Friendly Chat – Chatting Application

A PROJECT REPORT

Submitted By

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**Under the Supervision of
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CERTIFICATE

Certified that **Eram Khan (University Roll No.- 2100290140064)** have carried out the project work having "**Friendly Chat- Chatting Application**" for Master of Computer Applications from Dr. A.P.J. Abdul Kalam Technical University (AKTU**)**, Technical University, Lucknow under my supervision. The project report embodies original work, and studies are carried out by the student himself/herself and the contents of the project report do not form the basis for the award of any other degree to the candidate or to anybody else from this or any other University/Institution.

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This is to certify that the above statement made by the candidate is correct to the best of my knowledge.

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ABSTRACT

The purpose of Online Chat Application is to automate the existing manual system by the help of computerized equipment's and full-fledged computer software, fulfilling their requirements, so that their valuable data/information can be stored for a longer period with easy accessing and manipulation of the same. The required software and hardware are easily available and easy to work with

Thus, it will help organization in better utilization of resources. The organization can maintain computerized records without redundant entries. That means that one need not be distracted by information that is not relevant, while being able to reach the information.

ACKNOWLEDGEMENT

List of Chapters

Chapter – 1

Introduction

1.1 PROJECT DESCRIPTION

This project has been developed to overcome the problems prevailing in the practicing manual system. This application is supported to eliminate and, in some cases, reduce the hardships faced by the existing system. Moreover, this application is designed for moving toward secure digitalization. It will enhance transparency in the work.

No formal knowledge is needed for the user to use this system. Thus, by this all it proves it is user friendly. So, this "**Friendly Chat- Chatting Application**" can lead to an error-free, secure, reliable and fast system.

It provides a lightweight, interactive interface so that it can be used easily on all types of devices.

Customer can choose more than one item to make a Chatting and can view Chatting details before logging off. The Chatting confirmation is sent to the customer. The Chatting is placed in the queue and updated in the database and returned in real time. This system assists the staff to go through the Chatting's in real time and process it efficiently with minimal errors.

Online Chatting Application, as described above, can lead to error free, secure, reliable and fast management system. It can assist the user in concentrating on their other activities rather than concentrate on record keeping. Thus, it will help organization in better utilization of resources. The organization can maintain computerized records without redundant entries. That means that one need not be distracted by information that is not relevant, while being able to reach the information.

1.2 LITERATURE REVIEW

Introduction

Chat apps have revolutionized the way people communicate with each other, allowing users to send messages, make voice or video calls, and share files and media with friends, family, and colleagues. As such, chat apps have become an essential part of modern life, providing a flexible and convenient platform for communication that can be accessed from anywhere in the world. This literature review explores the existing research on chat apps, focusing on key areas such as communication theories, user experience, privacy and security, cultural factors, and the impact on social relationships.

Communication Theories

Communication theories provide a framework for understanding how communication works and can help us to better understand the dynamics of chat app interactions. One widely-cited theory is Social Presence Theory, which suggests that communication technologies vary in their ability to convey social presence, or the sense of being present with others in a given environment. According to this theory, chat apps can be more effective at conveying social presence than other forms of communication such as email, due to their real-time nature and the ability to see when other users are typing or actively engaging with the conversation.

Another theory that has been applied to chat apps is Media Richness Theory, which posits that different communication channels can be used for different types of messages. For example, face-to-face communication is typically considered the richest medium, as it allows for verbal and nonverbal cues, while email is considered a leaner medium that may be more appropriate for conveying simple or non-emotional messages. Chat apps can fall somewhere in the middle of this spectrum, as they allow for real-time communication but may lack some of the nonverbal cues that are present in face-to-face interactions.

Privacy and Security

Privacy and security are important considerations for chat app developers and users alike. Chat apps often involve the transmission and storage of sensitive information, such as personal messages, photos, and videos, which can make users vulnerable to security threats such as hacking and data breaches. Research has identified a number of privacy and security concerns related to chat apps, including the potential for user data to be accessed by third parties, the risk of malware and phishing attacks, and the potential for surveillance by governments or other entities.

One study by Xu and Teo (2017) found that users' perceptions of privacy and security were influenced by factors such as the reputation of the app, the transparency of the app's data collection and storage practices, and the availability of security features such as two-factor authentication and end-to-end encryption. Another study by Xu and Teo (2017) examined user perceptions of privacy and security in the context of workplace chat apps.

They found that users were generally more concerned about privacy and security in the workplace than in their personal lives, and that concerns about privacy and security could influence their decision to use a particular app.

User Experience

User experience encompasses a variety of factors, including usability, interface design, and features such as group chats and video calls. One study by The et al. (2016) found that users' perceptions of chat app quality were largely influenced by the perceived usefulness of the app, as well as the quality of the interface and the responsiveness of the app. Another study by Kim et al. (2017) examined user preferences for different chat app features. They found that users preferred apps with features such as group chats, voice and video calls, and the ability to share files and media. Users also expressed a preference for apps that were easy to use and had a simple and intuitive interface.

The user experience and design of chat apps can also have a significant impact on their use and effectiveness. Research has shown that users place a high value on features such as ease of use, speed, and customization options.

A study by Lin et al. (2016) found that users preferred chat apps that were easy to use and customize, and that allowed them to quickly access the features they needed. Similarly, a study by Zhang et al. (2017) found that users were more likely to use chat apps that were designed with a clean, intuitive interface and that offered a range of customization options.

Other important design factors for chat apps include accessibility and compatibility with different devices and platforms. A study by Kang et al. (2017) found that users appreciated chat apps that were accessible on multiple devices and that could be easily synced across different platforms.

Cultural Factors

Chat apps are used around the world and across cultures, which means that cultural factors can influence how users interact with them. For example, some cultures may prioritize politeness and formality in messaging.

while others may be more casual and use abbreviations or emojis. A study by Chen et al. (2016) found that cultural differences can influence the use of chat app features such as voice and video calls. The study found that users in Asian cultures tended to use these features less frequently than users in Western cultures, possibly due to cultural differences in communication styles and preferences.

Another cultural factor that can influence chat app use is language. Chat apps that support multiple languages can facilitate communication across linguistic barriers and help to foster cross-cultural connections. However, the use of machine translation or other language processing technologies can also introduce errors or misinterpretations, which can lead to misunderstandings or even offensive messages. A study by Kang et al. (2017) found that users in multilingual chat groups often had to navigate language barriers and develop strategies to ensure clear communication.

Impact on Social Relationships

Chat apps have the potential to both strengthen and weaken social relationships. On the one hand, they can facilitate communication and help to maintain connections with friends and family members who are geographically distant. On the other hand, excessive use of chat apps can lead to social isolation, addiction, and other negative effects.

Research has found that the use of chat apps can have both positive and negative effects on social relationships. A study by Wang et al. (2018) found that frequent use of chat apps was associated with greater social connectedness and satisfaction with social relationships. However, another study by Lin et al. (2016) found that excessive use of chat apps was associated with negative outcomes such as lower social capital, decreased face-to-face communication, and increased anxiety and stress.

1.3 Software Used in Project

- Operating System – Windows 11.

- Code Editor – Microsoft Visual Studio Code

- Flutter: for Designing UI

- Dart: for Programming Language

- Firebase Firestorm: for Live Database

1.4 Hardware Used in Project

- Processor – Ryzen 5 3rd Gen 3500H

- RAM – 16 GB

- Graphic Card – GTX 1650 (4 GB)

1.5 FUNCTIONAL REQUIREMENTS

Chatting System

- Create an Account
- Log into the Website
- Select an item from the menu
- Customized options for selected item
- Add item to current Chatting
- Remove items/ remove all items from current Chatting
- Provide delivery and payment details

Management System

- Add a new/update/delete vendor to/from the menu
- Add a new/update/delete Chatting category to/from the menu
- Add a new/update/delete Chatting item to/from the menu
- Add a new/update/delete option for a given Chatting item.
- Update price for a given Chatting item
- Update additional information for a given Chatting item

Chatting Retrieval System

- Retrieve new Chatting's from the database
- Display the Chatting's in an easily readable, graphical way
- Mark a Chatting as having been processed and remove it from the list of active

1.6 NON-FUNCTIONAL REQUIREMENTS

Portability

System running on one platform can easily be converted to run on another platform.

Reliability

The ability of the system to behave consistently in a user-acceptable manner when operating within the environment for which the system was intended.

Availability

The system should be always available, meaning the user can access it using a web browser, only restricted by the down time of the server on which the system runs.

Maintainability

A commercial database is used for maintaining the database and the application server takes care of the site.

Security

The chat app should have robust security measures in place, such as encryption of messages, secure authentication, and protection against hacking and other cyber threats.

Chapter-2

FEASIBILITY STUDY

After studying and analyzing all the existing and required functionalities of the system, the next task is to do the feasibility study for the project. The feasibility study includes consideration of all the possible ways to provide a solution to a given problem. The proposed solution should satisfy all the user requirements and should be flexible enough so that future changes can be easily made based on the future upcoming requirements.

2.1 Technical Feasibility

This included the study of function, performance and constraints that may affect the ability to achieve an acceptable system. For this feasibility study, we studied complete functionalities to be provided in the system, as described in the System Requirement Specification (SRS) and checked if everything was possible using different types of front end and backend platform.

2.2 Operational Feasibility

Operational feasibility study is an assessment of whether a proposed project is feasible from an operational standpoint. It evaluates the practicality of implementing the project based on factors such as technology, personnel, infrastructure, and processes. This study aims to identify potential operational issues that may arise during the project's implementation and determine whether the project can be realistically executed within the available resources and constraints. The operational feasibility study is an essential step in project planning, as it helps ensure that the project will be successful and sustainable over the long term.

2.3 Behavioral Feasibility

A behavioral feasibility study is an examination of the potential impacts that a project or initiative may have on human behavior. It assesses whether the project aligns with societal norms and values, and whether it is likely to be embraced by the community it is intended to serve. This type of study explores how the target audience may react to the project and what factors could influence their behavior. It also considers the feasibility of implementing the project, considering the attitudes, beliefs, and cultural values of those who will be affected. The goal of a behavioral feasibility study is to ensure that a project is not only financially feasible, but also socially acceptable and culturally appropriate.

2.4 Economic Feasibility

For the economic feasibility, Economic analysis or cost/benefits analysis is most frequently used technique the effectiveness of a proposed system. It is a procedure to determine the benefits and saving those that are expected from the proposes system and compare them with cost. If the benefits outweigh the costs, a decision is taken to design and implement the system. otherwise, further justification or alternative in proposed system will have to be made if it is to have a chance of being approved this is ongoing effort that improves in accuracy at each phase of a system life cycle.

CHAPTER - 3

Database Design

3.1 Waterfall Model

The waterfall model is a well-known structured methodology for software development. The whole process of system development is divided into distinct phases. The model has been introduced in 1970s. Every phase has a unique output.

It was the first SDLC model to be used widely. So that, sometimes it is referred to Waterfall by SDLC. The waterfall model is used when the system requirements are well known, technology is understood, and the system is a new version of an existing product (Dennis, Wixom and Roth, 2012).

Mainly there are six phases in Waterfall model. If there is a problem faced in any phase of the cycle, the system goes to the previous phase. The phases of Waterfall method are:
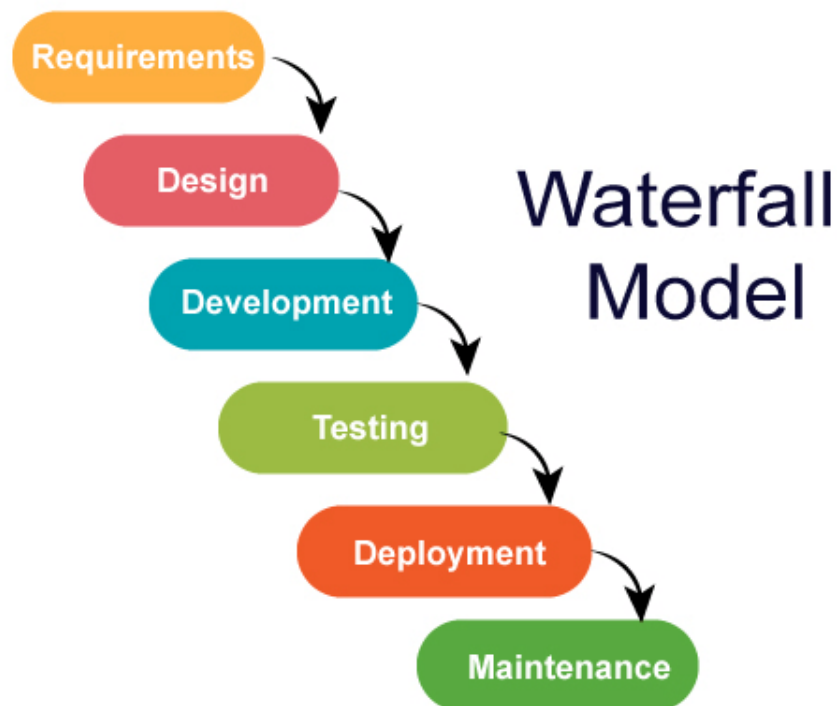
Fig. 3.1 Waterfall Model

3.2 REQUIREMENTS GATHERING & ANALYSIS

In this Phase, all possible requirements of the system are captured and documented in a requirement specification doc.

