PROJECT INTERN ON MOBILE APPLICATION DEVELOPMENT

INTERNSHIP REPORT

Submitted by

MUTHUKUMAR S (1921165)

in partial fulfillment of the requirement

for the award of the degree

of

BACHELOR OF TECHNOLOGY

in

INFORMATION TECHNOLOGY

K.S. RANGASAMY COLLEGE OF TECHNOLOGY

(An Autonomous Institution, affiliated to Anna University Chennai and Approved by AICTE, New Delhi)

TIRUCHENGODE – 637 215

DECEMBER 2022

K.S. RANGASAMY COLLEGE OF TECHNOLOGY
TIRUCHENGODE - 637 215

BONAFIDE CERTIFICATE

This is to certify that this internship report titled **"PROJECT INTERN ON MOBILE APPLICATION DEVELOPMENT"** is submitted by **MUTHUKUMAR S (1921165)**, work done by him at **"GOOGLE VIRTUAL INTERNSHIP PROGRAM"** and submitted during the academic year 2022 – 2023, carried out the internship under my supervision. In partial fulfillment of the requirements for the award of the degree of Bachelor of Technology in INFORMATION TECHNOLOGY

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Submitted for the viva-voce examination held on ……

Examiner 1 **Examiner 2**

DECLARATION

I declare that the internship report on **"PROJECT INTERN ON MOBILE APPLICATION DEVELOPMENT"** is the result of the original work done by me. This internship report is submitted on the partial fulfillment of the requirement of the award of Degree of Bachelor of Technology in INFORMATION TECHNOLOGY.

Signature

MUTHUKUMAR S

Place: Tiruchengode

Date:

ACKNOWLEDGEMENT

I wish to express my sincere gratitude to our honorable Vice – Chairman **Mr. R. SRINIVASAN,** for providing immense facilities at our institution.

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ABSTRACT

This project focuses on developing a chat application that prioritizes end-to-end security, ensuring safe and secure communication among users. With the proliferation of digital technology, chat applications have become increasingly popular for their convenience and ease of use. However, as more personal and sensitive information is exchanged on these platforms, concerns about data breaches and privacy have become more pressing. To address these concerns, the proposed chat application aims to provide a secure platform for users to communicate without any worries about data privacy and security. These requirements include encryption, authentication, data storage security, and user verification. The proposed chat application is designed to meet these requirements, providing users with a reliable and secure platform for communication.

It aims to provide a chat application that prioritizes end-to-end security, ensuring safe and secure communication among users. The paper outlines the necessary requirements and design of the proposed application and validates its effectiveness through comparison with other popular chat applications and testing. The proposed chat application provides a reliable and secure platform for users to exchange private information without any concerns about data privacy and security.

