

Teacher's Home: Android App

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

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DAFFODIL INTERNATIONAL UNIVERSITY

DHAKA, BANGLADESH

8th October, 2020

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This Project/internship titled “**your title**”, submitted by **Name**, ID No: **100-15-1111** 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 **date**.

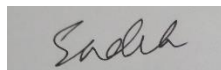
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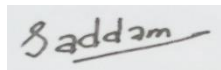
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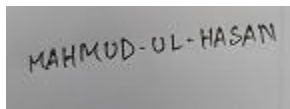
I am declare that, this project has been done by me under the supervision of **Ms. Afsara Tasneem Misha, Lecturer, Department of CSE**, and Daffodil International University. I also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

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ABSTRACT

This project is on “Teachers Home” android app where user can learn different programming language and many more. This project made for especially for Bangladeshi student those are willing to learn to programming and computer science related topics in Bangla. Teachers Home has largest collection of free code learning content, from beginner to pro choose from thousands of programming topics to learn coding concept, brush up your programming knowledge or stay aligned latest coding test. User can learn programming by reading and watching video. User can test himself by attending quiz. User also prepare for job interview question. In future many computer science related books user can download. Our project main goal is learn programming easily. Nowadays Most of the Bangladeshi student do not have any computer but if they have a smart phone they can learn programming. On this point view we have made this android app.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

Our Project main goal is to help student who are want to learn programming language and prove himself. In Programming world most of the content are English. Many Bangladeshi Student do not understands English. In that case we are trying to fun programming. Our all contents are Bangla for that student can easily grab it. Most of the school and college students are willing to learn programming but they have no computer in this case we are helping him. Our app is very user friendly. Include all programming language like Java, C, C++, Python etc. We have discussed all this thing as chapter wise. User can watch video on every topics. In Bangladesh lots of student cannot buy internet but to use our app user have no internet. Without internet user can read, practice.

1.2 Objectives

The android app currently available for student.

The goals of our system are:

- Valid Authenticate User can Signup
- User can learn programming language through app
- Tutorial can be read without internet
- Chapter Wise tutorial
- Code highlight
- User can test him by quiz
- Admin can manage all this Database
- Admin can add Course quiz question
- User can prepare for join next job interview
- Admin can delete add all this thing from database

1.3 Motivation

Applications based on Android make life comfortable, easier, and convenient and advanced for the user. Android phones are highly customizable and flexible and as such can be altered to suit your choice and manage according to your needs.

Nowadays, Bangladeshi Student facing many problem to learn programming. They cannot get Bangla resource to learn programing. We are trying to fix this problem through mobile app.

1.4 Expected Outcome

Information technology has revitalized the life of human being and has made life easier by various kind of application. We are trying to learning programming easier and fun. Teacher's home app will help to student. End of the if user use this app and then they are benefited We will be success.

1.5 Report Layout

We all know, practical knowledge is more important than theory. In our graduation degree we learn a lot of things. This project gives us scope to share our knowledge and utilize our thought. By doing this project we can implement our skill more effectively.

First Chapter includes introduction, objective, motivations, expected outcome and Report layout of our project. Second chapter contains introduction, related works, comparative studies, scope of the problem and also challenges of our project. Our third chapter contain all about requirement specification which are use case modeling specification, entity relationship model, Design Requirements.

Fourth Chapter describes our full Mobile application description which is related to Design specification like user interface design, back end Design, interface Design and UX, Implementation Requirements. Our last chapter is all about Implementation and Testing. This contains Implementation of database Front-end design, Interactions, Testing Implementation and Test Results and Reports.

Our last chapter contain conclusion of the full project. This report contains all about our Mobile application system, its problem, solution and use of the system.

CHAPTER 2

BACKGROUND

2.1 Introduction

With the “Teacher’s Home” app you can find many programming tutorials, Programming lessons, Programs, Question and Answer all that you need to learn either programming basics or become a programming expert. User can learn for his university course, for his passion, or interest for programming. We trying to make easy programming because our content is Bangla user easily understand it.

2.2 Related Works

At present Solo Learn make an android app like us. They have android app where user can learn many programming language like Java, Python, Html, CSS, JQuery and lots of. They have made app very organized and user friendly. Beginner can learn easily learn from there android app.



Figure: 2.1 Solo Learn Android App

Features of Solo Learn Android App [1] [2]

- Amazing collection of Programming tutorials chapter- wise
- 100+ Programs with proper comments for better understanding
- Output for each of the code Examples/Program
- Question and Answer in different category's
- Import Exam Question
- Share the tutorials and code by one clicks
- Tutorials for beginners and expert

2.3 Comparative Studies

Solo Learn Android App is good for who willing to learn Programming. They have Think for global students. They are app content wrote are English. That's not easy to understand for Bangladeshi student. That is main different between Solo Learn Android App and Our Teacher's Home app. We know most of the Bangladeshi student do not English properly. On that programming that was so difficult for beginners. That's the main goal for our app. So that beginner can easily learn programming topics.

