

**BD CODER'S POINT**

**BY**

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This Report Presented in Partial Fulfillment of the Requirements of the Degree of  
Bachelor of Science in Computer Science and Engineering

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## **APPROVAL**

This Project titled “**BD CODER’S POINT**”, submitted by Tasnuva Tabassum Oshin to the Department of Computer Science and Engineering, Daffodil International University has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computer Science and Engineering and approved as to its style and contents. The presentation has been held on 24<sup>th</sup> November 2018.

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## DECLARATION

We hereby declare that, this project has been done by us under the supervision of **MD JUEAL MIA, Lecturer, Department of CSE** Daffodil International University. We also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

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Finally, we must acknowledge with due respect the constant support and patients of our parents.

## **ABSTRACT**

In Bangladesh, most of the student of CSE Department /Software Department or any Student related to Programming sector faces many problems while they are doing programming or making a software application, project, any application, etc. They can't find out any easy way to solve their problem. Another issue is the language, Students can't express their problem properly or understand the solution/error etc. in English. So many students get frustrated and opt out of programming, project making, software development etc. They find it hard to do coding. So I proposed an android application "BD Coder's Point" which is based on Bangla Language and here the user can ask a question about their problem In Bangla and get solve of their problem in Bangla and it will also encourage them to do programming, problem-solving, projects making etc. In this application contains user problem information, solve information, skill development system. Mainly In this application the user will ask about their problem and people will answer their problem solution and the ranked answer will be the best solution for the user. And the user whose answer is appropriate and helping other that user will get ranked profile. Here the user can also develop their programming skill by participating in an online programming contest, problem-solving, project making etc. Using this application user will be motivated to do more programming and develop his/her programming skills.

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# CHAPTER 1

## INTRODUCTION

### 1.1 Introduction

BD Coders Point is an android based Mobile Application. This application provides an interactive user interface where the user can solve their programming issue and develop programming skills. The system will help the user by providing a simple user interactive interface to solving their programming problem. They can ask any information here by telling and writing and the moderator and another user will help them by giving their opinion. The most amazing thing about this application is they can write here in Bangla Language. So it will be easy for the user to express his/her problem in Bangla. Another Big feature is User can express their problem via voice too. In this application I try to influence the user to do more programming so for this I make a skill Development system and a point system too. The user can give points to answers and this points will encourage the user to participate in this online user problem-solving. There is a skill development sector in this app where the user can make a project and submit it online. There is a time limit for this if user success to submit a project in time he/she will get points. In this application, the user can participate online contest too. The Contest will also help them to develop their programming skills. The most important fact about this application is when any user able to achieved 10000 points the user will get a Master Profile from Where User will be hired for professional Work via this application. This full application and all the process is in a real-time process.

## **1.2 Motivation**

Most of the Student in Programming sector are not well enough in English. So when they found an error in their program or any problem in the program they can't express it properly. They also don't understand the available solution which is written in English. This reduces their interest in programming. Besides that there is no particular platform for Bangladeshi Programmers where they can talk about their problem and get a solution. Some student or beginner face problem in expressing they can't address their problems. They don't understand where they are getting errors. And there is no one to hear them. All this makes a programmer frustrated they lose hope in programming. So Basically I get motivated from this and my errors. I feel for myself and for another especially Bangladeshi programmer needs a platform where they can solve their errors and they can also develop their skill. And I believe getting an error is good for programming because we can learn a lot from this.

## **1.2 Objectives**

- To provide Interactive User Interface
- To Reduce Programming Problem
- To make easier to find a problem solve
- To make easier to develop programming skills
- To keep all the programmer records
- To provide simple Development system

## **1.4 Expected Outcomes**

- Provide the problem solve
- Gives an easy Platform Where user can express their problem
- User can communicate with other programmer to solve problem
- User can develop programming skills
- User can able to learn about Programming
- User can able to be a professional worker from there
- Encourage User to do more programming
- Encourage user to do problem solving

## **1.5 Report Layout**

Firstly, In the Introduction chapter, I have to discuss the objective of the project, the motivation of work with the expected outcome. Secondly, I discuss the Background circumstance of my project and I will also discuss the related work, comparison to another candidate system, the scope and challenges of this system in Background parts. Thirdly, kinds of requirements like problem submission process and displaying it, the answering system and skill development system backend system, use case model, relational database and design requirements defined in Requirement Specification chapter. Fourthly, Design chapter describes the design of my project visual view. It can be front-end-design or back-end design. In the fifth, Implementation and testing parts I discuss the implementation of the database, interaction and test result of this project. Finally, in the sixth, the conclusion and future scope will discuss in conclusion chapter.

# **CHAPTER 2**

## **BACKGROUND**

### **2.1 Introduction**

I designed interactive, attractive user-friendly and well-organized application which can be operated all over through internet. In my application user interact with username, user email which is required to registered user as a member of BD Coder's point. Or User can directly register via google. And As a Moderator registration, it required name, email address, position in institution/organization, organization/institution name, and Institution ID card scan file. In my application, I also use a feedback system to provide better services that user can be satisfied.

### **2.2 Relative works**

There is no application in google play store to solving errors in Bangla. This is the 1st time In Bangladesh and in google play store. And there is also no application which provides voice transaction for solving the problem. Some of the application is available in the Google Play store related to skill development. Most of the applications are mainly developed for concern for the foreign country. But For Bangladeshi purpose not quite efficient tat application. For example Programming Hub.

### **2.3 Comparative Studies**

My implemented application is quite different from existing applications. Some of the applications are available in google play store but I want to develop an application where every kind of problem example: bug, error, IDE problem, Installation problem etc. can be solved in Bangla. And I also provide the voice transaction which is a unique system to solve a problem. I make a system where the user can get a point for their solutions. Using this application user can solve their programming related problem and also able to develop their programming skill in Bangla. The user can write the problem in Bangla and they even can use their voice to solve their problem. They can participate in building projects and contests.

Which will make them more efficient in programming. So I think my application will be more useful, user-friendly and popular and also more effective in this current situation.

### **2.3 Scope of the problem**

- It is an open platform where all user can access easily
- I provide android apps so that I can cover as much people as I can
- Moderator and user link will help user to learn more from them
- Moderator can share his experience and motivate user
- It will be helpful for user to understand about problem in Bangla Language
- Contest and project will makes user active in programming
- Friendly user interface and Updated Information

### **2.4 Challenges**

- Real time database Management
- Accurate User Problem
- Communication system for question & answer
- Run all the system in Real Time. Project, Contest, Problem Solve, Problem Submission etc.

# **CHAPTER 3**

## **REQUIREMENT SPECIFICATION**

### **3.1 System Process modeling**

System Process modeling (SPM) in System process management and systems engineering is the activity of representing process of a system, so that the current process may be analyzed, improved and automated. This analysis improvement and automation help to build the system correctly .SPM is typically performed by System analysts, who provide expertise in the modeling discipline; by subject matter experts who have specialized knowledge of the processes being modelled. Figure 3.1.1 shows the system process.

#### **3.1.1 System Process Model (Method)**

I used some method as a system process model of my project. Below the causes-

- Working application is delivered frequently
- Face-to face conversation is the best form of communication
- Close ,daily cooperation between people and developers
- Continues attention to technical circumstances
- Regular adaption to changing circumstances