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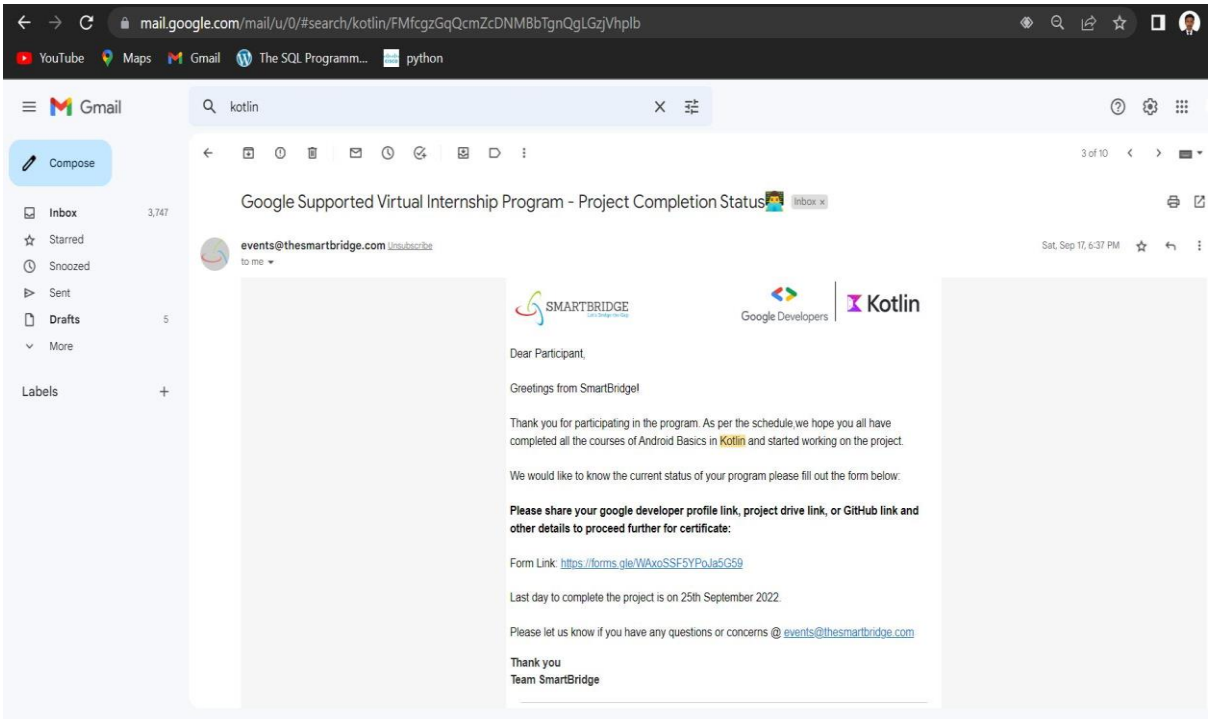

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SMARTBRIDGE Google Developers Kotlin

Dear Participant,

Greetings from SmartBridge!

Thank you for participating in the program. As per the schedule,we hope you all have completed all the courses of Android Basics in Kotlin and started working on the project.

We would like to know the current status of your program please fill out the form below:

Please share your google developer profile link, project drive link, or GitHub link and other details to proceed further for certificate:

Form Link: https://forms.gle/WAxoSSF5YPoJa5G59

Last day to complete the project is on 25th September 2022.

Please let us know if you have any questions or concerns @ events@thesmartbridge.com

Thank you
Team SmartBridge

INTERNSHIP COMPLETION CERTIFICATE

1. INTRODUCTION

As social beings, humans have an innate need to communicate with each other, and with the advancements in information technology, the modes and methods of communication have also evolved. In today's world, communication is not limited to face-to-face interactions, as digital technology has enabled people to connect through online chat applications such as WhatsApp, Telegram, WeChat, Facebook Messenger, Snapchat, and Line. These chat applications offer a variety of communication options including text, voice, and picture sharing, making them a popular choice for many due to their speed, convenience, and ease of use.

Remotely coordinating or Chatting is a strategy for utilizing Technology to unite individuals and thoughts notwithstanding geological obstructions. The innovation has been accessible for quite a long time yet the acknowledgment of it was very late. Our task is a chatting application that utilizes firebase for data set administration which is gotten and simple to oversee. Lately, chat applications have developed and rolled out a significant improvement in web-based media on account of their unmistakable highlights that draw in crowds.

It gives ongoing information and offers various administrations including, trade instant messages, pictures, records and so forth Besides, it upholds cross stages like Android and iOS. There at present hundred huge number of clients, and cell phones are utilizing chat applications on a month-to-month premise.

CHAPTER 2

TECHNOLOGY LEARNED

2.1 ANDROID OS

Android is an OS software for Smartphones. Android is an open-source project called Android Open-Source Project (AOSP). Google uses this project as the basis for creating its own Android version. As an OS, the task of Android is to be a translator between the user and the device. In short, Android would act and work like Windows OS, but it works only for mobile phones.

2.2 APPLICATION PROGRAM INTERFACE (API)

Application Program Interface (API) is a code that allows two software programs to communicate with each other. The API determines the correct way for developers to write programs and request services from the OS or other applications.

2.3 CHATTING APPLICATION

Chatting is a feature or a program on the Internet to communicate directly with internet users who are online together. This communication can be in a form of text (text chat) or voice (voice chat). Chatting is not only popular with teenagers or young people but, it has also spread to older people. By using chat, we can freely talk about anything ranging from friendships, jobs, lessons in school, courses even personal matters.

