SOLAT JAMAK AND QASAR APP

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

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2017

DECLARATION

I hereby declare that this project report entitled

SOLAT JAMAK & QASAR IN MOBILE APPLICATION

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

STUDENT : _____ _____ Date: 22 August 2017

(USWAH HASANAH BINTI RAZA)

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 (Media Interactive) With Honours.

SUPERVISOR : _____ Wan Sazli _____ Date : 22 August 2017

(WAN SAZLI NASARUDDIN)

DEDICATION

Specially dedicated to my beloved parents, Raza bin Mohd Zain and Mozairina Binti Mohamad,

For my supervisor, En Wan Sazli Nasaruddin, (UTeM)

And lastly to my beloved friend who inspired me throughout my journey in education.

ACKNOWLEDGEMENT

Bismillahirahmannirrahim.

Firstly, Alhamdulillah and Syukur to Allah S.W.T to given me a chance to complete this PSM until the end. I would like to thanks to my supervisor, En Wan Sazli Nasarudin for guidance, help, courage and advice me until I finish up this PSM successfully.

I would like to thank to my beloved family that give support and prayed that I would not give up easier. Finally, I would like to thanks my friend who always give mentally support to me. Again I am really appreciate everyone who gives me lots of supports. Thanks you so much.

ABSTRACT

Jamak and Qasar prayer is the gift from Allah S.W.T for Muslim which is travelling and have inconvenience situation to perform prayer along their way. This prayer can be performed with the specific condition. In the age of technology, there is many references books that been adapted in smartphone. With the facility that been renew, traveller can refer this Solat Jamak and Qasar application for their misunderstanding about the prayer. There are several function that have in this application which is notes for the user references, there also function to search masjid nearer. Next, there are function to calculate our distance from origin until reach the destination. User can know whether their distance is valid enough to perform the prayer. There are also prayer time and ask ustaz for the misunderstanding.

ABSTRAK

Solat Jamak dan Qasar adalah hadiah dari allah subhanallah taala kepada umat islam yang sedang bermusafir dan menghadapi kesulitan untuk menunaikan solat fardhu sepanjang perjalanan. Solat ini dilakukan oleh para musafir dengan syaratsyarat tertentu. Di dalam zaman teknologi ini, banyak buku-buku panduan telah diadaptasi kepada aplikasi di dalam telefon pintar. Dengan kemudahan yang telah diperbaharui, para musafir boleh merujuk kepada applikasi yang berkaitan dengan Solat Jamak dan Qasar ini. Applikasi ini membantu para musafir untuk merujuk kepada sebarang kekeliruan tentang solat Jamak dan Qasar. Antara kandungan yang terdapat di dalam aplikasi ini ialah terdapat nota-nota ringkas tentang solat ini, terdapat juga fungsi cari masjid yang memaparkan masjid berhampiran di sekitar kawasan. Selain itu terdapat fungsi kira jarak dari destinasi permulaan hingga akhir. Pengguna dapat mengetahui sama ada jarak mereka dibolehkan untuk jamak atau tidak . Terdapat juga fungsi waktu solat dan tanya ustaz untuk sebarang kekeliruan yang dihadapi.

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CHAPTER I

INTRODUCTION

1.1 INTRODUCTION

Solat Qasar and Jama' is the concessions given by Allah for the traveller due to the inconvenience that muslim experience during their travels. Allah subhanahu wata'ala says: "And when you(Muslims) travel in the land, there is no sin if you shorten Salah(the prayer)" [Al-Nisa', 4:101]. Solat Qasar is the shortening for the four rakaat solat of Zohor, Asar and Isyak and turning it to two rakaat on Allah's cause. It is not applicable for Solat Maghrib and Subuh. Rasulullah (Sallallahu 'alayhi wasallam) said: "A gift that Allah has bestowed on you, so accept His gift". While Solat Jama' is the combining of Solat Zohor with Solat Asar and also the Solat Maghrib and Solat Isya' with the specific rules and niat. The combining Solat Zohor and Asar at Zohor, is known as Jama' Taqdim or at Asar, known as Jama' Ta'khir. While Maghrib and Isyak at Maghrib or at Isyak. Solat Subuh is not applicable.

Technology gives us many benefit to our daily life nowadays. Existing of internet that allow people to search an useful information through their smartphones make it easier without need to buyed or refered to the specific book. Plus, with the help of mobile apps that required internet, it can replace a book to the more effective and understanding explanation. In this project, mobile app will be develop as it is easy to carry and can bring along when travelled. Mobile application for solat jamak and solat

qasar is the application to guide the muslim traveller to do the prayer no matter how far they were travelling in Malaysia.

Nowadays, many of them still confius about how to perform the solat jamak and qasar properly due to the lack of knowledge and experiences. In addiction, as the new incomer to certain places they still can't figure out where is the mosque nearer, with this application it will help them to locate the nearest mosque around them. This application also provide the question and answer taken from the islamic blog forum or from the islamic talk for their reference. Plus they can ask question at the space provided. Prayer time were also provided in the application and it will update from time to time.Next, there also my distance function which user can identify wether they can perform the solat jamak and qasar based on their kilometers.

1.2 PROBLEM STATEMENT

Every muslim traveller have inconvinience situation that need them to perform Solat Qasar and Jama'. Sometimes they still confius on the proper way to perform solat jamak and qasar because not everyday they have to travelling and perform the prayer. As the new incomer to the new places, they still can't figure out the way or the location to the mosque around them. Also, the most important problem is they still hesitate wether their distance is valid enough to perform solat jamak or qasar. Thus, those problems can be solved by reffering to this mobile application.

1.3 OBJECTIVES

This project embarks on the following objectives :

1. To study and purpose an algorithm for Solat Jamak and Solat Qasar.

2. To design mobile app for assisting traveller in performing solat.

3. To develop mobile app for assisting traveller in performing solat.

4. To test the usability of the proposed and develop app towards user.

1.4 SCOPE

1.4.1 Target user

The target user for this mobile application is for user above 7 years old. This age was suitable to use this apps because most people have reached the age of puberty and it is the suitable age to start salah as recommended by islam. Plus, anyone that fullfil the condition of salah and was travelling can use this apps for their reference to perform the solat jamak and qasar.This app can help them the proper way to perform prayer.

1.4.2 System

The software use for this project is by using intel xdk as it is suitable to create mobile application. The android smartphone will be used to test the apps as android user are dominant compared to ios user.

1.5 Project significants

The significant of this project as guide for muslim to perform their prayer when travelling or for learning purpose. Some of the muslim still don't know the proper way or have no idea how to perform the solat with the correct rules. Eventhough they have been thought since in the primary school, but with less experiance and lack of practices makes them hesitate to perform this prayer.

1.6 Expected output

The expected result from this application is it can increase the user understanding to perform Solat Jamak and Qasar well. Also, it can guide user to the mosque nearer with the help of the map and automatically can save their time. Next, with the help of the online prayer time and the question and answer function, user can make it as their reference and can solve their confusing towards how to perform the Solat Jamak and Qasar properly.

1.7 Conclusion

In conclusion, this projects aims to guide muslim traveller to perform the Solat Jamak and Qasar wih proper ways. This chapter explains about the project overview, problem statements, objectives, scope, project significance. The objectives of this project is to study and purpose an algorithm for Solat Jamak and Solat Qasar, to design and develop mobile app for assisting traveller in performing solat and to test the usability of the proposed and develop app towards user. The next chapter will discuss the Literature Review and Project Methodology for this application.

CHAPTER II

LITERATURE REVIEW AND PROJECT METHODOLOGY

2.1 Introduction

This chapter will focus on the research that have been made from the general aspects to the specific aspects of this project. The general research aspects are the research about mobile application. Then, this part will discuss about the software use, function that been implement in this system such as google maps, geolocation and JavaScript to develop the mobile application for the traveller guide. The software and hardware requirement also will be specified in details to explain the functionality. Next, the specific aspects discuss about existing mobile application for muslim guide about how to perform prayer. Lastly, the milestone of this project also provided at the end of this chapter to shows the whole progress and the duration for each task need to be done.

Intel xdk software is a development tool that use web technology like HTML5, JavaScript and CSS. It can support variety of platform like android, ios, windows 8, Chrome OS, Firefox OS and Tizen Os. After apps is been developed it will compile online via cordova and preview at emulator or at Intel App preview. This mobile application will be use intel xdk version 3795. They are variety of plugin can be sued

in intel xdk and one of them is geolocation. The geolocation plugin is been use to view the maps and will be connected to google maps to search for the mosque nearer. The javascript coding will be implement at the index.html.To create interactive effect within web browser,javascript language will be use and be implement at the index.html.

2.2 Domain

Mobile application is a type of application software that been designed to run on a mobile device like smartphone, laptop and tablet. It is mostly referred as apps and widely use in smartphone in various platform. There are variety of software that can be used to build an apps with variety of language and platform. It is widely used in many sector especially in education sector for teaching and learning purpose. Mobile application has many benefit that can make user become more interesting to learn using it and it is called mobile learning. "Mohd Norasri Ismail *et al*. (2012), mobile learning seems to be promising and supportive in the learning and teaching process. Learning using wireless mobile devices possesses unique features that include ubiquity, personalization and convenience and location awareness."

2.2.1 Mobile application in education

As we see, most school around the world have implement the mobile application in their learning process. Some mobile application that related to certain subject are been used in the class room by the educators. Kahoot! is the one example of mobile application that can been download in play store and its function is to create discussions, quizzes or surveys related to specific topics either for an assessment or for feedback. At university in the northwestern United State, there are an online course for educators who interested to build their own mobile apps for teaching and learning purpose. "The goal of this course was for students to learn to design engaging and practical Android mobile apps for teaching and learning by using App Inventor (Hsu and Ching, 2013)." It will be challenging for the educators with no experience in programming language to build their own apps in this online course. "At the end of the semester, each student completed his/her final project by submitting one final

original app based on the ideas delineated in their app design proposal (Hsu and Ching, 2013)."

Figure 4. Various types of students' project apps.

Figure 2.1 : Figure student's project apps

2.2.2 Mobile application in Islamic region

Mobile application also been used in Islamic purpose and this technology give advantage as references for the Muslim to do their duties. "One of the religious duties which could benefit from mobility and multimedia features of the mobile phone is solat Jama' and Qasr (Mohd Norasri Ismail *et al.* , 2012) ." When travelling over long distances, some of them will do solat Qasr which means shortening the prayer and some will do solat Jama' which means combining the prayer. On the past few year, there are an apps that use Symbian S60 platform by using Nokia's E51 which are world's most popular smartphone platform on that year. This apps support 2D and 3D

graphics and have audio function for user to listen for the prayer niat. The figure below show the montage and the main menu screen.

Figure 5. Montage and main menu screen

Figure 2.2 : Main menu of Solat Jamak Qasar apps.

2.3 Existing System

They are many type of existing system that related to this project are available at play store which is panduan solat jamak Qasar, Solat Jamak dan Qasar and panduan solat jamak Qasar. Although they have similar apps name but the function are totally different from each other.

2.3.1 Comparison of Existing System

The table below shows the comparison between existing systems that related with recycle. The comparison is about the technology, price, platform, price, content, features,pros and cons.

Function	Panduan Solat Jamak Qasar (animation)	Solat Jamak Qasar	Panduan Solat Jamak Qasar
Solat Jamak & Qasar meaning	/	/	/
Maps	X	/	X
Calculate distance	X	X	/
Prayer time	X	X	X
Ask question	X	X	X

Table 2.1 : Comparison existing system

Figure 2.3 : Panduan Solat Jamak Qasar

The figure above shown is the application for Panduan Solat Jamak Qasar which have two button in the main screen. When user click button masuk, there are animation with sound that show ways to perform prayer. The animation is easy to understand as it shows step-by-step to perform Solat Jamak Qasar. Before download this apps user need to download adobe AIR which link for the animation to been played. The size is 5.37MB and it is in Bahasa Malaysia. Takrif dan syarat button explain about the meaning, niat and condition about three types of prayer .