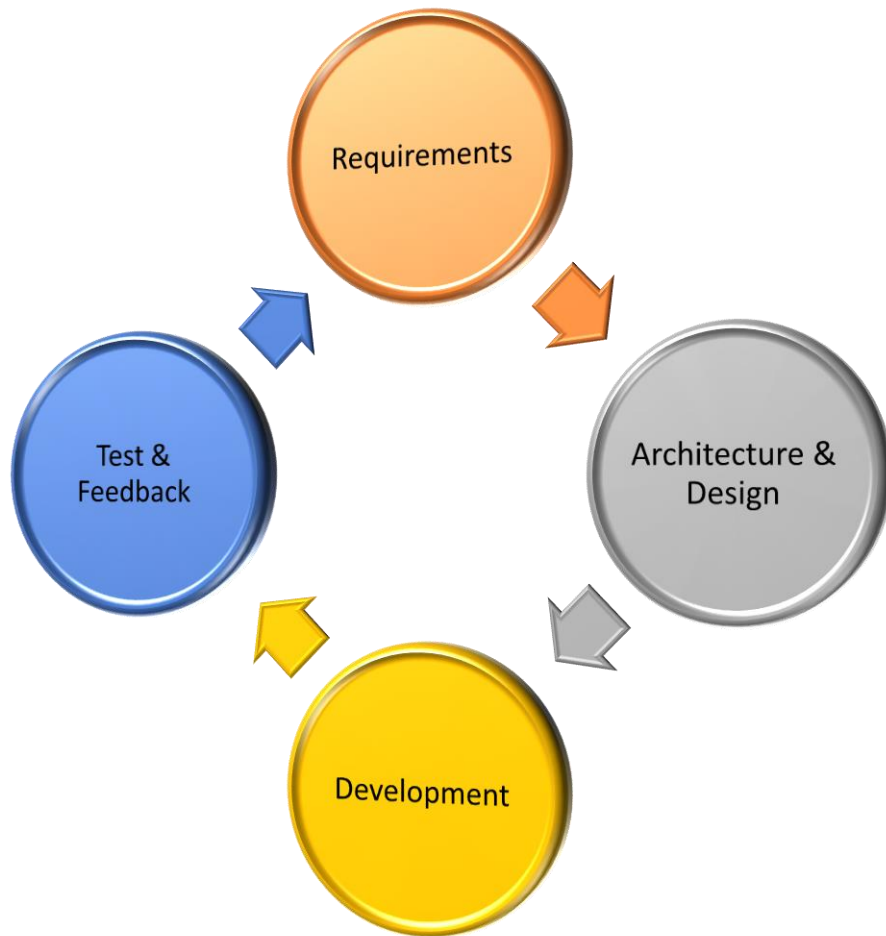


Figure: 3.1.1 System Process Model Life Cycle

## System Process Model:

At First, When User Enter the System, system will provides some option as interface. User have to make decision to get service from this application. Figure 3.2 shows the model. They can enter in this system as user or Moderator. Then system check the required information then user have to complete the user profile / Moderator Profile then user can ask question and then system or other user will be able to provide service or help .

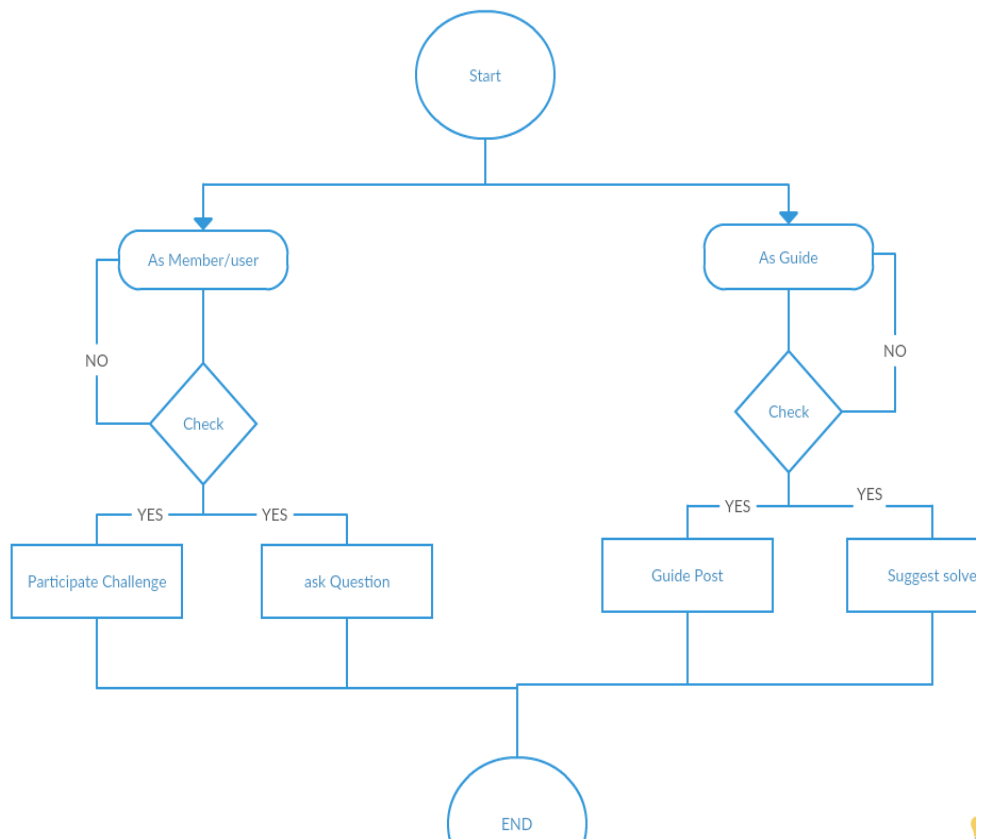


Figure: 3.2 System Process Model



## **3.2 Requirement Collection and Analysis**

### **3.2.1 Software Requirement**

- Android Studio IDE
- Android Virtual Device
- Firebase Database
- Firebase Storage
- Adobe Photoshop

### **3.2.2 Hardware Requirement**

- Operating System –Windows
- Android Supported Device
- Computer Configuration :
  - RAM – 4GB (min)
  - Hard Disk – 100 GB (min)
  - Processor – 1 .5 GHz (min)

### **3.2.3 Requirements for User:**

- Android Supported Device
- Internet Connection
- Install this Application
- Minimum SDK version 15

### 3.3 Use Case Modeling and Design

The use case is a methodology or technique which used in system analysis and design to identify, clarify and organize, customize the system requirements. The use case is made up of a set of possible sequences of interactions and Interrelation between systems and users in a particular environment and related to a particular goal or a process. Use case consists of a group of objects or elements that can be used together in a way that it will have a good impact than the sum of the separate elements combined. The use case should contain all the system functionality that have significance to the users. A use case design can be thought of as a collection of possible scenarios related to a particular goal, indeed, the use case and goal are sometimes considered to be synonymous.[7]

A use case diagram contains four components

- a) The boundary line, which defines the system of interest in relation to the world around it.
- b) The actors, usually the individuals involved with the process determine according to their roles.
- c) The use case diagram, which specify the roles are played by the actors within and around the whole process.
- d) The relationships between and among the actors and the use cases.

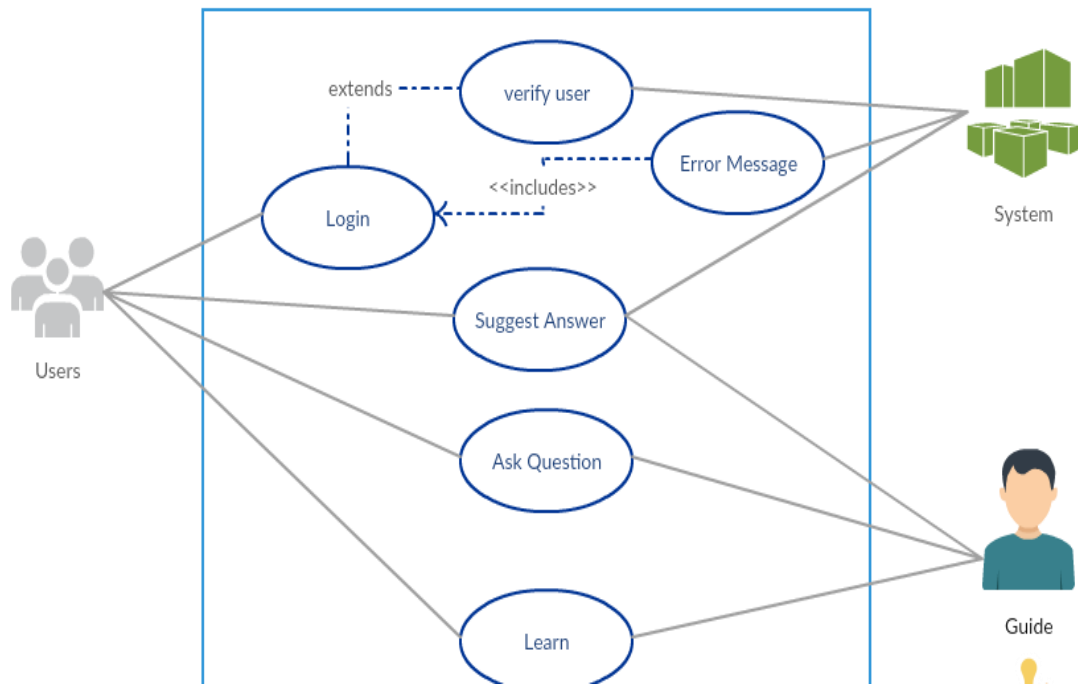


Figure: 3.3 Use Case Model

### **3.4 Design Requirements**

To develop this application I have to use some tools to design and implements it. At first, I use Android Studio IDE to design basic UI (the XML) file and build the project and to make it responsive for all android device. I use OOP (Java Object Oriented Programming) to develop this application and use JSON (JavaScript Object Notation) for some functionality. For real Time Database System, I use Google Firebase. Google Firebase Database, Google Cloud Storage. For image cropping system I use Android Image Cropper API. For Real-time Image Displaying I use Picasso Library API. I implemented my Basic Logo and icon using Adobe Photoshop which is necessary to provide better, attractive and user-friendly interface. The Business Process Model, use case diagram and others diagram are designed using Gliffy (extension of Google Chrome) which is more user-Friendly and reduced time to design a complex diagram.

