

GENERAL KNOWLEDGE ACQUISITION THROUGH GAMIFICATION

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

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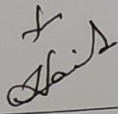
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APPROVAL

This Project “**General Knowledge Acquisition Through Gamification**”, submitted by Md. Abdul Ahad, ID No: 161-15-7548 and Nadira Begum Priority, ID No: 161-15-7037 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 7th December, 2019.

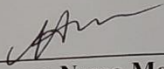
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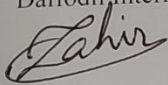
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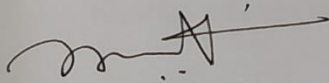
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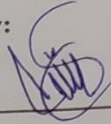
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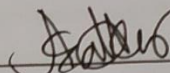
We hereby declare that, this project has been done by us under the supervision of **Md. Abbas Ali Khan**, Lecturer, **Department of CSE** Daffodil International University. We also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

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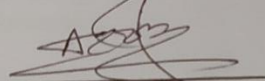
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We express our heartiest thanks and gratefulness to almighty Allah as His divine blessing makes us possible to complete the final year project successfully. We felt grateful to and wish our profound our indebtedness to **Md. Abbas Ali Khan** Lecturer, Department of Computer Science and Engineering, Daffodil International University, Dhaka. Deep Knowledge & keen interest of our supervisor in the field of Mobile Apps development (android based) influenced us to carry out this project. His endless patience, scholarly guidance, continual encouragement, constant and energetic supervision, constructive criticism, valuable advice, reading many inferior draft and correcting them at all stage have made it possible to complete this project.

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ABSTRACT

In 21st century we are completely depend on our mobile phones which are fully based on android OS and this is a most popular platform in present days.so we think we should work on it for our future job skills. Then we decided to do an online (earning) quiz app for all. Then we faced some problems answer bank issues.so we leave it for future scope and done an attractive quiz app for students, organizations and those people who want play for fun and increase their knowledge. So, we categories this app in various part. Each part contains interesting multiple-choice questions and has a fixed time to give answer and will counted the exam marks automatically. admin can add, delete, upload the questions and can manage the hole program.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

Online quiz game is an Android application. we can use this application to increase our general knowledge. In present time, Android phone is a part & parcel of our daily life. Android operating system because Android based OS & it's very popular because of free handed.

So we think to build a quiz contest through smart phone which name is ONLINE(earning) G.K QUIZ GAME. Through this online game administrator can earn by commercial Adds. It's working like Administrator can run the system, can add questions or delete them.it has multiple choice question with given time limit & it also can calculate the scores & give correct answer.

This application is very user friendly. Don't need any registration. People just give their user name and a password & it will automatically save in their device. They can login again with same details. So every type of student, normal people who can increase their basic knowledge for interview, job exam etc. can easily use it. Not only for knowledge but also they compete with their friends and found gaming fun at a time.

1.2 Motivation

This is an interesting part for us. So we want to describe it with details. When title defense started we thought what can we do? one day we discussed about our childhood game than we remembered that few years ago NTV organized a quiz game show through TV where people can take participated by mobile phones or telephones. It was aired for 2 days in a week and they awarded people through flexi load.

Then we decided to do something like this for our Android smart phones. But we faced many difficulties like money shortage and the banking part of this application is time consuming & higher requirements service which we let it for future scope.

1.3 Aims of the project

Our main goal is to increase people basic knowledge with fun and earn money by playing quiz game. For now we faced many difficulties but our future aim is to solve the difficulties and provide this application to everyone for create a digital world.

1.4 Objectives

The main objective is to simplify a user friendly environment for users. Many schools, colleges conducted their multiple question answer exams manually. But through this application they are:

- Conducted their exams anywhere.
- Knowledge based app and user can earn money by playing.
- Bangladesh is a digital country but still objective exam happen manually so we create this app for online objective exam and also can play GK quiz game and earn money at a time.
- Fixed the time for each question & can checking result report automatically.
- No question paper is needed. administrative panel can set their questions as their wish or can remove any question.

1.5 Expected outcome

Quiz game application is a digital platform where people can judge their general knowledge by themselves. education institution conducts their exam automatically. time will save for everyone. Students will be digitalizing. the score will be automatically uploaded. Interviewee can see the correct answer if they give incorrect answer.

1.6 Report layout

This report is divided into 6 chapters. Each chapter contains their valuable part of themselves & has various parts that explaining in details.

Chapter 1: Introduction

In this portion we discuss the summary of this quiz app project with motivation, objectives, aims & expected outcomes.

Chapter 2: Background

In this chapter we discuss about related work, comparative studies, problems, challenges.

Chapter 3: Requirement Specifications

Discus about features of Android Studio, database, SQLite.

Chapter 4: Proposed Model and Design

This chapter discusses about block diagram business process model, E-R diagram, use case modeling.

Chapter 5: Implementation and Testing

In this chapter discusses about design, testing and test result or reports.

Chapter 6: Conclusion and future scope

In this chapter discusses about conclusion of our project and also future scope.

CHAPTER 2

BACKGROUND

2.1 Introduction

Quiz is an android based app that works automatically done by the Android system. This is a brain game that increase your knowledge in fixed given time.

2.2 Related works

There are many known applications like online quiz app. But our is little bit different because of earning. Our project full name is ONLINE EARNING QUIZ APP. So people can earn money by playing this game. But that will be our future work.

2.3 Comparative studies

At first almost 1 year ago we thought about manual quiz TV show and decide to do it by systematically. Then we study about online quiz app. We found many applications that are 94% similar as well. But we found an app in India that is quietly similar as ours which name is LOCO game[5].

But few month ago, in Bangladesh we saw an app like ours (online earning quiz game) and that was done by ROBI company. We were astonished and being gossip each other by telling that ROBI stole our idea and done by their experienced engineers. That gossip was definitely just for fun.

2.4 Scope of the problem

Previously we mentioned our project full name and our difficulties that we faced. We leave a big scope for us to do a better job in the future in our project. If we got any sponsor or other option then definitely, we will complete this project as we named online earning quiz game.

