

TUTORIALS AND QUIZ ANDROID APPLICATION

by

SANDEEP REDDY PAKKER

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College of Engineering

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Approved by:

Major Professor  
Dr. Daniel Andresen

## **Abstract**

Tutorials and Quiz Android Mobile application is an application which gives you brief tutorials on various programming languages and technologies to the user who has installed this application. It gives video tutorials and training on different technologies. The mobile application also contains sample code, interview questions, and answers.

This application also conducts a quiz to the user who is interested in a particular technology for checking their knowledge on the subject. It has different levels like Basic Level and Advanced Level quiz. This application conducts a quiz in the form of multiple choice questions. After the completion of the quiz the application generates reports based on the quiz conducted.

The user can also test their knowledge on those technologies based on a timed quiz, we can include the above technology questions in this application. We can give a time frame for each question and all the questions are to be answered in that specified time period. Say for example we can give 20 seconds to answer a question. If the user gives an incorrect answer, will be exited out of the quiz.

# Table of Contents

List of Figures .....	v
List of Tables .....	vi
Acknowledgements.....	vii
Chapter 1 - Introduction.....	1
1.1 Description of Project .....	1
1.2 Motivation.....	1
Chapter 2 - Requirements Analysis .....	2
2.1 Requirements Collection.....	2
2.2 Software Requirements Specification.....	2
2.3 Hardware Requirements Specification .....	3
Chapter 3 - System Architecture & Design .....	4
3.1 Android Architecture .....	4
3.1.1 The Linux Kernel .....	5
3.1.2 Android Runtime - Dalvik Virtual Machine .....	5
3.1.3 Libraries .....	6
3.1.4 Android Application Framework .....	6
3.1.5 Applications .....	7
3.2 System Architecture.....	8
3.2.1 System Architecture Diagram.....	8
3.2.2 System Design Diagram.....	8
3.2.2.1 Sequence Diagram .....	8
3.2.2.2 Use Case Diagram.....	9
3.2.2.3 Class Diagram.....	10
3.2.2.4 Activity Diagram .....	14
3.2.2.5 Android Application Deployment Diagram.....	15
Chapter 4 - API Guides.....	17
4.1 App Components .....	17
4.1.1 Intents & Intent Filters .....	17

4.2 App Manifest .....	17
4.2.1 The Manifest File .....	18
4.2 Text and Input .....	19
4.2.1 Input Method .....	19
4.2.2 Declaring IME Components in Manifest .....	20
Chapter 5 - Implementation .....	21
5.1 Screens .....	21
5.1.1 Start Page .....	21
5.1.2 Player Name Page .....	21
5.1.3 Player Name Not entered Page .....	22
5.1.4 Player Name entered Page .....	23
5.1.5 Home Page .....	23
5.1.6 Technology Training Page .....	24
5.1.7 After Selecting a Technology .....	24
5.1.8 After Selecting a Syllabus .....	25
5.1.9 If Video is Selected .....	25
5.1.10 If pdf is Selected .....	26
5.1.11 If Quiz is Selected in Home Page .....	26
5.1.12 If Timed Quiz is Selected in Home Page .....	27
5.1.13 If Question is Answered Incorrect in Quiz/ Timed Quiz .....	27
5.1.14 In Timed Quiz in case of a Time Out .....	28
Chapter 6 - Testing .....	29
6.1 Unit Testing .....	29
6.2 Compatibility Testing .....	31
6.3 User Testing .....	31
Chapter 7 - Conclusion .....	32
7.1 The Application Achievements .....	32
7.2 What have I learnt ? .....	32
Chapter 8 - References .....	33

## List of Figures

Figure 1 Android Architecture .....	4
Figure 2 System Architecture .....	8
Figure 3 Sequence Diagram.....	9
Figure 4 Use Case Diagram .....	10
Figure 5 Class Diagram .....	11
Figure 6 Activity Diagram .....	15
Figure 7 Deployment Diagram .....	16
Figure 8 Start Page.....	21
Figure 9 Player Name Page.....	22
Figure 10 Player Name Page.....	22
Figure 11 Player Name entering Page .....	23
Figure 12 Home Page.....	23
Figure 13 Technology Training Page .....	24
Figure 14 After Selecting a Technology .....	24
Figure 15 After Selecting a syllabus.....	25
Figure 16 If Video Is Selected .....	25
Figure 17 If pdf Is Selected.....	26
Figure 18 If Quiz is selected in Home Page .....	26
Figure 19 If Timed Quiz is selected in Home Page .....	27
Figure 20 If Question is Answered Incorrect in Quiz/ Timed Quiz .....	27
Figure 21 In Timed Quiz in case of a Time Out.....	28

## List of Tables

Table 1 Unit Testing .....	29
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# **Chapter 1 - Introduction**

## **1.1 Description of Project**

Tutorials and Quiz Android Mobile application is an application which gives you brief tutorials on various programming languages and technologies to the user who has installed this application. It gives video tutorials, training on different technologies. The mobile application also contains sample codes, interview questions and answers.

This application also conducts a quiz to the user who is interested in a particular technology for checking their knowledge of the subject. This application conducts a quiz in the form of multiple choice questions. After the completion of the quiz the application generates reports based on the quiz conducted.

The user can also test their knowledge on those technologies based on a timed quiz, we can include the above technology questions on this application. We can give a time frame for each question and all the questions are to be answered in that specified time period. Say for example we can give 20 seconds to answer a question. If the user gives an incorrect answer he will be exited out of the quiz.

## **1.2 Motivation**

We use smart phones in every day in our lives. The main motive of this project is to use those smart phones for making the availability of the notes and videos of the lectures and conduct quiz using your smart phone.



## **Chapter 2 - Requirements Analysis**

### **2.1 Requirements Collection**

Requirements collection phase is the most important phase in a project as the collection of requirements determines the final outcome of the project. The requirements of the project are done such that the interface of the project is as simple as possible and as flexible as possible to use the application that is being developed. Intensive care is taken in collecting the requirements of the project.

In the system existing there isn't any mobile application which can give online classes for a specific course. There isn't any application which is that effective to conduct classes and quizzes at the same time.

So taking this problem into consideration the present application has been developed and this application allows users to take classes online, read the notes online increase his knowledge on the subject and take the quiz. He/ She can take two types of quizzes based on the type he is interested in. He/ She can take either a timed quiz or a normal quiz. In the normal quiz the user simply takes the quiz and he has to answer all the questions in a row and he can take his own time and when he gives a wrong answer the game gets exited and there will be a popup saying the quiz is over and asks to retake the quiz or restart the game or go to home page. He can also take the timed quiz in which he has to complete the timed quiz in a specified amount of time and after the end of time the application says the given time is over and asks to retake the quiz or restart the game or go to home page.

### **2.2 Software Requirements Specification**

Operating System: Windows 8.1

Database: SQLite

Tools: Eclipse SDK, ADT plugin for Eclipse

Platform: Android SDK Framework

Technologies Used: Java

Network: Internet Connectivity Required.

## **2.3 Hardware Requirements Specification**

For Mobile Device:

RAM: 256 MB

Disk Space: 250 MB

For Developer to develop, test the project:

Processor: Intel Pentium IV or higher

RAM: 4 GB or higher.

Hard Disk: 160 GB or higher.

