AL-QURAN AUTHENTICITY CHECKER

WAN NUR IZZIE BINTI WAN RUSLIM

BORANG PENGESAHAN STATUS TESIS

JUDUL: AL-QURAN AUTHENTICITY CHECKER

SESI PENGAJIAN: 2015/2016

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AL-QURAN AUTHENTICITY CHECKER

WAN NUR IZZIE BINTI WAN RUSLIM

This report is submitted in partial fulfillment of the requirements for the

Bachelor of Computer Science (Software Development)

FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

2016

DECLARATION

I hereby declare that this project report entitled

AL-QURAN AUTHENTICITY CHECKER

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

STUDENT : _____ Date: 29/8/2016

(WAN NUR IZZIE BINTI WAN RUSLIM)

SUPERVISOR : _____ Date: 29/08/2016.

(DR. MOHD SANUSI BIN AZMI)

DEDICATION

To my beloved parents, lecturers and friends.

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First and foremost, I would like to thank God in giving me the strength and ability to finish this project. I would like to express my sincere gratitude towards my supervisor, Dr Mohd Sanusi bin Azmi who had helped me during the completion of this project. His guidance and encouragement had helped me tremendously in completing this project.

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ABSTRACT

The Al-Quran is considered as a religious scripture for Muslims, where it is believed that the book was revealed by God to the Prophet Muhammad PBUH through the angel Gabriel as a divine guideline for living day – to – day lives and after-life affairs. Since its revelation, the Al-Quran has been transmitted in manuscripts by calligraphers and copyists who are Companions to the Prophet PBUH. To protect its authenticity as the word of God, certain steps were taken. For example, upon receiving revelation, the Prophet PBUH conveyed the message to his Companions through reciting the exact words he heard by Gabriel in the exact order. The Prophet PBUH has also encouraged his Companions to learn each verse that was revealed and pass it on to others. The Companions memorized the verses word for word and recited the verses regularly in daily prayers. In today's society, the Al-Quran can be obtained anywhere, whether it is through printed materials or even mobile systems. The objective of this system is to help users to determine whether the physical copies that are available in stores are authenticated by the authorities. This will ensure that the Al-Quran purchased will be free of any doubts or corruption that might be caused by unwanted parties. This system will be developed in various stages including developing the database, developing the GUI, testing the system and proposing the finished system. The expected outcome from this project is that users can purchase physical or printed Al-Qurans without any doubts by using the system to authenticate the Al-Quran.

ABSTRAK

Al-Quran adalah Kitab Suci bagi umat Islam, dan dipercayai bahawa Kitab Suci ini diturunkan oleh Allah SWT kepada Nabi Muhammad SAW melalui malaikat Jibrail sebagai garis panduan dalam kehidupan seharian dan juga hal-hal duniawi dan akhirat. Semenjak penurunannya, Al-Quran telah disebarkan dalam bentuk manuskrip oleh penulis yang merupakan para sahabat Nabi SAW. Untuk melindungi keasliannya, langkah-langkah tertentu telah diambil. Sebagai contoh, setelah menerima wahyu, Nabi SAW akan berkongsi apa yang telah diwahyukan kepada para sahabat baginda dengan bacaan yang didengar dari Jibrail dengan mengikuti setiap patah perkataan yang disampaikan kepada baginda. Nabi SAW juga menggalakkan para sahabat baginda untuk belajar setiap ayat yang diturunkan dan berkongsi kepada orang lain. Para sahabat juga akan menghafaz perkataan demi perkataan yang diwahyukan dan membacakan secara kerap ayat-ayat tersebut dalam solat. Pada masa kini, Al-Quran boleh diperolehi di mana-mana sahaja, sama ada melalui bahan bercetak atau pun aplikasi mudah alih. Tujuan sistem ini adalah untuk membantu pengguna untuk menentukan sama ada salinan fizikal yang terdapat di pasaran telah disahkan oleh pihak berkuasa. Ini akan memastikan bahawa Al-Quran yang dibeli akan bebas daripada keraguan yang mungkin disebabkan oleh pihak-pihak yang tidak bertanggungjawab. Sistem ini akan dibangunkan secara berperingkat termasuk pembangunan pangkalan data, GUI, pengujian sistem dan pelancaran sistem. Diharapkan bahawa projek ini dapat membantu pengguna untuk membeli Al-Quran tanpa keraguan dengan menggunakan system ini untuk mengesahkan keaslian Al-Quran tersebut.

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LIST OF ABBREVIATIONS

KDN	Kementerian Dalam Negeri
UTeM	Universiti Teknikal Malaysia Melaka
IDE	Integrated Development Environment

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CHAPTER I

INTRODUCTION

1.1 Introduction

Authentication is the process of determining whether someone or something is, in fact, who or what it is declared to be. Authentication is also a process in which the credentials provided are compared to those on file in a database. The purpose of authenticating an Al-Quran is to make sure that the reader is reading authentic verses that have been passed down from generations of Huffaz, dating back from the time of the Holy Prophet (PBUH).

Because of this, any forms of alteration in the slightest bit is considered blasphemous and forbidden. Thanks to today's growing technology, Muslims can now have access to the Al-Quran that is produced in digital formats, rather than physical copies. Smart phones, tablets and other gadgets can easily contain these handy applications. But ultimately, people are still opting for physical copies of the Al-Quran for various reasons. As humans, mistakes or even planned acts that could lead to alterations to the Al-Quran could occur. This raises the question on how authentic the printed Al-Quran is. Therefore, this project is proposed to address this issue.

The system will enable users to search for details of the current Al-Quran that they possess and compare the details shown on the system to that of their Al-Quran. This will help users to check the authenticity of their Al-Quran copy. Users can also

submit any reports on Al-Quran copies that are not authentic into the system to help improve the database and simultaneously help the Al-Quran publishing industry in combatting faulty Al-Quran copies.

1.2 Problem statements

The authenticity of some printed or physical Al-Qurans can sometimes be compromised. Different sects in the Islamic community that have unorthodox ambitions can affect the standardised version of the Al-Quran.

Al-Qurans can be mispublished by companies whether intentionally or not. Since the preservation of Al-Qurans are mainly focused on Hafiz or scholars who have completely memorized the Al-Quran, the issue of different dialects and accents affects the authenticity of the Al-Quran in terms of the writings of the verses into the *mushaf* itself. Therefore, publishing houses should follow the strict and standardised guidelines of Al-Quran publishing that were made by responsible authorities.

1.3 Objective

Objectives of this project are:

i. To help users in checking the authenticity of Al-Quran copies.
ii. To enable users to submit reports of unauthentic copies of the Al-Quran.
iii. To provide a method for administration of this system.

1.4 Scope

The following are the scope involved in this project:

i. Muslims living in Malaysia who wants to authenticate a copy/copies of the Al-Quran.
ii. Al-Quran publishing companies that are distributing copies in Malaysia.

iii. The Publication and Qur'anic Texts Control Division, Ministry of Home Affairs (KDN) that are involved in the authentication process of Al-Quran copies.

1.5 Project Significance

Parties that can gain benefits from this project are Muslims who are intending to verify the authenticity of the Al-Quran that is possessed. Since there are a myriad of versions of the Al-Quran in the market at the moment, it would be normal if a person would like to find out whether the Al-Quran purchased is authenticated and verified by KDN or not. This is to avoid any complications and doubts in doing daily readings of the holy Al-Quran.

Al-Quran publishers will have to register their products to KDN so that their product can be verified by authorities from KDN. Their registered products will be inserted into the system's database for further use. The benefit that the publishers will get out of this system is that they can be trusted by readers as a brand that publishes authentic and trusted Al-Quran copies.

The authorities in KDN will also gain benefit from this project because this system will help better organization of the records of verified and authenticated versions of Al-Quran. This system will be a boost to the efficiency of KDN in keeping track of their important records. KDN will also be able to release a system that will aid Malaysian citizens to check the authenticity of individual Al-Qurans.

1.6 Expected Output

The expected output from this project is an system that can check the authenticity of a physical Al-Quran by referring to the guidelines given by respected authorities, which in this case is KDN.

1.7 Conclusion

In conclusion, this chapter have discussed the introduction to this project. The problem statements includes the question of Al-Quran authenticity and the error in Al-Quran publishing by certain companies. The objectives of this project includes the design and development of the Al-Quran authenticity checker and to verify the accuracy of a copy of an Al-Quran. The scope includes Muslims living in Malaysia, Al-Quran publishers and KDN authorities that are involved in the authentication of Al-Quran copies.

The project significance discusses the importance of this project to the related scope demographic and how this project can benefit the parties involved. The expected outcome from this project is a system that can help KDN provide an application that can help Al-Quran readers a way to authenticate their copies of the Al-Quran to diminish any doubts. Chapter 2 will cover literature review and project methodology for this project.

CHAPTER II

LITERATURE REVIEW AND PROJECT METHODOLOGY

2.1 Introduction

In this chapter, a review will be conducted to study on existing application or any application similarly related with the project, determine suitable methodology for project, listing resources required such as software and hardware requirement and project schedule and milestone for project management purpose.

2.2 Facts and Findings

Alshareef & El Saddik (2012) states that the Al-Quran is considered as a religious scripture for Muslims, where it is believed that the book was revealed by God to the Prophet Muhammad PBUH through the angel Gabriel as a divine guideline for living day – to – day lives and other worldly and/or after-life affairs.

Laouamer & Tayan (2013) discusses that since its revelation, the Al-Quran has been transmitted in manuscripts by calligraphers and copyists who are Companions to the Prophet PBUH. To protect its authenticity as the word of God, certain steps were taken. For example, upon receiving revelation, the Prophet PBUH conveyed the message to his Companions through reciting the exact words he heard by Gabriel in the exact order. The Prophet PBUH has also encouraged his Companions to learn each

verse that was revealed and pass it on to others. The Companions memorized the verses word for word and recited the verses regularly in daily prayers.

In today's society, the Al-Quran can be obtained anywhere and everywhere, whether it is through printed materials or even mobile applications (Kurniawan et al. nd). The objective of this application is to help users to determine whether the physical copies that are available in stores are authenticated by The Department of Islamic Development of Malaysia (KDN). This will ensure that the Al-Quran purchased will be free of any doubts or corruption that might be caused by unwanted parties.

This application will be developed in various stages including developing tools to convert pdf files to images, developing the database, developing the GUI, testing the application and proposing the finished application.

The expected outcome from this project is that users can purchase physical or printed Al-Qurans without any doubts by authenticating it first through the application.

2.2.1 Domain

The domain of this system is Al-Quran authenticity checking. The system will receive query regarding details of the Al-Quran and will then display the related details to show authentic and correct details of the published Al-Quran from its database. The system will also receive reports of unauthentic copies of the Al-Quran.

2.2.2 Existing System

This project focuses on Al-Quran authenticity checking. Therefore, there has not been any recent development of existing systems of the exact project. However, there are several researches that resembles this system which were introduced by Kurniawan et al. (nd), Yusoff, Ismail & Hassan (2010), Alshareef & El Saddik (2012), Laouamer & Tayan (2013), Kamsin et al. (2015), and Alsmadi & Zarour (2015). However they were more focused on the authentication of digital copies of the Al-Quran, rather than physical copies of the Al-Quran.

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2.2.3 Technique

The techniques that are used in this system are searching and displaying details of the Al-Quran. These techniques are essential for users because they can check the authenticity of the Al-Quran by comparing details from the possessed Al-Quran to the details that were searched and displayed on the system.

For the administration side, insert, update, delete, search and display will be used. This is because, the administrators are responsible for the managing and maintaining of the database.

2.3 Project Methodology

This topic will discuss about the research framework methodology, which is used to fulfil this project's objectives. It will focus on conceptual role during the execution of the project. Execution of the research framework will also be discussed in this topic.

