

SHIELDING PIGEON

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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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APPROVAL

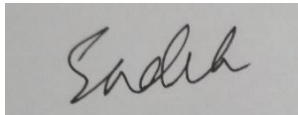
This project named “**Shielding Pigeon**”, submitted by TarafderTarikulIslam,Md.Rubaid Hossain and Mst. LutfunnaharLubnato the Department of Computer Science and Engineering, Daffodil International University, has been acknowledged as attractive for the halfway satisfaction of the necessities for the degree of B.Sc. in Computer Science and Engineering and affirmed as to its style and substance. The presentation has been held on may, 2020.

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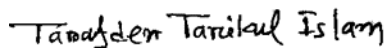
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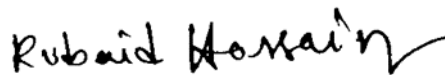
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ABSTRACT

About 7.3 million people are suffering from depression, which is an extremely complex disease. No one knows what is the cause exactly, but it can occur for various reasons. In most cases, the remedy comes from sharing the mental problem with others. The positive vibe about the cause of depression can recover a person from the illness. At least any silent listener can give enough spiritual support to the depressed person. On the other hand, as a depressed person, listening to others stories may let him/her think that he/she is not alone. This is why the project is developed as a common platform for depressed persons for telling and listening to one another's stories. Here, depressed persons can share and listen to the individual's life story and discuss it under the supervision of an expert.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

This report will express about the highlights and procedure to build up the application that we thought and worked well in order to reach the last accomplishment. This declaration especially holds in subtleties for the targets, structure display, scope, essential prerequisites, and by end announcing and watching techniques which are taken.

Along with the time of modernity, we have got less time to talk with our kin persons. That causes depression in teenagers, and the problem rises day after day due to loneliness. Companionship and support can be crucial to a person's recovery. At this point, the main question arises: who has enough patience to listen and to accompany the person. That is why the idea presented in the report offers another same type of depressed person to escort one another. Thus all of them can have persons to listen to and to accompany. The project works as a common platform for depressed persons to find the same category depressed persons and meet with them for always. The project is designed to meet people in a group called peachroom. An expert consults the peachroom so that none of the patients goes to any wrong way.

Over 300 million people are suffering from depression globally, which is equivalent to 4.4% of the world's total population[1].The project can reduce the feeling of loneliness. Thus any depressed person can find a way to come back to life, realizing that he/she is not the one. Someone on earth has the same problem. Thus the suicide rate can be reduced. Nowadays, about 11000 suicide occurs every year in Bangladesh[2]. The project can be a better solution to this problem.

1.2 Motivation

From land phone to mobile phone, the communication system has been transferred to social sites nowadays. Social Sites are the most important reason for depression these days. On another

point, people are so used to social websites. Thus, the motivation came up to the idea of creating a social site that is for depressed persons and to heal them.

People are used to social sites, and that is why they will feel free to use the application, and the app is developed to improve them.

1.3 Objectives

Our system is going to solve several issues for depressed people, mentally sick & lonely people. This project will help people who are extremely sad and lonely. We know that loneliness kills us, but this app will connect two depressed people for sharing their problems and thoughts. Where there we will monitor the chatting section, and if the case goes the wrong way, then we will send this user to our expert. There is also an extended chatting option, Games, and Inspirational Quotes.

1.4 Expected Outcome

The project can make any depressed person feel that he/she is not all alone. It gives them a real friend of the same type to talk. The expert will guide them so that they can find the right track. Game

1.5 Report Layout

This project contains six-chapter. In the first chapter named Introduction, we will talk about Introduction, Motivation, Objectives, Expected Outcome, and Report Layout. In the second chapter titled Background, we will write about project Introduction, Related works, Comparative Studies, Challenges of our project. The third chapter is named Requirement specification. It contains Business Process Modeling, Requirements Analysis, and collection, Use Case Modeling and Description, Design Requirement of our project. In the fourth chapter named Design Specification, where we will talk about Front-end Design, Back-end Design, and Implementation Requirements of our project. In the fifth chapter, which name is Implementation and Testing. Here we will discuss Implementation of Database, Implementation of Interaction, and Testing Implementation. In our sixth chapter,also, the final chapter named Conclusion and Future scope

of our project. In this chapter, we will talk about Discussion and Conclusion and Scope for Further Development. In this report, we talk about our application and its various problems, solutions, and use of the project.

CHAPTER 2

BACKGROUND

2.1 Introduction

Depression is an extreme problem from the very beginning of time. But with the advance of technology, we have come closer theoretically but gone so far practically. That is why it is so common to feel lonely. Though we are used to the use of technology, the solution to loneliness can be solved by technology. Here the project can find lonely depressed persons of the same category to be connected in a group or person. The idea is implemented in western countries, but our project aimed to heal depressed people online effortlessly.

2.2 Related Works

Though sharing thoughts of a depressed person helps a lot to the person, many mobile applications are available as a sharing platform.

TalkLife offers connection and community support, similar to group therapy. A caring community of thousands of people is waiting to talk, listen, and help you feel a little less lonely. If you're concerned about privacy, anonymous sharing is an option, too [3].

Daylio - Mood Tracker can help the user pinpoint the trends sooner so you can make the adjustments you need. Within the PIN-protected app, use graphics to detail your daily activities and moods, then watch the app churn out stats and trends to help the user understand his/her feeling better. Reminders ensure you keep up with your tracking and journaling activity [3].

Youper walks the user through techniques he/she may need at the moment based on his/her responses. It then summarizes the user's conversations and interactions into insights that help him/her understand more about emotional well-being [3].

Pacifica is a mindfulness app that can help the user to identify feelings or troubles, then move toward acceptance and peace. Designed by a psychologist, the app has been met with high praise for its design and ease of use [3].

Happify is a gaming app. It's evidence-based games, and activities borrow from positive psychology, CBT, and mindfulness. Challenge the user to complete them. Discover how depression, irritability, and stress can move toward perspective and empowerment [3].



Figure 2.1: Related Applications

2.3 Comparative Studies

When the main target is to heal depressed people, the project focused on the essential treatment, which is sharing their thoughts. As the previous para of 2.2 shows, most of the related works work to detect the mood, feeling by monitoring users' activity. That just can tell the user his / her feelings. That does not heal but only informs. One application named "TalkLife" works as a sharing platform that allows sharing thoughts publicly. An expert should monitor a depressed person for a long time to lead towards happiness. But, talk life, let's share ideas randomly. Thus, the maximum problem cannot have a permanent solution.

At this point, our idea of Peachroom, which is a group of depressed persons led by an expert, helps to know each other and the fixed numbers of members for a long time. So, everybody can understand each other, and friendship can stay long. As an expert leads the Peachroom, he/she can look over that if anyone is doing wrong or not. Thus the project works on the main problems of depressed persons to be solved.

