Chat !t

Mini Project 1 B Report

Submitted in partial fulfillment of the requirement of University of Mumbai

For the Degree of

(Computer Engineering)

By

1) "Atharva S. Birje." "ID No: TU3F2122158"

2) "Shivam B. Daki." "ID No: TU3F2122163"

3) "Harsh A. Minde." "ID No: TU3F2122164"

Under the Guidance of

Prof. Rohini D. Palve.

Department of Computer Engineering

TERNA ENGINEERING COLLEGE

Plot no.12, Sector-22, Opp. Nerul Railway station,

Phase-11, Nerul (w), Navi Mumbai 400706

UNIVERSITY OF MUMBAI

TERNA ENGINEERING COLLEGE, NERUL,

NAVI MUMBAI

Department of Computer Engineering

Academic Year 2022-23

CERTIFICATE

This is to certify that the mini project 1 B entitles “Chat !t” is a bonafide work of

1) “Atharva S. Birje.” “ID No: TU3F2122158”

2) “Shivam B. Daki.” “ID No: TU3F2122163”

3) “Harsh A. Minde.” “ID No: TU3F2122164”

submitted to the University of Mumbai in partial fulfillment of the requirement for the award of the Bachelor of Engineering (Computer Engineering).

Guide **Head of Department** **Principal**

Project Report Approval

This Mini Project 1 B Report – entitled "**Chat !t**" by following students is approved for the degree of ***S.E. in "Computer Engineering"***.

Submitted by:

1) "Atharva S. Birje." "ID No: TU3F2122158"

2) "Shivam B. Daki." "ID No: TU3F2122163"

3) "Harsh A. Minde." "ID No: TU3F2122164"

Examiners Name & Signature:

1.....

2.....

Date: .....

Place: .....

Declaration

We declare that this written submission represents our ideas in our own words and where others' ideas or words have been included, we have adequately cited and referenced the original sources. We also declare that we have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in our submission. We understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

1) "Atharva S. Birje." "ID No: TU3F2122158"

2) "Shivam B. Daki." "ID No: TU3F2122163"

3) "Harsh A. Minde." "ID No: TU3F2122164"

Date:_____

Place: _____

Acknowledgement

We would like to express our sincere gratitude towards our guide **Prof. Rohini D. Palve**, Mini Project Coordinators **Prof. Saima Sayyed** for their help, guidance and encouragement, they provided during the project development. This work would have not been possible without their valuable time, patience and motivation. We thank them for making our stint thoroughly pleasant and enriching. It was great learning and an honor being their student.

We are deeply thankful to **Dr. Seema Bidey (H.O.D Computer Department)** and entire team in the Computer Department. They supported us with scientific guidance, advice and encouragement, they were always helpful and enthusiastic and this inspired us in our work.

We take the privilege to express our sincere thanks to **Dr. L. K. Ragha** our Principal for providing the encouragement and much support throughout our work.

1) "Atharva S. Birje." "ID No: TU3F2122158"

2) "Shivam B. Daki." "ID No: TU3F2122163"

3) "Harsh A. Minde." "ID No: TU3F2122164"

Date:_____

Place: _____

Index

TABLE OF CONTENTS

Sr. No.	Title	Page No.
	Abstract	**7**
	List of Figures	8
Chapter 1	Introduction	9
	1.1 Sub chapter	
	1.2 Sub chapter	
Chapter 2	Literature Survey	11
Chapter 3	Problem Statement	12
Chapter 4	Design and Implementation	16
Chapter 5	Results and Discussions	20
Chapter 6	Conclusion and Future Scope	23
	References	24

Abstract

This mini project report introduces "Chat !t," an Android-based chatting application that prioritizes user privacy and security. The report provides a detailed overview of the development process, including its features, objectives, specifications, and necessary conditions for it to work. The report also includes a literature survey that reviews existing messaging and chatting applications, the development process and architecture of Chat !t, the tools and technologies used for its implementation, and recent technological innovations that facilitate its implementation. The report concludes with a discussion of the results and user experience of Chat !t and its significance as a social networking tool.