# CHAPTER 4

## DESIGN SPECIFICATION

### 4.1 Front-end Design

In this section I'm going to discuss about the user interface which is developed in front end design and also the outlook of the application features [8]

#### 4.1.1 Login Page

The application starts with a login page. Where the user is requested to give their email and password for login. For a new user there is a signup option. By clicking this option they can sign up here. If the user fails to remember his/her password there is an option called forget password. The user can reset their password from here.



Figure: 4.1.1 Login Page

## 4.1.2 Signup Bridge Page

When the user clicked on Signup page user will go to Signup Bridge page. This Signup Bridge page which mainly contains two option, one “signup as User” another is “signup as Guide”. User Can Sign up as user or guide. If the user chooses to sign up as the user, the user can get participate in contest and skill base task. But if the user signup as Guide, Guide has a power where the guide can give task and give.



Figure: 4.1.2 Signup Bridge Page

### 4.1.3 Signup Page

The user can Sign up easily by entering user email and password. But for validation, there is an email verification process. Where the system will check the user email address is valid or not.

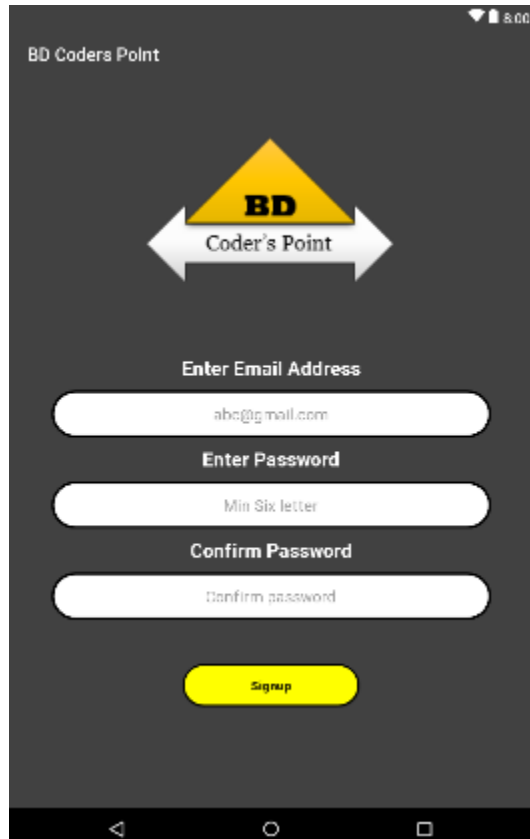


Figure: 4.1.3 Signup Page

#### 4.1.4 User Verification Page

After signup, there is a verification page. In this page, the system will check user email is verified or not. If user email is not verified it will request the user to verify the email address. An only verified user can enter into the main page.

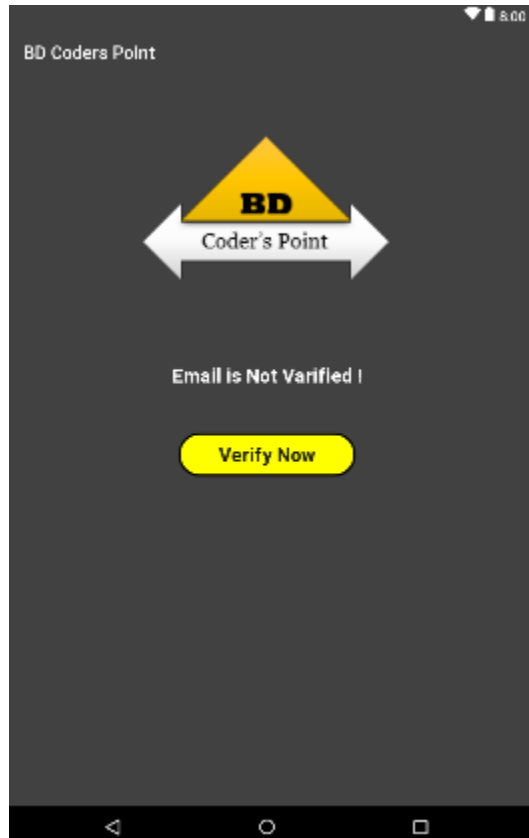


Figure: 4.1.4 Verification Page



### 4.1.5 Password Reset Page

If any user fails to remember the password. For those there is a Password Reset Page from There user/guide can reset the password. When the user presses the send request a link will send to their email address for resetting the password.

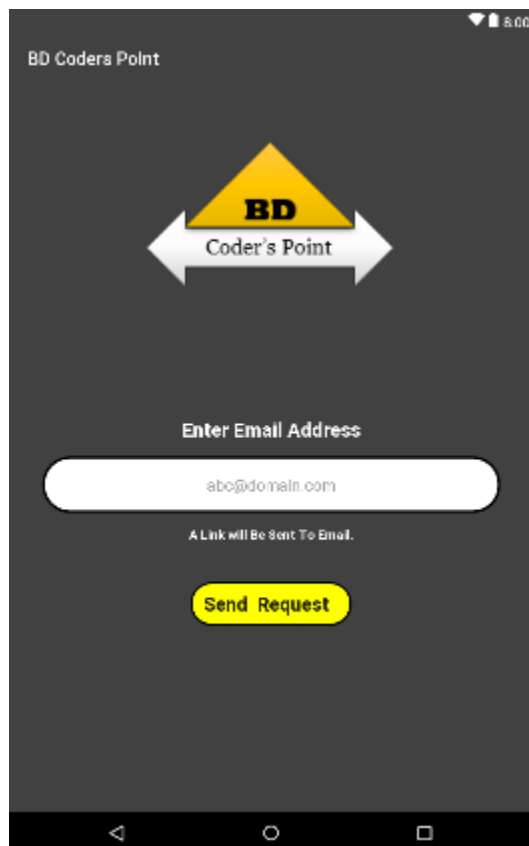


Figure: 4.1.5 Password Reset Page

### 4.1.6 Profile Setting

After Successfully Registration and verification User Have to set the profile page. The user needs to add a profile picture, Name, Description (mandatory). The user can also select programming language, IDE, framework. As shown in the fig. By clicking the save button all the information of user will store in the Real-time Database.

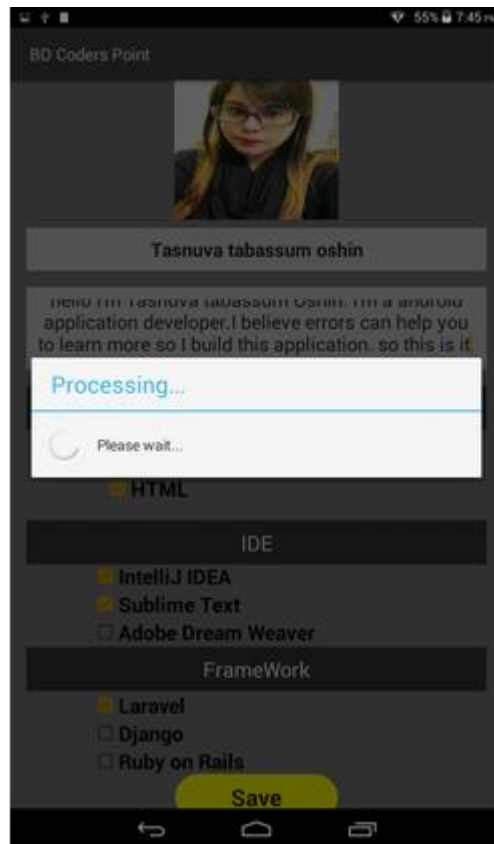


Figure: 4.1.6 Profile Setting Page

## 4.1.7 Profile Page

Now After setting user will get to view the complete profile. For Guide there is an extra feature option “Guide Option” and there is no bottom navigation bar for guide profile. And for the normal user they have all access to use navigation bar. There is four menu option – Profile, Home, Task, and Master Profile. Profile menu is the current showing profile option. And the Home menu is for going home. Task menu is for getting Ongoing Task information time, details and etc. and the master profile menu is not available for the current user. For this profile, the user needs to complete all the skill base task and get points. There is also a setting option in the profile page where the user can set profile or edit profile.