2.5 Challenges

As newer in Android field we faces many problems. at first, we thought we will do earning quiz app as if people learn general knowledge with earning option. But slowly we face money problem banking issues etc. but we tried and did 50% work as well and leave some work for future.

CHAPTER 3

REQUIREMENT SPECIFICATIONS

3.1 SQLite

SQLite and fiver are open source platform which user can use easily. SQLite source code is free to use for everyone because of its public-domain. Most of people uses open source, SQLite one of them. Basically, SQLite is a database engine.in our project, we use database that user information shows easily.

3.2 Database

Database is a group of all information of user that can be accessed, updated, deleted, added and managed. Admin see all data though password is decoded^[15]. Database defined three types of data use primary key, navigation, relationship from all records file. Our project based on android and we use database for collection of data that will help admin. Like SQLite Database for Back-End work. Firebase Real-time database for user's payment system.

3.3 Feature of Android

Our project based on android operating system for smart phones. That is an open source and developers can manage the code in java because they are allows for it. Mainly android is a software form. Android feature is highly highlighted features that using kernel of Linux 2.6[1]. This feature passes IPC message and hardware control the multimedia part. Its API's uses for GPS[1].

3.3.1 Android Studio

- Data automatically sync.
- Real time & xml view.
- Build android application and view physically.
- AVD lancer.
- Up to date plugin.

- App testing process.
- Detected bug report easily.
- Error show line by line.

CHAPTER 4

PROPOSED MODEL AND DESIGN

4.1 Data flow diagram (DFD)

This diagram is presenting the flow of data. This is the primary position of representing of data create an overall model system. DFD allows that where the data will be stored and come from & go. Shows the input output relationship through this diagram[1].

Level 0 DFD :

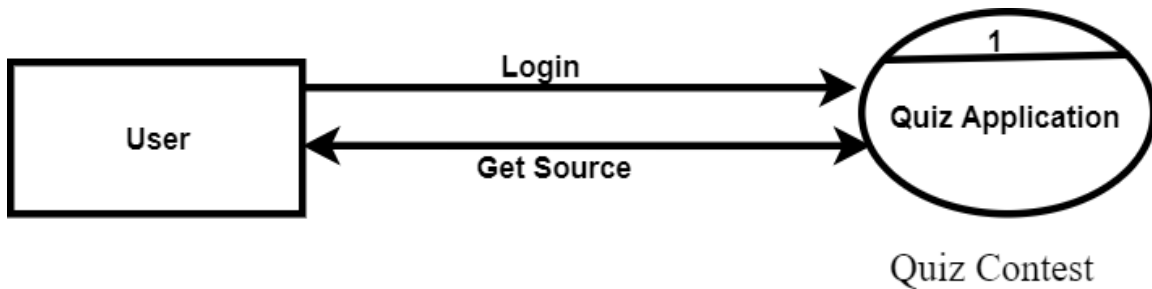


Figure 4.1: Data flow diagram Level 0

4.2 Business Process Modeling

This model is a graphical representation of any kind of business work. Used in a business process management system where we can represent a model that would help us for a work purpose[17]. Our project is a business but an online app where we can earn by add or an app that would be earning source so that we should build a model like a business process model where we can organize our data in a model. A well-shorted document or model is useful for teamwork. In this model, we can find the business strategy process that might help us to do a great job in our field.[6]

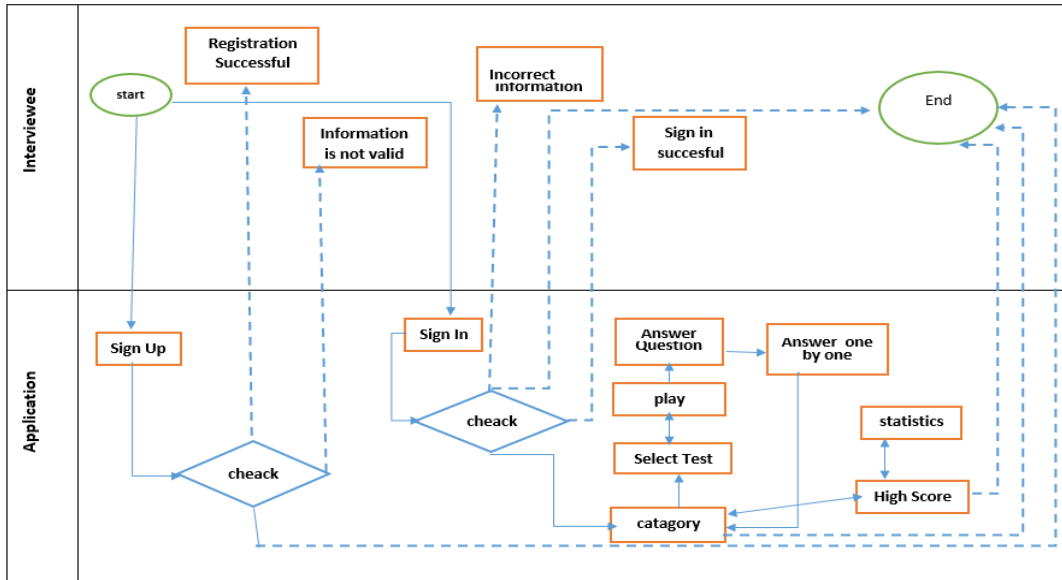


Figure 4.2: Business Process Modeling

4.3 Use Case Modeling

This model is used for under developed project that help to the developer to understand. This is the primary part of a under developed project. This is a model where user can interest with the system and can achieve the goals of the users. This model is connected to actors which can be a human or a machine that interacts with the system[17].