2.4 Challenges

To reach the primary goal, a quiet number of challenges can be found. A proper expert must be found, and he/she has to work so well, and that can cause money. On the other hand, at the beginning of the launch, the 1stusers can not have enough friends. But the expert can directly consult them. So, if the expert is paid, all of the challenges can be solved. So that money is one of the most crucial problems.

CHAPTER 3

REQUIREMENT SPECIFICATION

3.1 Business Process Modeling

The project is aimed to heal depressed people. And the whole process starts with signing up if the user is new. While signing up users have to choose his / her position on the app. For the “Need Help,” category users must fill some fields related to his / her mental condition. After that, some examined questions will pop up to be answered. The queries will calculate the psychological level of the “Need Help” categorized user. Then the user will be allowed to choose one peachroom of his / her level. Thus any mental help seeker user enrolls in the system and gets help by connecting new persons of the same category and the same level. They can share thoughts by posting, Make group chat, or personal chat.

On the other hand, the “Want To Help” category means the experts who can lead any mentally depressed person on the right path. They also must sign up first as a new user. To sign up, he/she must input relevant data and answer some questions to confirm himself/herself as an expert. If he/she passes to proof, will be allowed to create his/her first peachroom. After login, the expert also can post, group chat, and personal chat. Additionally, he/she can generate more peachroom to control and change the level of any “Need Help” categorized user, if the user upgrades. Thus the whole process is designed to aid depressed people by connecting with others and reducing loneliness.

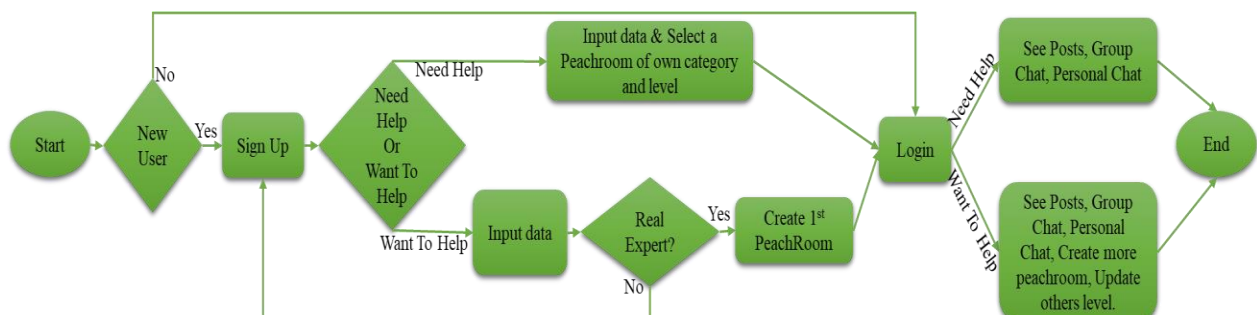


Figure 3.1: Business Process Model

3.2 Requirement Analysis and Collection

3.2.1 Software Requirements:

- **Android Studio IDE:** Android Studio is Android's official IDE. It offers tools custom-tailored for Android developers, including rich code editing, debugging, testing, and profiling tools.
- **Android Virtual Device:** An Android Virtual Device (AVD) is a device configuration that runs on the Android Emulator. It provides virtual device-specific Android Environment in which we can install & test our Android Application.
- **Database (Firebase):** Firebase Cloud Messaging (FCM) provides a reliable and battery-efficient connection between your server and devices that allows you to deliver and receive messages and notifications on iOS, Android, and the web at no cost. You can send notification messages (2KB limit) and data messages (4KB limit).
- **Adobe XD:** Adobe XD is the Adobe prototyping tool for user experience and interaction designers. Adobe XD features are used for creating wireframes, prototypes, and screen designs for digital products such as websites and mobile apps.

3.2.2 Hardware Requirements:

- Operating system: Windows
- Android supported device
- Computer configuration:
 - RAM-8GB (min)
 - Hard Disk- 150GB (min)
 - Processor- 1.5GHz (min)

3.3 Use Case Modeling and Description

A use case model is a graphic description of the interactions among the elements of a system. A use case is a methodology used in system analysis to identify, clarify, and organize system requirements. Figure 3.2 shows the use case modeling of the application.

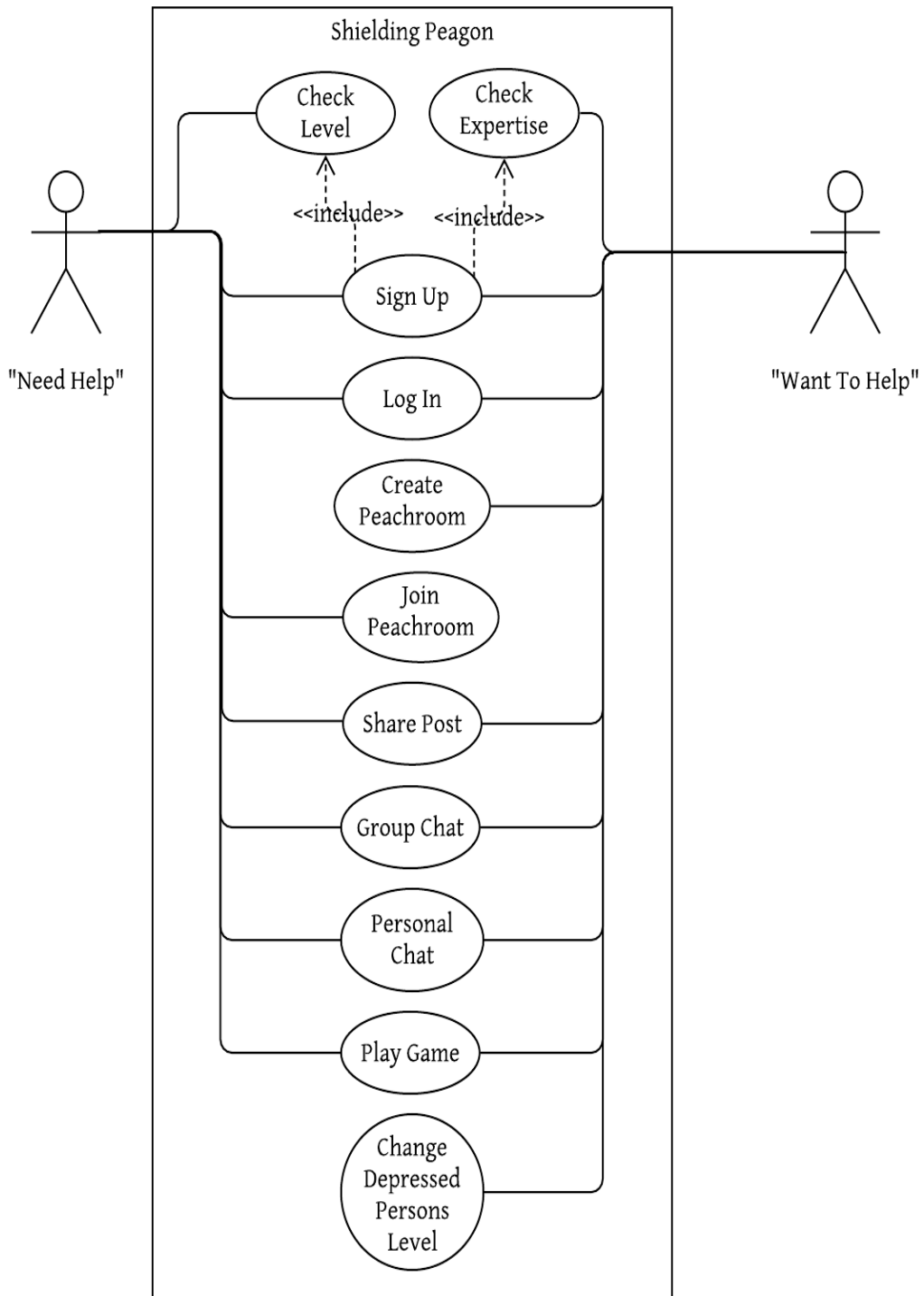


Figure 3.2: Use case Diagram

Use case details:

Use case of Sign Up:

Table: 3.1

Use case name	Registration
Use case details	Both “Need Help” and “Want To Help” have to register to use this application.
Pre-condition	Measure Level for the “Need Help” group. Check Expertise for the “Want To Help” group.
Actor	“Need Help,” “Want To Help”
Post-condition	

Use case of Search for Create Peachroom:

Table: 3.2

Use case name	Create Peachroom
Use case details	Create a new peachroom so that any help seeker can be added to get help.
Pre-condition	
Actor	“Want To Help”
Post-condition	

Use case of Share Post:

Table: 3.3

Use case name	Share Post
Use case details	Anybody of the group can share their thoughts by posting on the group wall.
Pre-condition	
Actor	“Need Help,” “Want To Help”
Post-condition	

CHAPTER 4

DESIGN SPECIFICATION

4.1 Front-end Design

An Android app is made up of two parts: the front end (XML) and the back end (Java & database). The front end is the visible part of the app that the user interacts with it and is written in using XML [4].

4.1.1 Splash Screen

The app starts with a splash screen that contains the logo first, then the login procedure starts. Users Can be logged in using email and password. If the user is new, he/she can sign up first.

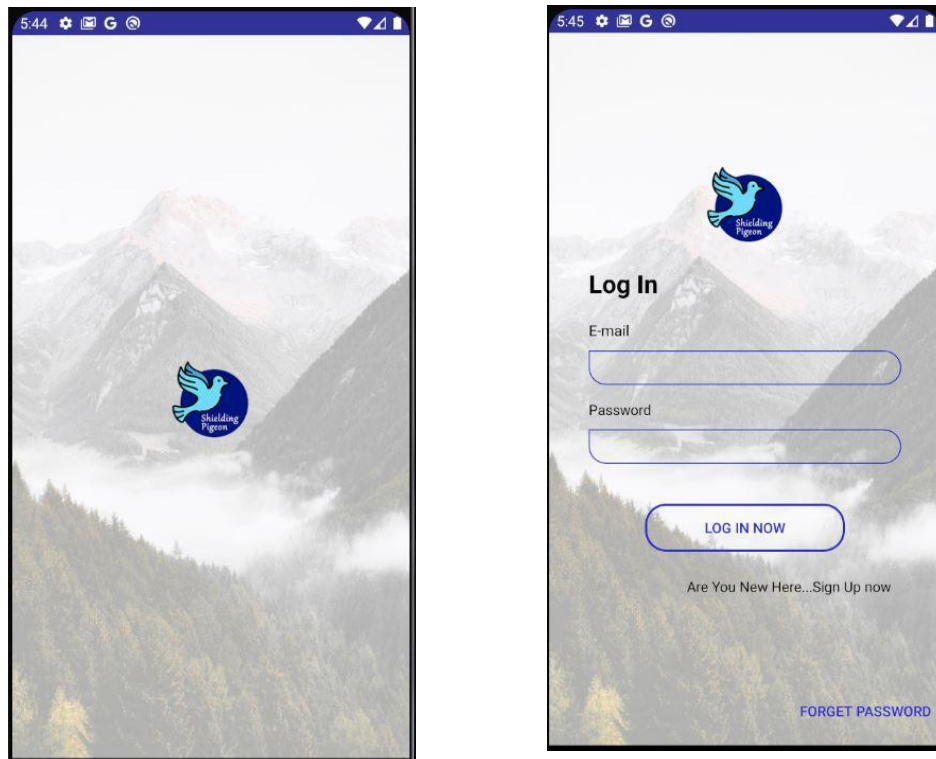


Figure 4.1: Splash Screen and login option

4.1.2 Sign Up Form

There are two types of users of our project. They are “Want To Help” who are experts and can open a new peachroom, control it, and “Need Help” who are depressed people and need to get help. They can share thoughts, chat with people to make connections.

The form view is different for two categories. Besides taking necessary information, a “Need Help” category must pick a peachroom according to his / her level. This app calculates the level by asking some fundamental questions to measure the mental condition.

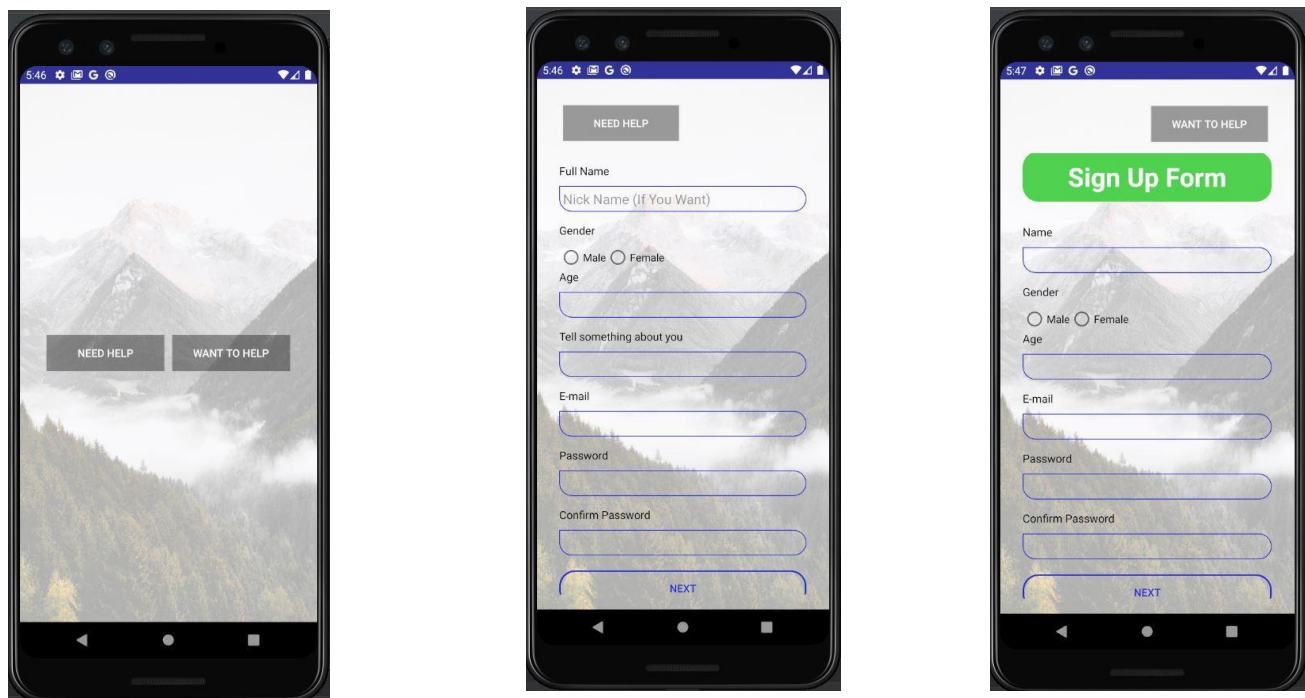


Figure 4.2: Sign Up Form

4.1.3 Options

After login, every user can have the same view with options. There, four options open up.