The research framework methodology is divided into two phases which is investigation phase and execution phase.

Table 2. 1 : Research framework methodology

Research framework methodology	Investigation phase	1. Analyse the problems.
		2. Elicit the problem requirements.
		3. Analyse Al-Quran details and specifications.
		4. Investigate the techniques and methods for authenticity checking

<table>
<tr><td rowspan="8"></td><td rowspan="8">Execution phase</td><td colspan="2">5. Collecting details to be displayed.</td></tr>
<tr><td rowspan="6">6. Develop model of system.</td><td>6.1 Searching</td></tr>
<tr><td>6.2 Displaying</td></tr>
<tr><td>6.3 Inserting</td></tr>
<tr><td>6.4 Update</td></tr>
<tr><td>6.5 Delete</td></tr>
<tr><td>6.6 Navigation</td></tr>
<tr><td colspan="2">7. Result analysis.</td></tr>
</table>

2.4 Project Requirements

This section describes the requirement needed in this project. There are 3 types of requirement for this project which are software requirements, hardware requirements, and other requirements.

2.4.1 Software Requirement

Table 2. 2 : Software requirements

Software	Detail
Operating system	Windows 10 Home, 64-bit
Compiler	Java JDK8

IDE	Eclipse EE LUNA, Eclipse IDE Luna
Servers	Apache Tomcat 7.0, MySQL
Database	XAMPP

2.4.2 Hardware Requirement

Table 2. 3 : Hardware requirements

Hardware	Detail
Computer	Lenovo G400s
Processor	Intel(R) Core (TM) i5-3230M CPU @ 2.60GHz
Installed Memory (RAM)	4.00 GB DDR3
Graphic	Nvidia GeForce GT 720M 512MB
Printer & Scanner	HP
Hard Disc (External)	WD My Passport Ultra

2.4.3 Other Requirements

The following are the other requirements that helped this project to run smoothly. These are essential in developing this project. The tables below are the list of other requirements in developing this project.

Table 2. 4 : Other requirements

Java Library	**Detail**

.jar	• Javax.faces2.2 • Jsf-facelets-1.1.14 • Jsf-impl-2.0.4 • Primefaces-5.3 • all-themes-1.0.10 • commons-fileupload-1.3.1 • commons-io-2.4 • jstl-api-1.2

2.5 Project Schedule and Milestones

This project was estimated to be completed within 15 weeks. Project schedule and milestone was made to track the progress on project development. Project schedule details will be provided in the form of milestone and Gantt chart format.

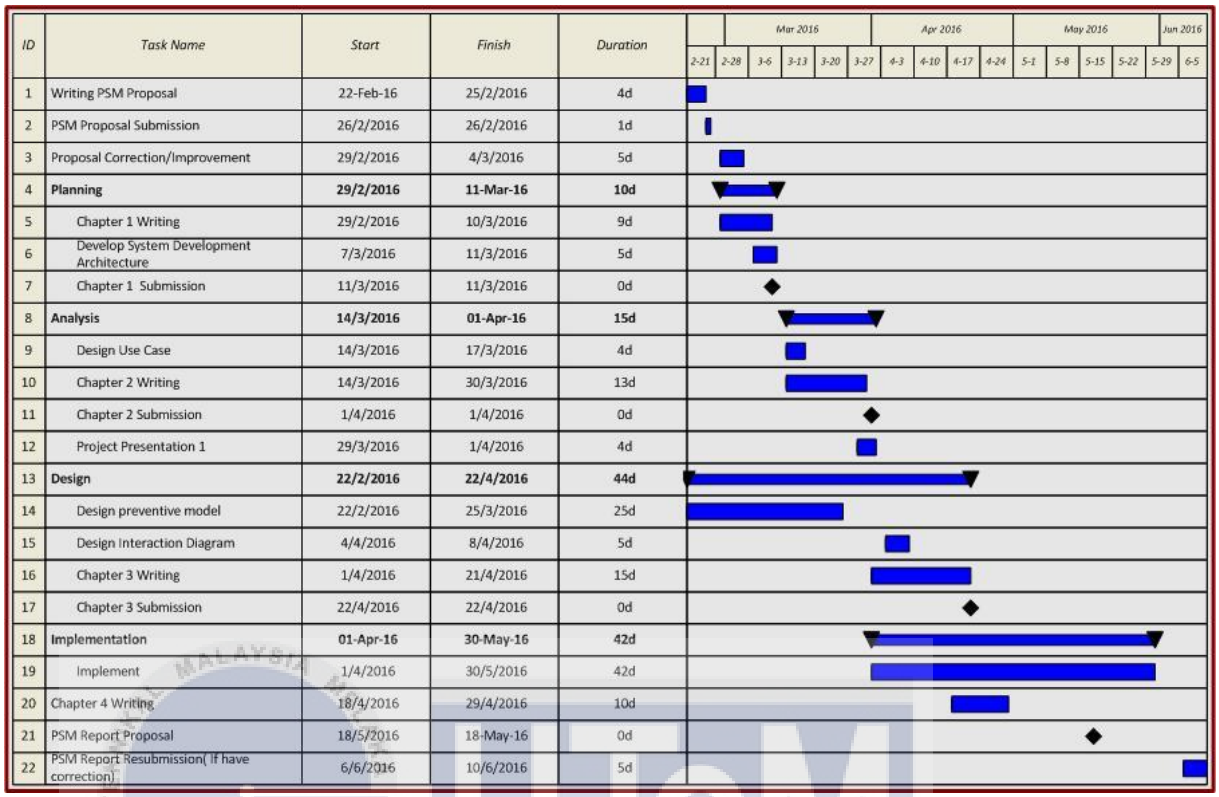
Table 2. 5 : Project milestones

Week	Activity	Note / Action
1 22-26 Feb	Proposal PSM : Submission & Presentation	Deliverable – Proposal Action – Student Deliverable – Proposal Presentation (PP) Action – Student
	Proposal assessment and verification	Action – Supervisor, Evaluator
2 29 Feb -4 Mar	Proposal Correction/Improvement Chapter 1	Action – Student
	List of supervisor/title	Action – AJK PSM/PD

3 7-11 Mar	Chapter 1 (System Development Begins)	Deliverable – Chapter 1 Action – Student, Supervisor
4 14-18 Mar	Chapter 1 & Chapter 2	Action – Student
5 21 - 25 Mar	Chapter 2	Action – Student
6 28 Mar -1 April	Chapter 2 Chapter 3	Deliverable – Chapter 2 Progress Presentation 1 (Pembentangan Kemajuan(PK 1)) Action – Student, Supervisor
	Student Status	Action – AJK PSM/PD, Supervisor Warning Letter 1
7 4-8 April	Project Demo & Chapter 3 Chapter 4	Action – Student
9 18-22 April	Project Demo & Chapter 4	Deliverable – Chapter 3 Action – Student, Supervisor
10 25 - 29 April	Project Demo & Chapter 4	Deliverable – Progress Presentation 2 (Pembentangan Kemajuan ,(PK) 2) Action – Student, Supervisor
	Student Status	Action – AJK PSM/PD, Supervisor

		Warning Letter 2
11 2 - 6 May	Project Demo	Action – Student
	Determination of student status(Continue/Withdraw)	Action –PSM/PD Committee, Supervisor(submit student status to AJK)
12 9 – 13 May	Project Demo & PSM Report	Action – Student, Supervisor, Evaluator
13 16 - 20 May	Project Demo & PSM Report	Action – Student, Supervisor, Evaluator
	Presentation Schedule	AJK PSM/PD
14 23 - 27 May	Project Demo & PSM Report	Deliverable – PSM Report Action – Student, Supervisor
15 30 May -3 June	FINAL PRESENTATION (PA)	Action – Student, Supervisor, Evaluator
16 6 - 10 June	REVISION WEEK Correction draft report based on supervisor's and evaluator's comments during the final presentation session. Submission overall marks to PSM/PD committee.	Action – Student, Supervisor, Evaluator. PSM/PD committee.

Table 2. 6 : Project Gantt chart



ID	Task Name	Start	Finish	Duration
1	Writing PSM Proposal	22-Feb-16	25/2/2016	4d
2	PSM Proposal Submission	26/2/2016	26/2/2016	1d
3	Proposal Correction/Improvement	29/2/2016	4/3/2016	5d
4	**Planning**	**29/2/2016**	**11-Mar-16**	**10d**
5	Chapter 1 Writing	29/2/2016	10/3/2016	9d
6	Develop System Development Architecture	7/3/2016	11/3/2016	5d
7	Chapter 1 Submission	11/3/2016	11/3/2016	0d
8	**Analysis**	**14/3/2016**	**01-Apr-16**	**15d**
9	Design Use Case	14/3/2016	17/3/2016	4d
10	Chapter 2 Writing	14/3/2016	30/3/2016	13d
11	Chapter 2 Submission	1/4/2016	1/4/2016	0d
12	Project Presentation 1	29/3/2016	1/4/2016	4d
13	**Design**	**22/2/2016**	**22/4/2016**	**44d**
14	Design preventive model	22/2/2016	25/3/2016	25d
15	Design Interaction Diagram	4/4/2016	8/4/2016	5d
16	Chapter 3 Writing	1/4/2016	21/4/2016	15d
17	Chapter 3 Submission	22/4/2016	22/4/2016	0d
18	**Implementation**	**01-Apr-16**	**30-May-16**	**42d**
19	Implement	1/4/2016	30/5/2016	42d
20	Chapter 4 Writing	18/4/2016	29/4/2016	10d
21	PSM Report Proposal	18/5/2016	18-May-16	0d
22	PSM Report Resubmission(If have correction)	6/6/2016	10/6/2016	5d

2.6 Conclusion

This chapter elaborate in detail about literature review and project methodology that is applied during the development of this project. Topic of facts and finding covers models development. Project methodology covers the processes used to guide the development of this project. Meanwhile, milestones are guidelines to help managing and finishing the task on time. Chapter 3 will cover analysis of the system for current and new system.

CHAPTER III

ANALYSIS

3.1 Introduction

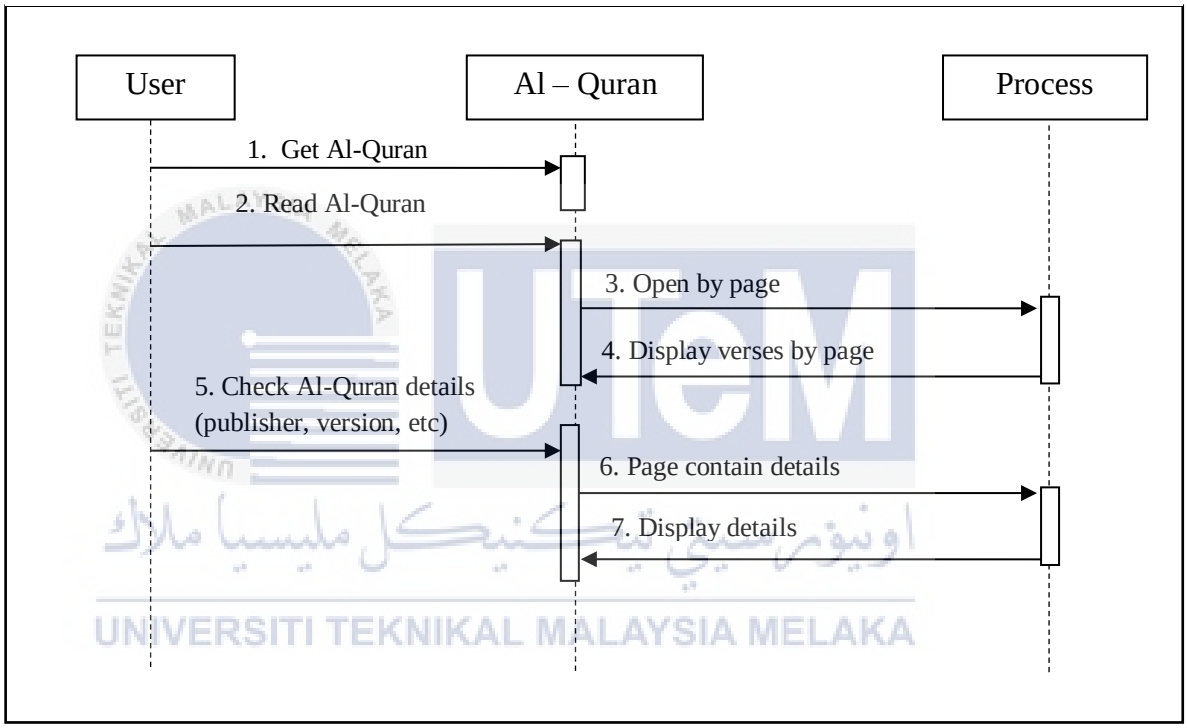
In this topic, the requirements of the project that is being developed will be discussed. This phase will also identify all the problems that has arisen, the current methods, existing features and their weaknesses in order to enhance the features of this project. This phase will indirectly cover the project goals and purposes that will align with this project's objectives.

