Kingdom of Saudi Arabia
Ministry of Higher Education
Qassim University
College of Computer
Information Technology Department

ةيدوعسلا ةيبرعلا ةكلمملا
يلاعلا ميلعتلا ةرازو
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BUILD AN AZKAR APPLICATION USING ANDROID

Presented by:

Khawla alQorian **301202212**

Supervisor:

Dr. Zameer Adhoni

A project report submitted in partial fulfillment of the requirements for B.Sc. degree in Information Technology.

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It is certified that project report has been prepared and written under my direct supervision and guidance. The project report is approved for submission for its evaluation.

Dr. Zameer Adhoni

D e d i c a t i o n

Thanks to Allah first and foremost and then offer my sincere thanks to those who contributed to the completion of this project ,especially we thank the supervisor of this project, Dr. Zameer Adhoni.

Khawla alQorian

A c k n o w l e d g e m e n t

We wish to express our special deep thanks, sincere gratitude, and indebtedness to **Dr. Zameer Adhoni**, for allowing us to work under his supervision in this project and for his effort to guide us for long time since we started this project. The project idea and proposal are given by him. Also, our heartfelt thanks go to our parents, our friends and to every person who has helped us to complete this project.

Khawla alQorian

Abstract

This project's main goal is to design an Islamic application for the Android Mobile Operating System within the Eclipse IDE that will be appropriate and compatible with Mobile Smart Phones running at least Android OS 2.3.

There has been a big increase in Android application in the last few years. Android is slowly becoming the most popular phone OS, so it is only natural that developers are starting to turn their attention to Android.

Azkar the most important applications for every Muslim, it is provide most of the Azkar and Duaa from the Quran and Sunnah.

Azkar will hopefully help many Muslims to read their daily azkar easily, it provides many Duas that is keep you contact with Allah and bring peace and prosperity to your life by reading and listening to them.

CHAPTER 1

INTRODUCTION

This chapter provides a short introduction to the background and problem area of this project.

1.1 Introduction

Android is a software stack for mobile device that includes an operating system, middleware and applications. Android is powered by Linux kernel, initially developed by Google and later the Open Handset Alliance. It allows developers to write managed code in java language, controlling the device via Google developed java library .Not like other famous rivals such as Microsoft window mobile or Symbian OS, android use developed java library because java is not just a programming language; it's a complete dynamic platform offers powerful support for embedded devices that must maintain some form of dynamic behavior. Moreover, java runtime environment can be integrated into almost any embedded device while java virtual machine includes interfaces that allow it to be readily integrated with RTOS (Real-Time Operating System) and other native library. The RTOS supports multi-thread (scheduling), memory management, networking, and peripheral management for java VM.

1.2 Project Scope

The scope of the project is to build a bridge between the human and his God by know what must be studied in learning of Islamic Azkar daily and to remind the definition and understanding of Azkar, the application gives you the functionality to Read, Listen and remember your Daily azkar in modern style. Azkar provide you with multiple sections of azkar, such as: Morning Azkar, Evening Azkar, After Prayer Azkar and Ablution Azkar.

1.3 Problem Specification

Application Azkar the most important applications Android for every Muslim, it is provide most of the Azkar and Duaa from the Quran and Sunnah. Azkar and Duaa application contains a hundreds of Azkar Islamic, and each Muslim can use it in his daily life, azkar by Arabic and English language, The user can write azkar in the search feature or select it from a list of Azkar and Dua that he wants Then the desired Azkar appears a new window With Audio, This Application contains Duas after FARD Salah (With Audio) Best and authentic selection of Dhikr & Azkar to be recited after every Fard Salah, Morning Azkar (With Audio) Authentic Dhikr & Azkar to be recited from Sub-e-Sadik to Sunrise (You may also listen to the audios by selecting ‘Play Dua’),Evening Azkar (With Audio) Authentic Dhikr & Azkar to be recited from Asr to Sunset (You may also listen to the audios by selecting ‘Play all Dua'), Daily Essential Dua's (With Audio)Some of the most authentic and important Dua's for all ages (Highly recommended for children) to be implemented for various occasions., Quránic Dua’s begins with ‘Rabbana’ (With Audio)Best Selection of Quránic Dua's beginning with 'Rabbana' which has been selected form over 40 Dua's from the Qur'an.

1.4 Goals and Objectives

1. The goal of this project is designed to help you read all the AZKARs and DUAs in one place.
2. Provide all what Muslims need to say during the whole time.
3. Support both Arabic & English language.
4. Beside the text view there is an audio which helping to memorize.
5. Very easy to use App.
6. Valuable ISLAMIC application for the Android marketplace.

1.5 Motivation

Today's society is well versed in different forms of Education. Islamic applications represent one of those forms and can cover many different activities or topics. Azkar and Dua, for example, is a very popular application that has a great following in many parts of the Islamic world. One of the most convenient ways to learn these Azkar and Dua is through the smart phone. Smart phones are small, portable, and widely used as a digital device. Furthermore, bringing Azkar application to the smart phone would allow it to be used by people who would have gone on a bus, or other inconvenient locations where Azkar book are not readily available. Therefore, the main motivation for this project is giving something for the Umma, which we consider it as a great achievement in the World and the Afterworld.

1.6 System Requirement

Below are the software and hardware requirements for developing this application (not for installing the application) [1].

1.6.1 Software Requirements

Operating System: Windows XP or higher / Mac OS X 10.5.8 or later / Linux Platform: Android SDK Framework IDE: Eclipse 3.5(Galileo) or higher Android Emulator: SDK Version 2.2 or Higher.

Database: MySQL Technologies used: Java, XML.

1.6.2 Hardware Requirements

Processor: P IV or higher

RAM: 256 MB

Space on disk: minimum 250MB

1.7 Project Plan and Schedule

In Project definition Task (starts at 2-9-2013 _ Finishes at 13-9-2013):

• Identify the project team.

• Define the project task.

• First contact with our supervisor and discuss about the project. Read about our project

In Planning Task (starts at 14-9-2013 _ Finishes at 30-9-2013): • Find the goals, objectives and Motivation. • Documenting Chapter 1.

• Specify the problems, the Methodology, the feasibility study. • Documenting Chapter 2.In Analysis Task (starts at 1-10-2013 _ Finishes at 28-10-2013):

• Determine the Requirements of project.

• Build the Structure of Requirements.

• Documenting the first part of Chapter 3 [System Plan and Schedule & System Analysis].

In Design Task (starts at 29-10-2013 _ Finishes at 29-11-2013): • Design Use Case Diagram.

• Design the DFD. • Design the Activity Diagram.

• Documenting the second part of Chapter 3 [System Design].

• Implementation Task (starts at 2-2-2014 and Finishes at 8-5-2014) .

• Last task will be reviewing the final report and making presentation, which is

(Starts at 8-5-2014 and Finishes at 10-5-2014).

	Activity	Days / Total	Start	End
1	**Definition Task**	10.0	02-09-13	13-09-13
1.1	Identify the project team	2.0	02-09-13	03-09-13
1.2	Defin the project task	2.0	04-09-13	05-09-13
1.3	Contact with our supervisor	2.0	08-09-13	09-09-13
1.4	Read about the project	4.0	10-09-13	13-09-13
2	**Planing**	17.0	14-09-13	30-09-13
2.1	Find the goals, objectives, and motivations	4.0	14-09-13	17-09-13
2.2	Documenting chapter 1	7.0	18-09-13	24-09-13
2.3	Specify the system methodology	5.0	25-09-13	29-09-13
2.4	Review chapter 1 and 2	1.0	30-09-13	30-09-13
3	**Analysis**	28.0	01-10-13	28-10-13
3.1	Determine the requirments of the project	9.0	01-10-13	09-10-13
3.2	Structure of the requirments	8.0	10-10-13	17-10-13
3.3	Documenting the first part of chapter 3	11.0	18-10-13	28-10-13
4	**Design**	39.0	29-10-13	29-11-13
4.1	Design use case Diagram	6.0	29-10-13	03-11-13
4.2	Design DFD	11.0	04-11-13	14-11-13
4.3	Design ER	14.0	15-11-13	28-11-13
4.4	Documenting the second part of chapter 3	6.0	23-11-13	28-11-13
4.5	Review Chapter 3	2.0	28-11-13	29-11-13
5	**Implementation**	96.0	02-02-14	08-05-14
5.1	Implement the project	89.0	02-02-14	01-05-14
5.2	Documneting chapter 4	7.0	02-05-14	08-05-14
6	**Review the final report**	3.0	08-05-14	10-05-14
6.1	Sample report of our document	3.0	08-05-14	10-05-14

Figure 1.1: Project schedule

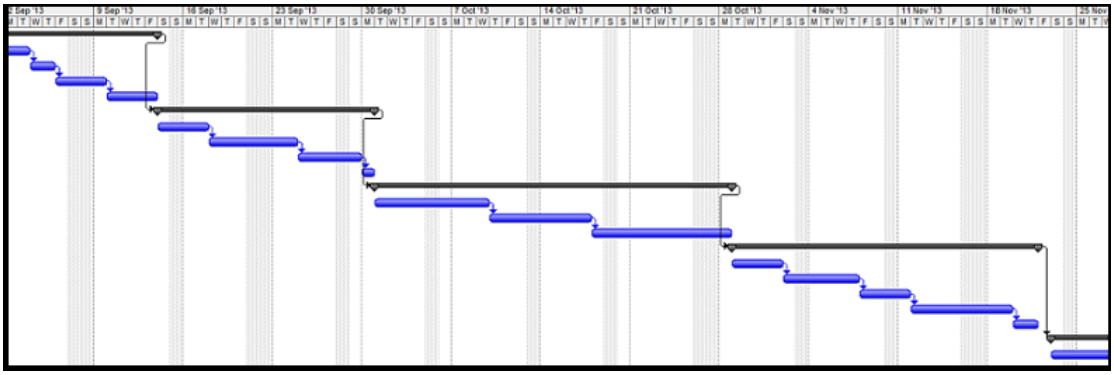


Figure 1.2: Project Gantt Chart

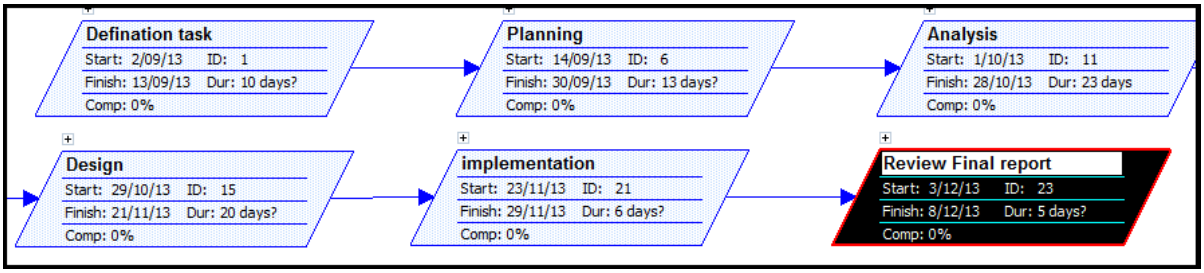


Figure1.3: Project Network Diagram

1.8 Outline of the Project

This report covers the design, implementation, and testing of the AZKAR application:

· Chapter 1 details the working practices utilized throughout the project.

· Chapter 2 covers some useful background information, which helps in understanding the report.