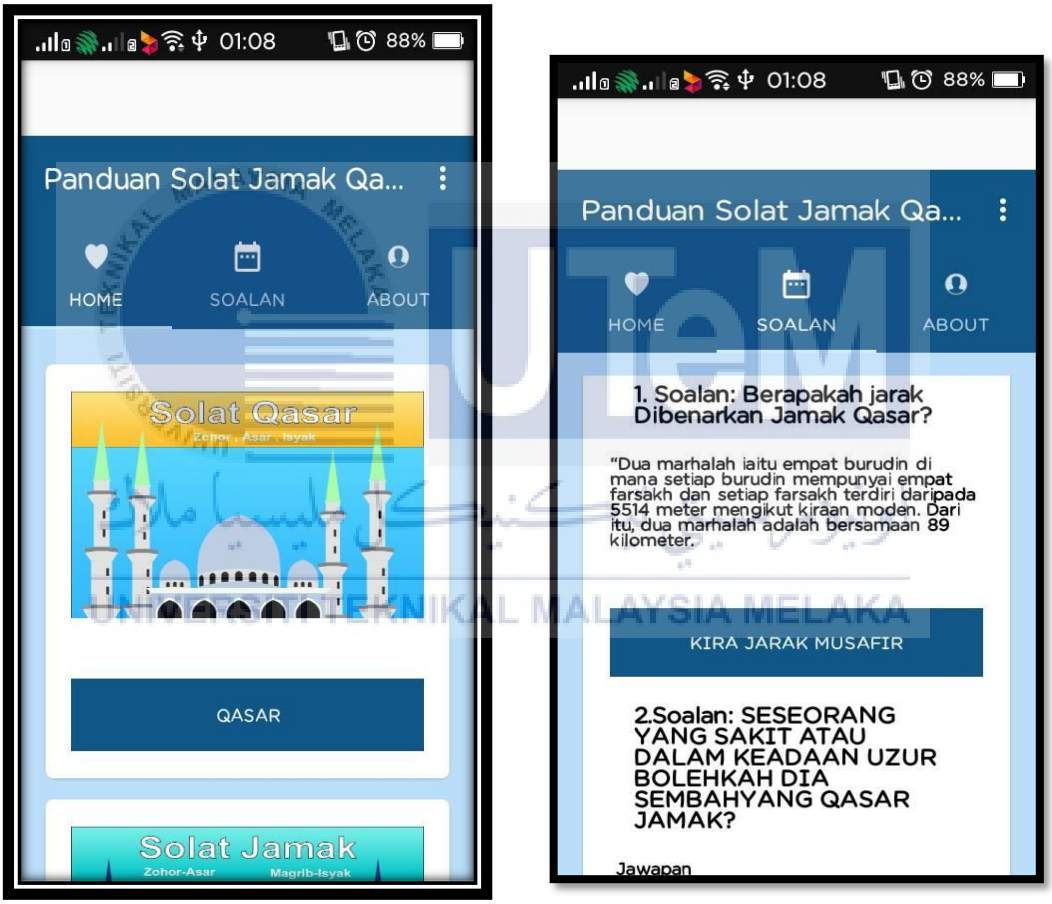

Figure 2.4 : Panduan Solat Jamak Qasar

This application have three menu function in the homescreen which is Qasar, Jamak and Jamak Qasar. When user click it show the meaning of solat, the condition, niat and ways to perform prayer. There also calculate distance function, but its not working properly as it only show the distance that valid to do Solat jamak qasar prayer. There are eight question in the soalan button. It is fully in Bahsa Malaysia and the application size is 20.33MB. The interface is simple and less button function.

Figure 2.5 : Solat Jamak Qasar

The Solat Jamak Qasar apps have six menu function in the homescreen. The interface is well design, user friendly and the information is cleared explained. This application fully in Bahasa Malaysia. When user click the Jamak, Qasar and Jamak Qasar button it will display the meaning of prayer, the terms , niat and how to perform the prayer. Have audio function for user to heard niat clearly. Next function is soal jawab function which have ten questions from the frequently ask questions. There also button for cari masjid but it is not function well. The size of application is 14.77 Megabyte. Last function is arah kiblat which user can know their current kiblat in the new place.

2.4 Project Methodology

This project use Multimedia Mobile Content Development (MMDC) for the methodology. The methodology comprises of five main components which is firstly, application idea creation stage. The application idea creation prepares the information's needed before the design and development of the application start.

Secondly, structure analysis stage. In this phase, two sub component that were analyse are the navigation and objects used in the application. Content structure like layer design, background images was produced during this activities, based on the application idea creation and discussions between the user.

Thirdly, process design stage. The main objective of this stage is to prepare the content structure that had been discussed. This stage consist of two sub components design objects and write the single function prototype scripting. The first prototype was completed at the end of this process. The prototype was complete in terms of the graphics and objects designs, object placing on stage and single scripting that placed in each frames. The next process is to write the main function scripting to complete the application development and make it functional as planned.

Next, main function development stages. In this application, the main functions are the navigation between the selected menu to the information movie clips and the softkey scripting.

Lastly, testing stage. Application was tested using intel XDK after completed of each function scripting. Once the application was 100% completed, it was published and uploaded to the google play store for distribution and user testing purpose.

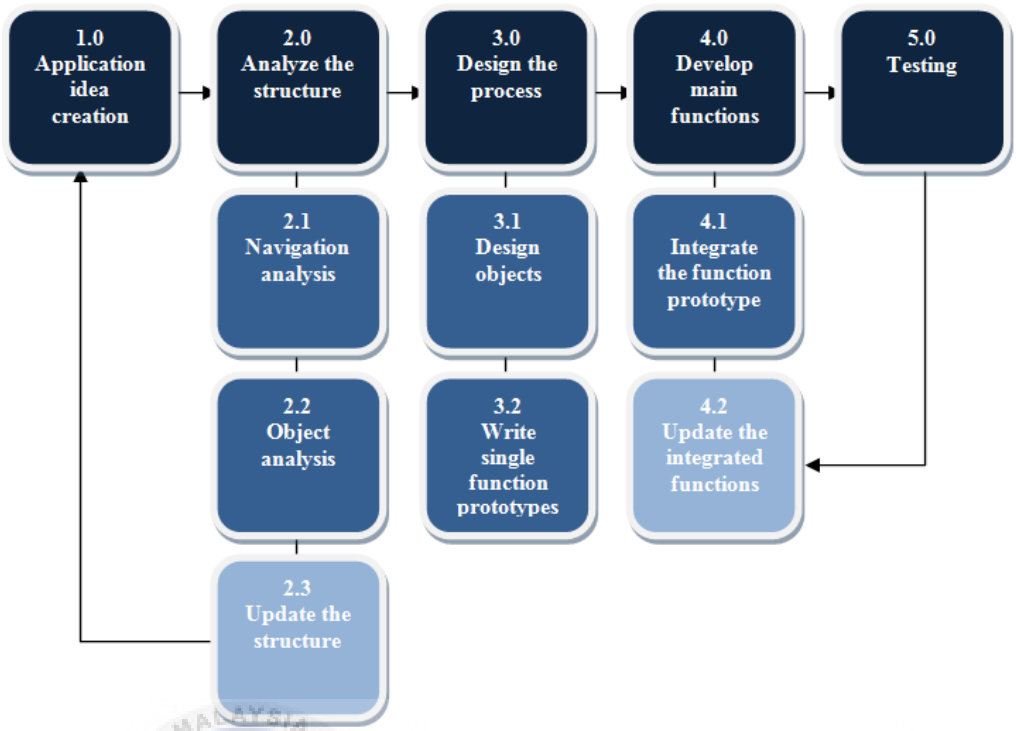

Figure 2.6 : MMDC methodology

2.5 Project requirements

This section will discuss about software and hardware requirements that been used in order to complete this project.

2.5.1 Software requirements

The suitable software is needed in developing this project to prevent any lacking when running the application. All the software that been used for this project are been listed below:

- Adobe Illustrator CS6
- Intel xdk
- Smartgreen cpanel
- Microsoft word 2013
- Microsoft Office Power Point 2013
- Microsoft visio professional 2013

2.5.2 Hardware requirements

The suitable hardware is needed to run the software smoothly. The hardware requirement used for this project are been listed below:

- Laptop

  Model: Hp 14-am054tx

  Processor: Intel® Core™ i5-4210U COU @ 1.7 GHz

  Installed Memory(RAM): 4.00 GB

  System Type: 64-bit OS

  Windows Edition: Windows 8.1

- Android smartphone
- Printer

2.6 Conclusion

This chapter explains about all the review of existing application. There also have several literature review and source from printed materials or internet that related to this project. Next chapter will describe about the analysis phase and how it develops.

CHAPTER III

ANALYSIS

3.1 Current Scenario Analysis

This chapter will preview the analysis phase towards existing system and step on how it will be developed. There are two parts of the analysis phase which is the current scenario analysis and requirement analysis. Current scenario analysis is about the flow of overall existing system work which it can help to gather the information and determine the problem of the existing system. The navigation flow and description of three existing system will be shown in this current scenario analysis. In the requirement analysis part, it will discuss the analysis that required by system to be developed such as user analysis, need analysis, technical analysis and resource analysis.

3.2 Requirement analysis

3.2.1 Need analysis

Smartphone become something that everyone use on their daily life. There are no limited age to use the smartphone nowadays as the kids also use it. It is something that necessary for people life to help them seek for information, been connected to people around and for daily life purpose. Based on the comparison between three existing system, there are problems that occur in that mobile application. Some of the

apps have calculate distance function but it is not working. As user, when we travell, it will be something necessary to know the validation of distance to perform the prayer. Next problem is the map doesn't show the mosque nearer even when GPS is turn on. This will waste their time to search manually the mosque nearer them.

3.2.2 user analysis

User will be tested using android smartphone which most of them are familiar with this platform. User above 7 years will be tested as most of them are been assume to reach the puberty. The smartphone is being choosen to replace the book and it is easy to bring anywhere.

3.2.3 technical analysis

This mobile application will use android smartphone or emulator to preview the apps.

3.2.4 resource/asset analysis

All information about solat Jamak and Qasar are based on the references that be found on article, journal and jakim website which follow the fatwa institution in Malaysia

3.2.2 Software requirement

In order to develop a system, a few software is been choose to complete the developing and documentation for this project. In this project , there are few software will be used to design the interface, the content of the project, and to build the apps.

Software	Function
Adobe Illustrator CS6	Use to illustarate logo and content of this project.
Microsoft word 2016	Use to complete proposal , report and other documentation for this project.
Microsoft Office Power Point 2016	Use to prepare the documentation slide.
Intel xdk	Use to create native apps for mobile phone
Microsoft visio professional 2013	Use to create a database design

Table 3.1 : Software requirement

3.2.3 Hardware requirement

Hardware	Function
Laptop hp 14	Install all the software needed to develop this project.
Android smartphone	To test the project .

Table 3.2 : Hardware requirements

3.3.4 other requirement

The other requirement need in this project are thumb drive to store and back up all information for this project and printer to print all documentation required for this project.

3.3 Project schedule and milestones

Task	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Identify Problem and Define Objective														
Study and Research														
Design the Project														
Develop the Project														
Testing														
Maintenance the Project														
Document All the Project														

Figure 3.1 : Gantt Chart of Project Activities

Week	Activity
1 13 Feb – 19 Feb **Meeting 1**	Proposal PSM: Discussion & Submission using PSM Online System
	Proposal assessment & verification
2 20 Feb -26 Feb	Proposal Correction/Improvement (Chapter 1)
3 27 Feb – 5 Mac **Meeting 2**	Chapter 1 (System Development Begins)
4 6 Mac – 12 Mac	Chapter 1 Chapter 2
5 13 Mac – 19 Mac	Chapter 2
6 20 Mac – 26 Mac **Meeting 3**	Chapter 2 Chapter 3
7 27 Mac – 2 April	Chapter 3 Chapter 4
8 3 April – 9 April	**MID SEMESTER BREAK**
9 10 April – 16 April	Chapter 4 Project Demo
10 17 April – 23 April **Meeting 4**	Chapter 5 Project Demo
11 24 April – 30 April **Demonstration**	Project Demo
12 1 May – 7 May	Project Demo and PSM1 Report
13 8 May -14 May **Meeting 5**	Project Demo and PSM1 Report
	Presentation schedule
14 15 May – 21 May	Project Demo and PSM1 Report
15 24 May – 28 May **Final Presentation**	**FINAL PRESENTATION & PROJECT DEMO**

Table 3.3 : Milestones of project

3.4 Conclusion

This chapter explain about the project requirement need to be developed by the system. User analysis and technical analysis also been considered to develop the system. The selection of hardware and software requirement need to be suitable for the implementation process to be done. The next chapter will discuss about the design process for this mobile application project.