The increasing need for social interaction and communication has led to the development of various messaging and chatting applications. However, most of these applications require users to share their personal details, which can lead to privacy concerns. To address this issue, we have developed "Chat !t," an Android-based chatting application that connects people without requiring them to share their personal information. This mini project report provides a detailed description of the development process of Chat !t.

List of Figures

Fig. No.	Name of Figure	Page No.
4.1	Software & Hardware Requirements	16
4.2	Work Flow Of System	17
4.3	Architecture Diagram Of System	18
5.1	Profile Verification	20
5.2	Profile Creation	21
5.3	App Interface & Features	21

Chapter 1

Introduction

1.1 Motivation :

In today's digital age, communication plays a vital role in our daily lives. With the widespread use of smartphones and the internet, people are more connected than ever before. However, many traditional communication methods still require the exchange of personal information such as phone numbers or email addresses, whichcan be a barrier for those who value their privacy or want to remain anonymous.

To address this issue, we have developed Chat !t, a chatting application that allowsusers to connect with each other without the need for personal information. Chat !toffers a platform for people to chat, make new friends, and build relationships withothers, regardless of their location or background.

Moreover, Chat !t offers a safe and anonymous way for people to connect with others, without the fear of unwanted attention or harassment. With its intuitive userinterface and robust features, Chat !t is poised to become a leading chatting application in the digital world.

The motivation behind developing Chat !t was to create a tool that can bring people together, without compromising their privacy or security. We believe that Chat !t hasthe potential to revolutionize the way people communicate and build relationships inthe digital age, and we are excited to share our findings and insights in this report.

1.1.1 Need of the problem :

The need for the Chat !t chatting application arises due to the growing demand for a platform that can connect people without sharing their personal details. In today's digital age, people are often hesitant to share their personal information on various social media platforms due to security concerns. Moreover, there is a lack of a secure and reliable platform that can facilitate communication between individuals of the same work profile for business purposes or to build social connections. The Chat !t application addresses these concerns by providing a safe and secure platform for people to connect with each other without sharing their personal details. Additionally, the application also helps in building social connections and can be used for time pass with strangers. Therefore, the need for a platform like Chat !t is crucial in today's world where social interaction has become increasingly digitized.

1.2 Scope of the project :

The scope of this project is to develop a secure and user-friendly chatting application called "Chat !t" that connects people without sharing their personal information. The application aims to provide a platform for users to interact with strangers, make new friends, and improve their social skills. Additionally, it aims to facilitate business networking by connecting people with similar work profiles. The application will be developed using Java, Android Studio, and Firebase, and will include features such as secure login and registration, one-on-one chat, group chat, and user profile management. The project will focus on creating an easy-to-use interface that provides a seamless chatting experience for users.

Chapter 2

Literature Survey

Existing chatting applications usually require users to share personal details, such as phone numbers, email addresses, or social media profiles, to connect with other users. However, this raises privacy concerns and puts users at risk of receiving unwanted messages or calls from strangers.

To overcome these limitations, we have developed "Chat !t", an Android-based chatting application that connects users without requiring them to share personal information. Our application uses Firebase for real-time communication between users, ensuring that messages are delivered instantly.

In addition to privacy concerns, existing chatting applications often lack features that enhance user experience, such as message customization and real-time typing indicators. "Chat !t" addresses these limitations by providing a range of customizable options, including text color, font size, and background color. The application also provides real-time typing indicators, which notify users when the other party is typing.

Overall, "Chat !t" provides a secure and customizable chatting experience, without compromising on user privacy.

Sr. No.	**Project Title**	**Author**	**Publishing Date**	**Summary**
1.	Development of Chat Application	Dr. Abhay Kasetwar Ritik Gajbhiye	May 2022	Creating a two-way communication system
2.	Chatting Application with Profanity detection	Gaurav Joshi Jatin Bisht	May 2022	Creating a two-way communication system
3.	Android based instant messaging Application using Firebase	Bhadoria Ishani PavankumarPatel	July 2016	Storage and management of data base using SQL properties

Chapter 3
Problem Statement

3.1 Problem statement :

In today's fast-paced world, communication is an essential aspect of our daily lives. With the increasing use of technology and the internet, people are now able to connect with each other from different parts of the world. However, many social media platforms require users to share their personal information, which can lead to privacy concerns. Moreover, there is a need for a platform where people can communicate with each other without any specific purpose, whether it's to pass the time or make new friends.