· Chapter 3 details some of the requirements set out at the start for the AZKAR application in terms of appearance, and user operability. And it covers the design of AZKAR, and the planning for which programming classes were needed, and how they would interact with each other.

· In Chapter 4 the report discusses specific details on each of the classes and what their role is regarding the operation of AZKAR.

· Chapter 5 gives a conclusion and closing thoughts on the AZKAR project. The section also details some recommendations for future work on AZKAR application.

CHAPTER TWO

LITERATURE AND METHODOLOGY

The chapter describes some existing mobile Islamic application, and presents the proposed system and the methodology used to develop it.

2.1Introduction

Android, the world's most popular mobile platform Android powers millions of phones, tablets, and other devices and brings the power of Google and the web into your hands. It's the largest installed base of any mobile platform and growing fast every day another million users power up their Android devices for the first time and start looking for apps, games, and other digital content. Android gives you a world-class platform for creating apps and games for Android users everywhere, as well as an open marketplace for distributing to them instantly. Moreover Android devices are found truly in affordable prices. Android Islamic Applications required by millions of Islam followers through the Muslim world so it attracting a lot of Developers attention which is find a huge wide spread in all Islamic region.

2.2 Current System

Azkar, which usually provided as a gift for people in the Masjid or Islamic conference. It was developed out of the desire to make it easily accessible and simple to use everywhere. [2]

Here are some Azkar apps:

2.2.1 Hisn Al Muslim

Fortress of the Muslim, Invocations from the Quran and Sunnah: is a very beautiful booklet consists of many authentic Dua's (supplications) for a Muslim to supplicate on a daily basis and on special occasions.
The application has a great function:

- Search of Hadith easy to use thanks to the auto complete text field.
- Create your own favorite list just by making a long press on a Hadith.

Figure2.1: Hisn Al Muslim

2.2.2 Dua & azkar:

Du'a and Zikr app for daily supplication and on special occasion. The app is based on the popular Hisn al Muslim book by Sheikh Sa'id Ibn Wahf Al-Qahtaani. Hisn al Muslim is a collection of authentic Du'a and Zikr. Some of the Du'a and Zikr topics in the app:

1. When waking up
2. When wearing a (new) garment
3. Before undressing
4. When starting ablution /completing the ablution
5. Upon entering / when leaving the home
6. In the morning and evening
7. Before sleep

and a lot more

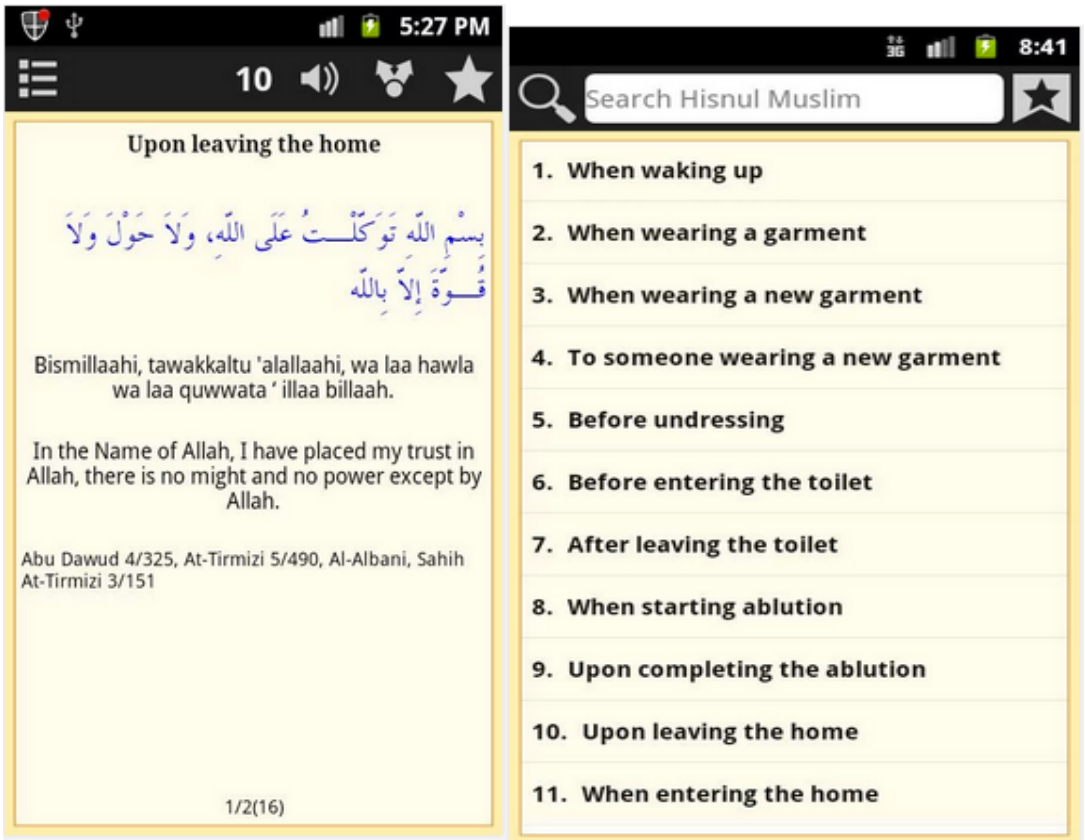


Figure2.2: Dua & azkar

2.2.3 Beautiful Dua and azkar:

This app is just an easy way to watch Dua and Azkar playlist from YouTube. Emotional Dua & Azkar is one of the best Islamic android apps with ten chapters.

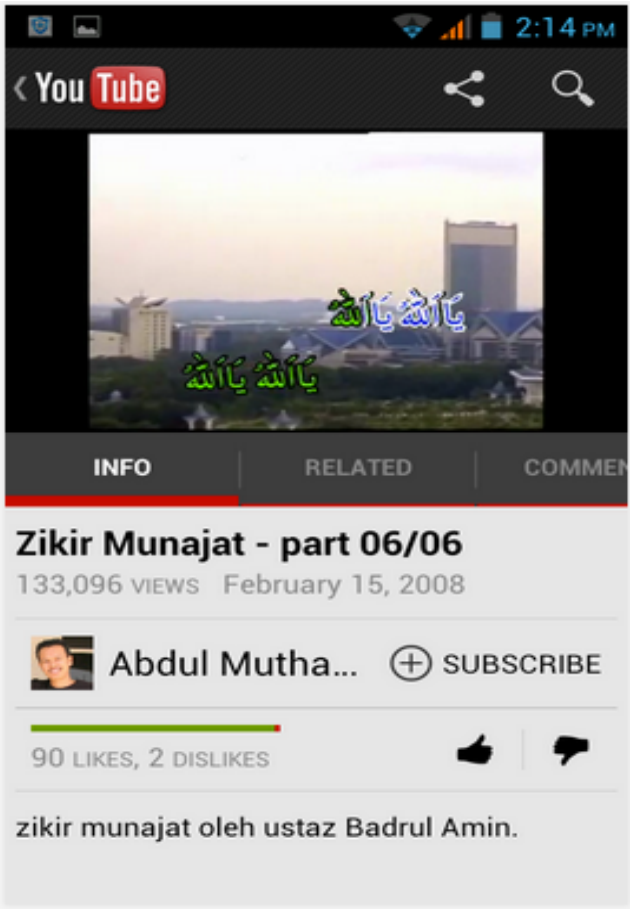


Figure2.3: Beautiful Dua and azkar

2.3 Proposed System

1. A small Islamic application that contains a collection of Azkar, Dua and supplications.
2. Provides all what Muslims need to say during the whole time.
3. The application also includes the Listening feature which helping to memorize the Dua.
4. The application will support both Arabic and English languages
5. Commensurate with all age groups.

2.4 Feasibility Study

The feasibility of the product is a question that confirms the reality to the ideas. Feasibility test is critical [3].
The dimensions that define the feasibility of project are:

2.4.1 Economic Feasibility

The project is economically feasible, as it only requires a mobile phone with Android operating system. The application is free to download once released into Android market. The users should be able to connect to Internet through mobile phone and this would be the only cost incurred on the project.

2.4.3 Technical Feasibility

As the product is being complemented by a user manual and documentation therefore there will be no problems in handling the project. The technical feasibility is high as the application can be successfully deployed on Android Emulator.

2.4.4 Behavioral Feasibility

The application is behaviorally feasible since it requires no technical guidance, all the modules are user friendly and execute in a manner they were designed to.

2.5 Methodology (SDLC)

The proposed approach in handling this project is to follow closely with the System (Software) Development Life Cycle (SDLC). The SDLC concept underpins many kinds of software development methodologies in software engineering. These methodologies form the framework for planning and controlling the creation of the application. The SDLC can be divided into several phases during the creation of the product, which is the android Touch Islamic application in this case [4].

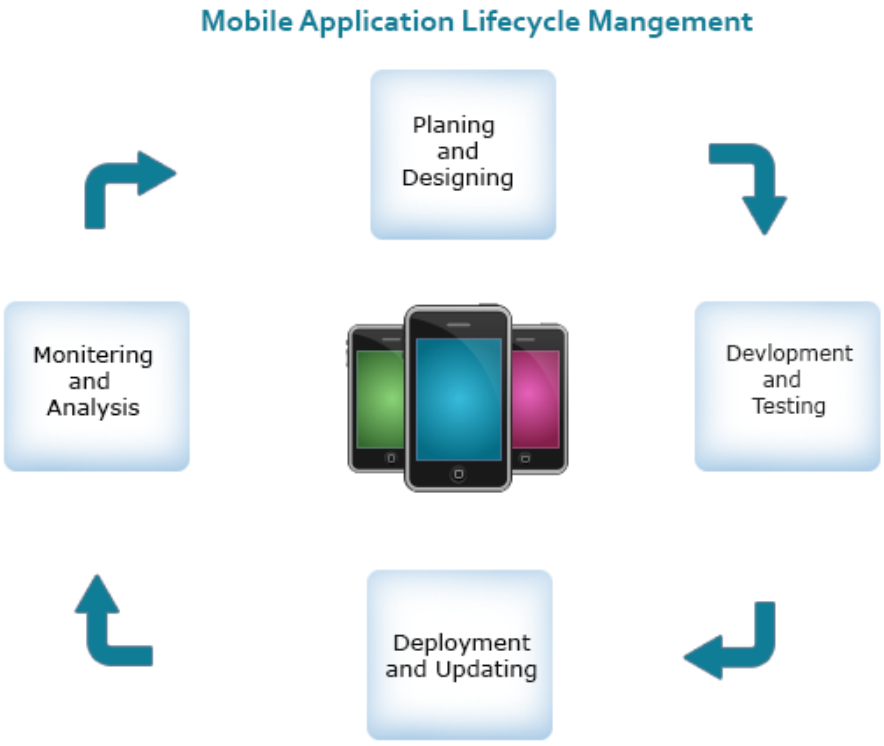


Figure2.4: Mobile Application Lifecycle Management

The following list states the task required to perform at each phase:

- Planning

  this phase is to generate a high-level view of the project to determine the goals and objective. The feasibility study is to determine what if the project is a good idea, and worth the effort and resources before implementation. During this phase, the project is evaluated in the three aspect of feasibility: economical, operational, technical.

- Requirements gathering and analysis

  To determine where the problem is in an attempt to fix the system or better enhance an existing system. In this project, the purpose is to determine if a set of requirements is suitable for the project. Requirement gathering would require to engage the users, in this case, who will be purchasing and using the application.

