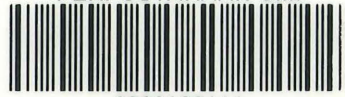


PERPUSTAKAAN UMP



0000103111

BASIC QURAN LEARNING APPLICATIONS FOR ADULT (IQRA')

MUHAMMAD HAFEZAN BIN OMAR

A REPORT SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE AWARD OF THE DEGREE OF BACHELOR OF COMPUTER SCIENCE
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(IQRA')

SESI PENGAJIAN: 2014 / 2015

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Last but not least, I am grateful to all my family members for their support. A million thank you to them for their moral support. Thanks for all the encouragement, motivation and prayers for all this time.

ABSTRACT

Basic Quran Learning Application for Adult (IQRA') is a learning application developed to assist adults (adult term in this thesis are the ones who age from 13 to 20 years old) learn to recognize hijaiyah letters and learn basic to read al-Quran. According to the observations, there are many adults who are unable to read the Quran because of various factors such as cannot recognize hijaiyah letters or do not have the basic knowledge to read the Quran because they do not have the interest to learn it. This application is specially developed to run on a smartphone or tablet that supports Android operating system. The idea to develop this app for smartphone or tablet is because the growth of the present era which almost all individuals have a smartphone or tablet that supports Android operating system. Therefore, with this application, it is hoped that it can attract these people to learn basic reading al-Quran in turn helps them to understand the basis for reading the Quran.

ABSTRAK

Basic Quran Learning Application for Adult (IQRA') adalah satu aplikasi pembelajaran yang dibangunkan bertujuan untuk membantu golongan dewasa (istilah dewasa dalam tesis ini adalah golongan yang berumur dalam lingkungan 13 hingga 20 tahun) belajar mengenal huruf – huruf hijaiyah dan belajar asas untuk membaca al-Quran. Mengikut pemerhatian, masih ramai golongan dewasa yang tidak mampu membaca al-Quran kerana pelbagai faktor seperti tidak mengenal huruf – huruf hijaiyah ataupun tidak memiliki ilmu asas untuk membaca al-Quran kerana mereka tidak memiliki minat untuk belajar. Aplikasi ini dibangunkan khas untuk dijalankan pada telefon pintar atau tablet yang menyokong sistem operasi android. Idea untuk membangunkan aplikasi ini untuk telefon pintar atau tablet adalah kerana mengikut perkembangan masa sekarang yang mana hampir semua individu memiliki telefon pintar atau tablet yang menyokong sistem operasi android. Oleh itu, dengan adanya aplikasi ini, diharap ianya boleh menarik minat golongan ini belajar asas membaca al-Quran seterusnya membantu mereka mengetahui asas untuk membaca al-Quran.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

Basic Quran Learning Applications for Adult or short name Iqra' is built to help individuals learn to recognize the letters of al-Quran and recite the al-Quran. Method Iqra' is a method that is arranged as an effort to facilitate the individual in order to achieve the goal of learning the Quran in the short time and quick. This application is built for android devices because of current developments in which each individual as a whole have this android based devices. Modification Iqra 'based on book that existing now to the device Iqra' was carried out as an effort to facilitate individual learning individually. In addition, it is also is built to attract interest individuals to learn because learning through the device more attractive than through books. Applications are to be built is more focused on adult use. This is because according to observations at present there are still many adults who have not been able to recognize and recite the Quran in its essence. 'Adult' addressed here are those between the ages of 13 to 20 years. Some functions will be placed in these applications to facilitate the learning of the user. Some of these functions are the Recitation functions, Makharijul Huruf function, quizzes, al-Baghdadi techniques, reminders and bookmarks.

Recitation function is made is to allow users to listen the way pronunciation and reading letters thus help them to recognize and read letters. Recitation function will work when the user touches the letters on the screen of their Android device.

Next is Makharijul Huruf function. Makharijul Huruf are places that sound of hijaiyah letters out during read so that sound the letter can be distinguished by other letters. So

this function is made to allow the user to distinguish the letters hijaiyah based sounds during read in.

Quizzes features were is made as to provide consumers gauge their level of understanding and mastery of what they learn. In this quiz, users need to type and enter spelling using English alphabet to match the letters al-Quran that are shown in the quiz. All users have to go through this quiz to allow their way into further learning. Each question answered correctly will be scored and users need to reached a predetermined marks to go to the next level of the learning.

Next is al-Baghdadi technique function. This function is made is to allow users to read the al-quran letters with harakat and tajwid that right and proper. But the al-Baghdadi technique in this application will convert knocking technique in old Al-Baghdadi technique to blinking of lights.

Reminder function was is made to remind the user to learn on a daily basis. This reminder will appear on users android device screen.

This last function is a function of the bookmark. This function is to facilitate the users to mark where they stop and to facilitate them to find where they left off to continue their learning at other times.

1.2 Purpose Of The Project

Purpose of this project is to develop basic Quran learning for adult applications for android based devices. This application is to be developed to improve the existing method that uses the book to use android based devices. This is an effort to facilitate anyone to learn without having to carry a book like that now. So, the application will be developed in this study may be useful for those who want to learn the basics of reading al-Quran

1.3 Problem Statement, Aim And Objective

1.3.1 Problem Statement

Based on these observations, many adults nowadays facing problem cannot be read al-Quran because a factor did not know the letters that are found in al-Quran. They are also seen as not wanting to change the situation and not trying to learn to read Al-Quran because a lack of interest and partly because of feeling embarrassed to learn that there in them. Although at present there are applications that have been built to learn al-quran, but applications that have been built are not much help as may be drawback applications themselves as less attractive, there are no functions that can facilitate learning and so on.

1.3.2. Aim

To develop an android applications that can help adults learn to recognize the letters of al-Quran and recite the al-Quran.

1.3.3. Objectives

The objectives of developing this system are:

- i. To create pronunciation sound as a guide to user.
- ii. To design a graphical user interface that has more usability in this application.
- iii. To build a two-way interaction function between user and application.

1.4. Project Scope

The scope of this project has been researched before the system is built. The scope project is important to make sure the system meets the requirements. The scope for this project are:

- i. The target user for this application is for adult.
- ii. This application built more focus on smartphone users especially android users.
- iii. Only cover iqra 1 and iqra 2.

1.5. Methodology

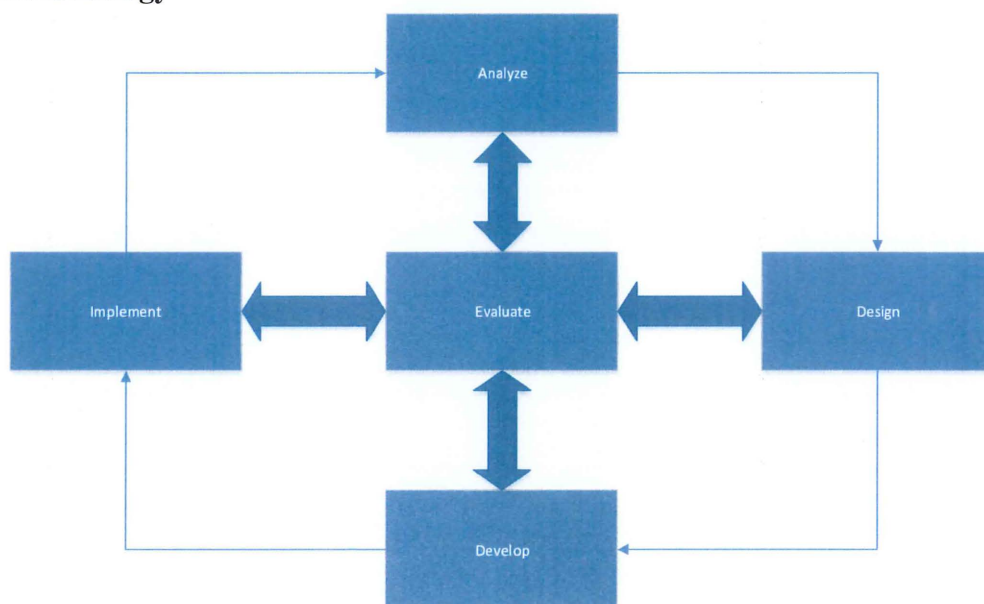


Figure 1.1: Diagram of ADDIE Model

The figure shows the diagram of ADDIE model that will apply for this project. ADDIE model is selected for used in this project because it is the most accurate model and is often used in the development of multimedia applications, websites or courseware. Besides ADDIE model, there are also other models commonly used in the development of multimedia, such as Hannafin and Peck model, Dick and Carrey model, Jerold Kemp model and Waterfall model. All of this is instructional design (ID) model used in the development of multimedia to

enable a developer to develop multimedia applications systematically and organized. Instructional design (ID) is a guide to allow something to be developed systematically in terms of design, develop, implement and evaluate. ADDIE model often be the basis for the other instructional design models. It consists of five phases: Analyze, Design, Development, Implementation and Evaluation.