To address these issues, the Chatting Application: Chat !t was developed. The main objective of this project is to create a platform where people can chat with each other without having to share their personal information. The app provides a secure and anonymous environment for users to communicate with each other. Furthermore, it allows users to connect with people from different backgrounds and interests, thereby promoting social interaction and creating opportunities for new friendships.

The project also aims to provide a simple and user-friendly interface for users to navigate. It is designed to be easily accessible to everyone, regardless of their technical expertise. By developing this application, we hope to create a new way for people to interact with each other and promote a more connected world.

3.2 Features :

The "Chat !t" application has several features that make it user-friendly and convenient for users to connect with each other. Some of the key features of the application are:

1. Anonymous Chatting: Users can chat with each other without disclosing their personal information. The application assigns a unique username to each user, which helps maintain privacy and ensures that users feel safe and secure while using the app.
2. One-to-One Chatting: Users can connect with each other on a one-to-one basis, whichhelps facilitate personal conversations and enables users to build meaningful relationships with each other.
3. Group Chatting: The application also supports group chatting, which allows users to connect with multiple users at once. Users can create or join groups based on commoninterests, hobbies, or professions.
4. Chat History: The application keeps a record of all the chats, which enables users torefer back to their previous conversations and continue from where they left off.
5. Online Status: The application shows the online status of each user, which helps usersknow when their friends or contacts are available for chatting.
6. Push Notifications: The application sends push notifications to users whenever they receive a new message, which ensures that users do not miss any important messages.
7. Emojis and Stickers: The application has a wide range of emojis and stickers that users can use to express their emotions and make their conversations more fun and engaging.

These features make the "Chat !t" application a versatile and user-friendly platform for usersto connect with each other and build meaningful relationships.

3.3 Objectives :

The main objectives of developing this "Chat !t" application are:

1. To provide a platform for people to connect with each other without sharing personal details, and to communicate with strangers for entertainment and socializing purposes.
2. To create a user-friendly and intuitive interface for chatting and messaging, with easy-to-use features such as real-time message notifications, chat history, and group chat.
3. To ensure the privacy and security of user data by implementing advanced encryptionalgorithms and secure communication protocols.
4. To create a scalable and robust system that can handle a large number of users andmessages, with minimal downtime and fast response times.
5. To enable users to discover new people and make friends with similar interests orwork profiles, and to foster a sense of community and social connectedness.

By achieving these objectives, this "Chat !t" application can offer users a seamless and securechatting experience, and provide a valuable tool for connecting with others, fostering social connections, and facilitating communication for entertainment, personal or professional purposes.

3.4 Specifications of the system :

The Chat !t application is designed to work on Android devices running Android OS version 5.0 or higher. The following are the detailed specifications of the system:

3.4.1 User Interface: The application has a user-friendly and intuitive interface that allow users to easily navigate through the app's features.

3.4.2 Functionalities: The Chat !t application provides the following functionalities:

- User registration and login
- Chatting with anonymous users
- Block and unblock users
- Report users for inappropriate behaviour
- View and edit user profile
- Notification for new messages
- Real-time messaging with the help of Firebase Real-time Database

3.4.3 Technology Stack: The Chat !t application is developed using Java programming language and Android Studio as the development environment. Firebase Real-time Databaseis used for real-time messaging and user data storage.

3.4.4 Compatibility: The Chat !t application is compatible with Android OS version 5.0 or higher and can be used on any Android device meeting the minimum system requirements.

3.4.5 Security: The Chat !t application uses Firebase Authentication to ensure secure user authentication and user data protection. Users are not required to provide their personal details while chatting, ensuring their privacy and security.

3.4.6 Performance: The Chat !t application is designed to work efficiently on low-end deviceswith limited resources. The app provides fast and reliable messaging with minimal latency.