System Design:

The requirements documented in the previous phase are studied in this phase and the system design is prepared.

Implementation:

With inputs from system design, the system is developed in several units. Then the units are tested.

Integration & Testing:

The units of the program developed in the previous phase are integrated into a system. Then the whole system is tested.

Deployment of the system:

When all kinds of testing is done, the product is deployed in the customer environment.

Maintenance:

There are some issues which are found in the client environment. Patches are released to fix those issues.

3.3 ER DIAGRAM

Entities are represented by the rectangle shape. The entity will be our database table of Online Chatting System later.

Attribute is represented by the oval shape. This will be the columns or fields of each table in the Online Chatting System. Relationship is represented by diamond shape. This will determine the relationships among entities. This is usually in a form of primary key to foreign key connection.

We will follow the 3 basic rules in creating the ER Diagram.

1. Identify all the entities.
2. Identify the relationship between entities and
3. Add meaningful attributes to our entities.

Step 1. Entities

- User
- Product
- Chatting
- Payment
- Admin

Step 2. After we have specified our entities, it is time now to connect or establish a relationship among the entities.

- The user has Chatting.
- Chatting has some products.
- Chatting has some payment.

Step 3. The last part of the ERD process is to add attributes to our entities.

User Entity has the following attributes.

- Email
- Password
- FName
- Id

Group Entity has the following attributes.

- GID
- GName
- Size
- Image

Chatting Entity has following attributes.

- CName
- Email
- OID
- Size
- Quantity

Payment Entity has following attributes

- PID
- Email
- Bank
- Card
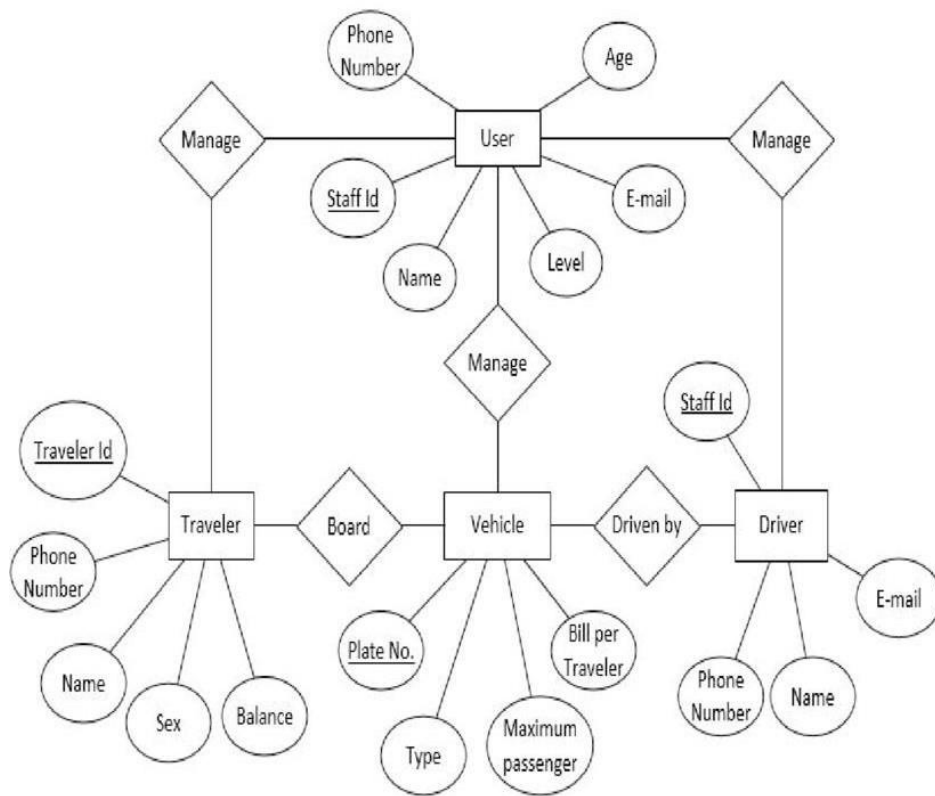
Fig. 3.2 ER Diagram for Firebase Backend

3.4 USE CASE DIAGRAM

Use-case diagrams model the behavior of a system and help to capture the requirements of the system. Use-case diagrams describe the high-level functions and scope of a system. These diagrams also identify the interactions between the system and its actors.

A use case diagram is used to represent the dynamic behavior of a system. It encapsulates the system's functionality by incorporating use cases, actors, and their relationships. It models the tasks, services, and functions required by a system/subsystem of an application. It depicts the high-level functionality of a system and tells how the user handles a system.

Purposes of a use case diagram given below:

1. It gathers the system's needs.
2. It depicts the external view of the system.
3. It recognizes the internal as well as external factors that influence the system.
4. It represents the interaction between the actors.
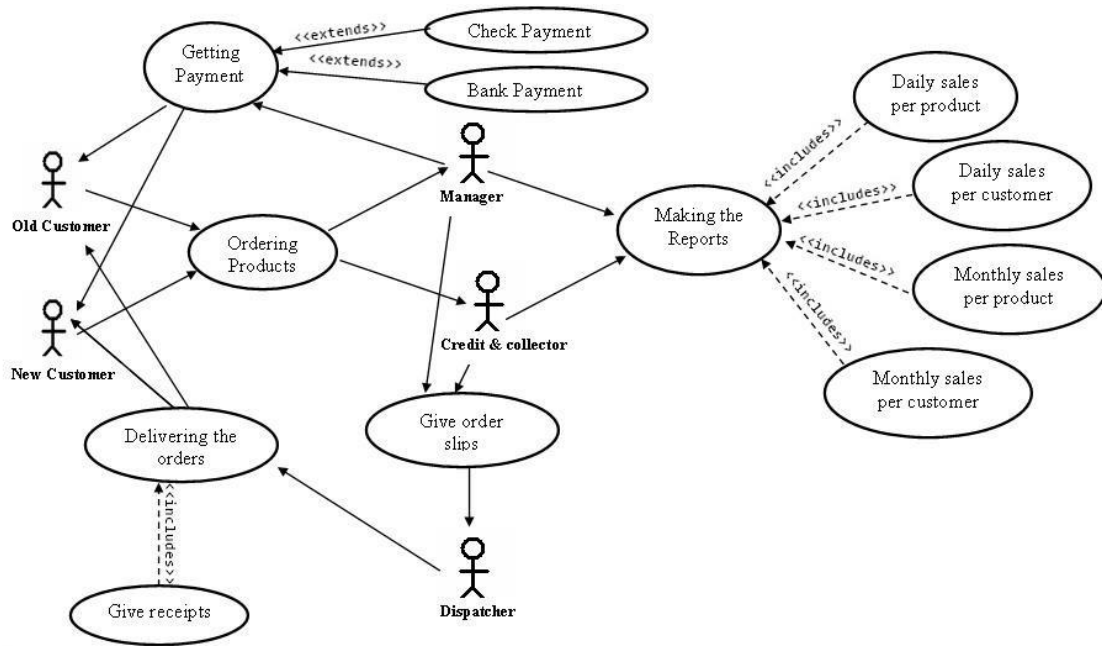
Fig 3.3.USE CASE DIAGRAM for Firebase backend

3.5 ACTIVITY DIAGRAM

An Activity Diagram is a behavioural diagram. It depicts the behaviour of a system. Its primary use is to depict the dynamic aspects of a system. The dynamic aspect of a system specifies how the system operates to attain its function.

It is basically a flowchart to represent the flow from one activity to another activity. Activity Diagrams are not exactly flowcharts as they have some additional capabilities including branching, parallel flow, etc.
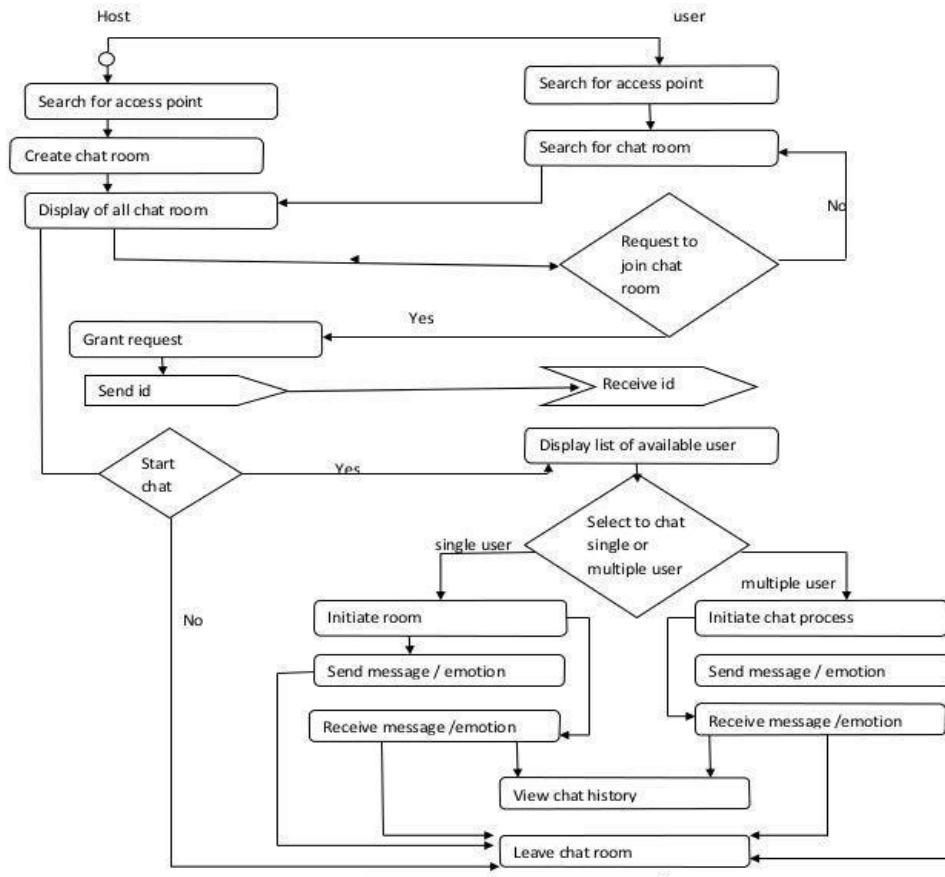
Fig 3.4 Activity Diagram for Firebase backend

3.6 SEQUENCE DIAGRAM
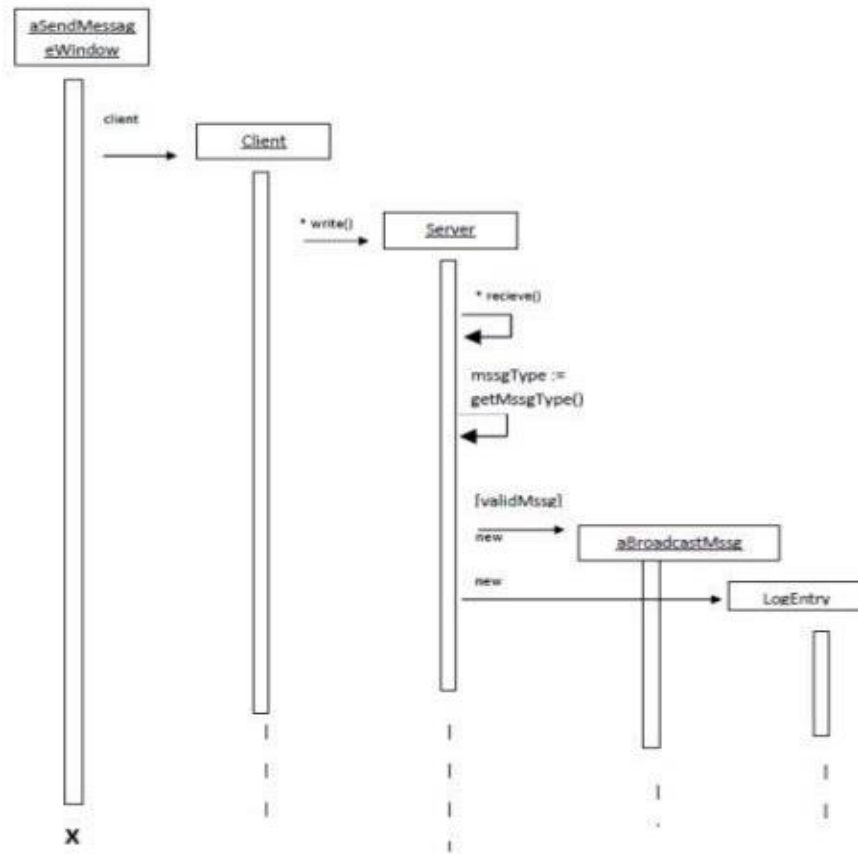
Fig 3.5 Sequence Diagram for Firebase backend

The design shows the detailed illustration of events sequenced and happens in Chatting System. This designed sequence diagram can show programmers and readers the sequence of messages between the actor and the objects.