2.4 Scope of the Problems

- 1) If user have no smart phone then they cannot use our app
- 2) If user have no internet connection they cannot take quiz exam
- 3) If user device bellow 21 API level they also cannot use our app
- 4) User cannot give a certificate
- 5) User can learn for his interest

2.5 Challenges

- **Multiple User Connected**

Currently we cannot connect more user at a time. Our Firestore Database our limitations. Fire store give us 1GB storage for free. We are trying to purchase plan and more efficient for user.

- **Allocation of Resources:**

Our cloud system (firebase) give us 100 user space at a time. If hit more than hundred user our database cloud system will get error. To store every user profile, phone number, Corse,

Quiz Question take huge space so that we need to buy cloud storage. In future we will buy hosting for our app and with it backend. After that cannot dependent on firebase. We can customize our app from the backend.

CHAPTER 3

SOFTWARE REQUIREMENT SPECIFICATION

3.1 Business Process Model

No matter what industry you belong to, consistently improving process efficiency is crucial to growth. Ignoring business process management altogether is a surefire way to stagnate or, worse, fall behind in the competition .But our app will totally free for the user because the user can use easily .If the user can paid money , all people cannot use.

3.2 Use Case Model

A use-case model is a model of how different types of users interact with the system to solve a problem. As such, it describes the goals of the users, the interactions between the users and the system, and the required behavior of the system in satisfying these goals.

A use-case model consists of a number of model elements. The most important model elements are: use cases, actors and the relationships between them.[1]

A use-case model is used to graphically represent a subset of the model which we can use simplify to communications. We will used several use-case diagrams associated with the given model, each model showing a subset of the model which elements relevant for a particular purpose in a project. A same model component may be shown on several use-case diagrams, but every element must be several. We use use-case model to maintain every tools, this stability check is self-operating so that we can changes to the model every element will be self-operating through back on every use-case diagram which shown in element.

The use-case model may contain packages that are used to structure the model to simplify analysis, communications, navigation, development, maintenance and planning. Much of the use-case model is in fact textual, with the text captured in the use-case specifications that are associated with each use-case model element. These specifications describe the flow of events of the use case.

The use-case model work for as a unity direction all over a system evolution. It is used as the main identification of the functional essential for the system,

- as the binging for analysis and design, as and input to iteration planning, as al over of defining test cases and as all over for user identification.
- **System Use Case:**

The system has the following set of use cases. Figure: 3.1 is describing the System use case. User can create account by Log In. Before creating account, the user must check display message is there any other option to create account. If the account is free then they will select that account after that they will submit the account for approval. If admin found the account necessary then approve the account and published the account. An email notification will be sent to the user.

When user successfully log in he/she see many programming course, Quiz, Job interview and many thing.

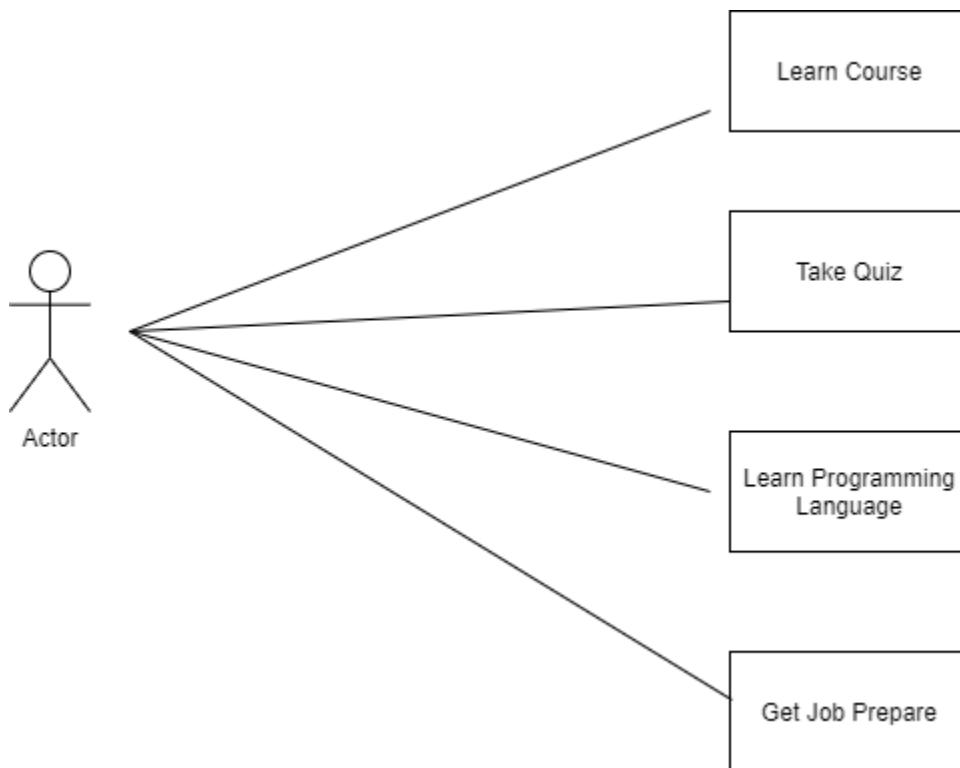


Figure: 3.1 System Use Case Diagram

- **Use Case of Registration for User:**

User can create account by Log In. Figure: 3.2 describe the Log In use case.