Analyze phase

In this phase, firstly need to define the problem by investigate the problem. In this case, information in internet is my source to define the problem. After problem was defined, data from problem statement is used to determine the aim and objectives of this project. Besides that, platform for application that will be develop and target user also defined in this phase. After get all necessary data, entire possible requirements that needed to develop the system is listed.

Design phase

In this phase, outputs from the analyze phase is used to plan a strategy for developing the instruction. Appropriate delivery method that suitable in develop this system is chosen. All diagrams to show flow of the system also designed in this phase. Besides that, storyboards also developed and expected application interface also designed to make it more clearly.

Develop phase

This phase, the development of application was started based on the completed storyboards that designed before. Each development process will be tested to ensure it can operate consistently and effectively as we want.

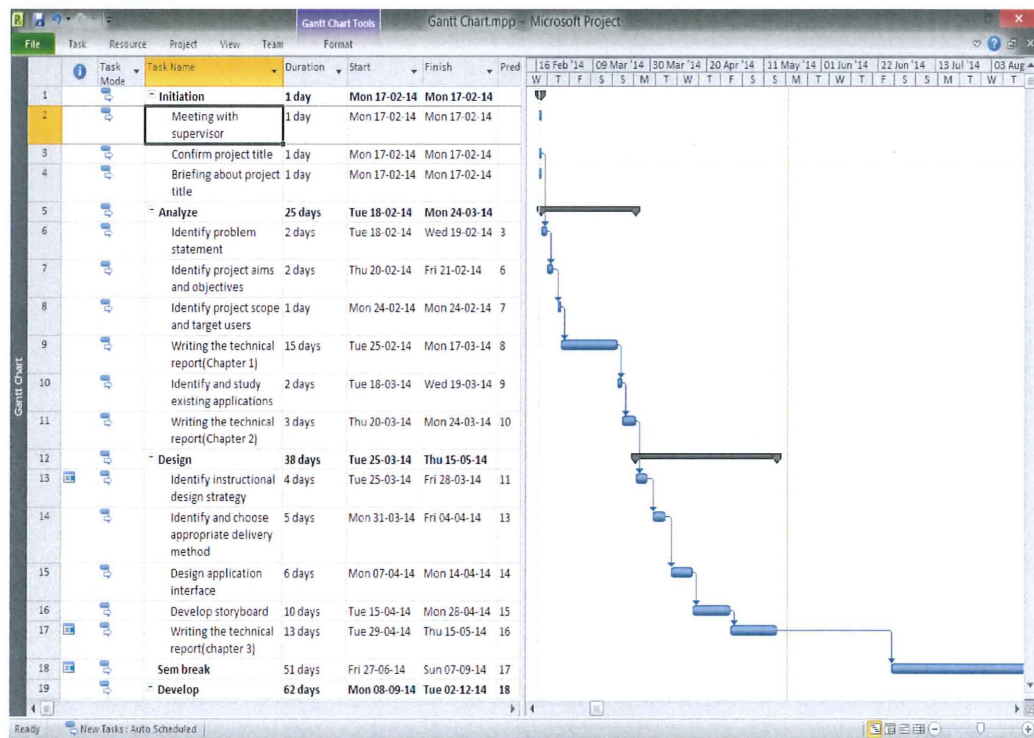
Implementation phase

Applications that have been developed will be tested to identify errors that occur during the development phase. If there is any error, it will be fixed so that it can function properly.

Evaluate phase

This phase, each phase of the ADDIE model will review and evaluation to ensure that it achieves what it should be in every phase. Besides that it also involves an evaluation of the applications developed.

1.6. Gantt Chart



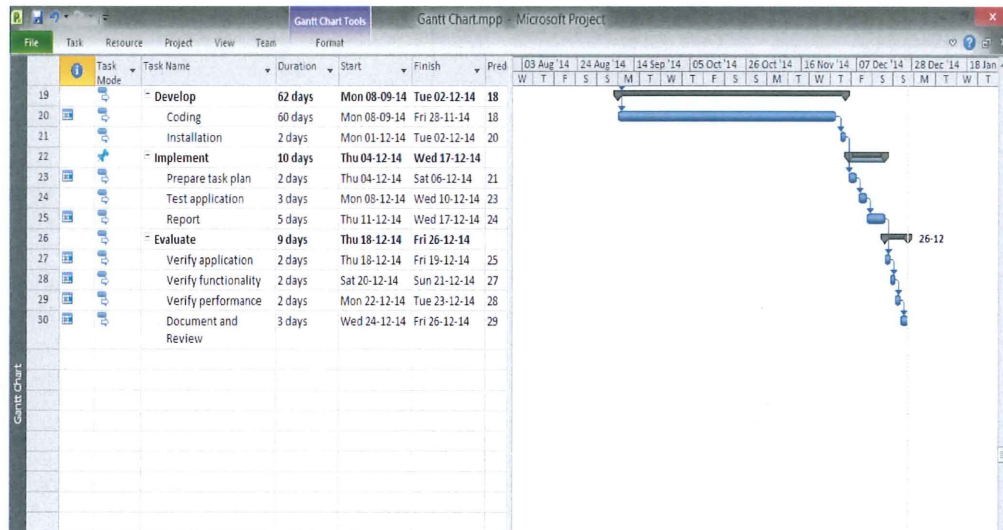


Figure 1.2: Gantt chart

1.7 Compare system/method/techniques/algorithm

There is lot of tools to create the mobile application in the smartphone, such as IBM worklight, Phone Gap, Free Mobile app builder in the internet. In this project, IBM worklight will be used to develop the application. Many of the people have talked about what are difference between PhoneGap application and IBM worklight application based on the mobile solution making. However PhoneGap one of packaged that include in the IBM worklight but this application is not deep as IBM worklight. For more detail of comparison will show in table below.

Table 1.1 Design comparisons between IBM Worklight with Phonegap

Design	Phonegap libray	Phonegap build	IBM worklight
HTML5,CSS3,JS support	Yes	Yes	Yes
3 rd party extensible	Yes	Yes	Yes
Build without native sdk	No	Yes	No
Access native dataview and	Yes	Yes	Yes

sensors			
Development ide/platform	No	No	Yes
Access native common control tabbar option menu and more	No	No	Yes
Wysiwyg	No	No	Yes

Table 1.2 Build comparisons between IBM Worklight with Phonegap

Build	Phonegap libray	Phonegap build	IBM worklight
Cross-platform support	Yes	Yes	Yes
Web Apps	No	Yes	Yes
Hybrid apps	No	Yes	Yes
Native apps	No	No	Yes
Desktop apps	No	No	Yes
Integrated shell coding	No	No	Yes

Table 1.3 Deploy comparisons between IBM Worklight with Phonegap

Deploy	Phonegap libray	Phonegap build	IBM worklight
Authentication framework	No	No	Yes
Application server	No	No	Yes
Mobile browser simulator	No	No	Yes
Integrated backend connection	No	No	Yes
Runtime skinning	No	No	Yes
Encrypted offline storage	No	No	Yes
JSON store	No	No	Yes

1.8 Thesis Organization

This thesis consists of five (5) chapters. Chapter 1 will discuss on introduction of the system, problem statement, objectives, project scope of the development, what methodology will be used while develop this system and lastly is gantt chart to show expected time this project will finished .

Chapter 2 is about literature review. This chapter will discuss the existing system, advantages and disadvantages in existing system and technique or software that use in that existing system.

Chapter 3 is purpose work. The purpose of this chapter is to discuss the design of this system. Its include expected user interface that will develop in this system and the design of use case, context diagram, data flow diagram to show how this system work.

Chapter 4 involves implementations that discuss about compilation of the data and table is use based on SQL.

Chapter 5 is about result, discussion and conclusion. The element that have in this chapter includes result analysis, the problems of build project, suggestion of the project approach to the next research and summary of project.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter discuss about literature review of system. In this chapter will tell about the existing system that relate with Basic Quran Learning Applications For Adult.

