Found Item more meaningful for client and users. It is important to have a consultation with the client and user to improve the system. The comments and suggestions from them are very important as it will help to improve the system. It is better to have the notification for the user if their item is found. This function is important to notify the user about their item. The time constraint also has some effect on the project product as it limits

the time to have a successfully complete system. For a betterment, it is suggested to have an enough time to produce a good quality of system.

7.4 Contribution

E-Aduan Lost and Found Item contribute a goodness for UTeM residents and outsider as they may report their lost item just in an electronic medium. This system also gives a benefit for the staff that handles this system, because they do not need to deal with paper and their works become easier. The improvement still needs to ensure that the end user will get more benefit by using this system.

7.5 Conclusion

For the conclusion, all the system that have been develop have their own strengths and weaknesses as it faces a different constraints. Besides, e-Aduan Lost and Found Item is developed to easy the user to report through online. This project takes almost 6 months to complete. Some study on other systems has been done at the early stage of the project. The output or product from this project has met the objectives stated in earlier of the project. By having this system, the user that lost their item can make a lost item report through online with no time constraint. The user also has the flexibility to check their status or the lost item report through online and make an appointment to verify and pick their item. The user also have an ability to update the contact information if there have a change happen. Lastly, the e-Aduan Lost and Found Item project can be expanded for the future to make it more reliable for the user by adding more features and attractive interaction.

REFERENCES

Azliha (2013). “UTeM e-Complaint Android Application System”. Universiti Teknikal Malaysia Melaka.

Fakulti Teknologi Maklumat dan Komunikasi (2016). “Panduan Pelaksanaan Projek Sarjana Muda (PSM)”. Universiti Teknikal Malaysia Melaka.

Hamizah (2010). “System Management Aqiqah and Qurban”. Universiti Teknikal Malaysia Melaka.

Nurjannah Syuhada Roseman (2014). “Hardware Failure Complaint”. Universiti Teknikal Malaysia Melaka.

Nurul Atika Ali Akhbar (2012). “E-Reporting System for Hardware and Software”. Universiti Teknikal Malaysia Melaka.

Pan, J., 1999. *http://www.ece.cmu.edu/.* [Online]
Available at: https://users.ece.cmu.edu/~koopman/des_s99/sw_testing/
[Accessed 15 August 2016].

T-VEC Technologies, n.d. *T-vec.com.* [Online]
Available at: https://www.t-vec.com/solutions/testdesign.php
[Accessed 15 August 2016].

Appendix A

Log Book

UTeM

اونيۏرسيتي تيکنيکل مليسيا ملاک

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

FAKULTI TEKNOLOGI MAKLUMAT DAN KOMUNIKASI

BITU 3973 / BITU 3983

PROJEK SARJANA MUDA

BUKU LOG PENYELIAAN

PSM NOTE/DISCUSSION

Date: 18 July 2016

Activity Description:

- Discuss about the content that should have in Chapter 5 which is implementation for the project.
- Discuss the problem face while in the implementation of the system with the supervisor.
- Discuss with the supervisor the improvement that should have for the system.
- Required to submit the progress which is Chapter 5 for the next meeting.

Student's Signature	Supervisor's Signature
Date: 19 July 2016	Date: 25/07/2016

PSM NOTE/DISCUSSION

Date: 25 July 2016

Activity Description:

- Submit the progress which is Chapter 5 of the project report for supervisor review.
- Required to prepare the next chapter for the progress report which is Chapter 6. Chapter 6 is about testing of the project.
- Discuss about the detail content that should have in the testing phase with the supervisor.
- Required to submit the progress which is Chapter 6 for the next meeting.

Student's Signature	Supervisor's Signature
Date: 26 July 2016	Date: 01/08/2016

PSM NOTE/DISCUSSION

Date: 01 August 2016

Activity Description:

- Submit the progress which is Chapter 6 of the project report for supervisor review.
- Required to prepare the Chapter 7 which is conclusion for the next progress.
- Required to demo the system for the next meeting.