The problem statements will be analysed and features will be investigated for further improvements. Some methodologies and techniques will be used to develop the features.

3.2 Problem Analysis

Problem analysis can be used to gather requirements and to elicit all the information needed to better understand problems that has arisen. By doing this method, steps and measures to solve problems can be taken. The method to be used for developing the features will be analysed and weakness from the existing features will be discussed to make this project work efficiently and effectively.

Figure 3. 1 : Al-Quran authenticity checking sequence diagram



3.2.1 Problem Statement

The first problem to be analysed is the doubt in the authenticity of some printed or physical Al-Qurans. The next issue is that copies of the Al-Quran can be mispublished by companies whether intentionally or not.

The Institute of Munich University in Germany had collected forty two thousand copies of the Holy Al-Quran, including manuscripts and printed texts produced from each period in various parts of the Islamic World. For half a century, researches made on these texts concluded that apart from copying mistakes, there was no discrepancy in the text of these forty two thousand copies, even though they belonged to the period between the 1st Century Hijra to 14th Century Hijra, and had been obtained from all parts of the world.

Presently, to uphold the authenticity and standards of the Al-Quran, publishers around the world should have a dedicated team of eminent scholars and researchers, who are engaged in proofing the Al-Quran copies before proceeding towards the publishing and manufacturing of the Holy Scriptures.

However, Al-Quran readers should be aware of the copies that are owned, and should have a means to check the authenticity of their copy of the Al-Quran since there are still irresponsible authorities who are intended in publishing incorrect or unauthentic copies of the Al-Quran.

3.3 Requirement analysis

This section provides details on requirement analysis involved in this project. The requirement analysis can be break down into 4 sub-sections: data requirement, functional requirement, non-functional requirement and other requirement.

3.3.1 Data Requirement

The following are the data dictionary for this project.

i) Table mushafalquran

Table 3. 1 : mushafalquran table

Column	Type	Null	Default	Links to	Comments
MushafId *(Primary)*	int(11)	No			
Penerbit	varchar(255)	Yes	*NULL*		
NegaraAsal	varchar(100)	Yes	*NULL*		
Versi	varchar(255)	Yes	*NULL*		
TahunDiterbitkan	int(11)	Yes	*NULL*		

Penyalin	varchar(500)	Yes	*NULL*		
TahunDisahkan	int(11)	Yes	*NULL*		
Lokasi	varchar(100)	Yes	*NULL*		
MukaSurat	int(11)	No			

Indexes

Table 3. 2 : mushafalquran table indexes

Keyname	Type	Unique	Packed	Column	Cardinality	Collation	Null	Comment
PRIMARY	BTREE	Yes	No	MushafId	15	A	No	
MushafId	BTREE	No	No	MushafId	15	A	No	

ii) Table laporan

Table 3. 3 : laporan table

Column	Type	Null	Default	Links to	Comments
LaporanId *(Primary)*	int(11)	No			
Aduan	varchar(1000)	No			

Indexes

Table 3. 4 : laporan table indexes

Keyname	Type	Unique	Packed	Column	Cardinality	Collation	Null	Comment
PRIMARY	BTREE	Yes	No	LaporanId	15	A	No	

iii) Table mukasurat

Table 3. 5 : mukasurat table

Column	Type	Null	Default	Links to	Comments
MukaSuratId *(Primary)*	int(11)	No			
NomborMukaSurat	int(11)	Yes	*NULL*		
Mushaf	int(11)	Yes	*NULL*	mushafalquran -> MushafId	
Jenis	varchar(1)	Yes	*NULL*		
NamaFail	varchar(100)	Yes	*NULL*		
Lokasi	varchar(100)	Yes	*NULL*		
F1 – F297	double	Yes	*NULL*		

Indexes

Table 3. 6 : mukasurat table indexes

Keyname	Type	Unique	Packed	Column	Cardinality	Collation	Null	Comment
PRIMARY	BTREE	Yes	No	MukaSuratId	2	A	No	

Keyname	Type	Unique	Packed	Column	Cardinality	Collation	Null	Comment
fk_MukaSurat_AlQuran_idx	BTREE	No	No	Mushaf	2	A	Yes	

iv) Table baris

Table 3. 7 : baris table

Column	Type	Null	Default	Links to	Comments
BarisId *(Primary)*	int(11)	No			
NomborBaris	int(11)	Yes	*NULL*		
MukaSurat	int(11)	Yes	*NULL*	mukasurat -> MukaSuratId	
Mushaf	int(11)	Yes	*NULL*	mushafalquran -> MushafId	
BilBaris	int(11)	Yes	*NULL*		
Jenis	varchar(1)	Yes	*NULL*		
NoAyat	int(11)	Yes	*NULL*		
Lokasi	varchar(100)	Yes	*NULL*		
F1 – F297	double	Yes	*NULL*		

Indexes

Table 3. 8 : baris table indexes

Keyname	Type	Unique	Packed	Column	Cardinality	Collation	Null	Comment
PRIMARY	BTREE	Yes	No	BarisId	0	A	No	
fk_Baris_MukaSurat1_idx	BTREE	No	No	MukaSurat	0	A	Yes	
fk_Baris_MushafAlQuran1_idx	BTREE	No	No	Mushaf	0	A	Yes	

3.3.2 Functional Requirement

This topic will discuss about the functional requirements and provide explanations for each of the functions of this project. The functional requirements of project descriptions can be referred to the table below.

Table 3. 9 : Functional requirements table

FR No.	Requirement	Descriptions
FR_1	Search for Al-Quran details.	The system can search details such as publisher, pages, country, version, publishing year, verifying year and author of the Al-Quran.
FR_2	Display Al-Quran details.	The system can display details such as publisher, pages, country, version, publishing year, verifying year and author of the Al-Quran.
FR_3	Submit report	The system should enable users to submit report concerning Al-Quran errors in detail.

FR _4	Batch processing	The system should enable the administrator to batch process details of multiple images including publisher, pages, country, version, publishing year, verifying year, image location and author.

3.3.3 Non-functional Requirement

This section will discuss about the non-functional requirement of project. The non-functional requirement is known as quality attributes that specify how the system should work. The table below is referred as the non-functional requirement of this project.

Table 3. 10 : Non-functional table requirements

NFR No.	Requirement	Description
NFR _1	Performance	The system should perceive responses immediately for users.
NFR _2	Responsiveness	The system should respond to interactions with minimal delay and /or latency.
NFR _3	Availability	The application should be available to be accessed anywhere and anytime by the user.
NFR _4	Usability	The system should be easy to use, in a sense that it is easy to understand and user-friendly.

3.3.4 Other Requirements

This sub section describe additional requirement that are used in this project such as hardware and software.

Software Requirement

Table 3. 11 : Software requirements table

Software	Description
Windows 10 Home OS	• Personal computer OS • Provide environment to install and run softwares
JDK8	• Contain java library and environment to develop and execute java application. • Required to use Eclipse EE Luna.
Eclipse EE Luna	• The Eclipse is an Integrated Development Environment (IDE) • Contain workspace and extensible plug in system to customize the environment • Will be used to develop the project
Eclipse IDE Luna	• The Eclipse is an Integrated Development Environment (IDE) • Contain workspace and extensible plug in system to customize the environment

	• Will be used to develop the project
Apache Tomcat 7.0	• Open source web server that able run java based web application. • Will be used to test the application offline
XAMPP	• Open source database containing MySQL servers. • Will be used to test the database using localhost server.

Hardware Requirement

Table 3. 12 : Hardware requirements table

Hardware	**Description**
Personal Computer	• Used to install all the software mentioned in software requriement to develop the project

3.4 Conclusion

This chapter describes about the full analysis of the project. The description include data requirements, functional requirements, non-functional requirements and other requirements. It covers analysis regarding existing project and features. Functional requirements identifies necessary tasks, actions or activities that must be accomplished. Non-functional requirements specifies criteria that can be used to judge the operation of a system, rather than specific behaviors. Others requirements discusses software requirements and hardware requirements.

CHAPTER IV

DESIGN

4.1 Introduction

This chapter will discuss in detail about the design of the project. Generally, project design is correlated with problem solving and planning for project solutions. The design phase is covered after gaining information from the analysis requirement phase. In this phase, the requirement of project will be transformed into some suitable form to make user, designer and programmer understand the requirement. The output of this phase can directly be used into implementation into programming languages.

This phase will discuss the high-level design and detailed design of this project. In high-level design, system architecture will be described, user interface design and database design will focus on conceptual and logical design. Besides that, detailed design will specify about software design and physical databases design.

4.2. High-Level Design

4.2.1 System Architecture

This topic is briefly explain about design and structure of the system. It act as conceptual model that defines the structure, behavior and views of a system. It is a formal description and representation of the system and can comprise system components.

The system architecture of a project focusing on the architecture and framework will describe the structure, behavior, and views of that system. This topic includes two component architecture which is java framework architecture which shows how the algorithm operates on java environment and system framework architecture that show how the system operates. The framework of java architecture and system architecture are shown in figure 4.1 and figure 4.2 follows.