1. Home: “Need Help” category leads to the main screen of his / her own peachroom. On the other hand, the “Want To Help” type gets the list of peachrooms opened by him/her. Creating a new peachroom button also be there.
2. Profile: This option leads to the user’s profile. Every given information is showed in profile. Users can easily edit the info.

3. Games: To keep depressed people busy and feel good, Some easy to play games are included. The games can be played against real human or the machine itself. There are four games inserted named “Connect Four,” “Tick-Tak-Toe,” “Sudoku,” and “Guess The Number.”
4. About Us: It shows the details of the app and the developers. If users want the authentication of the app, this feature can help a lot.

Additionally, This page gives some motivational quotes randomly. A large number of motivational quotes are saved, and those come one after another.

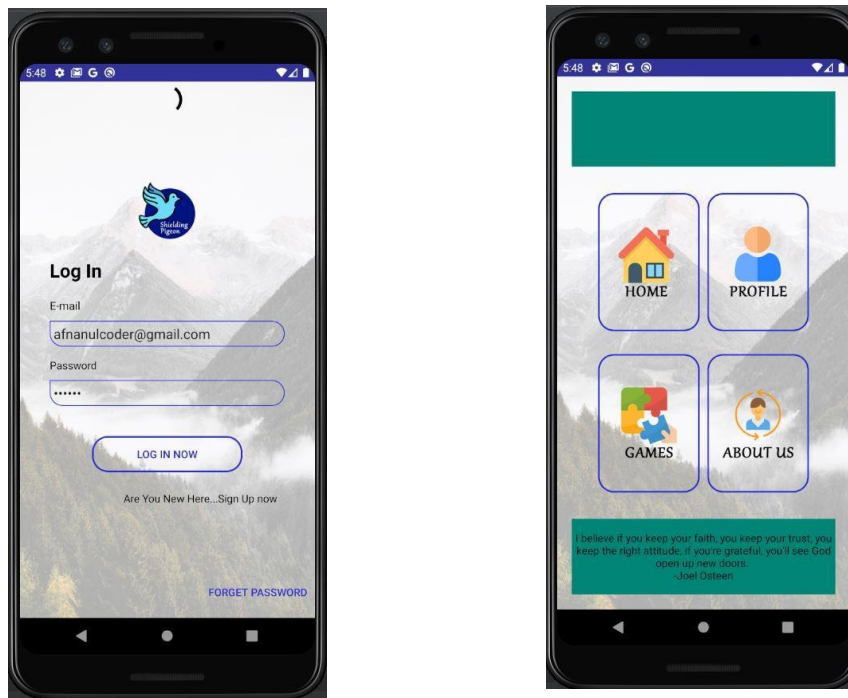


Figure 4.3: Main Options after login

4.1.4 Home Page

For the “Want To Help” category, the home page contains the list of peachrooms that are created by himself/herself. Clicking one of the peachrooms, the main page of the selected peachroom appears.

For the “Need Help” category, they have only one enrolled peachroom, So that, the main page of the peachroom counts as the home page.

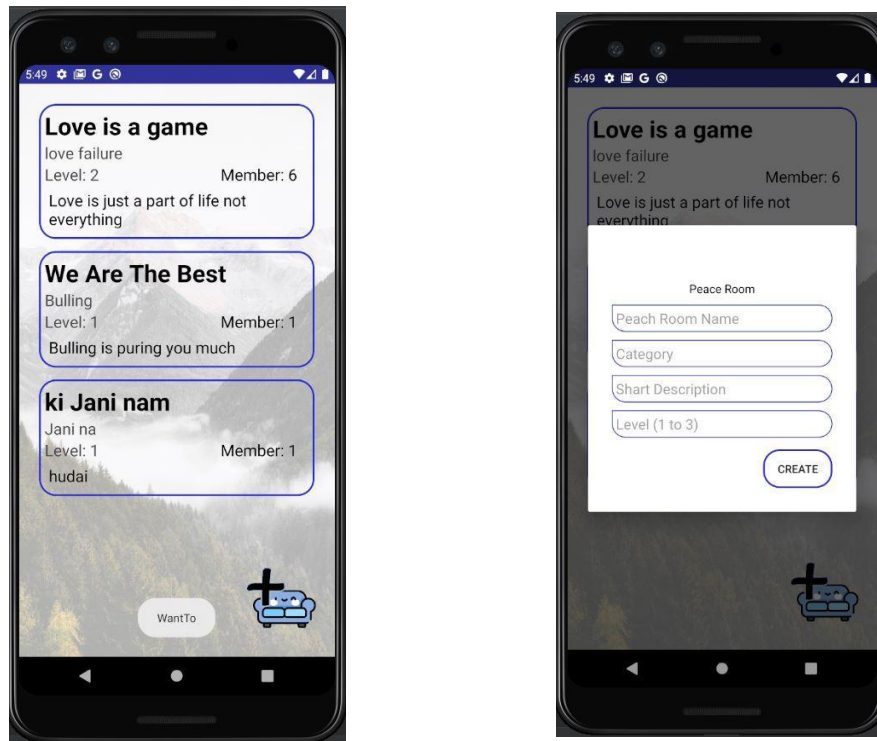


Figure 4.4: Home Page

4.1.5 Main Page of Peachroom

It shows the posts shared on the peachroom mainly. Users can like or comment on the posts. Except that there is a button to make a group chat. And another one to see the member lists of that peach rooms.

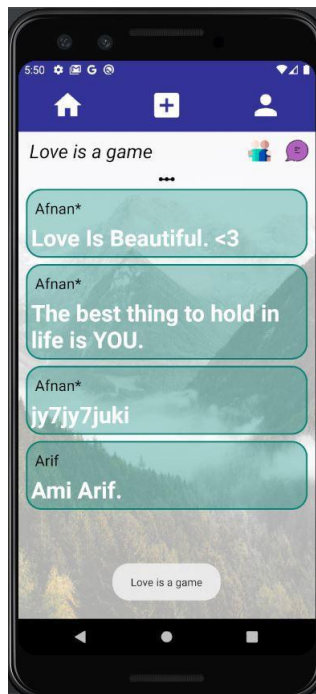


Figure 4.5: Main Page of Peachroom

4.1.6 Group Chat

Users are allowed to make a group chat between all of the group members. That can help them interact enough not to feel lonely.