- Design

  In the design phase, basically we need to translate the requirements gathered into visible information described in detail, including screen layouts, business rules, process diagrams, application workflow, and other documentation. The output of this phase will describe the application in a technical manner such that the information or design elements will be sufficient in detail for the programmers to develop the application with minimal input. The design elements may include visual graphics in 3D or entity-relationship diagram and full data dictionary that will be used during the development.

- Implementation

  This phase is to develop the application in a modular manner which that will form the basic structure or output of the product. Unit testing and module testing are done at this phase by the developer.

- Testing

  The application is tested at various levels during the development cycle. Some types of testing that may be performed includes: data set testing, unit testing, system testing, integration testing, black box testing, white box testing, module testing, regression testing, automation testing and lastly user acceptance testing.

- Maintenance

  After deployment, the system may include changes and enhancements before it's decommissioning. Maintain and upgrading the application and uploading to the App Store may encourage a longer life span of the Azkar application developed.

To maintain a degree of control through the SDLC, we need to create a Gantt chart of the Work Breakdown Structure (WBS) to capture and schedule the work necessary to complete the project. The WBS elements should consist of milestones and "task" as opposed to "activities" and a definitive period. Each task should have a measurable output.

CHAPTER THREE

SYSTEM ANALYSIS AND DESIGN

In this chapter we will analyze the system, collect and list the requirements needed to build and operate the system. Then we will use these requirements to design the DFD diagrams, Activity diagrams. Finally we will display the Feasibility Study and the Methodology.

3.1 System Analysis

We will break down the system into different pieces to analyze the situation, define the system stakeholders and gather and specify the needed requirements. Analyzing the system is the most important process. It starts with analyzing the system requirements and ends with the Data Flow Diagrams (DFDs).

3.1.1 Requirement Collection

We will use a questionnaire in order to get some needed requirements includes gathering information about the suitable order of the application that would be easy for a normal user and easy to get the benefit of the application.
To identify this we searched the existing android applications in the market and gathered information about what kind of application has been done so far and what not has been attempted.

3.1.1.1 Questionnaires

Questionnaires are the feedback forms used to collect Information

We design a questionnaire to collect some requirements and to find out some problems the people face to keep reading their daily azkar.

It is very convenient and inexpensive method to collect information but sometimes the response may be Confusing or unclear and insufficient. You can follow this link that guides you to the questionnaire form:

Http://survs.com/survey/4dpc9pfwmz

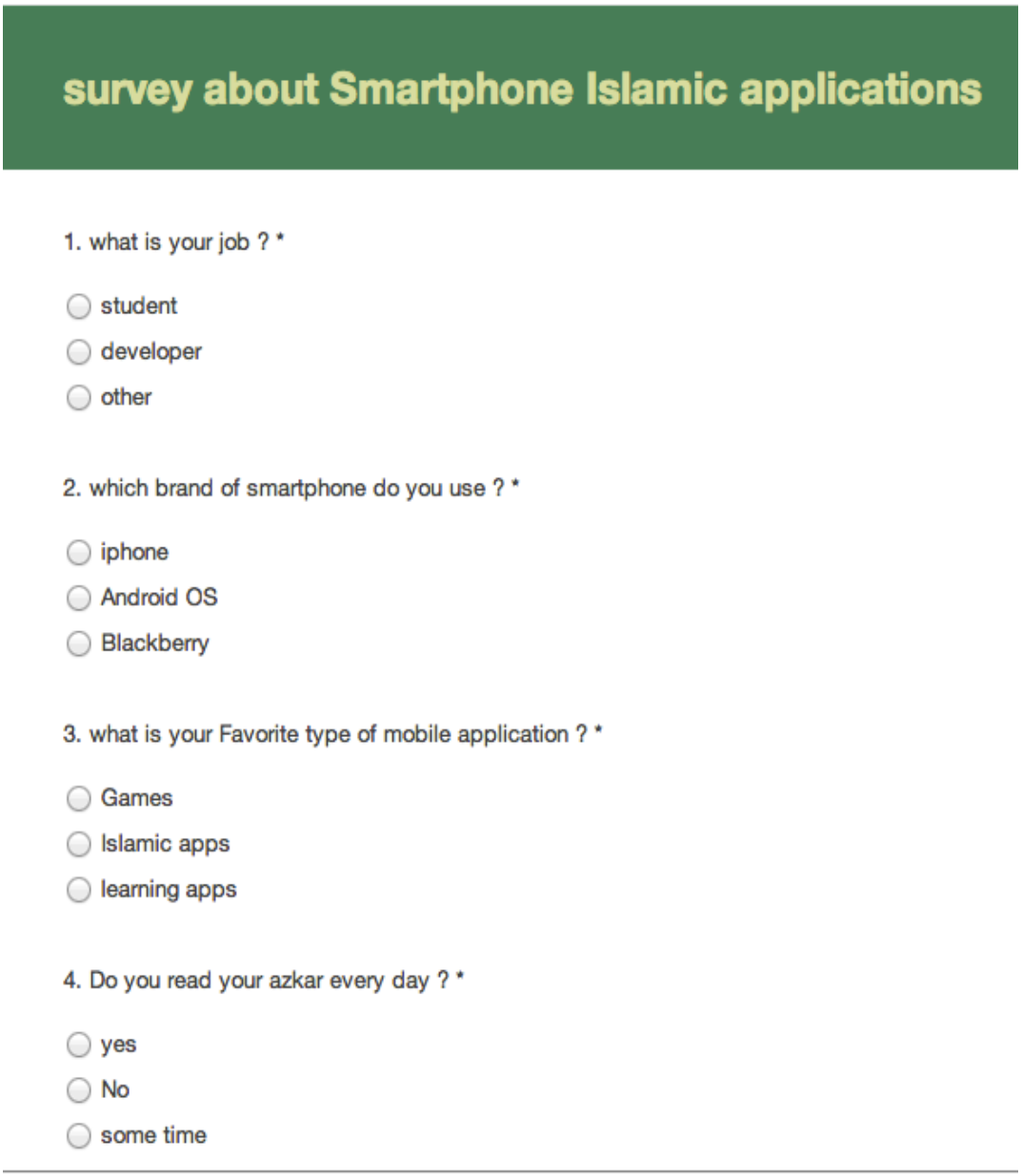


Figure 3.1: Questionnaire Android Islamic Applications

5. What do you think the best way for remind you to read your daily azkar ? *

- alert
- a piece of paper
- other way

6. Do you think that you need an application that provides many way to read your azkar ? *

- yes
- No need

7. which kind of azkar you think is the most important ? *

- morning & evening azkar
- before sleep
- after praying
- concerning the call to prayer (athan)
- seeking guidance in making a decision
- Other, please specify

8. how many azkar's application do you currently have installed ? *

- just one
- 2-5
- more than 5
- non

Figure 3.2: Questionnaire Android Islamic Applications

After distributing the questionnaire over 60 people, this is the result:

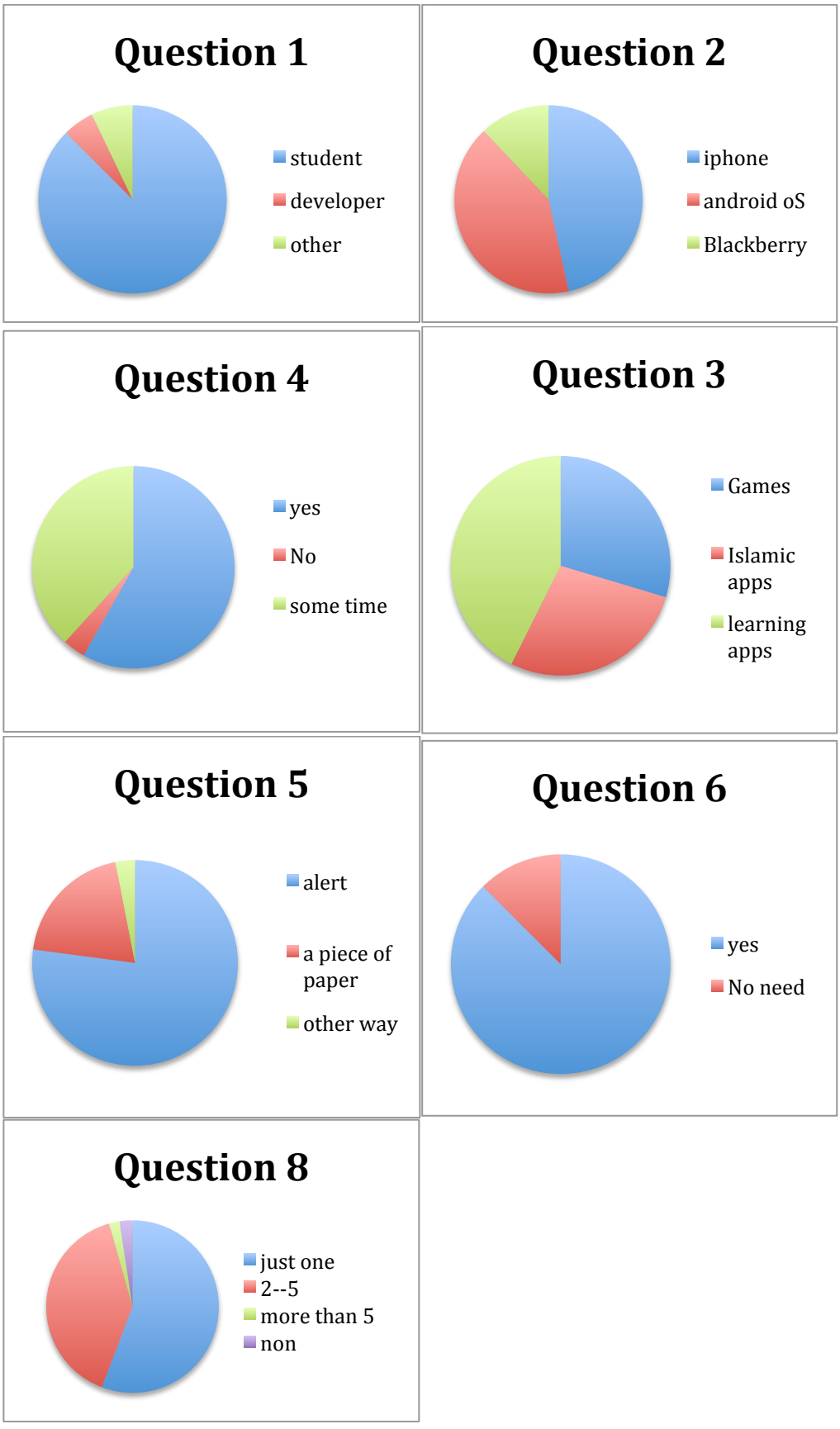


Figure 3.3: The Statistics Result for The Questionnaire

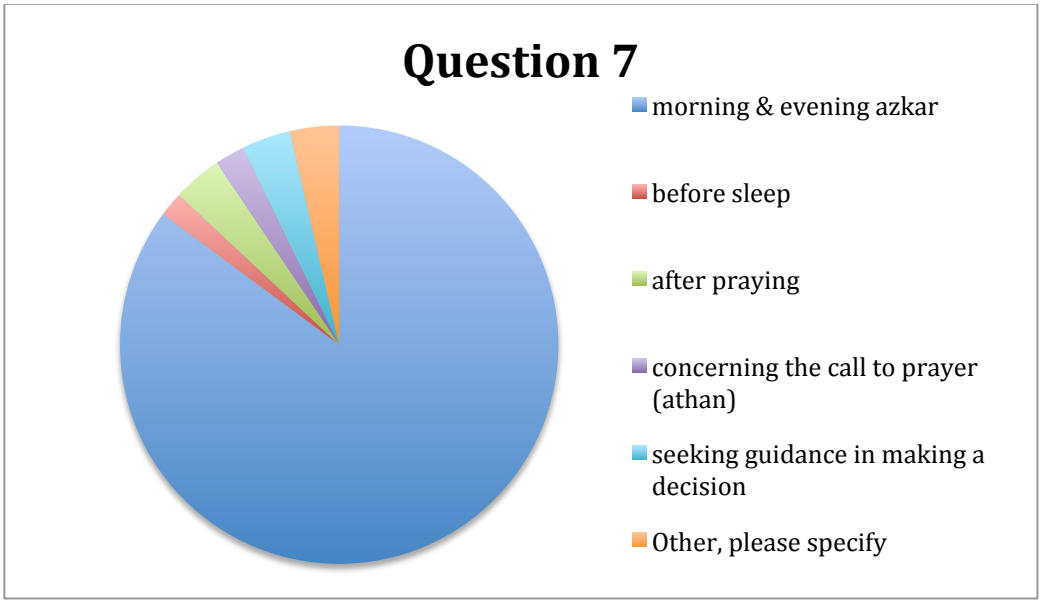


Figure 3.4: The Statistics Result for The Questionnaire

3.1.2 Requirement Studied

In this section we will show a detailed explanation about studying requirements of our project in many different types of requirements.

