# ISAQUIZ APP

## PROJECT REPORT

**Fall 2021**

**CSE208L Object Oriented Programming Lab**

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**“On my honor, as student of University of Engineering and Technology, I have neither given nor received unauthorized assistance on this academic work.”**

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## Abstract

**The purpose of IsAQuiz application is to automate the existing manual system by the help of a mobile application,fulfilling their requirements, so that their valuable data/information can be stored for longer periods of time in a database with easy accessing and manipulation of the same data.**

**This application as described above can lead to an error free, secure, reliable and fast management system. It can assist the user to concentrate on their other activities rather than on record keeping. Thus it will help the teachers in better utilization of resources, the teachers can maintain computerized records without redundant entries that means that one need not to be distracted by information that is not relevant while being able to reach the information**

**The aim is to automate the existing manual systems so that the user's valuable data can be stored for longer periods in more secure and easy to access ways.**

### Keywords:

1. **Flutter & Dart**
2. **Google Firebase (Cloud Fire Store,Authentication)**
3. **Database**
4. **Online Quiz System**

## Introduction

**This work deals with development of an android-based multiple-choice question examination system, namely: IsAQuiz. This application is developed for educational purposes, allowing the teachers to test students in the multiple choice questions for different examinations conducted. The main goal of the application is to automate the manual system of examination. Examiners can use this quiz application to make a quiz for students and then test them in it which will be automatically checked and automatically disabled as soon as time is up which will overcome the problem of different students getting different times to complete their examination depending upon the examiner at duty. Each student will get equal time to solve the quiz uploaded by the teacher. By overcoming these problems teachers can focus more on teaching students rather than be worried about compiling results since it will now be done automatically by the application. All the teacher has to do is make the quiz which will be then uploaded to a database where it will be stored for a long period of time without the fear of it getting lost. Students will have to register**

**their accounts so their records can be maintained. They will be then led to the student screen where they can select to take a quiz out of the list of enabled quizzes by the teachers and attempt it and they can also access their score afterwards. This will drastically improve the current examination system making our overall education system more efficient and beneficial. Every organization, whether big or small, has challenges to overcome and manage the information of examinations,students,results papers. Every MCQ quiz application has different students' needs therefore we designed exclusive employee (administrative) management systems that are adapted to your managerial requirements. This system will ultimately allow you to better manage resources. The main objective of the project on quiz application is to manage the details of students, examination, and results. It manages all the information about students, and their marks. The project is totally built at the administrative end and thus only the administrator is guaranteed the access. The purpose of the project is to build an application program to reduce the manual work for managing the students,examination,result,marks. It tracks all the details needed.**

## Related Work

- ### Existing Work:

**Although there are a number of web-based and android based applications which are, one way or other related to quiz, however, there are only few that help in learning and contribute to the academic enhancement of the students. Most of the available applications are aiming at having fun or entertainment. Among the many applications, we review some Web based and Android based applications that are quite famous and are successful in terms of number of players and downloads.**

### Web based Applications:

1. **JAGRAN Josh Computer General Knowledge Quiz Computer General Knowledge Quiz section is a repository of Multiple Choice Questions that make you aware about the evolving nature of competitive examination. This quiz is about subjects related to the computer field. It’s a general computer quiz. This quiz is useful for the preparation of any computer field test. In this quiz**

app, questions are given along with four choices, and at the end the correct choice is also given. After preparation, students can check their level of preparation through the quiz.

2. **EDUzip The Knowledge Hub It is a Computer Science Quiz. It contains multiple choice questions and answers with explanations and examples. Operating System, Database Management System, Software Engineering, Computer Networks, Digital Electronics are the sub fields present in this quiz. These Computer Science MCQs will help users for various Interviews, competitive exams, entrance exams, and others.**

3. **TreeKnox Computer Quiz is a quiz system for the help and preparation of computer science and IT students who are going to appear in any interview, tests or exams in computer science and IT field. Questions are given along with multiple choices and at the end of Each question, a button named "Answer" is given. On clicking that button the correct answer is highlighted at the same time.**

## Android based Application:

4. **Quiz  app-1 This quiz application is very simple and interactive. In this There are two modes General and Aptitude, after selecting one of them it will be redirected to the Quiz interface which will contain questions with multiple answers (options) and contain three buttons "Submit", "Show Answer" and "Next" .**

5. **Quiz  app-2 It is also a simple and interactive application. It contains three modes "Easy", "Normal", "Hard", after selecting one of them will be redirected to the Quiz interface which contains questions with two options, True "T" and False "F". It also show hints when user wants but the drawback is that user can use this life line "Hint" more than one time and it will show the answer not hint So it is useless because user can't learn anything from it as when will user can't answer the question it will tap hint button over and over again.**

## Comparison:

**Although there are many apps that focus on the quiz, there are limited applications with focus on learning or improving**

**knowledge in the curriculum area. Most of the other apps are entertainment based with little focus on the educational paradigm.**

**There are many limitations with the existing systems mentioned above. To overcome such limitations, we propose a user-friendly application, namely "IsAQuiz", which mainly focuses on gaining the curriculum knowledge as well as making the job of examiners a lot easier and less stressful. Therefore, when one is amazed with playing the quiz, he/she is gaining curriculum knowledge with emphasis on not only gaining good grades but also having better understanding of the subject matter.**

**Another unique feature of IsAQuiz that is lacking in other apps is that IsAQuiz app have role based authentication so depending upon your role which might be teacher or student you'll be led to different pages, IsAQuiz is secure so students can not register as admin and leak the data or anything similar which is done by specifying a code for the teacher which only the teachers will have access to hence students can't be admin even if they try to be one.**

## Related Topics:

- ### Flutter

**Flutter was initially launched by Google in 2017, and is emerging as one of the fastest application development platforms. Its feature-rich and productive user interface frameworks is allowing developers to build cross-platform applications seamlessly. This open-source and free software development kit (SDK) allows designing native iOS and Android applications using a particular codebase. Flutter's constructive toolkit provides all features required for cross-platform application development.**

**Flutter is a portable user interface toolkit complete with tools and widgets. It provides developers with a platform to build and deploy natively compiled, visually attractive applications for various platforms with ease.**

- ### Flutter Core Features

Some of the crucial features of the Flutter framework in app development include:

- **Hot reloading**

Application developers have to hold back for a considerable amount of time to reflect any coding-related changes on the screen when they are working with other programming languages. But with Flutter, they enjoy faster reloading of code.

Flutter's Hot Reload feature is an effective tool added to the app architecture that enables developers to view their results on the screen in real-time. Therefore, developers can add features and fix bugs without losing memory.

- **Vast widget library**

Flutter offers a massive collection of in-built widgets. Besides, it also provides an amazing set of animation designs, allowing developers to design an interactive and attractive app for their customers.

Moreover, creators of Flutter have added widgets to the Flutter library keeping in mind the requirements of users.

- **ARM code**

A native ARM (Advanced Risc Machines) code backs Flutter. This is a vital element beneficial for start-up organizations and almost every other company involved in the technological business.

- **Efficient UI**

Flutter comprises a portable and highly organized GPU (Graphics Processing Unit) rendering user interface that lets developers operate on multiple interfaces.

- **Support for IDEs**

Flutter renders a range of popular integrated development environments (IDEs) that are effectively present among a powerful developer community. This includes Visual Studio Code, Xcode, and Android Studio.

- **Advantages of Flutter**

**Develop web, mobile, and desktop applications**

Whether you employ a Flutter application developer or build an app with the Flutter framework, you will get the benefit of creating a highly adaptable and scalable product.

Flutter will help you develop an application concurrently for 6 various platforms. iOS, Windows, Linux, Android, macOS, and the Web are a few examples of operating systems you can build applications for.

- **Create a MVP super fast**

Once you deploy the Flutter framework, you can conveniently represent the basic functionalities and operations by the minimum viable product (MVP).

Flutter helps you create an MVP that is compatible with various platforms and essentially provides a superior-quality user experience. These features are enough for you to draw a long line of buyers, allowing them to finance the project.

- **Tech community**

Flutter owns a powerful developer community that is constantly operating to enhance the working capability of the platform. The developer's group makes learning a simple process for newbies so that they can conveniently get into the working system and master it over the learning phase.

On this platform, you will find over fifty tutorials to assist you with the technological toolkit. With this amazing support from the team, everyone can easily create an app with Flutter.

- **Performance comparable to that of a native application**

When you employ Flutter developers to create an application on Flutter, you get quick and easy execution on various platforms to make apps. This is because Flutter employs the Dart language, an object-oriented programming language, which is easy to code and fast to compile into native code.

The Dart language usually outperforms all other development frameworks in terms of device performance.

- **Open-source**

The Google-backed Flutter framework is an open-source development toolkit. It enables developers to post queries and gives them the authority to access various documents through open developer forums.With Flutter, developers can learn many new things and grow alongside the ever-changing developer community of the platform. It

**enhances the effectiveness and performance of coders in project expense and time.**

## - Dart

**Dart is a platform-independent, open-source, and object-oriented programming language that comprises a range of useful features for a software developer.**

**It is a client side programming language that renders an extensive range of app development utilities, such as a collection of design features, dynamic typing, interface, classes, and optional typing. Dart is developed for both server and browser.**

**Dart is an open-source framework which means it is free to use and available on every browser.it is a Google-developed framework, comes with a BSD license, and is approved by the ECMA standard. It is a garbage-collected and class-based language with the C-style syntax.**

**Dart has its package manager called Pub, and this is a major point that distinguishes Dart from other languages. Developers can use Pub to create Flutter and Dart applications.**

## - Dart Core Features

### - Concurrency

**One of the most appealing features that make Dart useful for programmers is that it is an asynchronous language. This solely means it renders multi-threading using isolates.**

**Isolates are independent entities that are linked to threads, but they do not share memory and form an interactive interface between the various connected processes by passing messages. Developers working with Dart need to serialize messages to establish effective communication.**

**They can serialize the message threads with the help of auto-generated snapshots generated by the element and correspondingly transmit the series to another isolate for de-sterilizing.**

### - Extensive library

Dart comprises a series of helpful pre-built libraries including Math, convert, HTML, SDK, core, etc. Also, Dart provides developers with the facility to arrange the Dart code into required libraries with proper name-spacing. Developers can reuse the libraries with the import statement.