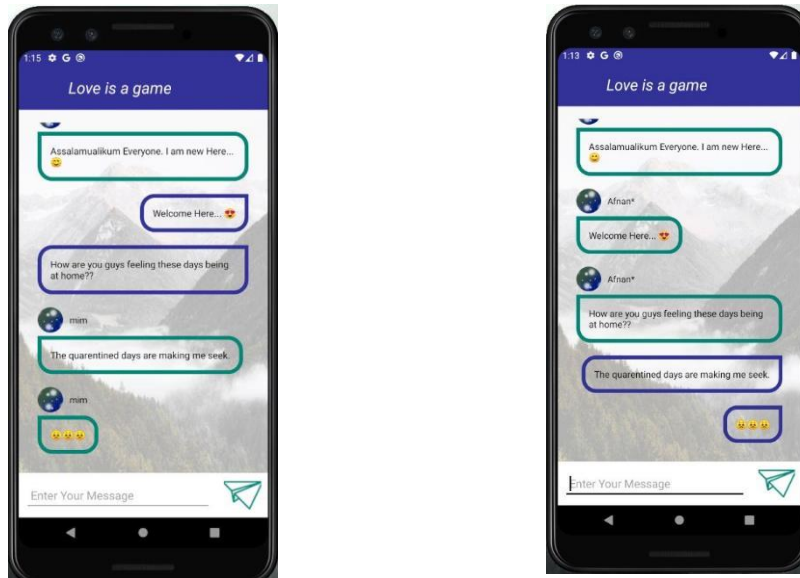


Figure 4.6: Group Chat

4.1.7 Personal Chat

Users are allowed to make a group chat between any of the members personally. That can help to make personal connections.

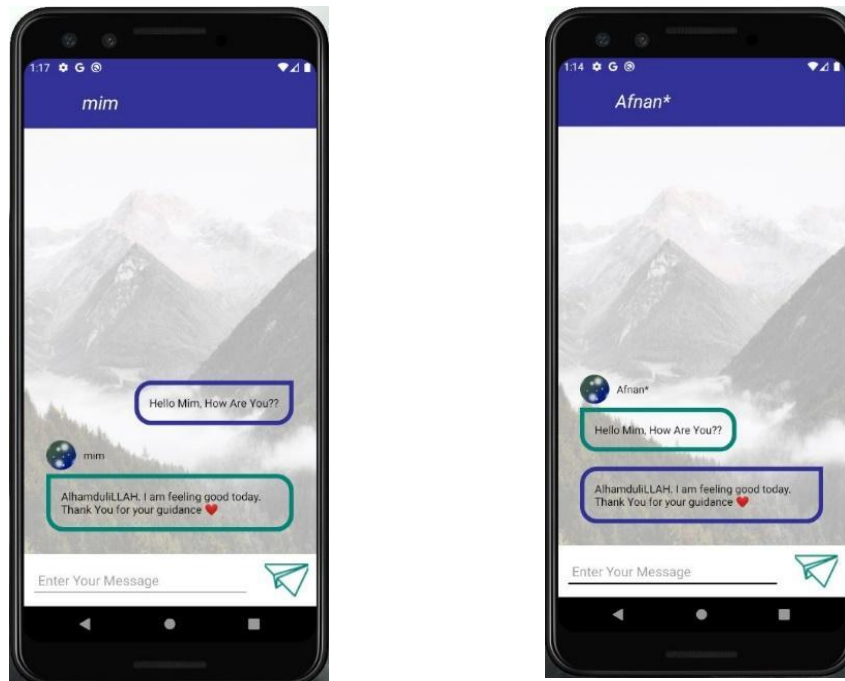


Figure 4.7: Personal Chat

4.1.8 Header

The header is a set of three buttons that appears in every activity. They are,

1. Home Button: Takes the user to home activity from anywhere of the app.
2. Add Post: This button allows any user to make a post on a specific peachroom.

Profile: This button leads to the user's profile. Users can view and edit their information.



Figure 4.8: Header

4.1.9 Member List

The member list activity is not only to show the list of assigned members of that peachroom but also the user can check out the other member's profile. Here the "Want To Help" categorized expert has the additional capability to change the "Need Help" categorized users level. If the expert thinks that any specific "Need Help" categorized user is making progress, the expert can change the level of that particular user.

For every user, there is an individual chatting option. Any user can not chat with himself but with others.



Figure 4.9: Member List

4.1.10 Playing Games

Any member can play easy games to keep their mind refreshed. The games can be played with a real human or the mobile device itself. Four games are inserted now, and the number can be increased. Additionally, using firebase, it is also possible to play games online.