As you can see through the illustration, the conditions and interactions are emphasized. These interactions are essential for the Online Chatting in System development.

The series of messages are shown and labeled to guide you in building the System. You can modify the design if you have more ideas. You can also add more features to this design and use it as your project blueprint.

3.7 COLLABORATION DIAGRAM
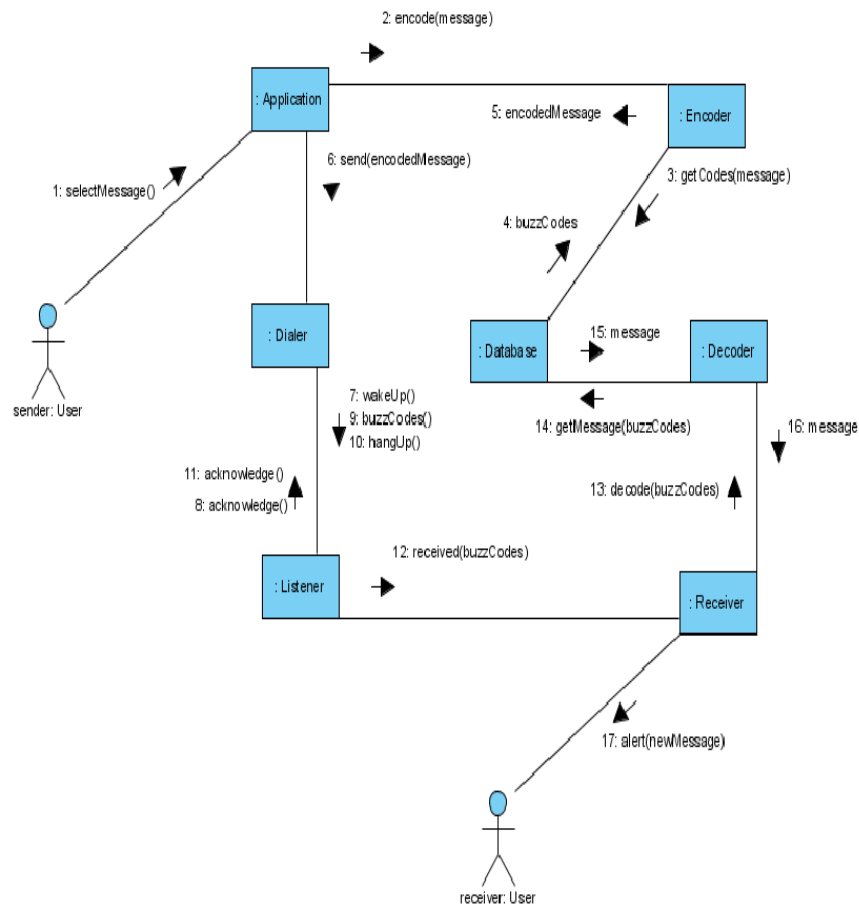
Fig 3.6 Collaboration Diagram for Firebase backend

The collaboration diagram is used to show the relationship between the objects in a system. Both the sequence and the collaboration diagrams represent the same information but differently. Instead of showing the flow of messages, it depicts the architecture of the object residing in the system as it is based on object-oriented programming. An object consists of several features. Multiple objects present in the system are connected to each other. The collaboration diagram, which is also known as a communication diagram, is used to portray the object's architecture in the system.

3.8 STATE CHART DIAGRAM
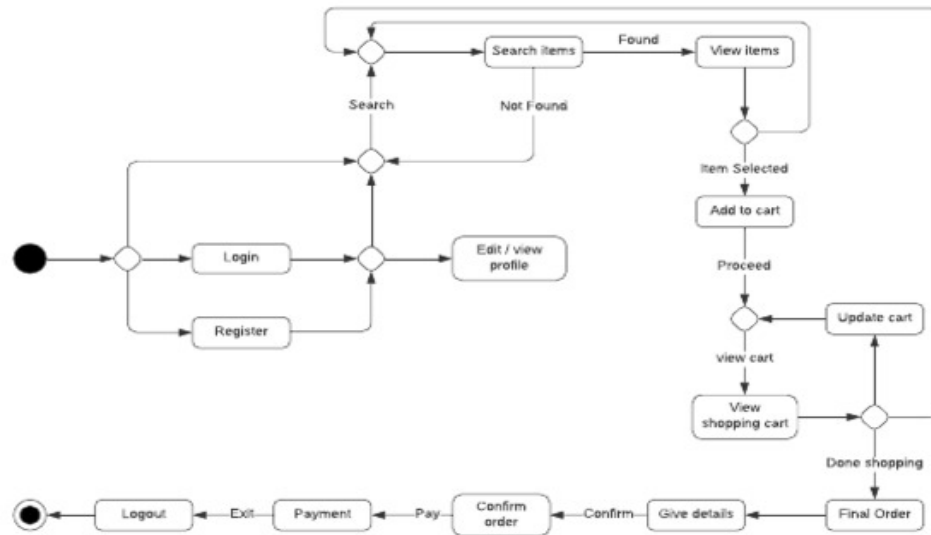
Fig 3.7. State Chart for Firebase backend

The name of the diagram itself clarifies the purpose of the diagram and other details. It describes different states of a component in a system. The states are specific to a component/object of a system.

A State chart diagram describes a state machine. State machine can be defined as a machine which defines different states of an object and these states are controlled by external or internal events.

State chart diagram is one of the five UML diagrams used to model the dynamic nature of a system. They define different states of an object during its lifetime and these states are change.

3.9 COMPONENT DIAGRAM

A component diagram is used to break down a large object-oriented system into the smaller components, to make them more manageable. It models the physical view of a system such as executables, files, libraries, etc. that resides within the node.

It visualizes the relationships as well as the organization between the components present in the system. It helps in forming an executable system. A component is a single unit of the system, which is replaceable and executable. The implementation details of a component are hidden, and it necessitates an interface to execute a function. It is like a black box whose behaviour is explained by the provided and required interfaces.
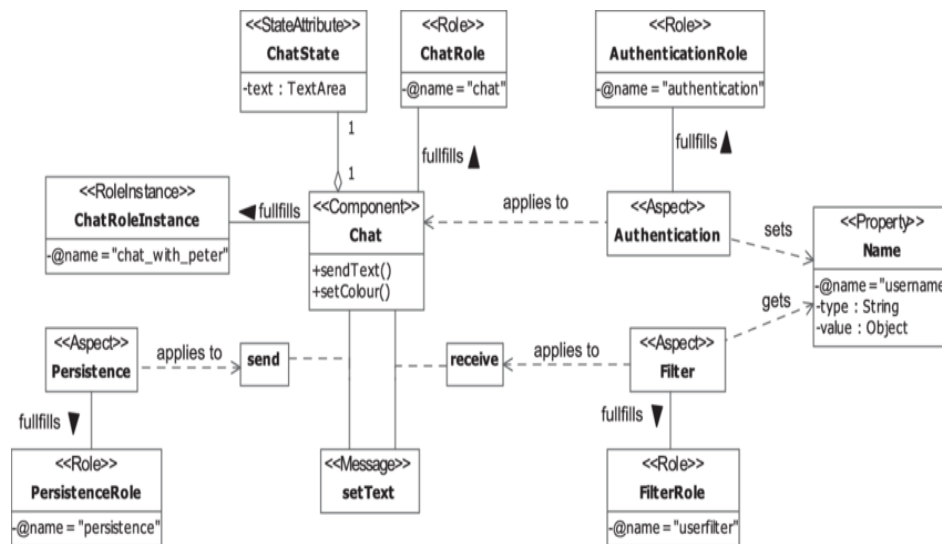
Fig 3.8. USE CASE DIAGRAM for Firebase backend

3.10 DEPLOYMENT DIAGRAM
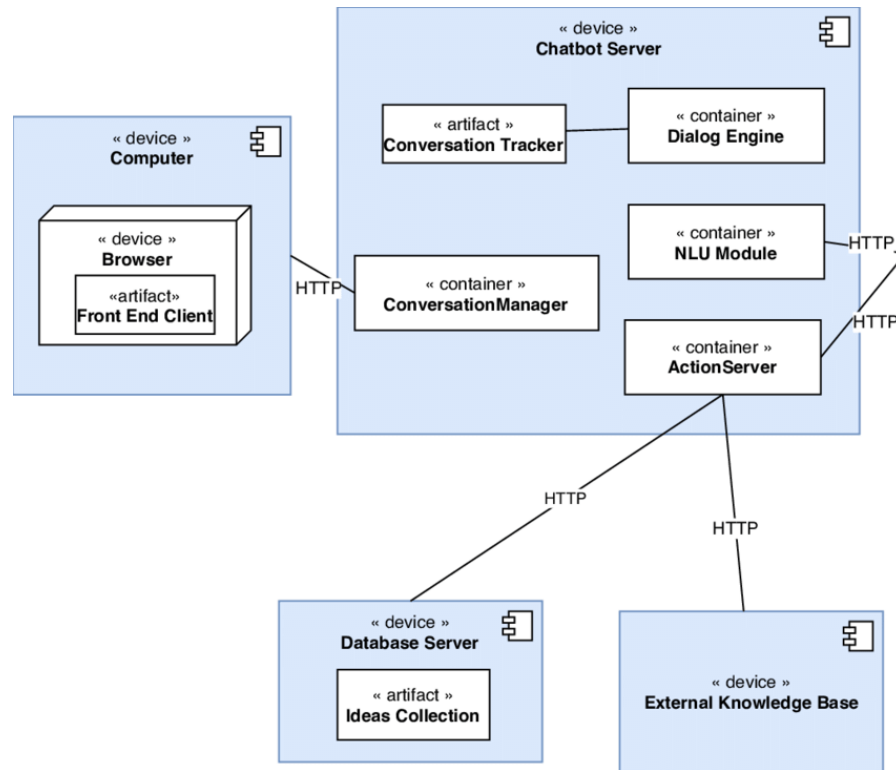
Fig 3.9. Dipolyment Diagram for Firebase backend

Deployment diagrams are used to visualize the topology of the physical components of a system, where the software components are deployed.

Deployment diagrams are used to describe the static deployment view of a system. Deployment diagrams consist of nodes and their relationships.The term Deployment itself describes the purpose of the diagram. Deployment diagrams are used for describing the hardware components, where software components are deployed. Component diagrams and deployment diagrams are closely related.