Figure: 4.1.7 Profile Page

### 4.1.8 Home Page

The homepage consists of two parts. One for showing content, another is showing the home menu. In the Content part, User can view all the asked question in recycler view and there is a rating option like dislike etc. And In the Menu Part a navigation drawer layout where the user will find his picture name and menu options.

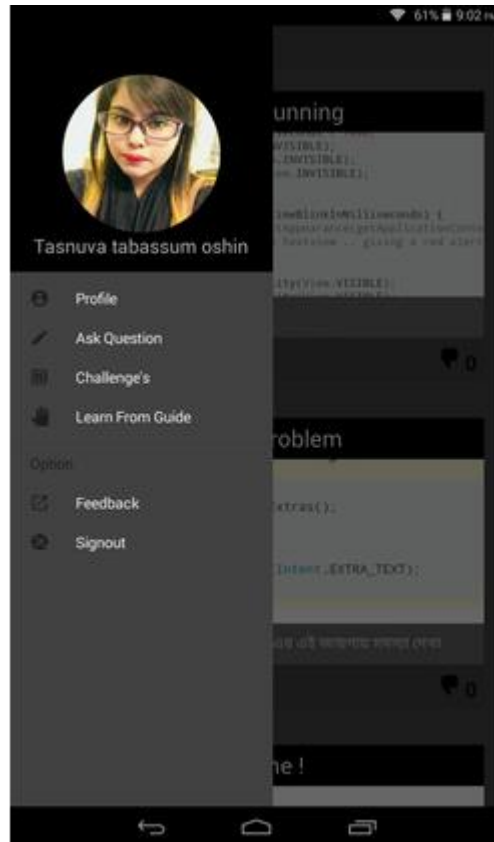


Figure: 4.1.8 Home Page

### 4.1.9 Menu

There is Profile, Ask Question, Challenge's, and Learn from Guide, Feedback, and Sign-out option in this menu part. By Clicking Profile menu user can go to the profile page. Similarly When any user clicks on Ask Question User can view the ask page [5]

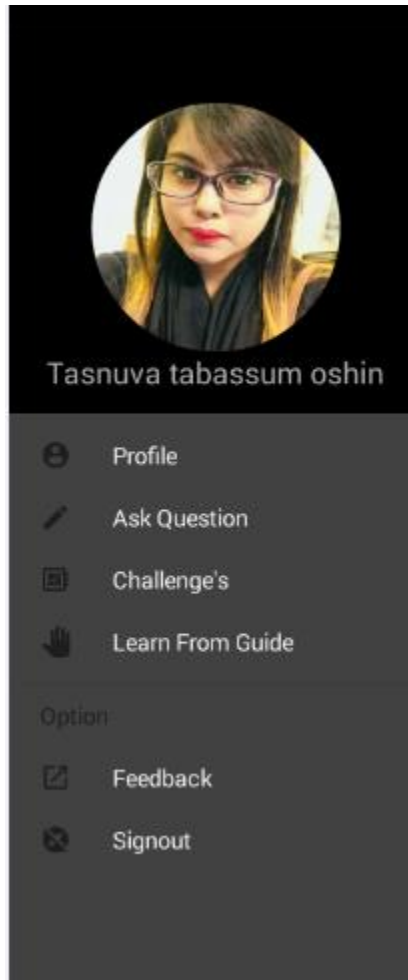


Figure: 4.1.9 Menu

### 4.1.10 Ask Page

This Option is Available for all user. They can ask a question by using this option. The user can write about the problem, can send a picture, can send voice message too. When User click ADD voice recording option will appear then. And by clicking add Image User can add an image with a question. When user click Submit button all the question information gets stored in the real-time database system

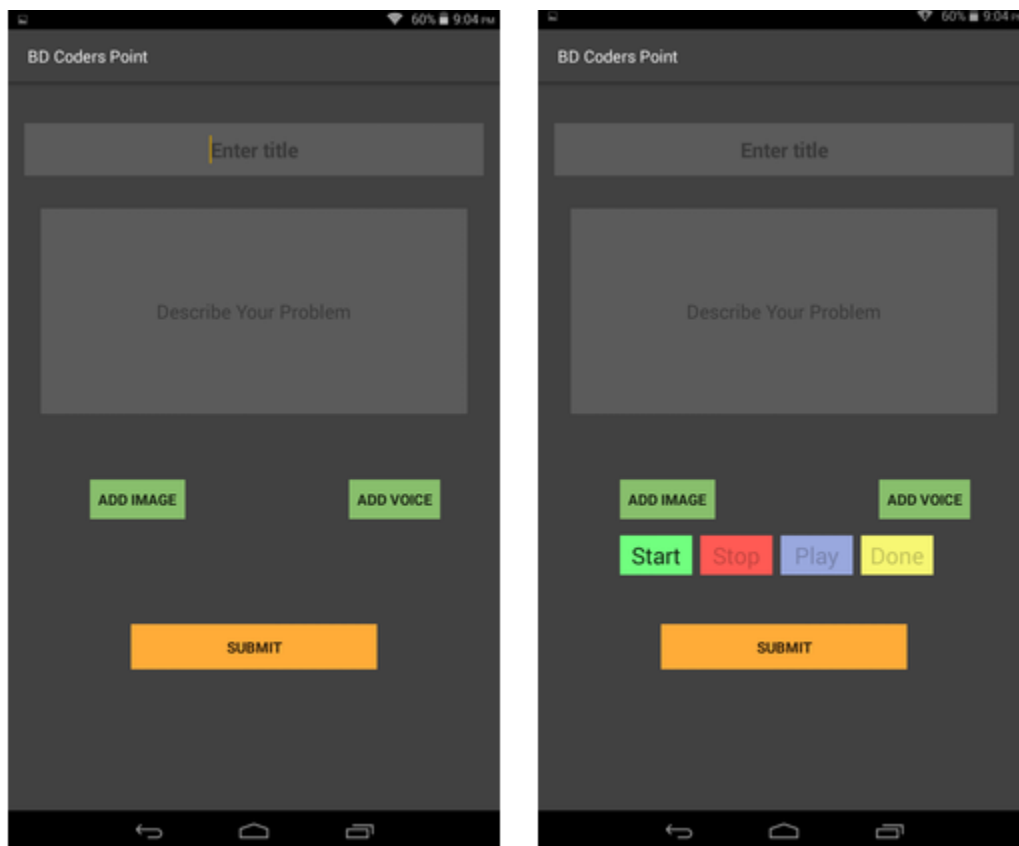


Figure: 4.1.10 Ask Page

### 4.1.11 Challenge Page

This Option is for the user. They can participate in this challenges. The guide cannot access this option. The user can view three Challenge's step, Basic Project Challenge, Intermediate Project Challenge, Advance Project Challenge. Before completing the Basic Project Challenge user is not allowed to accept the Intermediate project challenge and Advance Project challenge. Check out the figure



Figure: 4.1.11 Challenge Page

#### 4.1.12 File Submission Page

After Accepting Challenge user can view the project time and a submission box too. Within this time user have to submit all the file and if the task is successful user will get points. When time clock comes to an end the system will automatically disappear the submission box. The task will end.

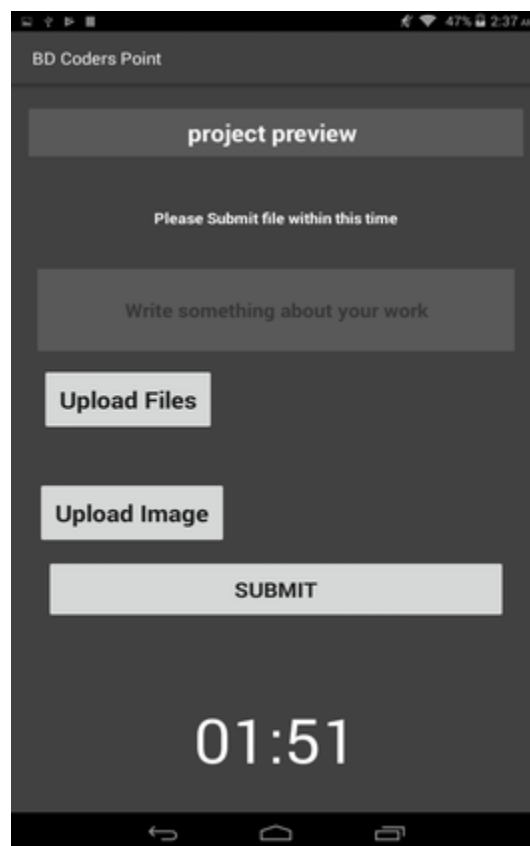


Figure: 4.1.12 File Submission Page



### 4.1.13 Learn From Guide Option

In this page Guide opinion is displayed. What guide think, what Member need to do guide will talk about this.