CHAPTER IV

DESIGN

4.1 Introduction

Previous chapter explain about the literature review and analysis that involved for the systems. Hence, this chapter will focus on the design process done for system to be develop. The design that will be define are system architecture, preliminary design and user interface design. The flow of overall system work will be defined in system architecture part. This project is developed as guide to Muslim traveller or user above seven years old. The interface and content of the system was based on information gathering from user.

4.2 System architecture

The system architecture for this project will be using three-tier architecture that have interface, flowchart and database. A 3-tier application is a program which is organized into three major disjunctive tiers. These tiers are presentation tier (Front end) which is interface, Logical tier (Middleware) which is flowchart and data tier (Backend) which is database.

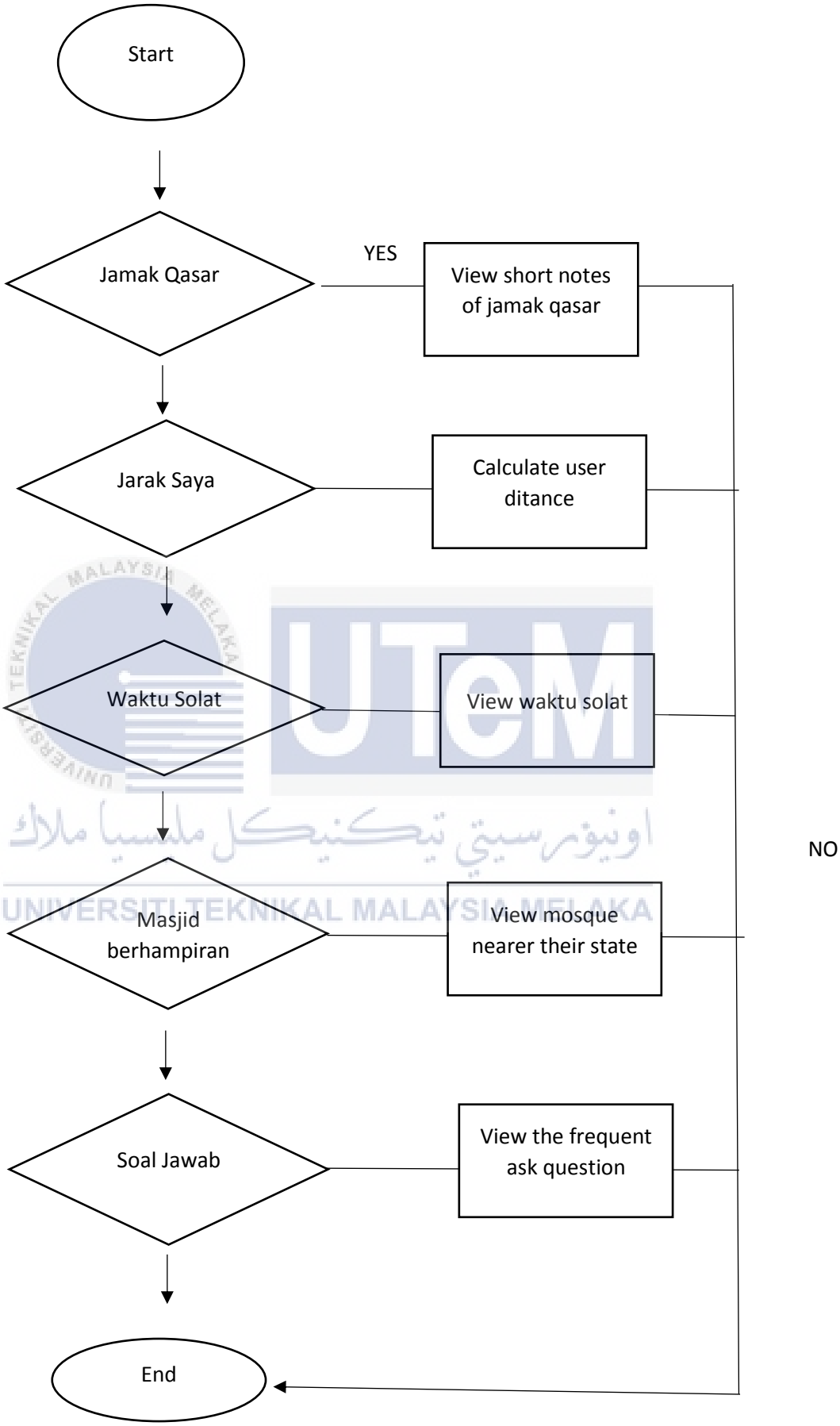

Figure 4.3 : Flowchart for user

4.2.1 Interface

Figure 4.4 : Actual interface for homepage and page 1

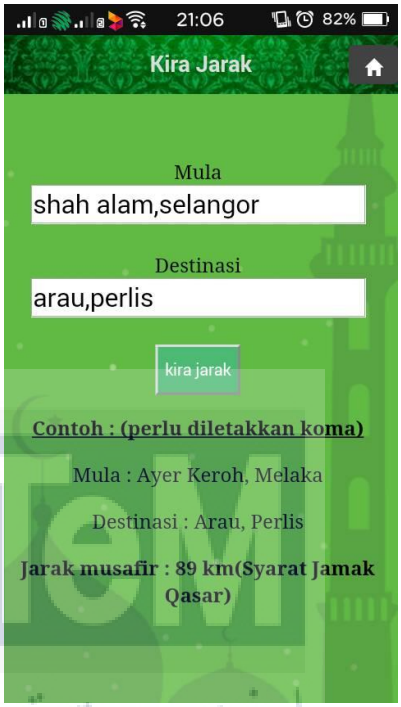

Figure 4.5 : Actual interface for page 2 and page 3

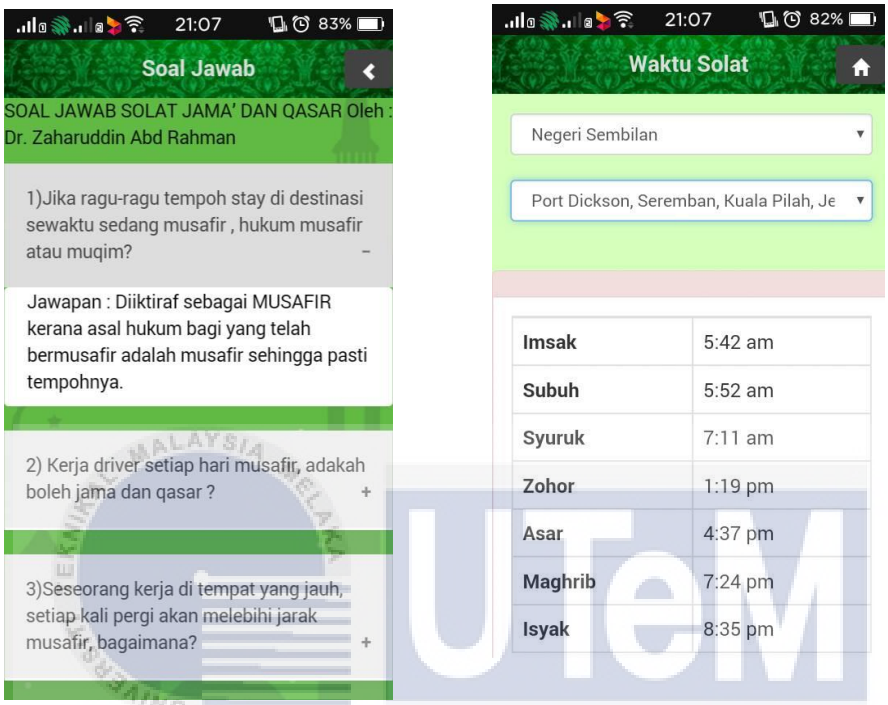

Figure 4.6 : Actual interface for page 4 and page 5

4.2.2 Database

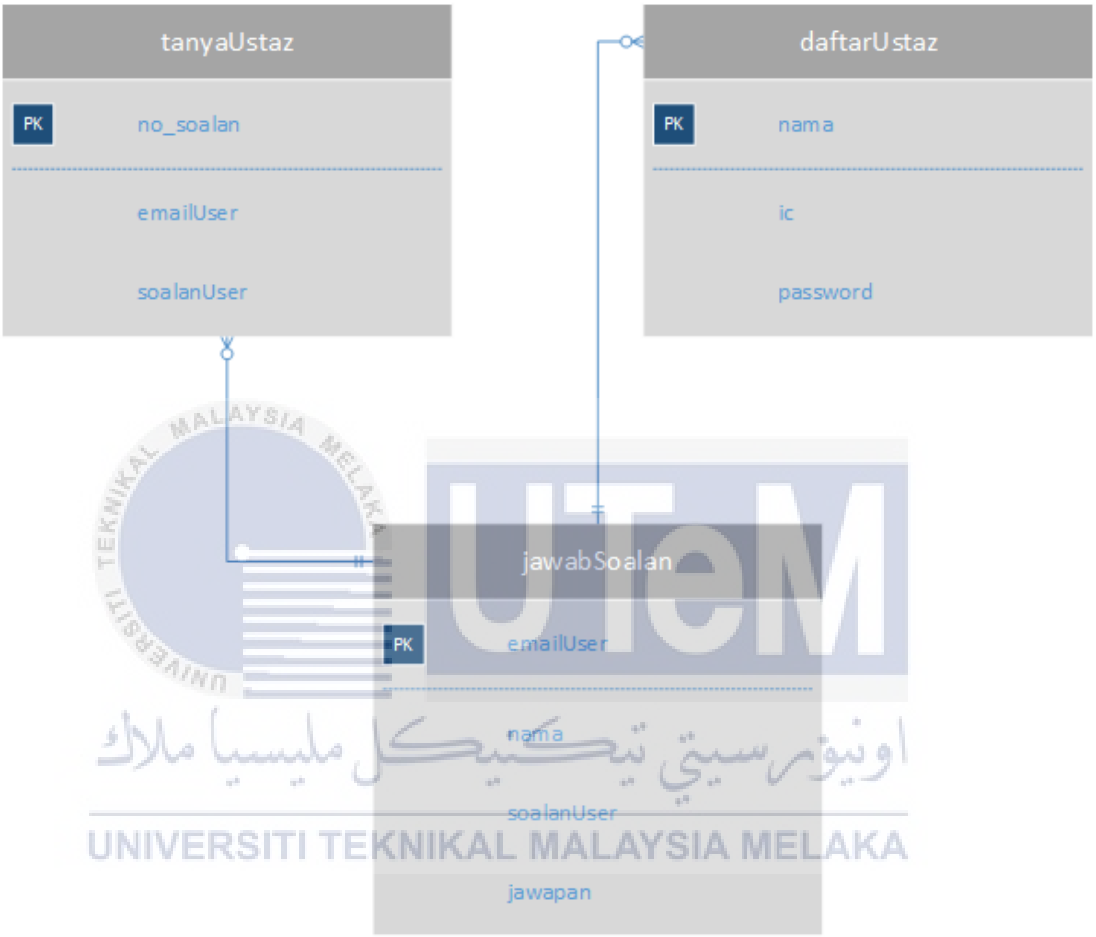

Table 4.1 : Database for Solat Jamak and Qasar apps

4.3 Preliminary Design

Preliminary design is the first phase of design process. There are 5 function that been design before develop the apps. The reason need to do a preliminary design is to get an overall idea about how the system will look like.