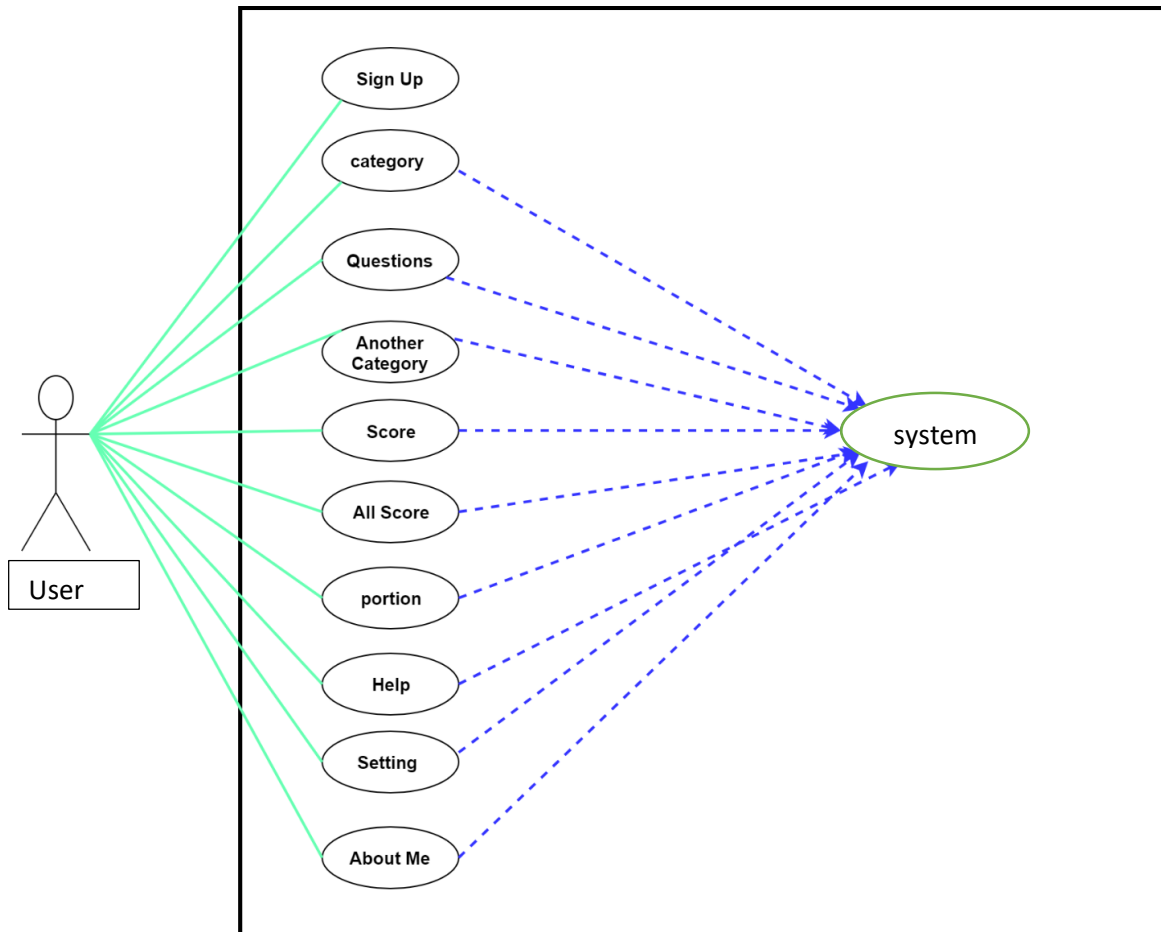


Figure 4.3: Use Case Modeling

In this part user can connected with system followed by some step.

4.4 Logical Data Model

Logical data model is a conceptual data model that can easy to read. It's look electronic schematics like flat screen TV and so on. Logical data is a technical context to represent the data. This model is very useful to communicate with designer's view to business analysts to database administration. When analysts ensure that the model view catch the require data than the database administrator will be free. Logical data model represent as context diagram.

4.4.1 Context Diagram

This is a diagram which represent the relationship of input output between user and application[17].

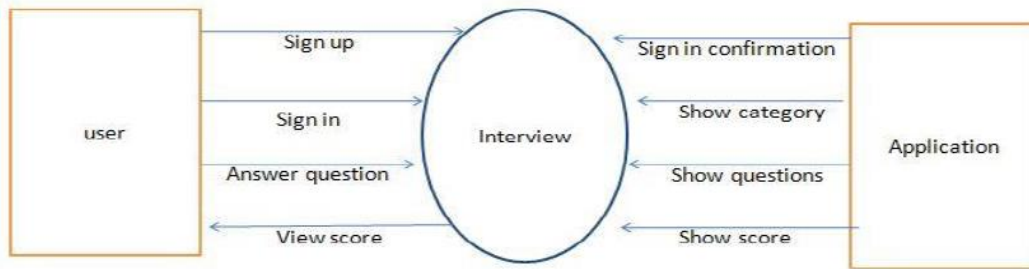


Figure 4.4.1: Context Diagram

4.5 Entity Relationship Model

An Entity Relationship model is a graphical representation of an information system entities and relate with those entities. This model contains 3 elements.^[20]