3.1.2.1 Nonfunctional Requirements

The non-functional requirement elaborates a performance characteristic of the system.

Typically non-functional requirements fall into areas such as:

3.1.2.1.1 Performance

Checking the fact that the system must perform as what every user expects. So in every action-response of the system, there are no immediate delays. Flexible service based architecture will be highly desirable for future extension.

3.1.2.1.2 Reliability

All application content is Invocations from the Quran and Sunnah with a very beautiful and friendly interface consists of many authentic Dua's (supplications) for a Muslim to supplicate on a daily basis and on special occasions.

3.1.2.1.3 Software Quality Attributes

3.1.2.1.3.1 Usability

Checking that the system is easy to handle and navigates in the most expected way with no delays. In that case the system program reacts accordingly and transverses quickly between its states.

3.1.2.1.3.2 Portability

Checking that the application can be used on different mobile phones other than the one for which it was created without requiring major rework. In that case, this application runs on any Android based phone irrespective of the manufacturer and Android OS version.

3.1.2.2 Functional Requirements

The purposed system depends on what are the users' needs. Users think that our system is useful for them (as shown in the Figure 3.3). They also need an application that can be trusted, and fast and they want to save their time by reading their daily azkar everywhere and no need to Internet connection for that.

3.1.3 DFDs

Data Flow Diagram is a graphic representation of the flow of data or information through a system. It has four main elements, some rules to create and connect these elements, and several levels from general level (context diagram) to more specified levels.

3.1.3.1 Context Diagram

The context diagram is a top-level view of the system that shows the general view of a whole application boundaries and scope. It describes the main objective of the system and the entities involved.

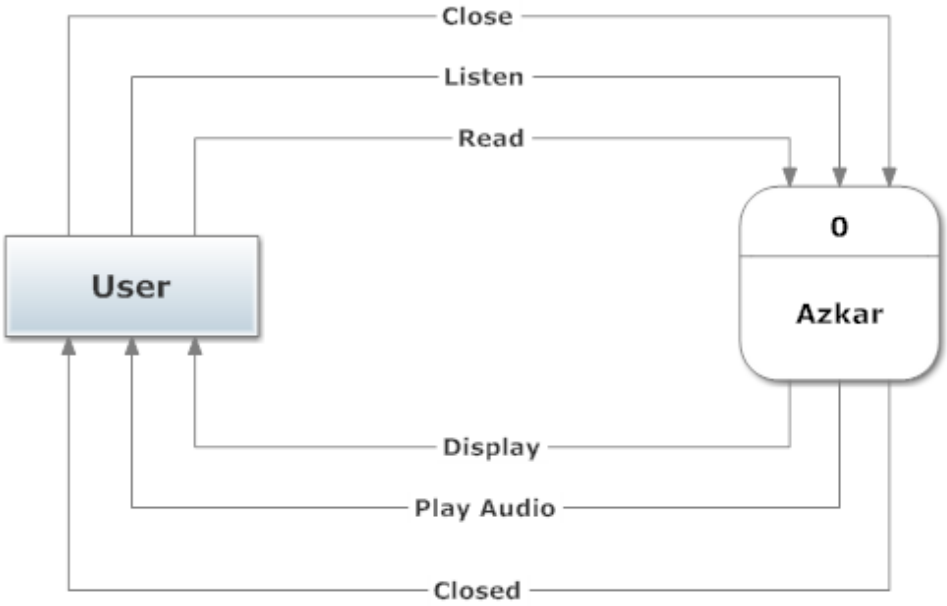


Figure3.5: Context Diagram

3.1.3.2 Level-0 Diagram

Level-0 diagram is a data flow diagram that represents a system's major Processes, data flows, and data stores at a high level of detail.

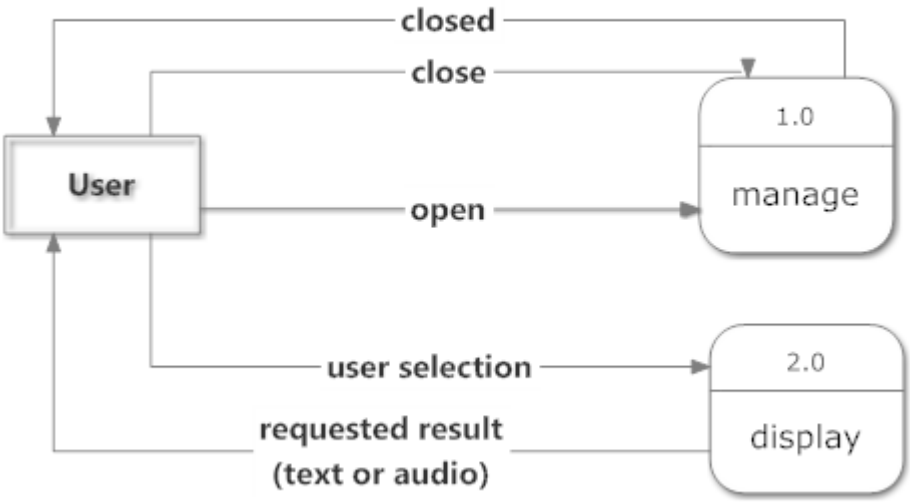


Figure3.6: Level-0 Diagram

3.1.3.3 Level-1 diagram

Level-1 diagram shows the processes that comprise a single process on the level-0 diagram, and how information moves from and to each of these processes. Level-1 diagrams may not be needed for all level-0 processes.

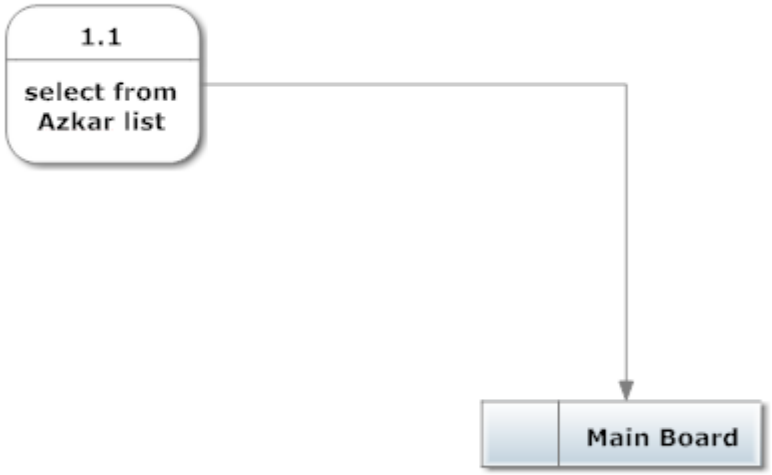


Figure3.7: Level-1 Diagram

3.2 System Design

Systems design is the process of defining the architecture, components, modules, interfaces, and data for a system to satisfy specified requirements. One could see it as the application of systems theory to product development. There is some overlap with the disciplines of systems analysis, systems architecture and systems engineering. [5]

3.2.1.Use Case

A use case diagram at its simplest is a representation of a user's interaction with the system and depicting the specifications of a use case. A use case diagram can portray the different types of users of a system and the various ways that they interact with the system. This type of diagram is typically used in conjunction with the textual use case and will often be accompanied by other types of diagrams as well.

3.2.1.1 *Use case Diagram*

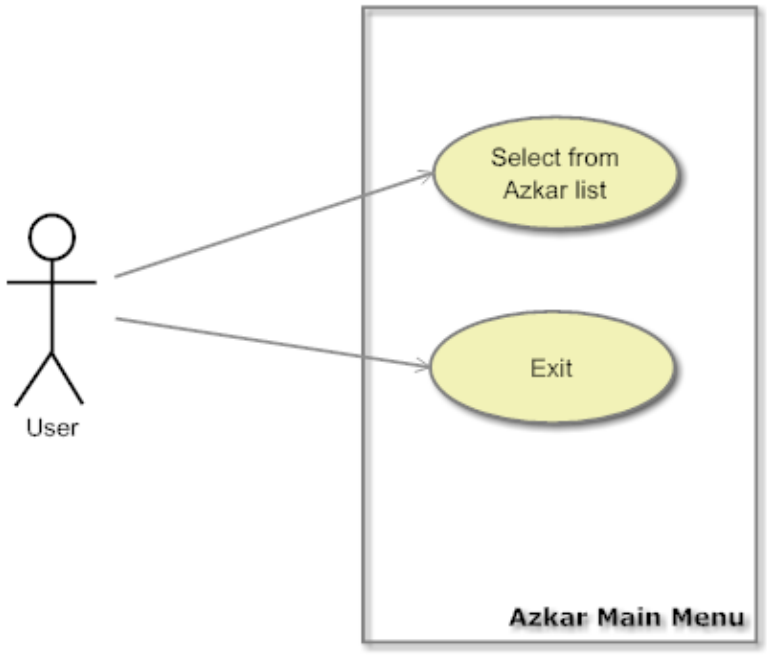


Figure 3.8: Azkar Main Menu Use Case Diagram

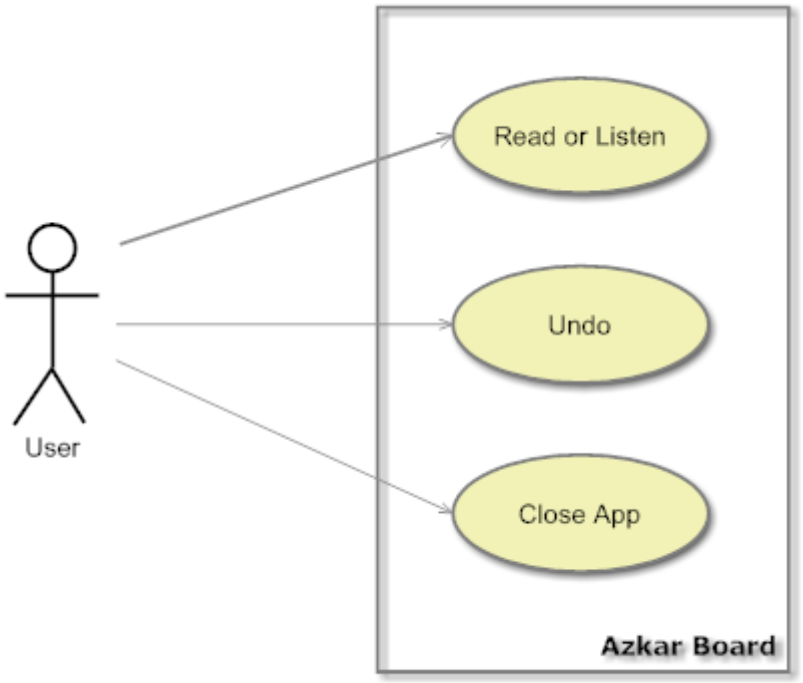


Figure 3.9: Azkar Board Use Case Diagram

CHAPTER FOUR

SYSTEM IMPLEMENTATION

This chapter discusses the details of classes implemented for this project, implementation details of user interface xml files and other intricacies.