Figure 4. 1 : Framework java architecture

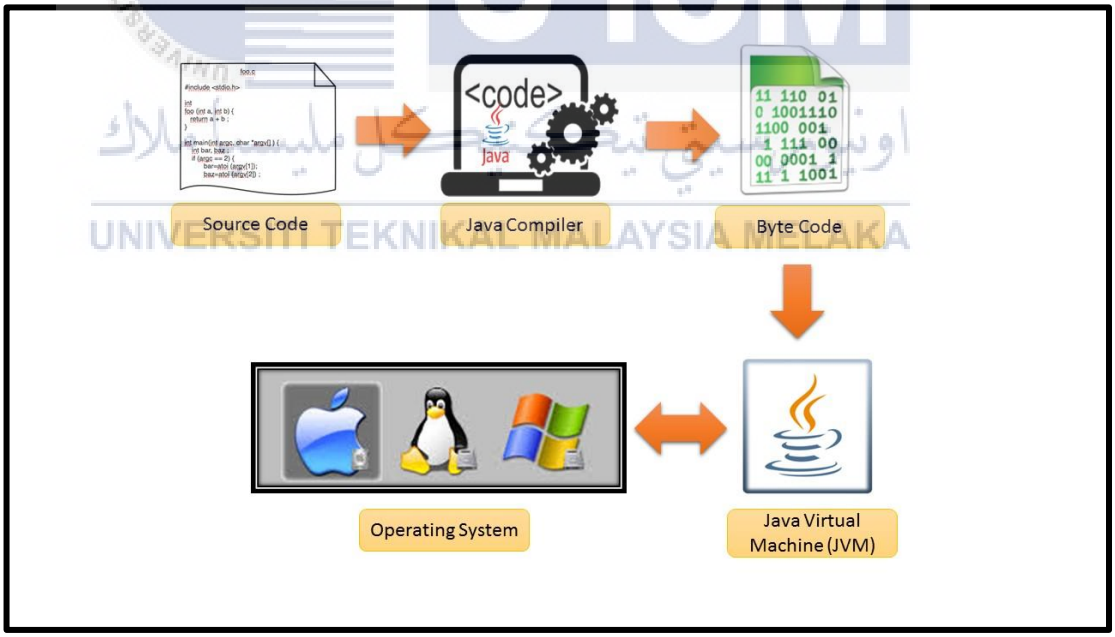
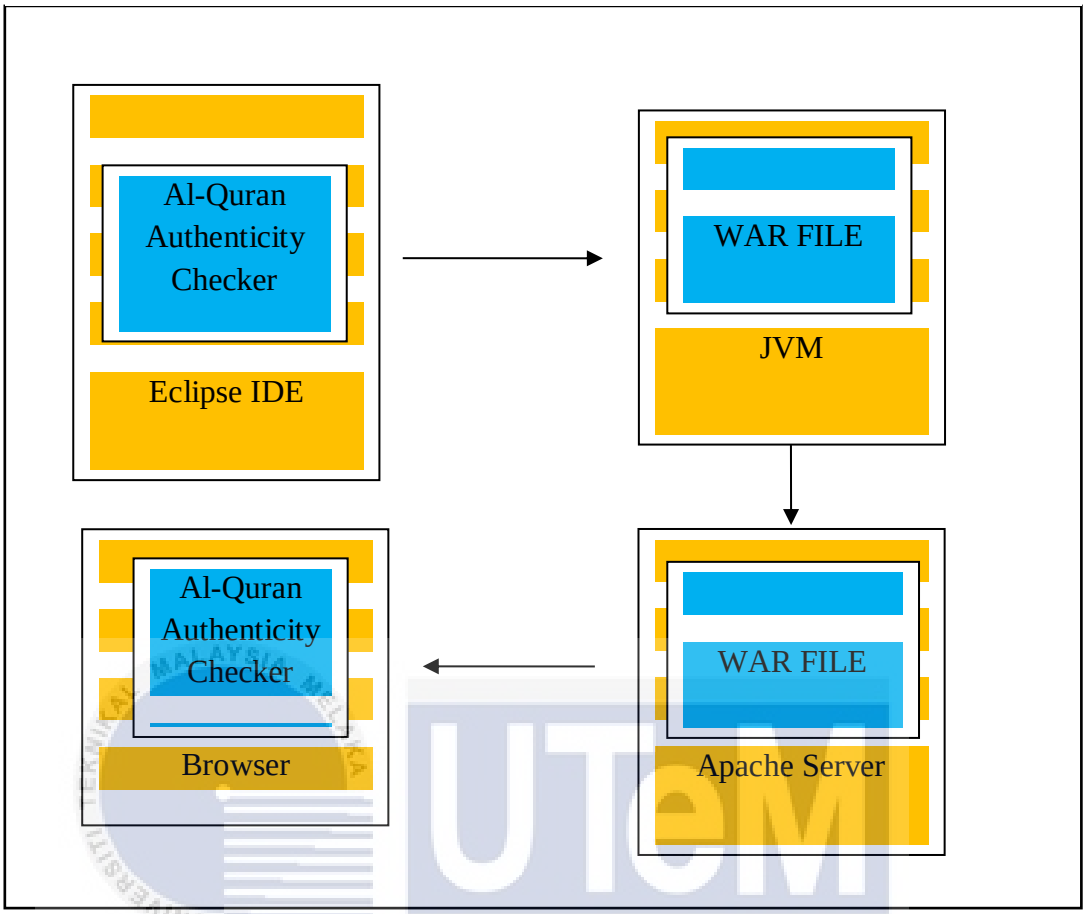


Figure 4. 2 : System framework architecture



The table above illustrates the project system architecture. From left to right, the system firstly develop using Eclipse IDE, upon completion, the Java Virtual Machine (JVM) will compile and export the project into WAR file. The file is then placed into Apache Server directory, this file is a jar file containing all the project files. Afterward, the system then can be access and use via web browser.

4.2.2 User Interface Design

The user interface is one of the most important part of the system. A powerful system with a poorly designed user interface has little value. The web-based interface for users is in the figure below:

4.2.2.1 User Interface Design web-based application

Figure 4.3: 'Laman Utama' page with search form and results table

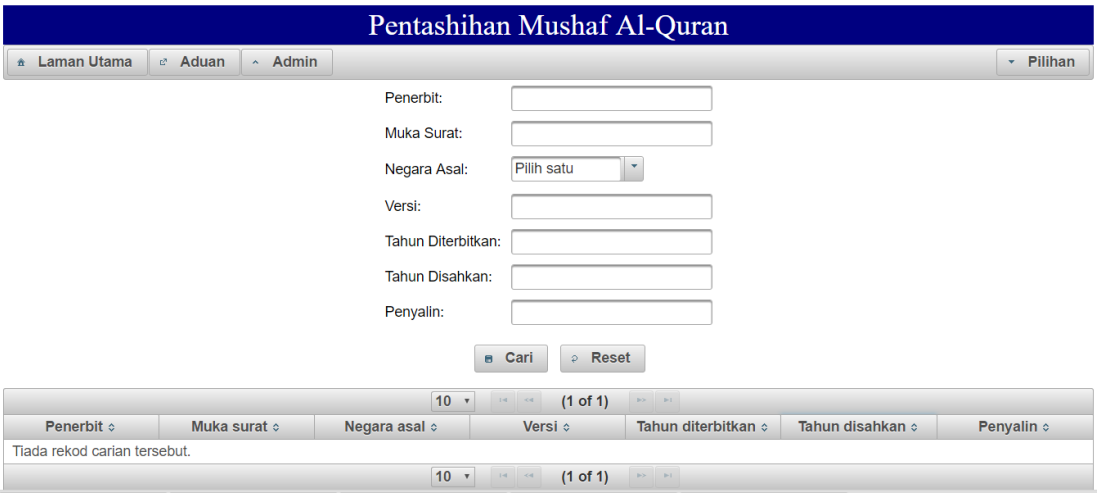


Figure 4.5: The table displays results from search form

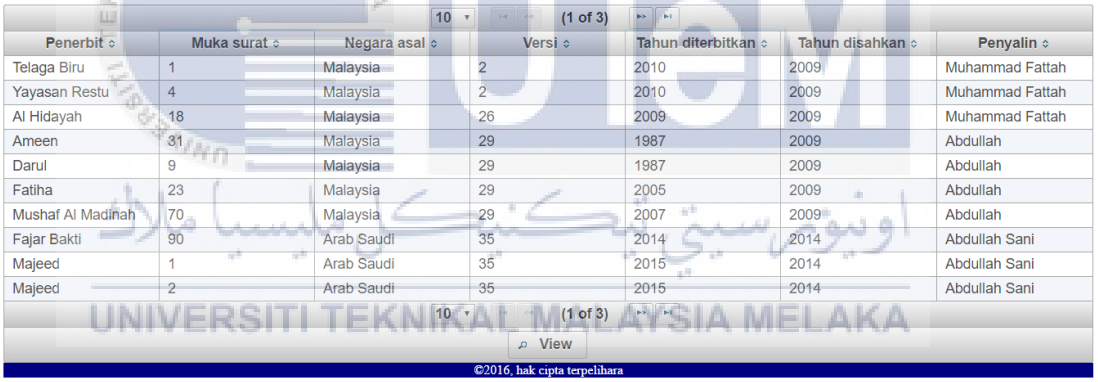


Figure 4.6: 'Aduan' page

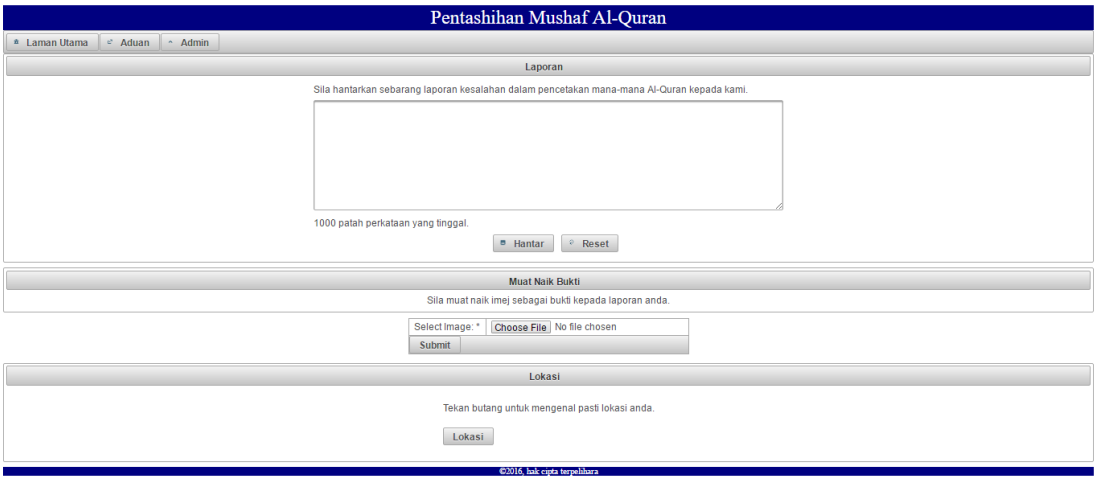


Figure 4.7: The 'Lokasi' Button displays map and current coordinates

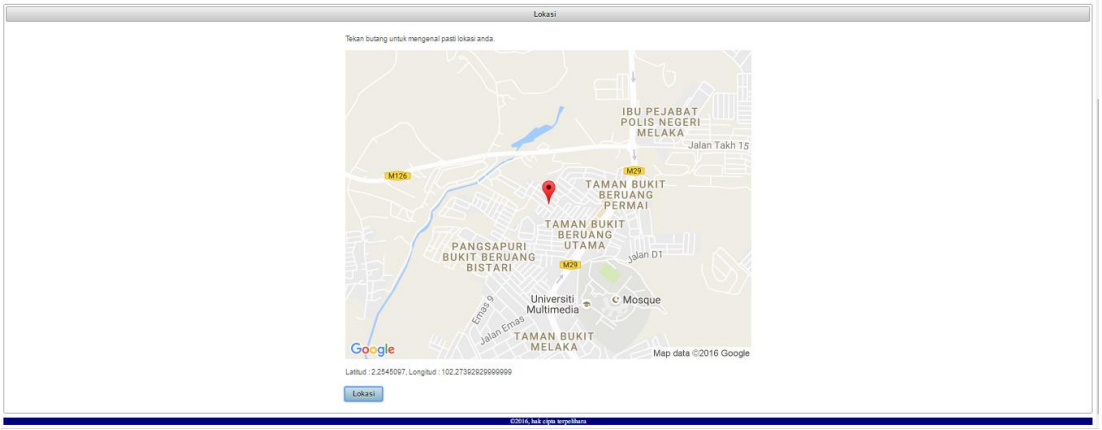


Figure 4.8: The 'Admin' page displays admin login page

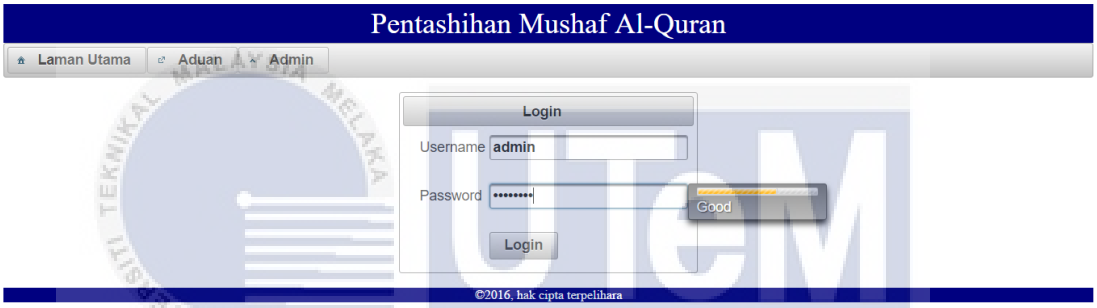


Figure 4.9: The result of admin login displays report data (a)