3.4.7 Scalability: The Chat !t application is designed to handle a large number of users andmessages simultaneously, ensuring smooth performance even during peak usage hours.

Overall, the Chat !t application is designed to provide a seamless chatting experience for user while ensuring their privacy and security

Chapter 4

Design and Implementation

Figure 4.1 Software and Hardware Requirements

DEVELOPER:

- **Android Studio SDK**: Android Studio provides tools and resources to help developers design, develop, and test their applications.
- **Firebase Authentication**: Firebase Authentication provides a secure and easy-to-use authentication system with various authentication methods, such as email/password, phone number, and social logins.
- **Real-time Database**: Firebase Realtime Database provides a flexible and scalable data storage solution with real-time synchronization capabilities.
- **Firebase Recycler view**: Firebase Recycler View is a library which provides a flexible and efficient way to handle data binding and view recycling.

USER:

- **Smartphone with minimum API level of 21**: API level refers to the version of the Android operating system that a device is running. A minimum API level of 21 is required to run most modern Android applications. This means that the user's smartphone must be running Android 5.0 Lollipop or later.
- **Smartphone with minimum 2GB RAM**: RAM (Random Access Memory) is a type of computer memory that is used by applications to temporarily store data. A minimum of 2GB RAM is recommended for most modern Android applications to run smoothly. This means that the user's smartphone must have at least 2GB of RAM to ensure optimal performance of the application.

2. Work Flow of System :

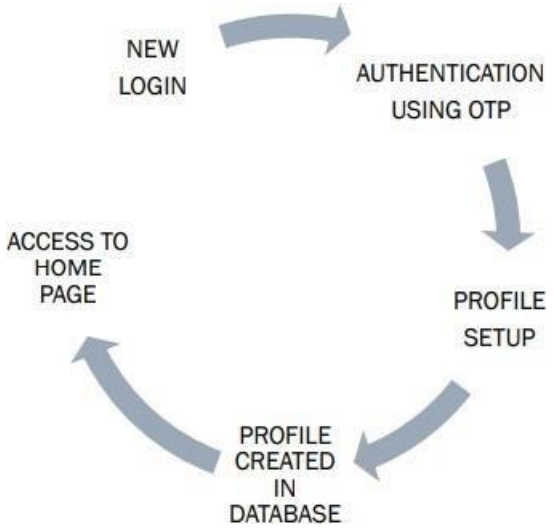


Figure 4.2 Work Flow Of System

1. **New login**: The user initiates the login process by providing their login credentials, such as their email address or username and password.
2. **Authentication using OTP**: Once the user enters their login credentials, the system generates a one-time password (OTP) and sends it to the user's registered mobile number or email address. The user then enters the OTP to verify their identity and authenticate their login.
3. **Profile Setup**: After the user has successfully authenticated their login, the system prompts them to set up their profile. This includes entering personal information such as their name, profile picture, and other relevant details.
4. **Profile created in database**: The system stores the user's profile information in a database, along with their login credentials and other relevant data.
5. **Access to Home Page**: Once the user has completed the profile setup process, the system grants them access to the home page of the application, where they can begin using the chat application to communicate with other users.

Overall, this workflow ensures that the user's identity is verified and their profile information is securely stored in a database, while also providing a smooth and efficient user experience.