2.2 Existing Systems And Its Limitation

i. Learn Iqraa

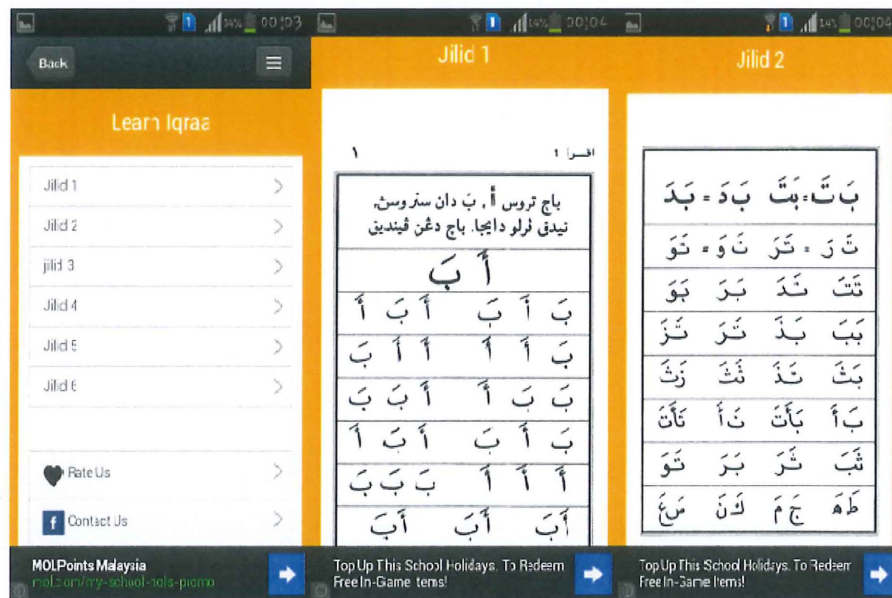


Figure 2.1: Learn Iqraa Application

Learn Iqraa is an application that more to the slide presentation. It not has any special features such as pronunciation letters audio, or quizzes. It's only the pages of the Iqra' book scanned and converted into mobile applications. The advantages are users not need to bring all six volumes of Iqra' book because this application have complete set of Iqra' book.

ii. My First Iqra'

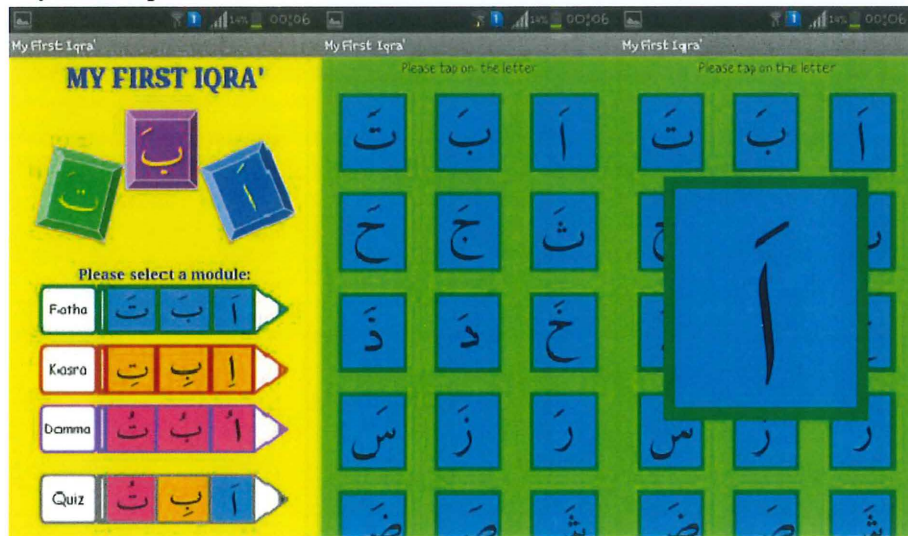


Figure 2.2: My First Iqra Application

My first Iqra' is the application to help users to learn to recognize basic hijaiyah letters. It have audio features built to allow users to listen how pronunciation of hijaiyah letters. This features work when user tapped on hijaiyah letters. It also have quizzes function. The quiz need users choose the correct letters base on letters pronunciation. Limitation of this application is it simply helps users to learn the very basic thing and more suitable to children's.

iii. Mengaji IQRA' 1,2,3



Figure 2.3: Mengaji IQRA' 1,2,3 application

Mengaji IQRA' 1,2,3 is an application like Learn Iqraa application that more to the slide presentation. But it has more features than Learn Iqraa application in which this application has video's function as a guide to user learn iqra. However it does not have any special features such as pronunciation letters audio, or quizzes. It's only the pages of the Iqra' book scanned and converted into mobile applications. The advantages are users do not need to bring all six volumes of Iqra' book because this application has a complete set of Iqra' book.

CHAPTER 3

PROPOSED WORK

3.1 Introduction

This chapter will discuss about the functions for this system and find out how it work.

3.2 System Functions

Table 3.1: System Functions

Functions	Function description
Pronunciation (Audio)	<ul style="list-style-type: none"> -This application will produce an audio and recite the letters that touched by the user -Recitation will produced based on the letters touched by the user. -If some letters needs to be read long, then the audio will also produced as a proper recite.
Makharijul Huruf function	<ul style="list-style-type: none"> -To allows the user to distinguish the letters hijaiyah based sounds during read in.
Quizzes	<ul style="list-style-type: none"> - This function is to allow users to measure their understanding of what they have learned - Users need to type and insert spelling using English alphabet by letter of al-quran shown. - Users must go through this quiz to go to the next level of learning. - Each question that user be answered can get a mark and user must has to achieve the predetermined mark for to go the next learning level.

Al-Baghdadi technique	-This application will apply Al-Baghdadi technique but will convert knocking technique in old Al-Baghdadi technique to blinking lights as way to adapt that technique to these system.
Remainder	-User can set this function. -This function will alerts users to learn Iqra'as set by user. -The reminder will pop out at screen to remind the user.
Bookmark	- To enable users to mark where they stop and facilitate them to find where they stop to continue their learning at other times.

3.3 Context Diagram

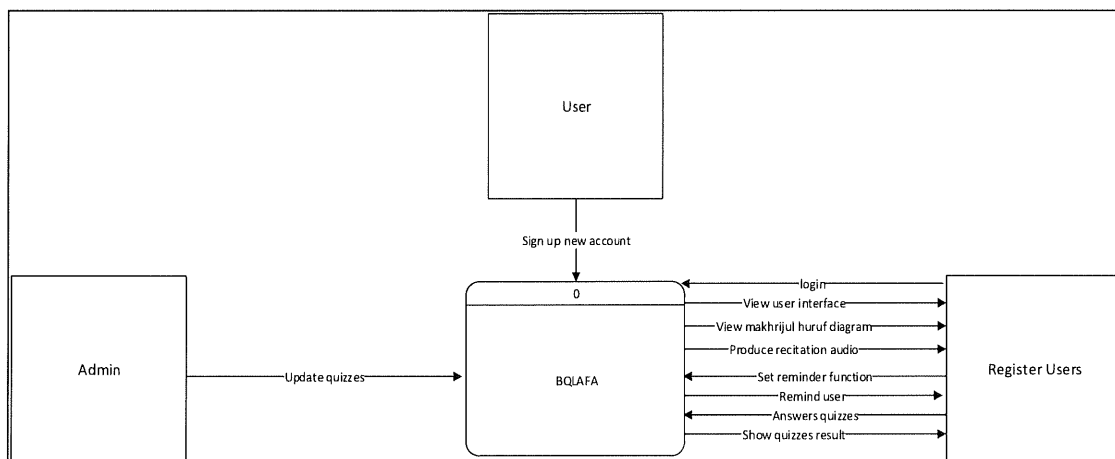


Figure 3.1: Context Diagram

Figure 3.1 shows context diagram. This diagram will show overall system flow process from beginning process until end process.