# Chapter 3 - System Architecture & Design

## 3.1 Android Architecture

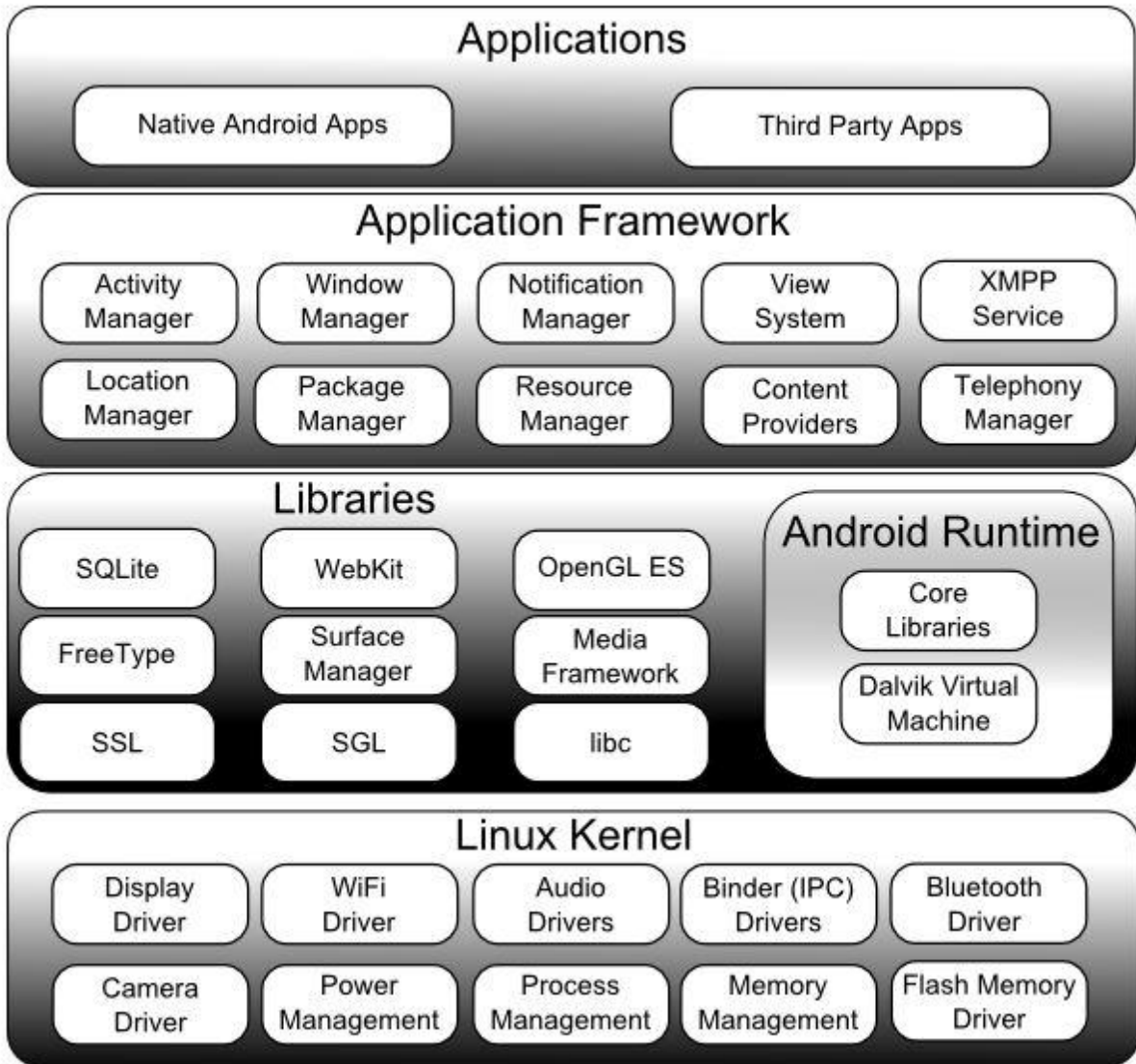


Figure 1 Android Architecture [1]

The different software components in the Android Operating System are arranged in the form of a stack. The different software components include

- The Linux Kernel

- Libraries
- Android Run Time
- Application Framework
- Applications [1]

### ***3.1.1 The Linux Kernel***

The Linux Kernel is the bottom layer of the architecture and the whole android operating system is built on the top of the Linux Kernel with some changes in the architecture. It is built on Linux 2.6 Kernel and some changes are made to its architecture. Linux Kernel is the core of the operating system. Process Management, Memory Management and Device Management are some of the functionality provided by the Linux Kernel. [2]

### ***3.1.2 Android Runtime - Dalvik Virtual Machine***

Android Runtime is comprised of Dalvik Virtual Machine and Core Java Libraries.

The applications in android devices are run using Dalvik virtual machine which is a type of JVM. The application that is run consumes very less power and low memory. The instance in dalvik virtual machine enables every android application to run its own processes. .dex files are run by dalvik virtual machine like .class files in JVM, these .dex files are generated from .class files at compile time and these .dex files provide higher efficiency.

The virtual machine that is introduced by Google is the ART (Android Run Time). This ART was introduced in recent times it is introduced with Lollipop and this ART has completely replaced the Dalvik Virtual machine and has its own advantages over the Dalvik machine.

Android Core Java libraries are also part of the android runtime and these libraries provides most of the functionalities. [2]

### ***3.1.3 Libraries***

The Android Libraries are written in C/ C++ language and each device has its own library. The Important libraries include.

- Surface Manager
- SQLite
- WebKit
- OpenGL
- Media Framework
- SSL

SSL is a library that is to provide security in the internet.

SQLite is the library which is the database base engine and that is used to store and process the data.

Webkit is the browser library or engine that displays the HTML Content in the application.

OpenGL is used to bind the 2D/ 3D content to the screen.

MediaFramework provides different codecs for playing/ recording different media types. [1]

### ***3.1.4 Android Application Framework***

The Android applications directly interact with the Android Framework to run and are managed here. Resource Management, Voice call management and activities like these are handled by the application framework.

The Android framework includes the following key services:

- Activity Manager – The activity stack and the application lifecycle are controlled by activity manager.

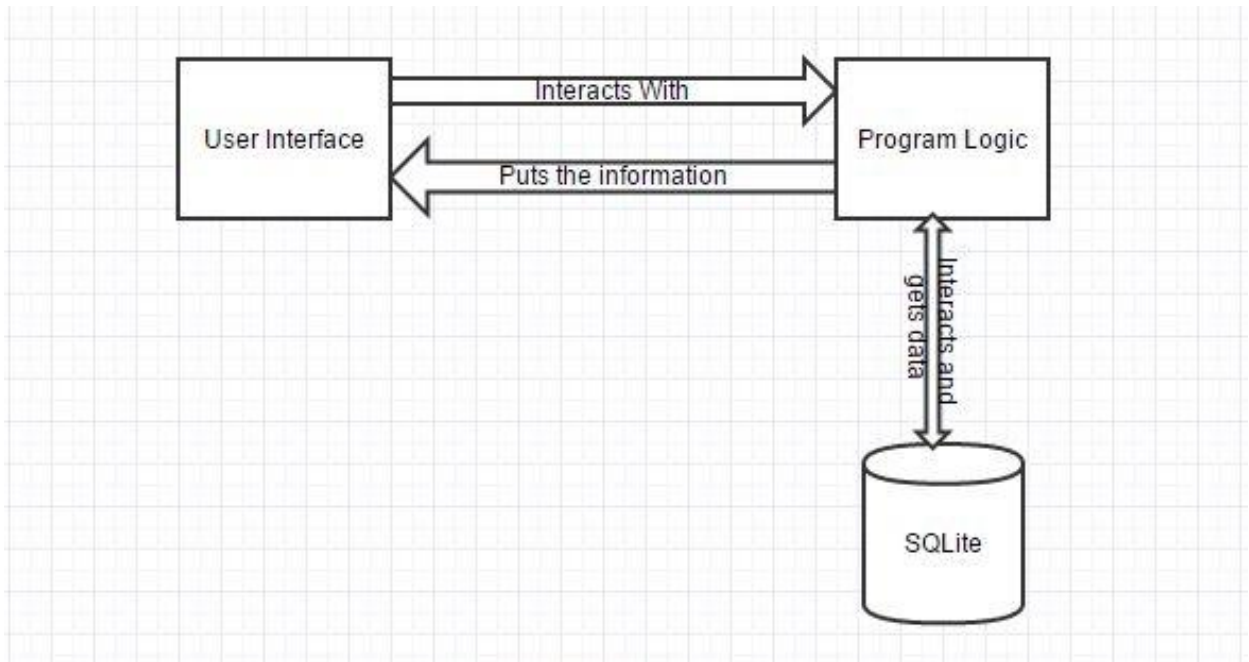
- Content Providers – The data is shared and published with other applications using this content providers.
- Resource Manager – The non-code embedded resources such as strings, color settings and user interface layouts are accessed using this resource manager.
- Notifications Manager – The display alerts and notifications to the user are given by this notifications manager.
- View System –The user interfaces of the application are created by using this view system.
- Package Manager – The other applications which are in the current device knows information about the other applications that are in the device using this package manager.
- Telephony Manager – The information such as status and subscriber is provided to the application using the telephony manager.
- Location Manager – The changes in the location and the updating of the location is done by this location manager. [2][8]