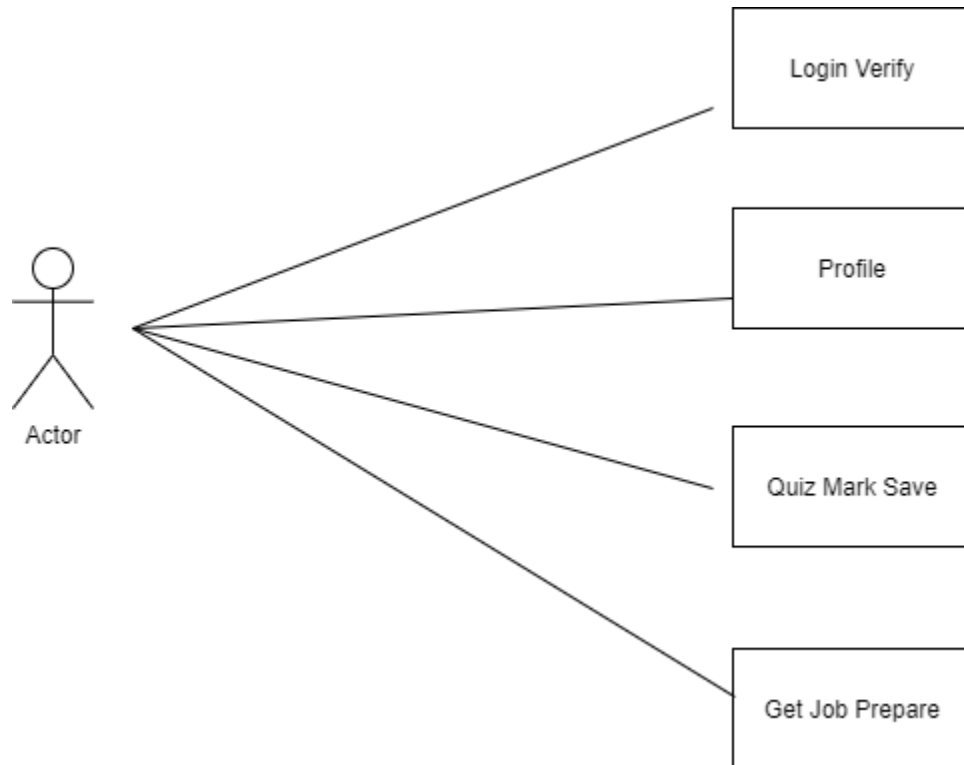


Figure: 3.2 User Login and Create Account Diagram

Use Case Details:

Use case name : Login (For Create account)

Precondition : None

Actor : User

Primary Path : 1. Enter Login ID
2. Enter Password
3. Click “Login” button

Exceptional path : 3.1: Invalid Login ID/ password, back to step 1 or 2.

- **Use case Create Account:**

After the Log In the registered user can create an account. Figure: 3.3 describe the Create account use case. After Login successfully User can pick course or give quiz. User also take job preparation.

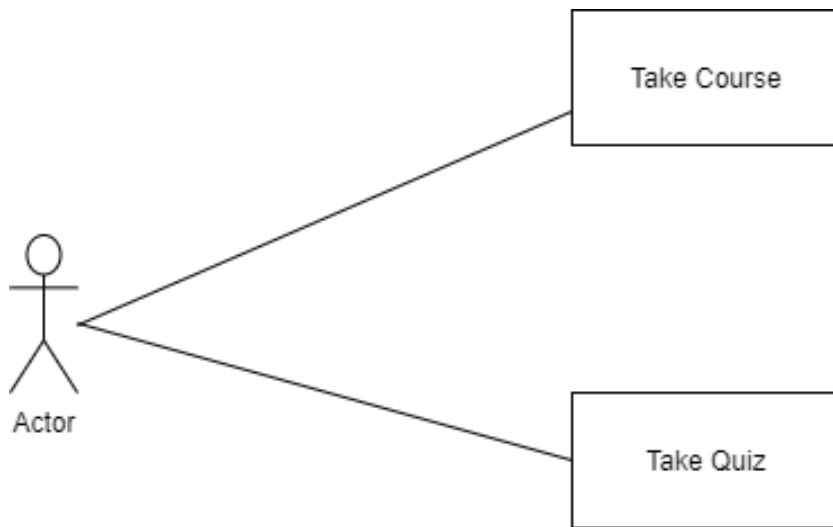


Figure: 3.3 User Create Account for Learn Diagram

Use Case Details:

Use case name : Create Account

Precondition : Log In

Actor : User

Primary Path : 1. Show notification
2. Learn Programming
3. Take Quiz

Exceptional path : 2.1: See Message or call (Selecting one option), back to Step 2
3.1: See Message, back to step 3.