Chapter 4

Screenshot
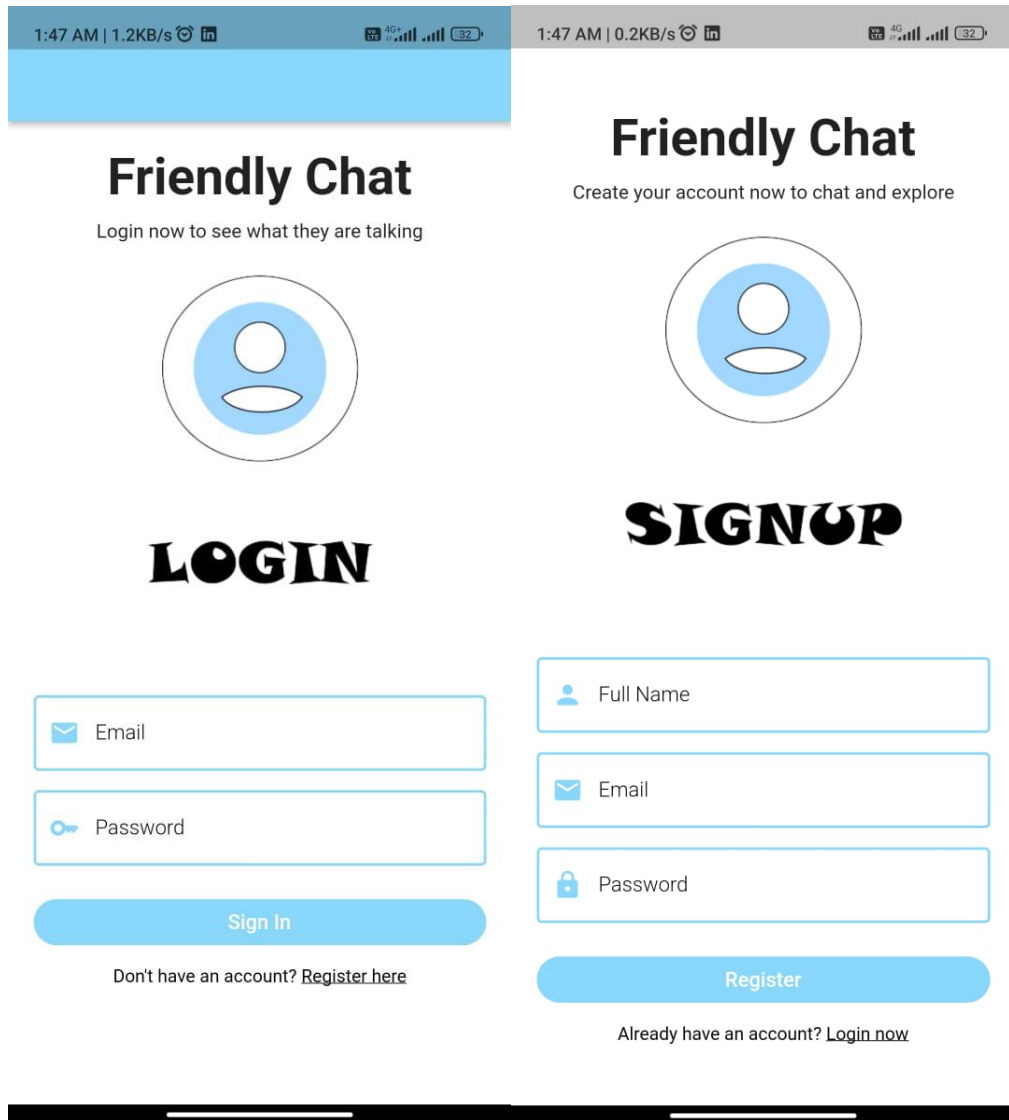
Figure 4.1: Login page / Signup page of Application

Fig 4.1: Information Page of User
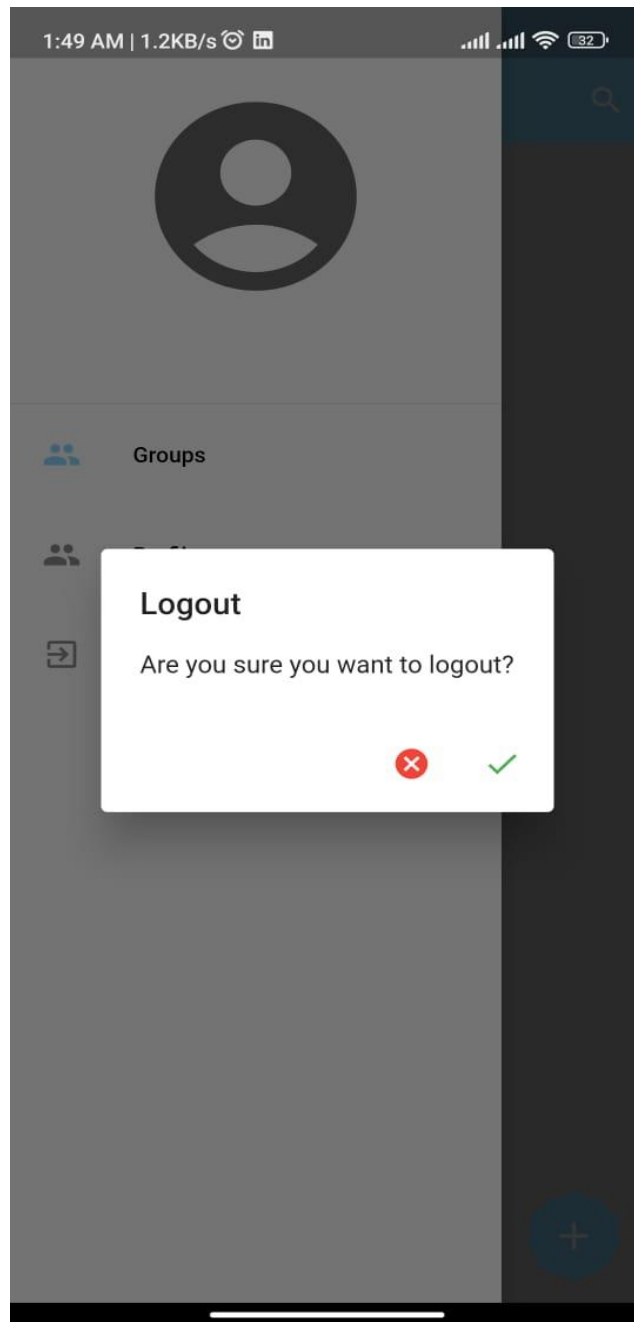
Fig 4.2 Logout Page
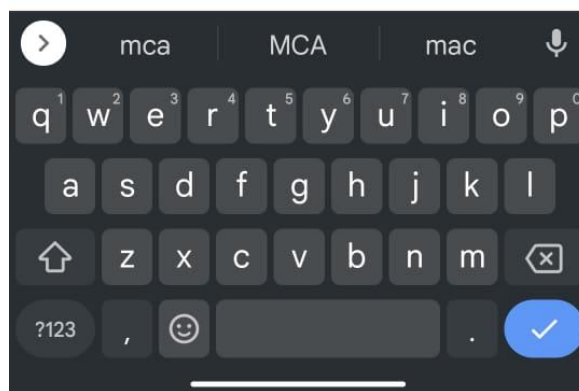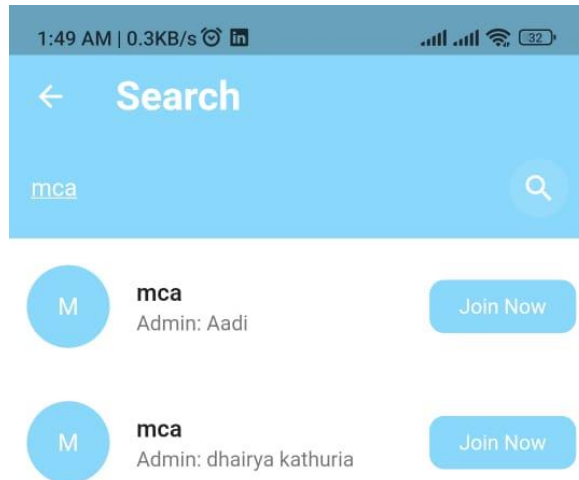
Fig 4.3 Search Page
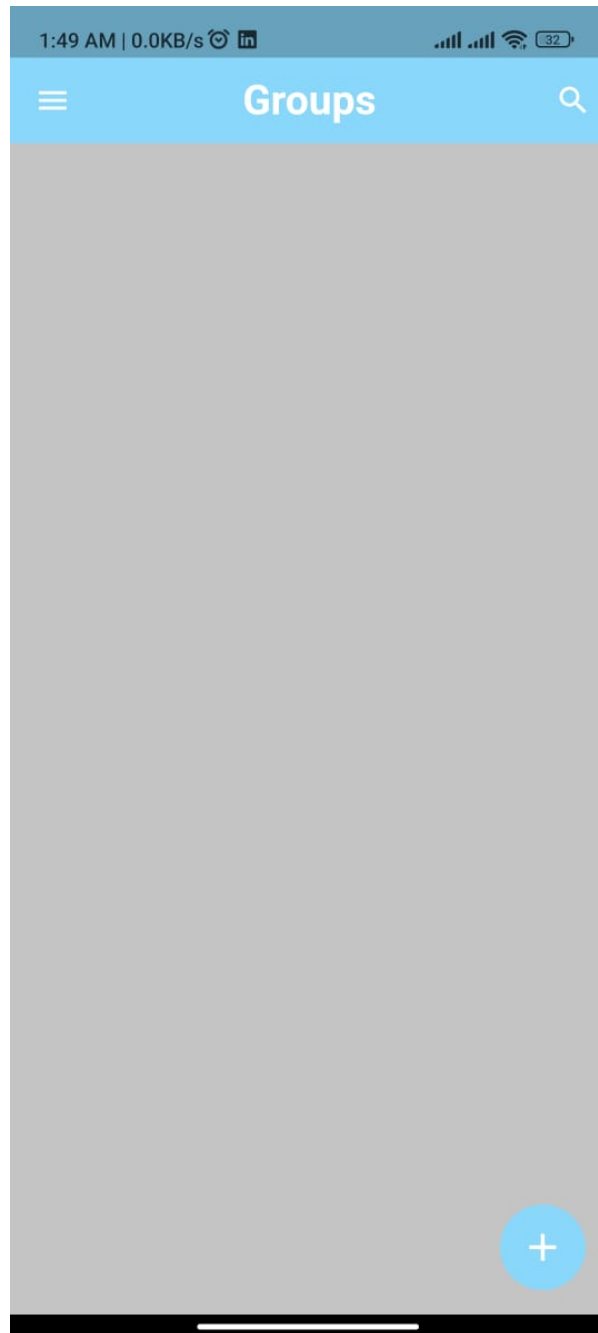
Fig 4.4 Group Page
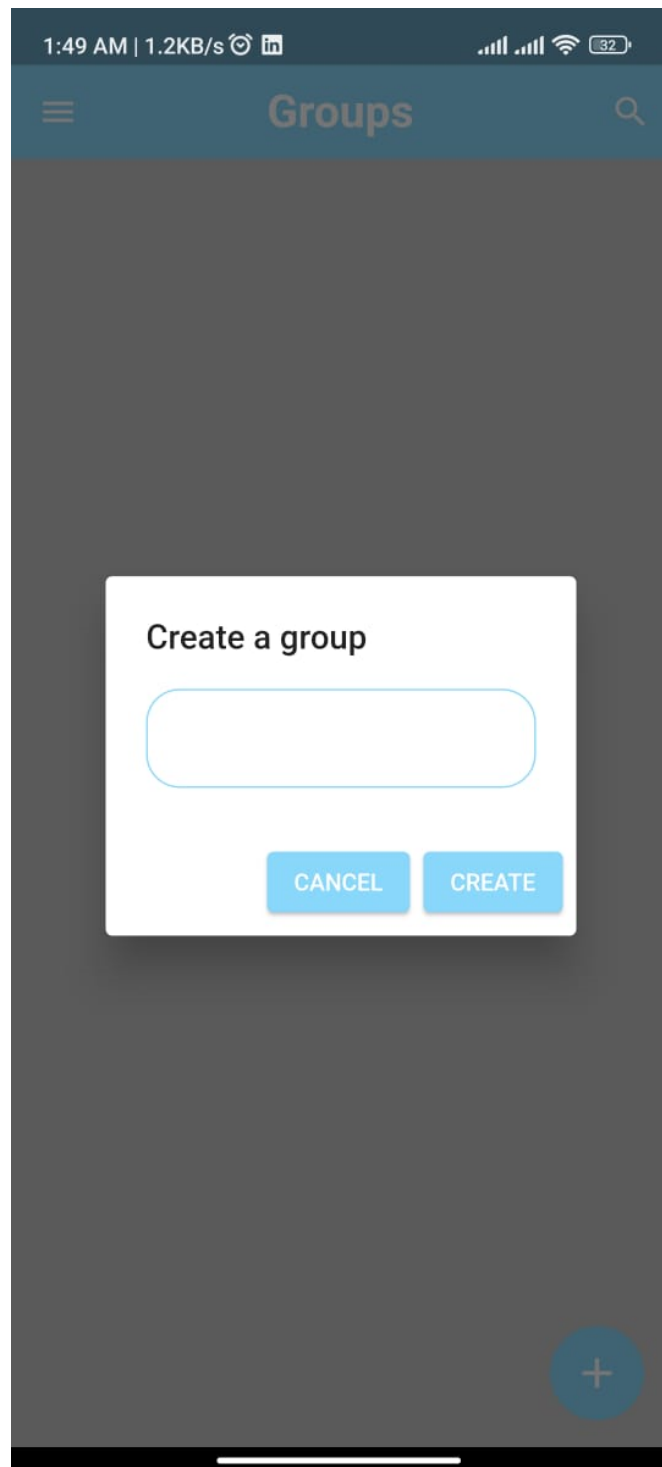
Fig 4.5 Create Group Page