- **Flexible compilation**
  Dart offers the resiliency to compile its code with lightning-fast speed. It renders two types of compilation processes- JIT (Just in time) and AOT (Ahead of time). With this, developers can easily transmit the Dart programming language and run them efficiently in modern website browsers.
- **Type safe**
  Dart is a type-safe programming language, meaning developers can use it for both runtime checking and static type checking to confirm the value of a variable always matches the static type of the same variable.
- **Community**
  Dart owns a vast community of active developers with extensive knowledge in the field. This community comprises developers from all parts of the world. So, in case you face any issue while coding with Dart then you can always find a reliable hand to assist you.

- **Advantages of Dart**
- **Easy to learn**

  Dart is a fairly simplified language, and anybody can learn it with ease. Google developers have made it possible by putting tremendous effort into the documentation part of Dart.

  Developers who know the basis of OOPS programming can readily plunge into programming an app with the Java-like syntax of Dart. Dart offers easy editing and texting of the smallest sections of code.

  It offers a simple learning ecosystem where developers can understand the tools and terminologies of the framework while accessing various libraries with convenience.

- **High-performance factor**
  When you use Dart as your programming language, you put forward a step to improving the app performance factor. Applications run on Dart execute faster than in other programming languages.Dart offers features like JIT and AOT that add to the performance feature of the

**language. Developers can enjoy the Hot Reload feature with JIT while AOT helps them with quick start-up and improved execution of the application.**

- **Comes with amazing documentation**

  **According to developers who have used Dart, the language is easy to learn, and it offers very good documentation. With an easy-to-understand, excellent introduction, Dart is convenient to start with the coding process.**

  **A greater number of developers have switched to Dart, thanks to its excellent community support, simple syntax, easy features, and helpful guides that assist developers through their training process.**

- **Can write a program without configuration or installation**
  **Dart features a very simple interface, known as DartPad. This interface eliminates the requirement of configuring or installing this framework before use. All you need to do is write the Dart code and click on the Run command to execute the code.**

- **Google Firebase:**

  **Google Firebase is a Google-backed application development software that enables developers to develop iOS, Android and Web apps. Firebase provides tools for tracking analytics, reporting and fixing app crashes, creating marketing and product experiments.**

  **Firebase offers a number of services, including:**

- **Analytics – Google Analytics for Firebase offers free, unlimited reporting on as many as 500 separate events. Analytics presents data about user behavior in iOS and Android apps, enabling better decision-making about improving performance and app marketing.**

- **Authentication – Firebase Authentication makes it easy for developers to build secure authentication systems and enhances the sign-in and onboarding experience for users. This feature offers a complete identity solution, supporting email and password accounts, phone auth, as well as Google, Facebook, GitHub, Twitter login and more.**

- **Cloud messaging – Firebase Cloud Messaging (FCM) is a cross-platform messaging tool that lets companies reliably receive and deliver messages on iOS, Android and the web at no cost.**

- **Realtime database – the Firebase Realtime Database is a cloud-hosted NoSQL database that enables data to be stored and synced between users in real time. The data is synced across all clients in real time and is still available when an app goes offline.**

- **Crashlytics – Firebase Crashlytics is a real-time crash reporter that helps developers track, prioritize and fix stability issues that reduce the quality of their apps. With crashlytics, developers spend less time organizing and troubleshooting crashes and more time building features for their apps.**

- **Performance – Firebase Performance Monitoring service gives developers insight into the performance characteristics of their iOS and Android apps to help them determine where and when the performance of their apps can be improved.**

- **Test lab – Firebase Test Lab is a cloud-based app-testing infrastructure. With one operation, developers can test their iOS or Android apps across a variety of devices and device configurations. They can see the results, including videos, screenshots and logs, in the Firebase console.**

- **Use case**

  **Firebase use cases include:**

- **Create onboarding flows – developers can give users a quick, intuitive sign-in process using Firebase Authentication. They allow users to sign into their apps via their Google, Twitter, Facebook or GitHub accounts in less than five minutes. Developers can also track each step of their onboarding flows to enhance the user experience. Additionally, developers can use Google Analytics for Firebase to log events at each step of their onboarding flows, create funnels to determine where users are dropping off and use remote configuration to make changes to their apps to see how those changes affect conversions.**

- **Customize a “welcome back” screen – developers can use personalization to give every user the best experience by customizing the initial screen based on a user’s preferences, usage history, location or language. Developers can define audiences based, in part, on user behaviors and show targeted content to each audience.**

- **Progressively roll out new features – developers can launch new features with minimal risk by first testing those features on a few users** to see how they work and how users respond. Then, when developers are satisfied, they can roll out their apps to the rest of their users.

- **Json**

JavaScript Object Notation (JSON) is a standard text-based format for representing structured data based on JavaScript object syntax. It is commonly used for transmitting data in web applications (e.g., sending some data from the server to the client, so it can be displayed on a web page, or vice versa).

JSON is a text-based data format following JavaScript object syntax, which was popularized by Douglas Crockford. Even though it closely resembles JavaScript object literal syntax, it can be used independently from JavaScript, and many programming environments feature the ability to read (parse) and generate JSON.

JSON exists as a string — useful when you want to transmit data across a network. It needs to be converted to a native JavaScript object when you want to access the data. This is not a big issue — JavaScript provides a global JSON object that has methods available for converting between the two.

A JSON string can be stored in its own file, which is basically just a text file with an extension of .json, and a MIME type of application/json.

- **JSON structure**

As described above, JSON is a string whose format very much resembles JavaScript object literal format. You can include the same basic data types inside JSON as you can in a standard JavaScript object — strings, numbers, arrays, booleans, and other object literals. This allows you to construct a data hierarchy, like so:

```
{
"squadName": "Super hero squad",
"homeTown": "Metro City",
"formed": 2016,
"secretBase": "Super tower",
"active": true,
"members": [
{
"name": "Molecule Man",
"age": 29,
"secretIdentity": "Dan Jukes",
"powers": [
"Radiation resistance",
"Turning tiny",
"Radiation blast"
]
},
{
"name": "Madame Uppercut",
"age": 39,
"secretIdentity": "Jane Wilson",
"powers": [
"Million tonne punch",
"Damage resistance",
"Superhuman reflexes"
]
},
{
"name": "Eternal Flame",
"age": 1000000,
"secretIdentity": "Unknown",

"powers": [

"Immortality",

"Heat Immunity",

"Inferno",

"Teleportation",

"Interdimensional travel"

]

}

]

}
```

If we loaded this string into a JavaScript program, parsed it into a variable called superHeroes for example, we could then access the data inside it using the same dot/bracket notation we looked at in the [JavaScript object basics]() article. For example:

```
superHeroes.homeTown
superHeroes['active']
```

To access data further down the hierarchy, you have to chain the required property names and array indexes together. For example, to access the third superpower of the second hero listed in the members list, you'd do this:

```
superHeroes['members'][1]['powers'][2]
```

First we have the variable name — superHeroes.

a. Inside that we want to access the members property, so we use ["members"].

2. members contains an array populated by objects. We want to access the second object inside the array, so we use [1].

3. Inside this object, we want to access the powers property, so we use ["powers"].

4. Inside the powers property is an array containing the selected hero's superpowers. We want the third one, so we use [2].

- **important points:**

1. JSON is purely a string with a specified data format it contains only properties, no methods.

2. JSON requires double quotes to be used around strings and property names. Single quotes are not valid other than surrounding the entire JSON string.

3. Even a single misplaced comma or colon can cause a JSON file to go wrong, and not work. You should be careful to validate any data you are attempting to use (although computer-generated JSON is less likely to include errors, as long as the generator program is working correctly).

4. JSON can actually take the form of any data type that is valid for inclusion inside JSON, not just arrays or objects. So for example, a single string or number would be valid JSON.

5. Unlike in JavaScript code in which object properties may be unquoted, in JSON only quoted strings may be used as properties.