### ***3.1.5 Applications***

The top of the android stack are the applications. This includes both the applications that are preinstalled apps that are already on the device and the new ones which we develop and install. [7]

## 3.2 System Architecture

### 3.2.1 System Architecture Diagram

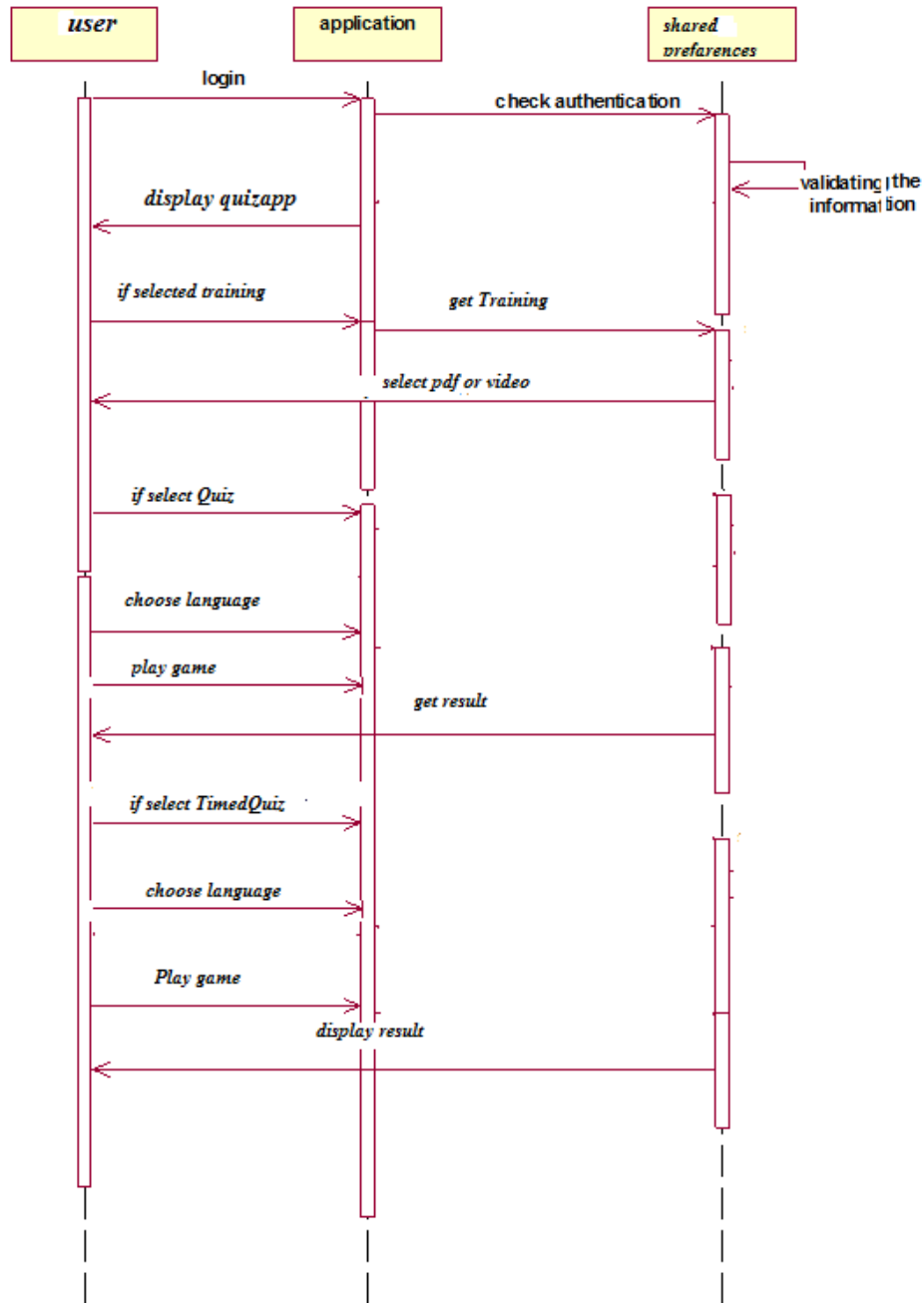


**Figure 2 System Architecture**

The above architecture diagram clearly shows the architecture of the Project. Using the User Interface the user of the application interacts with the programmed business logic. The business gets the data from the database which is SQLite in this application. This Interacts and gives the data to the programmed logic and the information is processed and displayed back on the user interface.