- Entities
- Relationships
- Attributes

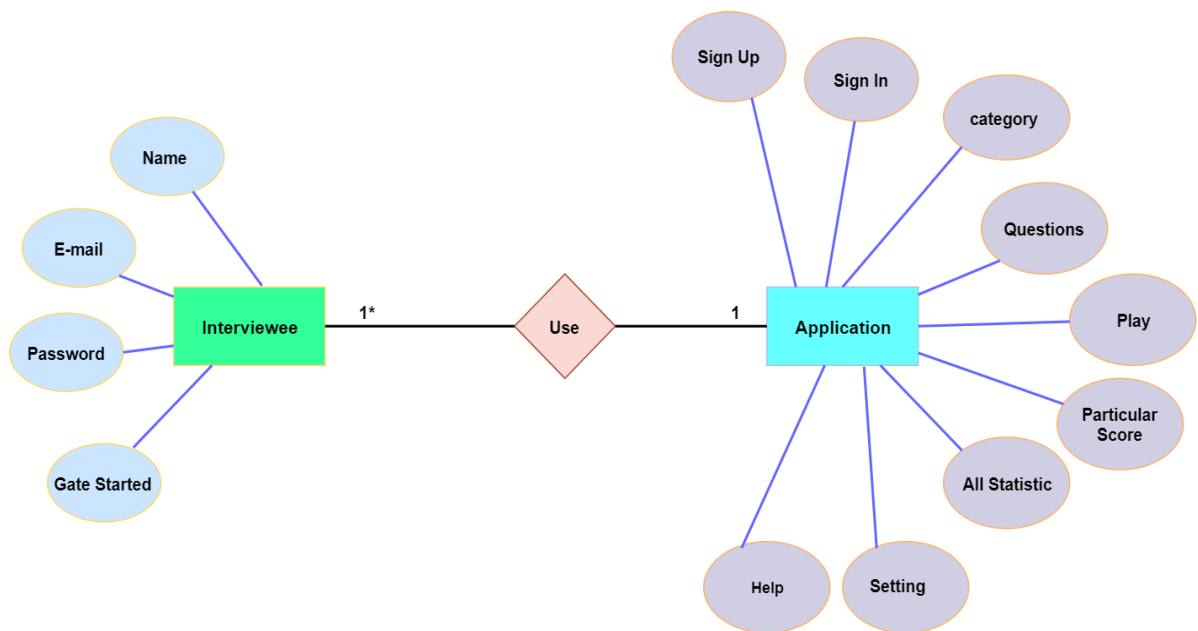


Figure 4.5: Logical Data Model

CHAPTER 5

IMPLEMENTATION AND TESTING

5.1 Implementation Front-end Design

Implementation part is important as well model design. This is the important part of a system. by implementation of interaction we go to one function to another function and design a function that attract to users. We design GUI for a good-looking application and use many icons for developed the application [17].

Front – end design is a visualize portion that we can see in an application. by this portion user can interlude with our application [14].

Here are some screen shots of our project’s front-end design:

5.1.1 Sign-up design :

For this design we use array of themes apps widget for making a standard look. This templates is very user friendly and mobile friendly. We create this page for our apps where user will be registered and can play further again.

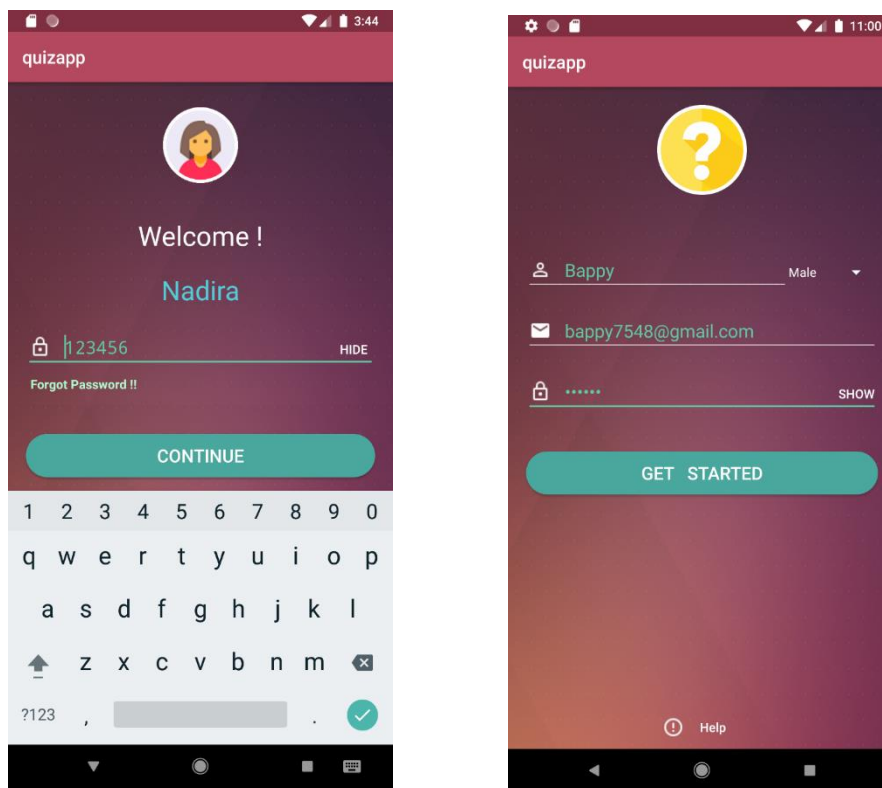


Figure 5.1 & 5.2: sign-up design

This sign-up page contain name option with gender, mail option and have a password that will give you a protection security.

5.1.2 Sign-in Design & Category:

Sign in part is like user can enter into the app easily and This Front-end design we defined as “Category”.