Chapter - 5

Modules wise code

Main.dart

```dart
import 'package:chat_app/helper/helper_function.dart';
import 'package:chat_app/pages/auth/login_page.dart';
import 'package:chat_app/pages/home_page.dart';
import 'package:chat_app/shared/contants.dart';
import 'package:firebase_core/firebase_core.dart';
import 'package:flutter/material.dart';
import 'package:flutter/foundation.dart';

void main() async {
  WidgetsFlutterBinding.ensureInitialized();

  if (kIsWeb) {
    //run initilizatio for web
    await Firebase.initializeApp(
        options: FirebaseOptions(
            apiKey: Constants.apiKey,
            appId: Constants.appId,
            messagingSenderId: Constants.messagingSenderId,
            projectId: Constants.projectId));
  } else {
    //for app
    await Firebase.initializeApp();
  }

  runApp(const MyApp());
}

class MyApp extends StatefulWidget {
  const MyApp({super.key});

  @override
  State<MyApp> createState() => _MyAppState();
}

class _MyAppState extends State<MyApp> {
```

```dart
  bool _isSignedIn = false;

  @override
  void initState() {
    // TODO: implement initState
    getUserLoggedInStatus();
    super.initState();
  }

  getUserLoggedInStatus() async {
    await HelperFunctions.getUserLoggedInStatus().then((value) {
      if (value != null) {
        setState(() {
          _isSignedIn = value;
        });
      }
    });
  }

  @override
  Widget build(BuildContext context) {
    return MaterialApp(
      debugShowCheckedModeBanner: false,
      theme: ThemeData(
          primaryColor: Constants().primaryColor,
          scaffoldBackgroundColor: Colors.white),
      home: _isSignedIn ? const HomePage() : const LoginPage(),
    );
  }
}
```

Register_page.dart

```dart
import 'package:chat_app/helper/helper_function.dart';
import 'package:chat_app/pages/auth/login_page.dart';
import 'package:chat_app/pages/home_page.dart';
import 'package:chat_app/services/auth_services.dart';
import 'package:chat_app/widgets/widget.dart';
```

```dart
import 'package:flutter/gestures.dart';
import 'package:flutter/material.dart';

class RegisterPage extends StatefulWidget {
  const RegisterPage({Key? key}) : super(key: key);

  @override
  State<RegisterPage> createState() => _RegisterPageState();
}

class _RegisterPageState extends State<RegisterPage> {
  bool _isLoading = false;
  final formKey = GlobalKey<FormState>();
  String email = "";
  String password = "";
  String fullName = "";
  AuthService authService = AuthService();
  @override
  Widget build(BuildContext context) {
    return Scaffold(
      body: _isLoading
          ? Center(
              child: CircularProgressIndicator(
                  color: Theme.of(context).primaryColor))
          : SingleChildScrollView(
              child: Padding(
                padding:
                    const EdgeInsets.symmetric(horizontal: 20, vertical:
80),
                child: Form(
                    key: formKey,
                    child: Column(
                      mainAxisAlignment: MainAxisAlignment.center,
                      crossAxisAlignment: CrossAxisAlignment.center,
                      children: <Widget>[
                        const Text(
                          "Friendly Chat",
                          style: TextStyle(
                              fontSize: 40, fontWeight: FontWeight.bold),
                        ),
                        const SizedBox(height: 10),
                        const Text(
                            "Create your account now to chat and explore",
                            style: TextStyle(
                                fontSize: 15, fontWeight: FontWeight.w400)),
```

```dart
            Image.asset("assets/register.png"),
            TextFormField(
              decoration: textInputDecoration.copyWith(
                  labelText: "Full Name",
                  prefixIcon: Icon(
                    Icons.person,
                    color: Theme.of(context).primaryColor,
                  )),
              onChanged: (val) {
                setState(() {
                  fullName = val;
                });
              },
              validator: (val) {
                if (val!.isNotEmpty) {
                  return null;
                } else {
                  return "Name cannot be empty";
                }
              },
            ),
            const SizedBox(
              height: 15,
            ),
            TextFormField(
              decoration: textInputDecoration.copyWith(
                  labelText: "Email",
                  prefixIcon: Icon(
                    Icons.email,
                    color: Theme.of(context).primaryColor,
                  )),
              onChanged: (val) {
                setState(() {
                  email = val;
                });
              },

              // check tha validation
              validator: (val) {
                return RegExp(
                            r"^[a-zA-Z0-9.a-zA-Z0-9.!#$%&'*+-
/=?^_`{|}~]+@[a-zA-Z0-9]+\.[a-zA-Z]+")
                        .hasMatch(val!)
                    ? null
                    : "Please enter a valid email";
```

```dart
              },
            ),
            const SizedBox(height: 15),
            TextFormField(
              obscureText: true,
              decoration: textInputDecoration.copyWith(
                  labelText: "Password",
                  prefixIcon: Icon(
                    Icons.lock,
                    color: Theme.of(context).primaryColor,
                  )),
              validator: (val) {
                if (val!.length < 6) {
                  return "Password must be at least 6
characters";
                } else {
                  return null;
                }
              },
              onChanged: (val) {
                setState(() {
                  password = val;
                });
              },
            ),
            const SizedBox(
              height: 20,
            ),
            SizedBox(
              width: double.infinity,
              child: ElevatedButton(
                style: ElevatedButton.styleFrom(
                    primary: Theme.of(context).primaryColor,
                    elevation: 0,
                    shape: RoundedRectangleBorder(
                        borderRadius:
BorderRadius.circular(30))),
                child: const Text(
                  "Register",
                  style:
                      TextStyle(color: Colors.white, fontSize:
16),
                ),
                onPressed: () {
                  register();
```

```dart
                    },
                  ),
                ),
                const SizedBox(
                  height: 10,
                ),
                Text.rich(TextSpan(
                  text: "Already have an account? ",
                  style: const TextStyle(
                      color: Colors.black, fontSize: 14),
                  children: <TextSpan>[
                    TextSpan(
                        text: "Login now",
                        style: const TextStyle(
                            color: Colors.black,
                            decoration: TextDecoration.underline),
                        recognizer: TapGestureRecognizer()
                          ..onTap = () {
                            nextScreen(context, const LoginPage());
                          }),
                  ],
                )),
              ],
            )),
          ),
        ),
    );
}

register() async {
  if (formKey.currentState!.validate()) {
    setState(() {
      _isLoading = true;
    });
    await authService
        .registerUserWithEmailandPassword(fullName, email, password)
        .then((value) async {
      if (value == true) {
        // saving the shared preference state
        await HelperFunctions.saveUserLoggedInStatus(true);
        await HelperFunctions.saveUserEmailSF(email);
        await HelperFunctions.saveUserNameSF(fullName);
        nextScreenReplace(context, const HomePage());
      } else {
        showSnackbar(context, Colors.red, value);
```

```
        setState(() {
          _isLoading = false;
        });
      }
    });
  }
}
```

Login page.dart

```dart
import 'package:chat_app/helper/helper_function.dart';
import 'package:chat_app/pages/auth/register_page.dart';
import 'package:chat_app/pages/home_page.dart';
import 'package:chat_app/services/auth_services.dart';
import 'package:chat_app/services/database_service.dart';
import 'package:chat_app/widgets/widget.dart';
import 'package:cloud_firestore/cloud_firestore.dart';
import 'package:firebase_auth/firebase_auth.dart';
import 'package:flutter/gestures.dart';
import 'package:flutter/material.dart';

class LoginPage extends StatefulWidget {
  const LoginPage({super.key});

  @override
  State<LoginPage> createState() => _LoginPageState();
}

class _LoginPageState extends State<LoginPage> {
  final formKey = GlobalKey<FormState>();
  String email = "";
  String password = "";
  bool _isLoading = false;
  AuthService authService = AuthService();
  @override
  Widget build(BuildContext context) {
    return Scaffold(
      appBar: AppBar(
        backgroundColor: Theme.of(context).primaryColor,
```

```dart
        ),
      body: _isLoading
        ? Center(
            child: CircularProgressIndicator(
                color: Theme.of(context).primaryColor),
          )
        : SingleChildScrollView(
            child: Padding(
              padding:
                  const EdgeInsets.symmetric(horizontal: 20, vertical:
20),
              child: Form(
                key: formKey,
                child: Column(
                  mainAxisAlignment: MainAxisAlignment.center,
                  crossAxisAlignment: CrossAxisAlignment.center,
                  children: <Widget>[
                    const Text(
                      "Friendly Chat",
                      style: TextStyle(
                          fontSize: 40, fontWeight: FontWeight.bold),
                    ),
                    const SizedBox(height: 10),
                    const Text(
                      "Login now to see what they are talking",
                      style: TextStyle(
                          fontSize: 15, fontWeight: FontWeight.w400),
                    ),
                    Image.asset("assets/login.png"),
                    TextFormField(
                      decoration: textInputDecoration.copyWith(
                        labelText: "Email",
                        prefixIcon: Icon(
                          Icons.email,
                          color: Theme.of(context).primaryColor,
                        ),
                      ),
                      onChanged: (value) {
                        setState(() {
                          email = value;
                        });
                      },
                      validator: (val) {
                        return RegExp(
```

```dart
                                    r"^[a-zA-Z0-9.a-zA-Z0-9.!#$%&'*+-
/=?^_`{|}~]+@[a-zA-Z0-9]+\.[a-zA-Z]+")
                                .hasMatch(val!)
                        ? null
                        : "Please enter a valid email";
                },
            ),
            const SizedBox(
              height: 15,
            ),
            TextFormField(
              obscureText: true,
              decoration: textInputDecoration.copyWith(
                labelText: "Password",
                prefixIcon: Icon(
                  Icons.key,
                  color: Theme.of(context).primaryColor,
                ),
              ),
              validator: (value) {
                if (value!.length < 6) {
                  return ("Password must be at least 6
characters");
                } else {
                  return (null);
                }
              },
              onChanged: (value) {
                setState(() {
                  password = value;
                });
              },
            ),
            const SizedBox(
              height: 20,
            ),
            SizedBox(
              width: double.infinity,
              child: ElevatedButton(
                style: ElevatedButton.styleFrom(
                    primary: Theme.of(context).primaryColor,
                    elevation: 0,
                    shape: RoundedRectangleBorder(
                        borderRadius: BorderRadius.circular(30))),
                child: const Text("Sign In",
```

```dart
                              style:
                                  TextStyle(color: Colors.white, fontSize:
16)),
                          onPressed: () {
                            login();
                          },
                        ),
                      ),
                      const SizedBox(
                        height: 10,
                      ),

                      Text.rich(
                        TextSpan(
                            text: "Don't have an account? ",
                            style: const TextStyle(
                                color: Colors.black, fontSize: 14),
                            children: <TextSpan>[
                              TextSpan(
                                  text: "Register here",
                                  style: const TextStyle(
                                      color: Colors.black,
                                      decoration: TextDecoration.underline),
                                  recognizer: TapGestureRecognizer()
                                    ..onTap = () {
                                      nextScreen(context, RegisterPage());
                                    }),
                            ]),
                      )
                    ],
                  ),
                ),
              ),
            ),
          );
  }

  login() async {
    if (formKey.currentState!.validate()) {
      setState(() {
        _isLoading = true;
      });
      await authService
          .loginWithUserNameandPassword(email, password)
          .then((value) async {
```

```dart
        if (value == true) {
          QuerySnapshot snapshot =
              await DatabaseService(uid:
FirebaseAuth.instance.currentUser!.uid)
                  .gettingUserData(email);
          // saving the values to our shared preferences
          await HelperFunctions.saveUserLoggedInStatus(true);
          await HelperFunctions.saveUserEmailSF(email);
          await
HelperFunctions.saveUserNameSF(snapshot.docs[0]['fullName']);
          nextScreenReplace(context, const HomePage());
        } else {
          showSnackbar(context, Colors.red, value);
          setState(() {
            _isLoading = false;
          });
        }
      });
    }
  }
}
```