3.3 Implementation Requirements

In a software implementation, we need any programming knowledge could be done to decisions in need to which technologies should be used to program for any project. The following is a condemning essential for different programming languages which program we used such an Android Application.

3.3.1 Front-End-Design (XML):

XML Means Extensible Markup language. In android layout design we have use xml. Xml is very fast and secure for android screen design. It seems like html attribute. Xml has key and value pair. When we will see our android screen it design xml. Android Authority give the support. Xml has consist of Layout and View.

- **Google Material Design**

Google Material design provide us design more easy and pattern. It's developed by google. Now day's google material design solid principle for designer. By material design User interface is very smoothly run. It give developer many library to make easier design pattern. Now material design for all platform Android, Web, And IOS.

- **Back-End (Firebase):**

Firebase is a most popular backend for Mobile application. It Main Two Part is Firebase Real time database and Firebase Cloud FireStore. Firebase Real-time database is NOSQL. It can hold data using JSON format. On The other hand Firebase Cloud Firestore hold data object base like mongoDB. We have use both for our project. Firebase backend gives developer many opportunity like Craslytics, Hosting and many more some are given bellow.

1. Real Time Database
2. Cloud Fire Store
3. Push notification
4. Hosting
5. Admov
6. Authentication

- **PHP:**

PHP is the open source scripting language. PHP: Hyper Text Processor. It's most popular backend server side language. In future our app convert into firebase to PHP backend. We can create our own hosting and then modify it. With PHP we will make admin panel so that admin can upload content like Quiz question, Programming content and many more. PHP is use very that why we will go for it.

- **MySQL:**

MySQL is the most popular Relational database system. MySQL is most popular database. It's used for backend language. MySQL write into c and c plus plus language. We can perform any operation like insert, update, delete, and create. PHP MySQL is most popular backend system with php. We can deploy our data in database. When need any data we just simple write query and it gives us user information. We can create database for web and mobile both. It's very secure fast and reliable. We trying to move convert our project to Firebase database to PHP MySQL. Its support and developed by oracle corporation.

3.4 Logical Data Model

Figure 3.10 describes the Entity relationship Diagram of this project which representing the relationship among the entities .This diagram relation between user. User login then he/she start reading ,take Quiz get preparation for job interview.