- ## Methodology

### Prototype:

In the prototype the way of making a quiz was by uploading a json file which we have already discussed what a json is, which was kind of hard for a normal person with no prior programming knowledge to so in order to make it easier for the user we replaced it by a dashboard where the user can just type in their

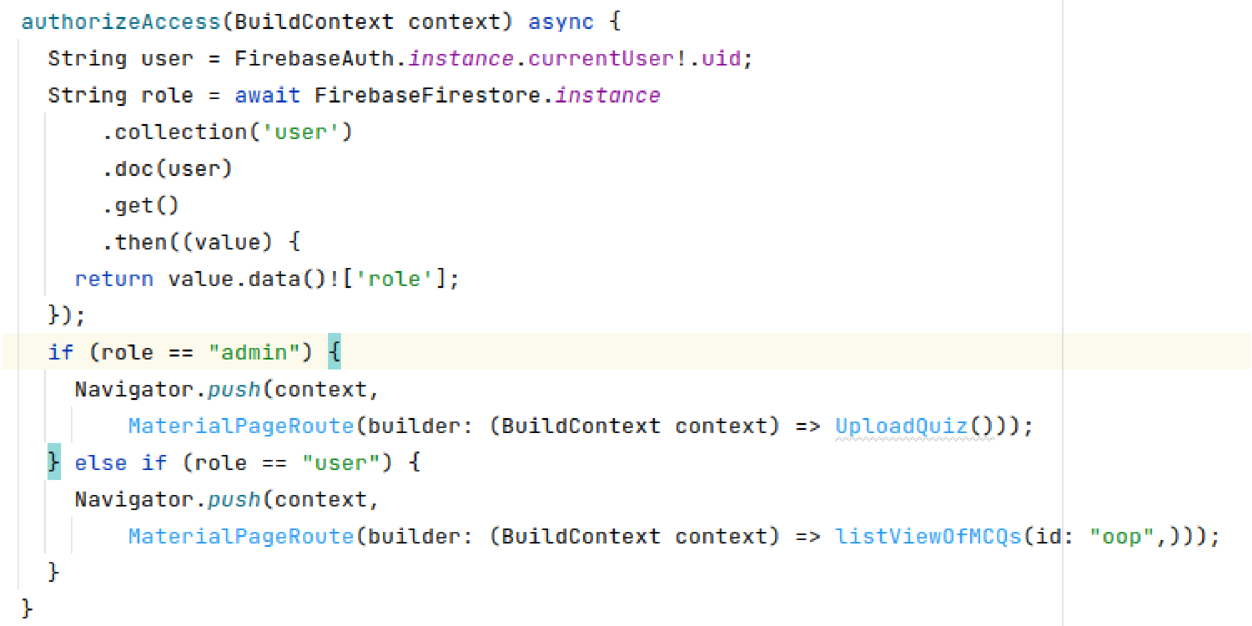
**questions and click on save via which it will be uploaded to the database from where it is later on retrieved.**

- **Input to the system:**

**The only input youve to provide to the system is questions and their answers. Rest will be taken care of automatically providing you with ease.**

- **Authentication handler:**

**This is an asynchronous function (Asynchronous operations let your program complete work while waiting for another operation to finish) which takes in a build context (A BuildContext is nothing else but a reference to the location of a Widget within the tree structure of all the Widgets which are built) as a parameter,this function is called during the process of loggin in inorder to authorize the role of the user which is done via reading from the database the current user role if it turns out to be admin they will be led to that page respectively and vice versa. Code is given below.**

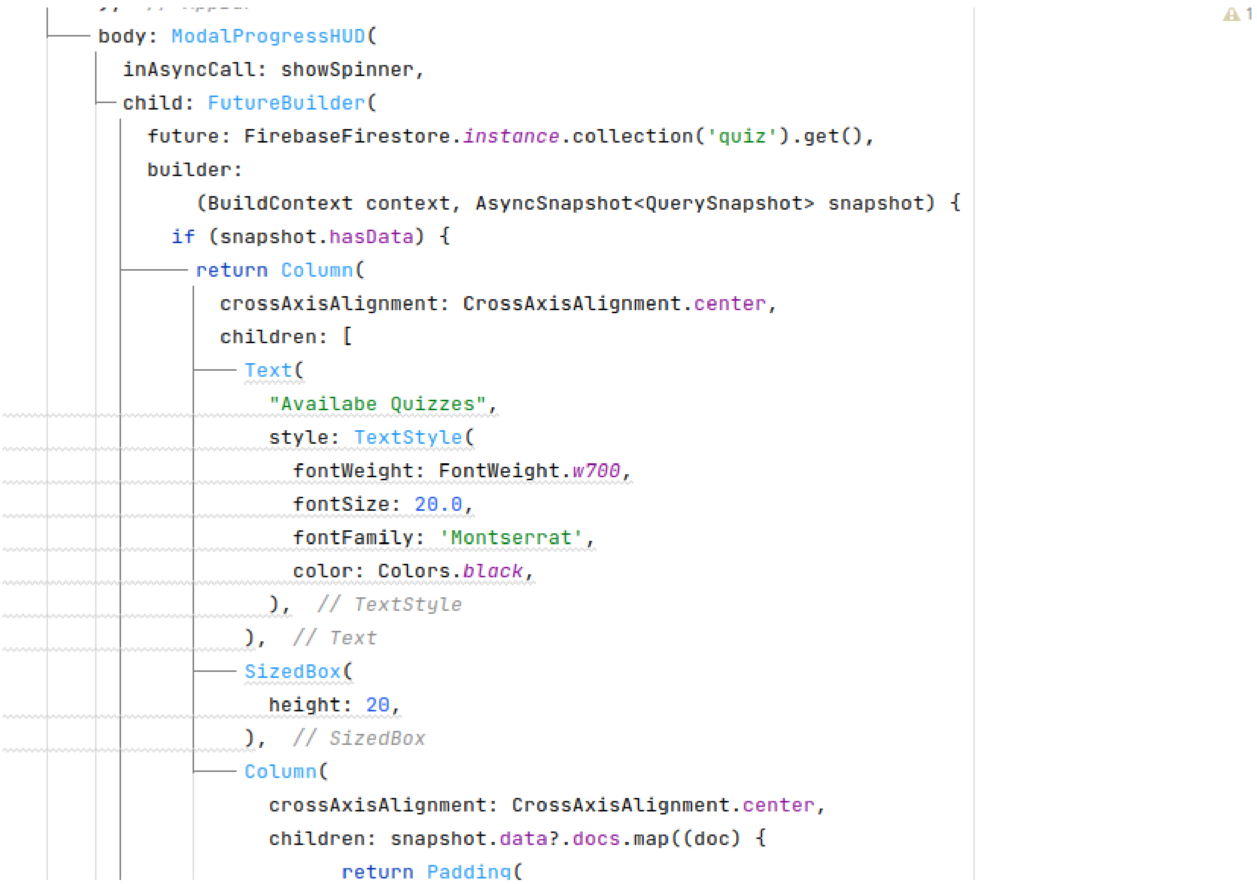


```
authorizeAccess(BuildContext context) async {
  String user = FirebaseAuth.instance.currentUser!.uid;
  String role = await FirebaseFirestore.instance
      .collection('user')
      .doc(user)
      .get()
      .then((value) {
    return value.data()!['role'];
  });
  if (role == "admin") {
    Navigator.push(context,
        MaterialPageRoute(builder: (BuildContext context) => UploadQuiz()));
  } else if (role == "user") {
    Navigator.push(context,
        MaterialPageRoute(builder: (BuildContext context) => listViewOfMCQs(id: "oop",)));
  }
}
```

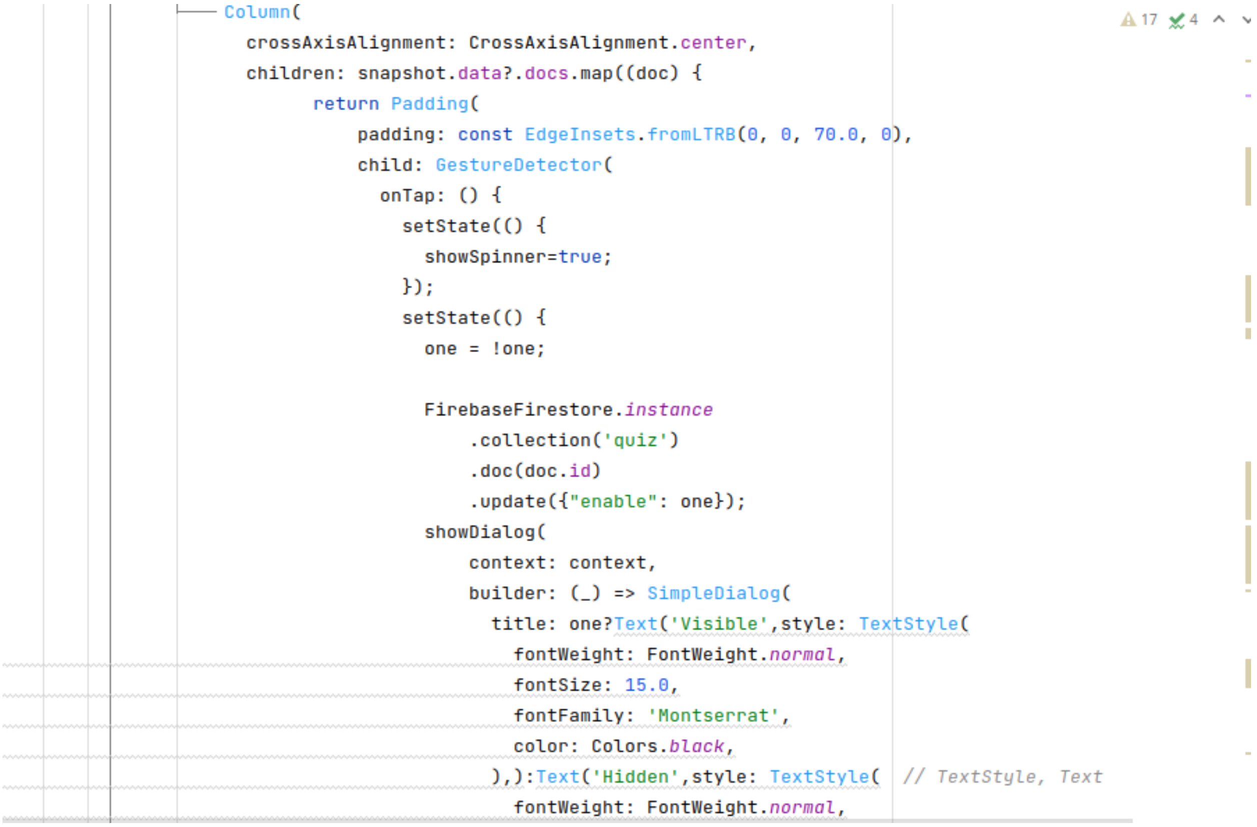
- **Enable/Disable Quiz:**

**In this code we have used a future builder to build the view. Since In Dart, you can create a function that returns Future if you need to perform asynchronous operations. Sometimes, you may want to build a Flutter widget which depends on the result of a Future . In that case, we use FutureBuilder . FutureBuilder is a widget that uses the result of a Future to build itself.**