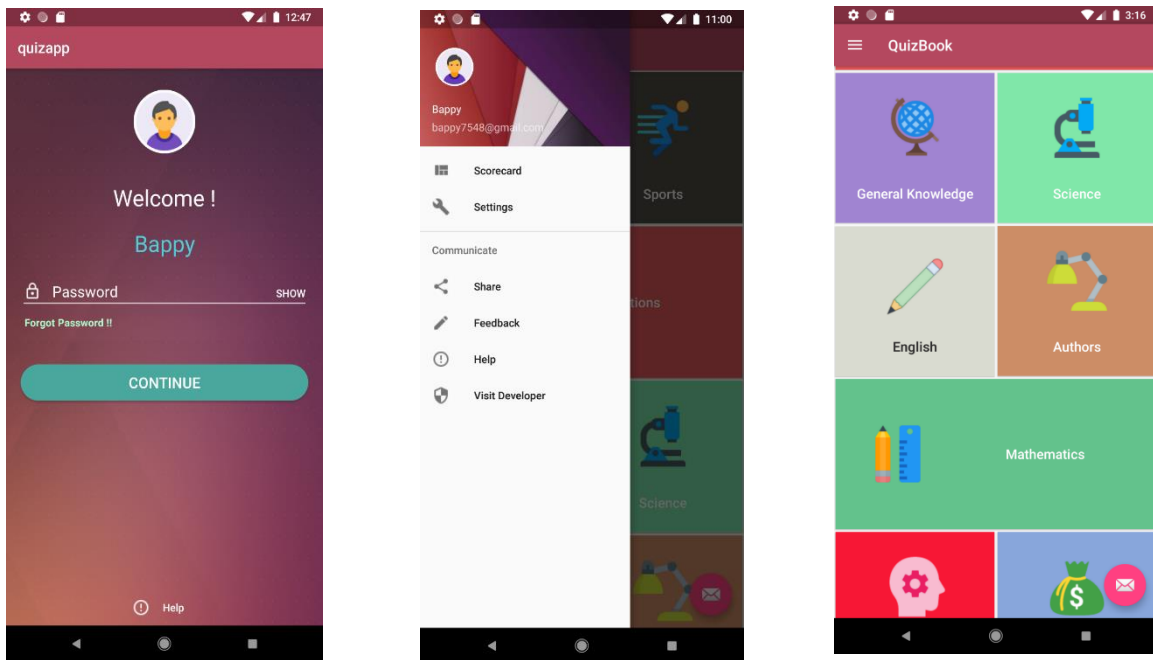


Figure 5.3 & 5.4: sign-in design & all Category

In this page, have only the password option that will recognize you that you are a registered user.

5.1.3 Play Button & Question:

Here is the part of starting part define as “Play” where user can reach the questions part.

Finally this is the Questions part where each Question contains 4 option of answers.

Here is the screen of scoreboard define as Statistics. In this part user can see a message that what they done.

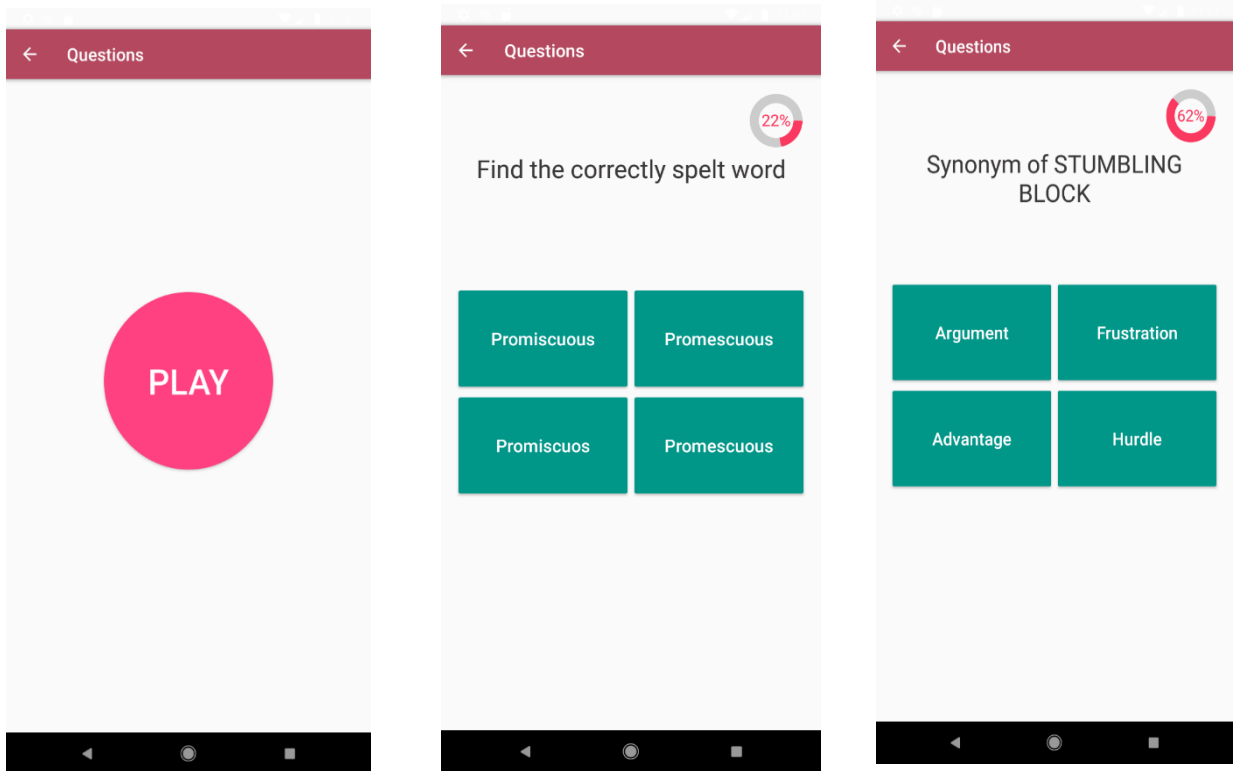


Figure 5.6: Play Button & Question

5.1.4 Score Board, Leader board, & Sharing via g-mail

This is the leader board part where user can see their total score that viewed by category. And they played before until by unit. In this app we create a sharing option part where user can share this app or their score to others via g-mail with their friends.