Auth_service.dart

```dart
// import 'package:chatapp_firebase/helper/helper_function.dart';
// import 'package:chatapp_firebase/service/database_service.dart';
import 'package:chat_app/helper/helper_function.dart';
import 'package:chat_app/services/database_service.dart';
import 'package:firebase_auth/firebase_auth.dart';

class AuthService {
  final FirebaseAuth firebaseAuth = FirebaseAuth.instance;

  // Login
  Future loginWithUserNameandPassword(String email, String password) async {
    try {
      User user = (await firebaseAuth.signInWithEmailAndPassword(
          email: email, password: password))
```

```dart
          .user!;

      if (user != null) {
        return true;
      }
    } on FirebaseAuthException catch (e) {
      return e.message;
    }
  }

  // register
  Future registerUserWithEmailandPassword(
      String fullName, String email, String password) async {
    try {
      User user = (await firebaseAuth.createUserWithEmailAndPassword(
              email: email, password: password))
          .user!;

      if (user != null) {
        // call our database service to update the user data.
        await DatabaseService(uid: user.uid).savingUserData(fullName,
email);
        return true;
      }
    } on FirebaseAuthException catch (e) {
      return e.message;
    }
  }

  // signout
  Future signOut() async {
    try {
      await HelperFunctions.saveUserLoggedInStatus(false);
      await HelperFunctions.saveUserEmailSF("");
      await HelperFunctions.saveUserNameSF("");
      await firebaseAuth.signOut();
    } catch (e) {
      return null;
    }
  }
}
```

Database_service.dart

```dart
import 'package:cloud_firestore/cloud_firestore.dart';

class DatabaseService {
  final String? uid;
  DatabaseService({this.uid});

  // reference for our collections
  final CollectionReference userCollection =
      FirebaseFirestore.instance.collection("users");
  final CollectionReference groupCollection =
      FirebaseFirestore.instance.collection("groups");

  // saving the userdata
  Future savingUserData(String fullName, String email) async {
    return await userCollection.doc(uid).set({
      "fullName": fullName,
      "email": email,
      "groups": [],
      "profilePic": "",
      "uid": uid,
    });
  }

  // getting user data
  Future gettingUserData(String email) async {
    QuerySnapshot snapshot =
        await userCollection.where("email", isEqualTo: email).get();
    return snapshot;
  }

  // get user groups
  getUserGroups() async {
    return userCollection.doc(uid).snapshots();
  }

  // creating a group
```

```dart
Future createGroup(String userName, String id, String groupName) async {
  DocumentReference groupDocumentReference = await groupCollection.add({
    "groupName": groupName,
    "groupIcon": "",
    "admin": "${id}_$userName",
    "members": [],
    "groupId": "",
    "recentMessage": "",
    "recentMessageSender": "",
  });
  // update the members
  await groupDocumentReference.update({
    "members": FieldValue.arrayUnion(["${uid}_$userName"]),
    "groupId": groupDocumentReference.id,
  });

  DocumentReference userDocumentReference = userCollection.doc(uid);
  return await userDocumentReference.update({
    "groups":
        FieldValue.arrayUnion(["${groupDocumentReference.id}_$groupName"])
  });
}

// getting the chats
getChats(String groupId) async {
  return groupCollection
      .doc(groupId)
      .collection("messages")
      .orderBy("time")
      .snapshots();
}

Future getGroupAdmin(String groupId) async {
  DocumentReference d = groupCollection.doc(groupId);
  DocumentSnapshot documentSnapshot = await d.get();
  return documentSnapshot['admin'];
}

// get group members
getGroupMembers(groupId) async {
  return groupCollection.doc(groupId).snapshots();
}

// search
searchByName(String groupName) {
```

```dart
    return groupCollection.where("groupName", isEqualTo: groupName).get();
  }

  // function -> bool
  Future<bool> isUserJoined(
      String groupName, String groupId, String userName) async {
    DocumentReference userDocumentReference = userCollection.doc(uid);
    DocumentSnapshot documentSnapshot = await userDocumentReference.get();

    List<dynamic> groups = await documentSnapshot['groups'];
    if (groups.contains("${groupId}_$groupName")) {
      return true;
    } else {
      return false;
    }
  }

  // toggling the group join/exit
  Future toggleGroupJoin(
      String groupId, String userName, String groupName) async {
    // doc reference
    DocumentReference userDocumentReference = userCollection.doc(uid);
    DocumentReference groupDocumentReference = groupCollection.doc(groupId);

    DocumentSnapshot documentSnapshot = await userDocumentReference.get();
    List<dynamic> groups = await documentSnapshot['groups'];

    // if user has our groups -> then remove then or also in other part re
join
    if (groups.contains("${groupId}_$groupName")) {
      await userDocumentReference.update({
        "groups": FieldValue.arrayRemove(["${groupId}_$groupName"])
      });
      await groupDocumentReference.update({
        "members": FieldValue.arrayRemove(["${uid}_$userName"])
      });
    } else {
      await userDocumentReference.update({
        "groups": FieldValue.arrayUnion(["${groupId}_$groupName"])
      });
      await groupDocumentReference.update({
        "members": FieldValue.arrayUnion(["${uid}_$userName"])
      });
    }
  }
```

```dart
  // send message
  sendMessage(String groupId, Map<String, dynamic> chatMessageData) async {
    groupCollection.doc(groupId).collection("messages").add(chatMessageData)
;

    groupCollection.doc(groupId).update({
      "recentMessage": chatMessageData['message'],
      "recentMessageSender": chatMessageData['sender'],
      "recentMessageTime": chatMessageData['time'].toString(),
    });
  }
}
```

Widget.dart

```dart
import 'package:flutter/material.dart';

const textInputDecoration = InputDecoration(
  labelStyle: TextStyle(color: Colors.black, fontWeight: FontWeight.w300),
  focusedBorder: OutlineInputBorder(
      borderSide:
          BorderSide(color: Color.fromARGB(255, 137, 215, 251), width: 2)),
  enabledBorder: OutlineInputBorder(
      borderSide:
          BorderSide(color: Color.fromARGB(255, 137, 215, 251), width: 2)),
  errorBorder: OutlineInputBorder(
      borderSide:
          BorderSide(color: Color.fromARGB(255, 137, 215, 251), width: 2)),
);
void nextScreen(context, page) {
  Navigator.push(context, MaterialPageRoute(builder: (context) => page));
}

void nextScreenReplace(context, page) {
  Navigator.pushReplacement(
      context, MaterialPageRoute(builder: (context) => page));
}

void showSnackbar(context, color, message) {
  ScaffoldMessenger.of(context).showSnackBar(
```

```
      SnackBar(
        content: Text(
          message,
          style: const TextStyle(fontSize: 14),
        ),
        backgroundColor: color,
        duration: const Duration(seconds: 2),
        action: SnackBarAction(
          label: "OK",
          onPressed: () {},
          textColor: Colors.white,
        ),
      ),
    );
}
```

Hepler_function.dart

```dart
import 'package:shared_preferences/shared_preferences.dart';

class HelperFunctions {
  //keys
  static String userLoggedInKey = "LOGGEDINKEY";
  static String userNameKey = "USERNAMEKEY";
  static String userEmailKey = "USEREMAILKEY";

  // saving the data to SF

  static Future<bool> saveUserLoggedInStatus(bool isUserLoggedIn) async {
    SharedPreferences sf = await SharedPreferences.getInstance();
    return await sf.setBool(userLoggedInKey, isUserLoggedIn);
  }

  static Future<bool> saveUserNameSF(String userName) async {
    SharedPreferences sf = await SharedPreferences.getInstance();
    return await sf.setString(userNameKey, userName);
  }
```

```dart
  static Future<bool> saveUserEmailSF(String userEmail) async {
    SharedPreferences sf = await SharedPreferences.getInstance();
    return await sf.setString(userEmailKey, userEmail);
  }

  // getting the data from SF

  static Future<bool?> getUserLoggedInStatus() async {
    SharedPreferences sf = await SharedPreferences.getInstance();
    return sf.getBool(userLoggedInKey);
  }

  static Future<String?> getUserEmailFromSF() async {
    SharedPreferences sf = await SharedPreferences.getInstance();
    return sf.getString(userEmailKey);
  }

  static Future<String?> getUserNameFromSF() async {
    SharedPreferences sf = await SharedPreferences.getInstance();
    return sf.getString(userNameKey);
  }
}
```