Student's Signature

Date: 02 August 2016

Supervisor's Signature

Date: 08/08/2016

PSM NOTE/DISCUSSION

Date: 08 August 2016

Activity Description:

- Submit the progress which is Chapter 7 of the project report for supervisor review.
- Demo the system for the supervisor review and take note the improvement that should have.
- Required to make a correction on the progress report previously submitted.

Student's Signature

Date: 09 August 2016

Supervisor's Signature

Date: 12/08/2016

PSM NOTE/DISCUSSION

Date: 12 August 2016

Activity Description:

- Submit the draft of the PSM report.
- Discuss about the content that should have in the final PSM presentation.
- Required to prepare the final PSM presentation slide.

Student's Signature

Date: 12 August 2016

Supervisor's Signature

Date: 15/08/2016

Appendix B

Proposal Form

UTeM/FTMK/PSM/1

Kod Projek :	BITU 3973

UNIVERSITI TEKNIKAL MALAYSIA MELAKA
FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY

PROJEK SARJANA MUDA 1
PROPOSAL FORM
[Incomplete form will be rejected]

A	**TITLE OF PROPOSED PROJECT:** *Tajuk projek yang dicadangkan :* e-Aduan Lost and Found Items
B	**DETAILS OF STUDENT** / *MAKLUMAT PELAJAR*
B(i)	**Name of Student:** Nabilah Binti Shamshur Azam *Nama Pelajar:* **Identity card no.:** 931104026148 *No. Kad Pengenalan :* **Student card no.:** B031310218 *No. Kad Pelajar :*
	Correspondence Address : *Alamat Surat Menyurat :* No 194 Apartment Bank Negara Malaysia, Jalan SS15/4e, 47500 Subang Jaya, Selangor Darul Ehsan
B(iii)	**Program Pengajian:** *Study Program:* ☐ BITC ☑ BITD ☐ BITI ☐ BITM ☐ BITS
B(iv)	**Home Telephone No.:** 03-56122426 *No. Telefon Rumah:* **Handphone No.:** 6017-4480648 *No. Telefon Bimbit:*
B(v)	**E-mail Address:** nabilahfourth93@gmail.com / b031310218@student.utem.edu.my *Alamat e-mel:*

C	PROJECT INFORMATION / *MAKLUMAT PROJEK*
C(i)	**Project Area (Please tick):** *Bidang Projek (Sila tanda (√)):* ☐ **A. Intelligent Information Systems** Sistem Informasi Pintar ☐ **B. Software Technology** Teknologi Perisian ☑ **C. Database Technology** Teknologi Pangkalan Data ☐ **D. Computer System Technology** *Teknologi Sistem Komputer* ☐ **E. Computer and Network Security** *Komputer dan Keselamatan Rangkaian* ☐ **F. Networking and Distributed Computing** *Rangkaian dan Pengkomputeran Teragih* ☐ **G. Immersive Technology** Teknologi Imersif
C(ii)	**Duration of this project (Maximum 12 months):** *Tempoh masa projek ini (Maksimum 12 bulan):* **Duration:** 4 months *Tempoh* : **From** : 22-Februari-2016 *Dari* : **To** : 10-June-2016 *Hingga* :
C(v)	**Executive Summary of Project Proposal (maximum 300 words)** **(Please include the background of project, literature reviews, objectives, project methodology and expected outcomes from the project)** Knowadays there are a lot of thing happen to be solve just by having a platform, an internet connection and devices. Most of the people in this decade use their devices to look for the information. People sometime tend to forgot where they put their important beloging and sometimes it accidently dropped somewhere. When this happen, they do not know where should they go to get their beloging back. On the other hand, the people that found the items will not know where they should hand-in that item to.Therefore, e-Aduan lost and found items system are tend to be a solution for them where they can look for their lost items by providing detail of their lost items. Besides, people who have found item also can use this system to report on their founded item. By having an e-Aduan lost and found items system, people have a solution or platform to report on their lost and found items. This system can be use by community especially community of UTeM. This project was proposed because there is no fix platform for the people in the UTeM to find their lost items around. They just can post in the facebook and sometimes the detail are not properly provide. The main objective e-Aduan lost and found item system to provide a proper medium for community to report and complaint on their lost and found items. The project methodolgy that will be use for e-