### 3.2.2 System Design Diagram

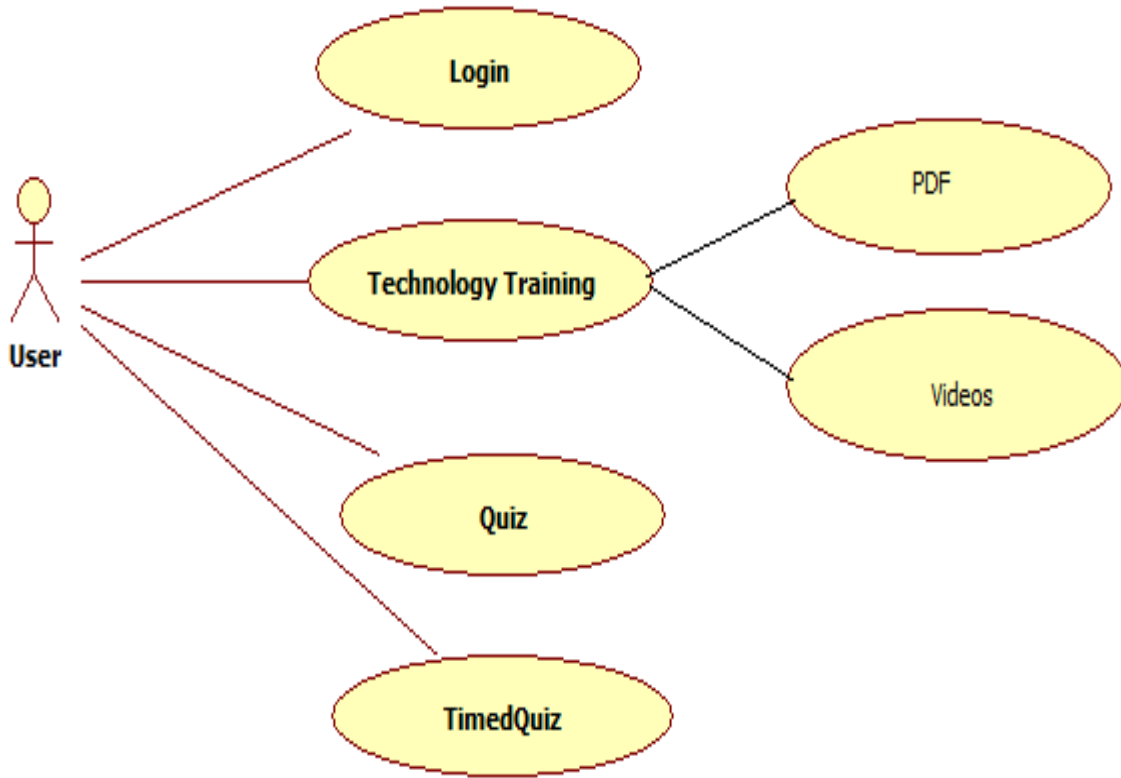
#### 3.2.2.1 Sequence Diagram



**Figure 3 Sequence Diagram**

### 3.2.2.2 Use Case Diagram



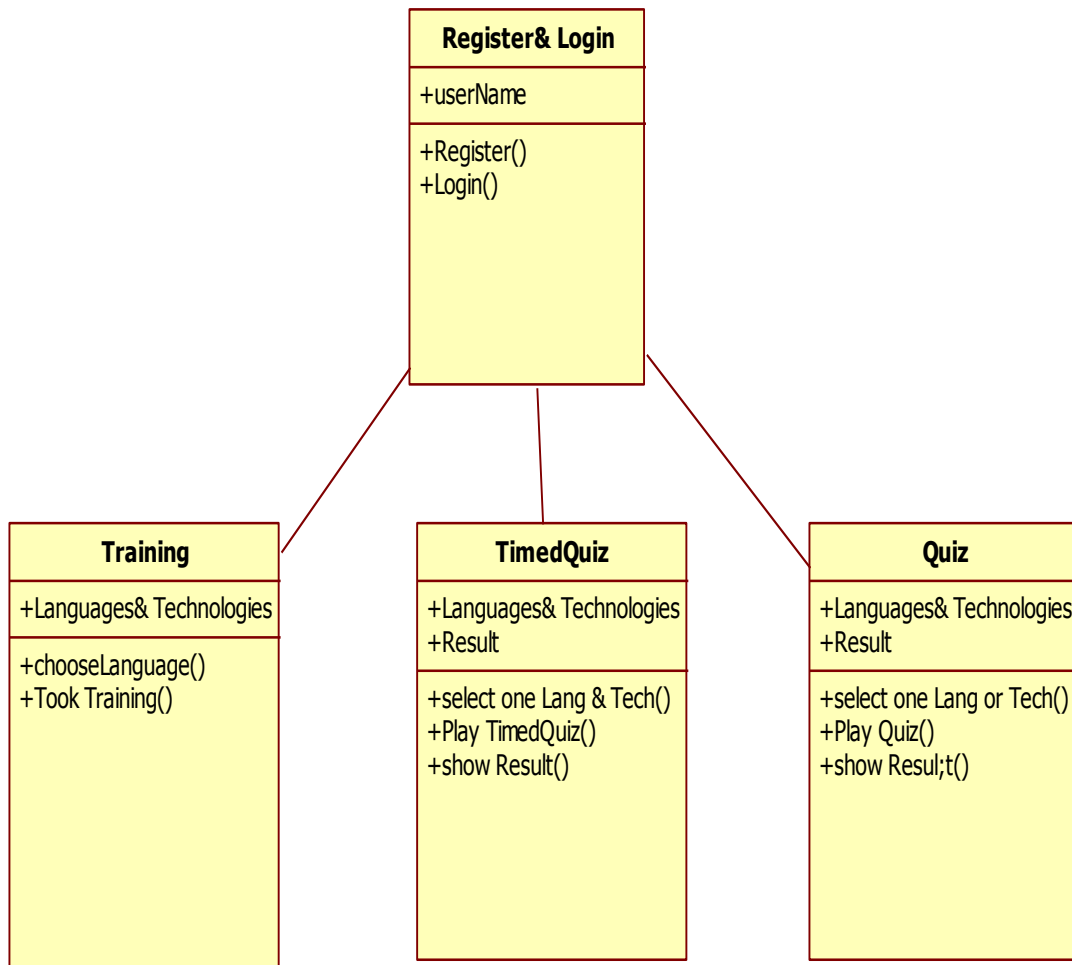


**Figure 4 Use Case Diagram**

The User of the application interacts with the application. Then he can select one out of three options i.e. Technology Training, Quiz and Timed Quiz. When User selects technology training he can select a technology he can select the pdf or videos for the lecture format. User can also select Quiz, attend the quiz and he/she can retake the quiz on a different technology. User can also select timed quiz and he/she can take the quiz on the technology he/she likes.

### **3.2.2.3 Class Diagram**

The user of the application logs in and registers with a username and using the Register( ) and Login( ) methods. After logging into the application the user has three options now. The user can take training or take quiz or timed quiz or take three one after the other.



**Figure 5 Class Diagram**

If the user selects the Training he/she can select the language/technology that he/she is interested in. User can do that using the methods chooselanguage( ) which selects one language out of different technologies that are available and user can taketraining( ), the functionality is defines in this method. If the user selects Timed Quiz he/she can select the language/technology that he/she is interested in. He/she can do that using the methods chooselanguage( ) which selects one language out of different technologies that are available and user can play the timed quiz using the playtimedquiz( ) method and he can view the results using the showresult( ). . If the user selects Timed Quiz he/she can select the language/technology that he/she is interested in. He/she can do that using the methods chooselanguage( ) which selects one language out of different

technologies that are available and user can play the timed quiz using the `playtimedquiz( )` method and he can view the results using the `showresult( )`.

The class `Androidquiz` has different attributes `MediaPlayer: mp`, `Button:nxt`, `RadioGroup:rg`, `TextView:tv1`, `TextView:tv`, `RadioButton:rb1`, `rb2`, `rb3`, `rb4`, `int:score = 0`, `long:timeInMilliseconds = 0L`, `long timeSwapBuff = 0L`, `long:updatedTime = 0L`, `String message`. The methods that the class can execute are `OnCreate( )`, `oncheckedchanged( )` which are overridden methods. The method `OnClick( )` has action for when a click action is performed, `onBackPressed( )` for when a back button is pressed and `result( )` for displaying the result after playing the quiz.

The `TechnologyTrainingList` class has attributes `ArrayList<String> alTechs`, `ListView:lv`, `SampleClass:sc`, `int:techposition`, `int:topposition`, `SharedPreferences:sp`, `Editor:ed`. This class has different methods `onCreate( )` which is overridden, `onItemClick( )` method which defines the actions that are to be performed on clicking the button.

The class `Androidtimerquiz` has different attributes `MediaPlayer: mp`, `Button:nxt`, `RadioGroup:rg`, `TextView:tv1`, `TextView:tv`, `RadioButton:rb1`, `rb2`, `rb3`, `rb4`, `int:score = 0`, `long:timeInMilliseconds = 0L`, `long timeSwapBuff = 0L`, `long:updatedTime = 0L`, `String message`. The methods that the class can execute are `OnCreate( )`, `oncheckedchanged( )` which are overridden methods. The method `OnClick( )` has action for when a click action is performed, `onBackPressed( )` for when a back button is pressed, `waiting( )` for displaying the waiting time and `result( )` for displaying the result after playing the quiz.