3.4 Data Flow Diagram Level 0 (Dfd Level-0)

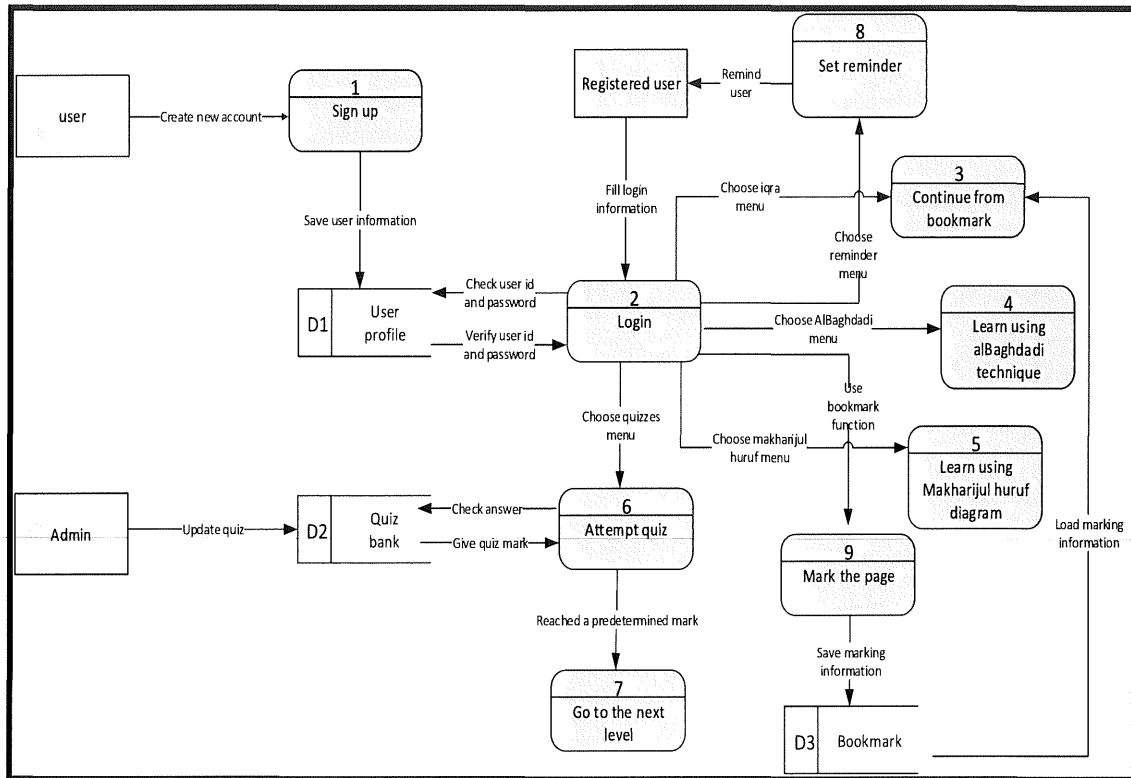


Figure 3.2: DFD Level-0

Figure 3.2 shows data flow diagram level 0. This diagram will show all flow process from beginning process until end process with more detail than context diagram.