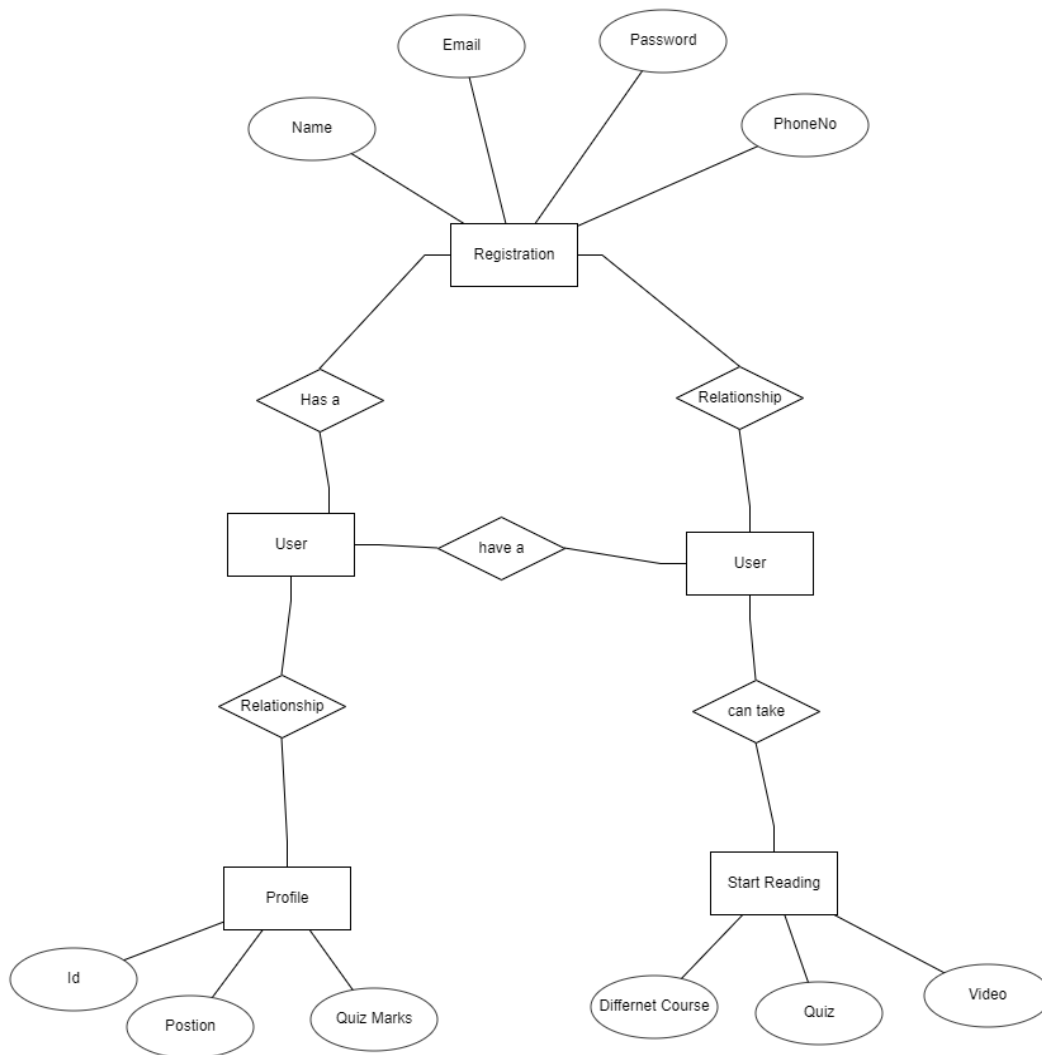


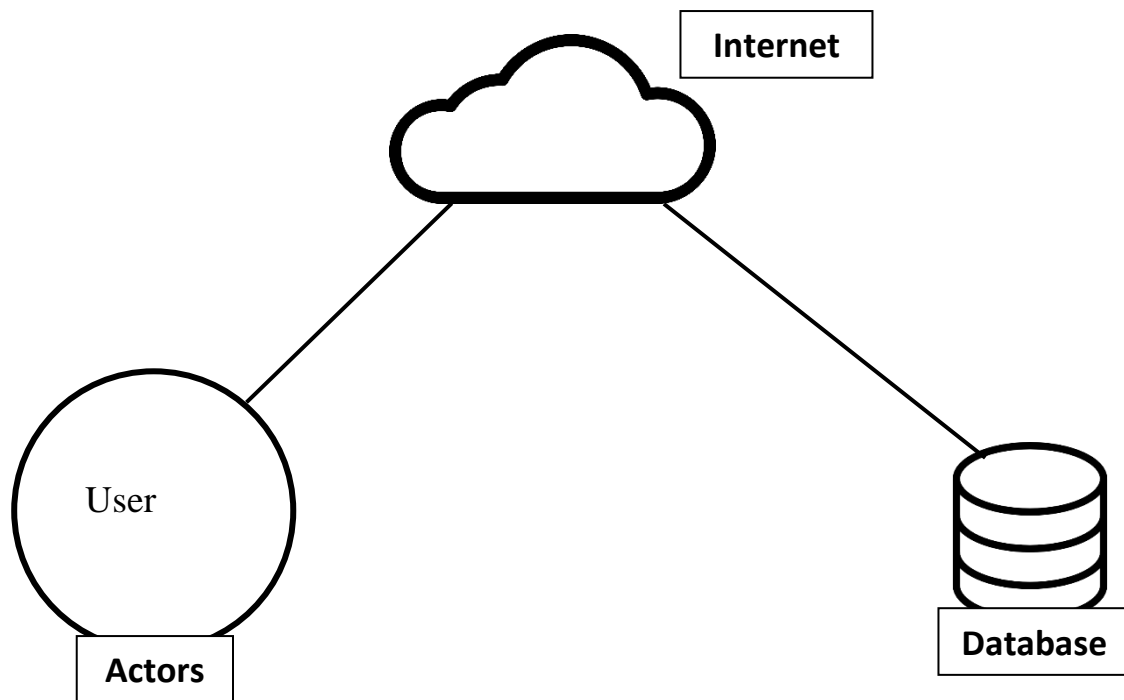
Figure 3.4: Entity Relationship diagram

CHAPTER 4

DESIGN SPECIFICATION

4.1 System Environment

The Design & Development of managing crisis situation connect user through database. If user connect internet they can see their current location, find people, access other user location. We store every user information in our database and one user search another user.