4.1 Programming Languages

Android is an open operating system for cell phones. The source code was acquired by Google when they brought the small company Android.inc in 2005. In 2007 there was a consortium made by many well-known companies, formed as the Open Handset Alliance (OHA) led by Google. It consist of more than 60 mobile and technology companies, such as HTC, Intel, LG, Marvell Tech Group, Samsung, Motorola, NVidia, Sony Ericsson and Texas Instruments, etc. Their main goal is to develop open standards for mobile devices. Android is the first mobile platform to use this new standard. Android is built on the Linux kernel, that gives the system most of its core services such as memory management, network, security; basically it provides a stable environment for its architecture. The Android OS has three main parts. The underlying kernel providing the API for the applications. On top of that is a middle layer, providing a function that makes the activities running able to coordinate with each other and exchange data. The last layer provides the key elements for the mobile phone, programs like address book, browser, map applications.

4.1.1 Why Android?

The most appealing thing about this system is its open nature. The Android API, SDK and NDK are free and available for anyone who wishes to develop applications for these mobile devices. A second thing is the useful architecture. All programs are of equal rights and level, meaning everything in the system can be replaced by other third party programs. Further the ability to share data between the applications, that makes it possible to link pictures to geographic locations, or use the scroll bars implemented in one application directly into another application, without rewriting any code. Also, the SDK includes everything needed for Android applications, as well as plug INS for the Eclipse development tool, which also is free to use. Last, Android code is written in Java, which is one of the best documented programming languages there is.

4.2 Implementation

Implementation is the fourth step in the (SDLC). The purpose of this phase is to convert the physical system specification into working and reliable software and hardware, document the work has been done, and provide help for current and future users and caretakers of the system.

4.2.1 Introduction

The implementation in android starts with creating an new android project in Eclipse which creates separate folders for source code, resource files like images, xml files representing user interface layouts, gen folder that transforms each individual element names in resource file to unique identifiers that would be referred by the android system and other folders.

4.2.1.1 Start Screen

This is the first screen shown to the user when the application is launched from the application tray.

This class sets the user interface to the user with the following button, The user can select from a list of Azkar and Dua that he wants to view then the desired Azkar appears a new window With Audio.

Figure 4.1: Start Screen

The first screen to show is identified by the android system by checking the android manifest file of the application. The Start screen is a user interface implemented as an ‘Activity’ in android Azkar application. An activity having an intent filter tag with action field android.intent.action.MAIN and category android.intent.category.LAUNCHER is the one that will be shown first when an application is launched from the application tray. In our Application’s androidmanifest.xml file, Splash screen activity is mentioned to be started first when this application is launched.

4.2.1.2 button content

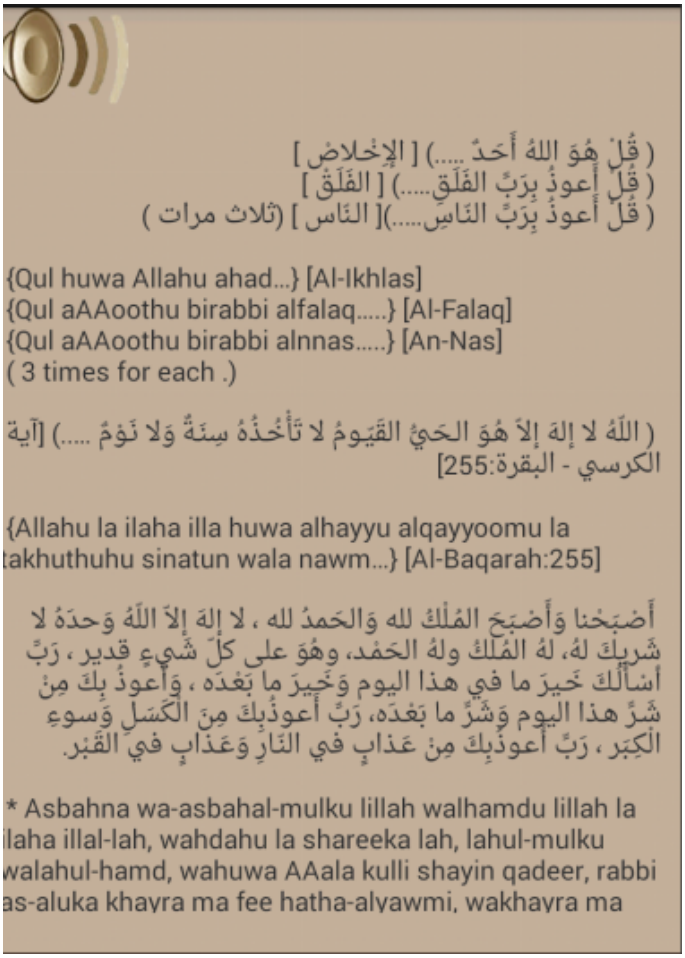


Figure 4.2: Chosen Page

The user can view and read all the Duaa by moving the scrollbar on the right hand, If the user touch the audio icon the application will start to read the Azkar which is written on the same page, also the user can pause the audio and play it back by touching the same icon.

4.2.1.2.1 Buttons implementation

Each button has it's own java class which include the text view and audio button, Also, has it's own xml file which is contain the graphical view, Since all the buttons have the same function they have the same xml and java class file.

4.2.1.2.2 String.xml

A string resource provides text strings for your application with optional text styling and formatting.

Note: A string is a simple resource that is referenced using the value provided in the name attribute (not the name of the XML file). So, you can combine string resources with other simple resources in the one XML file, under one <resources> element. [6]

```
<?xml version="1.0" encoding="utf-8"?>
<resources>

    <string name="app_name">Azkar</string>
    <string name="action_settings">Settings</string>
    <string name="hello_world">  </string>
    <string name="vb">  </string>
     <string name="a"> .. </string>
    <string name="a1"> أذكار الصباح \n Morning Azkar</string>
    <string name="a2">أذكار المساء \nEvening Azkar</string>
    <string name="a3">أذكار ما قبل النوم \n Before Sleeping Azkar</string>
    <string name="a4">أذكار الإستيقاظ \n When Waking Up Azkar</string>
    <string name="a5">أذكار بعد الصلاة \n After The Prayer Azkar</string>
    <string name="a6">صلاة الإستخارة\n seeking guidance in making a decision</string>
    <string name="a7">أذكار الدخول والخروج من المنزل \n upon entering / when leaving the home</string>
    <string name="a8">أذكار الوضوء \n when starting ablution /completing the ablution</string>
    <string name="a9">أذكار بعد الأذآن \n After call to prayer Azkar</string>
    <string name="a10">أذكار ارتداء الملابس \n when dressing Azkar</string>
    <string name="a11">أذكار السوق \n when entering a market place Azkar</string>
    <string name="a12">أذكار القنوت \n salat al witr Azkar</string>
    <string name="a13">سيد الاستغفار \n seeking forgiveness (Syed-ul- Istighfar) </string>
    <string name="a14">دعاء الاستفتاح \n The opening invocation Azkar</string>
    <string name="a15">دعاء السفر \n traveling Azkar</string>
    <string name="a16">أذكار الطعام \n eating Azkar</string>
    <string name="a17">كفّاره المجلس \n dua expiation of assembly</string>
    <string name="a18">دعاء يوم عرفه\n dua arafah day</string>
    <string name="a19">أذكار الدخول والخروج من المسجد \n dua for entering and leaving the mosque</string>
    <string name="a20">دعاء قضاء الدين \n dua to pay off debts</string>
    <string name="todo">TODO</string>
    <string name="x1">\n
        ( الإخْلاصْ ) [ قُلْ هُوَ اللهُ أحَدٌ ....]\n
( الفَلَقْ ) [ قُلْ أعوذُ بِرَبِّ الفَلَقِ....]\n
( ثلاث مرات ) [ النّاس ]( قُلْ أعوذُ بِرَبِّ النّاسِ....)
\n\n
{Qul huwa Allahu ahad…} [Al-Ikhlas]\n
```

Figure 4.3 String.xml

CHAPTER FIVE

SYSTEM EVALUATING AND TESTING

In this chapter we will talk about testing of our application. System testing is black box testing, performed by a test team, and at the start of system testing the complete system is configured in a controlled environment. The purpose of system testing is to validate an application's accuracy and completeness in performing the function as designed.

5.1 Testing Plans

A test plan is a document that describes the objectives, scope, approach, and focus of a software testing effort.

The philosophy behind testing is to fine errors. The common view of testing is that it is performed to prove that there are no errors in a program. However it is virtually impossible to prove that no program will be free and clear of errors. Therefore the most useful approach and practical approach is with the understanding that testing is the process of executing a program with explicit intention of finding errors that is, making the program fail.

System testing is the stage of implementation, which aims at ensuring that the system works accurately and efficiently before actual operation commences.

No program or system design is perfect; communication between the user and the developer is not always complete or clear, and time is usually short. The result is errors and more errors.

The Android SDK consists of a virtual mobile device emulator that helps to test the application without having a physical device as it provides all the functionalities of a typical physical mobile device.

5.2 Types and Steps of Testing

The development process involves various types of testing. Each test type addresses a specific testing requirement. The most common types of testing involved in the development process are:

5.2.1 Unit Testing

In Unit testing each independent unit is tested separately, by isolating it from the remainder of the code to ensure parts of the code are working properly. Unit is the smallest testable part of the code, as in here the classes are treated as the base unit.

5.2.2 Application Testing

Application testing is done to check whether the individual modules are communicating properly one among each other as per the specifications. This testing is critical for any mobile application as they involve many interfaces and navigation between the various interfaces. The main idea is to check the consistency of the application, navigation and applications behavior for any or every possible set of user inputs.

