TECH TALK

A Project Report submitted in partial fulfilment of the requirements for the award of the degree of

Bachelor of Technology

in

Computer Science and Engineering

By

Aakarsh Singh (181500055)
Shivani Chauhan (181500678)
Vanshika Mahle (181500781)
Vimal Mishra (18150792)

Under the Guidance of
Mr. Saurabh Singhal
Assistant Professor

Department of Computer Engineering & Applications

Institute of Engineering & Technology

GLA University
Mathura- 281406, INDIA
Dec, 2020

Department of Computer Engineering and Applications
GLA University, 17 km. Stone NH#2, Mathura-Delhi Road, Chaumuhan, Mathura – 281406 U.P (India)

DECLARATION

We hereby declare that the work which is being presented in the B.Tech. Project **"Tech Talk"**, in partial fulfilment of the requirements for the award of the ***Bachelor of Technology*** in Computer Science and Engineering and submitted to the Department of Computer Engineering and Applications of GLA University, Mathura, is an authentic record of my/our own work carried under the supervision of **Mr. Saurabh Singhal, Assistant Professor, Dept. of CEA.**

The contents of this project report, in full or in parts, have not been submitted to any other Institute or University for the award of any degree.

Sign _____

Name of Candidate: Aakarsh Singh
University Roll No.: 181500055

Sign _____

Name of Candidate: Shivani Chauhan
University Roll No.: 181500678

Sign _____

Name of Candidate: Vanshika Mahle
University Roll No.: 181500781

Sign _____

Name of Candidate: Vimal Mishra
University Roll No.: 181500792

CERTIFICATE

This is to certify that the above statements made by the candidate are correct to the best of my/our knowledge and belief.

_____

Supervisor
Mr. Saurabh Singhal
Assistant Prof., Dept. of CEA

Date:

Department of Computer Engineering and Applications
GLA University, 17 km. Stone NH#2, Mathura-Delhi Road, Chaumuhan, Mathura – 281406 U.P (India)

ACKNOWLEDGEMENT

This Project is a result of our team spirit, hard work and all our supporters who gives us positivity in our life. However, it would not have been possible for us to complete our project in time without their kind support. We would like to extend my sincere thanks to all of them.

We are glad to present our B.Tech CCV Project during B.Tech Third Year. It always makes us remember everyone supports us in our works. We would like to thanks to Dr. (Prof). Anand Singh Jalal, Head of Dept., Department of CEA for providing us with an encouraging platform to develop this project, which thus helped us in shaping our abilities towards a constructive goal.

We owe special debt of gratitude to Mr. Saurabh Singhal, Assistant Professor, for his constant support and guidance throughout the course of our work. His sincerity, thoroughness and perseverance have been a constant source of inspiration for us.

We would like to express our gratitude towards our parents for their kind co-operation and encouragement which help us in completion of this project.

Department of Computer Engineering and Applications
GLA University, 17 km. Stone NH#2, Mathura-Delhi Road, Chaumuhan, Mathura – 281406 U.P (India)

ABSTRACT

In Today's world smart phones has increasingly became powerful in years. With the advent of chat services for mobile application, it has greatly enhanced the scalability and security. In today's data-intensive world, chatting and sharing data is a main concern for everyone from high official man to servant in any company, so to ease this task we have created this Tech Talk project which is an android based application. This paper presents an android Tech Talk Chat application project which is developed, by using Android Studio software and Firebase tools for our backend activity. The programming language we have use is Java. The project is tested on an Android Emulator which is a tool that allows developers to easily test an application without having to install the application on a real device. In this Chatting App firstly, every user have to register himself/herself, with this now he/she is valid for login try, after this he/she comes to the main activity in this app which gives three sections to every user- chats, find friends and friend request section. He/she can choose one of those options to chat either with recent user, new user. The users can send and receive messages, images or videos instantly with the help of real-time firebase database and storage. A user can send direct messages or share files to another user only after accepting his/her friend request.

LIST OF FIGURES

LIST OF TABLES

CONTENTS

CONTENTS

CHAPTER-1
INTRODUCTION

1.1 OVERVIEW AND MOTIVATION:

In this modern phase of technological advancement, since the development in computer system and mobile devices, we can easily see now there are various kinds of software application which are covering the market today. In today itself there 2.87 millions applications are there and approximately everyday thousands of applications build. These applications are of different types like gaming, business, education, lifestyle, entertainment, and others. One of the category which is very famous is the "Chat application". Usually everyone first thought of a chat application whenever they think or heard about android apps. This category include apps names like whatsapp, wechatt, messenger, line and many more. Our project is also based on an android chat application which is similar to like other chatting application, like it has login, register, send message to particular person, create your profile, etc. Now let's see a overview of it below.

1.1.1 OVERVIEW:

- The clients can send and receive messages, images or videos instantly with the help of real-time firebase database and storage.
- The users need to authenticate themselves before accessing the application using Firebase Authentication services.
- They will be tracked when they are online, offline or typing any message.
- The application will show push notifications upon receiving any new message or friend request from another user in the chat.
- A user can send direct messages or share files to another user only after accepting his/her friend request.
- Profile information or passwords can be updated using the Account section of the user.

1.1.2 MOTIVATION:

The recent modification in the terms of services and privacy policy of WhatsApp has raised privacy concerns as it will use user data and share it with its parent company, Facebook. Our project proposes an idea to develop an instant messaging app for small scale IT organisations that are looking for an alternate real time messaging platform where their teams can securely communicate and collaborate with each other.

CHAPTER-1
INTRODUCTION

1.2 OBJECTIVE:

The objective is to create an android chat application that allows different users to chat, it should have register or login activity. After this they get a platform where they can easily talk to the new users or friends. To implement this project we have taken help from android studio and firebase tools.

1.3 TECHNOLOGIES:

Android Studio is the official IDE for android platform development and is freely available under the apache license. It is designed specifically for Android development and we are using it to develop the app, as thus far the app is exclusive to android. Google Firebase is a mobile platform for helping to develop app, and increase your user base. It's has features that can be mixed and matched to fit the needs of the user. Most of the features on Firebase are free to use. I will be using Firebase for app sign in options and authentication and to maintain a user database.

1.4 SUMMARY OF SIMILAR APPLICATION:

We have taken a huge help from whatsapp application. Whatsapp Messenger is an android based chat application. It allows users to send text messages and voice messages, make voice and video calls, and share images, documents, and other media Nowdays, nearly everyone uses whatsapp for it's purpose whether they engage in their professional or just chatting with their friends. Generally people use whatsapp by making some professional groups for their companies or their organizations. But there are some problems in it, like you cannot distinguish a valid as well as invalid user in whatsapp by just seeing there contact number, you have to save contacts of everyone in order to talk to your class buddies unless you won't be able to know, you cannot store multiple whatsapp accounts in same android phone at same time and some others also.

CHAPTER-2
SOFTWARE REQUIREMENT ANALYSIS

2.1 FUNCTIONAL REQUIREMENT:

2.1.1 Navigation:

- Transition between activities should be smooth.
- Different features for user should be specify in different sections or fragments or activities.
- All features should be clearly understandable.
- Should produce output in every operations.

2.1.2 Database Connection:

- Database must be constantly available for new user registration.
- Database must be updated upon new user registration.

2.1.3 Message:

- The user shall be able to Message someone.
- The user may be able to select an individual to Message.
- Message must include the user name and set location in a sent message.

2.1.4 Profile:

- The user shall be able to create a personalised username.
- The user shall be able to create a personalised password.
- User email verification should be there.

2.2 SOFTWARE REQUIREMENT:

2.2.1 ANDROID STUDIO:

- Android Studio is an integrated development environment (IDE) for building applications for android operating system based devices like smartphones, tablets and computers.
- It is built on Google's JetBrain Intellij IDEA software.
- Its first version was launched in May 2013, with 0.1 version.
- It's supports two programming languages Java and Kotlin, Kotlin was introduced as replacement for java. It also supports one framework language for layout activities which is XML.
- It has Gradle based built support.

- ➢ It also contains built in support for Google cloud, Firebase tools, Google App Engine, etc.
- ➢ To test our project it contains options to select platform for app testing, we can use Android Emulator or use our smartphone by USB debugging.
- ➢ In Android studio, the Android software development kit (SDK) includes a comprehensive set of development tools. These include a debugger, libraries, a handset emulator to test app.