4.2 Front-end Design

Home Page



Figure 4.2 Show the Home Page

Login Panel

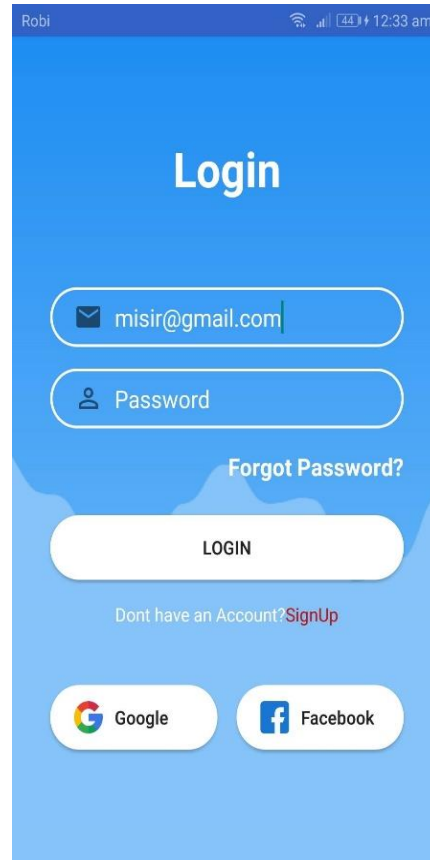


Figure 4.3 Show the Login Page

When User successfully login he/she can see Home page. Home page content our main feature like reading, taking quiz, watch video.

See Quiz System and Category

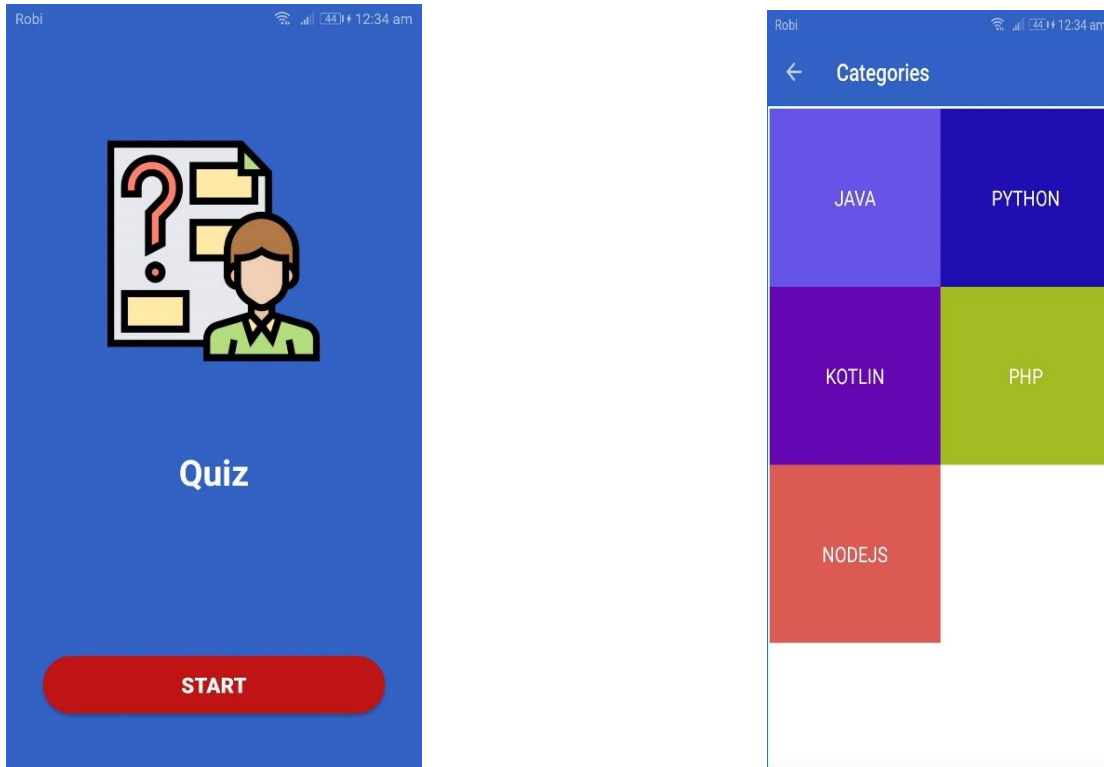


Figure: 4.4: Featured Quiz System

In our app we have built quiz system. User can justify him. There is lot of category and lot of sets. Just click start Quiz then it will start.