The class `Databasehelper` has attribute `SQLiteDatabase db`, It has different methods like `getwritabledatabase( )`, `getreadabledatabase( )`, `Oncreate( )` which is an overridden method, `onUpgrade( )` defines action that is to be performed when an upgrade has to be done , `insertdetails( )` defines action that is to be performed for inserting details into the database, `retrieve( )` defines the action that is to be performed to retrieve details from the database.

The class `Cppquiz` has different attributes `MediaPlayer: mp`, `Button:nxt`, `RadioGroup:rg`, `TextView:tv1`, `TextView:tv`, `RadioButton:rb1`, `rb2`, `rb3`, `rb4`, `int:score = 0`, `long:`

timeInMilliseconds = 0L, long timeSwapBuff = 0L, long:updatedTime = 0L, String message. The methods that the class can execute are onCreate( ), onCheckedChanged( ) which are overridden methods. The method OnClick( ) has action for when a click action is performed, onBackPressed( ) for when a back button is pressed and result( ) for displaying the result after playing the quiz.

The class Cpptimerquiz has different attributes MediaPlayer: mp, Button:nxt, RadioGroup:rg, TextView:tv1, TextView:tv, RadioButton:rb1, rb2, rb3, rb4, int:score = 0, long: timeInMilliseconds = 0L, long timeSwapBuff = 0L, long:updatedTime = 0L, String message. The methods that the class can execute are onCreate( ), onCheckedChanged( ) which are overridden methods. The method OnClick( ) has action for when a click action is performed, onBackPressed( ) for when a back button is pressed, waiting( ) for displaying the waiting time and result( ) for displaying the result after playing the quiz.

The Homepage class has different methods like onCreate( ) which is an overridden method, Result( ) for viewing the contents, quizapp( ) for redirecting the page onclick and onCreateOptionsMenu( ) to inflate the menu, add items to the action bar if it is present.

The class Cquiz has different attributes MediaPlayer: mp, Button:nxt, RadioGroup:rg, TextView:tv1, TextView:tv, RadioButton:rb1, rb2, rb3, rb4, int:score = 0, long: timeInMilliseconds = 0L, long timeSwapBuff = 0L, long:updatedTime = 0L, String message. The methods that the class can execute are onCreate( ), onCheckedChanged( ) which are overridden methods. The method OnClick( ) has action for when a click action is performed, onBackPressed( ) for when a back button is pressed and result( ) for displaying the result after playing the quiz.

The class Ctimerquiz has different attributes MediaPlayer: mp, Button:nxt, RadioGroup:rg, TextView:tv1, TextView:tv, RadioButton:rb1, rb2, rb3, rb4, int:score = 0, long: timeInMilliseconds = 0L, long timeSwapBuff = 0L, long:updatedTime = 0L, String message. The methods that the class can execute are onCreate( ), onCheckedChanged( ) which are overridden methods. The method OnClick( ) has action for when a click action is performed,

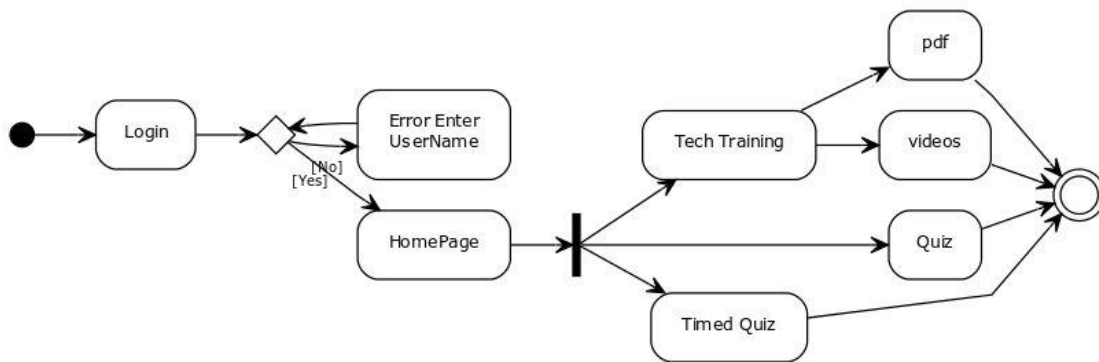
onBackPressed( ) for when a back button is pressed, waiting( ) for displaying the waiting time and result( ) for displaying the result after playing the quiz.

The class InfoType has an overridden method onCreate( ) which is used to setContentView, videos( ) method for action when videos button is click, pdffiles( ) method for action when pdf button is click.

The class Javaquiz has different attributes MediaPlayer: mp, Button:nxt, RadioGroup:rg, TextView:tv1, TextView:tv, RadioButton:rb1, rb2, rb3, rb4, int:score = 0, long:timeInMilliseconds = 0L, long timeSwapBuff = 0L, long:updatedTime = 0L, String message. The methods that the class can execute are onCreate( ), onCheckedChanged( ) which are overridden methods. The method OnClick( ) has action for when a click action is performed, onBackPressed( ) for when a back button is pressed and result( ) for displaying the result after playing the quiz.

The class Javatimerquiz has different attributes MediaPlayer: mp, Button:nxt, RadioGroup:rg, TextView:tv1, TextView:tv, RadioButton:rb1, rb2, rb3, rb4, int:score = 0, long:timeInMilliseconds = 0L, long timeSwapBuff = 0L, long:updatedTime = 0L, String message. The methods that the class can execute are onCreate( ), onCheckedChanged( ) which are overridden methods. The method OnClick( ) has action for when a click action is performed, onBackPressed( ) for when a back button is pressed, waiting( ) for displaying the waiting time and result( ) for displaying the result after playing the quiz.