3.5 Data Flow Diagram Level 1...Level N (Dfd Level-1..Level-N)

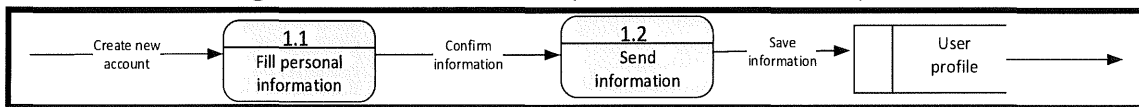


Figure 3.3: DFD Sign-up level 1

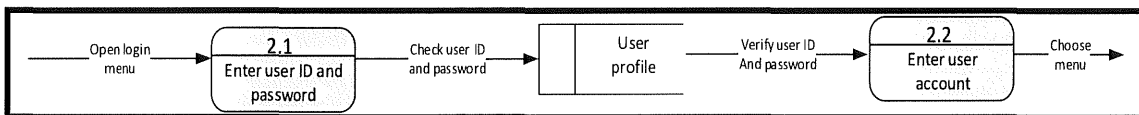


Figure 3.4: DFD Login level 1

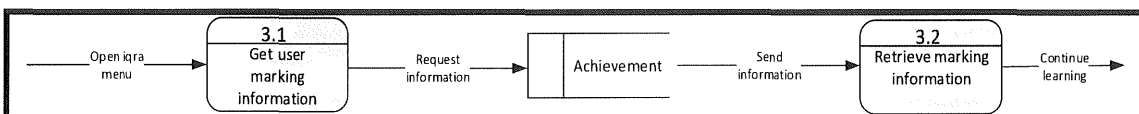


Figure 3.5: DFD Continue from bookmark level 1

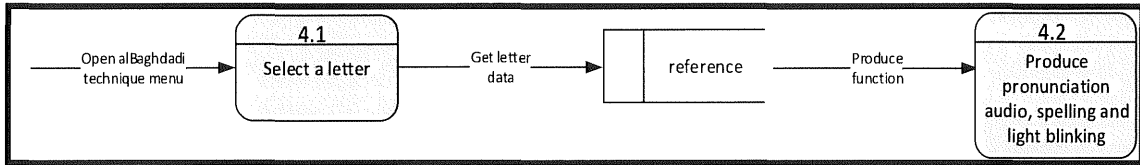


Figure 3.6: DFD Learn using AlBaghdadi technique level 1

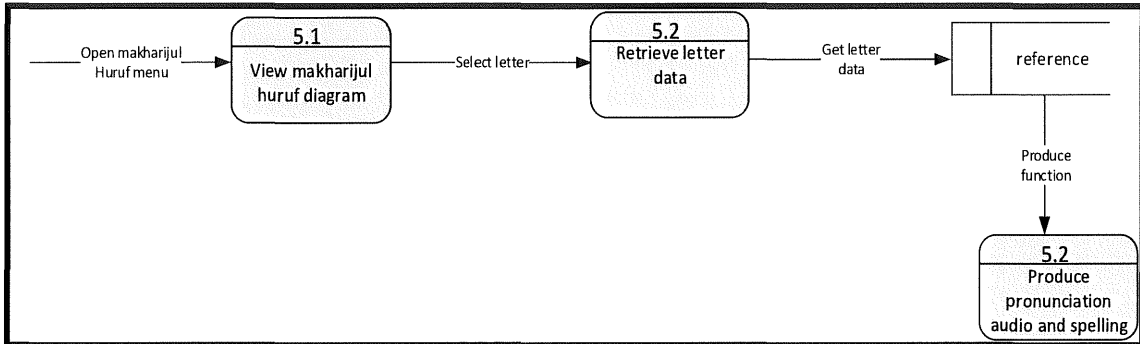


Figure 3.7: DFD Learn using makharijul huruf level 1

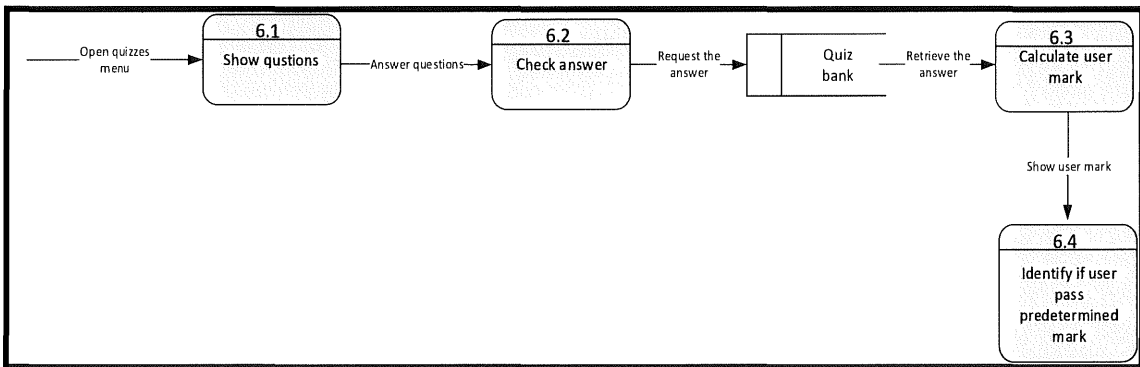


Figure 3.8: DFD Attempt quiz level 1

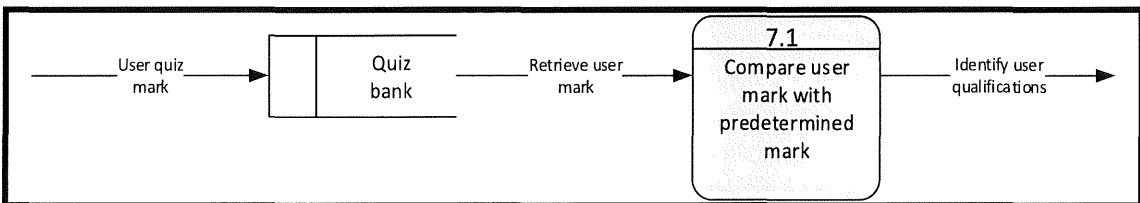


Figure 3.9: DFD Go to next level level 1

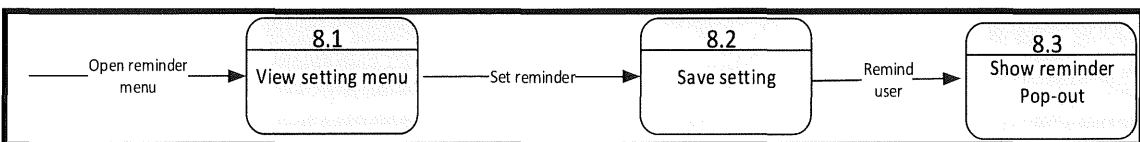


Figure 3.10: DFD Set reminder level 1

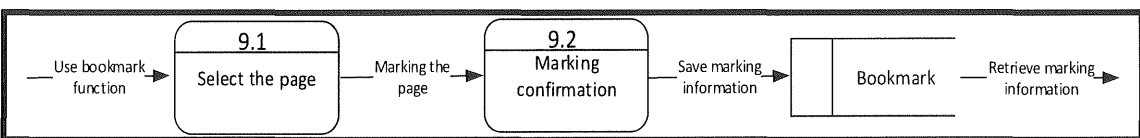


Figure 3.11: DFD Mark the page level 1

3.6 Use-case Diagram

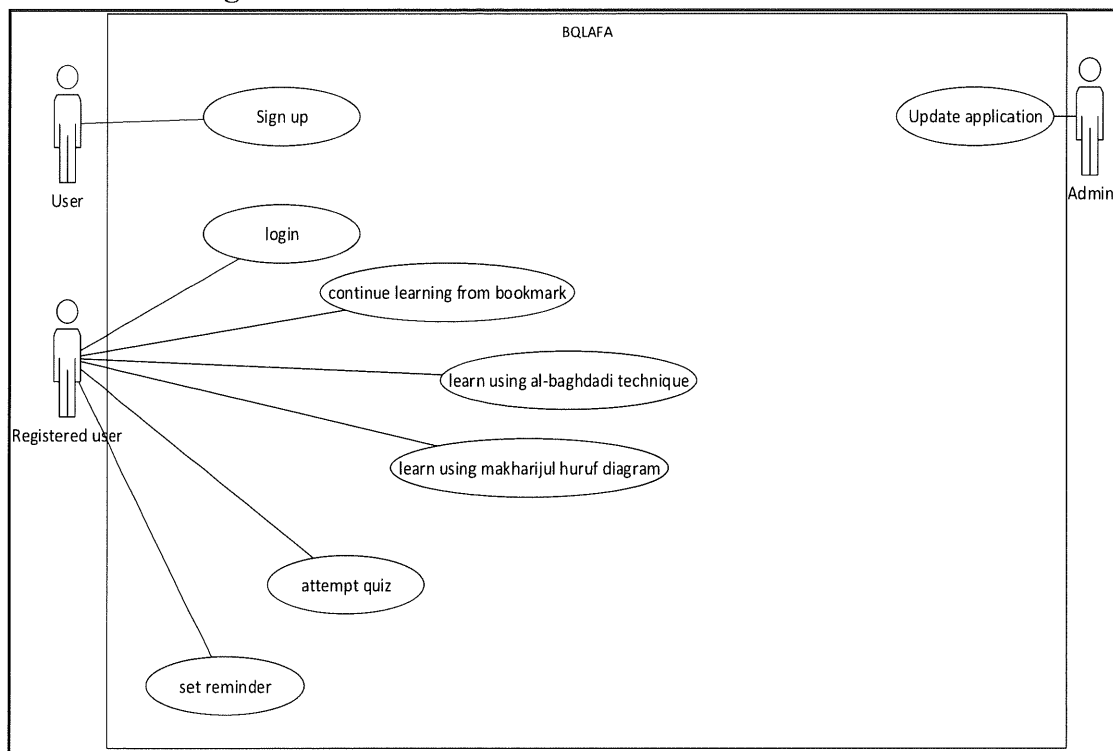


Figure 3.12: Use Case

3.7 Data Dictionary

Table 3.2: The data of user profile in database

No.	Field	Type	Length	Description
1	user_email	varchar	20	Represent email of user
2	user_id	varchar	10	Represent user id
3	user_name	varchar	30	Represent user name
4	user_password	varchar	20	Represents the password used by the user

Table 3.3: The data of user achievement in database

No.	Field	Type	Length	Description
1	user_id	varchar	20	Represent user id
2	iqra_level	varchar	5	Represent current iqra level that have been achieved by user
3	iqra_page	int	-	Represent current iqra page that have been achieved by user
4	quiz_level	int	-	Represent current quiz level that have been taken by user
5	quiz_mark	int	-	Represents the marks obtained by the user

Table 3.4: The data of bookmark function in database

No.	Field	Type	Length	Description
1	iqra_level	varchar	5	Represent current iqra level that marked by user
2	user_id	varchar	10	Represent user id
3	iqra_page	int	-	Represent current iqra page that

				marked by user
4	bookmark_date	varchar	20	Date of user marking page and level of iqra

Table 3.5: The data of quiz bank in database

No.	Field	Type	Length	Description
1	quiz_level	int	-	Represent current iqra level that marked by user
2	user_id	varchar	10	Represent user id
3	iqra_page	int	-	Represent current iqra page that marked by user
4	bookmark_date	varchar	20	Date of user marking page and level of iqra

Table 3.6: The data of reference in database

No.	Field	Type	Length	Description
1	iqra_page	int	-	Represent iqra page in system
2	hijaiyah_alphabet	varchar	10	Represent hijaiyah alphabet that store in database

3	hijaiyah_spelling	varchar	10	Represent hijaiyah spelling that store in database
4	hijaiyah_audio			Represent pronunciation audio that store in database

3.8 Design Prototype interface

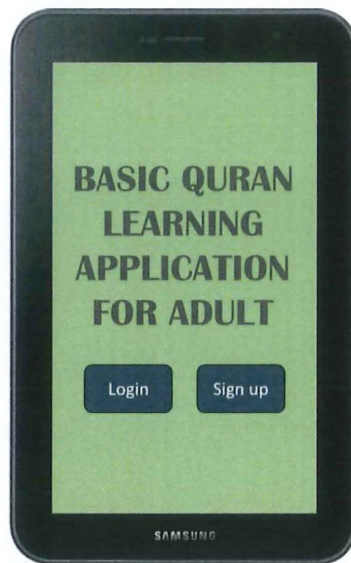


Figure 3.13: The main application interface

Figure 3.12 shows the interface of login and sign up for the user, user must login before they can use this application or go to sign up if cannot have account.

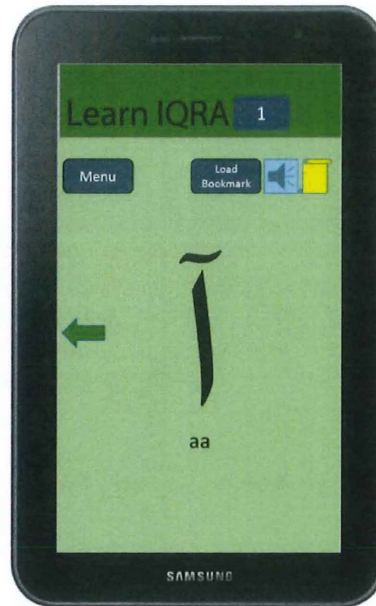


Figure 3.16: The learn IQRA interface

Figure 3.15 shows the interface of IQRA learning, user can learn iqra in this menu helped by spelling and pronunciation audio.



Figure 3.17: The al-Baghdadi technique interface

Figure 3.16 shows the interface of al-Baghdadi technique, this menu has two blinking light to guide user learn *harakat*.