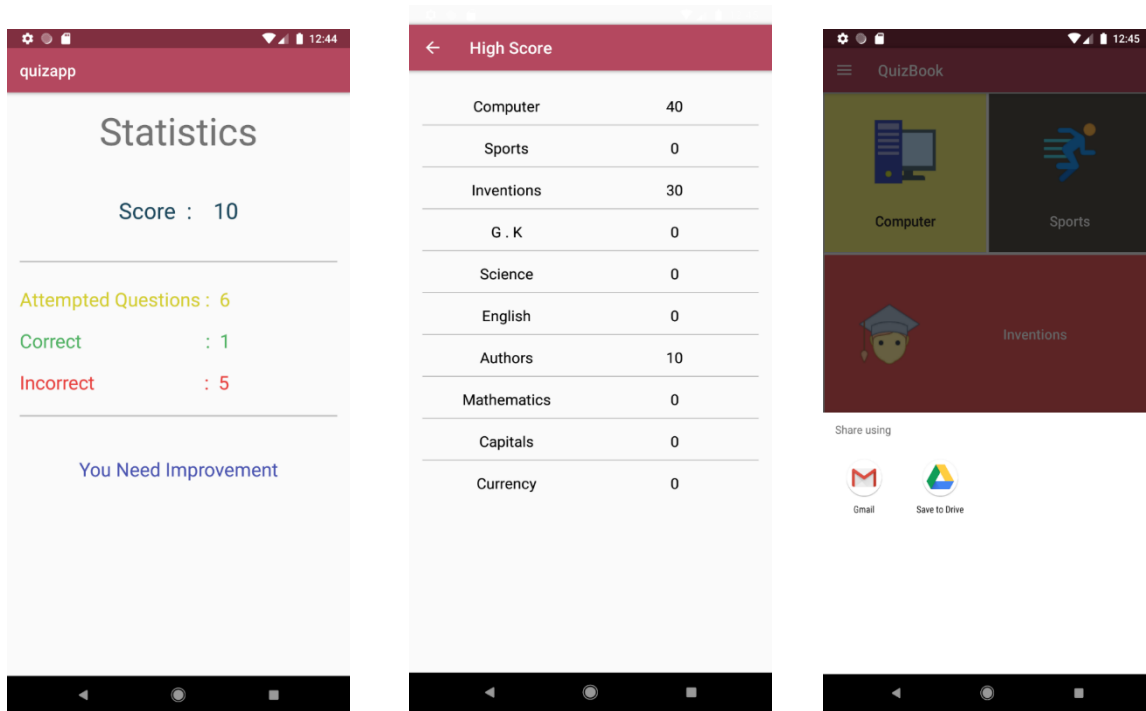


Figure 5.9: Score Board, Leader board, & Sharing via g-mail.

5.2 Implementation of Back-end Design

Back-end Design is not like Front-end design. It's totally different part where user can't access^[1]. This part only for the developer who design the application [3]. User only use the optical part means front end design and can access of play. Back end design is only working part where developer can write java code through android studio. We use database system for back end work[24].

5.3 Interaction Design and UX

UX design used for marketing purpose.an application can be attractive by interaction design. Interaction design is the part of UX. most useful design to build an application and user friendly to the user. Has 7 factors to describe UX [17].

They are:

- Useful
- Usable

- Findable
- Credible
- Desirable
- Accessible
- Valuable

5.4 Implementation requirement

5.4.1 System / software Requirements

Contain the systematic part that used in this project.

- Android and java platform
- Operating system is android
- Ram: minimum 1GB/ 512 MB.
- Network connection: Wi-Fi / Cellular Net.
- Database : SQLite

5.4.2 Hardware Requirements

We need as well as hardware requirements also.^[1]

- Processor: Minimum Intel Core i3
- RAM: at least 4/8 GB
- Disk space: at least 4 GB
- HDD(Must)
- Android device

5.5 Database table views

This application is an android base operating system. We use SQLite database system where user's information stored. Admin can run this system as they can upload questions, update, delete, add and also can remove annoyed registered users.

Table 5.1: Database Table

Attribute Name	Type
Id	Int
Name	Text

e-mail	Text(varchar)
Password	Text(varchar)
Spinner time	Int

This table define the class where every data about this application will be stored and will be updated itself.

Here is the screen of database table :

- SQLite Database use for Back-End work where programmer coded for this app.
- Firebase Real-time database use for user's payment system where user will give a phone number to withdraw their money which they played through this app. When payment will be done the user can see a toast message on the screen.

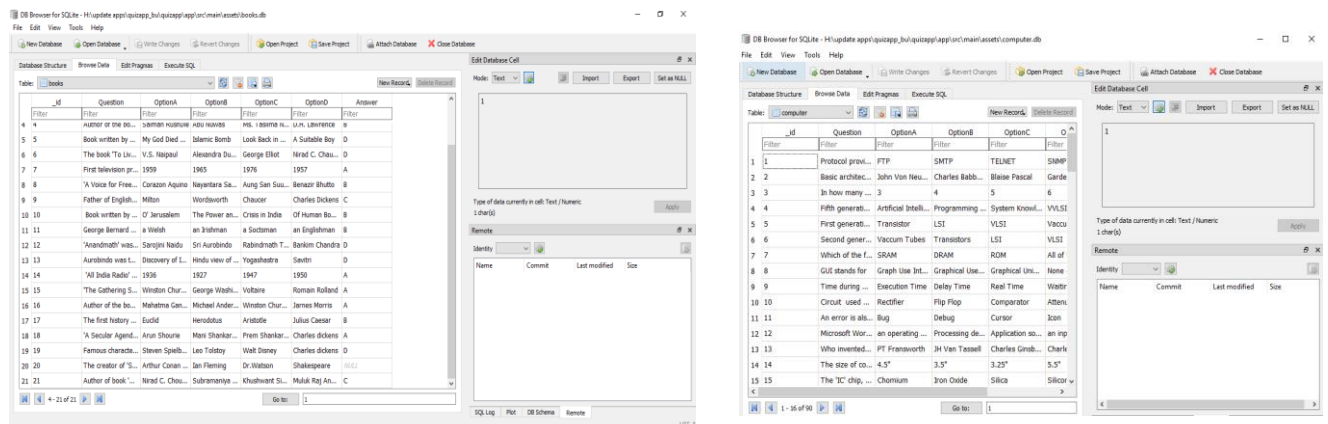


Figure 5.11: Screen shots of Databases

5.6 Testing Implementation

Testing implementation means when a system implemented by various tools and tested that tools specifically. We also done this term many times during doing this project[1].

We have tasted-

- Database connection
- Sign in and up part
- Question checking function
- Score board function
- Categories function that work properly

5.7 Functional Testing Result

Here are some tested table which we were tested before when we the back-end work was almost done. Some tested case name is Sign-up, Question checking, Scoreboard.