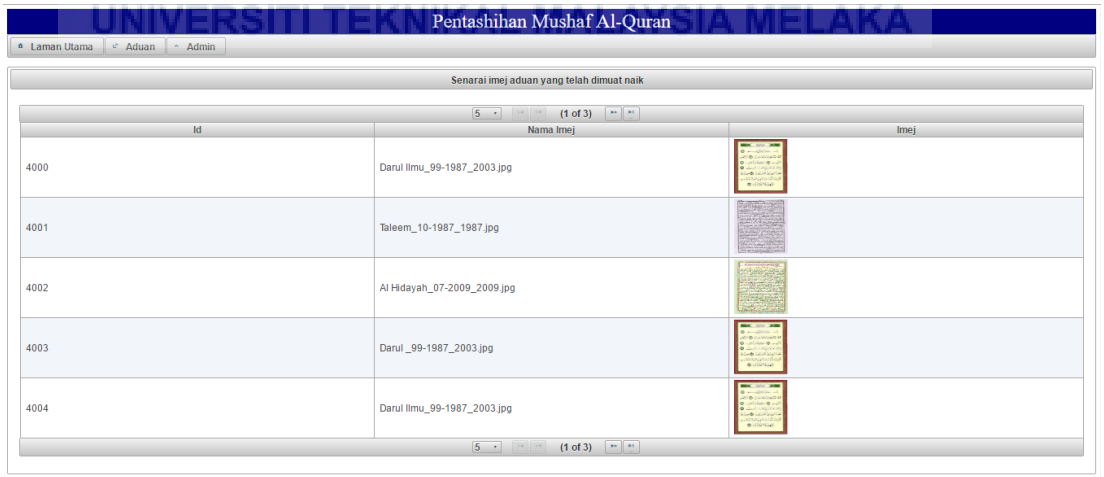


Figure 4.9: The result of admin login displays report data (b)

4.2.2.2 User Interface Design web-based application

Figure 4.10: Interface for Administration (main page)

Figure 4.11: Interface for selection of image batch processing (Administrator)

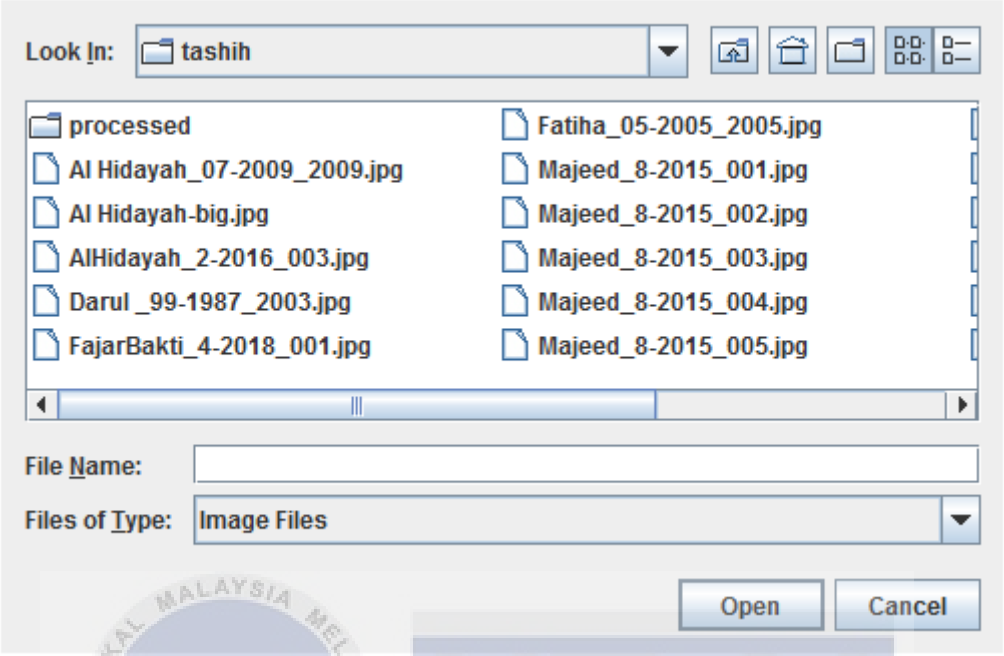
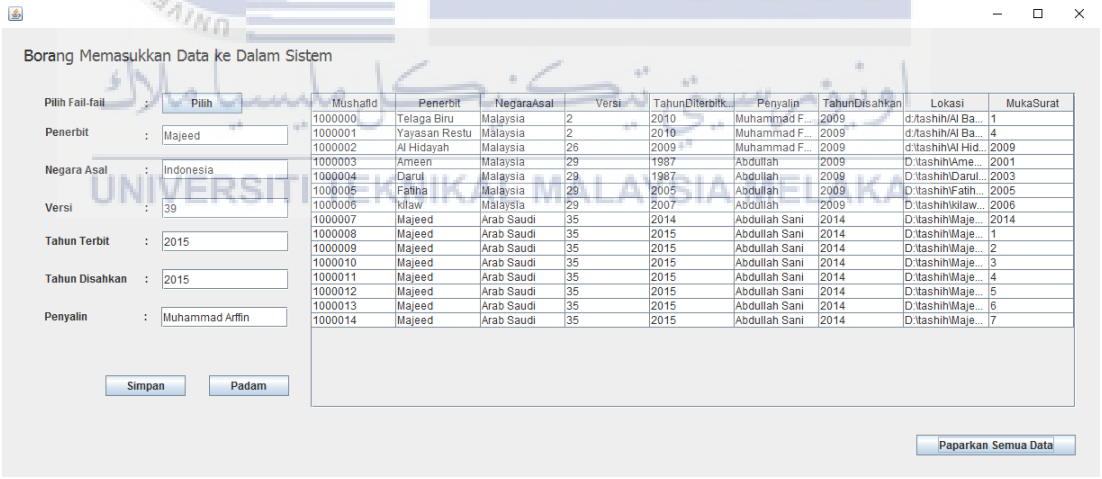


Figure 4.12: Interface after selection of image batch processing

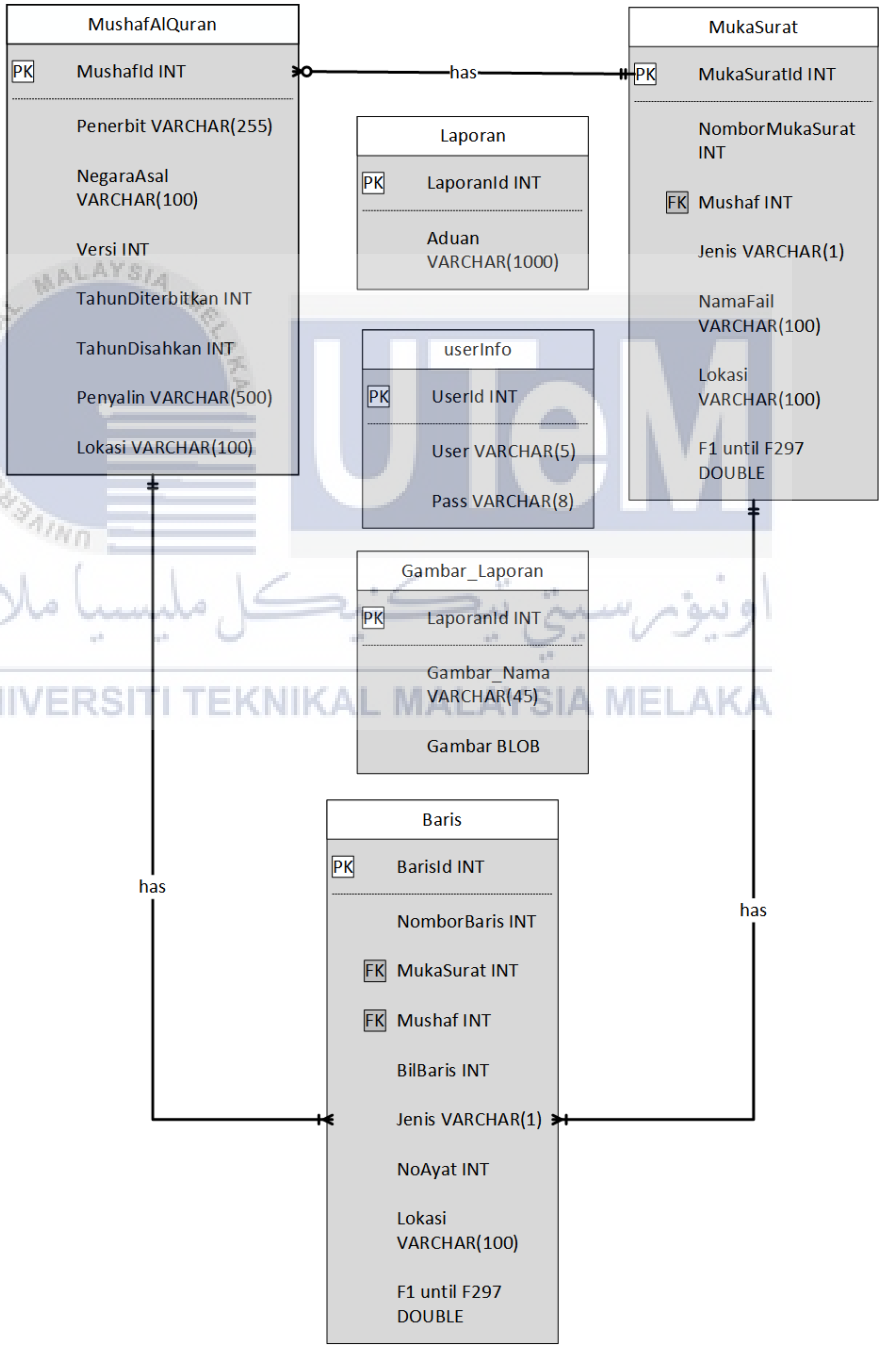


4.2.3 Database Design

For this project, the database includes four tables, which are "*mushafalquran*", "*mukasurat", baris",* and *"laporan*".