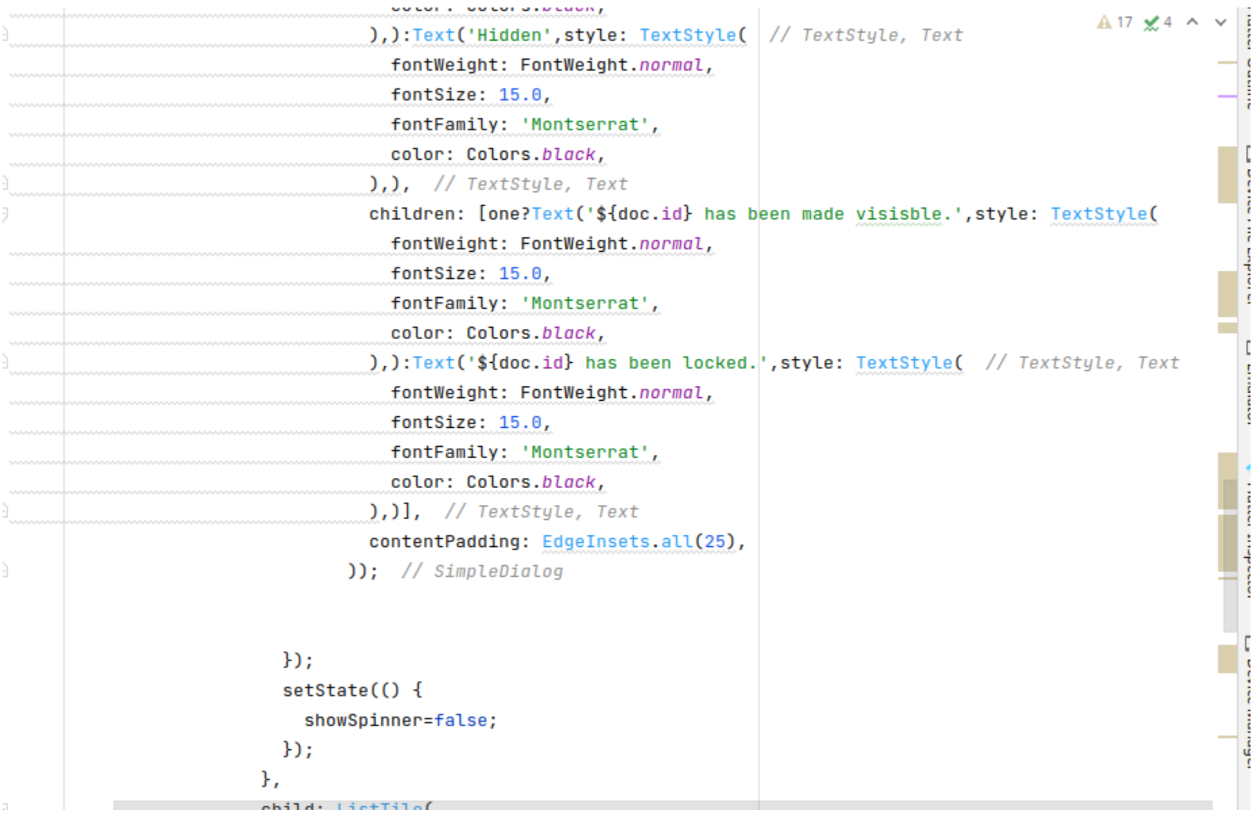
**Here through the future builder we are accessing the quiz collection firestore database that we had previously created to store all the quizzes user upload. We are getting the ids of each document and then displaying them using a list title where we have made each tile tappable by wrapping it with a gesture detector. So once a tile is tapped the quiz will be enabled if previously was disabled and vice versa a pop up will also show up for confirmation after it is enabled it will be visible to the students.**



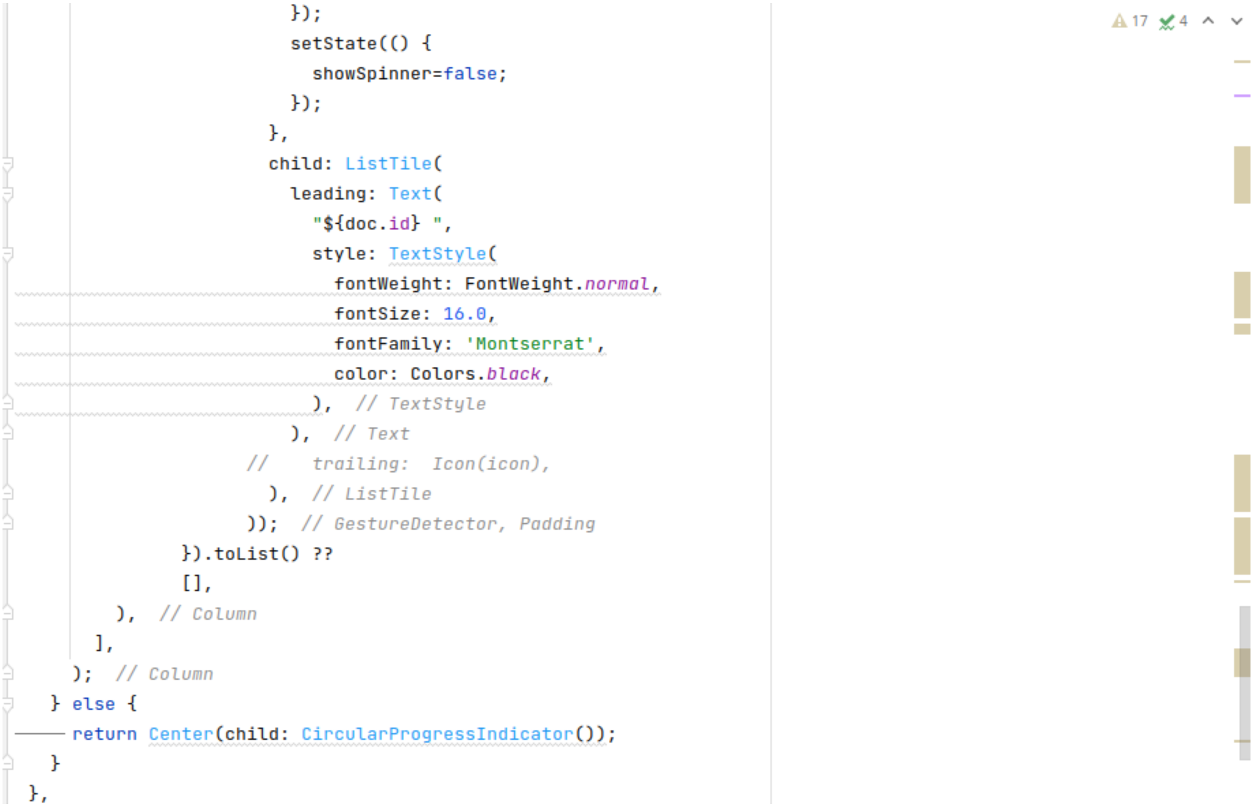
```
body: ModalProgressHUD(
  inAsyncCall: showSpinner,
  child: FutureBuilder(
    future: FirebaseFirestore.instance.collection('quiz').get(),
    builder:
        (BuildContext context, AsyncSnapshot<QuerySnapshot> snapshot) {
      if (snapshot.hasData) {
        return Column(
          crossAxisAlignment: CrossAxisAlignment.center,
          children: [
            Text(
              "Availabe Quizzes",
              style: TextStyle(
                fontWeight: FontWeight.w700,
                fontSize: 20.0,
                fontFamily: 'Montserrat',
                color: Colors.black,
              ),  // TextStyle
            ),  // Text
            SizedBox(
              height: 20,
            ),  // SizedBox
            Column(
              crossAxisAlignment: CrossAxisAlignment.center,
              children: snapshot.data?.docs.map((doc) {
                    return Padding(
```



```
Column(
  crossAxisAlignment: CrossAxisAlignment.center,
  children: snapshot.data?.docs.map((doc) {
        return Padding(
            padding: const EdgeInsets.fromLTRB(0, 0, 70.0, 0),
            child: GestureDetector(
              onTap: () {
                setState(() {
                  showSpinner=true;
                });
                setState(() {
                  one = !one;

                  FirebaseFirestore.instance
                      .collection('quiz')
                      .doc(doc.id)
                      .update({"enable": one});
                  showDialog(
                      context: context,
                      builder: (_) => SimpleDialog(
                        title: one?Text('Visible',style: TextStyle(
                          fontWeight: FontWeight.normal,
                          fontSize: 15.0,
                          fontFamily: 'Montserrat',
                          color: Colors.black,
                        ),):Text('Hidden',style: TextStyle(  // TextStyle, Text
                          fontWeight: FontWeight.normal,
```