2.2.2 FIREBASE:

- ➢ Firebase is a platform developed by Google for creating mobile as well as web applications.
- ➢ Google acquired this platform in 2014.
- ➢ It is also known as Backend-as-a-service.
- ➢ Firebase can be used for Android, iOS or Web.
- ➢ It supports tools like Real-time Database, Cloud Messaging, Hosting and Crash Reporting, etc.
- ➢ Its real-time database is an amazing feature that allows users to store list of objects in the form of trees. Also we can synchronize our data between different devices, which makes it perfectly a good tool chat application database.
- ➢ Using firebase we can also use some features of Google Cloud Platform like we can store our Firebase Storage memory available.
- ➢ Using Firebase Authentication we can easily setup a login and registration for android apps smoothly by just some click and some codes only.
- ➢ Its rich library helps students to learn easily about backend activities in apps for learning purpose.

2.2.3 LANGUAGE REQUIREMENT

2.2.3.1 JAVA JDK:

- o Java is a class-based, object-oriented programming language
- o Java is a high level, robust, object-oriented and secure programming language.
- o It is a general-purpose programming language intended to let application developers write once, run anywhere.
- o Java was originally developed by James Gosling at Sun Microsystems and released in 1995.

- Using Java we can create standalone, Web, Enterprise or Mobile applications.
- To learn Android Studio, you must have the basic knowledge of Java programming language
- It has huge library for android development as well as for other technologies.
- Java consist 90% softwares.

2.2.3.2 XML:

- Extensible Mark-up Language (XML) is a mark-up language that defines a set of rules for encoding documents in a format that is both human-readable and machine-readable
- XML was originally introduced by the World Wide Web Consortium (W3C) to deal with the inherent limitations of HTML
- XML file can be validated by 2 ways- against DTD and against XSD here DTD (Document Type Definition) and XSD (XML Schema Definition) are used to define XML Structure.
- XML language is widely used in Web development as well as Android development.
- XML data is stored in plain text format. This provides a software-and hardware-independent way of storing data.
- Exchanging data as XML greatly reduces this complexity, since the data can be read by different incompatible applications.
- With XML, your data can be available to all kinds of "reading machines"
- XML performs some important functions in Android app development: describing data and introducing elements. Specifically, XML sets the layout of things like buttons and images, and defines the font, color, and any text that shows by default.
- When you create a new project in Android Studio, you will be greeted by a hierarchy of different files and folders, which can be a little daunting for complete beginners.

CHAPTER-2
SOFTWARE REQUIREMENT ANALYSIS

2.3 USER REQUIREMENT:

- ➢ A user shall be required to have WI-FI/Internet enabled on their smartphone/device.
- ➢ A new user shall be required to register or use a provided login method to gain access to the key features of the app.
- ➢ An existing user shall be able to login in using email and password or the alternate login method provided.

2.4 SYSTEM AND HARDWARE REQUIREMENT:

Following are the hardware and the software requirements for our project:

2.4.1 HARDWARE:

- 4 GB of RAM and core i3 processor
- Hard disk space: Minimum of 500MB
- An android device for debugging

2.4.2 SOFTWARE:

- Windows 8 and above
- Android Studio.