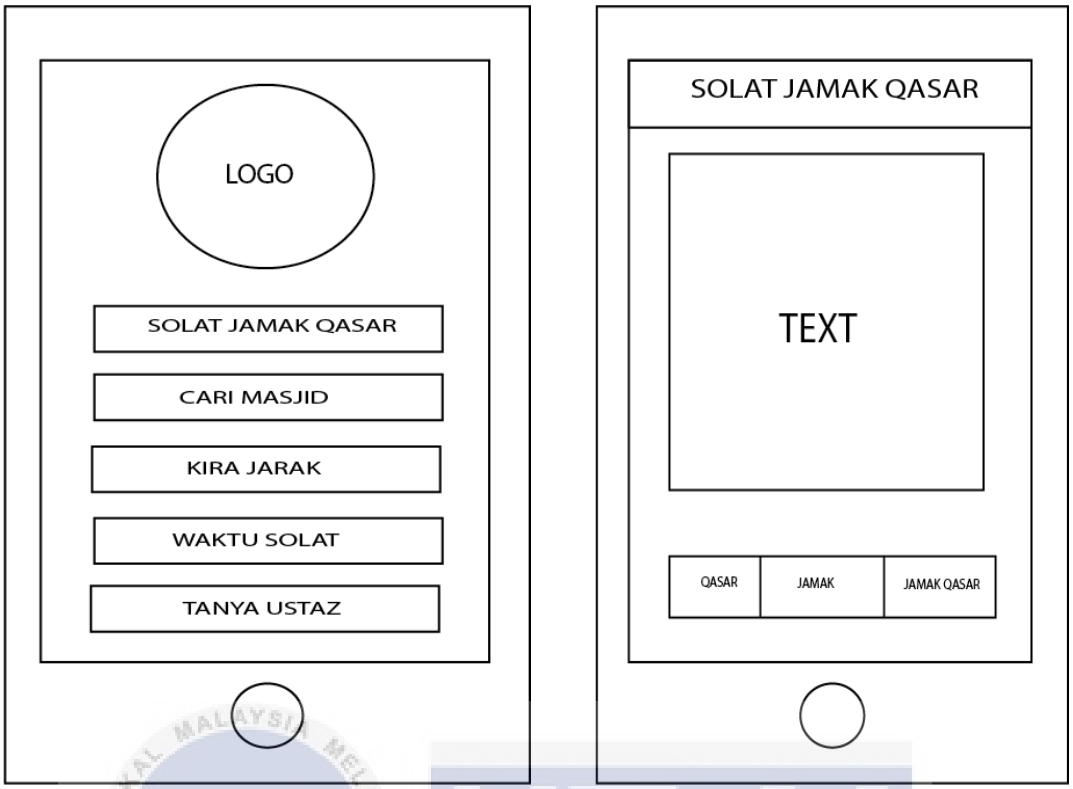

Figure 4.4 : Show the interface home page and first page

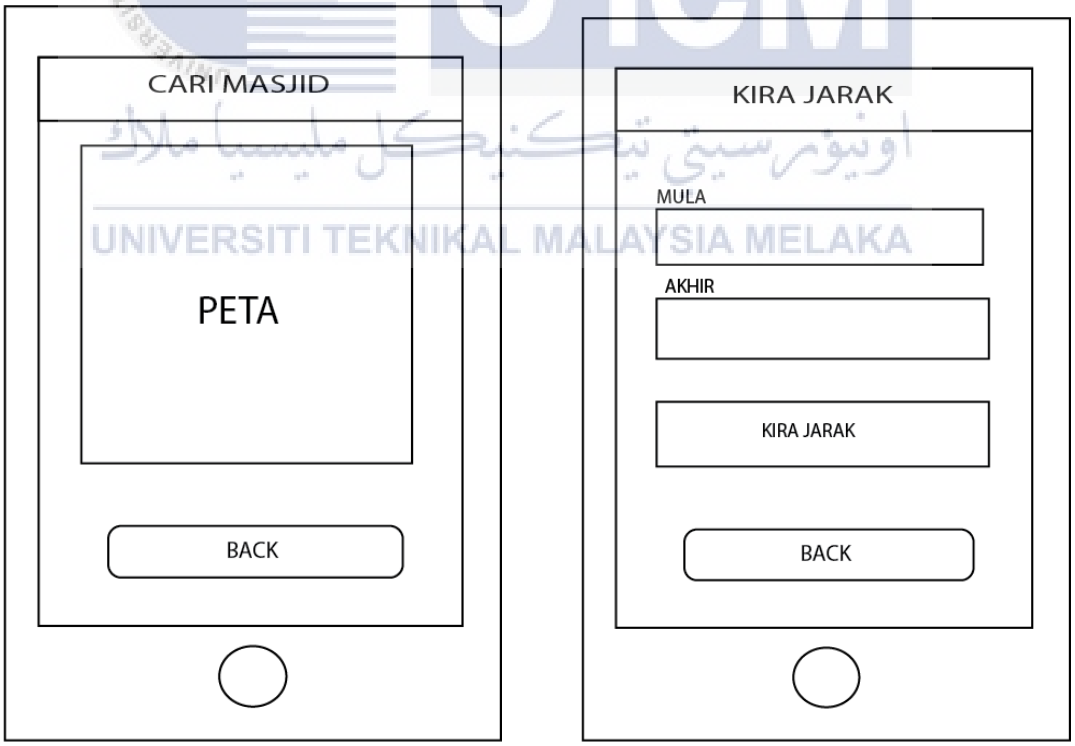

Figure 4.5 : Show the interface home page and first page

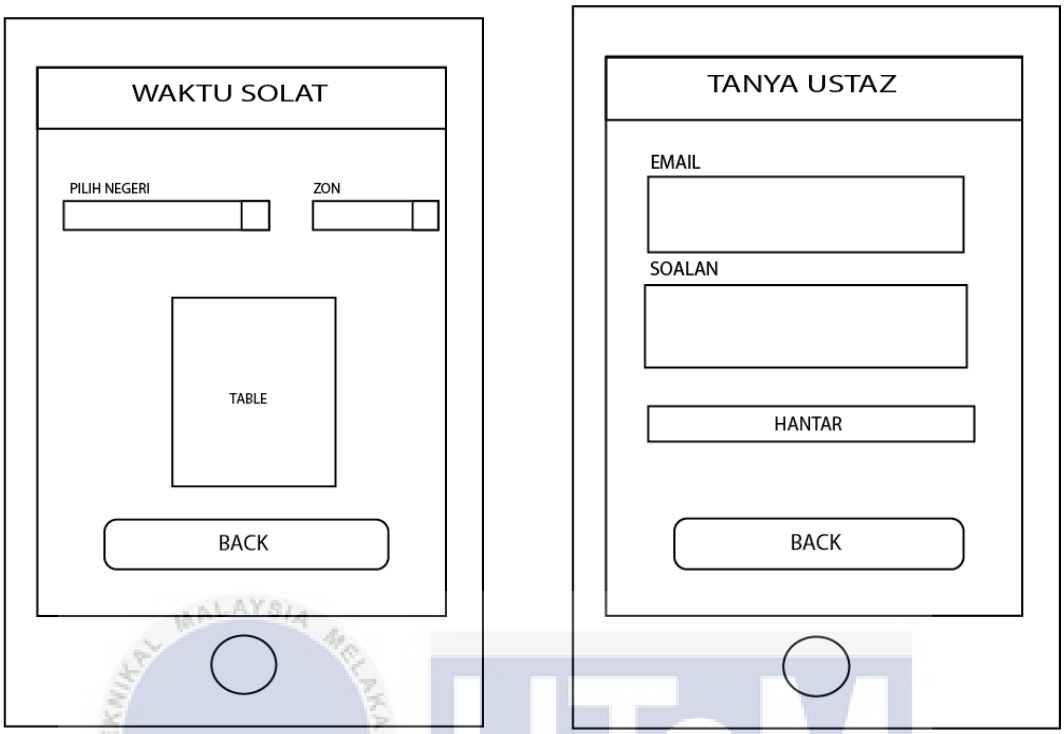

Figure 4.6 : Show the interface page 4 and page 5

4.4. User Interface Design

4.4.1 Navigation Design:

Navigation chart is the big picture for the overall information about how system work and the interaction occur for user when they click the button. Figure below show the navigation structure of Solat Jamak and Qasar application.

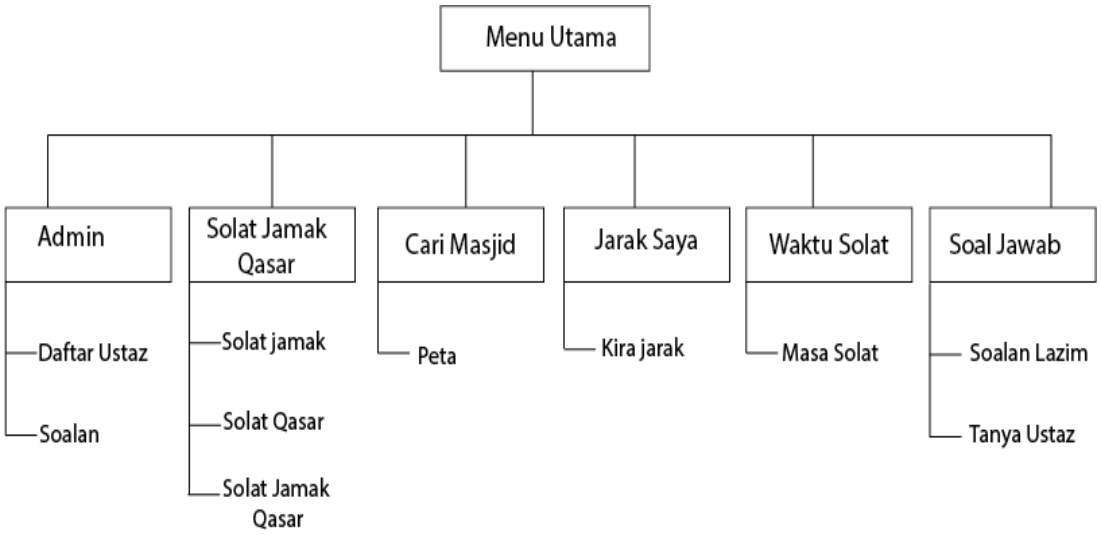

Figure 4.3 : Navigation chart for Solat Jamak and Qasar application

4.2.2 Input & Output Design

The input design for Solat Jamak and Qasar is when user need to insert their email and question at the tanya ustaz function to be sent to ustaz available. Next input design is admin need to register ustaz or ustazah by insert their name, identitiy card and password. There are also input function when user have to insert their origin and destination at the kira jarak function.

The output design for this application when it show the distance that been input by user. In waktu solat function it will appear the table for the prayer time based on the current time. For admin page, it will show the list of question that been asked by user.

4.5. Conclusion

In this chapter, overall designed were discussed. The flowchart design will be reference to build an interface and from the interface it will be reference to built database. All the design help the developer to see the whole system start from the system architecture that give a rough idea to developer on how the system actually works and what need to be included. The next chapter will discuss about the implementation of the design made stated in this chapter.

CHAPTER V

IMPLEMENTATION

5.1. Introduction

This chapter will discuss about the implementation phase of Solat Jamak & Qasar in mobile application. There are many activities involved in this implementation phase which application creation, application integration, Software Configuration Management and Implementation Status.

The expected output of this implementation phase would be the increasing of user understanding to perform Solat Jamak and Qasar well and it consists of five modules:

a) view of mosque nearer them Short notes about Jamak & Qasar
b) view of prayer time
c) calculation of user distance from their origin to their destination
d) view of mosque nearer them
e) view of frequent ask questions and asked questions.

5.2. Application creation

This topic will discuss a production of multimedia elements chosen and developed. There are production of text and graphics.

5.2.1. Production of Text

There are few fonts has been chosen to be used in this project. The production of text are stated in table below. Text that has been chosen in this project called Calibri. The theme color for this mobile application is green because it is Islamic symbolic.