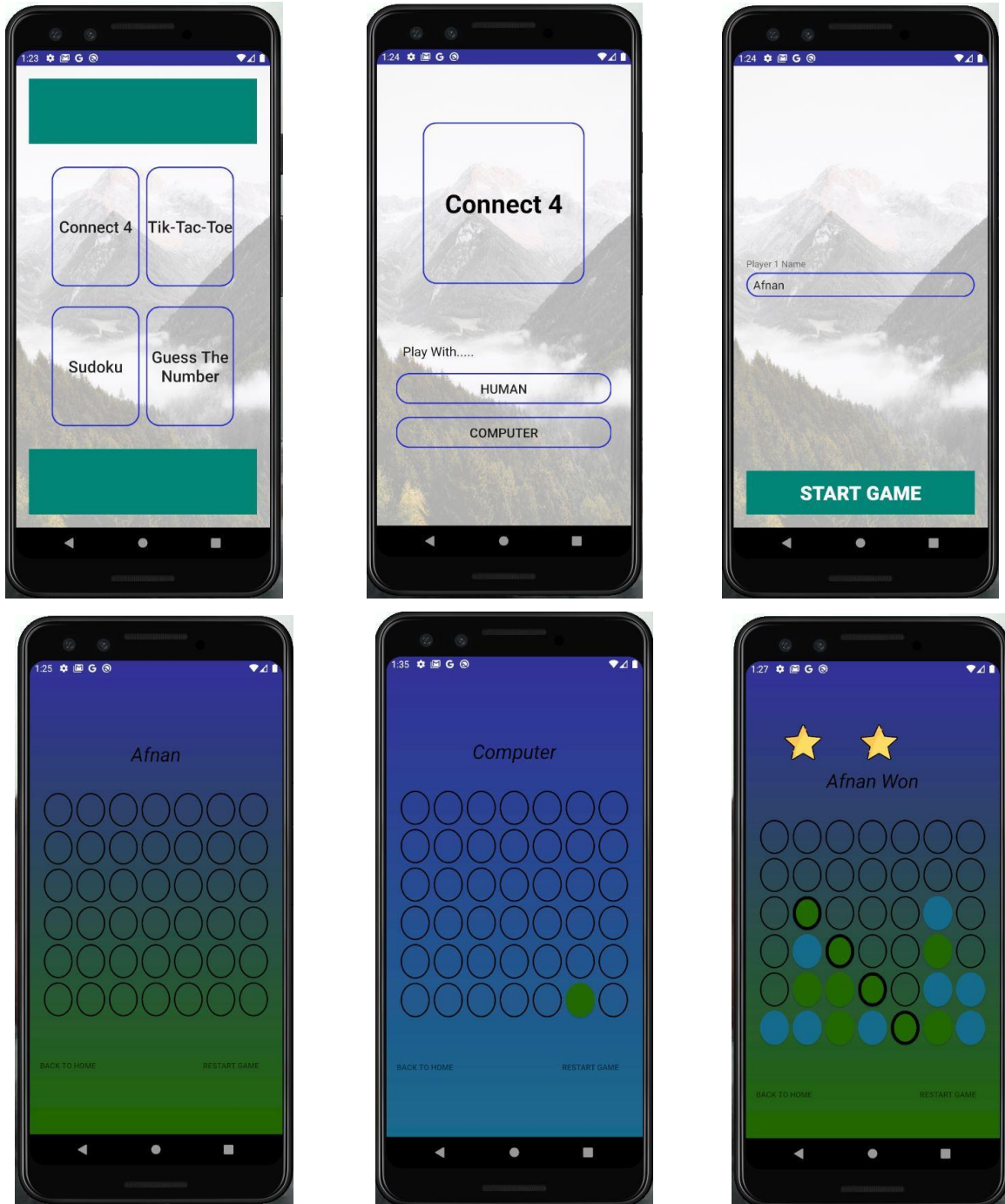
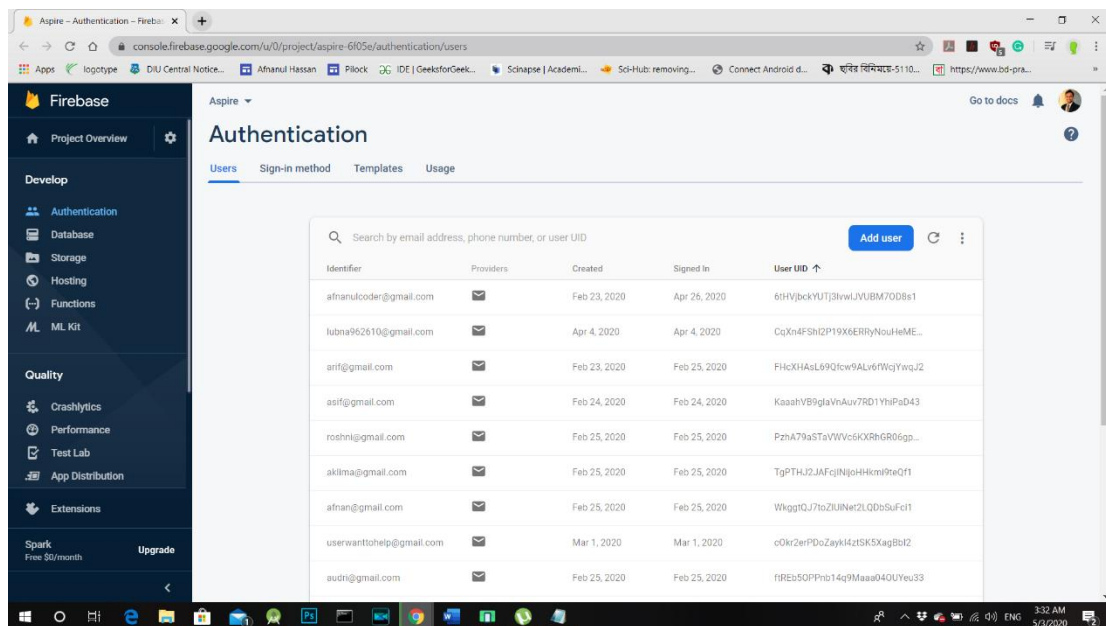


Figure 4.10: Playing Games

4.2 Back-end Design

Behind the UI, back-end works here where a user can't see that portion at all. Back-end allows implementing functionality such as backing up user data to the cloud, serving content to client apps, real-time interactions, sending push notifications through Google Cloud Messaging for Android (GCM), and more [4]. Here we are using the firebase database, which is based on a cloud-hosted database. People who are using our application or verifying it into our app are shown in the table.

Fig. 4.7 is showing the list of users with email and password. This part is called FireBase Authentication that works to be logged in.



The screenshot shows the Firebase Authentication console for a project named 'Aspire'. The 'Users' tab is selected, displaying a table of registered users. The table has columns for Identifier, Providers, Created, Signed In, and User UID. There are 10 users listed in the table.

Identifier	Providers	Created	Signed In	User UID
afnanulcoder@gmail.com	Google	Feb 23, 2020	Apr 26, 2020	6tHvjbckYUj3IrwLjVUBM70D8e1
lubna952610@gmail.com	Google	Apr 4, 2020	Apr 4, 2020	CqXn4FSnZP19X6ERByNouHeME...
arif@gmail.com	Google	Feb 23, 2020	Feb 25, 2020	FhcXHAsL99Qfcw9ALv6tWqjYwqJ2
asif@gmail.com	Google	Feb 24, 2020	Feb 24, 2020	KaaahVB9glaVnAuv7RD1YhiPaD43
roshni@gmail.com	Google	Feb 25, 2020	Feb 25, 2020	PzhA79aSTaVWVWc6iKXRhGR66gp...
aklima@gmail.com	Google	Feb 25, 2020	Feb 25, 2020	TgPTHJ2JAFcjINjoiHHkmi9reQf1
afnan@gmail.com	Google	Feb 25, 2020	Feb 25, 2020	Wkag9J7hoZUJNeI2LQb5SuFc1
userwanttohelp@gmail.com	Google	Mar 1, 2020	Mar 1, 2020	c0kr2erPDoZaykH4ztSK5XagBbI2
audri@gmail.com	Google	Feb 25, 2020	Feb 25, 2020	fREb50FPPhb14q9Maaa040UYeu33

Figure 4.11: User Table

Fig. 4.8 shows the details of a user. The extra information related to the user is saved in the following tree.