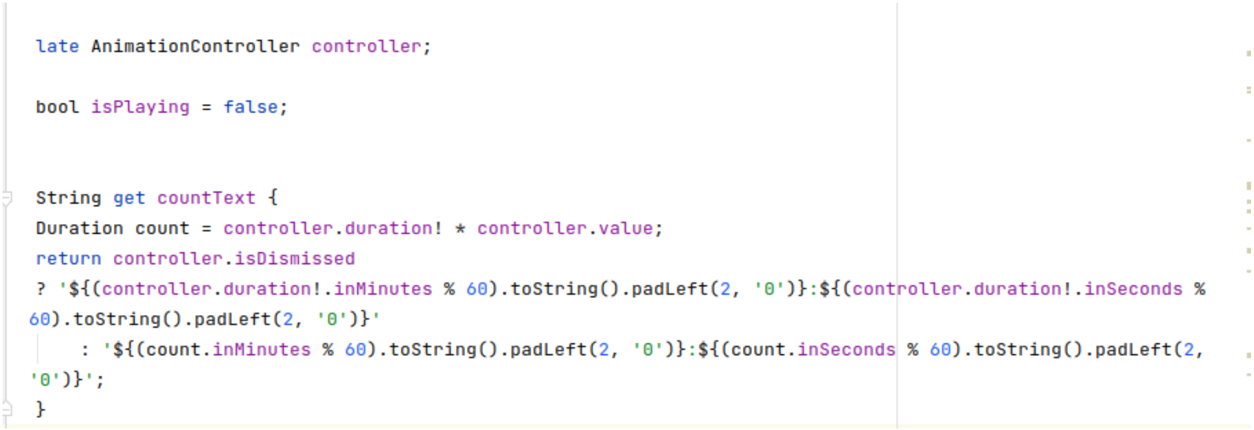
```
                                  color: Colors.black,
                                ),):Text('Hidden',style: TextStyle(  // TextStyle, Text
                                  fontWeight: FontWeight.normal,
                                  fontSize: 15.0,
                                  fontFamily: 'Montserrat',
                                  color: Colors.black,
                                ),),  // TextStyle, Text
                                children: [one?Text('${doc.id} has been made visisble.',style: TextStyle(
                                  fontWeight: FontWeight.normal,
                                  fontSize: 15.0,
                                  fontFamily: 'Montserrat',
                                  color: Colors.black,
                                ),):Text('${doc.id} has been locked.',style: TextStyle(  // TextStyle, Text
                                  fontWeight: FontWeight.normal,
                                  fontSize: 15.0,
                                  fontFamily: 'Montserrat',
                                  color: Colors.black,
                                ),)],  // TextStyle, Text
                                contentPadding: EdgeInsets.all(25),
                              ));  // SimpleDialog


                        });
                        setState(() {
                          showSpinner=false;
                        });
                      },
                      child: ListTile(
```



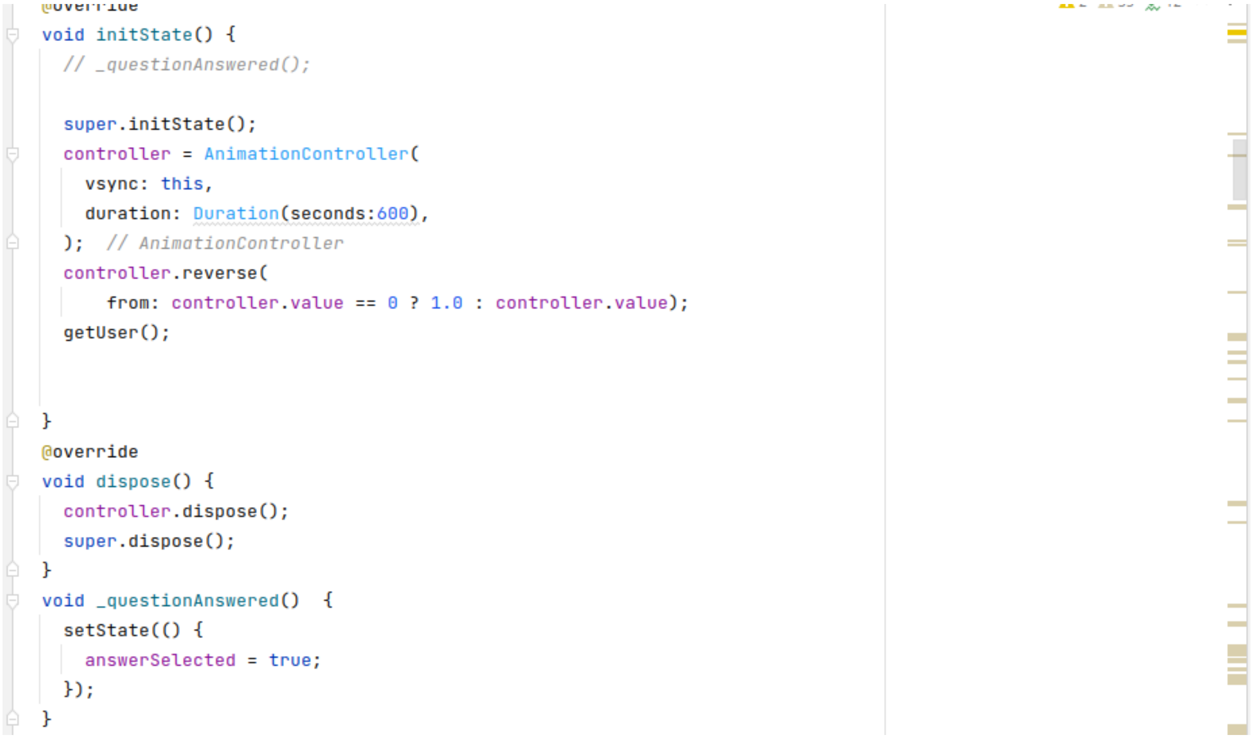
```
                        });
                        setState(() {
                          showSpinner=false;
                        });
                      },
                      child: ListTile(
                        leading: Text(
                          "${doc.id} ",
                          style: TextStyle(
                            fontWeight: FontWeight.normal,
                            fontSize: 16.0,
                            fontFamily: 'Montserrat',
                            color: Colors.black,
                          ),  // TextStyle
                        ),  // Text
                    //    trailing:  Icon(icon),
                      ),  // ListTile
                    });  // GestureDetector, Padding
              }).toList() ??
              [],
        ),  // Column
      ],
    );  // Column
  } else {
    return Center(child: CircularProgressIndicator());
  }
},
```

- ## Counter :

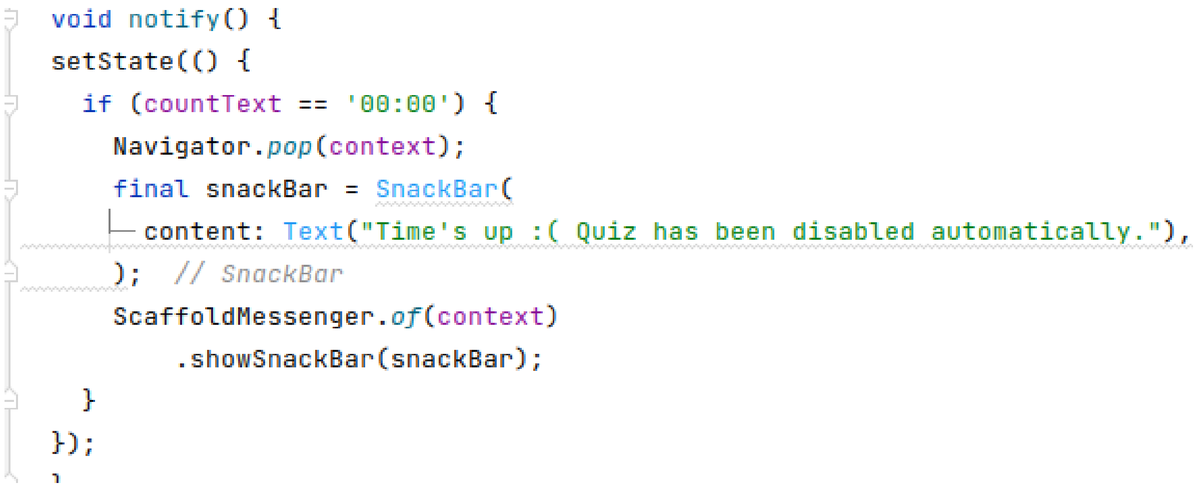
**The code below is for the counter that starts as soon as you begin the quiz since we have initialized the counter using init state (initState() is a method of class State and it is considered as an important lifecycle method in Flutter. initState() is called only Once and we use it for one time initializations.).We have also made another function which will pop the current screen as soon as the quiz time is up and show a snack bar to let you know.**



```
late AnimationController controller;

bool isPlaying = false;


String get countText {
Duration count = controller.duration! * controller.value;
return controller.isDismissed
? '${(controller.duration!.inMinutes % 60).toString().padLeft(2, '0')}:${(controller.duration!.inSeconds %
60).toString().padLeft(2, '0')}'
    : '${(count.inMinutes % 60).toString().padLeft(2, '0')}:${(count.inSeconds % 60).toString().padLeft(2,
'0')}';
}
```



```
@override
void initState() {
  // _questionAnswered();

  super.initState();
  controller = AnimationController(
    vsync: this,
    duration: Duration(seconds:600),
  );  // AnimationController
  controller.reverse(
      from: controller.value == 0 ? 1.0 : controller.value);
  getUser();


}
@override
void dispose() {
  controller.dispose();
  super.dispose();
}
void _questionAnswered()  {
  setState(() {
    answerSelected = true;
  });
}
```