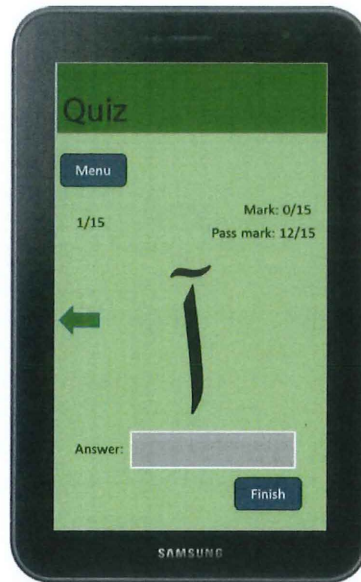


Figure 3.18: The quiz menu interface

Figure 3.17 shows the interface of quiz menu, user must insert spelling of alphabet that appears to answer the question.

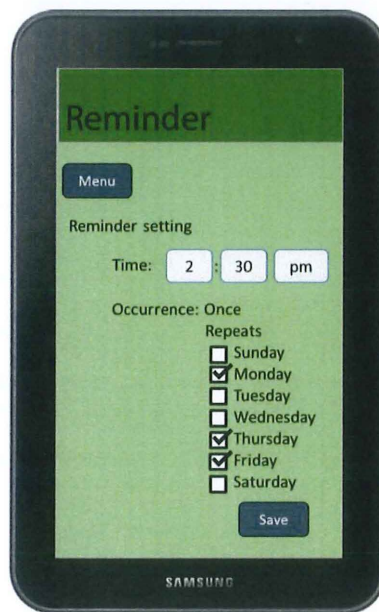


Figure 3.19: The reminder menu interface

Figure 3.18 shows the interface of reminder menu, user must set the reminder to use reminder function

3.9 Development Environment

3.9.1 Hardware requirement

There are two types of hardware that are identified for use in this project. It is a personal computer and android based device. Use of personal computers in this project is to develop applications that have been planned. While the android based device are used as a place to run applications that have been developed

Table 3.7: Hardware Requirement

No	Item	Quantity	Description
1	Laptop Acer	1	To develop system, and make documentation.
2	Lenovo A916	1	For run the system.

3.9.2 Software requirement

In terms of software, there are also have two software that will be used in the project. First is Eclipse (Android SDK) software. Eclipse (Android SDK) is software that used to develop applications and always used to develop android, iphone and also blackberry applications. So it is important software in this project to ensure this project can be developed. Second is Adobe Photoshop software. This software selected for develop multimedia elements for this project. Other software that used is SQL Lite, Microsoft Office 2010 and Window 8.1.

Table 3.8: Software Requirement

No	Software	Descriptions
1	Eclipse (Android SDK)	To coding, design interface and deploy the apk file
2	Adobe Photoshop	For develop multimedia elements for this project
3	SQL Lite	To store element to database
4	Window 8.1	Operating system to run laptop
5	Microsoft Office 2010	To make system documentation

CHAPTER 4

IMPLEMENTATION

4.1 Introduction

In this chapter will discuss on the design and implementation requirements for designing interface, coding, and guide in the development of the system, In general, this chapter describes the process of the projects development that have been design. All of the main function will be show to achieve the objective of this project. This application has five main functions such as Learn Iqra, Al-baghdadi Technique, Makharijul Huruf, Quizzes, and Set Reminder.

4.2 Implementation Requirement

Eclipse Android SDK is software that used to develop Basic Quran Learning Application for Adult application. In Eclipse Android SDK, it provides many items that suit to android application. So it eases the developer to develop android application. First thing need to do before starting the developing is download the Eclipse Android SDK. After that, java development kit (JDK) need to install and need to setting path correctly to ensure it functioning well to support java on Android SDK.

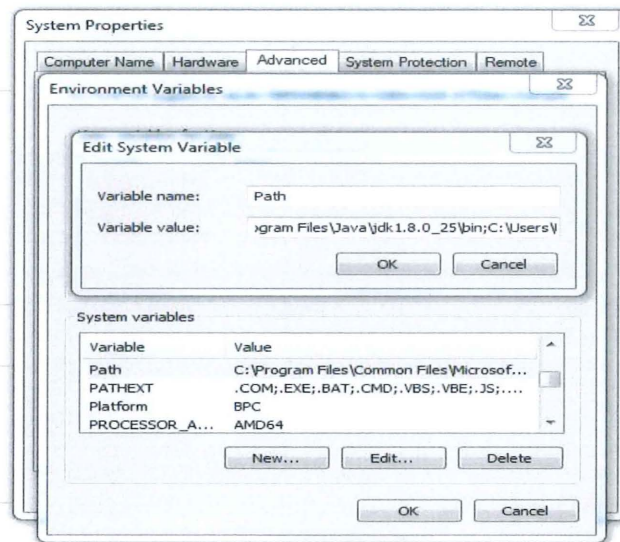


Figure 4.1: Setting path for Java Development Kit (JDK)

For Android SDK, its need to download APIs package before develops the application. APIs in easy word is android version. APIs has many levels, from API 8 and the newer is API 22. APIs level serves a key role in ensuring the best possible experience for users and application developers. It lets the Android platform describe the maximum framework API revision that it supports and it also lets the system negotiate the installation of applications on the user's device, such that version-incompatible applications are not installed. For this project I use API level 17 as minima sdk version and API level 19 as maxima sdk version.

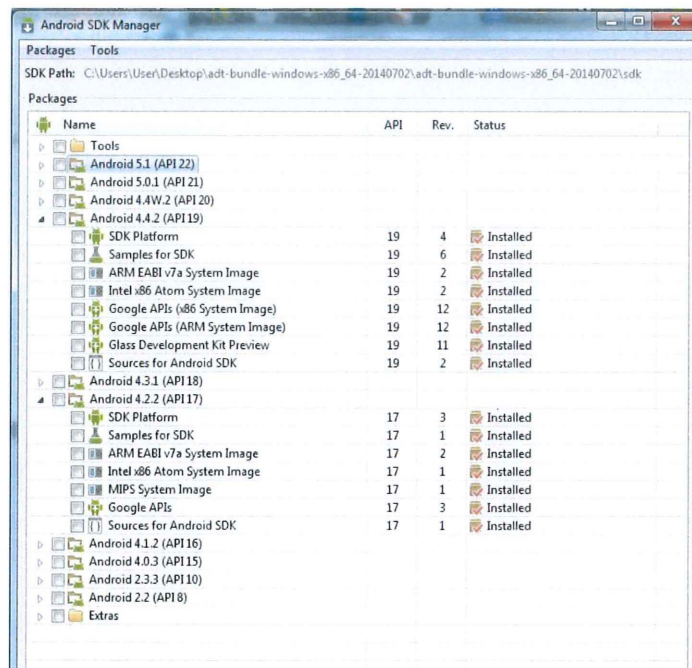


Figure 4.2: Android SDK manager to download API package

4.3 Implementation of the System

As to achieve the one of the main objectives, to build a two-way interaction function between user and application, the user interface is one of the main aspects which are concern. Without good interface, user may difficult to interact with application. Therefore, the user interface for this application designed with neat and tidy and not too complicated.

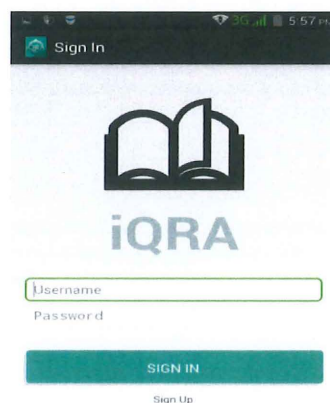


Figure 4.3: User Interface for sign up



Figure 4.4: User Interface for Menu



Figure 4.5: User Interface for selecting Iqra' books

4.4 Declaration of Code

4.4.1 Coding to Create Database Table

Figure 4.6 below shows the source code for create SQL Lite database table for login function.

```
public class LoginDataBaseAdapter
{
    static final String DATABASE_NAME = "iqrlogin.db";
    static final int DATABASE_VERSION = 1;
    public static final int NAME_COLUMN = 1;
    // TODO: Create public field for each column in your table.
    // SQL Statement to create a new database.
    static final String DATABASE_CREATE = "create table "+ "LOGIN"+
        "( "+ "ID"+ " integer primary key autoincrement,"+ "USERNAME text,PASSWORD text); ";
    // Variable to hold the database instance
    public SQLiteDatabase db;
    // Context of the application using the database.
    private final Context context;
    // Database open/upgrade helper
    private DataBaseHelper dbHelper;
    public LoginDataBaseAdapter(Context _context)
    {
        context = _context;
        dbHelper = new DataBaseHelper(context, DATABASE_NAME, null, DATABASE_VERSION);
    }
}
```

Figure 4.6: Code for create database table on SQL Lite for login function

4.4.2 Coding for User Sign Up

```
public void onClick(View v) {
    // TODO Auto-generated method stub
    String userName = txtUnSu.getText().toString();
    String password = txtPassSu.getText().toString();
    String confirmPassword = txtPassSuC.getText().toString();

    // check if any of the fields are vacant
    if(userName.equals("")||password.equals("")||confirmPassword.equals(""))
    {
        Toast.makeText(Signup.this, "Please fill all information", Toast.LENGTH_LONG).show();
        return;
    }
    //check if both password matches
    if(!password.equals(confirmPassword))
    {
        Toast.makeText(Signup.this, "Password not match", Toast.LENGTH_LONG).show();
        return;
    }
    else
    {
        // Save the Data in Database
        loginDataBaseAdapter.insertEntry(userName, password);
        Toast.makeText(Signup.this, "Account successfully created", Toast.LENGTH_LONG).show();
        Intent signin = new Intent(Signup.this,SignIn.class);
        startActivity(signin);
    }
}
```

Figure 4.7: Code for user sign up

Figure 4.6 show the code of sign up. User must create account first before using this application. For create account, user just need to fill the username and password.