2.4.3 LANGUAGE AND FRAMEWORK REQUIRE:

- Java JDK
- XML language
- Firebase

CHAPTER-3
SOFTWARE DESIGN

3.1 USE CASE

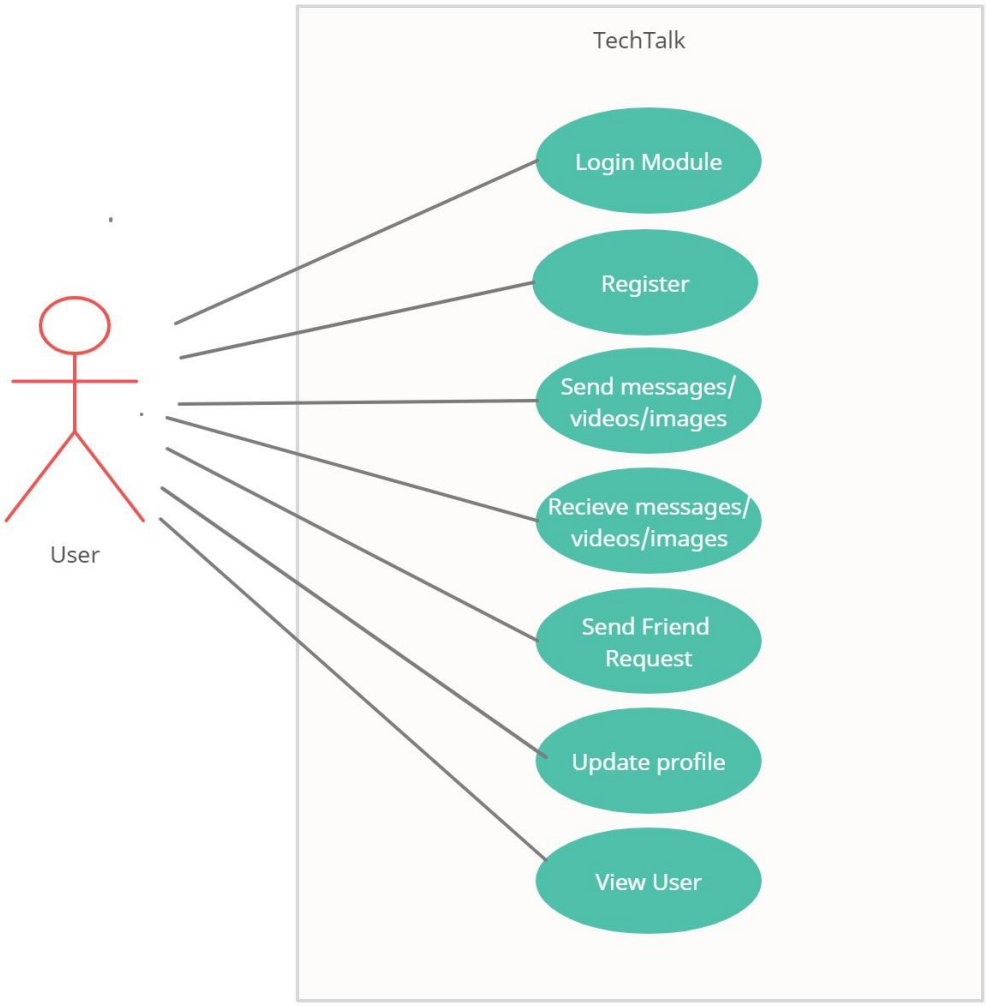

Figure 3.1: Use Case

CHAPTER-3
SOFTWARE DESIGN

3.2 DATA FLOW DIAGRAM

3.2.1 LEVEL-0:

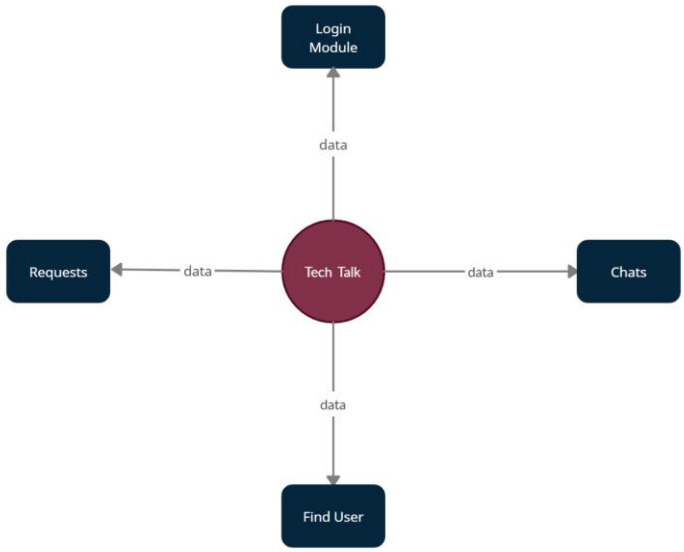

Figure 3.2.1: DFD Level-0

3.2.2 LEVEL-1:

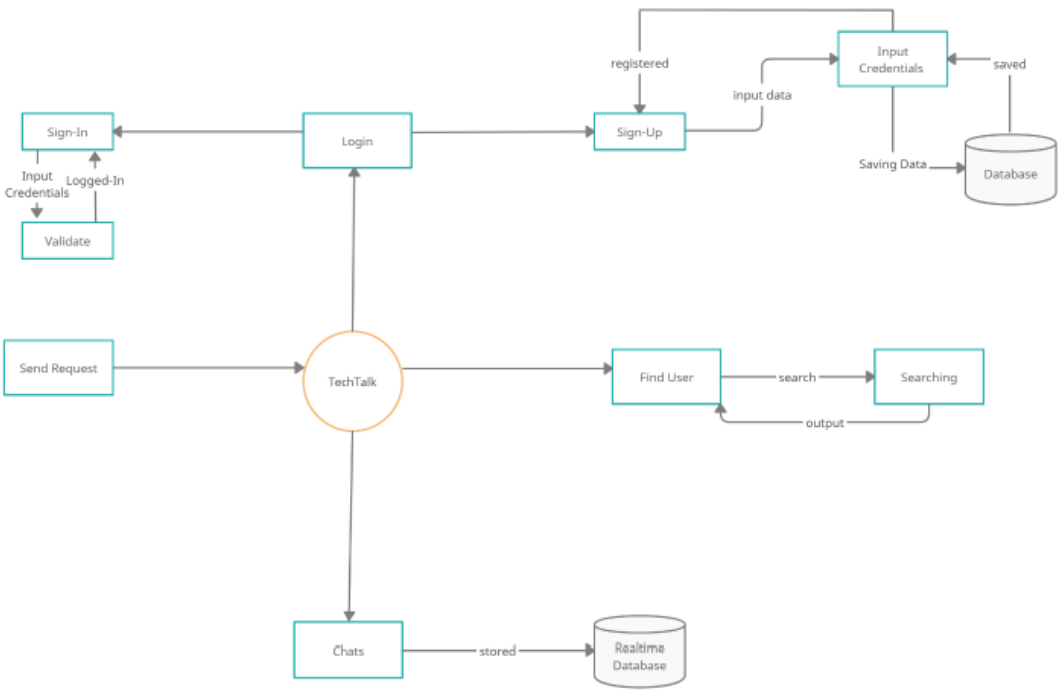

Figure 3.2.2: DFD Level-1

CHAPTER-3
SOFTWARE DESIGN

3.3 SEQUENCE DIAGRAM

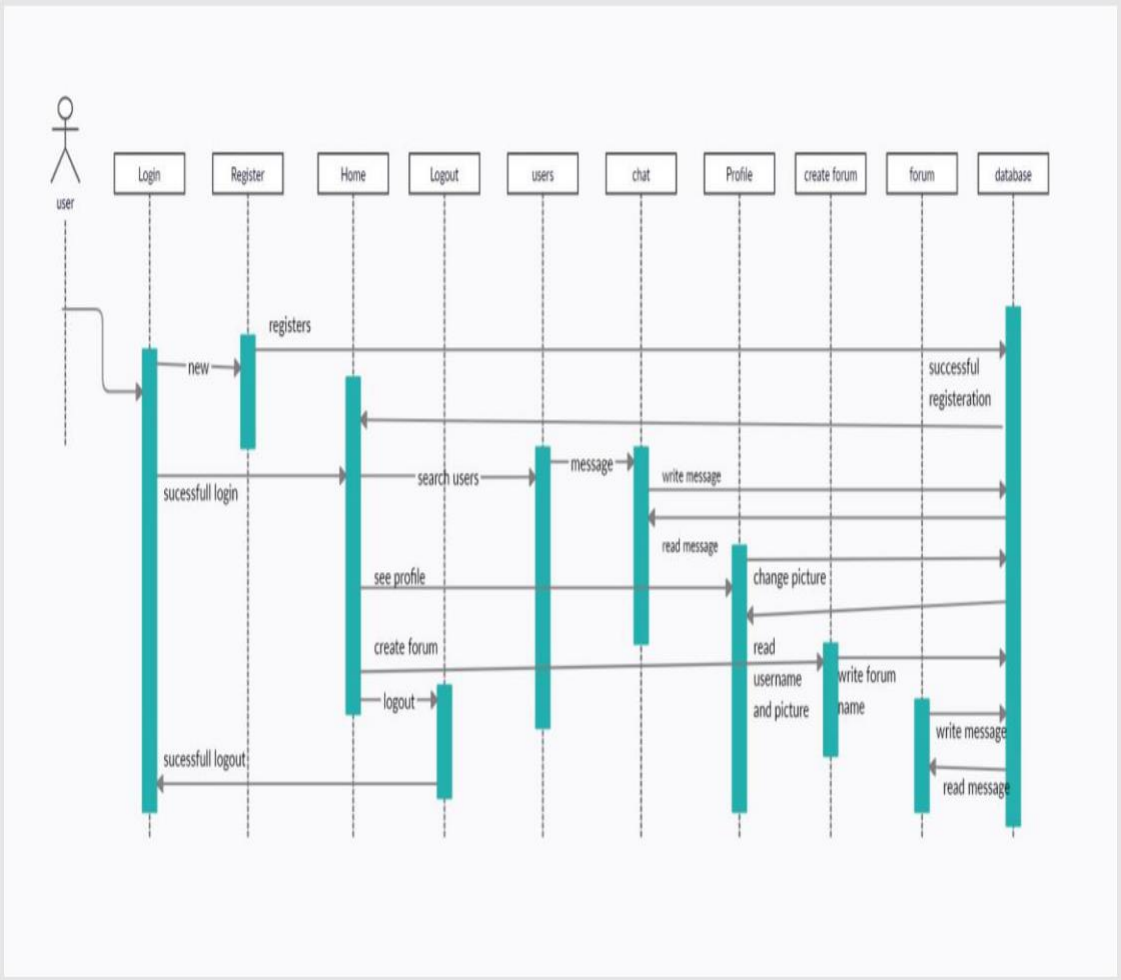

Figure 3.3: Sequence Diagram

CHAPTER-3
SOFTWARE DESIGN

3.4 JSON SCHEMA

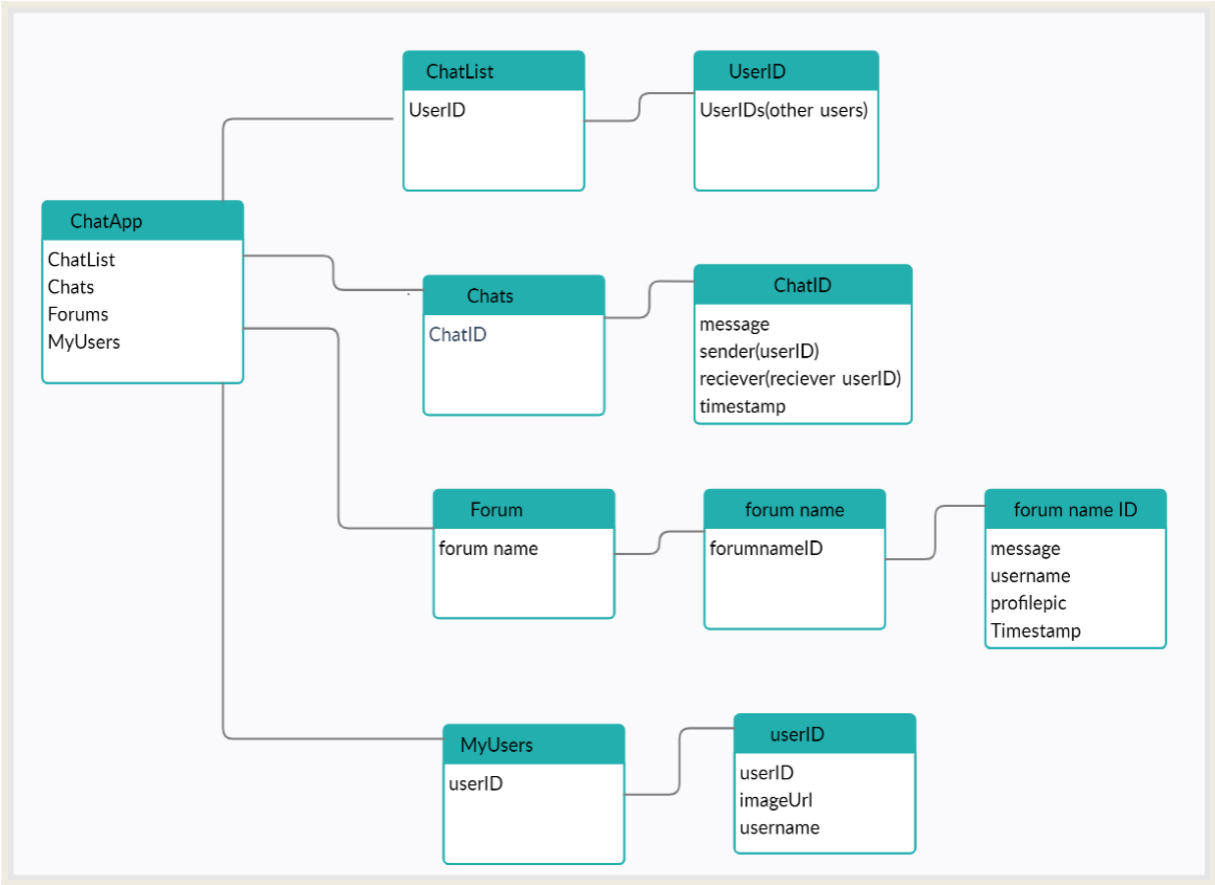

Figure 3.4.1: JSON Schema

CHAPTER-3
SOFTWARE DESIGN

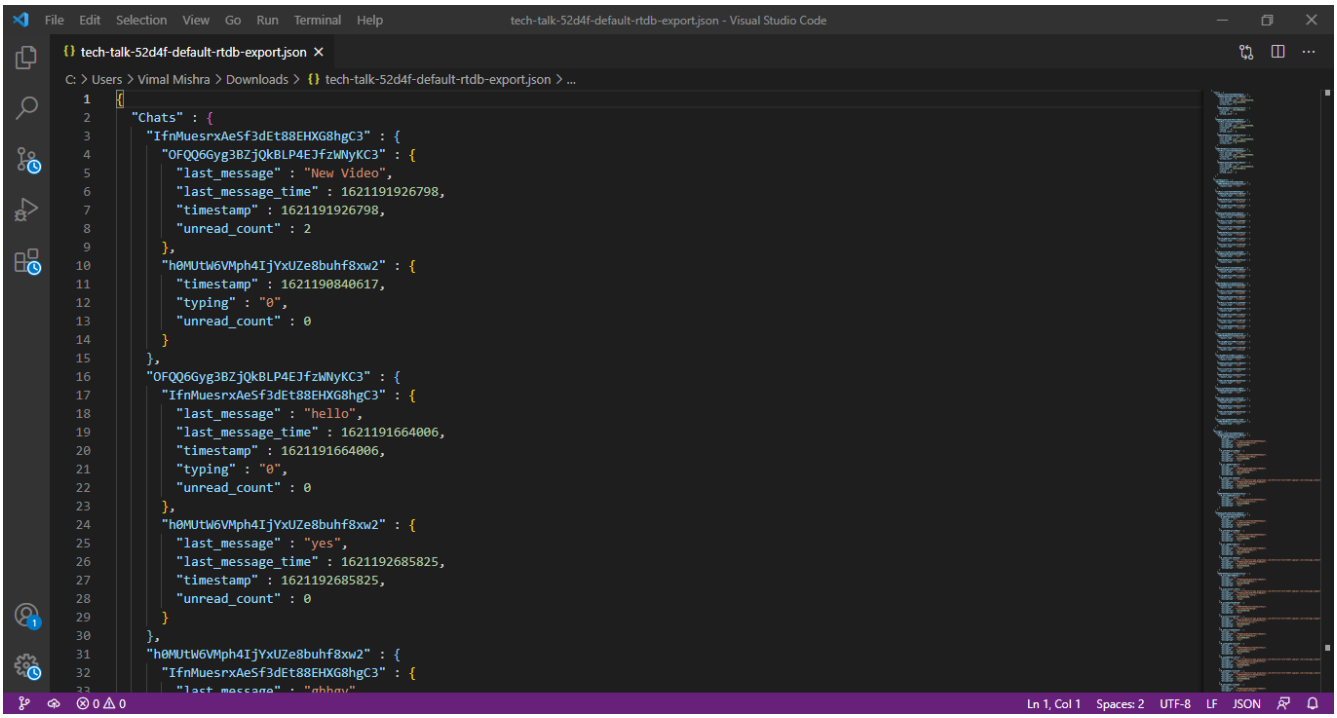

Figure 3.4.2: JSON Object

CHAPTER-4
IMPLEMENTATION AND USERINTERFACE

4.1 USER INERFACE

4.1.1 LOGIN PAGE

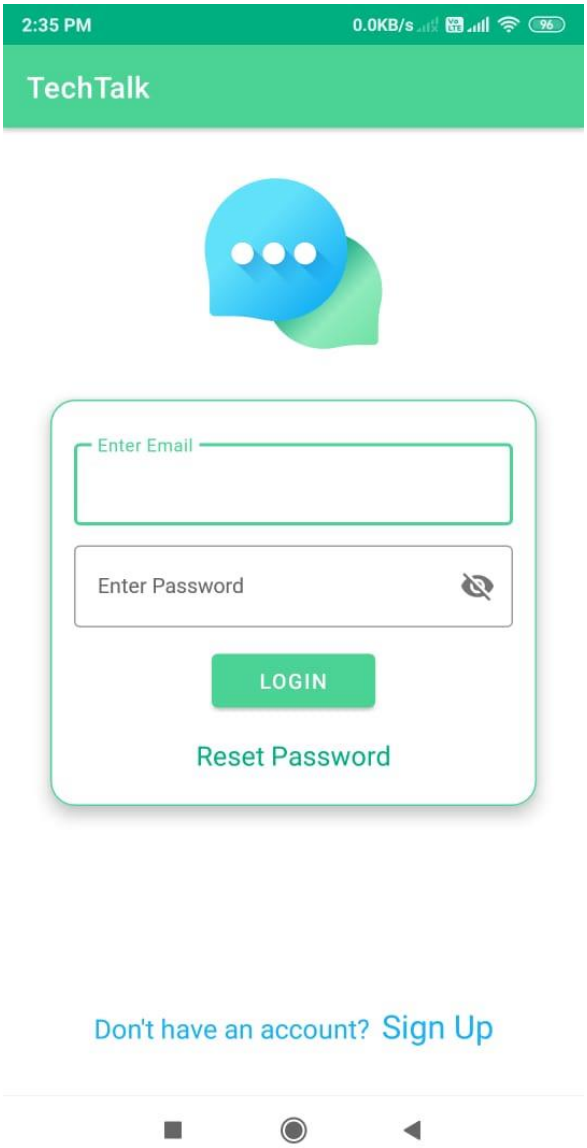

Figure 4.1.1: Login Page

CHAPTER-4
IMPLEMENTATION AND USERINTERFACE

4.1.2 SIGN UP PAGE

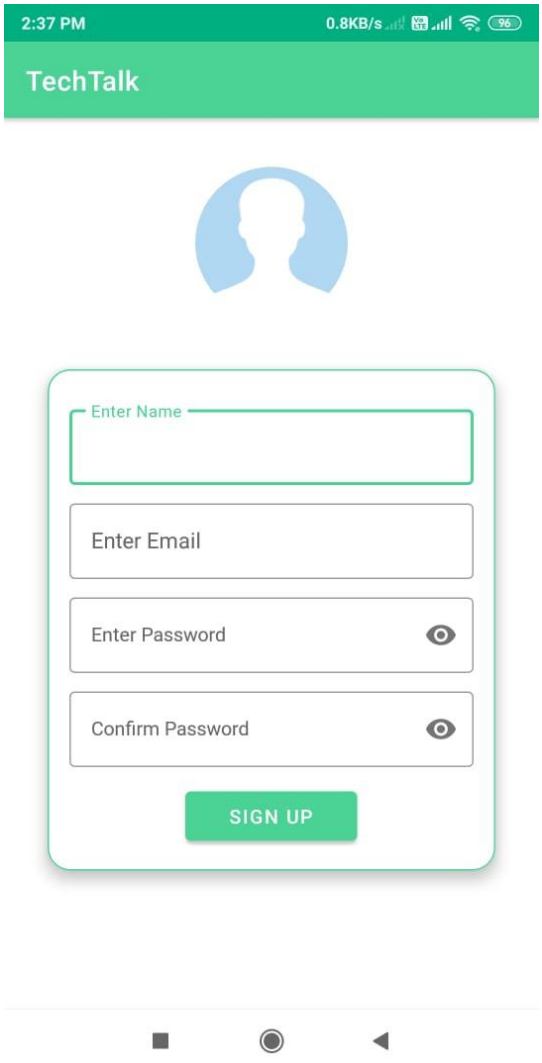

Figure 4.1.2: Signup Page

CHAPTER-4
IMPLEMENTATION AND USERINTERFACE

4.1.3 CHATS

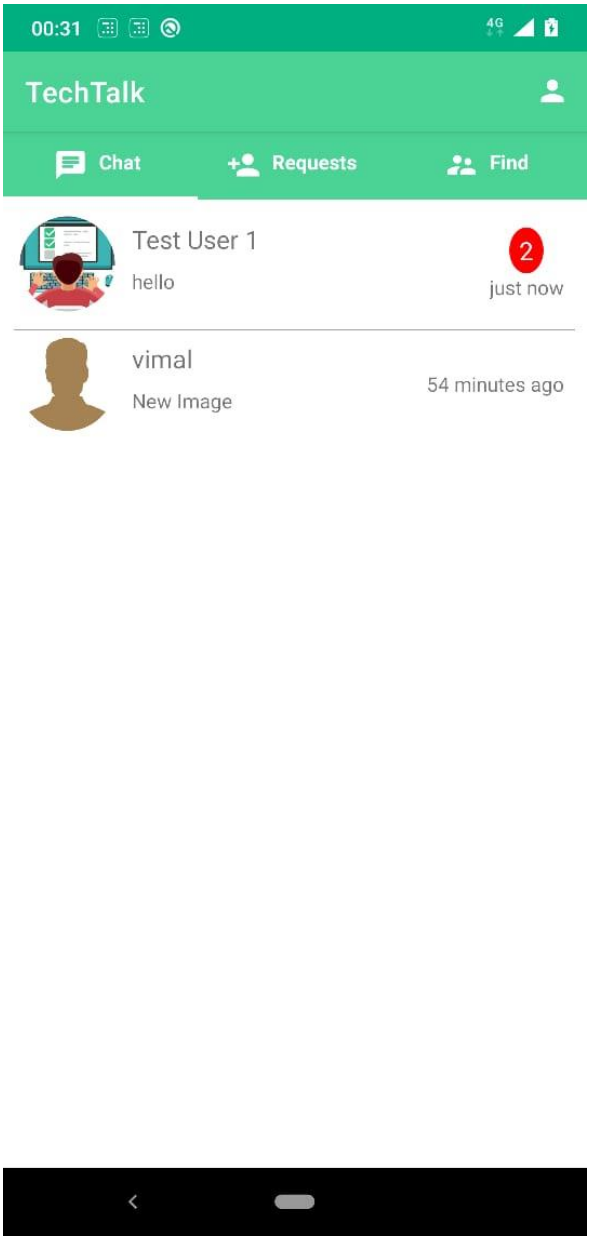

Figure 4.1.3: Chats Fragment

4.1.4 FRIEND REQUEST LIST

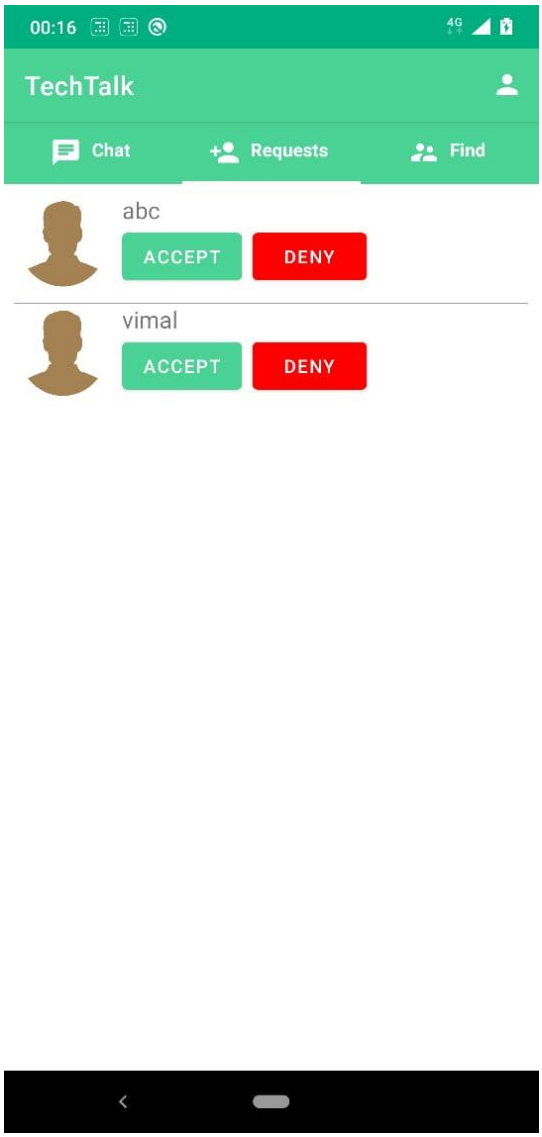

Figure 4.1.4: Friend Request Fragment

4.1.5 FIND FRIENDS