Table 5.2: Test case 1: (sign-up)

Testes by:	Abbas Ali Khan
Type :	Single test
Number of test case:	1
Case name :	Sign up
Description :	The user should give any Name, password, email id that will successfully work.
Items test:	
01	Sign up
Specification	
Input	Expected Results
User details	Sign up successfully then play automatically

Table 5.3: Question checking

Testes by:	Prionty
Type :	Single test
Number of test case:	2
Case name :	Question checking
Description :	The user should choose right answer.
Items test:	
02	Verify the right answer.
Specification	
Input	Expected Results

Checking score and show a message	If the answer is wrong then give the correct answer.
-----------------------------------	--

Table 5.4: Score board

Testes by:	Ahad
Type :	Single test
Number of test case:	03
Case name :	Score Board
Description :	When user finish the game a leader before shown where score automatically calculated.
Items test:	
03	Count correct & wrong answer and give score where a popup message shown.
Specification	
Input	Expected Results
Number of question attempt	Show number of correct & wrong answer.

Feasibility Study

This part belongs to system analysis where developer can analyses about the application and took decision for betterment[1].

Table 5.5: Feasibility Study

Feasibility Study	
System: Online Quiz Game	Date: 25-09-2019
Author: SAHA	page: 01
Product	

This project is a quiz game which is online based android application that increase user basic knowledge day by day & also work for education institute as system automated question paper instead of manual questions paper.
Technical feasibility
This application will be developed by using android studio.
Social
All users & admins quietly trained about IT.
Market value
This online application's market value would be very useful to all kind of users & for their better general knowledge.
Economic
This app is user friendly with limited budget.
Another option for solution
It could be desktop friendly but must be difficult as portable.

Table 5.5: Feasibility Study

5.8 Testing Process

In this part we test describe about the process of testing which is done before named test case. Identifying the application's bugs thorough this process.

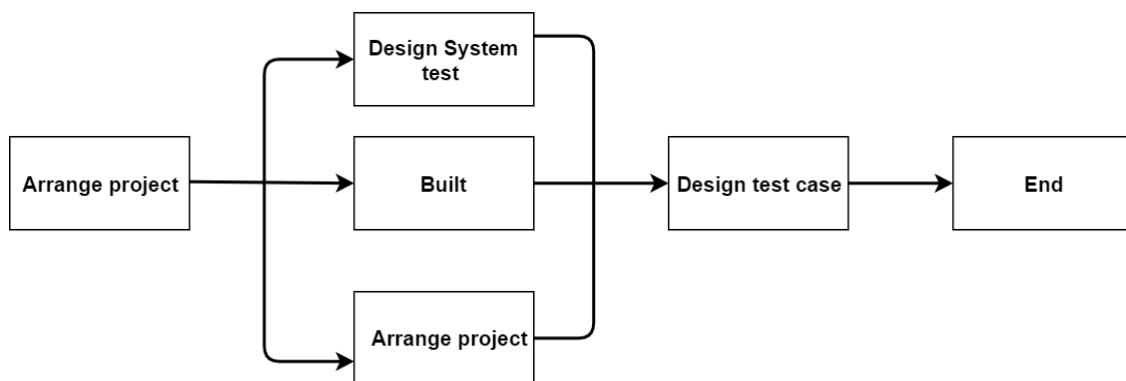


Figure 5.12: Testing process

CHAPTER 6

CONCLUSION AND FUTURE SCOPE

6.1 Conclusion

Finally, we reach in the conclusion part. I mean we have completed our project and documentation officially by the grace of Allah. We are feeling so much relaxed and happy that we passed a long-term period in this project with lots of thinking, discussion, implementation.

This online (earning) quiz app based on android OS. we are now in 21st century. Many android tools make our life easy. Our application is one of them. User can learn general knowledge by this app and also education institute took the online exam through this application. Not only education institute but also any organization can take their MCQ exam through this. Also, user can compete each other to know their skills.

6.2 Goal

Our goal is very clear that we discussed previously. We want to reach a position where user can also earn money by playing this game and the most important goal is that this app can reach to everyone who use android mobiles. Because in leisure time they can play one kind of game what is increase their basic knowledge.

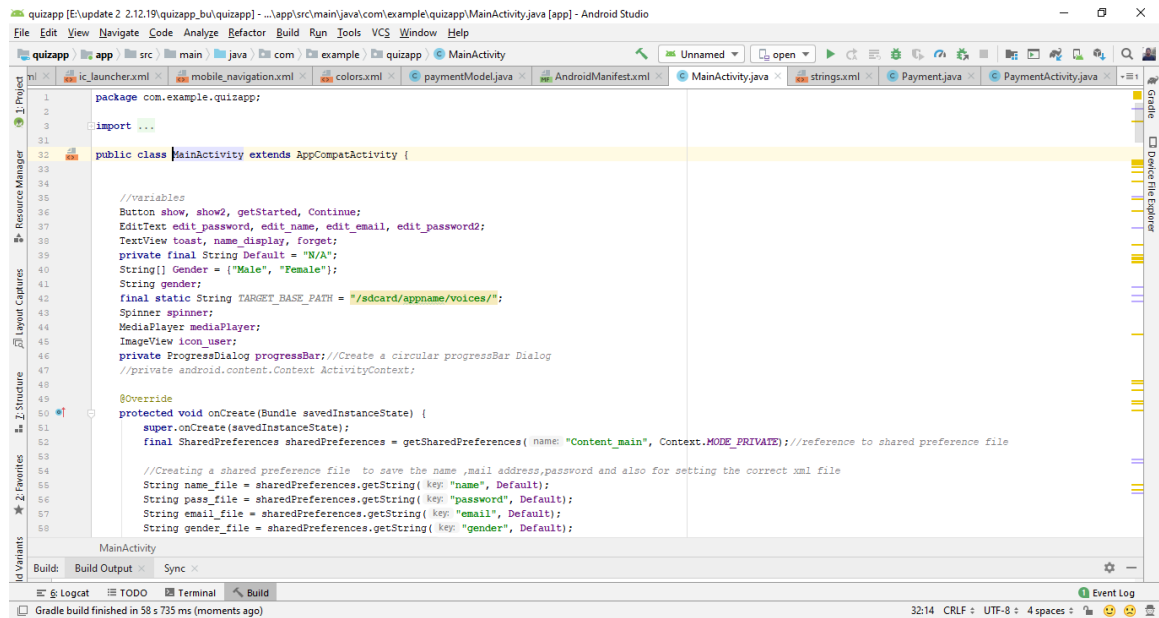
6.3 Future Scope for Further development