Quiz Question And Score

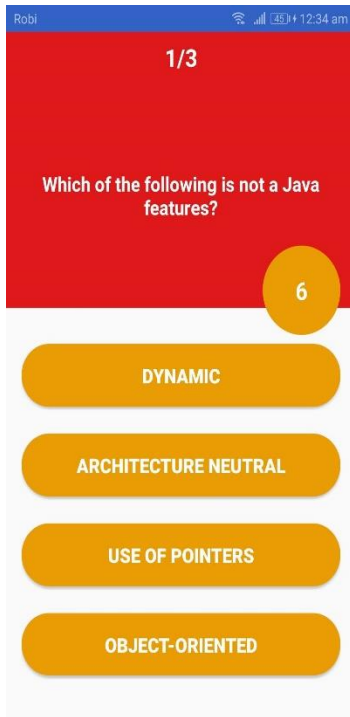


Figure 4.5: Show Quiz Question

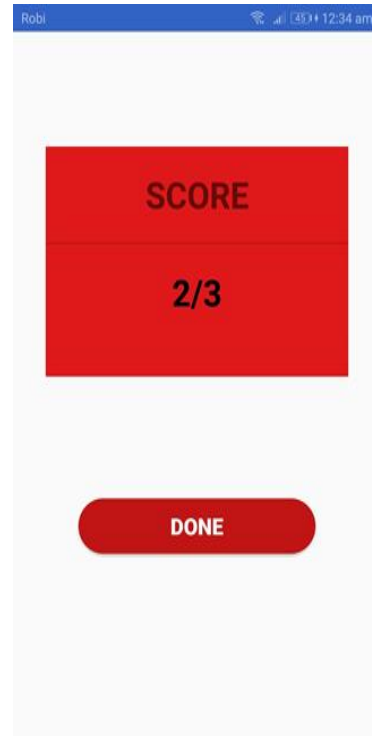
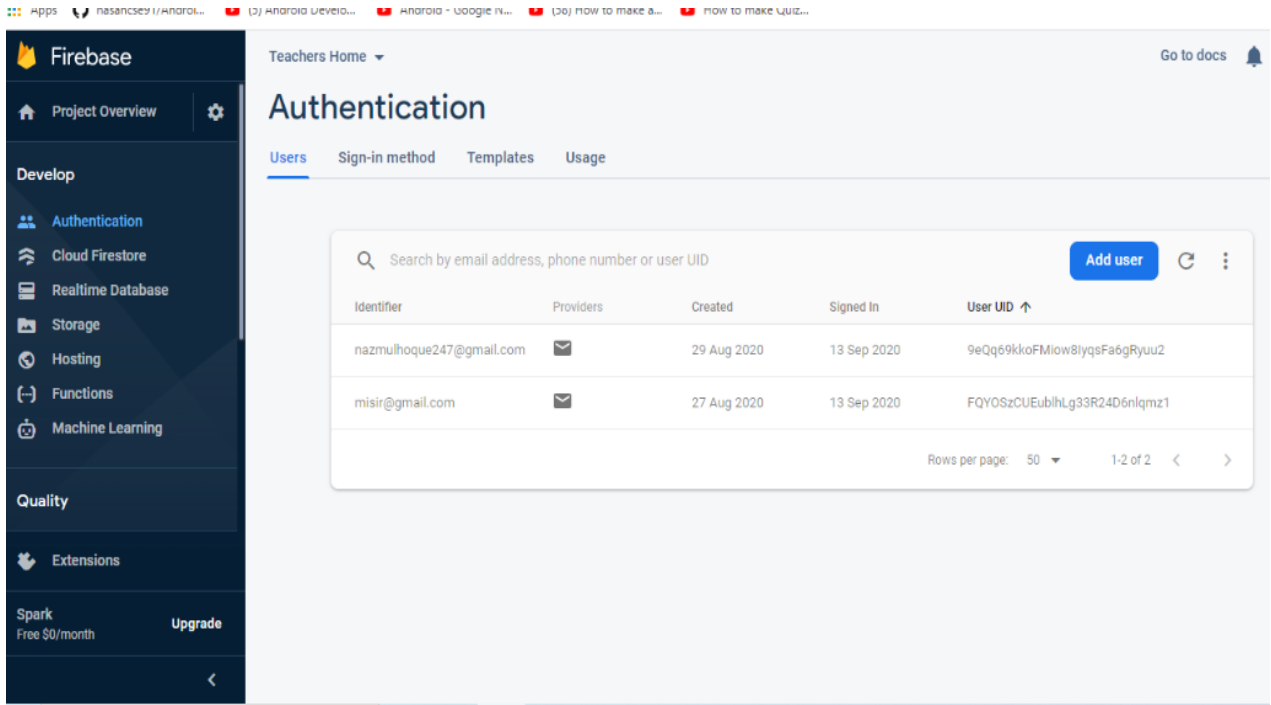


Figure 4.6: Show Quiz Score

4.3 User Back-end Design



The screenshot shows the Firebase Authentication console interface. On the left is a dark sidebar with the 'Develop' section expanded to show 'Authentication'. The main content area is titled 'Authentication' and has a 'Users' tab selected. Below the tabs is a search bar and an 'Add user' button. A table displays the following data:

Identifier	Providers	Created	Signed in	User UID ↑
nazmulhoque247@gmail.com	📧	29 Aug 2020	13 Sep 2020	9eQq69kkoFMiow8lyqsFa6gRyuu2
misir@gmail.com	📧	27 Aug 2020	13 Sep 2020	FQYOSzCUEubhLg33R24D6nlqzmz1

At the bottom right of the table, it indicates 'Rows per page: 50' and '1-2 of 2'.

Figure: 4.7: Users table

When user register our database save it and user after login. We have save it firebase database.