#### ***3.2.2.4 Activity Diagram***



**Figure 6 Activity Diagram**

***3.2.2.5 Android Application Deployment Diagram***

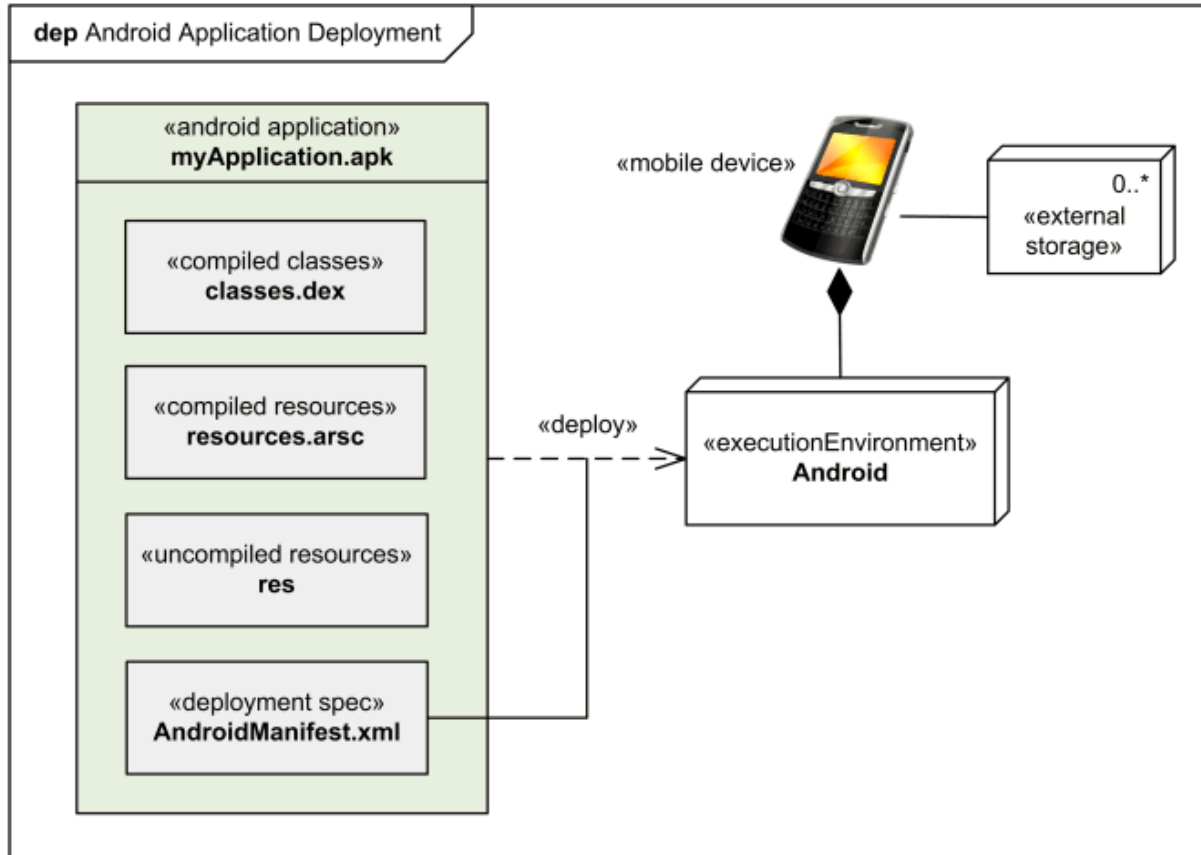


Figure 7 Deployment Diagram [10]

## Chapter 4 - API Guides

### 4.1 App Components

#### 4.1.1 Intents & Intent Filters

The action from another app component is requested using a messaging object known as `intent`.

The usage of `intent` in the present application:

```
Intent intt = new Intent(AndroidQuiz.this,
                        PrincipalActivity.class);
startActivity(intt);
```

`startActivity(intt);` creates a new instances of that activity as we are passing the `intent` to the start activity.

```
<activity
    android:name="com.example.quizapp.Homepage"
    android:label="@string/app_name" >
    <intent-filter>
        <action android:name="android.intent.action.MAIN" />
        <category android:name="android.intent.category.LAUNCHER" />
    </intent-filter>
</activity>
```

Every `intent` in the manifest file is defined by an `intent filter` and this is for defining the main page and the page that is to be launched first during the run time of the application. [3]

### 4.2 App Manifest

The essential information like Functionality and requirements of your android application are described in the app manifest file. The package name which serves as a unique identifier for the application is named by the app manifest. The host application component processes



are determined by the app manifest. The permission to interact with the applications are declared in the app manifest. This app manifest has the minimum API level that is required to host the application, permissions to access protected parts of that API and it also has the list of libraries that are to be linked. The activities, services, broadcast receivers, and content providers that the application is composed of are described in the app manifest this allows the application to know which screen is to be launched first. [4][9]

### 4.2.1 The Manifest File

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.quizapp"
    android:versionCode="1"
    android:versionName="1.0" >

    <uses-sdk
        android:minSdkVersion="8"
        android:targetSdkVersion="18" />

    <uses-permission android:name="android.permission.INTERNET" />

    <application
        android:allowBackup="true"
        android:icon="@drawable/quiz"
        android:label="@string/app_name"
        android:theme="@style/AppTheme" >
        <activity
            android:name="com.example.quizapp.PrincipalActivity"
            android:label="@string/app_name" >
        </activity>
        <activity android:name="com.example.quizapp.TechnologyTainingList" >
        </activity>
        <activity android:name="com.example.quizapp.QuizList" >
        </activity>
        <activity android:name="com.example.quizapp.TimedQuizList" >
        </activity>
        <activity android:name="com.example.quizapp.AndroidQuiz" >
        </activity>
        <activity android:name="com.example.quizapp.JavaQuiz" >
        </activity>
        <activity android:name="com.example.quizapp.CPPQuiz" >
        </activity>
        <activity android:name="com.example.quizapp.CQuiz" >
        </activity>
        <activity android:name="com.example.quizapp.PlayVideos" >
        </activity>
        <activity android:name="com.example.quizapp.AndroidTimerQuiz" >
        </activity>
    </application>
</manifest>
```

```

<activity android:name="com.example.quizapp.JavaTimerQuiz" >
</activity>
<activity android:name="com.example.quizapp.CppTimerQuiz" >
</activity>
<activity android:name="com.example.quizapp.CtimerQuiz" >
</activity>
<activity
    android:name="com.example.quizapp.Homepage"
    android:label="@string/app_name" >
    <intent-filter>
        <action android:name="android.intent.action.MAIN" />

        <category android:name="android.intent.category.LAUNCHER" />
    </intent-filter>
</activity>
<activity
    android:name="com.example.quizapp.MainActivity"
    android:label="@string/app_name" >
</activity>
<activity android:name="com.example.quizapp.Result" >
</activity>
<activity
    android:name="com.example.quizapp.Login"
    android:label="@string/app_name" >
</activity>
<activity
    android:name="com.example.quizapp.PdfNotes"
    android:label="@string/title_activity_pdf_reader" >
</activity>
<activity
    android:name="com.example.quizapp.InfoType"
    android:label="@string/title_activity_info_type" >
</activity>
</application>

</manifest>

```

## 4.2 Text and Input

### 4.2.1 Input Method

The text and input and other text related functions are used to edit, copy and paste text in the application. Here is an example of how edit text is used in the application.

```

<EditText
    android:id="@+id/editText1"
    android:layout_width="fill_parent"
    android:layout_height="wrap_content"

```

```
android:layout_weight="0.00"  
android:ems="10"  
android:hint="PlayerName" >
```

The hint name given is the player name in the application and this gives the user a hint to take a look at how the name is to be given and when once clicked on this field the user will be able to edit the text the layout i.e. height, width of the text are given here. [6]

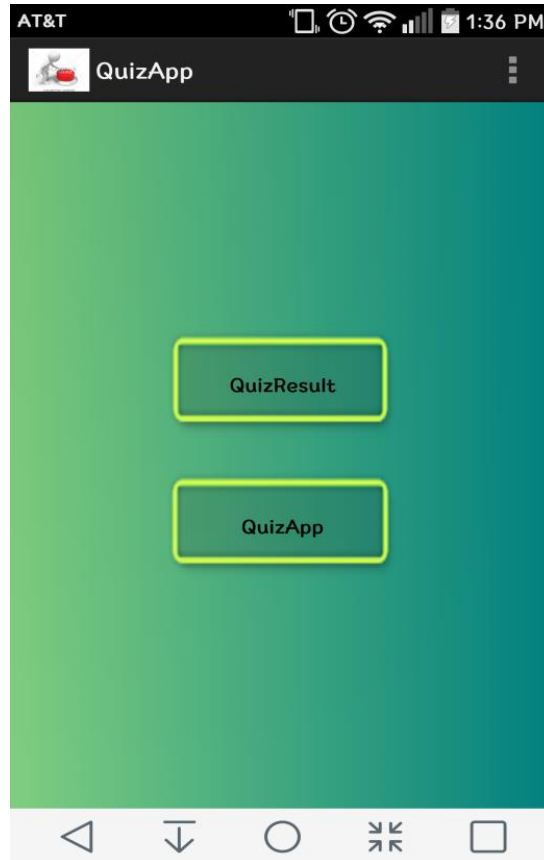
### ***4.2.2 Declaring IME Components in Manifest***