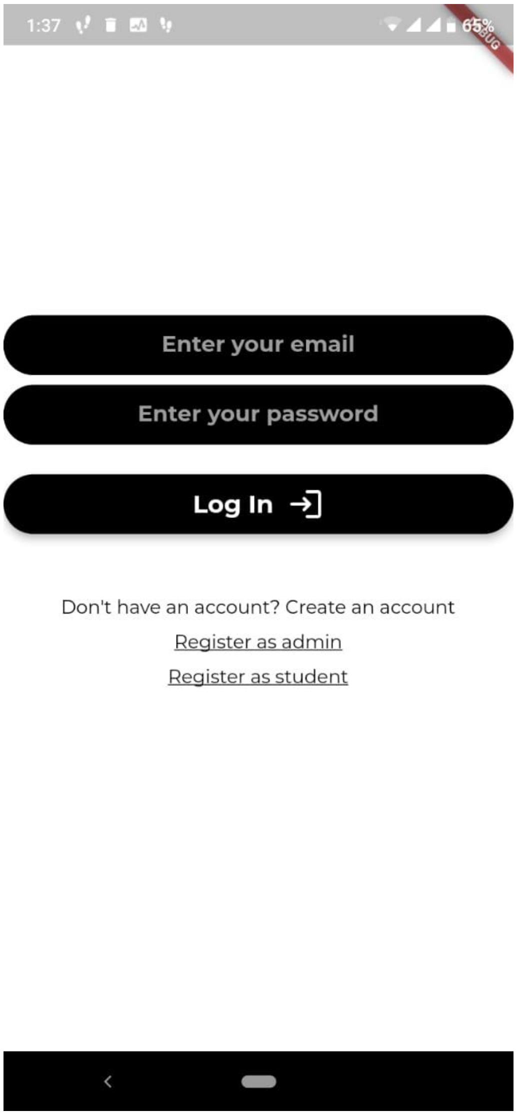


```
void notify() {
setState(() {
  if (countText == '00:00') {
    Navigator.pop(context);
    final snackBar = SnackBar(
      content: Text("Time's up :( Quiz has been disabled automatically."),
    );  // SnackBar
    ScaffoldMessenger.of(context)
        .showSnackBar(snackBar);
  }
});
}
```

## Results and Discussion

**Login page:**

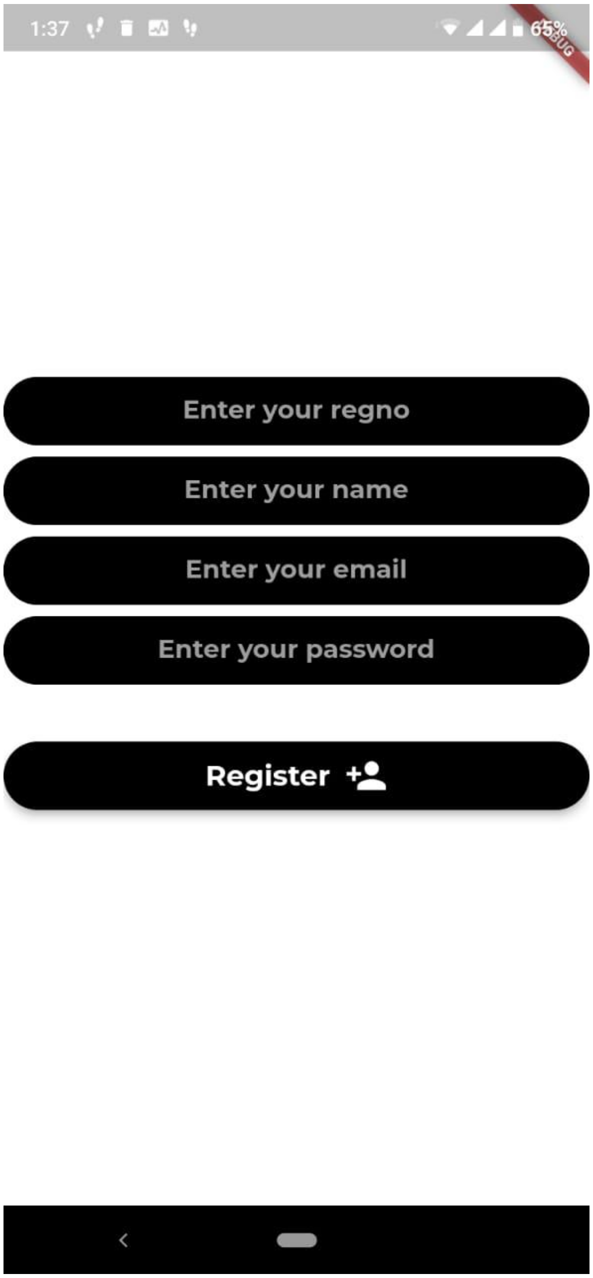
**After you have registered yourself you're supposed to login and based on your role in the database you’ll be led to different screens.**



Don't have an account? Create an account

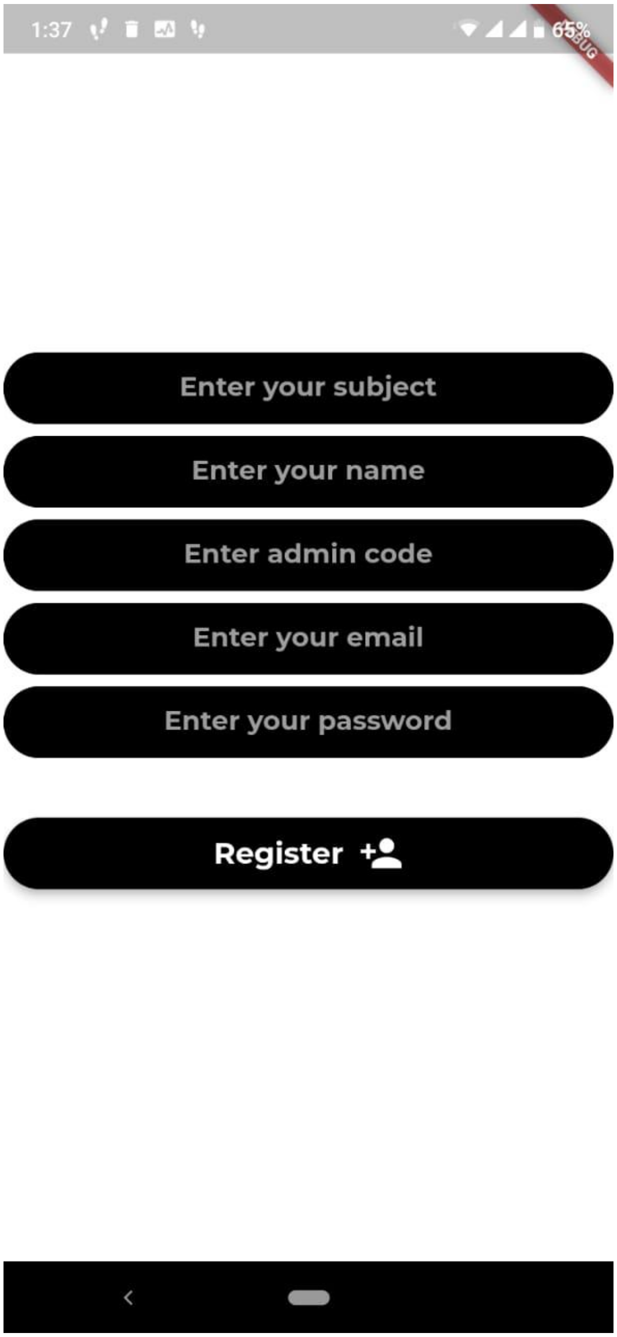
**Register as student:**

**Anyone can register as a student and take all the quizzes enabled by the teacher.**



**Register as admin:**

**Not everyone can register as admin because then there will be a chance of a student registering as an admin and having access to uploading quizzes and other features that a teacher can have access to in order to maintain the security of the system. Every time someone tries to register as admin they will be asked for the admin code which will only be known by teachers so no student can register as a teacher.**