Text	Font	Color
Jamak Qasar	Calibri	Black
Jarak Saya	Times new roman	Black
Waktu solat	Calibri	Black

5.2.2. Production of Graphics

The graphics used in this project are completely in vector. It's been used as background of the mobile application. The graphics were illustrated using Adobe Illustrator CS6. The flow of illustration and the illustration process is as follows:

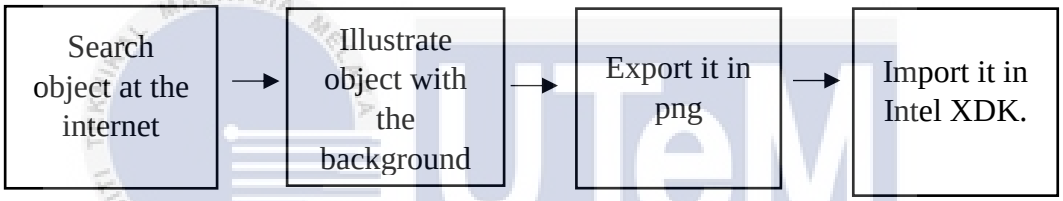

Figure 5.1 : Flow of the graphic productions.

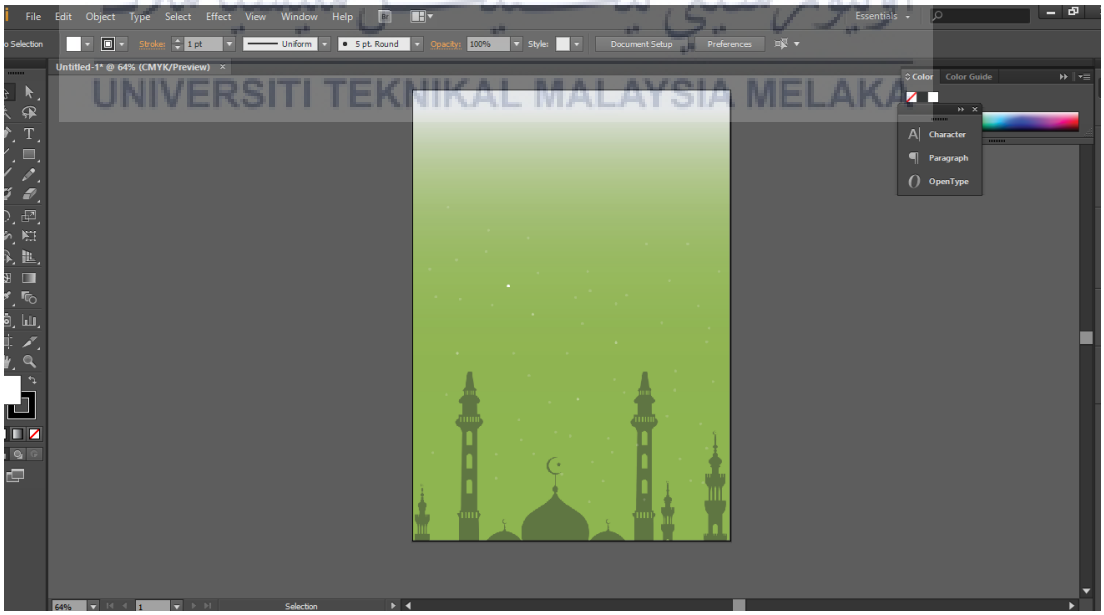

Figure 5.2 : Illustrating background image

5.3. Application Integration

Integration process is done in intel xdk editor. All the function which are jarak saya, waktu solat, tanya ustaz, masjid berhampiran are been modify in this software. This app use smartgreen server as database and to upload all the working file. Arrangements for the text and graphics are automatically arrange in Intel XDK. The script that has been used are php and html5. User can view the final product in apk file.

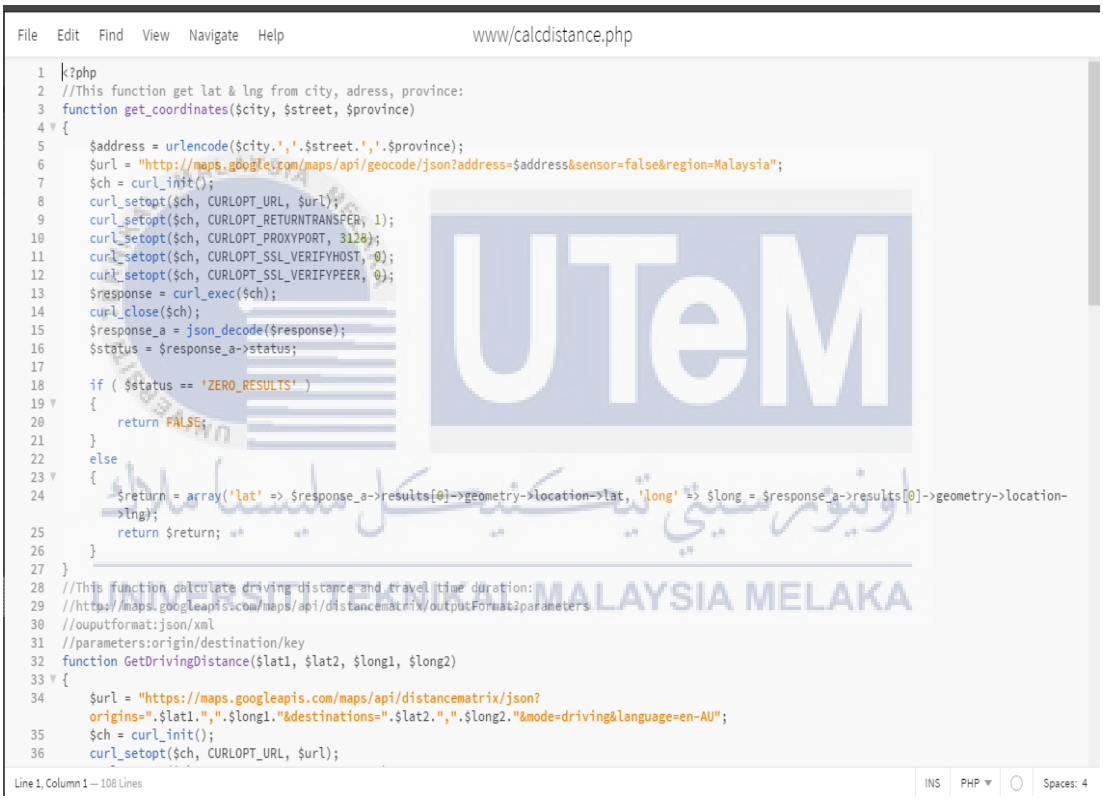

Figure 5.3 Calculate distance codes

The figure show the code on how the ‘jarak saya’ function work. It was link with google api maps to get the real distance on the map. The region was set on Malaysia only and it will not detect other country. User must input their city and province in order to get the accurate distance.

```
                                                <!-- pilih negeri -->
<br>
                                                <select name='pilih_negeri' id='pilih_negeri' class="form-control">
                                                        <option value=''>Pilih Negeri</option>
                                                        <option value="Johor">Johor</option>
                                                        <option value="Kedah">Kedah</option>
                                                        <option value="Kelantan">Kelantan</option>
                                                        <option value="Kuala Lumpur">Kuala Lumpur</option>
                                                        <option value="Labuan">Labuan</option>
                                                        <option value="Melaka">Melaka</option>
                                                        <option value="Negeri_Sembilan">Negeri Sembilan</option>
                                                        <option value="Pahang">Pahang</option>
                                                        <option value="Perak">Perak</option>
                                                        <option value="Perlis">Perlis</option>
                                                        <option value="Pulau_Pinang">Pulau Pinang</option>
                                                        <option value="Putrajaya">Putrajaya</option>
                                                        <option value="Sabah">Sabah</option>
                                                        <option value="Sarawak">Sarawak</option>
                                                        <option value="Selangor">Selangor</option>
                                                        <option value="Terengganu">Terengganu</option>
                                                </select></br>

                                                <!-- pilih zone -->
                                                <select id='pilih_zone' name='pilih_zone' class="form-control">
                                                        <option value=''>Pilih Zon</option>
                                                </select>
                                        </div>
                                </div>
                        </div>
                </div>

                <div class="row">
                        <!-- append result here -->
<br><br>
                        <div id="results"></div>
                </div>
```

Figure 5.4 Codes for waktu solat

```
if(isset($_GET['zon']))
{
        $kodzon = $_GET['zon']; # store get parameter in variable

        $xmlurl = "http://www2.e-solat.gov.my/xml/today/?zon=".$kodzon; # url of JAKIM eSolat XML data

        # fetch xml file (from JAKIM website)
        # parse xml data into object
        $data = simplexml_load_file($xmlurl);

        # access xml data, get name of zone, trim object
        $namazon = trim($data->channel[0]->link);
        $tarikhmasa = trim($data->channel[0]->children('dc',true)->date); # use children() to access tag with colon (:)

        # create associative array to store waktu solat
        $arrwaktu = array();

        # iterate through the "item" tag in the xml, access, and store into array
        foreach($data->channel[0]->item as $item)
        {
                # access data and trims object, to store as string
                $solat = "waktu_" . strtolower(trim($item->title)); # append "waktu_" to the lowercase string. ex: "waktu_subuh"
                $waktu = trim($item->description);

                # store into associative array
                $arrwaktu[$solat] = $waktu;
        }

        # add kod_zon, nama_zon, and tarikh_masa to the array
        $arrwaktu["kod_zon"] = $kodzon;
        $arrwaktu["nama_zon"] = $namazon;
        $arrwaktu["tarikh_masa"] = $tarikhmasa;

        # display data in json format
        echo json_encode($arrwaktu);
}
```

Figure 5.5 Codes for waktu solat api

```
{
    "JOHOR": {
        "JHR01": "Pulau Aur dan Pemanggil",
        "JHR02": "Kota Tinggi, Mersing, Johor Bahru",
        "JHR03": "Kluang dan Pontian",
        "JHR04": "Batu Pahat, Muar, Segamat, Gemas"
    },
    "KEDAH": {
        "KDH01": "Kota Setar, Kubang Pasu, Pokok Sena",
        "KDH02": "Pendang, Kuala Muda, Yan",
        "KDH03": "Padang Terap, Sik",
        "KDH04": "Baling",
        "KDH05": "Kulim, Bandar Bahru",
        "KDH06": "Langkawi",
        "KDH07": "Gunung Jerai"
    },
    "KELANTAN": {
        "KTN01": "K.Bharu,Bachok,Pasir Puteh,Tumpat,Pasir Mas,Tnh. Merah,Machang,Kuala Krai,Mukim Chiku",
        "KTN03": "Jeli, Gua Musang (Mukim Galas, Bertam)"
    },
    "MELAKA": {
        "MLK01": "Bandar Melaka, Alor Gajah, Jasin, Masjid Tanah, Merlimau, Nyalas"
    },
    "NEGERI_SEMBILAN": {
        "NGS01": "Jempol, Tampin",
        "NGS02": "Port Dickson, Seremban, Kuala Pilah, Jelebu, Rembau"
    },
    "PAHANG": {
        "PHG01": "Pulau Tioman",
        "PHG02": "Kuantan, Pekan, Rompin, Muadzam Shah",
        "PHG03": "Maran, Chenor, Temerloh, Bera, Jerantut",
        "PHG04": "Bentong, Raub, Kuala Lipis",
        "PHG05": "Genting Sempah, Janda Baik, Bukit Tinggi",
        "PHG06": "Bukit Fraser, Genting Higlands, Cameron Higlands"
    },
    "PERLIS": {
        "PLS01": "Kangar, Padang Besar, Arau"
    },
    "PULAU_PINANG": {
```


Figure 5.6 codes for zone.json

The figure shows the codes for zone.json. They were 13 state that have different state code are been called by the function at the api file.

5.4. Product Configuration Management

Product configuration management is a process where the configuration needed to be done to the product to achieve desired outcome.

5.4 Software Configuration Management

Product configuration management is a process where the configuration needed to be done to the product to achieve desired outcome.

5.4.1 Configuration environment setup

In this section, the guide on how to test the mobile application for Solat Jamak & Qasar to run on. There are two ways to test the application which is by using Intel XDK simulator and Intel App Preview.

5.4.1.1 intel XDK simulator

After selecting project, click on the stimulate at the navigation bars next to test. Then choose the devices suitable and click the play/run button to start the device simulator. After starts running the app, wait for the Apache Cordova plugins to be prepared. After the apps complete running, a new floating devices windows will appear based on the virtual device that been selected.