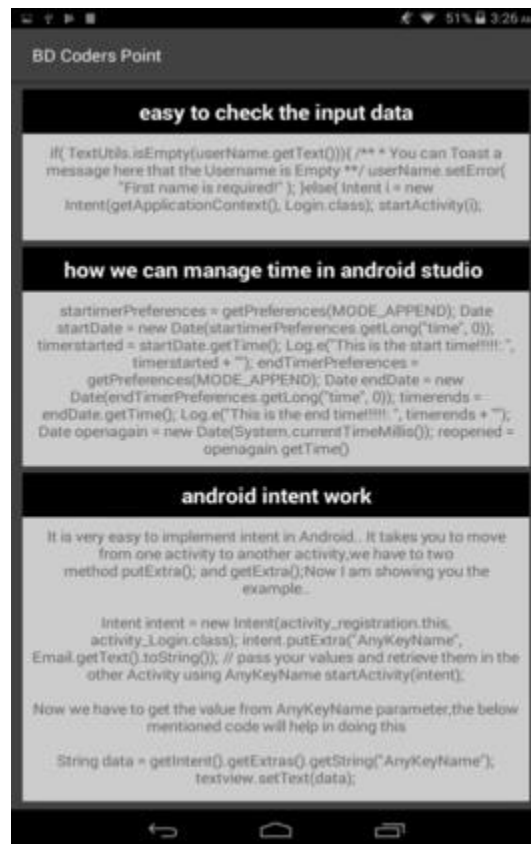


Figure: 4.1.13 Learn From Guide

#### 4.1.14 Feedback Page

Member and Guide Both can use it. They can give feedback. They can write to us.

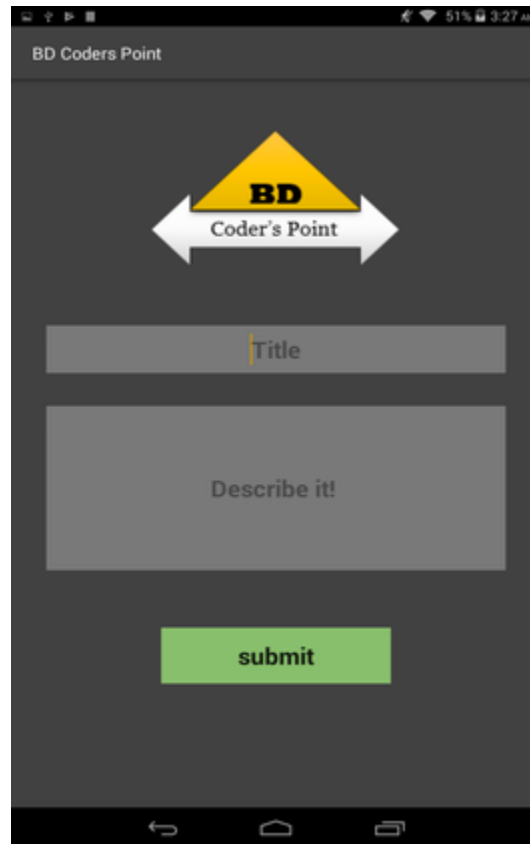


Figure: 4.1.14 Feedback Page

## 4.1.15 Logout

User can simply logout by using this option.

## 4.1.16 Content Page

All the Asked question is displayed from here. Member or guide can preview it. They can give like, dislike using like the dislike button [9]



Figure: 4.1.16 Content Page

### 4.1.17 Question Preview Page

This Page Describe when a user clicked a specific question (Homepage content) User can Preview the question from Question Preview Page. In this page, a user can suggest answer using the comment section. And the user can also rate the comments too. The user can preview the question attachment by clicking show attachment button.



Figure: 4.1.17 Question Preview Page

## 4.1.18 Attachment Page

In this page user can preview question attached picture and user can also hear the voice message.

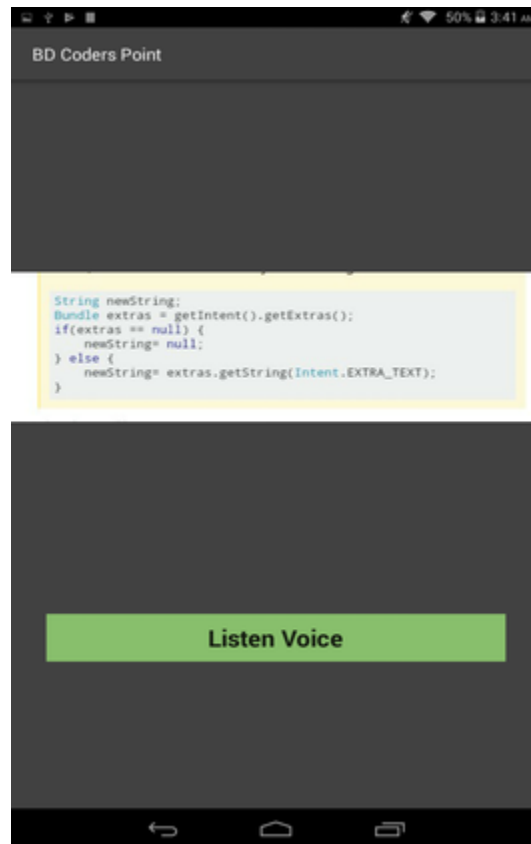


Figure: 4.1.18 Attachment Page

## 4.2 Back-end Design

I use Logical Data Model for this Back-end Design. It describes the data in Detail as much as possible. Features of a logical data model.

- Includes all entities and relationships among them
- All attributes for each are correctly specified
- The primary key for each entity is specified
- Foreign Keys are specified
- Normalization Occurs at this level

The figure below is the logical data model of my project.

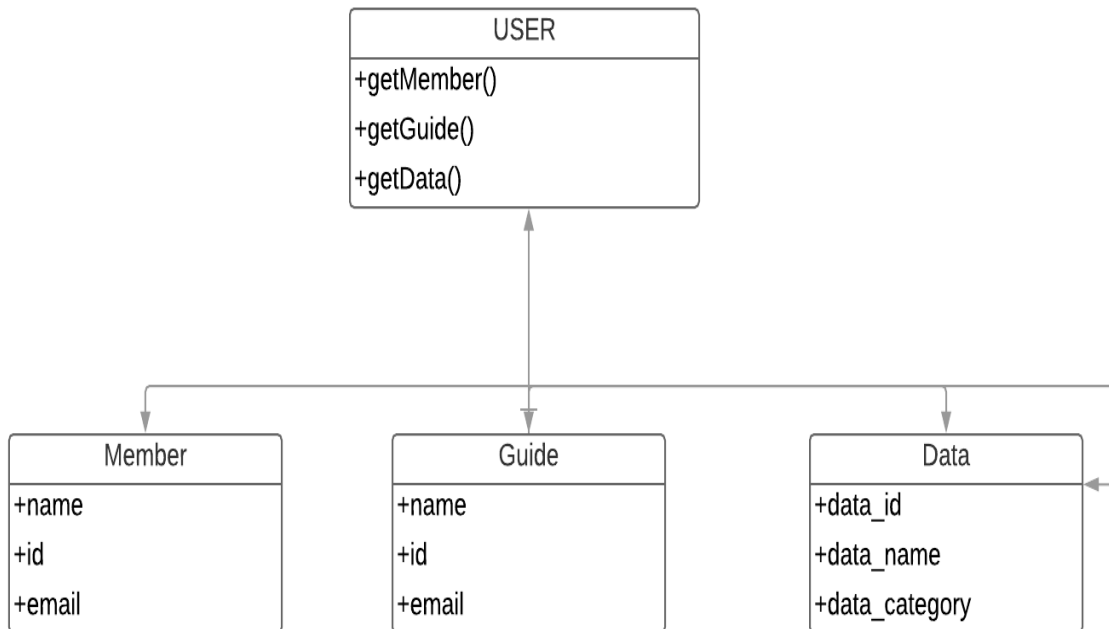


Figure: 4.2 Logical Data Model

### **4.3 Implementation Requirements**

- JSON
- Google API [2]
- Firebase console
- Gmail
- Firebase API [1]