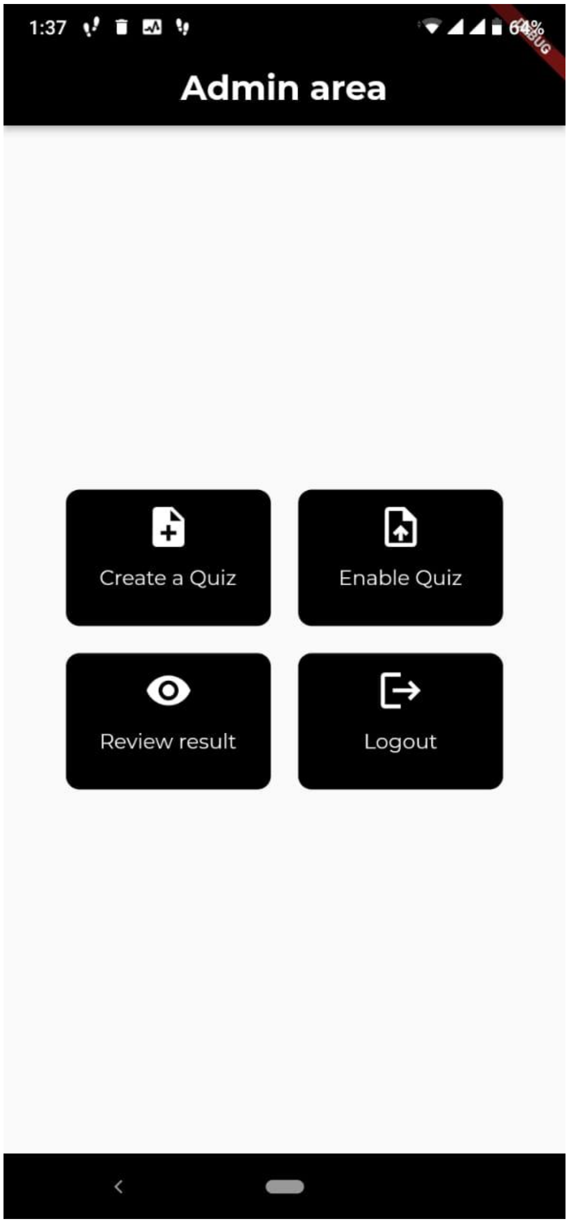


- **Admin Area:**

  **After logging in successfully as an admin you will be led to the admin screen which comprise of following features:**

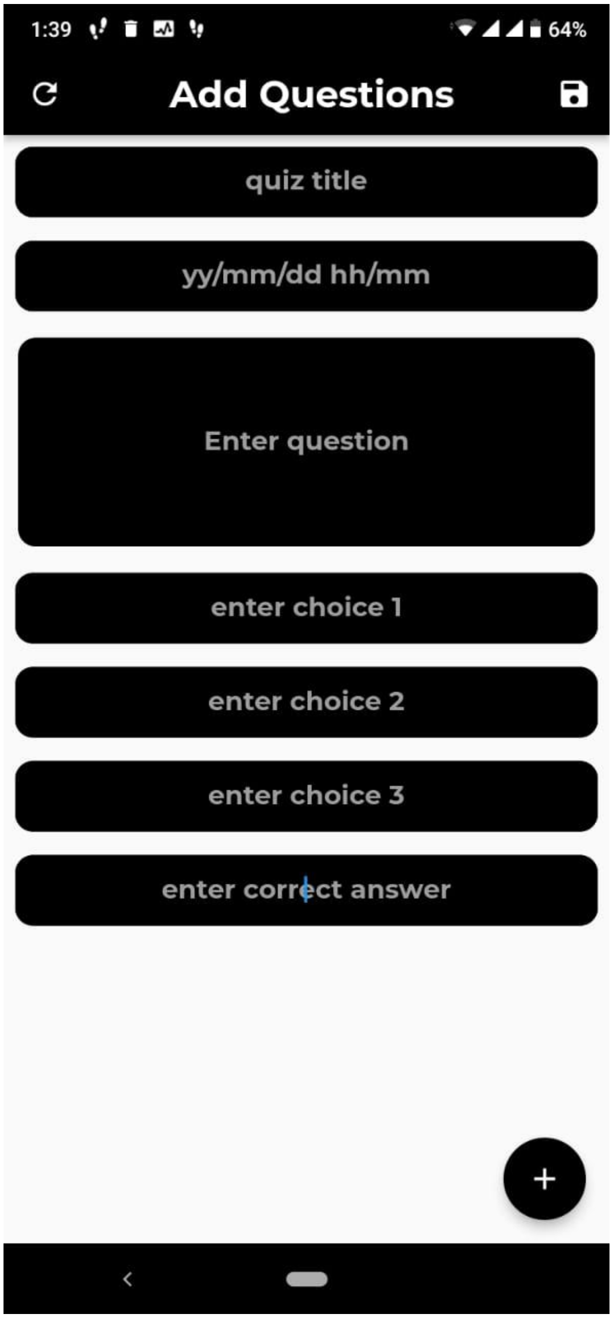
1. **Make quiz**
2. **Enable/disable quiz**
3. **Review score**

4. **Logout**



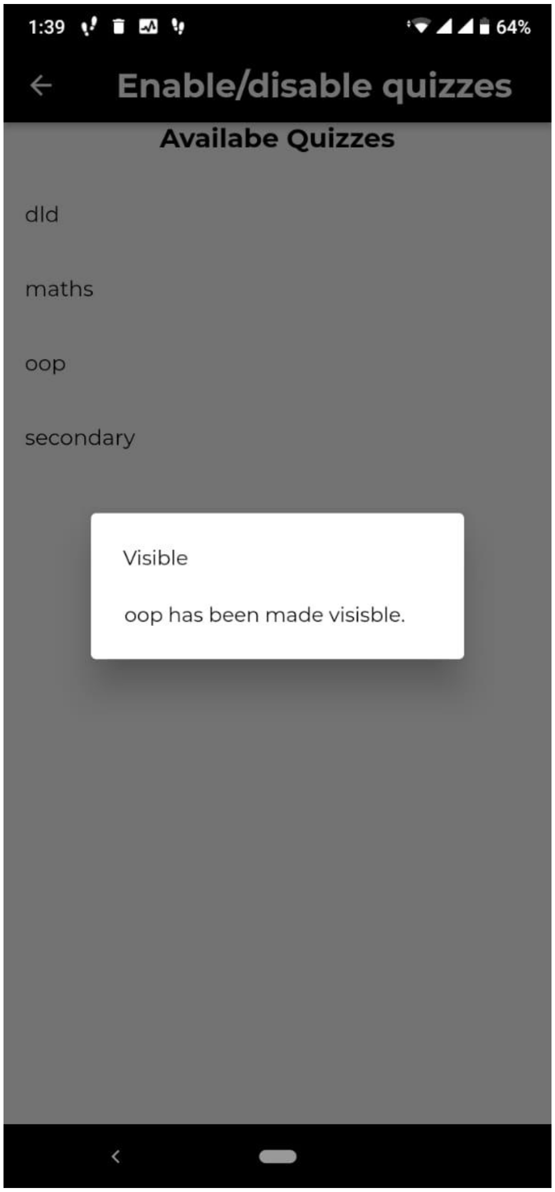
- **Make quiz:**

  **In this screen the admin can make the quiz, fill the field with required information then tap the floating action button in order to add more questions , this will empty the question field and you can repeat this process as many times as you wish then in order to upload it to the database you have to tap the save icon and it will be uploaded. The refresh icon is used to empty the content of fields below.**



**Enable/disable quiz:**

**By tapping on the specific quiz you can enable or disable it.**

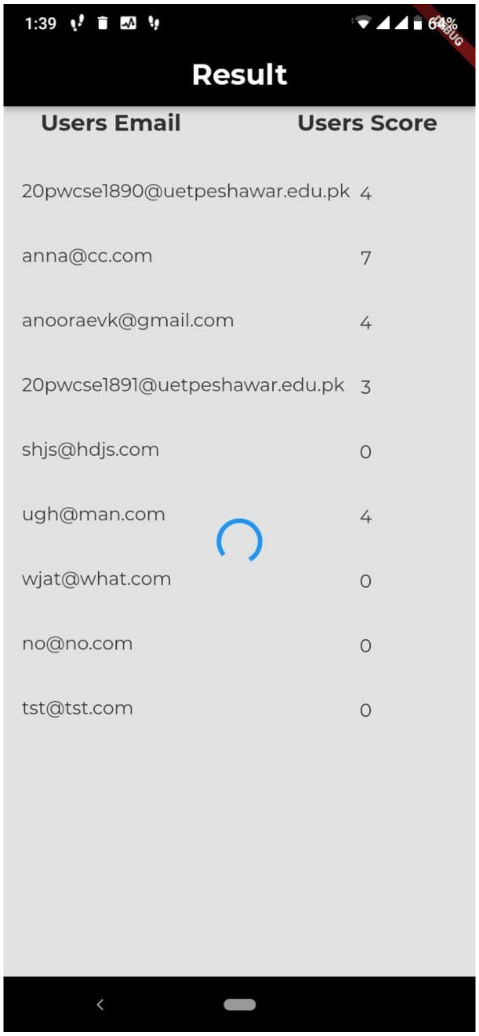


Visible

oop has been made visisble.

**Review score:**

**You can view who attempted the quiz and what is their score respectively.**



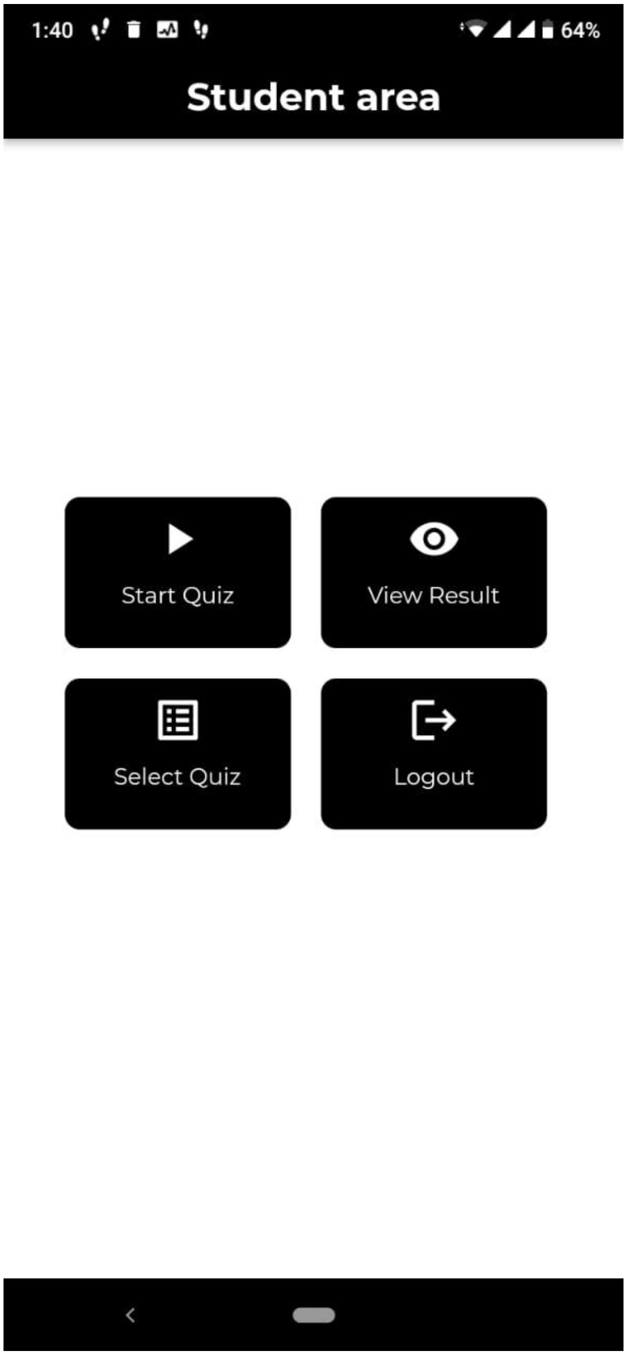
Result

| Users Email | Users Score |
|---|---|
| 20pwcse1890@uetpeshawar.edu.pk | 4 |
| anna@cc.com | 7 |
| anooraevk@gmail.com | 4 |
| 20pwcse1891@uetpeshawar.edu.pk | 3 |
| shjs@hdjs.com | 0 |
| ugh@man.com | 4 |
| wjat@what.com | 0 |
| no@no.com | 0 |
| tst@tst.com | 0 |