We did our job very efficiently and put infinite endeavor on this project and leave an exciting option to do work for future scope. That is earning part. If user play this quiz for general knowledge and be rewarded for each correct question that would be very exciting. Isn't it? Also we have a future plan about this app like-

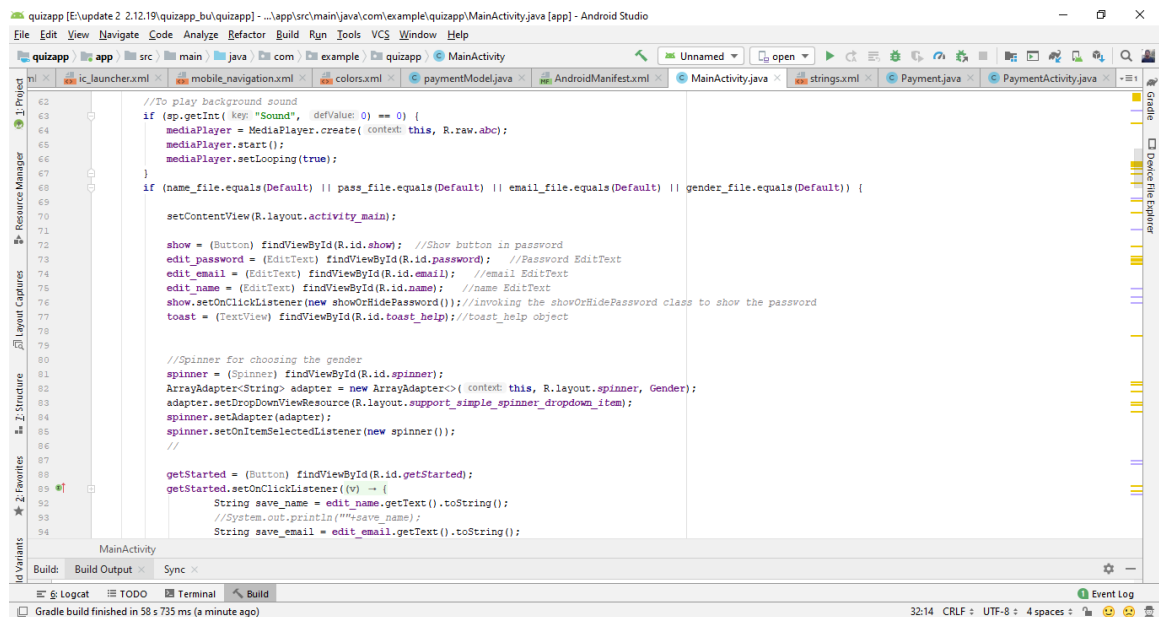
When time will be over for giving answer to the required question then an alarm ring up. This option will be added in future.

Now it's only for android devices. But in future we want to develop for desktop and iOS.

APPENDICES



```
1 package com.example.quizapp;
2
3 import ...
4
5 public class MainActivity extends AppCompatActivity {
6
7     //variables
8     Button show, show2, getStarted, Continue;
9     EditText edit_password, edit_name, edit_email, edit_password2;
10    TextView toast, name_display, forget;
11    private final String Default = "N/A";
12    String[] Gender = {"Male", "Female"};
13    String gender;
14    final static String TARGET_BASE_PATH = "/sdcard/appname/voices/";
15    Spinner spinner;
16    MediaPlayer mediaPlayer;
17    ImageView icon_user;
18    private ProgressDialog progressBar;//Create a circular progressBar Dialog
19    //private android.content.Context ActivityContext;
20
21    @Override
22    protected void onCreate(Bundle savedInstanceState) {
23        super.onCreate(savedInstanceState);
24        final SharedPreferences sharedPreferences = getSharedPreferences("Content_main", Context.MODE_PRIVATE);//reference to shared preference file
25
26        //Creating a shared preference file to save the name ,mail address,password and also for setting the correct xml file
27        String name_file = sharedPreferences.getString(key: "name", Default);
28        String pass_file = sharedPreferences.getString(key: "password", Default);
29        String email_file = sharedPreferences.getString(key: "email", Default);
30        String gender_file = sharedPreferences.getString(key: "gender", Default);
31    }
32}
```



```
62 //To play background sound
63 if (sp.getInt(key: "Sound", defValue: 0) == 0) {
64     mediaPlayer = MediaPlayer.create(context: this, R.raw.abc);
65     mediaPlayer.start();
66     mediaPlayer.setLooping(true);
67 }
68 if (name_file.equals(Default) || pass_file.equals(Default) || email_file.equals(Default) || gender_file.equals(Default)) {
69     setContentView(R.layout.activity_main);
70
71     show = (Button) findViewById(R.id.show); //Show button in password
72     edit_password = (EditText) findViewById(R.id.password); //Password EditText
73     edit_email = (EditText) findViewById(R.id.email); //email EditText
74     edit_name = (EditText) findViewById(R.id.name); //name EditText
75     show.setOnClickListener(new showOrHidePassword()); //invoking the showOrHidePassword class to show the password
76     toast = (TextView) findViewById(R.id.toast_help); //toast_help object
77
78
79     //Spinner for choosing the gender
80     spinner = (Spinner) findViewById(R.id.spinner);
81     ArrayAdapter<String> adapter = new ArrayAdapter<>(context: this, R.layout.spinner, Gender);
82     adapter.setDropDownViewResource(R.layout.support_simple_spinner_dropdown_item);
83     spinner.setAdapter(adapter);
84     spinner.setOnItemSelectedListener(new spinner());
85     //
86
87     getStarted = (Button) findViewById(R.id.getStarted);
88     getStarted.setOnClickListener((v) -> {
89         String save_name = edit_name.getText().toString();
90         //System.out.println("save_name");
91         String save_email = edit_email.getText().toString();
92     });
93 }
94 }
```


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