Since the tables "*mukasurat"* and *"baris"* has too many columns which exceeds three hundred columns, the ERD will be shortened as shown in figure below:

Figure 4.13: ERD of Al-Quran Authenticity Checker



4.3 Detailed Design

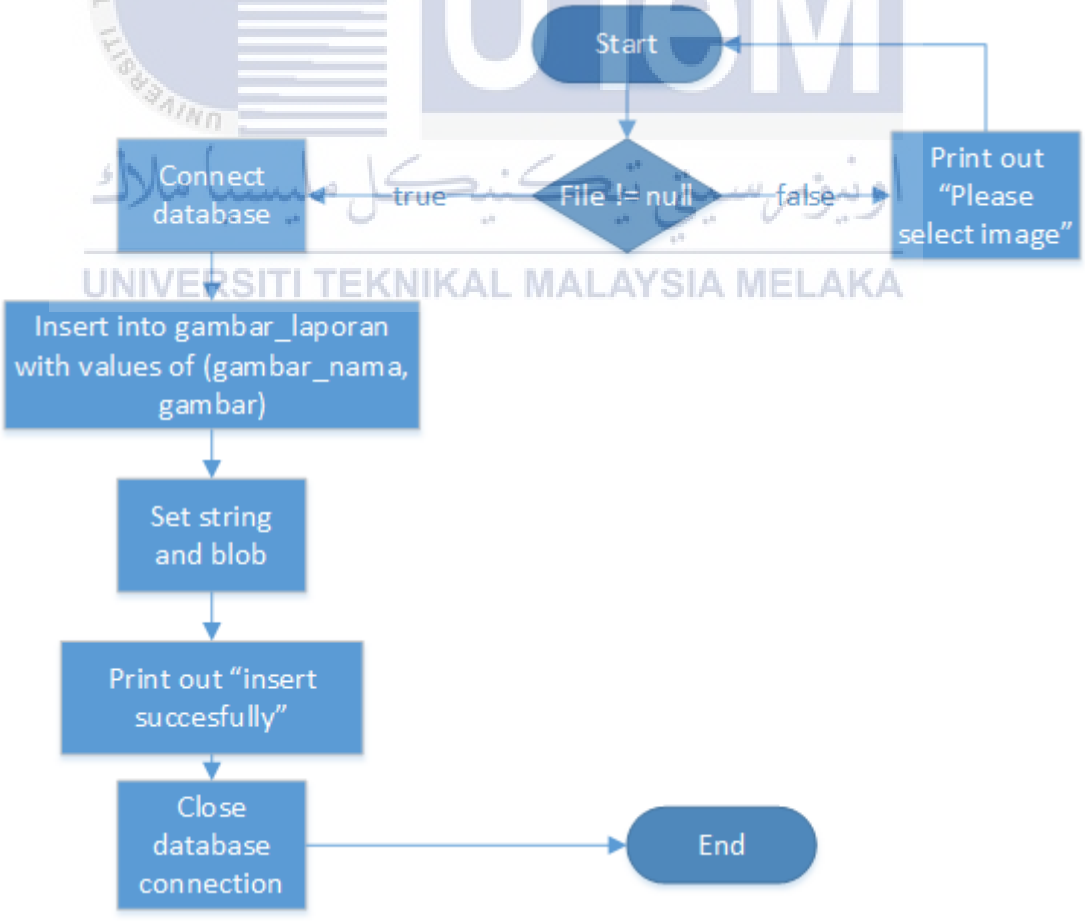
The detailed design of a system is the last design activity before implementation of the project begins. The software design of this project will be focusing on the description of the pseudocode and flowchart of this system. This will portray the structural concept and skeleton of the system.

The physical database design for this system will focus on the DDL of the tables from the database.

4.3.1 Software Design

4.3.1.1 Flowchart of upload() from BookControl.java

Figure 4.14: Flowchart of upload()



4.3.1.2 Pseudocode of upload() from BookControl.java

Figure 4.15: Pseudocode of upload()

```
Description: to enable image files to be uploaded into database
start

        if (file != null)

                initiate database connection
                insert gambar_laporan()
                initiate string, blob
                print insert successfully
                close database connection

        else
                Print "Please select image"

end
```


4.3.2. Physical Database Design

Data Definition Language (DDL)

Figure 4.16: Create Table 'Baris'

```
CREATE TABLE `baris` (
```

```
 `BarisId` int(11) NOT NULL AUTO_INCREMENT,
 `NomborBaris` int(11) DEFAULT NULL,
 `MukaSurat` int(11) DEFAULT NULL,
 `Mushaf` int(11) DEFAULT NULL,
 `BilBaris` int(11) DEFAULT NULL,
 `Jenis` varchar(1) DEFAULT NULL,
 `NoAyat` int(11) DEFAULT NULL,
 `Lokasi` varchar(100) DEFAULT NULL,
 `F1` - `F297` double DEFAULT NULL
 PRIMARY KEY (`BarisId`),
 KEY `fk_Baris_MukaSurat1_idx` (`MukaSurat`),
 KEY `fk_Baris_MushafAlQuran1_idx` (`Mushaf`),
 CONSTRAINT `fk_Baris_MukaSurat1_idx` FOREIGN KEY
(`MukaSurat`) REFERENCES `mukasurat` (`MukaSuratId`),
 CONSTRAINT `fk_Baris_MushafAlQuran1_idx` FOREIGN KEY
(`Mushaf`) REFERENCES `mushafalquran` (`MushafId`)
) ENGINE=InnoDB DEFAULT CHARSET=latin1
```

Figure 4.17: Create Table 'gambar_laporan'

```
CREATE TABLE `gambar_laporan` (
 `laporanId` int(11) NOT NULL AUTO_INCREMENT,
 `gambar_nama` varchar(45) DEFAULT NULL,
 `gambar` longblob,
 PRIMARY KEY (`laporanId`)
) ENGINE=InnoDB AUTO_INCREMENT=4012 DEFAULT
CHARSET=latin1
```

Figure 4.18: Create Table 'laporan'

```
CREATE TABLE `laporan` (
 `laporanId` int(11) NOT NULL AUTO_INCREMENT,
 `aduan` varchar(1000) DEFAULT NULL,
 PRIMARY KEY (`laporanId`)
) ENGINE=InnoDB AUTO_INCREMENT=4012 DEFAULT
CHARSET=latin1
```

Figure 4.19: Create Table 'mukasurat'

```
CREATE TABLE `mukasurat` (
 `MukaSuratId` int(11) NOT NULL AUTO_INCREMENT,
 `NomborMukaSurat` int(11) DEFAULT NULL,
 `Mushaf` int(11) DEFAULT NULL,
 `Jenis` varchar(1) DEFAULT NULL,
 `NamaFail` varchar(100) DEFAULT NULL,
 `Lokasi` varchar(100) DEFAULT NULL,
 `F1` -`F297` double DEFAULT NULL
 PRIMARY KEY (`MukaSuratId`),
 KEY `fk_MukaSurat_AlQuran_idx` (`Mushaf`),
 CONSTRAINT `fk_MukaSurat_AlQuran_idx` FOREIGN KEY
(`Mushaf`) REFERENCES `mushafalquran` (`MushafId`)
) ENGINE=InnoDB AUTO_INCREMENT=2000002 DEFAULT
CHARSET=latin1
```

Figure 4.20: Create Table 'mushafalquran'

```
CREATE TABLE `mushafalquran` (
 `MushafId` int(11) NOT NULL AUTO_INCREMENT,
 `Penerbit` varchar(255) DEFAULT NULL,
 `NegaraAsal` varchar(100) DEFAULT NULL,
 `Versi` varchar(255) DEFAULT NULL,
 `TahunDiterbitkan` int(11) DEFAULT NULL,
 `Penyalin` varchar(500) DEFAULT NULL,
 `TahunDisahkan` int(11) DEFAULT NULL,
 `Lokasi` varchar(100) DEFAULT NULL,
 `MukaSurat` int(11) DEFAULT NULL,
 PRIMARY KEY (`MushafId`),
 KEY `MushafId` (`MushafId`)
) ENGINE=InnoDB AUTO_INCREMENT=1000021 DEFAULT
CHARSET=latin1
```

Figure 4.21: Create Table 'userinfo'

```
CREATE TABLE `userinfo` (
 `userid` int(11) NOT NULL AUTO_INCREMENT,
 `user` varchar(5) NOT NULL,
 `pass` varchar(8) NOT NULL,
```

```
 PRIMARY KEY (`userid`)
) ENGINE=InnoDB AUTO_INCREMENT=2 DEFAULT
CHARSET=latin1
```

4.4 Conclusion

This topic explains about the entire design workflow and its processes. Design architecture will give impact to the flow of the system. It is an important part during the development of this project. System design is the process of defining the system architecture, user interface and databases design.

The architectural design of a project focusing on the design of the systems architecture describes the structure, behavior, and views of that system. The user interface design of a project focuses on ways to represent user interaction to the system. In addition, this project requires a database to save data and contains four tables.

CHAPTER V

IMPLEMENTATION

5.1. Introduction

This chapter will illustrate the implementation of this system. This chapter will be defining the process of system and how the system is built. This is to ensure the system is operational and meets quality standards. The purpose of this system is to search Al Quran information and upload reports to fulfil the objective and meet the requirement of this project. In this phase, the project will be executed based on practice of plan, method and design of developing the project.

5.2. Software Development Environment setup

The details for the software development environment setup for this project are given in this following subtopic:

i. Eclipse EE Luna

Eclipse is a development platform that has been designed from the ground up for building integrated application development tools. By design, the platform does not make a great deal of end user functionality by itself. So, rapid developments of integrated features based on a plug-in-model are the value of this platform that what it encourage.

Eclipse provides a common of User Interface (UI) model during working with this tools. It is designed to run on different and multiple operating systems while it providing robust integration with each underlying operating systems. Plug-ins external library or jar files can make program to the Eclipse portable APIs and run unchanged on any of the supported operating systems.

ii. Microsoft Windows 10

This project uses the Windows 10 (64bit) operating system on development machine to run Eclipse EE Luna and as a platform to execute this features. Microsoft Windows act as a platform to execute and run java effectively.

iii. Microsoft Office Project

Majorly, the software used in this software packages is Microsoft Office 2010 specifically Microsoft Office Words 2010 and Microsoft Office Visio 2010. Developed by Microsoft, Microsoft Words 2010 allow users to make documentation meanwhile Microsoft Visio 2010 used to make diagrams of this project. In this project, both of this software used to make the project documentation.

5.3. Software Configuration Management

In this sub-topic of software configuration management, configuration environment setup is the most important that show how the external software setup to develop this features. The details are given in this follow sub-topic:

5.3.1. Configuration environment setup

The software that will be used to develop this project is Java EE Luna, compiling the project requires Java JDK8 and to test the project, a server called Apache Tomcat 7.0 is required. All software mentioned is open source software downloadable for free. Before starting up the eclipse IDE, the required software is Java JDK8 and Apache Tomcat. Figure below will explain how to setup the project environment.