- **Student Area:**

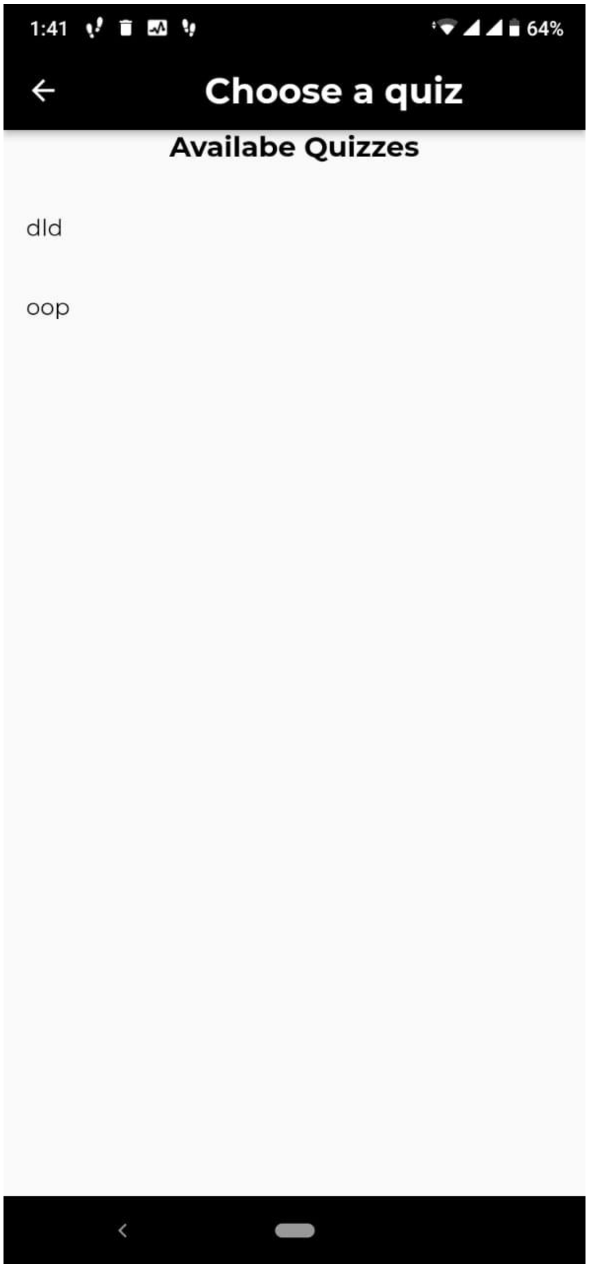
  **After you've successfully logged in as a student you'll be led to the student page which comprises of the following:**

1. **Select a quiz**
2. **Take a quiz**
3. **View score**
4. **Logout**



- **Select a quiz:**

  **From here you can select a quiz from all the available quizzes.**



1:41 64%

Choose a quiz

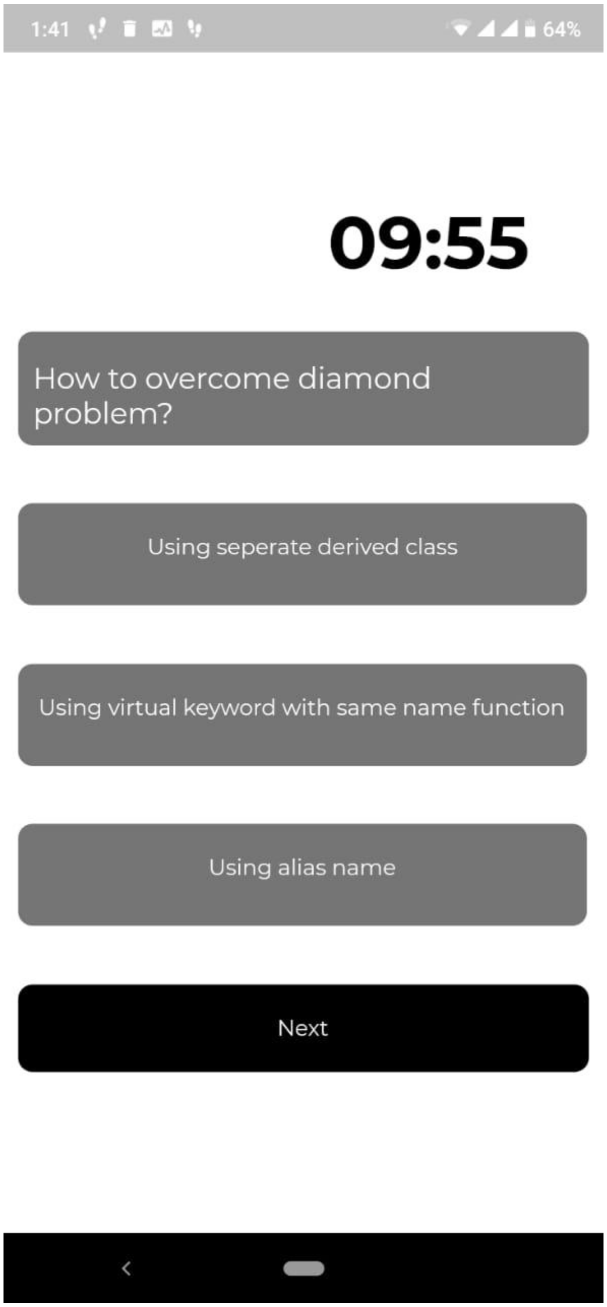
Availabe Quizzes

dld

oop

- **Take a quiz:**

  **From here you can start the quiz that you've selected.**



09:55

How to overcome diamond problem?

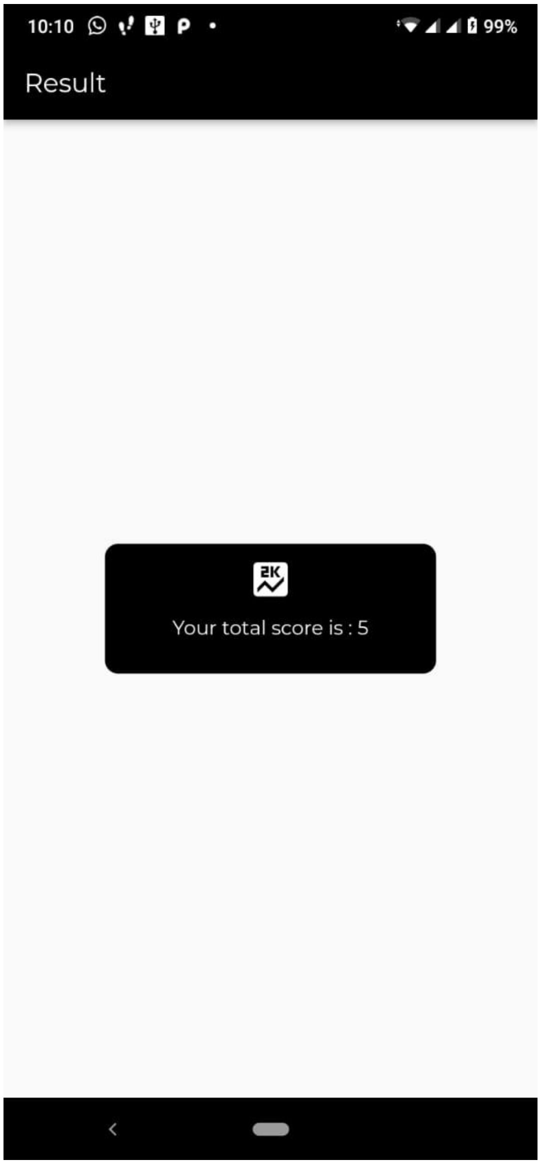
Using seperate derived class

Using virtual keyword with same name function

Using alias name

- **Review score:**

  **From here you can view your score.**



10:10

Result

Your total score is : 5

- ## Comparison:

  As you can see our application comes with so many features and is purely based on the administrative end with so much security and efficiency that no other application has. If they have some of the features of isaquiz app they lack other features.

- ## Conclusion

  The main purpose of our project is to develop an application that offers new aspects of learning and improving knowledge in the educational area. Most of the available apps are

**entertainment-based, which mostly do not contribute to the academic enhancement of the students. The theme of our quiz is to provide users with exam practice. This quiz is useful for the preparation of any test. This quiz app includes two main roles, namely (i) student, (ii) teacher. According to their roles they'll be led to different pages and given different functionalities which they can use to make their lives easier.**

**We have learned a lot about Android based applications and also about user's behavior. We have found that the development process is hard and time-consuming, but it can be managed by team work. We hope that other developers will take advantage of our experience/from our development.**

**Future work We are planning to keep managing the project and improving it based on user feedback. Here is our to-do list for the future. We will add more features in our app to make it even more effective. We'll try to make it more user friendly than it is now. We'll try to improve its quality. We'll work on another feature in our app to add a module namely "Calculate overall performance of students from their attempted quizzes" which is helpful for teachers to categorize students accordingly.**

## References

https://docs.flutter.dev/

https://firebase.google.com/docs?gclid=Cj0KCQjw5-WRBhCKARIsAAId9FnzvJjsgZbPRVXcNCuytvSktEWL94HidzF76n7AKEpz6AkfP3m9DeUaAt1NEALw_wcB&gclsrc=aw.ds

https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global_Objects/JSON