5.4.1.2 Intel App Preview

The app can be downloaded from play store. After complete download, the username and password are required to connect the App Preview with Intel XDK and the username must be same with Intel XDK account. To run the apps from Intel XDK, we need to push file. After that, the project name will appear at Intel App Preview and the app will run on. Next method that can be used is by scan the barcode provide at the Intel XDK.

5.5. Implementation Status

Implementation status show the status progress of each activities from the beginning to the end. The table below shows the progress taken to develop each function.

Component	Description	Duration	Implementation status	Date Complete
Jamak Qasar	Short notes about Jamak & Qasar	1 weeks	Complete	19 March 2017
Soal Jawab	Soalan lazim and tanya ustaz function	2 weeks	Complete	26 March 2017
Masjid Berhampiran	View mosque each state	2 weeks	Complete	3 April 2017
Waktu Solat	View current prayer time	1 month	Complete	10 May 2017
Jarak Saya	Calculate user distance	1 month	Complete	30 June 2017

Table 5.1 : Implementation status

5.6. Conclusion

As a conclusion, this chapter has described in detail about the implementation of the project. The process started with software development environment setup which explain about the overall how to run the mobile application. Next, the software configuration management that have two parts which are configuration environment setup and version control procedure also been explained. Next, Chapter 6 will discuss in details about the testing and evolution phase of this project.

CHAPTER VI

TESTING

6.1 Introduction

This chapter will discuss about the testing which is the last phase of this project development. Testing phase is only conducted after the project is complete. The people involved in this testing phase are multimedia expert and target user. This chapter contains test plan, test strategy, test result and lastly test analysis.

6.2. Test Plan

Test plan is identifying the target user who will be tested for this mobile application. There are three kind of testing that are involved in this project which are user interface testing, functionality testing and user experience testing.

6.2.1 Test User

Test user described the personnel involved during testing for this mobile application. The testing are multimedia expert and user between age 7 years old above.

a) Multimedia Experts

Multimedia expert will be testing about the interface of mobile application. They need to test all the multimedia elements use to develop the mobile application for its suitability to target users.

b) Target user

Target user is user from 7 years old above which are chosen from random background as long as they are Muslim.

6.2.2 Test Environment

Testing environment should be appropriate to ensure the testing being conducted achieve its goal. For this mobile application, there are no specific environment and location are being chosen. Most of the location that suitable to do testing is in UTeM library and mosque as there are many Muslim student with variety of ages. The app is being tested by developer to make sure the function is worked well before passed it to the user.

6.2.3 Test Schedule

In test schedule, the duration and cycles of the testing are to be made so that the testing will run smoothly when it is conducted. The sequence of the activity is determined based on the priority of a particular activity. Below is the testing that has been conducted.

	Stage 1	Stage 2
Respondent	Multimedia expert	Target user
Age	18 and above	7 and above
No of respondent	5	50
Duration	5-10 minutes	5-10 minutes
Place	UTeM	UTeM library
Date	18.8.2017	21.8.2017

Table 6.1 : Testing Activity Schedule

6.3 Test Strategy

The testing phase consists of 2 parts which are pilot testing and pre and post testing. Pilot testing consists of multimedia experts and target user. The first test was pilot test before the pre and post testing. In this test all the mean, media and mode for multimedia expert and target user are calculated

6.4 Test Implementation

The test implementation will explain about test description and test data. The test description and test data will be based on the pilot testing that has been describe in the test strategy.

6.4.1 Test Description

To conduct the testing, the respondents are given the solat jamak and qasar app for them to explore. After they done exploring the app, they need to answer the questionnaire that have three parts. The questionnaires are about user interface, functionality and user experience.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Please tick (/) to the following questions.	1	2	3	4	5
1. The menu items were well organized and understand.					
2. The function of each menu item is easy to understand.					
3. The graphic use in this mobile app is suitable.					
4. Margin content suitable with this application.					
5. The font used in the application is easy to be read and clear					
6. The shape and size of button use in the mobile application is suitable.					
7. The colour use in the interface of mobile app is suitable.					
8. Spelling and grammar in mobile app are correct.					
9. The structure of content in the mobile app is well organized.					
10. The interface of mobile app is attractive.					

Table 6.2 : Question about the User Interface of the mobile application .

Please tick (/) to the following questions.	1	2	3	4	5
1. The button used work well.					
2. 'Jamak & Qasar' function working well by showing all information in Arabic words,text and graphics.					
3. 'Waktu Solat' function working well by showing the prayer time.					
4. 'Masjid Berhampiran function working well by helping you to know the mosque near you.					
5. 'Soal Jawab' function help you to know the answer for the answer to the frequent ask question.					
6. 'Tanya Ustaz' function are working well and the question are been sent.					
7. 'Jarak Saya' function working well by showing correct distance calculations.					
8. The flow of mobile application is easy to understand.					
9. All the function in the mobile application is working well.					
10. The mobile application can be used without any problem.					

Table 6.3 : Question about the functionality of the mobile application.

Please tick (/) to the following questions.	1	2	3	4	5
1. I found this mobile app is useful					
2. I think that I would download this mobile app.					
3. I think that this mobile app was easy to use.					
4. I found the functions in this mobile app were enough.					
5. I think that I would like to use this mobile app frequently.					
6. I found that this mobile app is user friendly.					
7. I think that most people would learn to use this mobile app very quickly.					
8. I found this mobile app is suitable to all age.					
9. I felt very confident using this mobile app.					
10. Overall, I am satisfied with this mobile app.					

Table 6.4 : Question about the user experience of the mobile application.

6.4.2 Test Data

For the pilot testing, there will be two types of group of respondents were involved. They are multimedia experts and target user. For multimedia expert the numbers of respondents were 5 peoples. For expert content there were 15 peoples involved in this testing.

NO	Name	Qualification	Company
1	Dr Ibrahim Bin Ahmad	Senior Lecturer, Faculty of information and communication technoloy	UTeM
2	Profesor Dr. Sazilah Binti Salam	Pengarah Pejabat Timbalan Naib Canselor (Akademik & Antarabangsa)	UTeM
3	Farah Nadia Binti Azman	Lecturer, Faculty of information and communication technoloy	UTeM
4	Dr. Ahmad Naim Bin Che Pee @ Che Hanapi	Senior Lecturer, Faculty of information and communication technoloy	UTeM
5	Nazreen bin Abdullasim	Lecturer, Faculty of information and communication technoloy	UTeM

Table 6.5 List of name of the Multimedia Expert

Multimedia Expert(ME)	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
ME1	4	4	4	3	4	4	4	4	4	4
ME2	5	5	5	4	5	4	3	4	4	3
ME3	4	4	4	4	3	4	3	4	4	3
ME4	4	4	4	4	5	4	4	4	3	3
ME5	5	5	4	5	5	5	4	5	5	4

Table 6.6 Test Data for User Interface (Multimedia Expert)

Multimedia Expert(ME)	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
ME1	4	4	4	4	4	4	4	4	4	4
ME2	4	5	5	4	4	5	4	5	4	4
ME3	5	5	5	5	5	5	5	4	4	4
ME4	4	4	4	4	4	4	4	4	4	4
ME5	5	5	5	5	5	5	5	5	5	5

Table 6.7 Test Data for functionality(Multimedia Expert)

Multimedia Expert(ME)	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
ME1	4	4	4	4	4	4	4	4	4	4
ME2	4	5	5	4	4	4	4	4	4	4
ME3	4	4	4	4	3	3	3	4	4	4
ME4	4	4	4	4	3	4	3	4	4	4
ME5	5	5	5	4	4	4	4	4	4	4

Table 6.8 Test Data for User Experience (Multimedia Expert)

Target User	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
TU1	5	4	4	5	4	4	4	4	4	4
TU2	4	5	5	4	4	5	5	5	5	5
TU3	4	4	5	5	4	5	4	4	5	4
TU4	5	5	4	4	5	4	5	4	5	4
TU5	5	4	4	4	5	5	5	4	5	5
TU6	4	4	5	5	5	5	5	5	4	4
TU7	5	5	5	5	4	4	4	5	5	5
TU8	4	5	4	5	4	4	5	5	4	4
TU9	5	5	5	5	4	4	4	4	5	5
TU10	4	5	4	4	4	4	5	5	5	4
TU11	4	4	4	4	4	5	5	4	5	4
TU12	5	4	5	5	4	4	5	4	5	4
TU13	5	4	4	5	4	4	4	4	4	5
TU14	4	5	5	5	5	4	5	4	5	5
TU15	5	4	5	4	5	5	4	4	4	4

Table 6.9 Test Data for User Interface (Target User)

Target User	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
TU1	4	5	5	5	5	5	5	4	4	5
TU2	4	5	5	4	5	5	4	5	5	5
TU3	5	4	4	5	5	5	4	4	5	5
TU4	4	4	5	5	5	5	4	5	4	4
TU5	4	5	5	5	4	4	5	4	4	5
TU6	4	4	5	5	5	5	5	4	5	4
TU7	5	4	4	5	5	4	5	4	5	5
TU8	5	4	4	5	5	4	5	4	5	4
TU9	4	4	5	5	5	4	5	4	5	4
TU10	5	5	4	5	4	5	4	4	5	5
TU11	5	5	5	4	5	4	4	4	5	5
TU12	5	5	5	5	4	5	4	4	4	5
TU13	4	4	4	4	5	5	4	5	5	5
TU14	4	4	5	5	5	4	5	5	5	5
TU15	4	4	4	4	4	5	5	5	5	4

Table 6.10 Test Data for functionality(Target User)

Target User	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
TU1	4	4	4	4	5	5	4	5	5	5
TU2	4	5	4	5	4	4	5	5	5	5
TU3	4	4	4	4	5	4	5	4	4	5
TU4	5	5	5	4	5	4	5	5	5	5
TU5	5	5	5	5	5	5	5	5	5	5
TU6	4	4	5	5	4	5	4	5	4	5
TU7	4	4	4	5	4	5	5	4	5	5
TU8	4	5	5	5	4	4	5	5	5	5
TU9	5	5	4	5	5	5	4	4	5	5
TU10	5	5	5	5	5	4	4	4	5	5
TU11	5	5	5	5	4	4	5	4	5	5
TU12	4	4	4	5	5	4	5	4	5	4
TU13	4	4	5	4	5	5	5	5	5	5
TU14	4	4	4	4	5	4	5	4	5	4
TU15	5	5	4	5	4	5	4	5	4	5

Table 6.11 Test Data for user experience(Target User)

6.5 Test Results and Analysis

The analysis is analysed to make sure it meets the objectives. Questionnaire is used as the testing method to get the result. The result is been analysed based on the functionality, user acceptance and user interface.

6.5.1 Multimedia Expert Testing Result and Analysis

i) Test Result User interface

Question	Mean	Median	Mode
Q1	**4.4**	**4**	**4**
Q2	**4.4**	**4**	**4**
Q3	**4.2**	**4**	**4**
Q4	**4**	**4**	**4**
Q5	**4.4**	**5**	**5**
Q6	**4.2**	**4**	**4**
Q7	**3.6**	**4**	**4**
Q8	**4.2**	**4**	**4**
Q9	**4**	**4**	**4**
Q10	**3.4**	**3**	**3**

Table 6.12 : Result of user interface(multimedia expert)

In the test result user interface for multimedia expert , it state that the mean at question number 1,2 and 5 is high with 4.4 . Question no 1 is the menu items were well organized and understand, while question no 2 is the function of each menu item is easy to understand and no 5 is the font used in the application is easy to be read and clear.