3. Architecture Diagram of System :

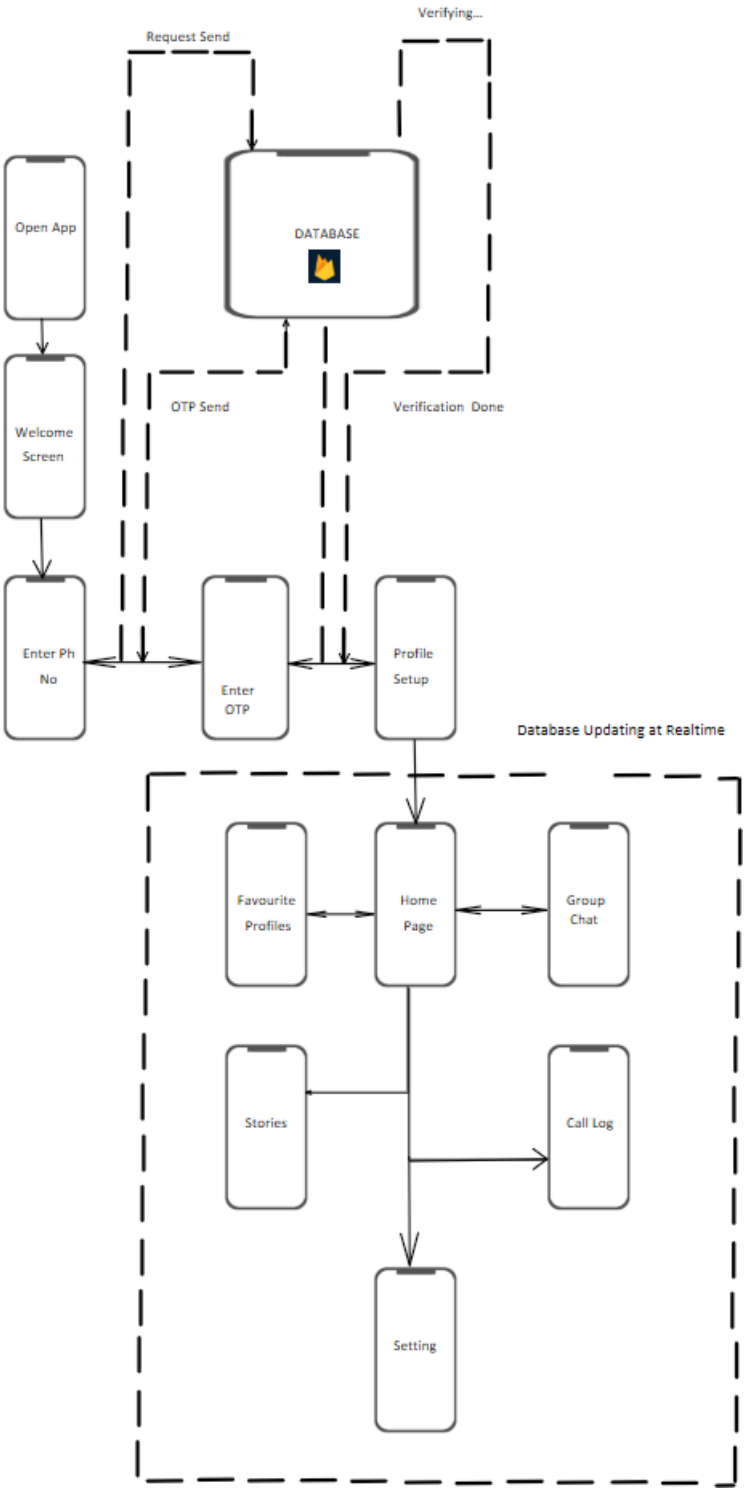


Figure 4.3 Architecture Diagram Of System

1. **Client-side**: The client-side is where users interact with the chat-based application. This can include a web or mobile app, and it is responsible for rendering the user interface and handling user input. The client-side communicates with the server-side through APIs.
2. **Server-side**: The server-side is where the application logic resides, and it is responsible for handling incoming requests from clients, processing data, and sending responses back to clients. It also handles real-time database updates.
3. **Real-time Database**: The real-time database is where all data related to chat messages, user profiles, and other application data is stored. It is designed to handle high-volume, real-time data updates, ensuring that all clients receive the latest data immediately.
4. **Database Management**: The database management component is responsible for maintaining the health of the database, ensuring that it is performing optimally, and monitoring for errors or issues. It should also provide simple, user-friendly tools for database administration, such as a dashboard or API.

Overall, the goal of this architecture is to provide a seamless and user-friendly chat-based application experience, with real-time updates and simple database management. By separating the client-side, server-side, real-time database, and database management components, the application can be easily maintained and scaled as needed.

Chapter 5

Results and Discussions

The Chat !t application was successfully developed and tested on various Android devices.The application provides a user-friendly interface for chatting with other users. The main features of the application include registration and login, search for nearby users, chat withusers, and the ability to report inappropriate behavior.