2.4 UNIFIED MODELLING LANGUAGE (UML)

Unified Modelling Language (UML) is a modeling language that consists of a collection of integrated diagrams. UML represents a collection of the best engineering practices that have proven successful in the modeling of large and complex systems. UML is the most important part of developing object-based software and software development processes, therefor the analysis and system design of this application is following the UML methods.

CHAPTER 3

REQUIREMENT ANALYSIS

3.1 SOFTWARE TOOLS

Software is a set of instructions that tell a computer what to do. The software comprises the entire set of programs, procedures, and routines associated with the operation of a computer system.

Software or a programming tool is a set of computer programs that are used by developers to create, maintain, debug, or support other applications. Here we provide a list of software tools required for our proposed system and let's see what they and their working are given below.

3.1.1 Android Studio:

Android Studio provides a unified environment where we can build apps for Android phones. Structured code modules allow you to divide your project into units of functionality that you can independently build, test, and debug. It is very easy to develop an Android Application. In our proposed system, we use Android studio as a development tool for implementing the project. It is easy to create User Interface and connecting with the real-time database is done with plugins and Application Programming Interface (API) is easy to integrate with Android Studio.

3.1.2 Flutter:

Flutter is an open-source User Interface software development kit created by Google. It is used to develop cross-platform applications for Android. All User Interface development is created in Flutter and is converted into code using some plugins in Android Studio. Easy building for UI and implementation in Flutter is done with help of Dart programming language.

3.1.3 Java:

There are many programming languages for building an application in Android studio. But in our proposed system we go with java for the backend development. Because of its multi-platform support and security for user data. Java Database connectivity helps to connect with the database over the internet in an easy manner for storing, accessing, and working with data.

3.1.4 Firebase:

Firebase is a set of hosting services for any type of application for Backend connectivity with a Database. It offers real-time hosting of databases, content, notifications, or services, such as a real-time communication server. Updating of details of each data will be accessed by the user in real-time without any further updating of the android application. The connectivity with the application in Android Studio is done by using the Firebase Fire store plugin. All user data and information about livestock is stored in Firebase for accessing real-time databases. So, we can regularlyupdate the data very easily.

FLOW DIAGRAM:

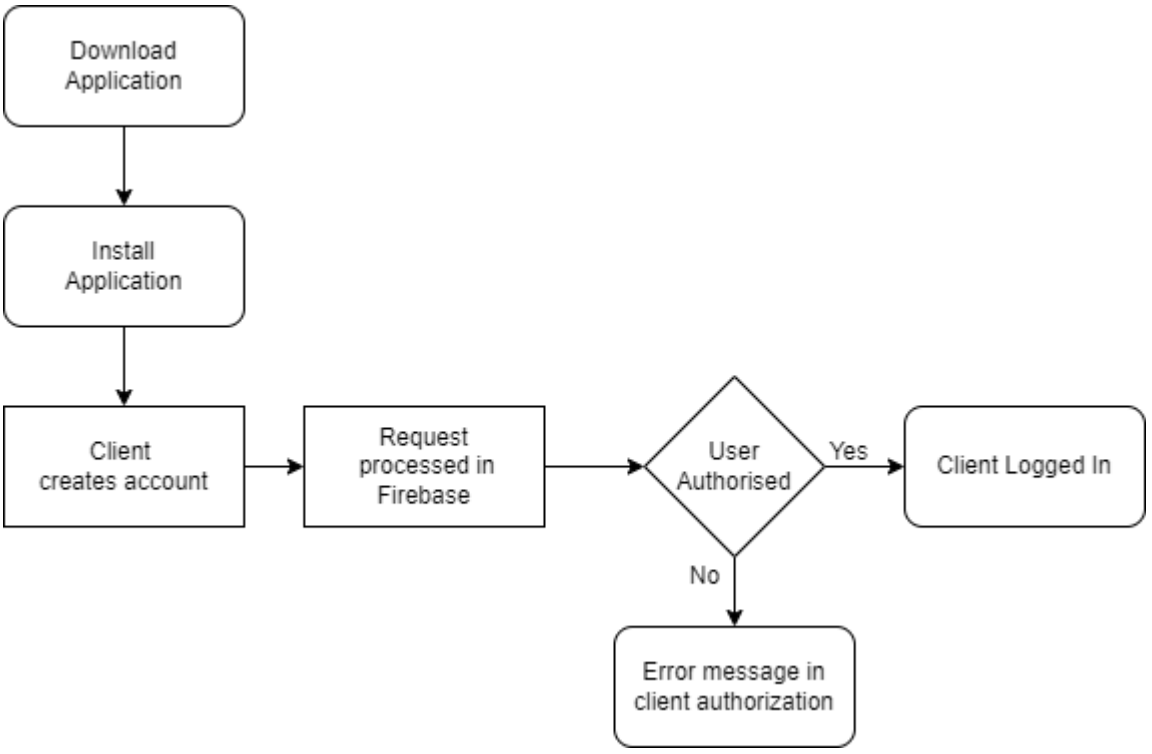

Fig 3.1 Flow Diagram

CHAPTER 4

SYSTEM DESIGN AND IMPLEMENTATION

4.1 SYSTEM DESIGN

- One of the essential utilizations of CHATAPP is informing. Very much like other social applications, you have a rundown of discussions that you're occupied with.

- This component is significant as you can change it up of ways to the side of the regular method of subtleties assortment. When completely functional, you will be flabbergasted by the way that people should filter their telephones duringsubtleties assortment.

- This is made conceivable as each CHATAPP client will have a special standardized identification known as a QR code. One individual can check the other client's QR code to add them to CHATAPP.

- Clients of CHATAPP can likewise utilize a telephone number to add an individual to their contact list and even quest for individuals close by. CHATAPP’s huge social power will be let loose as it will mean becoming one of the principal ways individuals should convey in India.

4.1.1 APPLICATION SCHEME

- The application starts with the login/signup credentials.

- The scheme represents the paths contained in this application. Figure 1 illustrates the scheme of the developed application. The name of the chatting application that was developed called “VCHAT”.

- There are several schemes ranging from installation schemes for admin, officers, and normal users.

- The installation scheme can be seen in the Figure below. A scheme is used to explain the process of how a user installs an application.

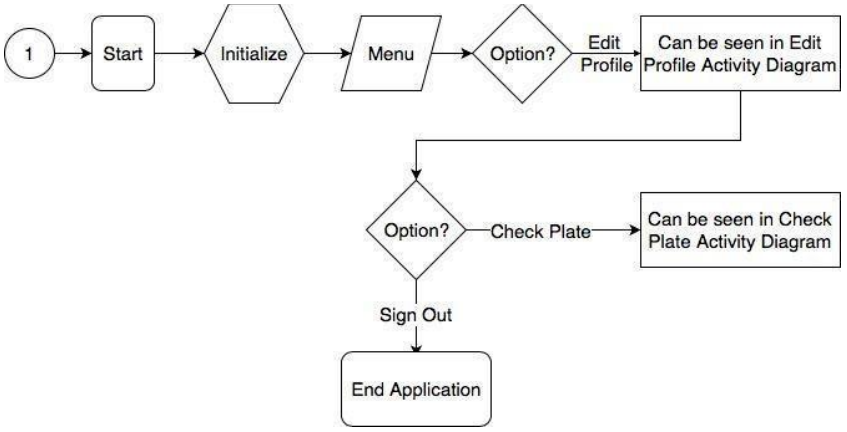

Fig 4.1 Application Scheme

4.1.2 DATABASE DESIGN

- All Firebase Database data is stored as a JavaScript Object Notation (JSON) object. Unlike SQL databases, Firebase does not have tables or records.
- When we add data to a JSON tree, the data will become a node in the existing JSON structure with the associated key.
- The database on this application has several JSON trees, such as Users, Groups, Messages, Friends, Friend Requests, Warnings, Tickets, and Notifications.

4.1.3 TEST PLAN

- In this study, the White-Box Testing and Black-Box Testing methods were conducted. White-Box Testing was carried out by the people who understand the program and the contents of this application, the developer.
- Several Case Tests are used to ensure that all application functions can be run properly following the expected results.
- While Black-Box Testing was carried out by people who do not know the contents of this application.