	Aduan lost and found items system is waterfall model because it is simple and easy to understand and use. With this system, it is hoped that the problem can be simplify and solve.
C(vi)	**Detailed proposal of project:** *Cadangan maklumat projek secara terperinci:* **(a) Project background including Introduction / Problem Statements and Literature Reviews.** *Keterangan latar belakang projek termasuk pengenalan / penyataan masalah dan kajian literatur.* 1. *Introduction* Nowadays, information technology, or IT has become a kind of technology that is no stranger to the world of technology development in the country of Malaysia. The information technology systems in our country is increasing rapidly. Many organizations include the government agency or private involved in the use of information technology. There are a lot of thing happen to be solve just by having a platform, an internet connection and devices. Most of the people in this decade use their devices to look for the information. Other than getting the information on the internet, they also can use it as their platform to interact with other people and solve some kind of problem. The project is about e-Aduan lost and found item system. This project can help people on an easy way to handle the lost and found item. By using this system community that having a problem lost their beloging can find it through this system. This system can be use by community especially community of UTeM. People sometime tend to forgot where they put their important beloging and sometimes it accidently dropped somewhere. When this happen, they do not know where should they go to get their beloging back. The people that found the items will not know where they should hand-in that item to.Therefore, e-Aduan lost and found items system are tend to be a solution for them where they can look for their lost items by providing detail of their lost items. Besides, people who have found item also can use this system to report on their founded item. By having an e-Aduan lost and found items system, people have a solution or platform to report on their lost and found items. This project was proposed because there is no fix platform for the people in the UTeM to find their lost items around. They just post in the facebook and sometimes the detail are not properly provide. The main objective e-Aduan lost and found item system is to provide a proper medium for community to report or complaint on their lost and found items. The project methodolgy that will be use for e-Aduan lost and found items system is waterfall model because it is simple and easy to understand and use. Computerized system is popular used in the developed country as it applies in all types of industry. Computerized and secure system provides a pleasure and better way for community to get information. With this system, it is hoped that the problem can be simplify and solve in an easy way. 2. *Problem Statements* The e-Aduan lost and found items system is proposed because there are no fix and proper medium or platform for the community to report or complaint their lost and found item in the UTeM. They have no choise where they need to post the lost and found item in the facebook where sometimes information are not enough. 3. *Literature Review* According to Juliana Adam, 2002, in her project about E-Complaints KUTKM Hostel, the web application system provided the networking function, which can allow other user from the other location to share the data through the network. The project are aims to facilitate the KUTKM students to do their complaints without any specified time frame, to improve the efficiency among officers to be more alert on complaints that have been done, and to ensure that data can be stored electronically and easy for data retrieval. This project is very useful for the student that live in the hostel and have a problem about the hostel.

(b) Objective (s) of the Project
Objektif Projek

Example */Contoh:*

This project embarks on the following objectives:

1. To develop a web based application for report on lost and found items for UTeM where the data of lost and found items will be locate in one specific database.
2. To provide a flexibility where complainant can check their status of lost and found item and make an appointment to pick their item.
3. To prepare a platform for staff to manage the report of lost and found items and administrator to analyze the report.

(c)Project Methodology
Kaedah projek

Please state in the form / *Sila nyatakan di borang ini*

1. *Description of Methodology*

   The methodology that will be use in this project is Waterfall Model. Waterfall Model also referred to as a linear sequential life cycle model. It is very simple to understand and use. In a waterfall model, each phase must be completed before the next phase can begin and there is no overlapping in the phases. The phases are requirement analysis, system design, implementation, testing, deployment, and maintenance.