Database Option

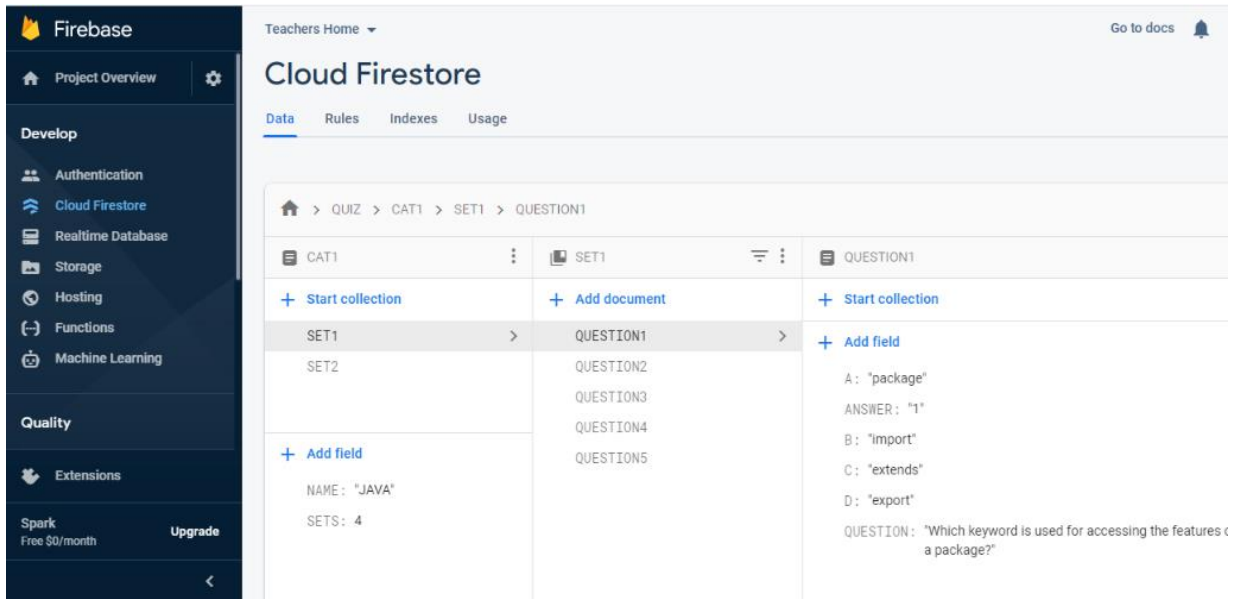


Figure 4.8: Show Question table

Here is our quiz question database. Admin can add question delete many more. All information save in fire store database.

CHAPTER 5

IMPLEMENTATION AND TESTING

5.1 Testing and Integration

System testing is a system of monitoring in all things in a software in input and output. Testing referred an important role in any software .If ,we testing any software we can find a software is performed to the user is good or bad .Testing also assure the quality assurance of a software. Unit testing is also important for verify authentication of coding step during the coding phase. There is lot of testing but we have test our own way and reach the goal. When program testing two kinds of errors will show which name is syntax errors and logical errors.

- Syntax errors when corrected if the program is executed firstly.
- Handle all data, unacceptable order of program statement etc.

There are various stages in any software testing .Now describing in very shortly.

• **Black Box Testing:**

Black Box testing is also known as behavioral testing .When the functionality of an application without peering into its internal structure/design/implementation is known as black box testing. In this testing when we give input and executed the program and give as an output then accrue black box testing. Here are some step of black box testing:

- At first, all requirements and specification are testing
- When we start black box testing then tester expected that all input executed

• **White Box Testing:**

White box texting is a method of software testing to test all internal structure, design a, coding, branches, path or condition. Programming knowledge is also essential to implement white box testing. We cannot show the internal variables when white box testing. The test gives an pure idea when we execute the system. When the bug occurs then we removed all data.

- **Stress testing:**

The main purpose of stress testing how to improving of applicant system does not crash when the peak loads occur. We create a high volume of data with a very short of a instant time. A high volume of activities occurs in shoots when the simulate online environment.

- **Deferent Size Android Device:**

We have Test our app different size android device. In this case we use android emulator and our app will work fine. Some are given bellow What we have use for test our device.

- Lollipop –API level 21
- Marshmallow –API level 22
- Nougat –API level 23
- Oreo –API level 24

We have tested the above device and our UI and Feature working same. So user don't tension with it.

CHAPTER 6

CONCLUSION & FUTURE SCOPE

6.1 Conclusion

The project Teachers Home have completed with an android app with help of Java, Xml, Firebase, Material Design and many more. We hope many student get help by our app because many Bangladeshi student they don't have computer, no internet in this situation they get help. Student can learn anything offline mode.

6.2 Future Scope

In future we are trying to add many more course. And also trying to add premium course. We have add quiz feature but for demo we add few subject and few question. In this future we will try to add more quiz subject and quiz question. We also try to user interface more user friendly.

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