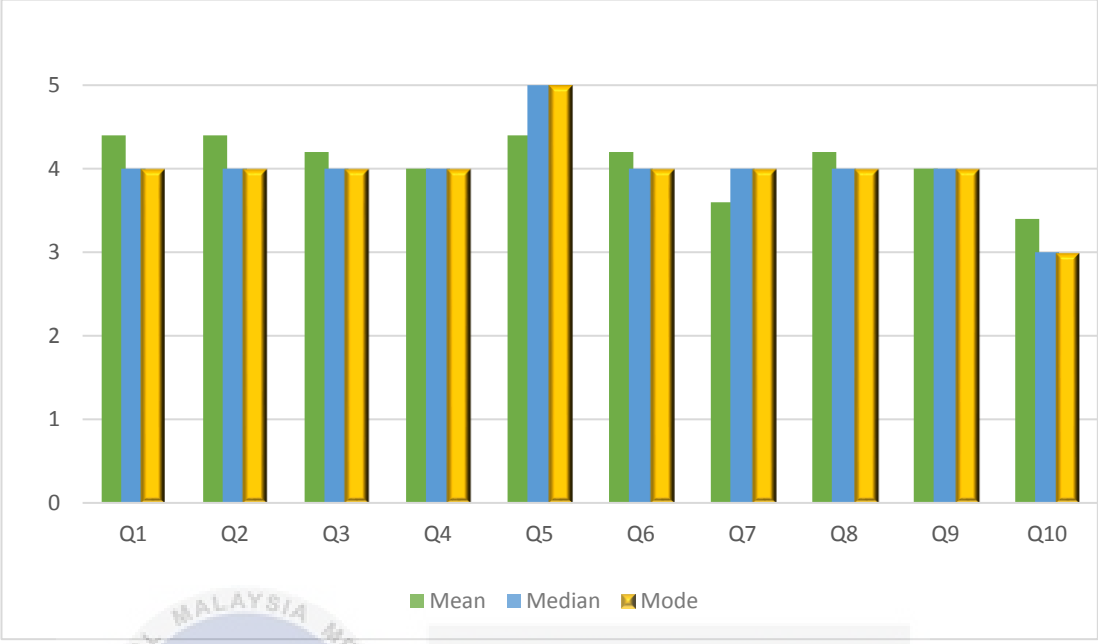

Figure 6.2 : Graph of user interface testing(multimedia expert)

From the graph, there are 10 question had been answer by multimedia expert with mean, mode and median achieve 4 and above. Most of the multimedia expert feel neutral at the question no 10 which been asked about the interface of mobile app. But for question no 5 which is the font used, most of them agreed that the font used is suitable.

ii) Test Result Functionality

Question	Mean	Median	Mode
Q1	**4.4**	**4**	**4**
Q2	**4.6**	**5**	**5**
Q3	**4.6**	**5**	**5**
Q4	**4.4**	**4**	**4**
Q5	**4.4**	**4**	**4**
Q6	**4.6**	**5**	**5**
Q7	**4.4**	**4**	**4**
Q8	**4.4**	**4**	**4**
Q9	**4.2**	**4**	**4**
Q10	**4.2**	**4**	**4**

Table 6.13 : Result of functionality(multimedia expert)

In the test result functionality for multimedia expert , it state that the mean at question number 2,3 and 5 is high with 4.6 . Question no 2 is Jamak & Qasar' function working well by showing all information in Arabic words,text and graphics., while question no 3 is the 'Waktu Solat' function working well by showing the prayer time and no 6 is the 'Tanya Ustaz' function are working well and the question are been sent.

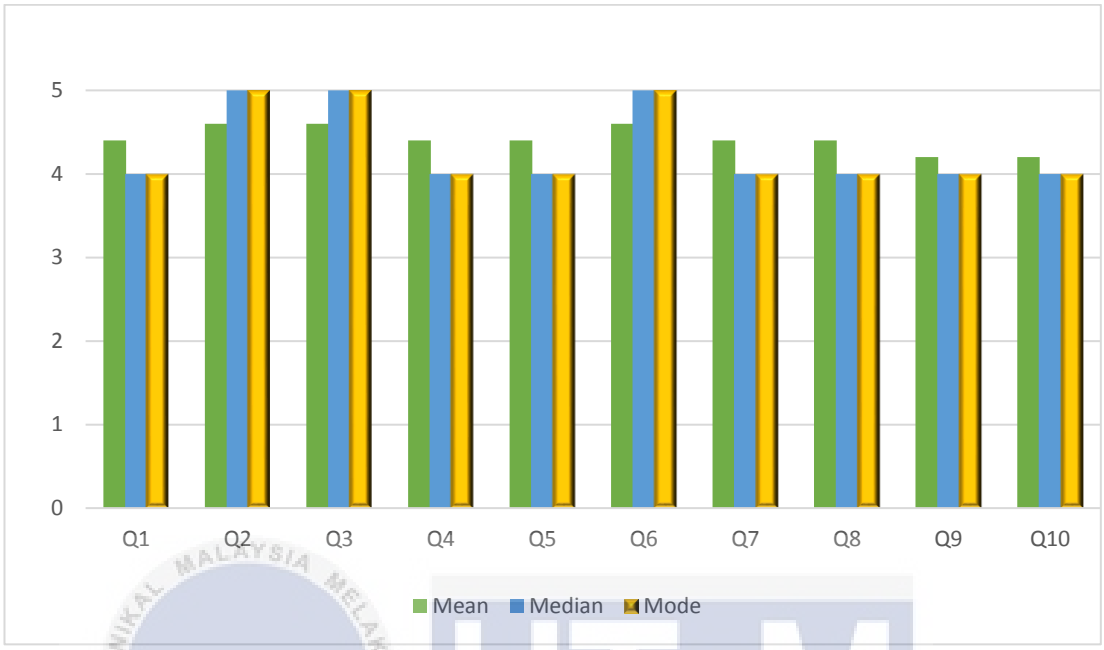

Figure 6.3 : Graph of functionality testing(multimedia expert)

From the graph above, most of the multimedia expert agree that all the function in this mobile application working well and easy to understand. As conclusion, all of multimedia experts approved that this app can be used without any problem.

iii) Test Result User experience

Question	Mean	Median	Mode
Q1	4.2	4	4
Q2	4.4	4	4
Q3	4.4	4	4
Q4	4	4	4
Q5	3.6	4	4
Q6	3.8	4	4
Q7	3.6	4	4
Q8	4	4	4
Q9	4	4	4
Q10	4	4	4

Table 6.14 : User experience (multimedia expert)

In the test result user experience for multimedia expert , it state that the mean at question number 2 and 3 is high with 4.4 . Question no 2 is the I think that I would download this mobile app and understand and no 3 is multimedia expert think that this mobile app was easy to use.

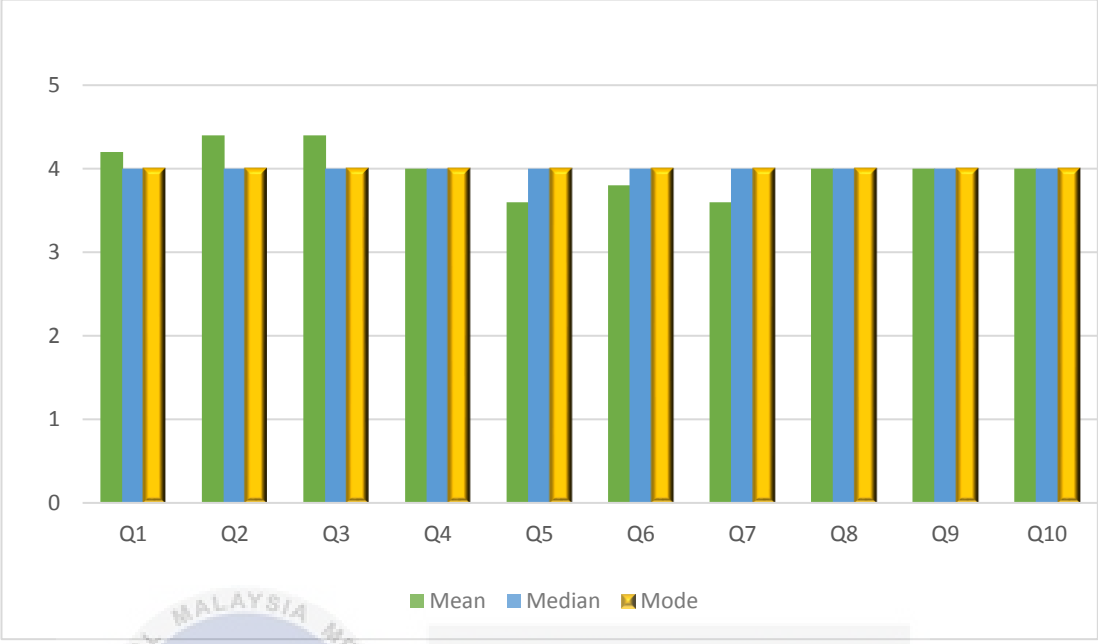

Figure 6.4 : Graph of user experience testing(multimedia expert)

From the graph, all the multimedia experts think that they would download this mobile app. In addition, they found that this mobile app was easy to use and useful. Overall, most of them agree and satisfied with this mobile app.

v) Cronbach's Alpha for Multimedia expert

Pilot test were test to whether this app are success and accept or not. To get the result, there are 5 different mark given that is from 1 – 5. 1 is strongly disagree, 2 is disagree, 3 is not sure, 4 is agree and 5 is strongly agree. To test the analyzed this application, it will used Cronbach's Alpha to get the result.

This is the formula for Cronbach's Alpha from J Clin Epidemiol:

$$\text{Cronbach Alpha, } R = \frac{K}{K-1}\left(1 - \frac{\text{Total of Questions Variance}}{\text{Total of Test variance}}\right)$$

Figure 6.1 Formula of Cronbach's Alpha

The level of Cronbach's Alpha

Cronbach Alpha	Scale
Less than 0.60	Weak
0.61-0.79	Acceptable
More than 0.80	High

Table 6.12 Reliability Value – Cronbach's Alpha

User interface	Functionality	User experience
0.848	**0.885**	**0.838**

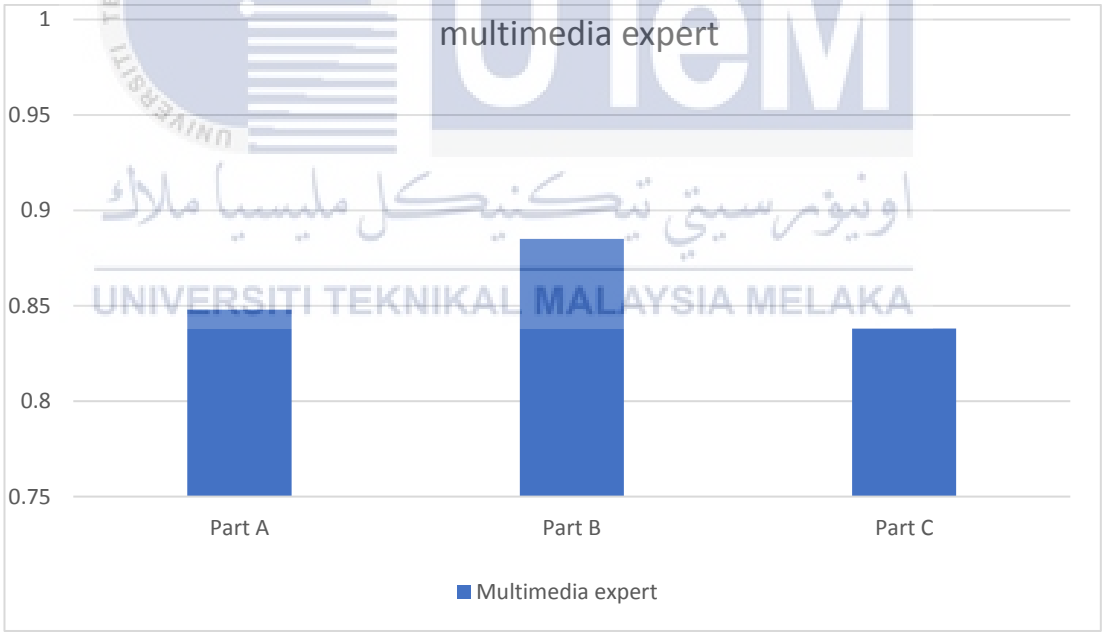

Figure 6.5 Graph Cronbach's Alpha for Multimedia expert

The result shows the Cronbach's Alpha in part A is the user interface of the mobile application, part B is the functionality of the app, and lastly part C user experience in this testing. All the part is upper than 0.6. It is means that all testing is work well and can be accepted. For the user interface part, the results are 0.799, for the functionality testing, the results are 0.944 and user experience are 1.003. All the result will conclude that this mobile app can be accepted to use.