# CHAPTER 5

## IMPLEMENTATION AND TESTING

### 5.1 Implementation of Database

I'm using Google Firebase Server for Data Storage. This section describes the database architecture. The Main Objects, key values such as Question, User data, comments, Error solve. All the object and values are in real time. [1]

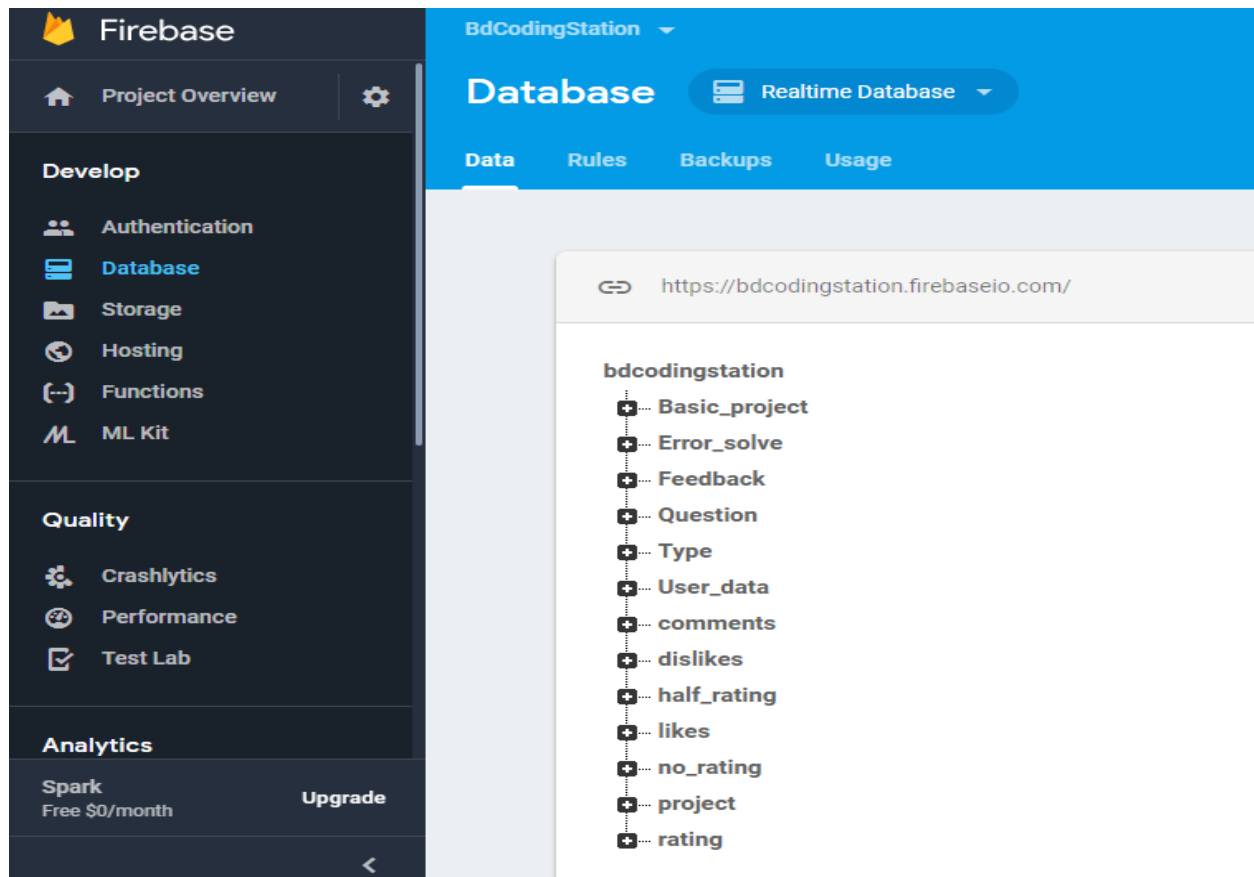


Figure: 5.1 Firebase Database structure



## 5.2 Implementation of Storage System

For File and Image Storage in real-time, I use Firebase Cloud storage and make object key values such as Question Image, User, and Profile. [1]

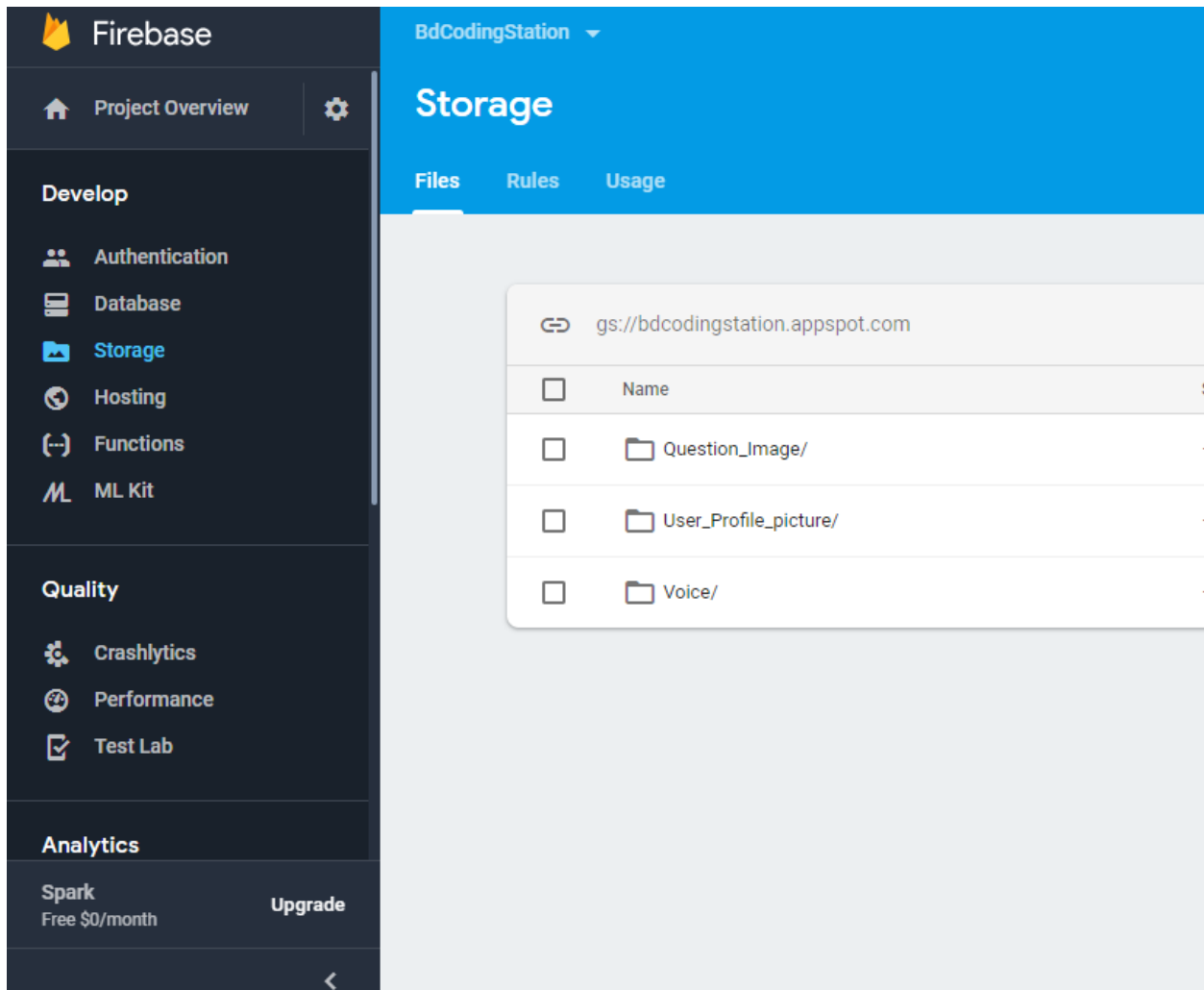
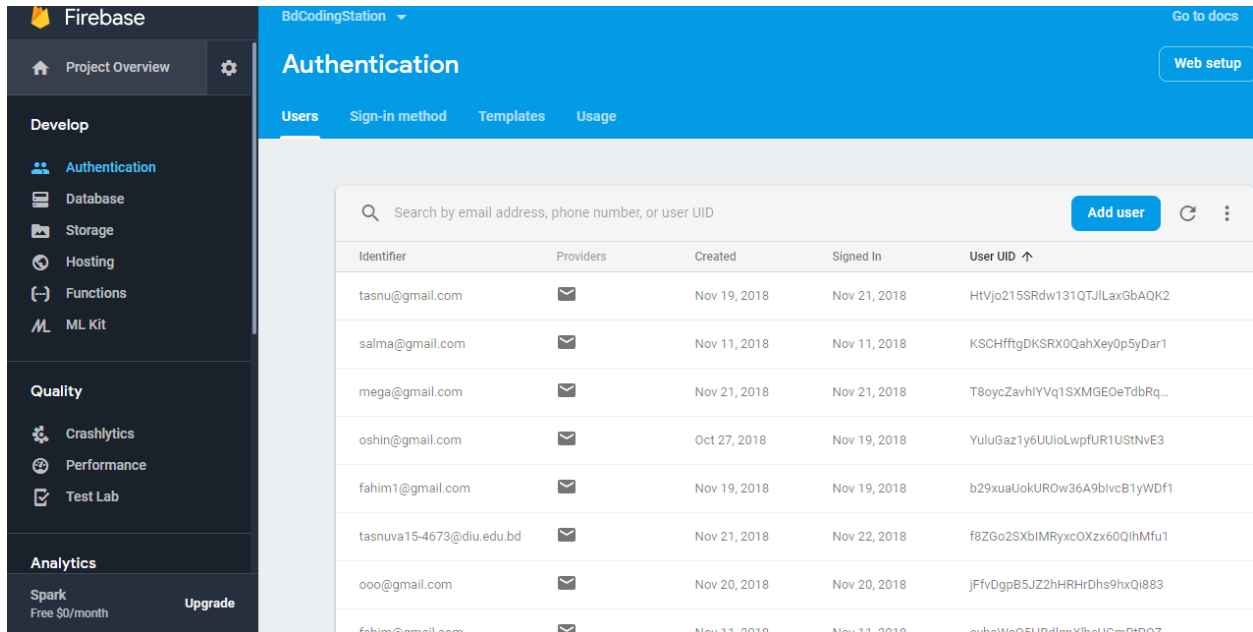