We faced a problem while testing each button class, when we are trying to press a button an error message have been appeared says “Unfortunately, Azkar has stopped”

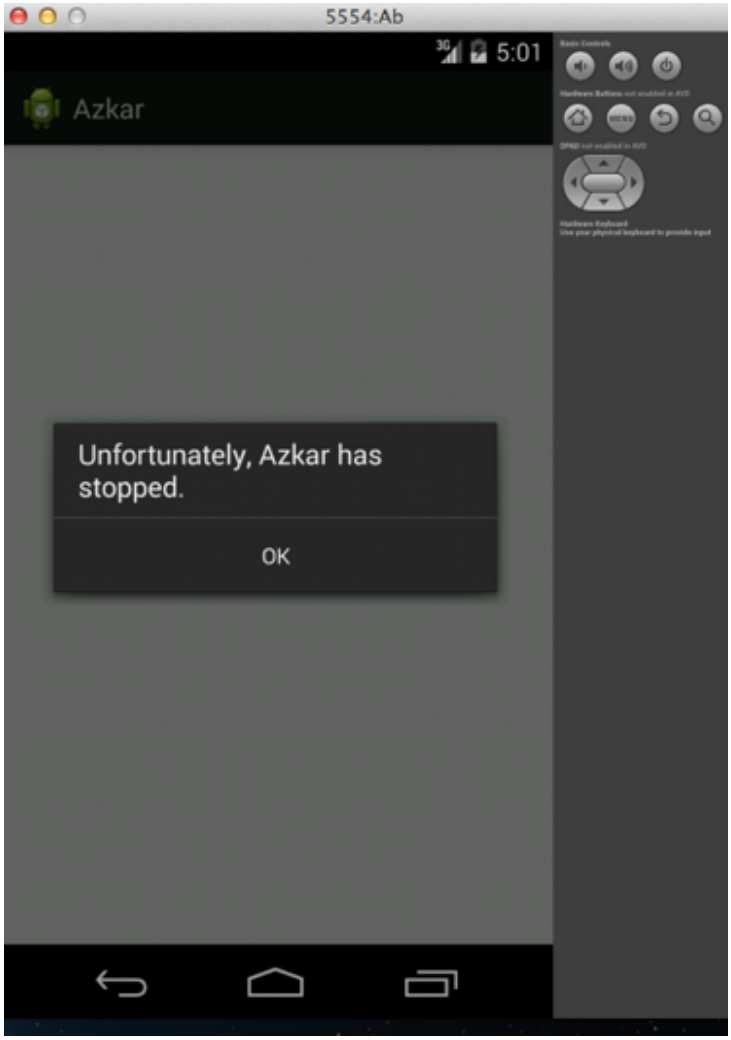


Figure 5.1: An Error

Then we realized that error comes from my Android Mainfest.xml
File where we should give independent activity to each button as shown below

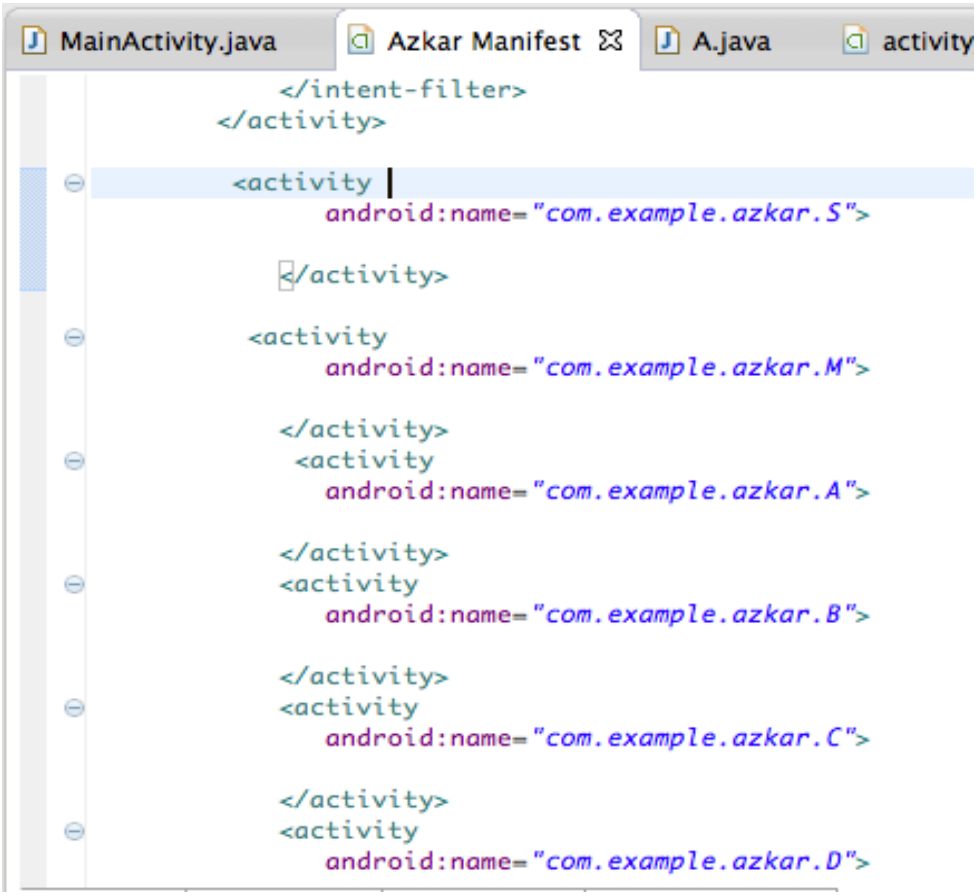


Figure 5.2: Error Solution

The testing result at the end of working:

S.NO	Test Modules	Test Case	Expected Result	Result
1	Main menu	Launch the android Azkar application	The application should be launched and displays twenty buttons of different Azkar	Pass
2	Buttons	Press any button in the main menu.	The application should be launched displaying the content of each button.	Pass
3	Audio	Press the audio icon.	Audio activity should be launched displaying the sound of the Azkar.	Pass
	Pause	Press the audio icon for the second time	Audio should be pause.	

Table 5.1: Application Testing Results

5.2.3 Compatibility Testing

Variations in software versions, configurations, display resolutions, servers and Internet connect speeds can heavily impact the application behavior. Different specifications of devices can also make the applications to behave differently. People use different android devices and hence a good application must be 100% reliable and give best visualization effects irrespective of the device specifications. The application does not require internet hence the speed of internet is not relevant or necessary scenario in this case. To check the device compatibility, the application is tested in the both Android tablet and smart phone.

5.2.3.1 Android Emulator Testing

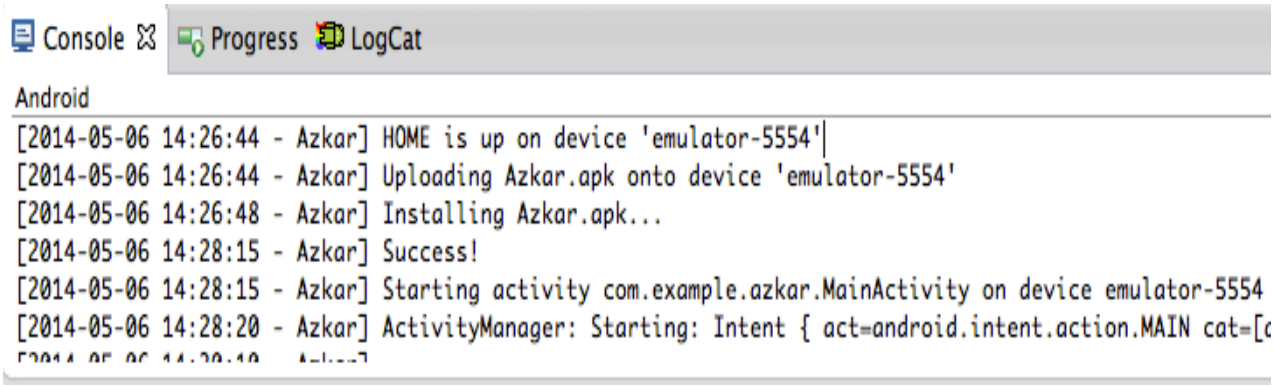


Figure 5.3: Lunching The Application On Emulator

5.2.3.1.1 Nexus One (3.7", 480 x 800: bdpi)

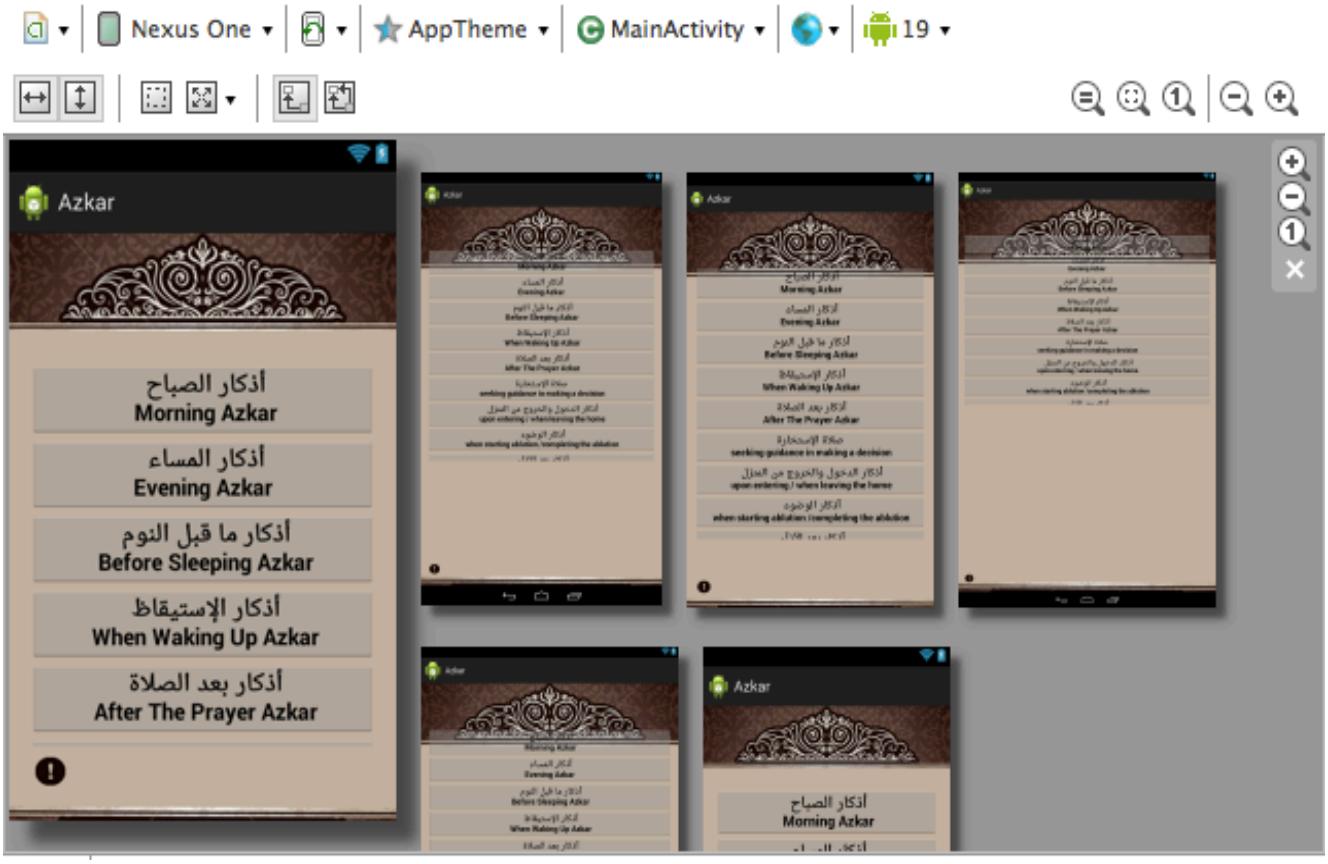


Figure 5.4: Nexus One (main menu)