```
<activity  
    android:name="com.example.quizapp.Homepage"  
    android:label="@string/app_name" >  
    <intent-filter>  
        <action android:name="android.intent.action.MAIN" />  
  
        <category android:name="android.intent.category.LAUNCHER" />  
    </intent-filter>  
</activity>  
<activity  
    android:name="com.example.quizapp.MainActivity"  
    android:label="@string/app_name" >  
</activity>  
<activity android:name="com.example.quizapp.Result" >  
</activity>  
<activity  
    android:name="com.example.quizapp.Login"  
    android:label="@string/app_name" >  
</activity>  
<activity  
    android:name="com.example.quizapp.PdfNotes"  
    android:label="@string/title_activity_pdf_reader" >  
</activity>  
<activity  
    android:name="com.example.quizapp.InfoType"  
    android:label="@string/title_activity_info_type" >  
</activity>
```

# Chapter 5 - Implementation

## 5.1 Screens

### 5.1.1 Start Page



**Figure 8 Start Page**

This is the first page in the app which will ask whether to go to Quiz Result page or to the Quiz App page.

### 5.1.2 Player Name Page



**Figure 9 Player Name Page**

This is the screen where the user has to give user name.

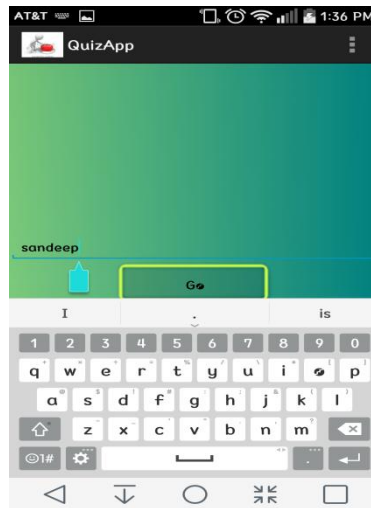
### *5.1.3 Player Name Not entered Page*



**Figure 10 Player Name Page**

This is the page where it gives an error when Player name is not entered.

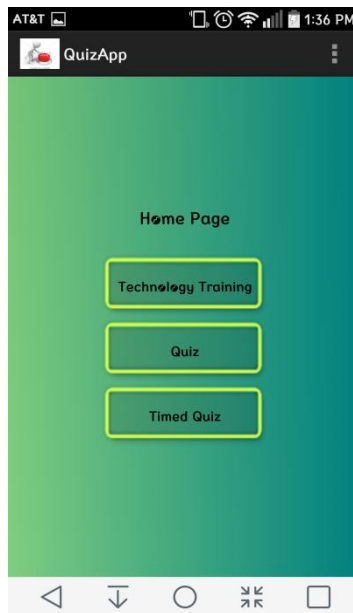
### 5.1.4 Player Name entered Page



**Figure 11 Player Name entering Page**

This is the page where player name is entered and goes to Home Page

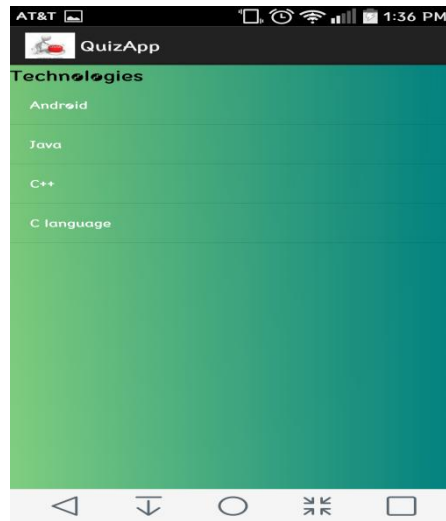
### 5.1.5 Home Page



**Figure 12 Home Page**

The Home Page of the App

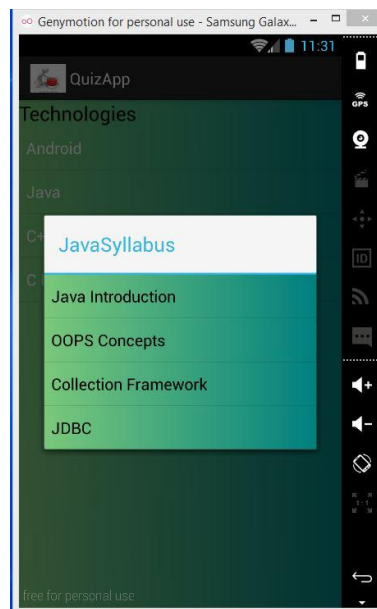
### 5.1.6 Technology Training Page



**Figure 13 Technology Training Page**

List of Technologies for Training

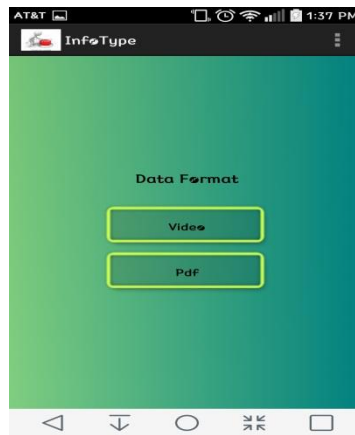
### 5.1.7 After Selecting a Technology



**Figure 14 After Selecting a Technology**

After Selecting a technology a dialog box pops up to select the syllabus

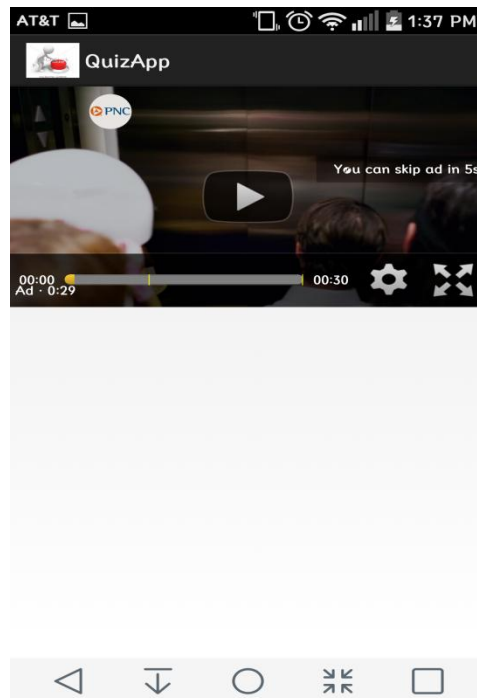
### 5.1.8 After Selecting a Syllabus



**Figure 15 After Selecting a syllabus**

If a syllabus is selected it asks for a Video/Pdf Lecture

### 5.1.9 If Video is Selected



**Figure 16 If Video Is Selected**

After Selecting a Video shows the video lecture



### 5.1.10 If pdf is Selected

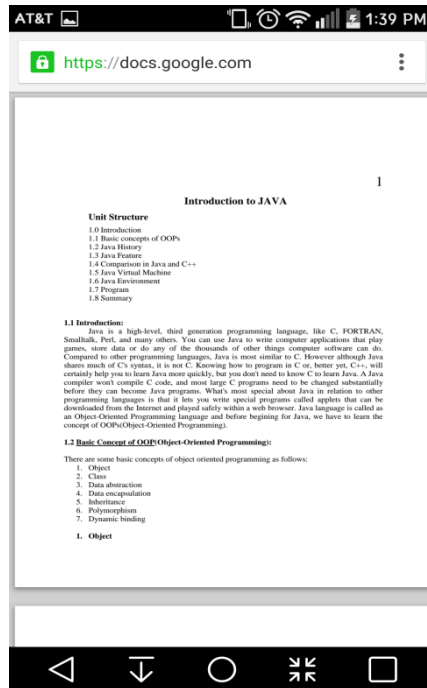


Figure 17 If pdf Is Selected

If pdf is selected the doc opens

### 5.1.11 If Quiz is Selected in Home Page

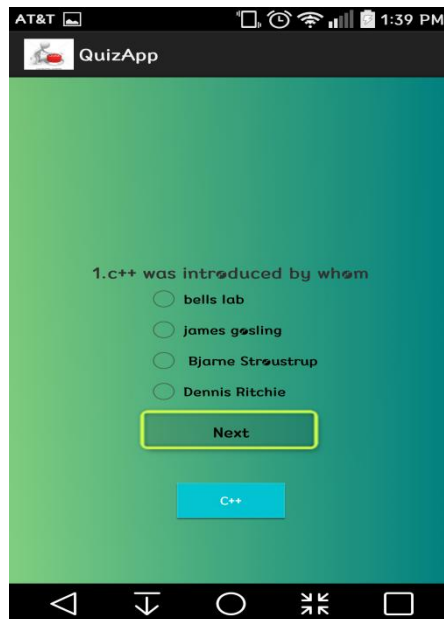


Figure 18 If Quiz is selected in Home Page

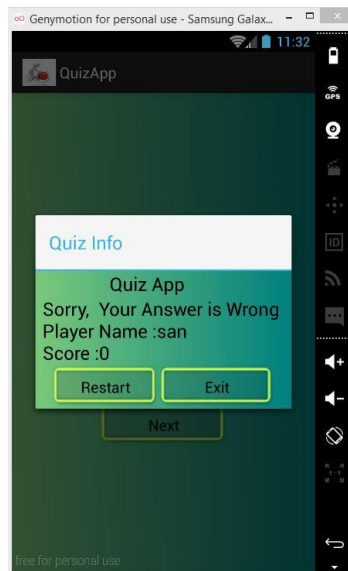
Quiz Page after selection of a technology and start of the quiz.

### 5.1.12 If Timed Quiz is Selected in Home Page



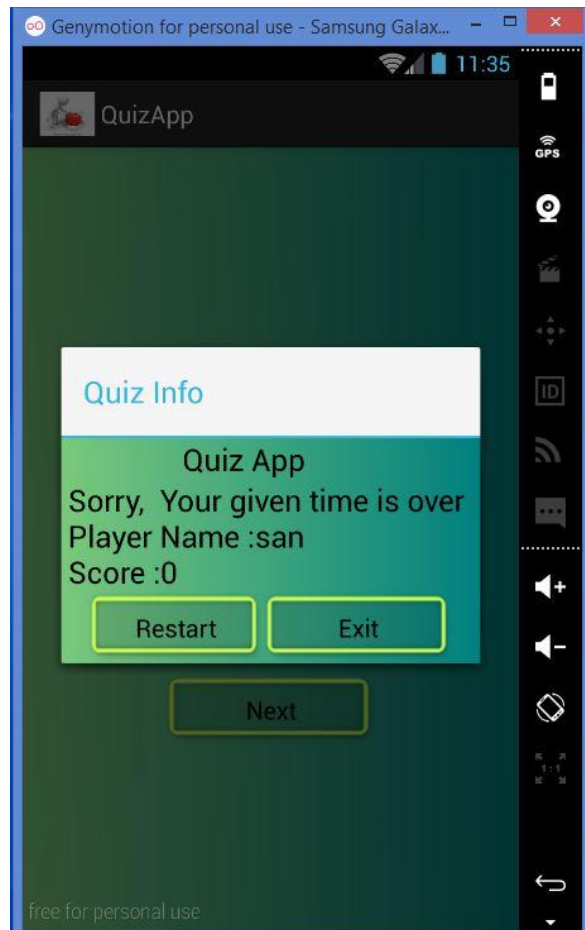
**Figure 19** If Timed Quiz is selected in Home Page  
Timed Quiz Page after selection of a technology and start of the quiz.

### 5.1.13 If Question is Answered Incorrect in Quiz/ Timed Quiz



**Figure 20** If Question is Answered Incorrect in Quiz/ Timed Quiz  
The app gives a popup asking to restart/Exit

### 5.1.14 In Timed Quiz in case of a Time Out



**Figure 21 In Timed Quiz in case of a Time Out**

In Timed Quiz in case of a Time Out

## Chapter 6 - Testing

### 6.1 Unit Testing

**Unit Testing** is a software testing method in which small parts of the code are separated from other parts and the functionality is checked whether it works as expected or not.

**Table 1 Unit Testing**

Test Case	Expected Result	Pass/ Fail