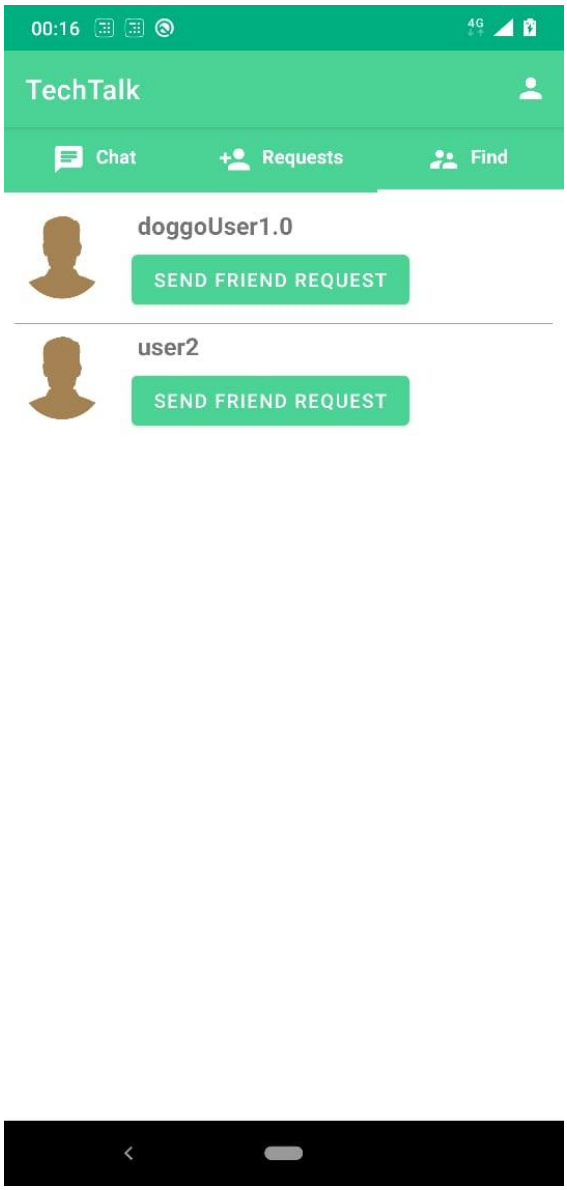

Figure 4.1.5.1: Find Friends Fragment Page

CHAPTER-4
IMPLEMENTATION AND USERINTERFACE

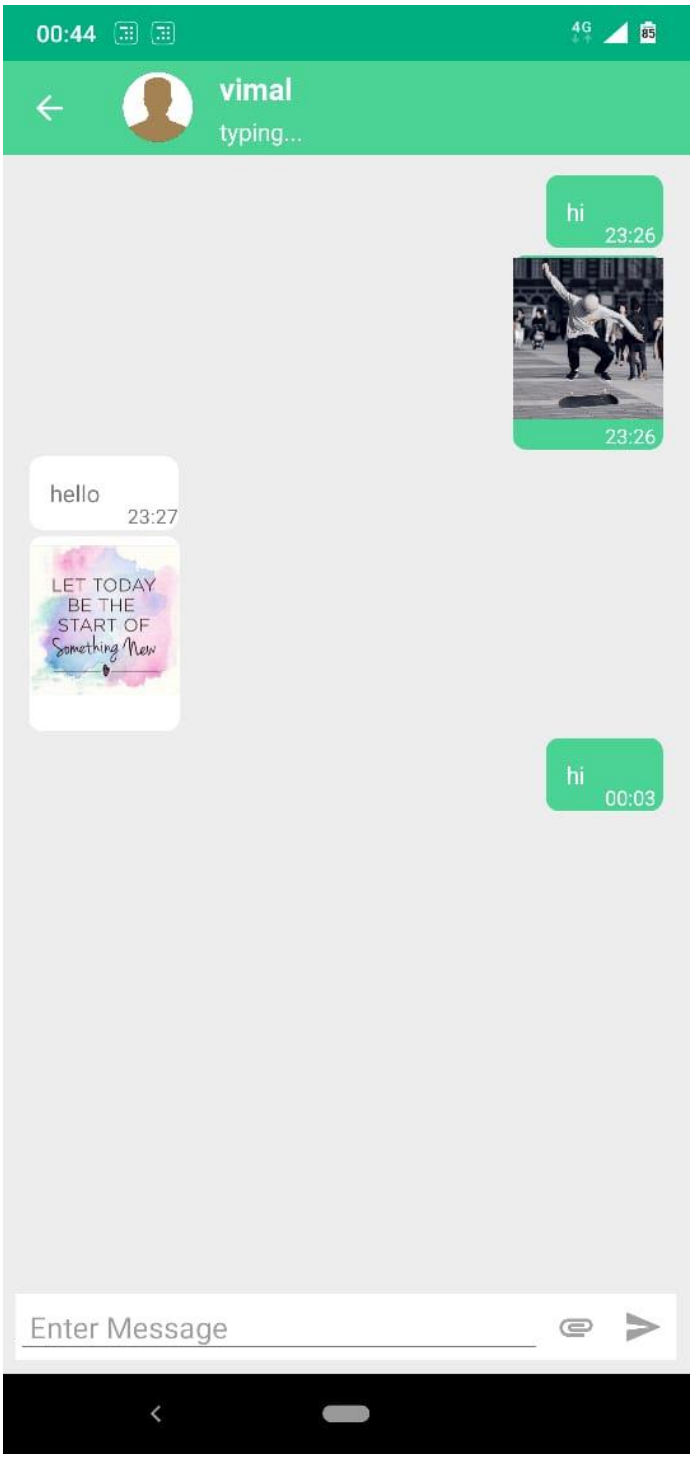

Figure 4.1.5.2: Chat Fragment and typing feature

4.1.6 LOGOUT

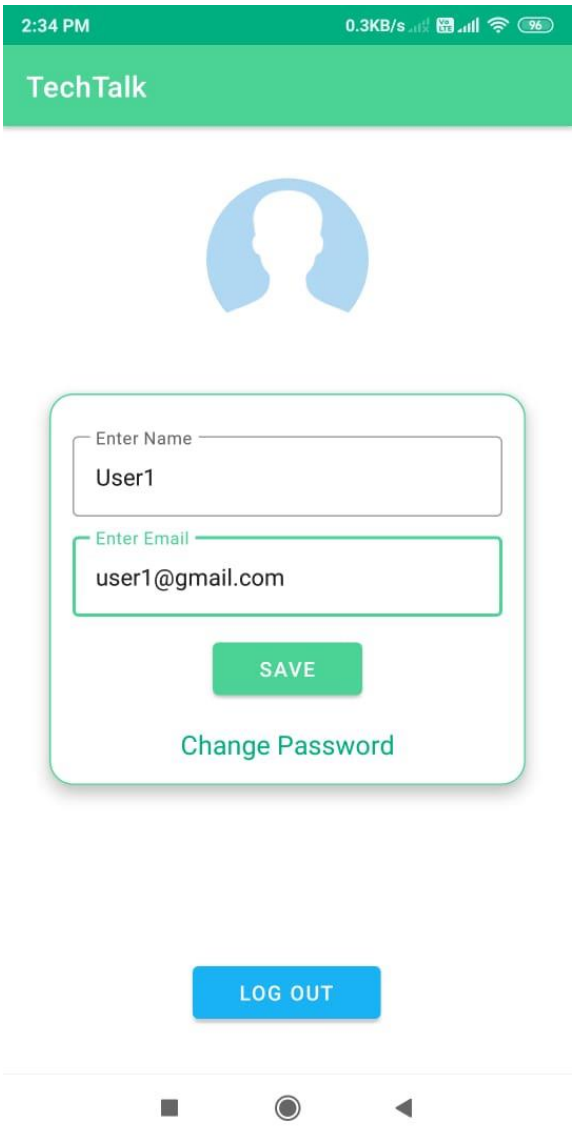

Figure 4.1.6: Log out and Profile update

4.1.7 RESET PASSWORD

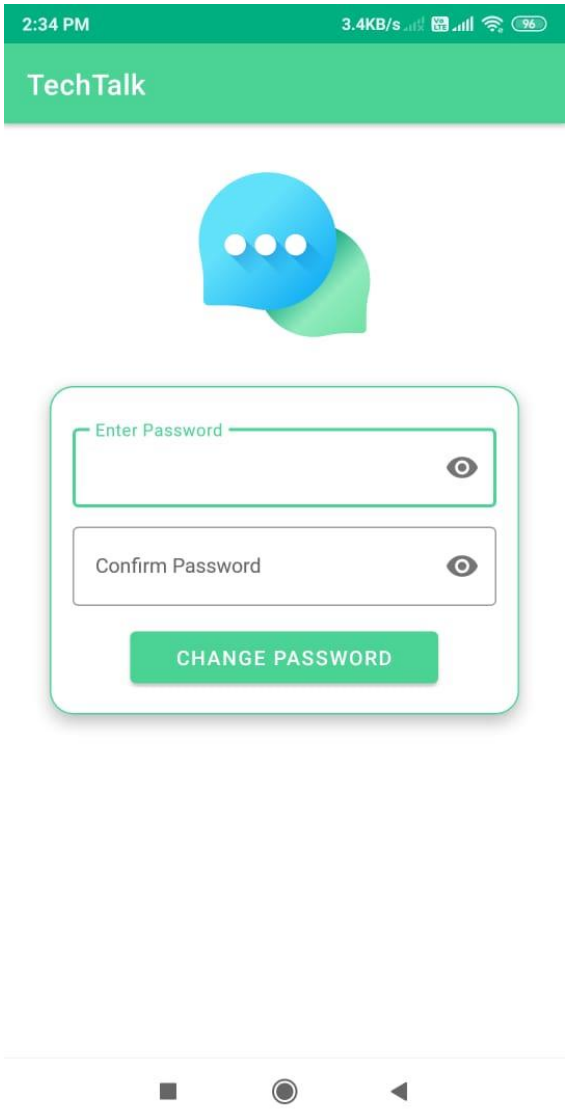

Figure 4.1.7: Reset Password

CHAPTER-4
IMPLEMENTATION AND USERINTERFACE

4.2 BACKEND ACTIVITY

4.2.1 AUTHENTICATION USER LIST:

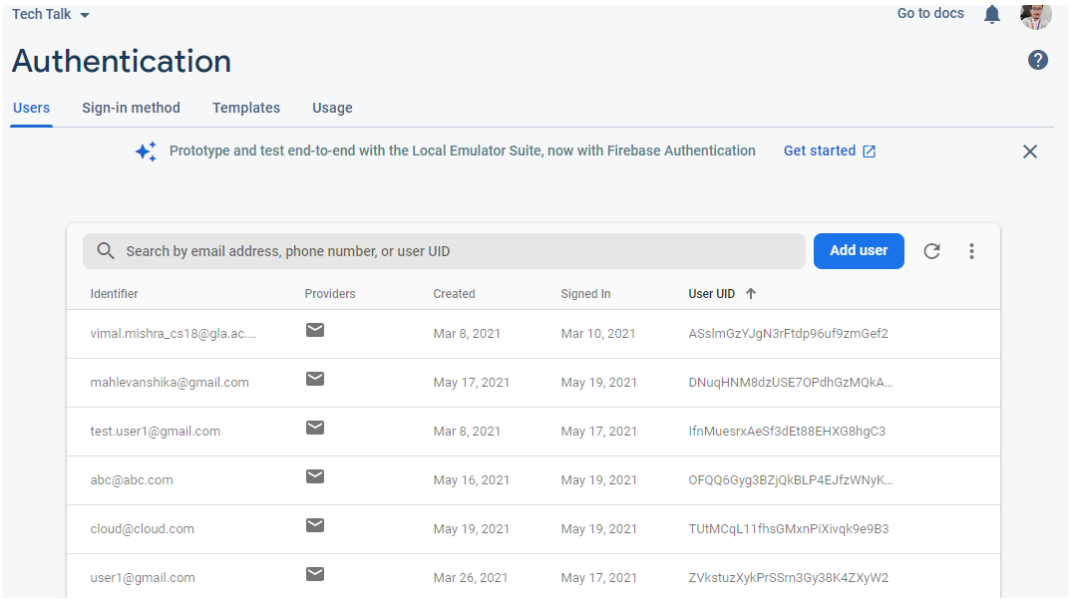

Figure 4.2.1: Authenticated Users List

4.2.2 REALTIME DATABASE:

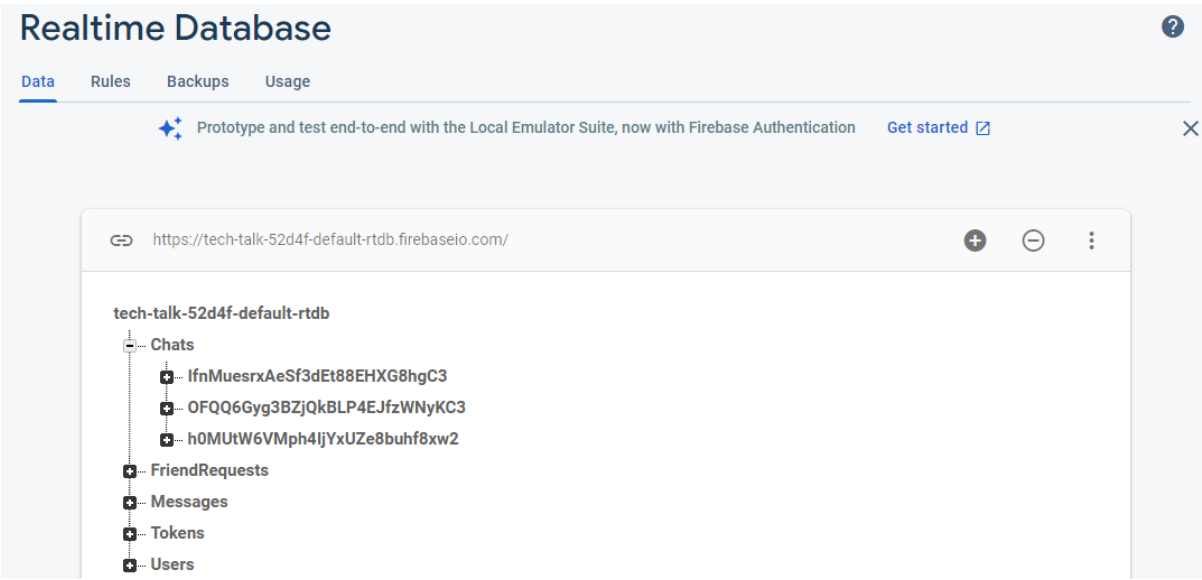

Figure 4.2.2.1: Realtime Database-1

CHAPTER-4
IMPLEMENTATION AND USERINTERFACE

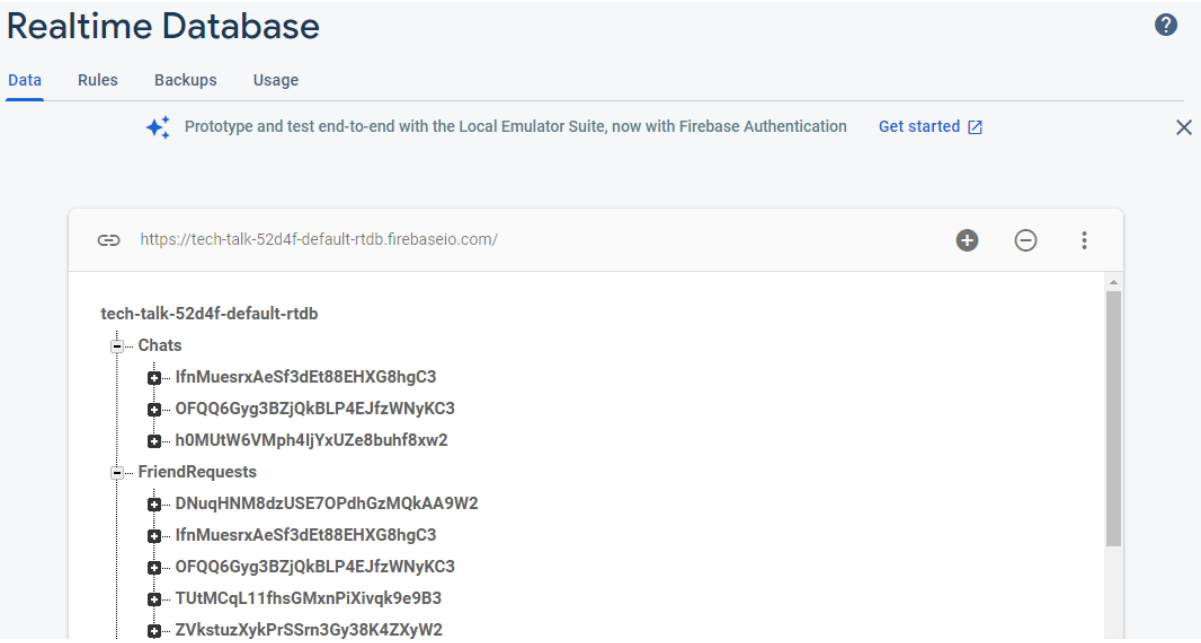

Figure 4.2: Realtime Database-2

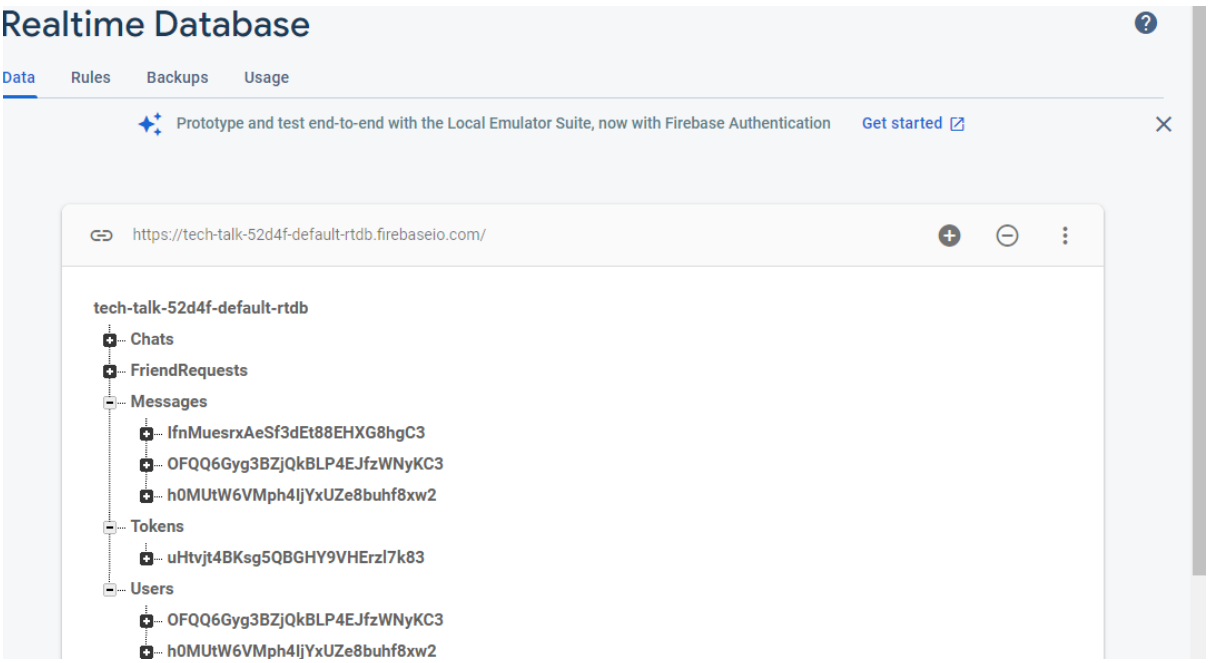

Figure 4.2.2.3: Realtime Database-3

CHAPTER-4
IMPLEMENTATION AND USERINTERFACE

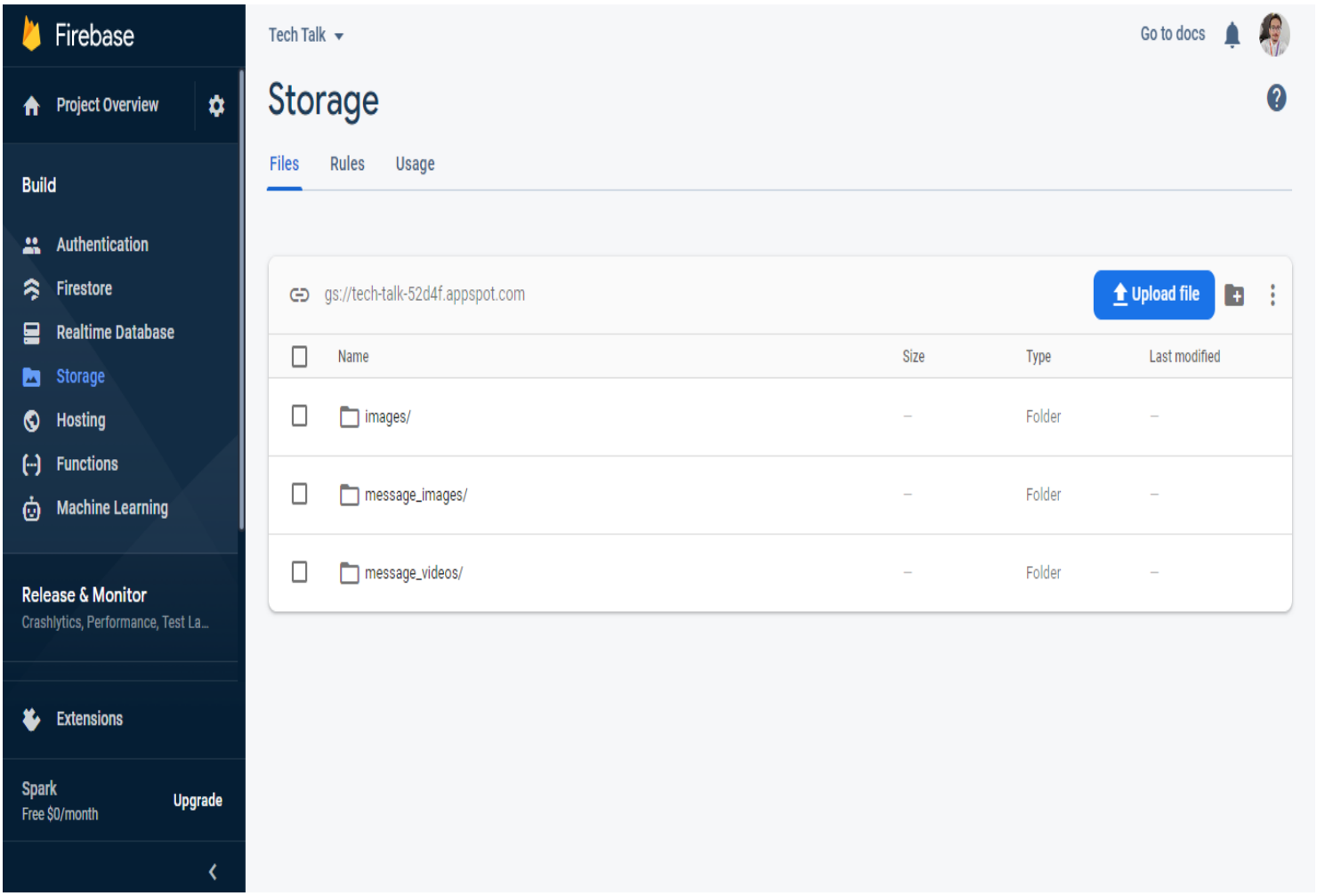

Figure 4.2.2.4: Realtime Database-4

CHAPTER-5
SOFTWARE TESTING

5.1 UNIT TESTING

Unit Testing is a software testing method in which small parts of the code are separated from other parts and the functionality is checked whether it works as expected or not.