4.4.3 Coding for User Sign in

```
public void onClick(View v) {
    // TODO Auto-generated method stub

    // get The User name and Password
    String userName = txtUrnameLog.getText().toString();
    String password = txtPassLog.getText().toString();

    // fetch the Password form database for respective user name
    String storedPassword = loginDataBaseAdapter.getSingleEntry(userName);

    // check if the Stored password matches with Password entered by user
    if(password.equals(storedPassword))
    {
        Toast.makeText(SignIn.this, "Login Successfull", Toast.LENGTH_LONG).show();
        Intent mainMenu = new Intent(SignIn.this, MainMenu.class);
        startActivity(mainMenu);
    }
    else
    {
        Toast.makeText(SignIn.this, "Username or Password does not match", Toast.LENGTH_LONG).show();
    }
}
```

Figure 4.8: Code for user sign in

Figure 4.8 show the code for sign in. User must to sign in to enter the main menu.

4.4.4 Coding for Produce Sound of Hijaiyah Letter

```
final MediaPlayer mp = MediaPlayer.create(Level11.this, R.raw.a);
```

```
public void onClick(View v) {
    // TODO Auto-generated method stub
    mp.start();
}
```

Figure 4.9: Code for produce hijaiyah letter's sound

Figure 4.9 show the code for sound of hijaiyah letter. The sound is needed in this application as a guide to the user to pronounce the hijaiyah letter.

4.4.5 Coding for Quizzes

```

final SharedPreferences sharedPreferences = getSharedPreferences("answer", 0);
btnQAa.setOnClickListener(new View.OnClickListener() {

    @Override
    public void onClick(View v) {
        // TODO Auto-generated method stub
        SharedPreferences.Editor editor = sharedPreferences.edit();
        String ans = txtQAa.getText().toString();
        if (ans.equals("Aa")||ans.equals("aa"))
        {
            editor.putInt("ans_value", 1);

            Intent next = new Intent(Quizzes11a.this,Quizzes11b.class);
            startActivity(next);

            Toast.makeText(Quizzes11a.this, "Correct Answer", Toast.LENGTH_LONG).show();
        }
        else
        {
            editor.putInt("ans_value",0);

            Intent next = new Intent(Quizzes11a.this,Quizzes11b.class);
            startActivity(next);

            Toast.makeText(Quizzes11a.this, "Wrong Answer", Toast.LENGTH_LONG).show();
        }

        editor.commit();
    }
}

```

Figure 4.10: Code for quiz function

Figure 4.10 show the code for quiz function. In that code contain a correct answer for the quiz. It also contains a mark for a quiz. If user answers correctly, the mark is 1 and if user answers wrong, the mark is 0.

4.4.6 Coding to Get Total Score of Quizzes

```
public void initControls() {  
  
    q1Score = (TextView)findViewById(R.id.q1Score);  
    q2Score = (TextView)findViewById(R.id.q2Score);  
    q3Score = (TextView) findViewById(R.id.q3Score);  
    q4Score = (TextView) findViewById(R.id.q4Score);  
    q5Score = (TextView) findViewById(R.id.q5Score);  
    final_score = (TextView)findViewById(R.id.final_score);  
  
    final SharedPreferences sharedPreferences = getSharedPreferences("answer", 0);  
  
    int q1Ans = sharedPreferences.getInt("ans_value", 0);  
    int q2Ans = sharedPreferences.getInt("ans_value1", 0);  
    int q3Ans = sharedPreferences.getInt("ans_value2", 0);  
    int q4Ans = sharedPreferences.getInt("ans_value3", 0);  
    int q5Ans = sharedPreferences.getInt("ans_value4", 0);  
  
    finalscore = q1Ans + q2Ans + q2Ans + q4Ans + q5Ans;  
    final_score.setText(finalscore + "/5");  
}
```

Figure 4.11: Code for calculate score of quizzes

Figure 4.11 show the code for calculate total score of quizzes. The mark that user get form each quiz will pass to quiz score section to calculate total mark. SharedPreferences function is used to passing mark form each quiz to quiz score section to calculate total mark.

4.4.7 Coding for Set Reminder Function

```

public void onClick(View v) {
    // TODO Auto-generated method stub
    datePicker = (DatePicker) findViewById(R.id.datePicker);
    timePicker = (TimePicker) findViewById(R.id.timePicker);

    //---use the AlarmManager to trigger an alarm---
    AlarmManager alarmManager = (AlarmManager) getSystemService(ALARM_SERVICE);

    //---get current date and time---
    Calendar calendar = Calendar.getInstance();

    //---sets the time for the alarm to trigger---

    calendar.set(Calendar.YEAR, datePicker.getYear());
    calendar.set(Calendar.MONTH, datePicker.getMonth());
    calendar.set(Calendar.DAY_OF_MONTH, datePicker.getDayOfMonth());
    calendar.set(Calendar.HOUR_OF_DAY, timePicker.getCurrentHour());
    calendar.set(Calendar.MINUTE, timePicker.getCurrentMinute());
    calendar.set(Calendar.SECOND, 0);

    //---PendingIntent to launch activity when the alarm triggers-
    Intent i = new Intent("psm2.projectF.ReminderNotification");

    i.putExtra("NotifID", 1);

    PendingIntent displayIntent = PendingIntent.getActivity(getBaseContext(), 0, i, 0);

    //---sets the alarm to trigger---
    alarmManager.set(AlarmManager.RTC_WAKEUP, calendar.getTimeInMillis(), displayIntent);

    Toast.makeText(SetReminder.this, "Reminder is Set", Toast.LENGTH_LONG).show();
}

```

Figure 4.12: Code for set reminder

Figure 4.12 above show code for set reminder. To use this function, user just needs to set time and day. After that, the reminder will notify user based on time that user set.

4.4.8 Coding for Reminder Notification

```

int notifID = getIntent().getExtras().getInt("NotifID");

//---PendingIntent to launch activity if the user selects
// the notification---

Intent i = new Intent("psm2.projectF.ReminderDetail");
i.putExtra("NotifID", notifID);

PendingIntent detailsIntent = PendingIntent.getActivity(this, 0, i, 0);

NotificationManager noti = (NotificationManager) getSystemService(NOTIFICATION_SERVICE);
Notification notif = new Notification(R.drawable.ic_launcher, "Time to Learn Iqra!", System.currentTimeMillis());

CharSequence from = "Iqra Remainder";
CharSequence message = "This is for your information,Time to Learn Iqra.";
notif.setLatestEventInfo(this, from, message, detailsIntent);

//---100ms delay, vibrate for 250ms, pause for 100 ms and
// then vibrate for 500ms---

notif.vibrate = new long[] {100,250,100,500};

```

Figure 4.13: Code for reminder notification

Figure above show code for notification. This code is to make reminder pop-up when reached time based on time that user set.

4.5 Strength, Weakness and Challenges during the Development Process

4.5.1 Strength

- Not need worries about cost and where to download Android SDK because it is free and available on internet.
- The Android SDK is available for Windows, Mac and Linux, so you don't need to pay for new hardware to start writing applications.
- Have many android tutorials on internet that help me to do this project.

4.5.2 Weakness

- Android SDK built on Java. It is some challenges to me because I not have enough basic of Java.
- Time constraints forced me to complete this project in a rush.