Home_page.dart

```dart
import 'package:chat_app/helper/helper_function.dart';
import 'package:chat_app/pages/auth/login_page.dart';
import 'package:chat_app/pages/profile_page.dart';
import 'package:chat_app/pages/search_page.dart';
import 'package:chat_app/services/auth_services.dart';
import 'package:chat_app/services/database_service.dart';
import 'package:chat_app/widgets/group_tile.dart';
import 'package:chat_app/widgets/widget.dart';
import 'package:firebase_auth/firebase_auth.dart';
import 'package:flutter/material.dart';

class HomePage extends StatefulWidget {
  const HomePage({Key? key}) : super(key: key);
```

```dart
  @override
  State<HomePage> createState() => _HomePageState();
}

class _HomePageState extends State<HomePage> {
  String userName = "";
  String email = "";
  AuthService authService = AuthService();
  Stream? groups;
  bool _isLoading = false;
  String groupName = "";

  @override
  void initState() {
    super.initState();
    gettingUserData();
  }

  // string manipulation
  String getId(String res) {
    return res.substring(0, res.indexOf("_"));
  }

  String getName(String res) {
    return res.substring(res.indexOf("_") + 1);
  }

  gettingUserData() async {
    await HelperFunctions.getUserEmailFromSF().then((value) {
      setState(() {
        email = value!;
      });
    });
    await HelperFunctions.getUserNameFromSF().then((val) {
      setState(() {
        userName = val!;
      });
    });
    // getting the list of snapshots in our stream
    await DatabaseService(uid: FirebaseAuth.instance.currentUser!.uid)
        .getUserGroups()
        .then((snapshot) {
      setState(() {
        groups = snapshot;
```

```dart
          });
        });
    }

    @override
    Widget build(BuildContext context) {
      return Scaffold(
        appBar: AppBar(
          actions: [
            IconButton(
                onPressed: () {
                  nextScreen(context, const SearchPage());
                },
                icon: const Icon(
                  Icons.search,
                ))
          ],
          elevation: 0,
          centerTitle: true,
          backgroundColor: Theme.of(context).primaryColor,
          title: const Text(
            "Groups",
            style: TextStyle(
                color: Colors.white, fontWeight: FontWeight.bold, fontSize:
27),
          ),
        ),
        drawer: Drawer(
            child: ListView(
          padding: const EdgeInsets.symmetric(vertical: 50),
          children: <Widget>[
            Icon(
              Icons.account_circle,
              size: 150,
              color: Colors.grey[700],
            ),
            const SizedBox(
              height: 15,
            ),
            Text(
              userName,
              textAlign: TextAlign.center,
              style: const TextStyle(fontWeight: FontWeight.bold),
            ),
            const SizedBox(
```

```
        height: 30,
      ),
      const Divider(
        height: 2,
      ),
      ListTile(
        onTap: () {},
        selectedColor: Theme.of(context).primaryColor,
        selected: true,
        contentPadding:
            const EdgeInsets.symmetric(horizontal: 20, vertical: 5),
        leading: const Icon(Icons.group),
        title: const Text(
          "Groups",
          style: TextStyle(color: Colors.black),
        ),
      ),
      ListTile(
        onTap: () {
          nextScreenReplace(
              context,
              ProfilePage(
                userName: userName,
                email: email,
              ));
        },
        contentPadding:
            const EdgeInsets.symmetric(horizontal: 20, vertical: 5),
        leading: const Icon(Icons.group),
        title: const Text(
          "Profile",
          style: TextStyle(color: Colors.black),
        ),
      ),
      ListTile(
        onTap: () async {
          showDialog(
              barrierDismissible: false,
              context: context,
              builder: (context) {
                return AlertDialog(
                  title: const Text("Logout"),
                  content: const Text("Are you sure you want to
logout?"),
                  actions: [
```

```dart
                    IconButton(
                      onPressed: () {
                        Navigator.pop(context);
                      },
                      icon: const Icon(
                        Icons.cancel,
                        color: Colors.red,
                      ),
                    ),
                    IconButton(
                      onPressed: () async {
                        await authService.signOut();
                        Navigator.of(context).pushAndRemoveUntil(
                            MaterialPageRoute(
                                builder: (context) => const
LoginPage()),
                            (route) => false);
                      },
                      icon: const Icon(
                        Icons.done,
                        color: Colors.green,
                      ),
                    ),
                  ],
                );
              });
        },
        contentPadding:
            const EdgeInsets.symmetric(horizontal: 20, vertical: 5),
        leading: const Icon(Icons.exit_to_app),
        title: const Text(
          "Logout",
          style: TextStyle(color: Colors.black),
        ),
      )
    ],
  )),
  body: groupList(),
  floatingActionButton: FloatingActionButton(
    onPressed: () {
      popUpDialog(context);
    },
    elevation: 0,
    backgroundColor: Theme.of(context).primaryColor,
    child: const Icon(
```

```dart
          Icons.add,
          color: Colors.white,
          size: 30,
        ),
      ),
    );
  }

  popUpDialog(BuildContext context) {
    showDialog(
        barrierDismissible: false,
        context: context,
        builder: (context) {
          return StatefulBuilder(builder: ((context, setState) {
            return AlertDialog(
              title: const Text(
                "Create a group",
                textAlign: TextAlign.left,
              ),
              content: Column(
                mainAxisSize: MainAxisSize.min,
                children: [
                  _isLoading == true
                      ? Center(
                          child: CircularProgressIndicator(
                              color: Theme.of(context).primaryColor),
                        )
                      : TextField(
                          onChanged: (val) {
                            setState(() {
                              groupName = val;
                            });
                          },
                          style: const TextStyle(color: Colors.black),
                          decoration: InputDecoration(
                              enabledBorder: OutlineInputBorder(
                                  borderSide: BorderSide(
                                      color:
Theme.of(context).primaryColor),
                                  borderRadius: BorderRadius.circular(20)),
                              errorBorder: OutlineInputBorder(
                                  borderSide:
                                      const BorderSide(color: Colors.red),
                                  borderRadius: BorderRadius.circular(20)),
                              focusedBorder: OutlineInputBorder(
```

```dart
                                    borderSide: BorderSide(
                                        color:
Theme.of(context).primaryColor),
                                    borderRadius: BorderRadius.circular(20))),
                    ),
                ],
              ),
              actions: [
                ElevatedButton(
                  onPressed: () {
                    Navigator.of(context).pop();
                  },
                  style: ElevatedButton.styleFrom(
                      primary: Theme.of(context).primaryColor),
                  child: const Text("CANCEL"),
                ),
                ElevatedButton(
                  onPressed: () async {
                    if (groupName != "") {
                      setState(() {
                        _isLoading = true;
                      });
                      DatabaseService(
                              uid: FirebaseAuth.instance.currentUser!.uid)
                          .createGroup(userName,
                              FirebaseAuth.instance.currentUser!.uid,
groupName)
                          .whenComplete(() {
                        _isLoading = false;
                      });
                      Navigator.of(context).pop();
                      showSnackbar(
                          context, Colors.green, "Group created
successfully.");
                    }
                  },
                  style: ElevatedButton.styleFrom(
                      primary: Theme.of(context).primaryColor),
                  child: const Text("CREATE"),
                )
              ],
            );
          }));
    });
  }
```

```dart
  groupList() {
    return StreamBuilder(
      stream: groups,
      builder: (context, AsyncSnapshot snapshot) {
        // make some checks
        if (snapshot.hasData) {
          if (snapshot.data['groups'] != null) {
            if (snapshot.data['groups'].length != 0) {
              return ListView.builder(
                itemCount: snapshot.data['groups'].length,
                itemBuilder: (context, index) {
                  int reverseIndex = snapshot.data['groups'].length - index
- 1;

                  return GroupTile(
                      groupId: getId(snapshot.data['groups'][reverseIndex]),
                      groupName:
getName(snapshot.data['groups'][reverseIndex]),
                      userName: snapshot.data['fullName']);
                },
              );
            } else {
              return noGroupWidget();
            }
          } else {
            return noGroupWidget();
          }
        } else {
          return Center(
            child: CircularProgressIndicator(
                color: Theme.of(context).primaryColor),
          );
        }
      },
    );
  }

  noGroupWidget() {
    return Container(
      padding: const EdgeInsets.symmetric(horizontal: 25),
      child: Column(
        mainAxisAlignment: MainAxisAlignment.center,
        crossAxisAlignment: CrossAxisAlignment.center,
        children: [
          GestureDetector(
```

```
        onTap: () {
          popUpDialog(context);
        },
        child: Icon(
          Icons.add_circle,
          color: Colors.grey[700],
          size: 75,
        ),
      ),
      const SizedBox(
        height: 20,
      ),
      const Text(
        "You've not joined any groups, tap on the add icon to create a
group or also search from top search button.",
        textAlign: TextAlign.center,
      )
    ],
  ),
);
  }
}
```

Group_tile.dart

```
import 'package:chat_app/pages/chat_page.dart';
import 'package:chat_app/widgets/widget.dart';
import 'package:flutter/material.dart';

class GroupTile extends StatefulWidget {
  final String userName;
  final String groupId;
  final String groupName;
  const GroupTile(
      {Key? key,
      required this.groupId,
      required this.groupName,
      required this.userName})
```

```dart
            : super(key: key);

  @override
  State<GroupTile> createState() => _GroupTileState();
}

class _GroupTileState extends State<GroupTile> {
  @override
  Widget build(BuildContext context) {
    return GestureDetector(
      onTap: () {
        nextScreen(
            context,
            ChatPage(
              groupId: widget.groupId,
              groupName: widget.groupName,
              userName: widget.userName,
            ));
      },
      child: Container(
        padding: const EdgeInsets.symmetric(vertical: 10, horizontal: 5),
        child: ListTile(
          leading: CircleAvatar(
            radius: 30,
            backgroundColor: Theme.of(context).primaryColor,
            child: Text(
              widget.groupName.substring(0, 1).toUpperCase(),
              textAlign: TextAlign.center,
              style: const TextStyle(
                  color: Colors.white, fontWeight: FontWeight.w500),
            ),
          ),
          title: Text(
            widget.groupName,
            style: const TextStyle(fontWeight: FontWeight.bold),
          ),
          subtitle: Text(
            "Join the conversation as ${widget.userName}",
            style: const TextStyle(fontSize: 13),
          ),
        ),
      ),
    );
  }
}
```

Message_tile.dart

```dart
import 'package:flutter/material.dart';

class MessageTile extends StatefulWidget {
  final String message;
  final String sender;
  final bool sentByMe;

  const MessageTile(
      {Key? key,
      required this.message,
      required this.sender,
      required this.sentByMe})
      : super(key: key);

  @override
  State<MessageTile> createState() => _MessageTileState();
}

class _MessageTileState extends State<MessageTile> {
  @override
  Widget build(BuildContext context) {
    return Container(
      padding: EdgeInsets.only(
          top: 4,
          bottom: 4,
          left: widget.sentByMe ? 0 : 24,
          right: widget.sentByMe ? 24 : 0),
      alignment: widget.sentByMe ? Alignment.centerRight :
Alignment.centerLeft,
      child: Container(
        margin: widget.sentByMe
            ? const EdgeInsets.only(left: 30)
            : const EdgeInsets.only(right: 30),
        padding:
            const EdgeInsets.only(top: 17, bottom: 17, left: 20, right: 20),
        decoration: BoxDecoration(
            borderRadius: widget.sentByMe
                ? const BorderRadius.only(
```

```dart
                    topLeft: Radius.circular(20),
                    topRight: Radius.circular(20),
                    bottomLeft: Radius.circular(20),
                  )
                : const BorderRadius.only(
                    topLeft: Radius.circular(20),
                    topRight: Radius.circular(20),
                    bottomRight: Radius.circular(20),
                  ),
          color: widget.sentByMe
              ? Theme.of(context).primaryColor
              : Colors.grey[700]),
      child: Column(
        crossAxisAlignment: CrossAxisAlignment.start,
        children: [
          Text(
            widget.sender.toUpperCase(),
            textAlign: TextAlign.start,
            style: const TextStyle(
                fontSize: 13,
                fontWeight: FontWeight.bold,
                color: Colors.white,
                letterSpacing: -0.5),
          ),
          const SizedBox(
            height: 8,
          ),
          Text(widget.message,
              textAlign: TextAlign.start,
              style: const TextStyle(fontSize: 16, color: Colors.white))
        ],
      ),
    ),
  );
}
}
```

Profile_page.dart

```dart
import 'package:chat_app/pages/auth/login_page.dart';
import 'package:chat_app/pages/home_page.dart';
import 'package:chat_app/services/auth_services.dart';
import 'package:chat_app/widgets/widget.dart';
import 'package:flutter/material.dart';

class ProfilePage extends StatefulWidget {
  String userName;
  String email;
  ProfilePage({Key? key, required this.email, required this.userName})
      : super(key: key);

  @override
  State<ProfilePage> createState() => _ProfilePageState();
}

class _ProfilePageState extends State<ProfilePage> {
  AuthService authService = AuthService();
  @override
  Widget build(BuildContext context) {
    return Scaffold(
      appBar: AppBar(
        backgroundColor: Theme.of(context).primaryColor,
        elevation: 0,
        title: const Text(
          "Profile",
          style: TextStyle(
              color: Colors.white, fontSize: 27, fontWeight:
FontWeight.bold),
        ),
      ),
      drawer: Drawer(
          child: ListView(
        padding: const EdgeInsets.symmetric(vertical: 50),
        children: <Widget>[
          Icon(
            Icons.account_circle,
            size: 150,
            color: Colors.grey[700],
          ),
          const SizedBox(
            height: 15,
          ),
          Text(
            widget.userName,
```

```dart
          textAlign: TextAlign.center,
          style: const TextStyle(fontWeight: FontWeight.bold),
        ),
        const SizedBox(
          height: 30,
        ),
        const Divider(
          height: 2,
        ),
        ListTile(
          onTap: () {
            nextScreen(context, const HomePage());
          },
          contentPadding:
              const EdgeInsets.symmetric(horizontal: 20, vertical: 5),
          leading: const Icon(Icons.group),
          title: const Text(
            "Groups",
            style: TextStyle(color: Colors.black),
          ),
        ),
        ListTile(
          onTap: () {},
          selected: true,
          selectedColor: Theme.of(context).primaryColor,
          contentPadding:
              const EdgeInsets.symmetric(horizontal: 20, vertical: 5),
          leading: const Icon(Icons.group),
          title: const Text(
            "Profile",
            style: TextStyle(color: Colors.black),
          ),
        ),
        ListTile(
          onTap: () async {
            showDialog(
                barrierDismissible: false,
                context: context,
                builder: (context) {
                  return AlertDialog(
                    title: const Text("Logout"),
                    content: const Text("Are you sure you want to
logout?"),
                    actions: [
                      IconButton(
```

```dart
                          onPressed: () {
                            Navigator.pop(context);
                          },
                          icon: const Icon(
                            Icons.cancel,
                            color: Colors.red,
                          ),
                        ),
                        IconButton(
                          onPressed: () async {
                            await authService.signOut();
                            Navigator.of(context).pushAndRemoveUntil(
                                MaterialPageRoute(
                                    builder: (context) => const
LoginPage()),
                                (route) => false);
                          },
                          icon: const Icon(
                            Icons.done,
                            color: Colors.green,
                          ),
                        ),
                      ],
                    );
                  });
            },
            contentPadding:
                const EdgeInsets.symmetric(horizontal: 20, vertical: 5),
            leading: const Icon(Icons.exit_to_app),
            title: const Text(
              "Logout",
              style: TextStyle(color: Colors.black),
            ),
          )
        ],
      )),
      body: Container(
        padding: const EdgeInsets.symmetric(horizontal: 40, vertical: 170),
        child: Column(
          mainAxisAlignment: MainAxisAlignment.start,
          children: [
            Icon(
              Icons.account_circle,
              size: 200,
              color: Colors.grey[700],
```

```dart
        ),
        const SizedBox(
          height: 15,
        ),
        Row(
          mainAxisAlignment: MainAxisAlignment.spaceBetween,
          children: [
            const Text("Full Name", style: TextStyle(fontSize: 17)),
            Text(widget.userName, style: const TextStyle(fontSize: 17)),
          ],
        ),
        const Divider(
          height: 20,
        ),
        Row(
          mainAxisAlignment: MainAxisAlignment.spaceBetween,
          children: [
            const Text("Email", style: TextStyle(fontSize: 17)),
            Text(widget.email, style: const TextStyle(fontSize: 17)),
          ],
        ),
      ],
    ),
  ),
);
  }
}
```