Test Name	Test Date	Expected Result	Actual Result	Status
Registration, Login and Logout	10/03/21	User get registered in database and get logged out	User was able to register and logout	Successful
Display all users	10/03/21	All registered users should be displayed	User was able to see users and search them	Successful
Changing Profile pic and Other details	18/03/21	User should be able to upload Profile pic.	Profile pic was Uploaded.	Successful
Changing Password	20/03/21	Should be able to Change password Successfully.	Password was Changed Successfully	Successful
Sending friend request	26/03/21	Should be able to send and receive Friend request	On sending request App crashed	Not Successful
Sending friend request	28/03/21	Should be able to Send and receive Friend request.	Was able to send but other Was not receiving	Not Successful
Sending friend request	04/04/21	Should be able to Send and receive Friend request	Request was sent And received successfully	Successful
Sending First Message	10/04/21	Should be able to send and receive text message	Was be able to send and receive text message	Successful

CHAPTER-5
SOFTWARE TESTING

Send attachments Like images and videos	20/04/21	Attachments should Be able to send to Other users	On clicking Attachment Option, app crashed	Not Successful
Send attachments Like images and videos	06/05/21	Attachments should Be able to send to Other users	Attachments were Send and received Successfully.	Successful

Table 5.1: Unit Testing

5.2 COMPATIBLITY TESTING

This application was tested and used on different devices like LG G3, Google Nexus 4. The application worked fine and is stable. The application worked fine in portrait mode and there isn't any problem with compatibility.

5.3 USER TESTING

The present application was tested by our classmates who are using different mobile devices that have Android Lollipop, Android Nougat, Android Oreo and that seemed to be working fine and they were satisfied with the performance and responsiveness of the application and how the app worked.

CHAPTER-6
CONCLUSION AND FUTURE SCOPE

6.1 CONCLUSION

The project dealt with all the steps required for the analysis and design of the system from collecting the required information, and the questionnaire and to clarify the objectives from this system and its beneficiaries, also dealt steps How will the system, and that clarification through drawings flowchart, DFD, which will help is clearly in the application of the system in the second phase of development of the project, which will be chatting application. Which will deal the programming stage and test the system by user's beneficiaries from this application.