CHAPTER 5

RESULT AND DISCUSSION

5.1 Introduction

This chapter will discuss about the result of the system, It will include the final stage of the prototype of the system .This part are the most important part to keep the objective of this project are achieve. Besides that, this chapter also will discuss about the constraint of the project. From the constraint of the system it will give more clear result to planning and arrangement of the system for the future work.

5.2 Testing Analysis

Basic Quran Learning Application for Adult (IQRA') is mobile application that developed specially for adult whom want learn to read Quran. Basic Quran Learning Application for Adult (IQRA') will be run on android smartphone in the testing and developing phase. Testing is do for ensure system is free from error and can run properly. If have some error it will fix immediately.

Table 5.1 Hardware and Software Requirement for testing Environment

Hardware and software	Description
Android Smartphone	Lenovo A916
Android 4.4.2 (Kitkat)	Operating system
Eclipse juno	Interface and coding

5.3 Result Analysis

The developed application, Basic Quran Learning Application for Adult (IQRA') has met all the objective of this project, which are:

- a) To design a graphical user interface that has more usability in this application

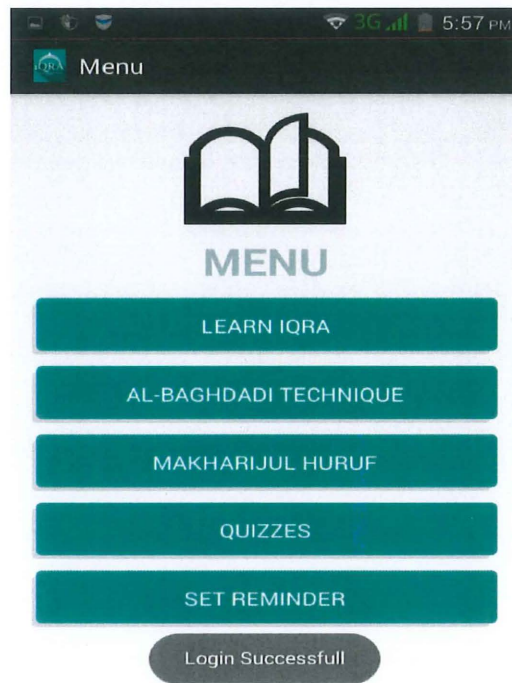


Figure 5.1: Main interface of Basic Quran Learning Application for Adult (IQRA')

Figure 5.1 shown the main menu of this application which consist of function Learn Iqra, Al-Baghdadi Technique, Makharijul Huruf, Quizzes and Set Reminder. Each function will conduct to difference graphical user interface.

- b) To create pronunciation sound as a guide to user

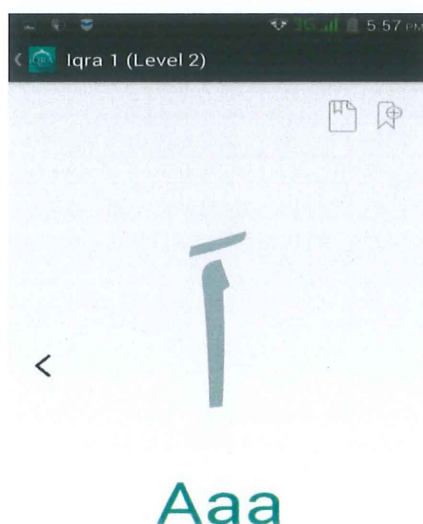


Figure 5.2: Learn Iqra interface.

Figure 5.2 shown the learn Iqra interface. Pronunciation sound will be produce when user touch on the hijaiyah letter.

- c) To build a two –way interaction function between user and application

This objective achieved in Learn Iqra, quizzes and reminders function. In learn iqra function, it will produce sound when user touch on hijaiyah letter. In quizzes function, it occur when user answer the quizzes. It will show if answer is correct or incorrect and in reminder function it will notify user when set the reminder.

5.4 Advantages And Disadvantages

The advantages of this application is user not need to bring any iqra book and can read iqra at anywhere by itself only using android smartphone. Besides that, this application has pronunciation sound that can guide user to pronounce the hijaiyah letter although without other to teach user. Next, user also can test their understanding of what they learn directly using this application. It will done at quizzes section. Lastly , this application is attractive and user friendly. So it will increases the user interest to learn iqra. But this application not all perfect. It also have disadvantages. The disadvantages of this application is user cannot to bookmark the page when they stop reading. So user need to starting from beginning every time they want use this application.

5.5 Constraint

5.5.1 Development Constraint

While develop Basic Quran Learning Application for Adult (IQRA'), there are some constraint that have to faces such as the limitation of time, limitation of information and so on. Time has been a biggest constraint since the process of development is running parallel during lecture hour. As a student, time management is important so that both of it can be run smoothly. Besides, the limitation of information also has been constraint while finishing the project. To convert the information form the Iqra books to digital is not simple as that. It is because iqra syllabus is too many and need lot of time to convert it besides also need more time to record voice to make pronunciation sound.

5.5.2 Documentation Constraint

To develop a system, a proper document should be prepared. While developing this application, there are some constraints in document phase. For example, lack of idea and knowledge to do documentation.

5.5.3 Technical Knowledge

In developing the this application using java on eclipse, the lack of knowledge of java language is also a constraint. A lot of time needed to explore the language and pattern that suitable to apply for development very well.

5.6 Future Enhancement

There are few ways in order to complete this Basic Quran Learning Application for Adult (IQRA') to be more practical implemented. For current application, it only cover iqra 1 and iqra 2. So for future enhancement, it will cover all syllabus of iqra from iqra 1 to iqra 6. Some function that not done well in current application such as al-Baghdadi technique also will be completed to make this application perfect. Besides that, these applications also will be developed for iOS smartphone so that iOS user also can use this application.

5.7 Conclusion

The Basic Quran Learning Applications for Adult (IQRA') are useful application to who want learn to read al-Quran from beginning. It is easy way to learn because this application support android device and everyone have this device today. It is special because everyone does not to bring the iqra books again to learn iqra. Besides that, it has many functions to ease the user such as pronunciation sound of each alphabet, quizzes to test user understanding and remainder to remind user to learn Iqra.

References

- [1] Android Application Components. (2015). Retrieved May 10, 2015, from http://www.tutorialspoint.com/android/android_application_components.htm
- [2] Android SQLite Database Tutorial. (2011, September 27). Retrieved March 13, 2015, from <http://www.androidhive.info/2011/11/android-sqlite-database-tutorial/>
- [3] #2 Android SharedPreferences Tutorial Part 1: Android Tutorial For Beginners [HD 1080p]. (2013, November 9). Retrieved April 16, 2015, from <https://www.youtube.com/watch?v=riyMQiHY3V4&list=PLonJJ3BVjZW5JdoFT0Rlt3ry5Mjp7s8cT&index=2>
- [4] HOME. (2014). Retrieved April 16, 2015, from <http://www.codedisqus.com/0zxgqVqgjk/calculate-score-for-a-quiz-on-android.html>
- [5] A. (2010). Retrieved March 2, 2015, from <http://www.ulilalbab.wen.ru/menu/mhrijulhuruf.html>
- [6] TPA. (2011). Retrieved March 2, 2015, from <http://irfan-tarakan.blogspot.com/2013/05/makhorijul-huruf.html>
- [7] Android MediaPlayer Tutorial. (2015). Retrieved May 5, 2015, from http://www.tutorialspoint.com/android/android_mediaplayer.htm
- [8] Playing audio in an Android application | COMPILETIMEERROR.com. (2012). Retrieved May 5, 2015, from <http://www.compiletimeerror.com/2013/10/playing-audio-in-android-application.html>
- [9] Blundell. (2012, February 21). Retrieved April 17, 2015, from <http://blog.blundell-apps.com/notification-for-a-user-chosen-time/>
- [10] Android Tutorials for Beginners. (2013, July 8). Retrieved April 17, 2015, from <http://www.learn-android-easily.com/2013/06/scheduling-task-using-alarm-manager.html>
- [11] Alarm or Reminder App for Android. (2008). Retrieved April 17, 2015, from <https://developer.appcelerator.com/question/131088/alarm-or-reminder-app-for-android>
- [12] Android Login and Registration with PHP, MySQL and SQLite. (2012, January 31). Retrieved April 6, 2015, from <http://www.androidhive.info/2012/01/android-login-and-registration-with-php-mysql-and-sqlite/>

Appendix

Gantt chart for PSM 1 and PSM 2