CHAPTER 5

EXPERIMENTAL SETUP AND PROCEDURE

5.1 SETUP AND PROCEDURE

- This record gives the prerequisite to the plan and execution of a visit application. Both practical and non-useful prerequisites are being recorded.
- This undertaking will make a talk application with a server and permit clients to have the option to visit with themselves.
- Texting arrangements will be proffered so clients will want to convey flawlessly and guarantee that even a fledgling can utilize this talking application.
- Along these lines guaranteeing it is for the most part easy, so it can cut across a wide scope of the crowd while explicitly considering the Indian populace with the connection utilizing English.

5.1.1 GROUP CHAT

This module deals with all the user-side controls. The user can log in to their account by providing the User-id and Password. The registered user can use the application at any time to play games and chat with their friends even outside the country. User can update their information, change passwords, view all the chats, and gaming scores, challenge their scores, accept and reject friends, etc. It is very user-friendly so, it is easy to use. In short, the user gets complete freedom in chatting and gaming at every time.

- **Registration:** For a guest (new user) to become a permanent user of this application he/she has to fill up a registration by giving a username, password email Id, etc. (no personal information needs to be revealed).

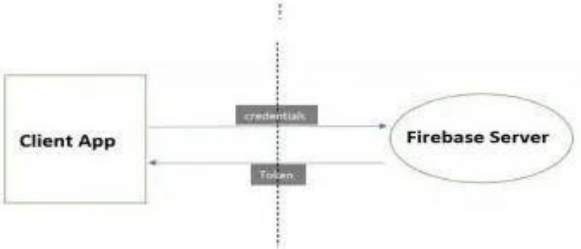

Fig 5.1 Registration flow chart

- **Login:** A login is an asset of credentials used to authenticate a user. Users can log in to the application using a username and password. Taking some security measures, it prevents unauthorized access to someone's account. If anyone (username or password) entered is wrong, then login willbe failed.

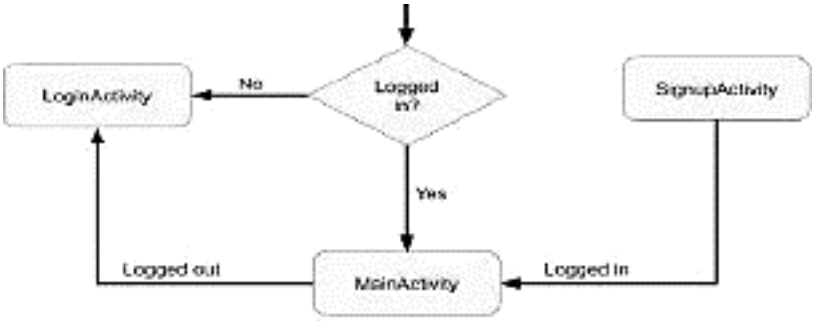

Fig 5.2 Login flow chart

- **Chat page:** A list of Various groups and subgroups, and personal chats aredisplayed on this page.