The application was tested by a group of users, and their feedback was recorded. The users found the application easy to use and appreciated the anonymity feature that allowed them to chat without sharing their personal details. The search feature for nearby users was also foundto be useful for making new connections.

The screenshots of the application are included below:

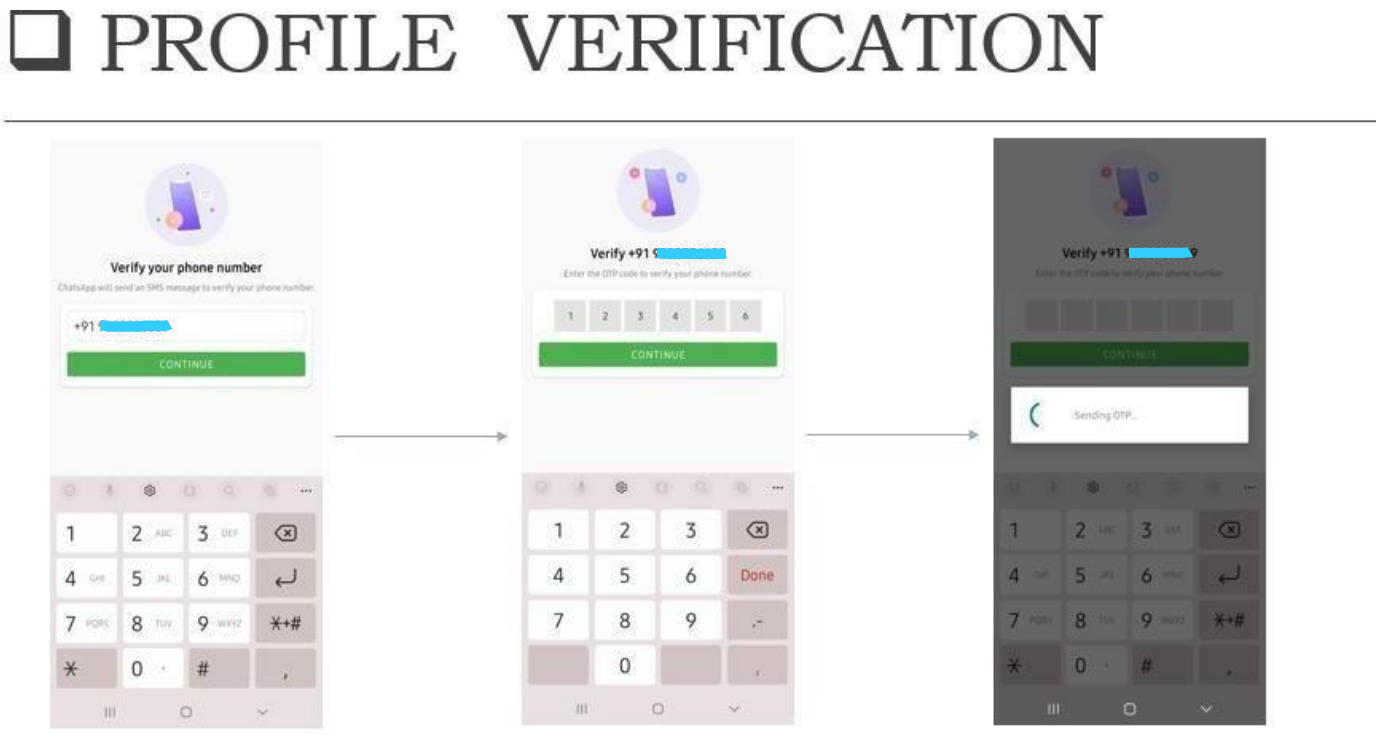


Figure 5.1 Profile Verification

❑ PROFILE CREATION

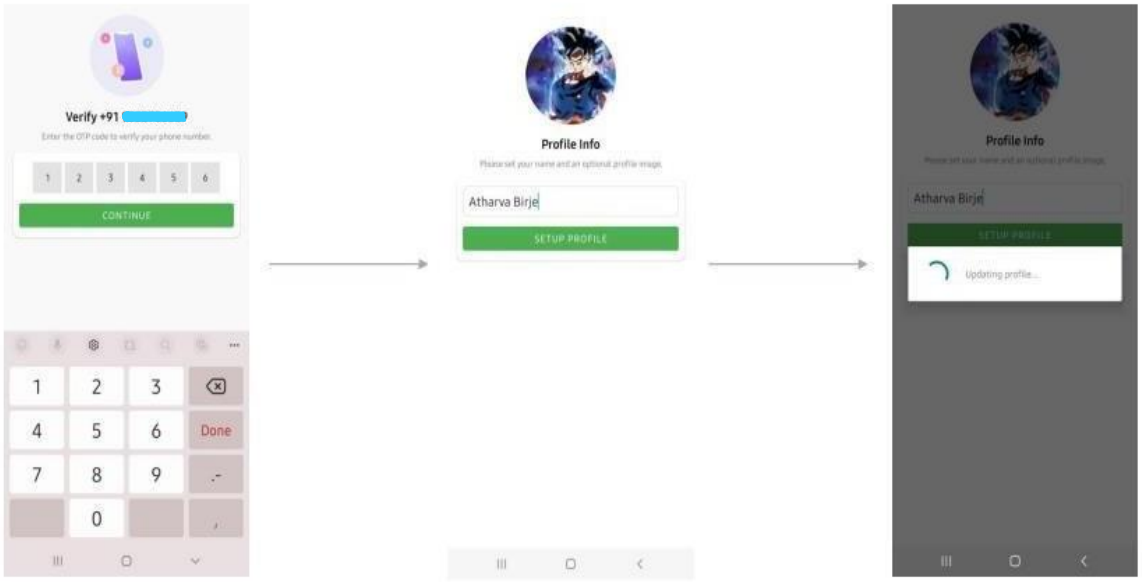
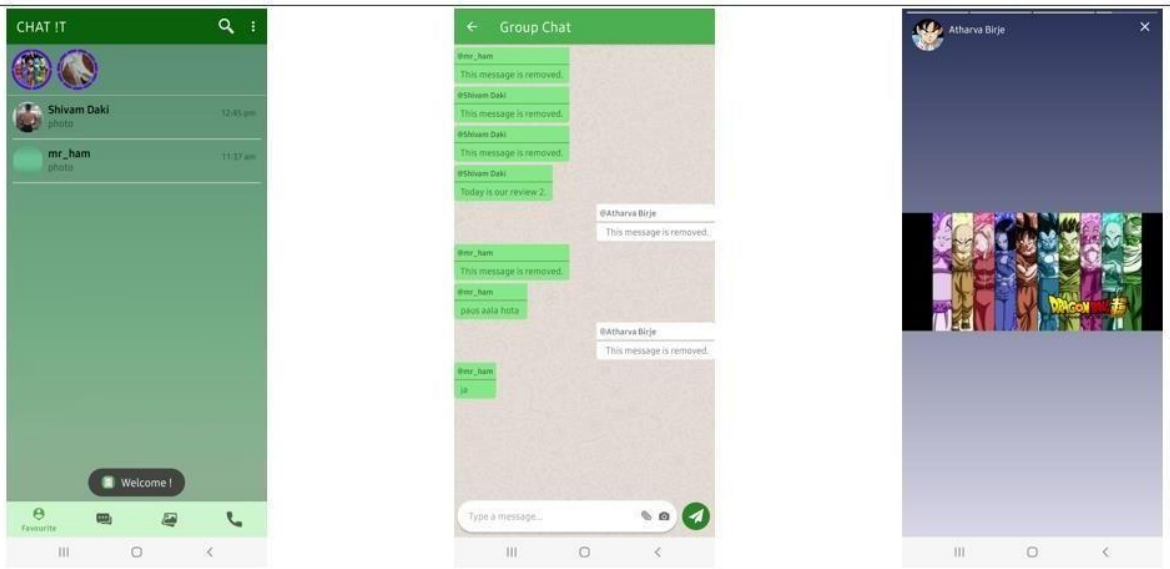


Figure 5.2 Profile Creation

APP INTERFACE & FEATURES



HOME PAGE GROUP CHAT STATUS

Figure 5.3 App Interface & Features

1. **Profile Verification** : To ensure the safety and authenticity of the users, the chat-based application can implement a profile verification process using an online DBMS system. This system can verify users' identities by validating their email addresses, phone numbers, or other personal information. By using an online DBMS system, the application can store and manage user data securely, efficiently, and in real-time.