6.2 FUTURE SCOPE

There is always some place for enhancements in any software application, however good and efficient the application may be.
Right now, we are dealing with only the instant messaging between the peers. In future the application may further developed to include some features such as:

- Voice messaging.
- Group calling
- Live streaming
- Messages auto delete after a given time.
- Personalized message tunes.

And a messaging application feature which allows the user to create chat room while in conversation with another user by just sending the chatroom name with the hash symbol at the beginning

CHAPTER-7
PROJECT SUMMARY

SUMMARY

We have created an android Tech Talk chat application which is somewhat based on WhatsApp. Like in WhatsApp anyone can create his profile or register himself/herself, chat with people, share something to their buddies, etc. We have collected these features from WhatsApp and created our chat application. We have use tools like Android studio for development, Firebase tools for our all backend activities like authentication, database collection, etc. and emulator to run or test our application.

The starting Activity of app is Login activity, if you are new user you can easily create one or you already have you can directly login in, after login activity we have added 3 fragments in main activity like chats, friend request and find friends. In chats section you can easily find your recent chat friend and send them message, you want to share, this section is called chat section in other apps. After this there is a find friends section where you can find new user, you can easily send them friend request. Next there is a friend request section, here you can accept or deny request received. Lastly there is one menu item option in top right corner where you can modify your profile. This is all about our project. Our working experience in this group project was awesome. There are many things I have learnt in this group project.

CHAPTER-8
REFERENCES

- https://www.udemy.com/course/firebase-advanced-real-time-chat-app-in-android-studio/
- https://developer.android.com/docs
- https://docs.oracle.com/en/java/
- https://www.youtube.com/
- https://www.javatpoint.com/firebase
- https://www.google.com/
- https://firebase.google.com/docs
- https://developer.android.com/guide/

Project Github Link: https://github.com/mishravimal99/Tech-Talk

THANK YOU