Figure: 5.2 Firebase Database storage

## 5.3 Implementation of Authentication System

For Authentication I use Firebase Authentication. It is also Real-time Authentication System. User verification process also done by this. [1]



The screenshot displays the Firebase Authentication console for the project 'BdCodingStation'. The interface includes a sidebar with navigation options like 'Project Overview', 'Develop', 'Quality', and 'Analytics'. The main content area shows the 'Authentication' section with a 'Users' tab selected. A search bar at the top allows filtering by email, phone number, or user UID. Below the search bar is a table listing ten users with columns for Identifier, Providers, Created, Signed In, and User UID.

Identifier	Providers	Created	Signed In	User UID ↑
tasnu@gmail.com	✉	Nov 19, 2018	Nov 21, 2018	HTVjo215SRdw131QTJLlaxGbAQK2
salma@gmail.com	✉	Nov 11, 2018	Nov 11, 2018	KSCHfftgDKSRX0QahXey0p5yDar1
mega@gmail.com	✉	Nov 21, 2018	Nov 21, 2018	T8oycZavhiYVq1SXMGE0eTdbRq...
oshin@gmail.com	✉	Oct 27, 2018	Nov 19, 2018	YuluGaz1y6UUioLwfpUR1USTNvE3
fahim1@gmail.com	✉	Nov 19, 2018	Nov 19, 2018	b29xuaUokUROw36A9blvcB1yWDF1
tasnuva15-4673@diu.edu.bd	✉	Nov 21, 2018	Nov 22, 2018	f8ZGo2SXbIMRyxcOXzx60QlhMfu1
ooo@gmail.com	✉	Nov 20, 2018	Nov 20, 2018	JFfvDgpB5JZ2hHRHrDhs9hxQi883
fahim@gmail.com	✉	Nov 11, 2018	Nov 11, 2018	nvhaWa05HRdlnnXlht1IGmRtP07

Figure: 5.3 Implementation of Authentication

## 5.4 Implementation of Communication

After Successful Registration Member can ask Question and the other member or guide can help to solve the member problem by using the comment section. All this are a real-time process so the member can get solution easily by real-time features.

### 5.4.1 Ask Question Procedure (Member end)

In this section describes for the purpose of Member. If any member already completes the registration and verification process member needs to go to the menu ask Question and then write a question. A member can add an image or send a voice message too. After clicking the submit button. This question will store in the database. And it will show in the home page content sector using firebase database.

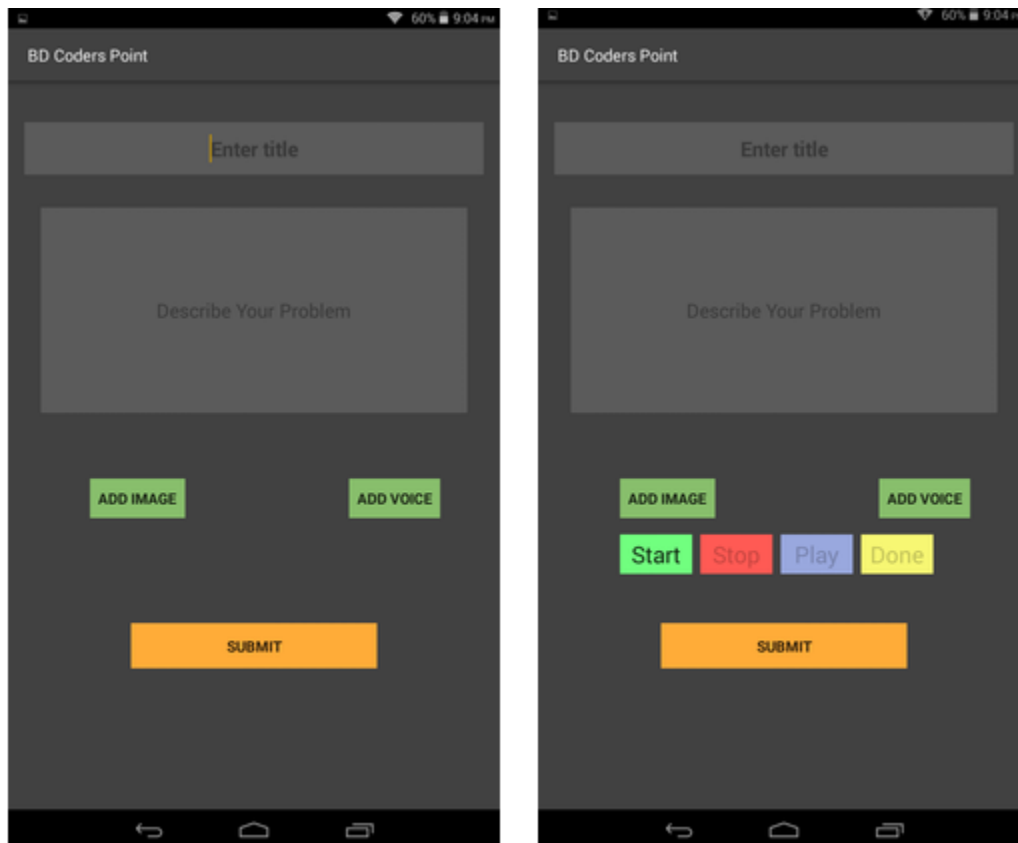


Figure: 5.4.1 Question Ask System

### **5.4.2 Challenge Procedure (Member end)**

Member can participate in real-time Challenges. All the data for that challenge will show in real time. The Challenge info time etc. all fixed from server-side only admin or moderator has access to the server. When any member Accept Challenge the Task description time and submit box appear in the display of the member profile. Within this time member can submit the task file. And if member success to submit it within the time the member will get points for the right answer. Shown in figure 4.1.8

### **5.4.3 Learn from Guide Procedure (Guide end)**

In this section describes for the purpose of Guide. In the Guide Profile, There is an option “Guide about Error” using this option Guide can write about Programming problems, how a user or member can get rid of this problems. When a guide submit all the data stored in the firebase real-time database and at the same time this data is shown in the Learn from the guide section. So a member can view it in real time. Shown in figure 4.1.8

## **5.5 Testing Implementation**

Testing each one of those actions formulated in the planned testing full functionality, the process is said to be implementation testing. I’m using unit testing for my application model purpose. [6] Because of

- It Reduces Defects in the newly Developed Features or reduces bugs when changing the existing functionality.
- Improves Design and allows better refactoring of code
- Unit Tests. When integrated with build gives the quality of the build as well.