Figure 5.1: Eclipse workspace setup

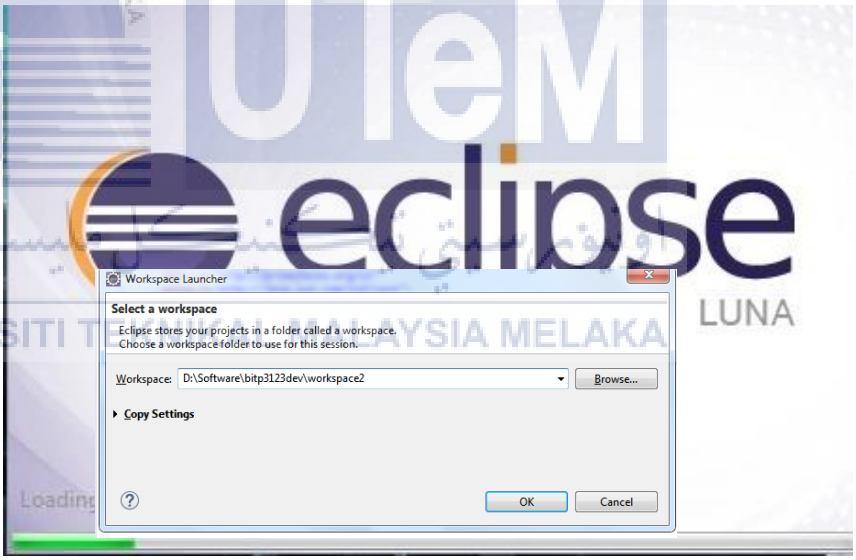
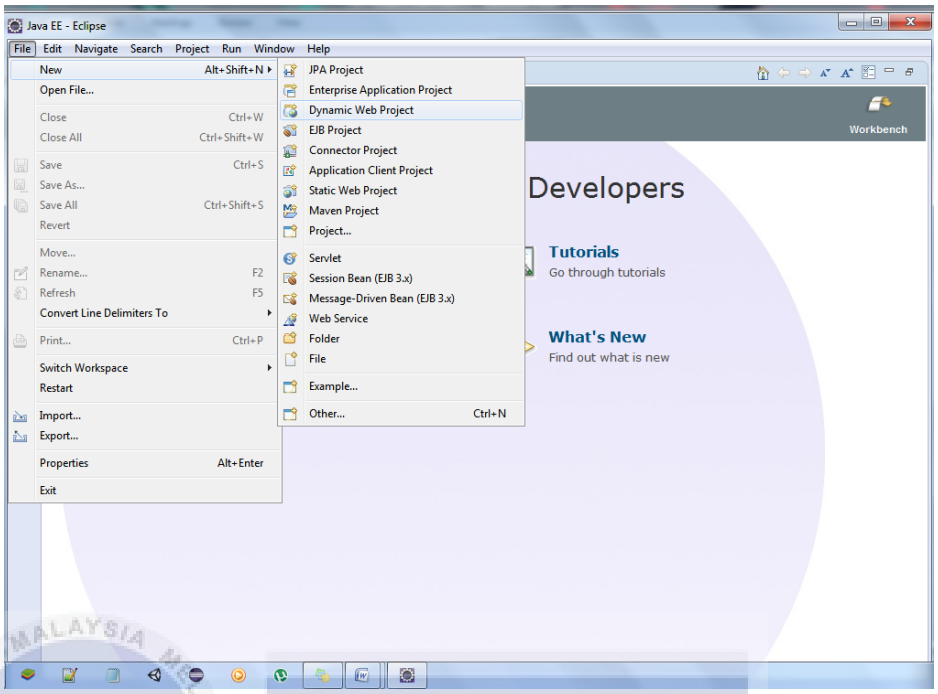


Figure 5.2.1 shows the workspace launcher after user run the eclipse.exe. Workspace is a directory to store project development files. Select an appropriate directory to store the project. One project for one workspace is recommended.

Figure 5.2: Creating a web page server



In Figure 5.2, after selecting project directory, proceed to creating new Dynamic Web Project.

Figure 5.3: Project Configuration

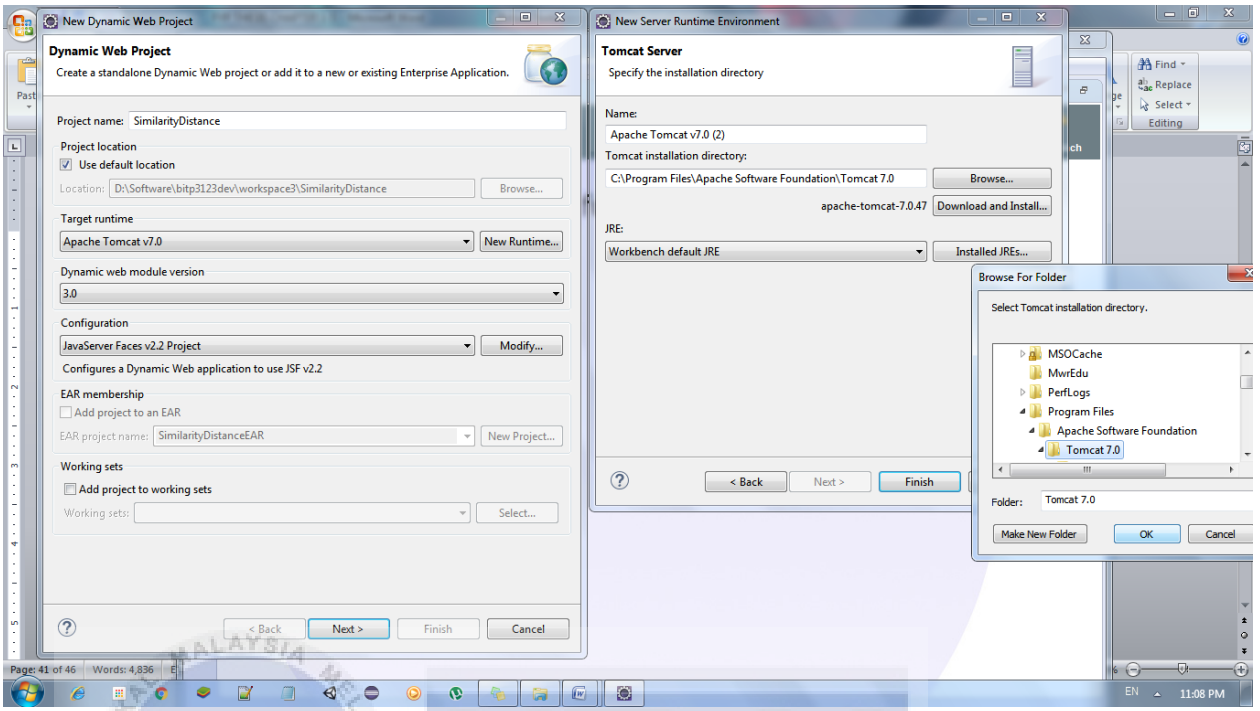


Figure 5.3 shows process of setting the project configuration. The target runtime is set to "*Apache Tomcat 7.0*". Dynamic web module version is set to "*3.0*" and Configuration is set to "*JavaServer Face v2.2 Project*".

Figure 5.4: Project Configuration Continue 2

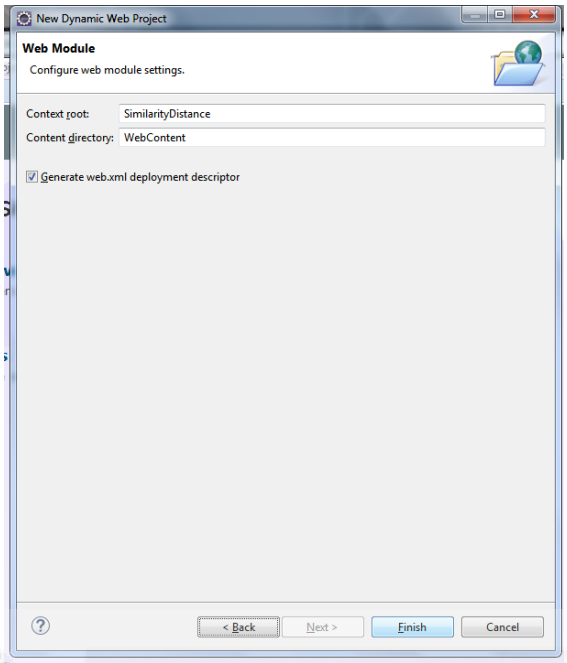


Figure 5.4 continuing the configuration. The Generate web.xml deployment descriptor is enabled. Later on any additional configuration needed for the project can be define manually into the web.xml.

Figure 5.5: Project Explorer sidebar

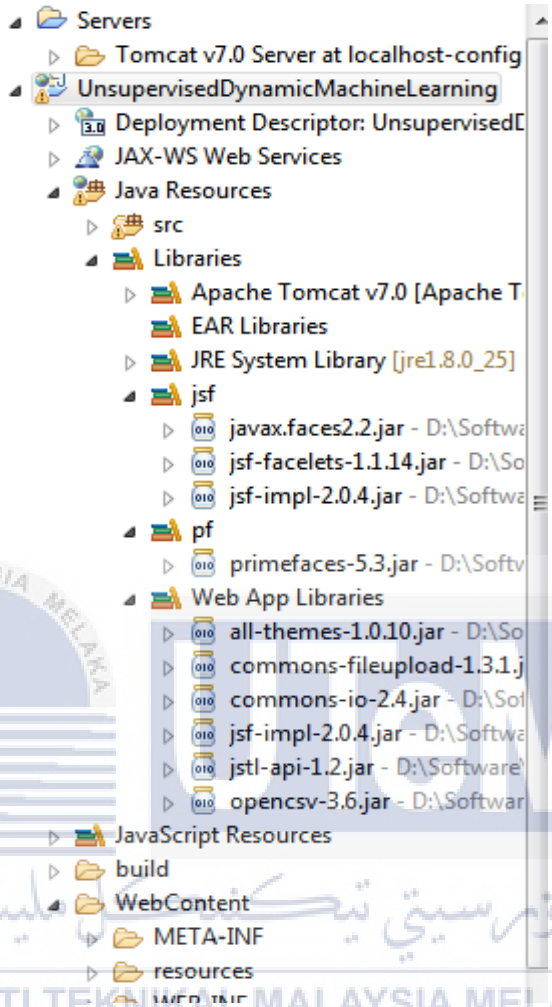


Figure 5.5 once the project configuration is finished. Above figure shows the project directory and server content. Under the "*Libraries*" folder is the packages that will be used in creating the project. This package provides the necessary component when creating the web page view, controller and model.

5.3.2. Version Control Procedure

Version control is used to manage and organize multiple versions of computer files and programs files. A version control system (VCS), provides two primary data organization and management capabilities. It allows users to lock files so they can only be edited by one person at a time and track changes to files.

Table 5.1: Version Control Procedure

Page	Version	Date	Author	Description
Package CONTROLLER	V1.0	9 March 2016	Izzie	For the processes inside web application.
Package DATABASE	V1.0	14 March 2016	Izzie	For database connection.
Package MODEL	V1.0	25 March 2016	Izzie	Act as entity attribute for specific data passing.
Package ORG	V1.0	1 April 2016	Izzie	Holds Primefaces framework that will be implemented in web application.
Package WEBAPP	V1.0	20 April 2016	Izzie	For displaying the interface of this system.

5.4. Implementation Status

The implementation status manages the schedule and organizes resources. It defines implementation details, specifically the structure of this system.

Al-Quran Authenticity Checker has modules such as image insertion module (single file process and multiple file process), report uploading module, search module and display module. These modules state the implementation of the features of this system, which involves module name, data description, duration and data complete.

Table 5.2: Implementation Status of Al-Quran Authenticity Checker.

Module	Description	Duration	Date Completed
Image Insertion Module 1. Single File Process 2. Multiple File Process.	Enable user to select single or multiple file image of Al-Quran pages.	1 week	25/04/2016
Search Module	Enables users to search the information and details regarding the Al Quran to check the authenticity of their copy.	2 week	29/05/2016
Display Module	This module enables users to see the image of a page from the AlQuran that they have searched.	1 week	09/06/2016

Report Uploading Module	This module enables users to upload images and full report in text format (less than 1000 characters) and obtain their current location. These data will be inserted into the database.	3 weeks	20/08/2016

5.5. Conclusion

The implementation phase shows how the software development environment is setup. The explanation covers on how to configure Eclipse Luna EE before we can start developing the system. An implementation status table is provided to describe the progress status for each module. The table consist of module name, description and duration completed. Finally, this chapter conclude the PSM 1 report progress. The next chapter will cover the project testing. The testing activities will include a test plan, test strategy, test design and, result and analysis.

CHAPTER VI

TESTING

6.1. Introduction

System testing is testing a system or application after it has been develop, unit testing and usually undergone integration testing. Testing always is the essential steps before the system or application is launch because this phase can ensure whether the system is in the scope are satisfied and fulfil the requirement as in the plan. For testing, this application uses the black box testing method and also white box testing method. The tester will try to use the system and must test the system either its full functional or not. The most importance is tester must test their program to know whether they have achieved the objective.

This chapter will be describing about testing phase. In this project, the test plan will touch on the testing environment. Besides, the test schedule also will be provide to manage test plan.