Question	Mean	Median	Mode
Q1	4.5	5	5
Q2	4.4	4	4
Q3	4.5	5	5
Q4	4.6	5	5
Q5	4.3	4	4
Q6	4.6	4	4
Q7	4.6	5	5
Q8	4.3	4	4
Q9	4.7	5	5
Q10	4.4	4	4

Test Data for User Interface (Target User)

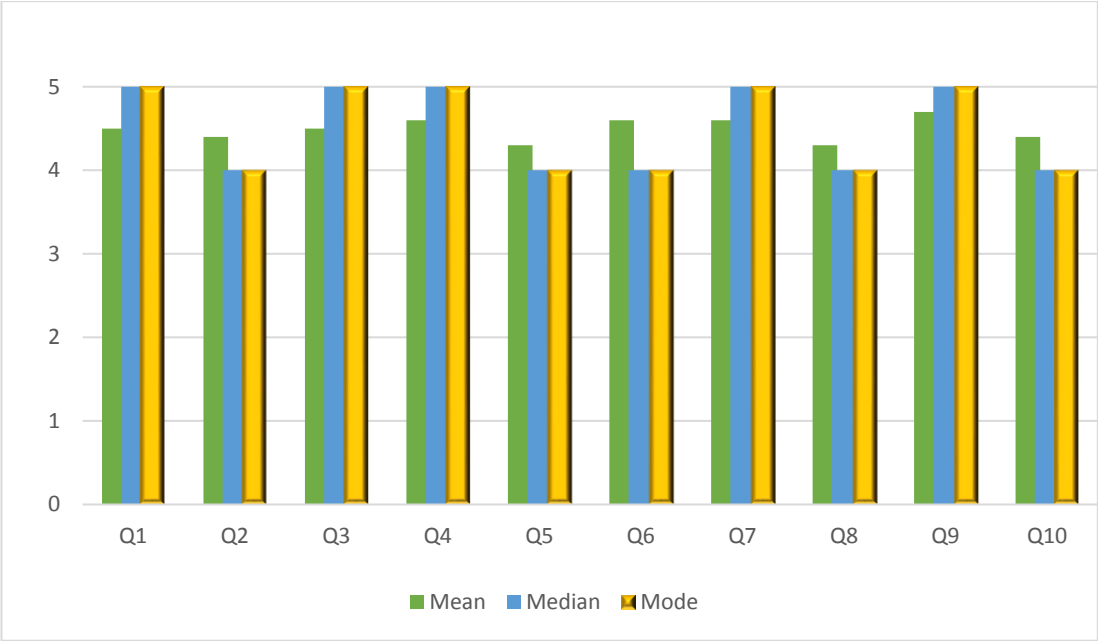

Figure 6.6 : Graph of user interface testing(target user)

From the graph, there are 10 question had been answer by target user with mean, mode and median achieve 4 and above. Most of the target user agree at the question no 10 which been asked about the interface of mobile app. But for question no 5 which is the font used, most of them agreed that the font used is suitable.

Question	Mean	Median	Mode
Q1	4.4	4	4
Q2	4.4	4	4
Q3	4.5	5	5
Q4	4.7	5	5
Q5	4.7	5	5
Q6	4.5	5	5
Q7	4.5	5	5
Q8	4.3	4	4
Q9	4.7	5	5
Q10	4.6	5	5

Test Data for functionality(Target User)

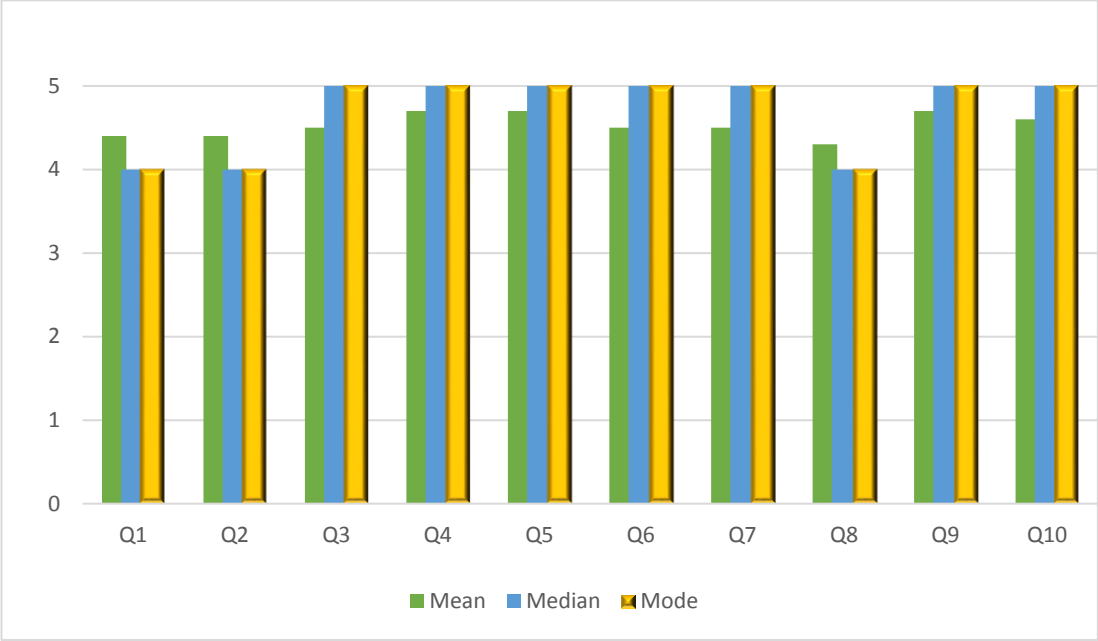

Figure 6.7 : Graph of user functionality testing(target user)

From the graph above, most of the target user agree that all the function in this mobile application working well and easy to understand. As conclusion, all of target user approved that this app can be used without any problem.

Question	Mean	Median	Mode
Q1	4.4	4	4
Q2	4.5	5	5
Q3	5	5	5
Q4	4.6	5	5
Q5	4.5	5	5
Q6	4.4	4	4
Q7	4.6	5	5
Q8	4.5	5	5
Q9	4.8	5	5
Q10	4.9	5	5

Test Data for user experience(Target User)

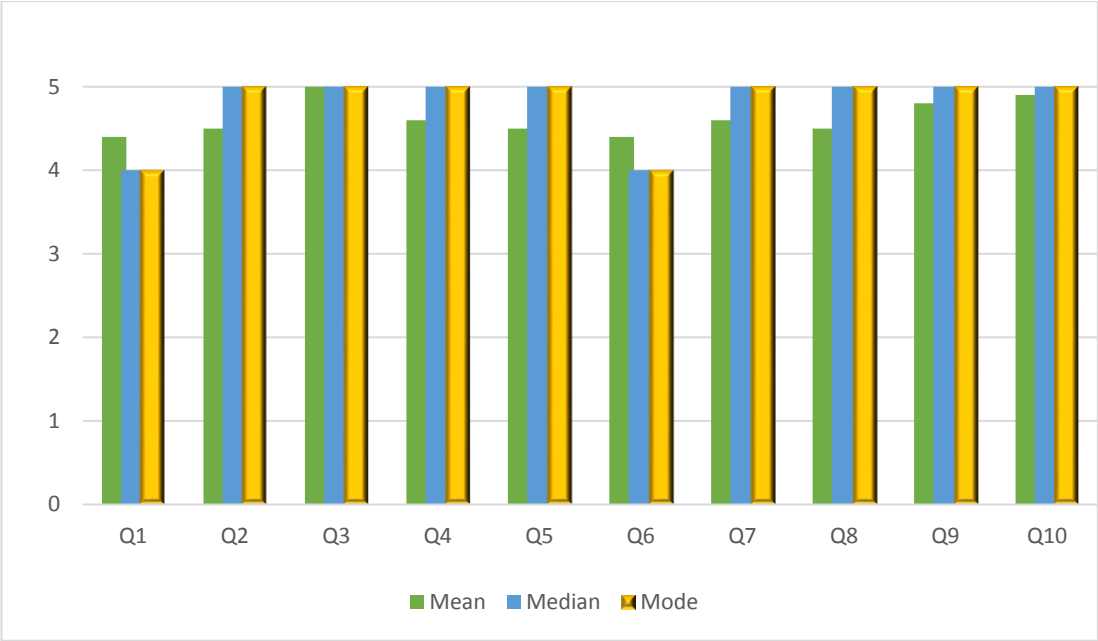

Figure 6.8 : Graph of user experience testing(target user)

From the graph, all the target user think that they would download this mobile app. In addition, they found that this mobile app was easy to use and useful. Overall, most of them agree and satisfied with this mobile app.

6.5. Conclusion

As a conclusion, the developer has acknowledged all the important thing that required to been tested in the project. All the testing process in making this application successful is overall explained.

At the end of testing phase, a lot of feedback and comment are obtained from the responses. The developer enables to know the weaknesses and limitation of the application. This will help the developer get a better solution to produce a better application in the future.

Next chapter is the last chapter that will conclude everything from the planning phase during the development of this mobile application.

CHAPTER VII

PROJECT CONCLUSION

7.1. Observation on Weaknesses and Strengths

Mobile application for Solat Jamak & Qasar has been developed for 22 weeks and successfully end in August 2017. It is being developed using Intel XDK and the development of this projects includes making research, planning, analysing, designing, implementing and testing. Throughout the process of making this project happen, there are a few weaknesses and the strengths found based on the analysis and the testing process.

7.1.1 Strengths

Here are some strengths that been discovered during the process of developing Mobile application for Solat Jamak & Qasar.

7.1.1.1 User friendly

The navigation flow of mobile application is easy to navigate which the button is been arranged based on the priority function. Next, the mobile application is easy to use and understand because the content is being simplified to make user easier to understand. Also, the interface of mobile application is attractive which the background is been use suitable with the Islamic theme.

7.1.1.2 Open source

The source code for this project is an open source and it can be an advantage for any developers that develop apps related to this project to use this source code as their references. Hopefully some improvement can be done to make this apps more useful to Muslim travellers.

7.1.2 Weaknesses

Here are some weaknesses that been found during the process of developing Mobile application for Solat Jamak & Qasar.

7.1.2.1 Less Interactivity

There is no map appear when calculate the user destination. Although the user distance can be calculated and appear but due to code complexity the map cannot be done. Therefore, the map that show the user distance cannot be completed but the map to nearer mosque are done.

7.1.2.2 Need Internet Connection

Some function in this mobile application required a strong internet connection such as the ‘masjid berhampiran’ function. Without the strong internet connection, the map and the direction of the mosque will not appear. The prayer time also need an internet connection as it is being link with the online payer time website which is JAKIM. For the calculate distance function the google maps link is been use and also required internet connection to calculate user distance.

7.2 Propositions for Improvement

There are few suggestions that can be made to improve the mobile application better to achieve the objective maximumly. Firstly, the mobile application need to put the qibla direction so that Muslim traveller can perform their prayer at any places which suitable without searching for the mosque nearer. Secondly, put the reminder or alert for the user distance so travelling Muslim can know whether they eligible to do Jamak and Qasar.

Another improvement can be made is embed the map that show their distance. For example, besides it show the distance when user input their origin and destination, it should also show the route in the map.

7.3 Project Contribution

Mobile Application for Solat Jamak & Qasar is made for general user as long as they are Muslim which means there are not specific user needed for this apps. User age between seven years old and above can use this mobile application because it is easy to use and understand. This mobile application can be download whether they are travelling or not. By developing this apps, this will give benefit to user to improve their understanding towards this prayer and as references when travelling suitable with the objectives of this project.

7.4 Conclusion

As a conclusion, Solat Jamak & Qasar in Mobile Application has achieved the overall objectives. The variety of function can easier the user to refer to this apps and save their time. This apps are suitable for user age seven years old above. It is hoped that this apps can be one of the useful apps and give benefit to Muslim traveller. Lastly, this project can be improved much more in the future.

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