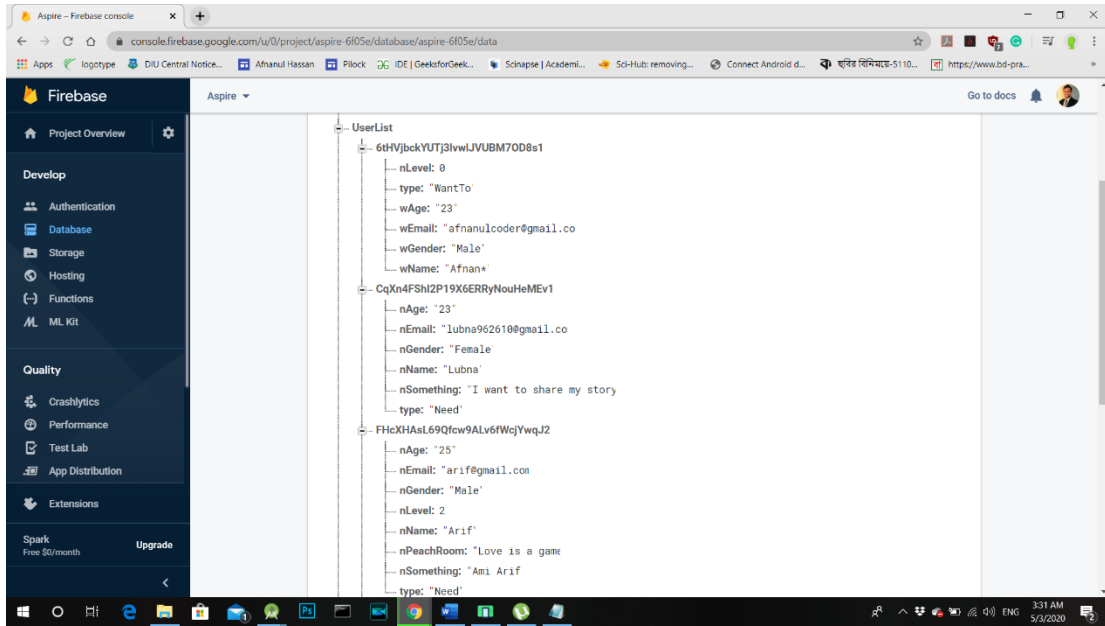


Figure 4.12: User Details

Fig. 4.9 shows the details of a peachroom. Every necessary information related to the peachroom is saved here.

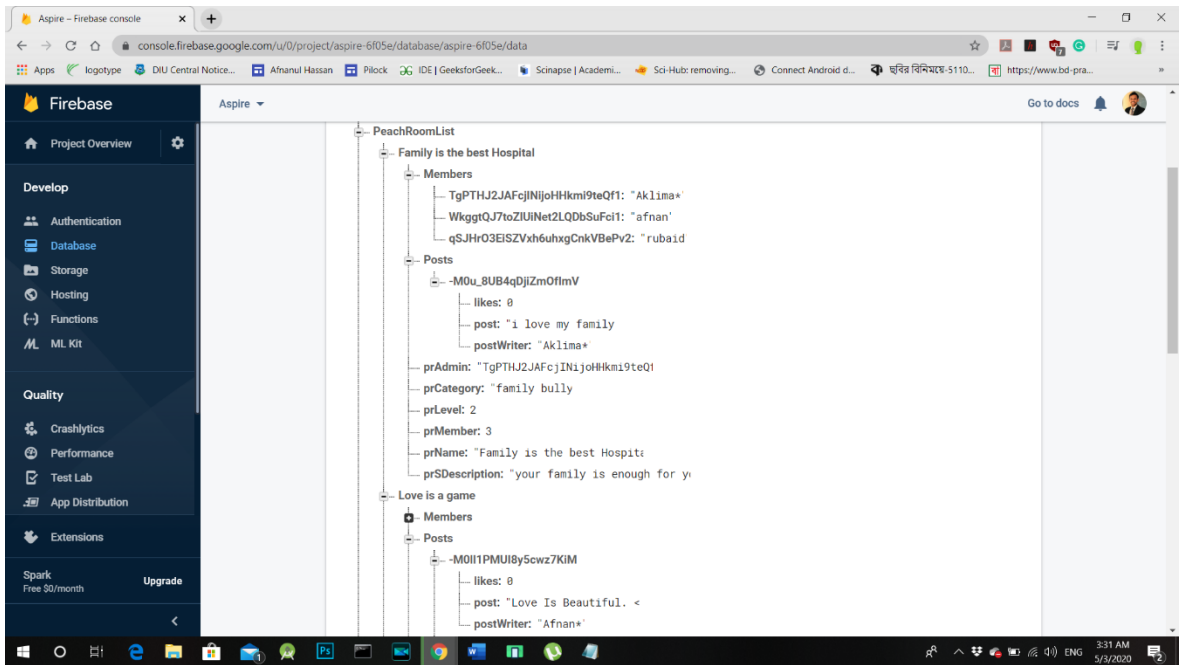


Figure 4.13: Details of every peachroom.

Personal chat is one of the essential parts of the project the Fig. 4.10 contains the tree with every detail of every private chat of users.

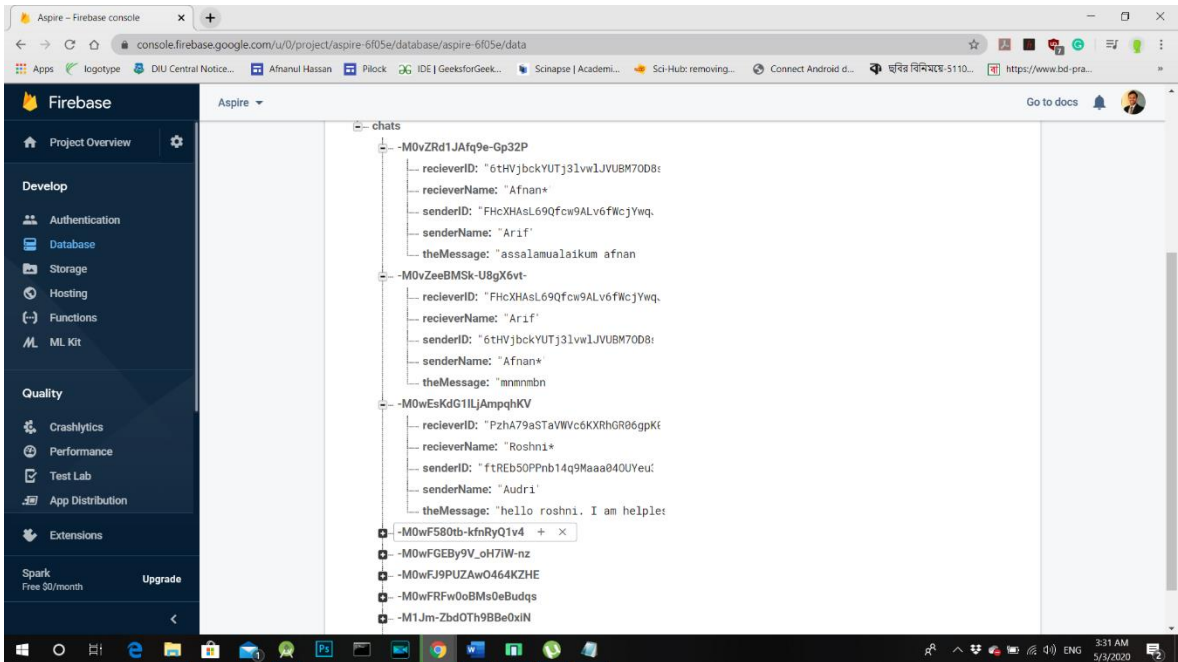


Figure 4.14: Personal Chat of every user

Every group chat has different information related to personal conversation. Fig 4.11 contains the necessary knowledge of allpeachrooms.