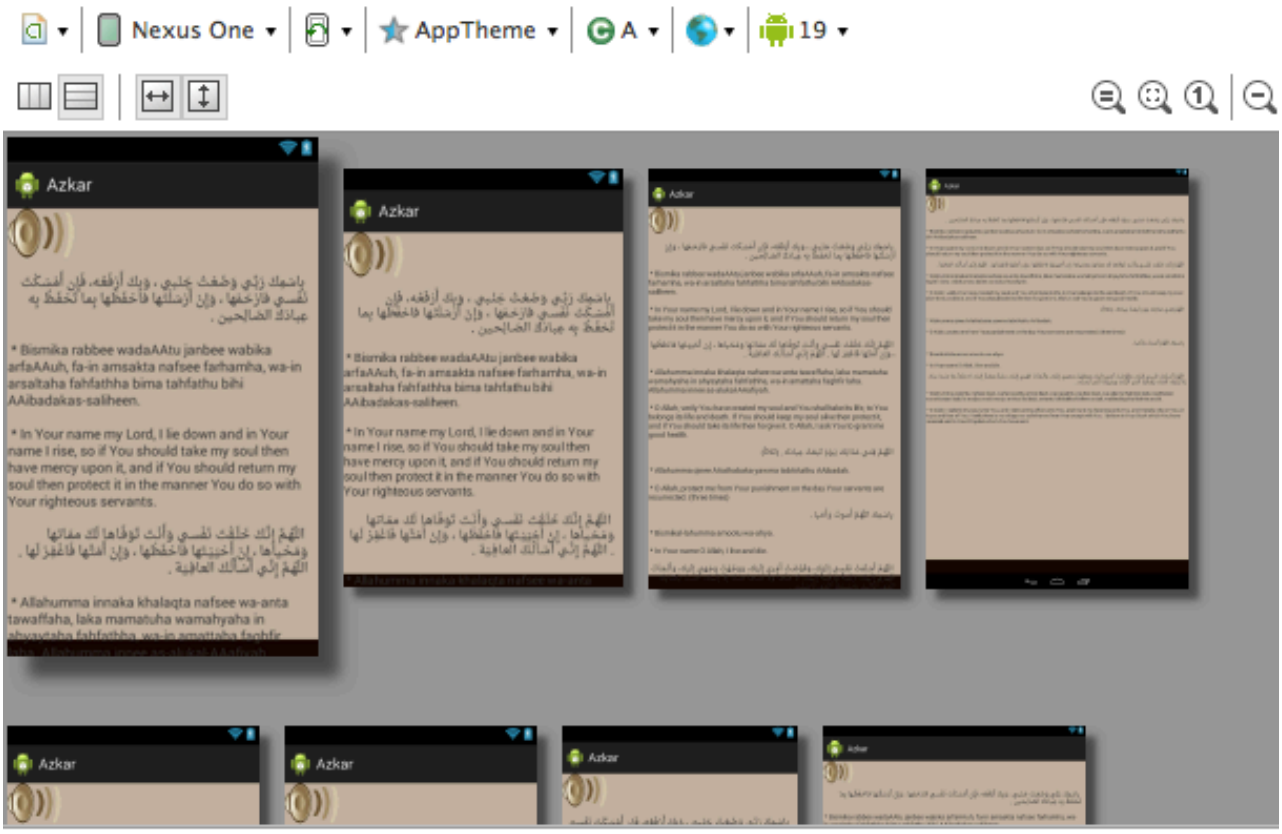


Figure 5.5: Nexus One (button content)

5.2.3.1.2 WSVGA (Tablet) (1024 x 600: mdpi)

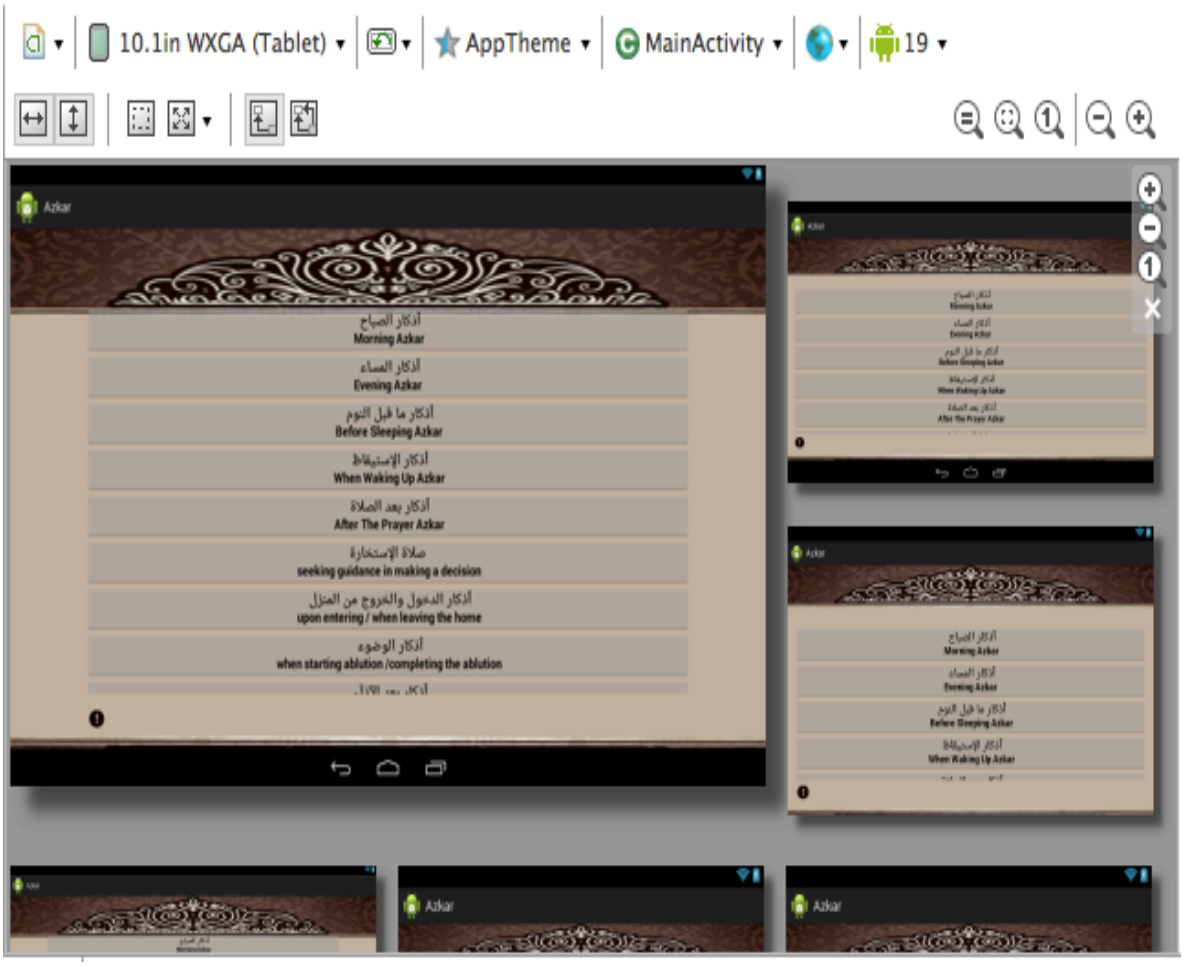


Figure 5.6: Android Tablet (main menu)

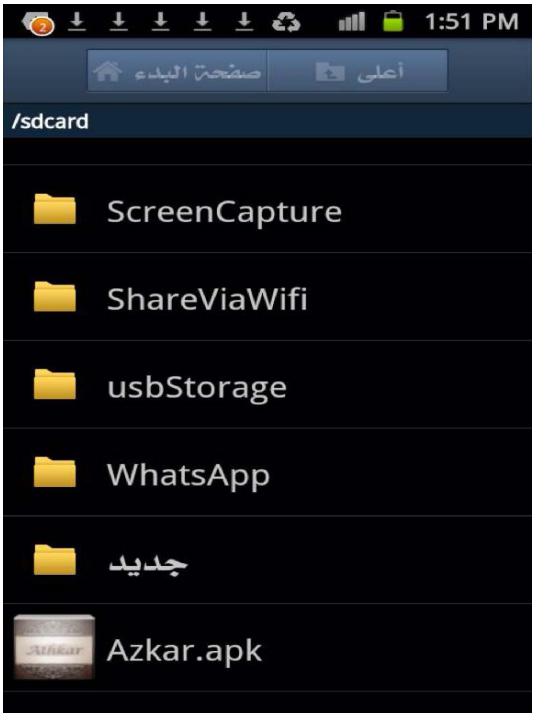
Figure 5.7: Android Tablet (button content)

5.2.4.3 Real device testing (Samsung Galaxy s2)

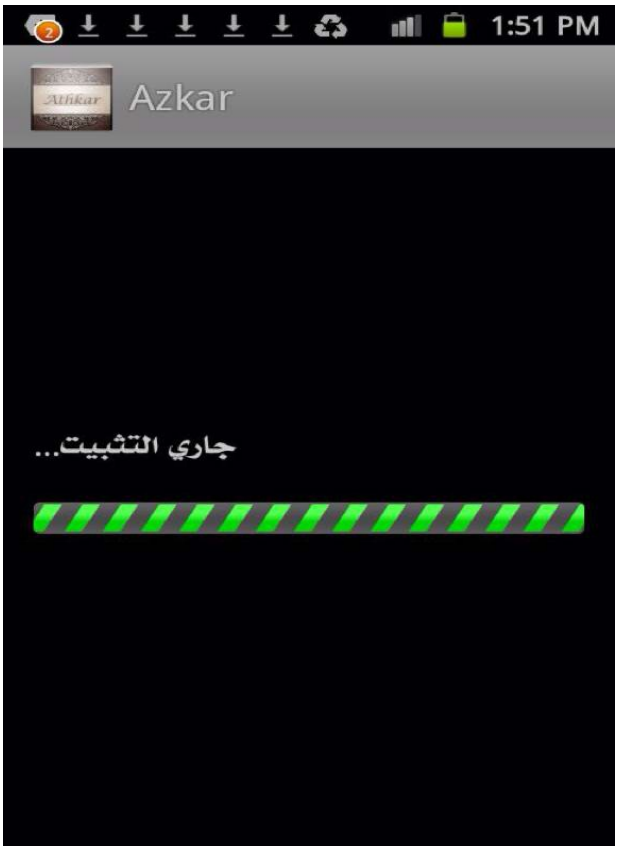
Before you publish an app on Google Play, it's important to make sure that it meets the basic quality expectations for all Android apps, on all of the devices that you are targeting. You can check your app's quality by setting up a test environment and testing the app on my own device first.

We ran it with the following steps:

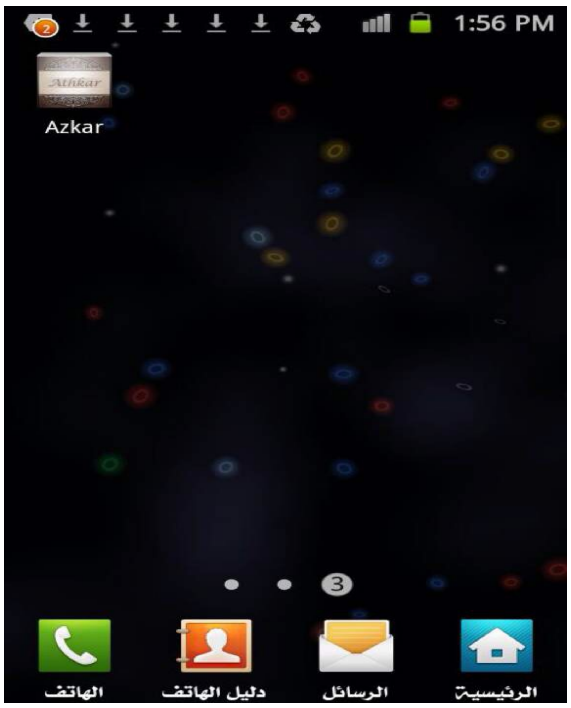
- Connect the device to the computer with USB.
- Ensure the device is not locked (i.e. timed out in the UI). I have to keep unlocking it while we are working.
- Wait for Windows to recognize the USB device, and when the auto play menu comes up select Open device to view files. It should open up the file system in the device, in Explorer.
- In Explorer we go to the Eclipse workspace and find the **apk** file from the build.
- Copy the apk file to the Downloads directory on the device
- On the device, use the My Files app to open the Downloads directory.
- Click the downloaded file (Azkar.apk) and Android offers to install it



- Select install.