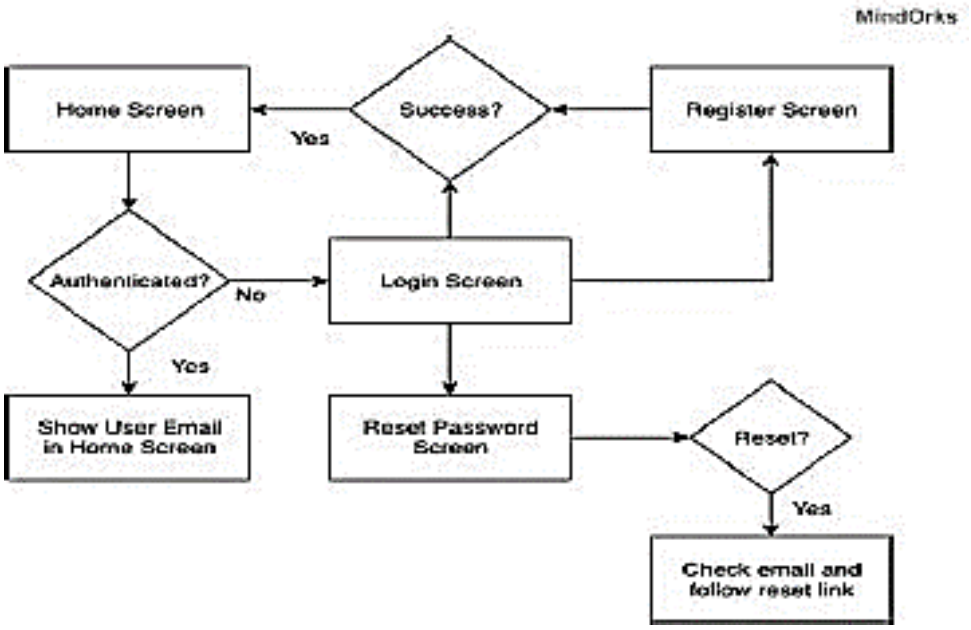

Fig 5.3 Chatting flow chart

CHAPTER 6

RESULTS AND DISCUSSION

6.1 LOGIN PAGE

After the user signup, another client account is made and connected to the credentials for example the user's name and secret phrase, telephone number, or authentication supplier data - the client signed in with, this new client is saved in firebase and can be utilized to distinguish client, next time when he log in.

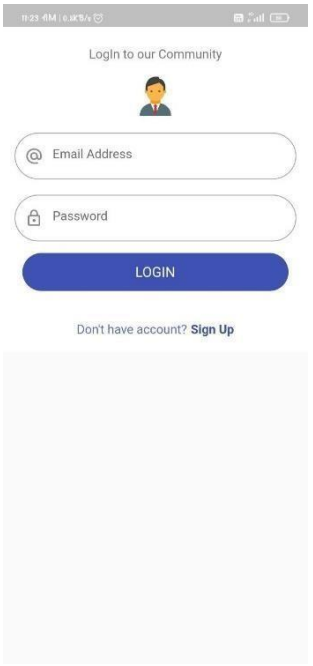

Fig 6.1 Login page

6.2 REGISTRATION PAGE

For signup, the client needs to enter credentials. These credentials can be the client's telephone no and secret phrase, or an Auth token from a unified character supplier. At that point, these credentials are passed to Firebase Authentication SDK. Backend administrations will at that point confirm those credentials and return a reaction to the customer.

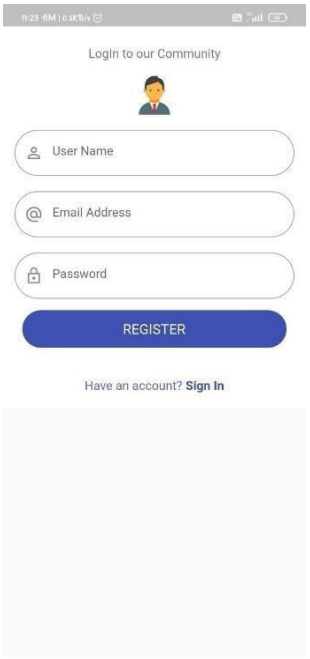

Fig 6.2 Register page

6.3 GROUP CHAT PAGE

At the point when a message is composed, the application encodes the message utilizing XSalsa20 encryption calculation to scramble the message body and Poly1305 to figure a Message Authentication Code (MAC). Each message has its separate key and nonce which brings better security for every single message such as finding one of the keys can't unscramble past letters.

Fig 6.3 Group chat page

CHAPTER 7

CONCLUSION

The purpose of the application is to allow users to connect and communicate with each other in real-time. This could be useful for people who want to chat with friends, family, or colleagues, especially when they are not in the same location. The application has four main features: sign up, sign in, reset the password, and group chat. Sign Up allows new users to create an account, while Sign In allows existing users to log in. Reset Password allows users to reset their password if they forget it. The group chat allows users to create or join a chat group where they can chat with multiple people at once. The testing of the application was carried out using simulations on a smartphone. The testing results were satisfactory, indicating that the application can run successfully as expected.