2. *Flow Chart of Project Activities (Please enclose in the Appendix)*
3. *Gantt Chart of Project Activities (Please enclose in the Appendix)*
4. *Milestones and Dates*

Milestones of Project

Week	Expected Documents	Dates
1	Project title	22 Feb - 26 Feb
2	Submission of project proposal	29 Feb - 4 Mar
3	Chapter 1 and System Development Begins	7 Mar - 11 Mar
4	Chapter 1 & Chapter 2	14 Mar - 18 Mar
5	Chapter 2	21 Mar - 25 Mar
6	Chapter 2 Chapter 3	28 Mar -1 April
7	Project Demo & Chapter 3 Chapter 4	4 April - 8 April

8	**MID SEMESTER BREAK**	
9	Project Demo & Chapter 4	18 April - 22 April
10	Project Demo & Chapter 4	25 April - 29 April
11	Project Demo	2 May - 6 May
12	Project Demo & PSM Report	9 May – 13 May
13	Project Demo & PSM Report	16 May - 20 May
14	Project Demo & PSM Report	23 May - 27 May
15	Final Presentation	30 May -3 June
16	Correction draft report based on supervisor's and evaluator's comments during the final presentation session.	6 June - 10 June

(d) Expected Results/Benefit
Jangkaan Hasil Projek

By having this e-Aduan lost and fund item system, the people can have an option to find their lost item with an easy ways while the founder of the items also can use this system to report on their found item. Hope that this system will be acceptable and useful for the community in order to hep them regarding their lost and found items.

D REFERENCES

State your references

[1] Juliana Binti Adam, "E-Complaints KUTKM Hostel", 2002.

[2] Pasukan Kerja E-Aduan, "Sistem E-Aduan", 2009.

E ACCESS TO EQUIPMENT AND MATERIAL (PLEASE LIST IN DETAIL) / *KEMUDAHAN SEDIA ADA UNTUK KEGUNAAN BAGI PROJEK INI (SILA SENARAIKAN DENGAN TERPERINCI)*

University *Universiti*	**Other Sources or Places** *Lain-lain tempat/sumber*
Example / *Contoh:* ***Equipments:*** ***Incubator, Heater and Stirrer, Freeze dryer, Autoclave, Fridge, Analytical Weight,***	

UTeM/FTMK/PSM/1

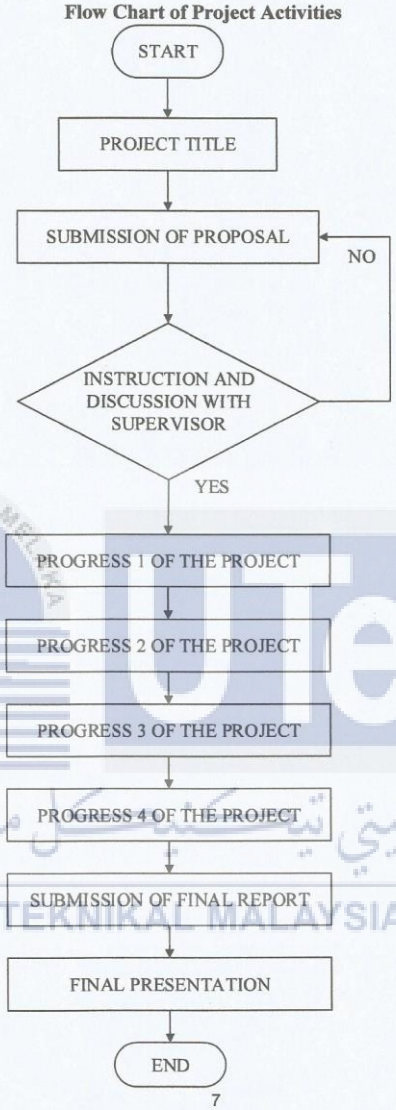
F (i)	**Declaration by applicant** / *Akuan Pemohon*
	Date : *Tarikh :* 04/03/2016 **Applicant's Signature :** *Tandatangan Pemohon :* Nabilah Binti Shamshur Azam