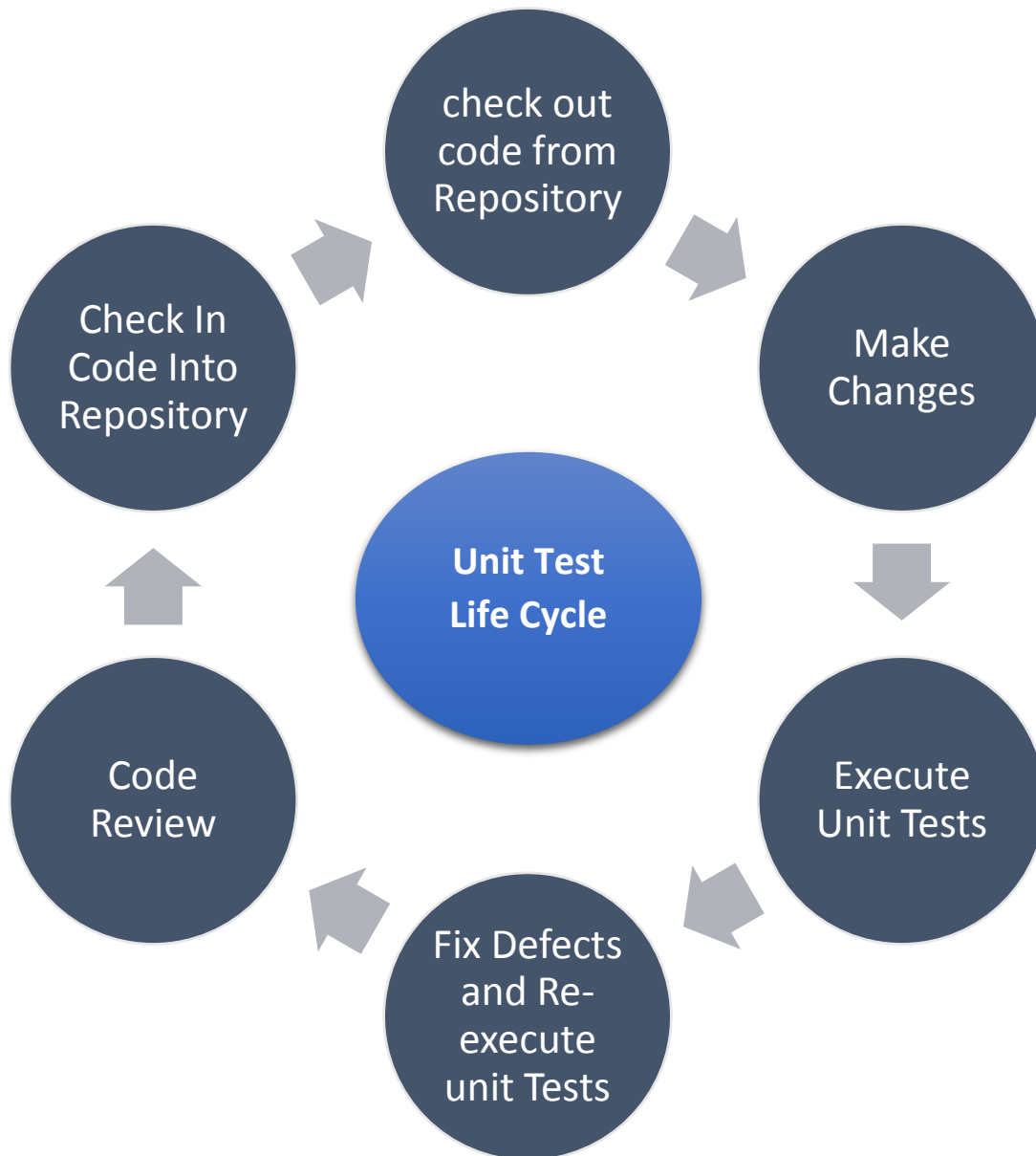


Figure: 5.5 Unit Testing Life Cycle

## 5.6 Unit Testing

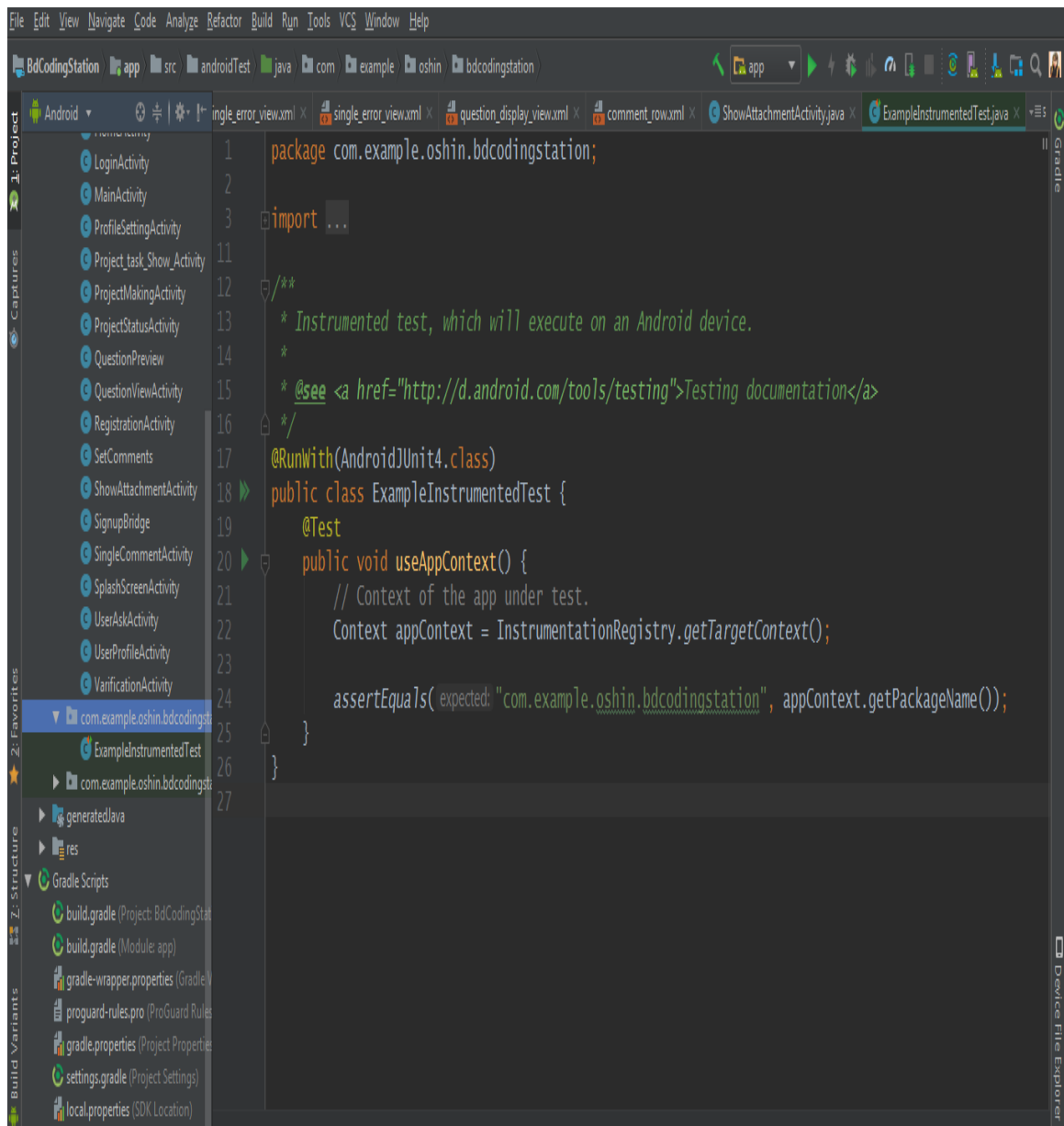


Figure: 5.6 Unit Testing

## CHAPTER 6

### CONCLUSION AND FUTURE SCOPE

#### 6.1 Summary

BD Coder's Point is an android application which is successfully developed from a developer sentiment. But I try to concern as possible as I can as be a user of this application. There is a chance of elevating the system furthermore to make it more effective. In this chapter, I will like to discuss the achievements of the project development, project limitation and further improvement ideas of the project.

Outcomes of this project which one I have achieve to,

- Learned ,How to architect a project
- Using Firebase API
- Working with JSON

#### 6.2 Limitations

- There might be some bugs and need more testing before implements in real life
- There might be some limitations in design sector
- There might be some limitations to engage the Guide in Systematic way

### **6.3 Scope for Further Development**

The application has been developed with future development possibilities. I wish I could improve the application and reduce the limitation of this application and make it more effective. I, the Developer of this project wished to continue my involvement and contribution to this system for further developments.

- Develop on IOS Version
- Online Chatting facility
- Update both English and Bangla Version
- Wish to develop for Industry purpose



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