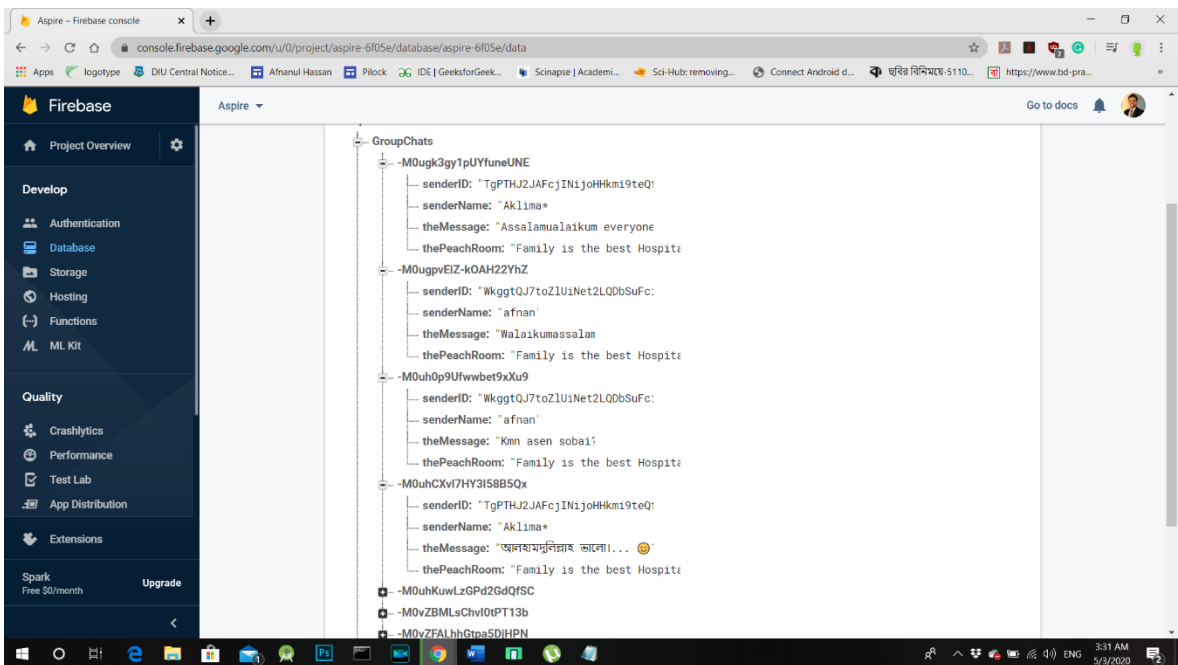


Figure 4.15: Group Chat of every peachroom

4.3 Implementation Requirements

The technology used as follows:

Programming Languages: JAVA, XML.

Database: Firebase

CHAPTER 5

IMPLEMENTATION AND TESTING

5.1 Implementation of Database

In this project, we use a firebase database to store, retrieve, and so on in the database. Here data is stored in JSON formats (as JSON objects), and any changes in data reflect immediately by performing sync across all the devices&platforms.We applied three systems in the database, and they are storage, real-time database, firebase authentication.

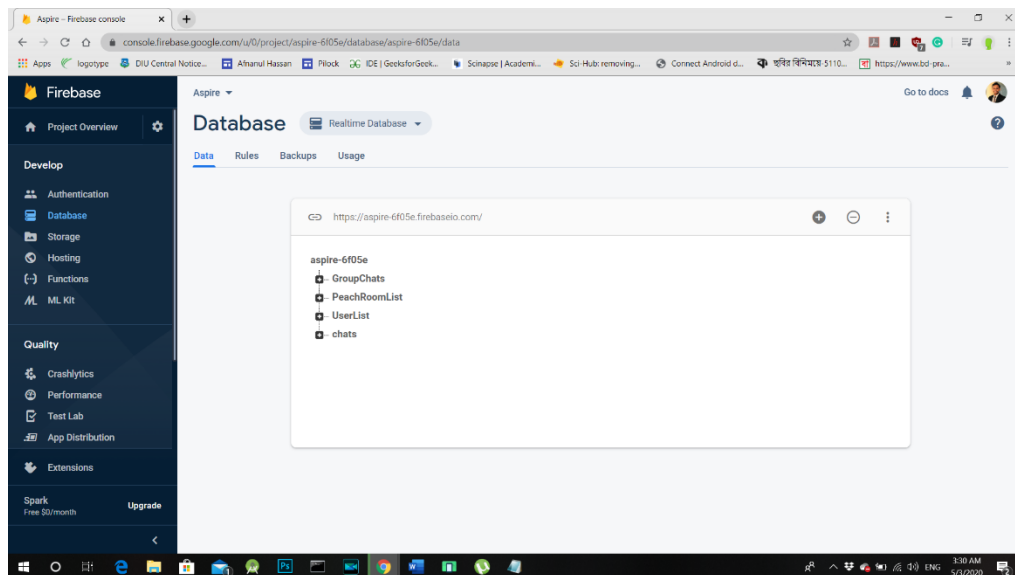


Figure 5.1: Collection of Database

5.2 Implementation of Interaction

Implementation of interaction means how easily a user can interact with the app. We have implemented our app system with a quickly reactive UI. It will make sure of a better user experience. We used some familiar icons, text view, button, spinner, etc. As it is understandable and beautiful UI so the users will be able to communicate with the app easily.

5.3 Testing Implementation

In Android, there are three types of tests. Local Unit test, Instrumentation test, and Ui tests. A local unit test is run on your local computer on the machine that has an android studio installed on it, and they are using the JVM for short it's using Java on your computer they are very fast because you don't need an emulator or anything to do with. These are the type of tests used to test code logic (raw java code logic-based test). To extend your test capabilities by integrating test frameworks such as Mockito to test Android API calls in your local unit tests.

CHAPTER 6

CONCLUSION AND FUTURE SCOPE

6.1 Discussion and Conclusion

The project is finished with the help of XML, Java, and Firebase database. People can use it from anywhere by using a smartphone with the help of an internet connection. The system designed with the aim of helping depressed persons in the group. Thus, they cannot feel lonely, and an expert of the group looks over and consults everybody to be on the right track.

The system works with registering as a help seeker or help giver. The help giver, who is mentioned as an expert, opens a group called Peachroom. Where the main activity happens in sharing thoughts and chatting personally and individually, the whole system can help a depressed person as if he/she needs it.

6.2 Scope for Further Developments

It is already a user-friendly application, but in the future, we are thinking about adding some more features to make this application more user friendly. There are some limitations in our use which we can come up with some betterment like

- AI-based chatbot for automated chatting based on his / her mental situation.
- Options for real doctor consultancy.
- Except messaging an online phone call system.

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