Besides that, this chapter also will be describe the test strategy plan. In this part also, there will be some explanation on classes of testing. Meanwhile, before comes to the conclusion, the test description, test data, and also test results and analysis will also be mentioned in test design part.

For this features also will implement the testing to make sure the entire modules in this features are running without any problem.

6.2. Test Plan

Test plan is documentation about describing the scope, approach, resources, and schedule of intended testing activities. It identifies test items, who will do each task, the features to be tested, the testing task, and any risks requiring contingency planning. Test plan purposed to documents the strategy and the way that will be used to verify that the algorithm developed meet its design specification and the requirements, either functional or non-functional requirement. The test plans consist of test organizations, test environment, and test schedule. The details are given in this follow sub topic.

6.2.1. Test Organization

Test organization describes the person who will be involved in the testing phases. The person must be responsible to test each of the system modules in this feature. Thus, a group of individuals had been selected to go through the process.

The test mostly will be tested on the developer for this project itself, Wan Nur Izzie bt Wan Ruslim. The developer has experienced in programming field in most two years during his studies in year 1, year 2 and year 3.

The supervisor of this project, Dr Mohd Sanusi bin Azmi, has validated the requirements of this project follow the objective and requirement of the project.

6.2.2. Test Environment

This project was tested at Universiti Teknikal Malaysia Melaka, Malacca which using the Java environment and JSF environment that runs on a development machine; where the project has been developed and worked on.

The hardware used for this testing is a laptop which already setup with all the software stated in Software Development Environment Setup at Chapter V, which are Java SE 7.0, Eclipse EE for Java Developers Luna version, Google Chrome, and also the selected JRE files. If all of the development tools stated not installed or problems, the testing cannot been done as the project will be not working smoothly as expected.

Lastly, for this testing phase, the person whom prior for the testing must be experienced in using the Eclipse EE Luna version or they need to be trained well how to use this software. Then, the step-by-step to launch and way of use of the project also need to be trained well to get the required result.

6.2.3. Test Schedule

Table 6.1: Test Schedule

Activities	Description	Duration	Start Date	End Date
Unit Testing	Unit testing is a test to ensure the unit of the project meets all requirements, based on stated in Chapter III.	1 day	16/08/2016	16/08/2016
Integration Testing	Integration testing is to ensure the modules developed for this project integrated	2 day	17/08/2016	18/08/2016

	properly as expected and planned.			
System Testing	System testing is to establish and gain confidence that the project is working properly and accepted by users.	1 day	19/08/2016	19/08/2016
User Acceptance Testing	User acceptance testing is to ensure all business requirements stated for the project are fulfilled.	1 day	20/08/2016	20/08/2016

6.3. Test Strategy

There are several strategies can be used during testing phase. There are bottom-up approach, top-down approach, black-box approach, and also white-box approach. For development for this project, black-box and white box approach has been selected.. The test performed has been stated in the tables below:

Table 6.2: Description of selected approach

Approaches	Explanation
White-Box	This approach has the purpose to test the internal structure and implementation of the item being tested is known by the tester. This approach mainly applicable to Unit Testing and Integration

	Testing; lower levels testing in short. Programming knowledge and implementation knowledge required to examine the outputs.
Black-Box	This approach has the purpose to test the internal structure and implementation of the item being tested is not known by the tester. It is applicable for the high levels of testing which are System Testing and User Acceptance Testing. It does not require programming knowledge and implementation knowledge to examine outputs.

6.3.1. Classes of Tests

Classes of test consists four kind of testing which are unit testing, integration testing, system testing and user acceptance testing. The details are given in this follow sub system:

6.3.1.1 Unit Testing

Unit testing is the lowest level of software testing approach. It usually has one or a few inputs and usually a single output for testing. Unit testing involves only those of the characteristics that are vital to the performance of the unit under testing. This encourages developers to modify the source code without concerns about how such changes might affect the functioning of other units or the program as a whole. Once all of the units in a program have been found to be working in the most efficient and error-free manner possible, larger components of the program can be evaluated by means of integration testing.

Unit testing can be time-consuming and also tedious. It demands patience and thoroughness on the part of the development team. Unit testing must be done with an

awareness that it may not be possible to test a unit for every input scenario that will occur when the program is run in a real-world environment.

6.3.1.2 Integration Testing

Integration testing, also known as integration and testing (I&T), is a software development process which program units are combined and tested as groups in multiple ways. In this context, a unit is defined as the smallest testable part of an application. Integration testing can expose problems with the interfaces among program components before trouble occurs in real-world program execution. There are two major ways of carrying out an integration test, called the bottom-up method and the top-down method. Bottom-up integration testing begins with unit testing, followed by tests of progressively higher-level combinations of units called modules or builds. In top-down integration testing, the highest-level modules are tested first and progressively lower-level modules are tested after that.

6.3.1.3 System Testing

System testing is the testing of behaviour of a complete and fully integrated software product based on specified requirements. In this phase, tester is concentrated on finding bugs or defects, fixes errors to determining that it meets its required result. It is important because it will check if the system is meets functional requirement or not.

In this system, full requirement must applied to tester test the system it can function or not.

6.3.1.4 User Acceptance Testing

User acceptance testing (UAT) also called beta testing, application testing, and end user testing is a phase of software development in which the software is tested in the "real world" by the intended audience. UAT can be done by in-house testing in which volunteers or paid test subjects use the software or, more typically for widely-

distributed software, by making the test version available for downloading and free trial over the web. The experiences of the early users are forwarded back to the devel

6.4. Test Design

Test design consist of two parts, which are Test Description and Test Data. The project will be test based on them.

6.4.1. Test Description

Test description is a contains provide the explanation of the test case while the test data inserted to the system in order to test the functionality and feedback of the algorithm. The projects need pages of the Al-Quran as the input to be test.

Table 6.3: Test description

Test Case ID	Module/Component	Action	Expected Output
TCSWS001	Button Cari	Click button Cari	To search according to the data entered in fields. If success, the table will show the information related to search.
TCSWS002	Button Reset	Click button Reset	To reset all fields. If success, all fields will be empty.
TCSW003	Columns	Click columns	To organize data according to data column. If success, the data will be organized in alphabetical order.

TCSWS004	Button View	Click button View	To view image from selected row. If success, image will pop out with details according to selected row.
TCSWS005	Button Hantar	Fill in form and click button Hantar	To upload report. If success, pop up will alert that upload is successful.
TCSW006	Button Submit	Click button Submit	To upload picture of report. If success, pop up will alert that upload is successful.
TCSW007	Button Lokasi	Click button Lokasi.	To display map and coordinates. If success, map and coordinates will be displayed.

6.4.2. Test Data

Table 6.4: Test Data

Test Case ID	Test Case	Test Data	Expected Output	Fail/Pass

TCSW001	Allow user to search information of ALQuran.	User enter data in form and click button Cari for 10 times.	The table will show the information related to search.	Pass: 5 Fail: 5
TCSW002	Allow user to reset the form data.	User click the Reset button.	All fields in form will be empty.	Pass: 7 Fail: 3
TCSW003	Allow user to arrange the data in column according to alphabetical order.	User click on columns.	The data in the column will be organized in alphabetical order.	Pass: 8 Fail: 2
TCSW004	Allow user to view image of selected row.	User click the View button.	A window with image will pop out with details according to selected row.	Pass: 8 Fail: 6
TCSW005	Allow user to upload report.	User fill in the form and click the button Hantar.	Pop up will alert that upload is successful.	Pass: 15 Fail: 5
TCSW006	Allow user to submit image of report.	User choose image and click button Submit.	Pop up will alert that upload is successful.	Pass: 7 Fail: 3

TCSW007	Allow user to get current location.	User click Lokasi button.	Map and coordinates will be displayed.	Pass: 10 Fail: 0

6.5. Test Results and Analysis

Table 6.5: Test Results & Analysis

Functional Requirement	Search Information about AlQuran			
Component	Test Description	Pass / Fail	Expected Result	Actual Result
Enter input in form and search.	To search according to the data entered in fields.	Pass	If success, the table will show the information related to search.	The information shown in table.
		Fail	The system will have nothing to be display on table	The panel return fail statement.
Functional Requirement	Upload Report			
Component	Test Description	Pass / Fail	Expected Result	Actual Result
Upload report.	To enter input in report form, upload image and get location.	Pass	System will upload report, image and give current location of user.	Report and image was uploaded, and location was shown.

		Fail	System unable to upload report, image and show location.	Upload fail and location was not shown.

6.6. Conclusion

For this chapter, the test plan for this system was discussed. From this test case, it can be concluded that the system has covered all the specification needed. In order to solve the constraints, several user friendly coding was adapted into the system. From the constraint that was faced before, it enables to arrange back the system so it can prove to be the system that satisfies all the requirements of this system.

The test plan, consist of test organization, test environment, and test schedule has been produced. The test strategy which touched on white-box and black-box testing also has been executed. Test design that contained test description and test data also has been prepared. The testing phase end with test result and analysis.

Lastly, within the testing results, the system will be developed to overcome problems and try to make it as a useful system that will provide a lot of benefits.

CHAPTER VII

CONCLUSION

7.1. Observation on Weaknesses and Strengths

The weaknesses of this project that were identified are as the following:

i. The coordinates (latitude and longitude) of users who submits a report could not be properly inserted into the database.
ii. This project can only be accessed through a localhost server.

The strengths of this project that were identified are as the following:

i. The queries for searching the Al Quran details is refined.
ii. Users can upload images into the system and retrieve their current location.

7.2. Propositions for Improvement

Suggestions for the improvement of this system are as the following:

i. The data concerning users' reports should be integrated into a single table to show a more realistic representation of the users' reports.
ii. A legitimate Al Quran database should be implemented so that this system could be fully utilized by the public.

7.3. Project Contribution

The contributions of this project can be explained by the following aspects:

i. This project is useful as a start-up system for KDN to implement Al Quran authentication for the public. This system is also useful to help KDN authorities to simplify their current workload by computerizing the system for Al Quran authentication.
ii. This system will enable the public to help KDN to detect any errors in Al Quran publishing.

7.4. Conclusion

This project has its weaknesses and strengths. The suggestions that has been mentioned will have to be implemented in order to improve the quality of this system, for the greater good of the public. All the objectives of this system has been accomplished conclusively.

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APPENDICES A

USER MANUAL

AL-QURAN AUTHENTICITY CHECKER

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USER MANUAL

How to Use the Search Form (‘Laman Utama’ page)

1. Fill in all the fields in the search form according to desired query.
2. It is unnecessary to fill every field in the search form.
3. Click the ‘Cari’ button to display query results.
4. Click ‘Reset’ button to reset search form query.
5. Click on a row to display picture and brief information of the selected row.

How to Use the Report Form (‘Aduan’ page)

1. In the ‘Laporan’ section, fill in the field to type your report. Note the 1000 words limit.
2. Click the ‘Hantar’ button to submit the report.
3. Click ‘Reset’ button to reset the field.

How to Use the Evidence Form (‘Aduan’ page)

1. In the ‘Muat Naik Bukti’ section, click on ‘Choose File’ button.
2. Select the images that are intended as evidence to support report from the ‘Laporan’ section.
3. Click ‘Submit’ button to submit the images.

How to Get Current Location (‘Aduan’ page)

1. In the ‘Lokasi’ section, click the ‘Lokasi’ button.
2. Your current location on Google Maps will be displayed.
3. Your current coordinates (latitude & longitude) will also be displayed.

How to Login as Administrator (‘Admin’ page)

1. Enter ‘admin’ in the ‘Username’ field.
2. Enter ‘admin123’ in the ‘Passowrd’ field.
3. Click ‘Login’ button.
4. You will be re-directed to the administration page that displays all data for user report