- The app is now installed on my phone.



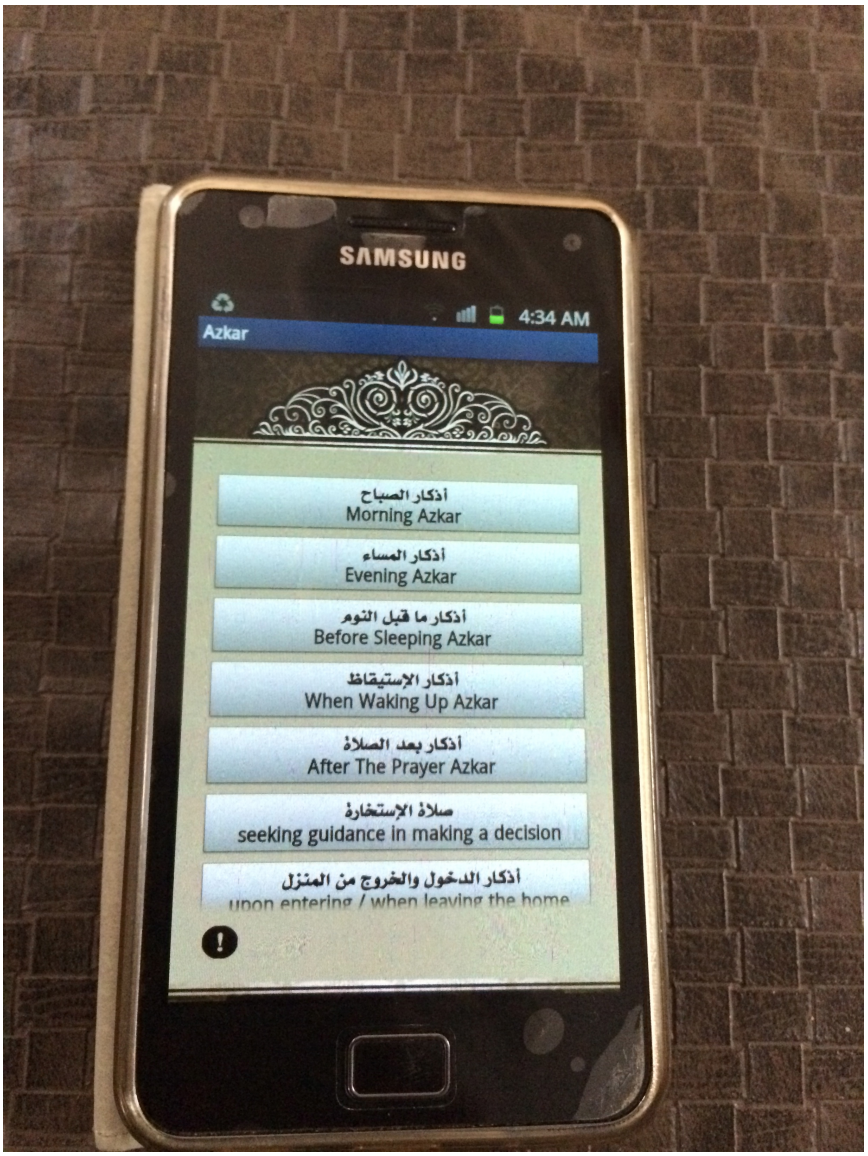


Figure 5.8: Samsung Galaxys2

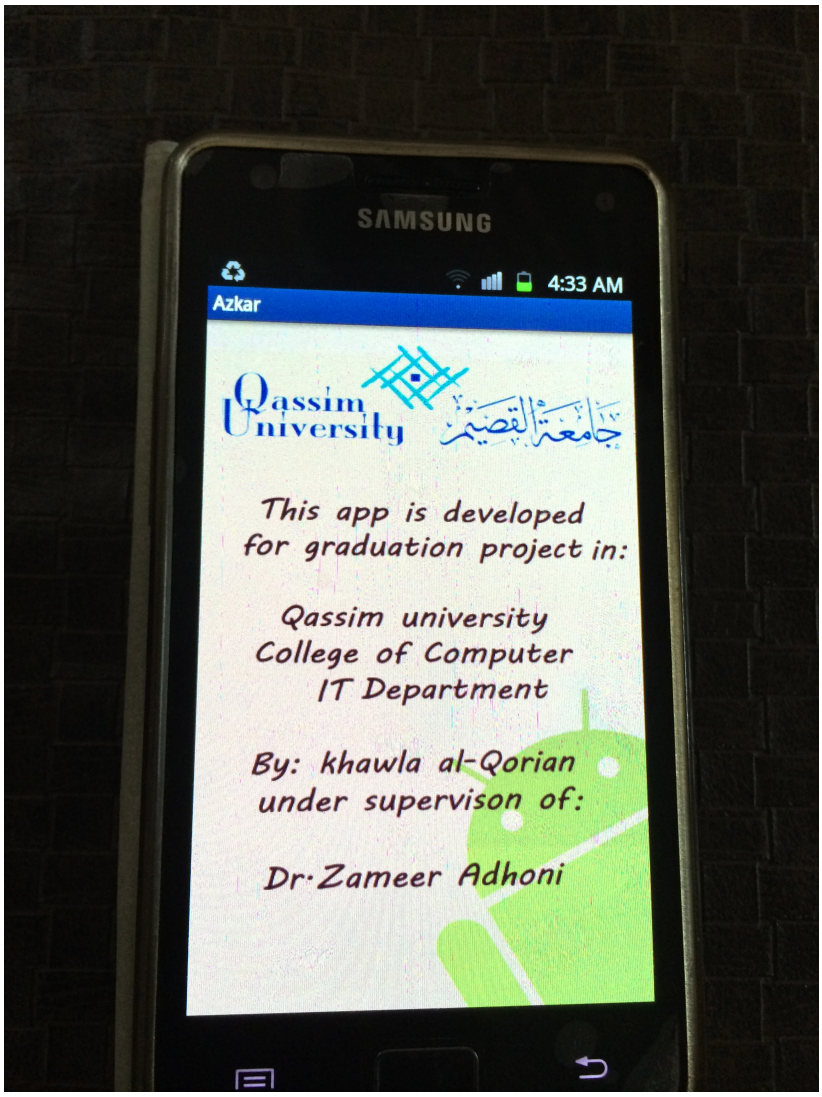


Figure 5.9: Samsung Galaxys2(Info page)

5.3 Publishing

ALHUUMDULILLAH, The application now is available on Google play market; you can install it directly by the like below:

https://play.google.com/store/apps/details?id=comm.exam.azkar

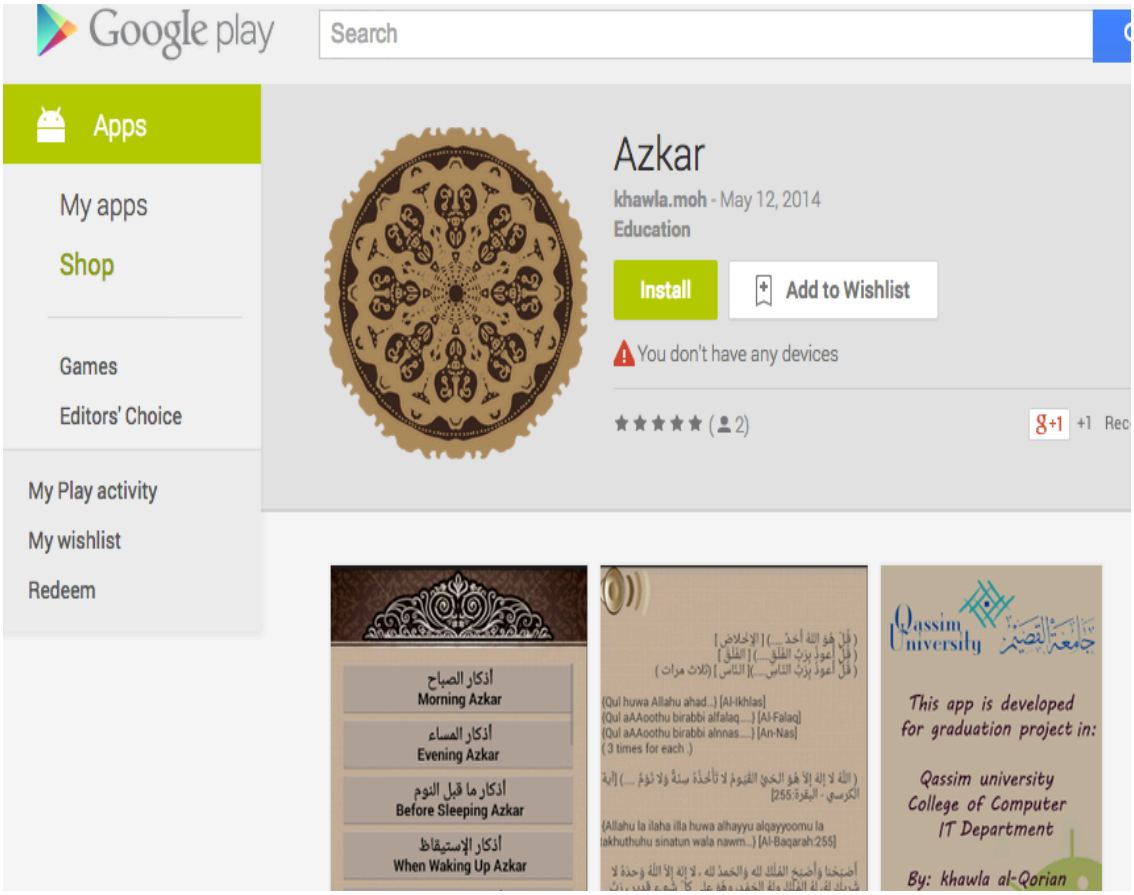


Figure 5.10: Application Page On Google Play Market

CHAPTER SIX

THE CONCLUSION

The application has been designed, implemented and tested with real devices with users successfully. The project helped in understanding the challenges involved in developing an Islamic application for android handsets and tablets, the ways to overcome them and in better understanding the intricacies of mobile application development. The project also helped in understanding the value of designing the components of overall application before implementing them. The project has also taught me programming skills and refining the design and implementation logic of the software at every phase of the development life cycle to improve the overall performance of the application.

6.1 Future Work

As for future work on the project there is always room for improvement.
You can always improve the application, add more languages, and add sounds and graphics. Like all projects and industry there is always plenty of room for improvement; with time usually being the limited factor. In closing, We encourage others to try making an application of their own and revel in the power of computers and computer programming.

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[6] http://developer.android.com/guide/topics/resources/string-resource.html