Start Page	Should display 2 buttons, Quiz results and Quiz Page	Pass
Pressing Quiz results button	Should display quiz results	Pass
Pressing Quiz button	Should display home page which has 3 buttons: Technology training, Quiz and Timed Quiz	Pass
Pressing Technology Training button	Should display a list box which has 4 list box items, C, C++, Java and Android	Pass
Selecting C technology	Should open a dialog box which has topics	Pass
Selecting a topic	Selecting a topic should take you to a page which has 2 buttons pdf and Video	Pass
Pressing pdf button	Should open the respective pdf file and give the contents.	Pass
Pressing video button	Should open the respective	Pass

	video file and play the video.	
Selecting other topics	Should do same as for the first topic selection.	Pass
Selecting other technologies like C++, Java and Android	Should respond same as that is done for C.	Pass
Pressing Quiz button	Should display a list box which has 4 list box items, C, C++, Java and Android	Pass
After selection of technology	Should start the quiz	Pass
After starting the quiz	Radio buttons should work	Pass
In quiz	If we press next without selecting an option the game should be over and dialog box should be displayed.	Pass
In After completion quiz	Should say game over and display result.	Pass
Pressing Timed Quiz button	Should display a list box which has 4 list box items, C, C++, Java and Android	Pass
After selection of technology	Should start the Timed quiz	Pass
After starting the timed quiz	The timer should work	Pass
In timed quiz	If we press next without selecting an option the game should be over and dialog box should be displayed.	Pass
In After completion quiz	Should say game over and display result.	Pass

If Time completed	Should say your given time is completed	Pass
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## **6.2 Compatibility Testing**

This application was tested and used on different devices like LG G3, Google Nexus 4. The application worked fine and is stable. The application worked fine both in landscape and portrait modes and there isn't any problem with the resolution or compatibility.

## **6.3 User Testing**

The present application was tested by my friends who are using different mobile devices that has Lollipop Android and that seemed to be working fine and they were satisfied with the performance and responsiveness of the application and how the app worked.

## **Chapter 7 - Conclusion**

### **7.1 The Application Achievements**

The application Tutorials and Quiz Android Mobile application is a unique android application that is for video lectures, tutorials and quiz. The main objective of the project is achieved and can be used to see video classes and posting of notes on the application. The other big feature of the application is also to conduct online quiz and timed quiz. These both are achieved using this application.

### **7.2 What have I learnt ?**

The application Tutorials and Quiz Android Mobile application has been implemented successfully on different Android devices and this enhanced my confidence in Android development. This is the first time that I am developing an Android Application and this gave me an idea of an Android Application Development, it helped me learn its database SQLite and how to use API's in Android Development and I would like to learn more about its development in the coming days and would like to try and develop more apps in Android.

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