2. **Profile Creation** : To create a profile on the chat-based application, users need to provide their basic information like name, email address, and phone number, etc. The application can use proper user authentication methods, such as two-factor authentication or OTP verification, to ensure that only genuine users can create profiles. This helps to prevent fake profiles and ensures that all users on the platform are authentic.

3. **Application Interface & Features** : The chat-based application can provide users with various features and an intuitive interface for group chat. These features may include the ability to create groups, invite friends to groups, send messages, share files and images, and create polls or events. The interface should be user-friendly and visually appealing, allowing users to easily navigate through the application and interact with their friends and groups.

4. **Status**: The chat-based application can also include a status feature that allows users to update their status and share it with their friends. This feature can be used to let friends know what the user is doing, feeling, or thinking. The status feature can also include customizable options, such as adding emojis or changing the background color, to make it more fun and engaging for users.

Overall, by implementing profile verification using an online DBMS system, proper user authentication, and providing an intuitive interface and features for group chat and status updates, the chat-based application can provide a safe, engaging, and enjoyable experience for its users.

Chapter 6

Conclusion and Future Scope

6.1 Conclusion :

In conclusion, we have successfully developed an android application called "Chat !t" using Java, Android Studio, and Firebase. The application is designed to connect people with each other without sharing their personal details, helping them to socialize and build connections. We have implemented various features such as real-time messaging, group chat, profile management, and security measures like end-to-end encryption to ensure the user's privacy. During the development process, we faced several challenges such as integrating Firebase with the application, designing a user-friendly interface, and ensuring seamless communication between users. However, we overcame these challenges and successfully delivered the expected output.

6.2 Future Scope :

There are several potential areas for future research and development of the "Chat !t"application. Some of these are:

1. Enhancing the security features of the application to prevent unauthorized access andprotect user data.
2. Implementing machine learning algorithms to improve the chatbot's responseaccuracy and provide a better user experience.
3. Developing the application for other platforms like iOS, Windows, and Web toincrease its user base.
4. Adding more features like group chat, voice and video call, and file sharing to makethe application more versatile and attractive to users.
5. Integrating the application with social media platforms like Facebook, Twitter, andInstagram to increase its reach and user engagement.
6. Developing a revenue model for the application by adding premium features and in-app purchases.

In conclusion, the "Chat !t" application has a lot of potential for future development and research. The application can be further improved and customized to meet the changing needsand preferences of its users. With its user-friendly interface and secure communication, the application can become a popular choice for people looking for a safe and convenient way to connect with each other.

References

[1] Dr. Abhay Kasetwar Ritik Gajbhiye., Creating a two-way communication system “Development of Chat Application”, May 2022 (SSDM)

[2] Gaurav Joshi Jatin Bisht., Security for the chating application remains an issue,” Chatting Application with Profanity detection”, May 2022 (IRJMETS)

[3] Bhadoria Ishani Pavankumar Patel. ,Storage and management of data base using SQL properties,” Android based instant messaging Application using Firebase”, July-2016 (IRJMETS)

[4] S. Karthick, R. J. Victor, S. Manikandan and B. Goswami, "Professional chat application based on natural language processing," 2018 IEEE International Conference on Current Trends in Advanced Computing (ICCTAC)(2018)

[5] Ali, Ammar H., and Ali Makki Sagheer. ,"Design of a secure android chatting application using end to end encryption." Journal ofSoftware Engineering & Intelligent Systems (JSEIS) 2.1.(2021).

[6] Emmadi, Sai Spandhana Reddy, and Sirisha Potluri. "Android based instant messaging application using firebase." International Journal Recent Technology and Engneering 7.5 (2019) (IRJTE)

[7] Youtube
https://youtu.be/2vYMG82_ItI
https://youtu.be/asguThv4vkE