F (ii)	**Recommended by the Supervisor** *Perakuan oleh Penyelia*	**Recommendation by the Evaluator** *Perakuan oleh Penilai*
	Please tick (√) *Sila tandakan (√)*	**Please tick (√)** *Sila tandakan (√)*
	Recommended: *Diperakukan:*	**Recommended:** *Diperakukan:*
	☐ **A. Highly Recommended** *Sangat Disokong*	☐ **A. Highly Recommended** *Sangat Disokong*
	☑ **B. Recommended** *Disokong*	☐ **B. Recommended** *Disokong*
	☐ **C. Not Recommended (Please specify reason)** *Tidak Disokong (Sila Nyatakan Sebab)*	☐ **C. Not Recommended (Please specify reason)** *Tidak Disokong (Sila Nyatakan Sebab)*
	General Comments: *Ulasan umum:* Tatalu umum perlu banyak lagi diperbaiki.	**General Comments:** *Ulasan umum:*
	Supervisor's Name: Supervisor's Name Here *Nama Penyelia:*	**Evaluator's Name:** Evaluator's Name Here *Nama Penilai:*
	Signature: *Tandatangan:* YAHAYA BIN ABDUL RAHIM Pensyarah Fakulti Teknologi Maklumat dan Komunikasi Universiti Teknikal Malaysia Melaka (UTeM)	**Signature:** *Tandatangan:*
	Date: *Tarikh:* ~~DD-MMM-2012~~ 8/3/2016	**Date:** *Tarikh:* DD-MMM-2012

PSM & PD COMMITTEE Comments

Appendix

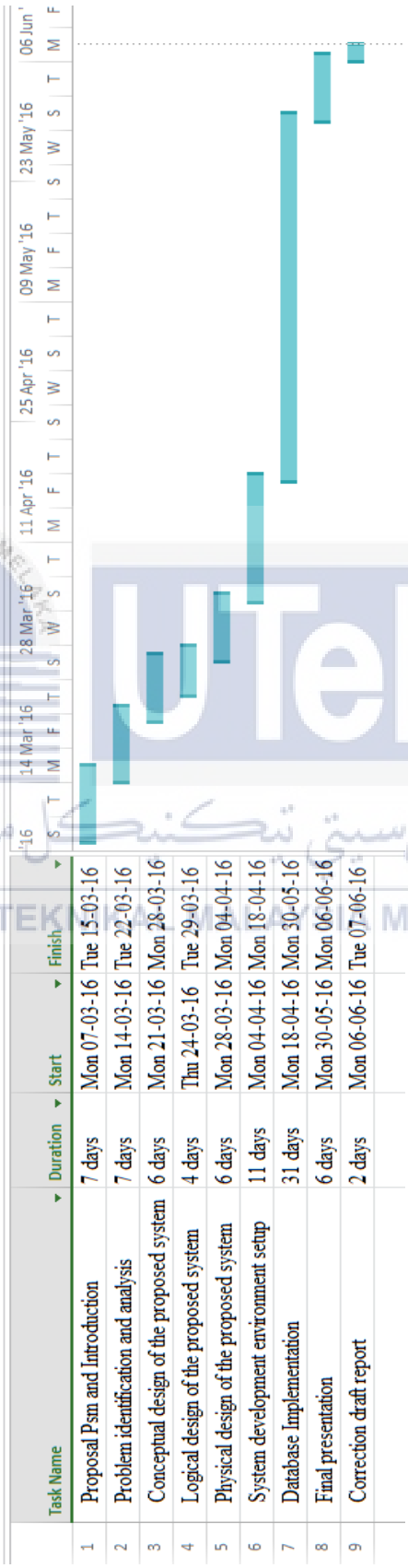
Flow Chart of Project Activities



7

Appendix C

Gantt Chart



	Task Name	Duration	Start	Finish
1	Proposal Psm and Introduction	7 days	Mon 07-03-16	Tue 15-03-16
2	Problem identification and analysis	7 days	Mon 14-03-16	Tue 22-03-16
3	Conceptual design of the proposed system	6 days	Mon 21-03-16	Mon 28-03-16
4	Logical design of the proposed system	4 days	Thu 24-03-16	Tue 29-03-16
5	Physical design of the proposed system	6 days	Mon 28-03-16	Mon 04-04-16
6	System development environment setup	11 days	Mon 04-04-16	Mon 18-04-16
7	Database Implementation	31 days	Mon 18-04-16	Mon 30-05-16
8	Final presentation	6 days	Mon 30-05-16	Mon 06-06-16
9	Correction draft report	2 days	Mon 06-06-16	Tue 07-06-16