Search_page.dart

```dart
import 'package:chat_app/helper/helper_function.dart';
import 'package:chat_app/pages/chat_page.dart';
import 'package:chat_app/services/database_service.dart';
import 'package:chat_app/widgets/widget.dart';
import 'package:cloud_firestore/cloud_firestore.dart';
import 'package:firebase_auth/firebase_auth.dart';
import 'package:flutter/material.dart';
```

```dart
class SearchPage extends StatefulWidget {
  const SearchPage({Key? key}) : super(key: key);

  @override
  State<SearchPage> createState() => _SearchPageState();
}

class _SearchPageState extends State<SearchPage> {
  TextEditingController searchController = TextEditingController();
  bool isLoading = false;
  QuerySnapshot? searchSnapshot;
  bool hasUserSearched = false;
  String userName = "";
  bool isJoined = false;
  User? user;

  @override
  void initState() {
    super.initState();
    getCurrentUserIdandName();
  }

  getCurrentUserIdandName() async {
    await HelperFunctions.getUserNameFromSF().then((value) {
      setState(() {
        userName = value!;
      });
    });
    user = FirebaseAuth.instance.currentUser;
  }

  String getName(String r) {
    return r.substring(r.indexOf("_") + 1);
  }

  String getId(String res) {
    return res.substring(0, res.indexOf("_"));
  }

  @override
  Widget build(BuildContext context) {
    return Scaffold(
      appBar: AppBar(
        elevation: 0,
        backgroundColor: Theme.of(context).primaryColor,
```

```dart
        title: const Text(
          "Search",
          style: TextStyle(
              fontSize: 27, fontWeight: FontWeight.bold, color:
Colors.white),
        ),
      ),
      body: Column(
        children: [
          Container(
            color: Theme.of(context).primaryColor,
            padding: const EdgeInsets.symmetric(horizontal: 15, vertical:
10),
            child: Row(
              children: [
                Expanded(
                  child: TextField(
                    controller: searchController,
                    style: const TextStyle(color: Colors.white),
                    decoration: const InputDecoration(
                        border: InputBorder.none,
                        hintText: "Search groups....",
                        hintStyle:
                            TextStyle(color: Colors.white, fontSize: 16)),
                  ),
                ),
                GestureDetector(
                  onTap: () {
                    initiateSearchMethod();
                  },
                  child: Container(
                    width: 40,
                    height: 40,
                    decoration: BoxDecoration(
                        color: Colors.white.withOpacity(0.1),
                        borderRadius: BorderRadius.circular(40)),
                    child: const Icon(
                      Icons.search,
                      color: Colors.white,
                    ),
                  ),
                )
              ],
            ),
          ),
```

```
              isLoading
                 ? Center(
                      child: CircularProgressIndicator(
                           color: Theme.of(context).primaryColor),
                   )
                 : groupList(),
        ],
      ),
   );
}

initiateSearchMethod() async {
   if (searchController.text.isNotEmpty) {
     setState(() {
       isLoading = true;
     });
     await DatabaseService()
         .searchByName(searchController.text)
         .then((snapshot) {
       setState(() {
         searchSnapshot = snapshot;
         isLoading = false;
         hasUserSearched = true;
       });
     });
   }
}

groupList() {
   return hasUserSearched
       ? ListView.builder(
           shrinkWrap: true,
           itemCount: searchSnapshot!.docs.length,
           itemBuilder: (context, index) {
             return groupTile(
               userName,
               searchSnapshot!.docs[index]['groupId'],
               searchSnapshot!.docs[index]['groupName'],
               searchSnapshot!.docs[index]['admin'],
             );
           },
         )
       : Container();
}
```

```dart
  joinedOrNot(
      String userName, String groupId, String groupname, String admin) async
{

    await DatabaseService(uid: user!.uid)
        .isUserJoined(groupname, groupId, userName)
        .then((value) {
      setState(() {
        isJoined = value;
      });
    });
  }

  Widget groupTile(
      String userName, String groupId, String groupName, String admin) {
    // function to check whether user already exists in group
    joinedOrNot(userName, groupId, groupName, admin);
    return ListTile(
      contentPadding: const EdgeInsets.symmetric(horizontal: 10, vertical:
10),
      leading: CircleAvatar(
        radius: 30,
        backgroundColor: Theme.of(context).primaryColor,
        child: Text(
          groupName.substring(0, 1).toUpperCase(),
          style: const TextStyle(color: Colors.white),
        ),
      ),
      title:
          Text(groupName, style: const TextStyle(fontWeight:
FontWeight.w600)),
      subtitle: Text("Admin: ${getName(admin)}"),
      trailing: InkWell(
        onTap: () async {
          await DatabaseService(uid: user!.uid)
              .toggleGroupJoin(groupId, userName, groupName);
          if (isJoined) {
            setState(() {
              isJoined = !isJoined;
            });
            showSnackbar(context, Colors.green, "Successfully joined he
group");
            Future.delayed(const Duration(seconds: 2), () {
              nextScreen(
                  context,
                  ChatPage(
```

```
                        groupId: groupId,
                        groupName: groupName,
                        userName: userName));
            });
          } else {
            setState(() {
              isJoined = !isJoined;
              showSnackbar(context, Colors.red, "Left the group
$groupName");
            });
          }
        },
        child: isJoined
            ? Container(
                decoration: BoxDecoration(
                  borderRadius: BorderRadius.circular(10),
                  color: Colors.black,
                  border: Border.all(color: Colors.white, width: 1),
                ),
                padding:
                    const EdgeInsets.symmetric(horizontal: 20, vertical:
10),
                child: const Text(
                  "Joined",
                  style: TextStyle(color: Colors.white),
                ),
              )
            : Container(
                decoration: BoxDecoration(
                  borderRadius: BorderRadius.circular(10),
                  color: Theme.of(context).primaryColor,
                ),
                padding:
                    const EdgeInsets.symmetric(horizontal: 20, vertical:
10),
                child: const Text("Join Now",
                    style: TextStyle(color: Colors.white)),
              ),
      ),
    );
  }
}
```

Char_page.dart

```dart
import 'package:chat_app/pages/group_info.dart';
import 'package:chat_app/services/database_service.dart';
import 'package:chat_app/widgets/message_tile.dart';
import 'package:chat_app/widgets/widget.dart';
import 'package:cloud_firestore/cloud_firestore.dart';
import 'package:flutter/material.dart';

class ChatPage extends StatefulWidget {
  final String groupId;
  final String groupName;
  final String userName;
  const ChatPage(
      {Key? key,
      required this.groupId,
      required this.groupName,
      required this.userName})
      : super(key: key);

  @override
  State<ChatPage> createState() => _ChatPageState();
}

class _ChatPageState extends State<ChatPage> {
  Stream<QuerySnapshot>? chats;
  TextEditingController messageController = TextEditingController();
  String admin = "";

  @override
  void initState() {
    getChatandAdmin();
    super.initState();
  }

  getChatandAdmin() {
    DatabaseService().getChats(widget.groupId).then((val) {
      setState(() {
        chats = val;
      });
    });
    DatabaseService().getGroupAdmin(widget.groupId).then((val) {
      setState(() {
```

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```
        admin = val;
      });
    });
  }

  @override
  Widget build(BuildContext context) {
    return Scaffold(
      appBar: AppBar(
        centerTitle: true,
        elevation: 0,
        title: Text(widget.groupName),
        backgroundColor: Theme.of(context).primaryColor,
        actions: [
          IconButton(
              onPressed: () {
                nextScreen(
                    context,
                    GroupInfo(
                      groupId: widget.groupId,
                      groupName: widget.groupName,
                      adminName: admin,
                    ));
              },
              icon: const Icon(Icons.info))
        ],
      ),
      body: Stack(
        children: <Widget>[
          // chat messages here
          Container(
            width: MediaQuery.of(context).size.width,
            height: MediaQuery.of(context).size.height - 145,
            child: chatMessages(),
          ),
          Container(
            alignment: Alignment.bottomCenter,
            width: MediaQuery.of(context).size.width,
            height: MediaQuery.of(context).size.height,
            child: Container(
              padding: const EdgeInsets.symmetric(horizontal: 10, vertical:
10),
              color: Color.fromRGBO(113, 113, 113, .5),
              child: Row(children: [
                Expanded(
```

```dart
                child: TextFormField(
              controller: messageController,
              style: const TextStyle(color: Colors.white),
              decoration: const InputDecoration(
                hintText: "Send a message...",
                hintStyle: TextStyle(color: Colors.white, fontSize: 16),
                border: InputBorder.none,
              ),
            )),
            const SizedBox(
              width: 12,
            ),
            GestureDetector(
              onTap: () {
                sendMessage();
              },
              child: Container(
                height: 50,
                width: 50,
                decoration: BoxDecoration(
                  color: Theme.of(context).primaryColor,
                  borderRadius: BorderRadius.circular(30),
                ),
                child: const Center(
                    child: Icon(
                  Icons.send,
                  color: Colors.white,
                )),
              ),
            )
          ]),
        ),
      )
    ],
  ),
);
}

chatMessages() {
  return StreamBuilder(
    stream: chats,
    builder: (context, AsyncSnapshot snapshot) {
      return snapshot.hasData
          ? ListView.builder(
              itemCount: snapshot.data.docs.length,
```

```
              itemBuilder: (context, index) {
                return MessageTile(
                    message: snapshot.data.docs[index]['message'],
                    sender: snapshot.data.docs[index]['sender'],
                    sentByMe: widget.userName ==
                        snapshot.data.docs[index]['sender']);
              },
            )
          : Container();
      },
    );
  }

  sendMessage() {
    if (messageController.text.isNotEmpty) {
      Map<String, dynamic> chatMessageMap = {
        "message": messageController.text,
        "sender": widget.userName,
        "time": DateTime.now().millisecondsSinceEpoch,
      };

      DatabaseService().sendMessage(widget.groupId, chatMessageMap);
      setState(() {
        messageController.clear();
      });
    }
  }
}
```

Group_info.dart

```
import 'package:chat_app/pages/home_page.dart';
import 'package:chat_app/services/database_service.dart';
import 'package:chat_app/widgets/widget.dart';
import 'package:firebase_auth/firebase_auth.dart';
import 'package:flutter/material.dart';

class GroupInfo extends StatefulWidget {
```

```dart
  final String groupId;
  final String groupName;
  final String adminName;
  const GroupInfo(
      {Key? key,
      required this.adminName,
      required this.groupName,
      required this.groupId})
      : super(key: key);

  @override
  State<GroupInfo> createState() => _GroupInfoState();
}

class _GroupInfoState extends State<GroupInfo> {
  Stream? members;
  @override
  void initState() {
    getMembers();
    super.initState();
  }

  getMembers() async {
    DatabaseService(uid: FirebaseAuth.instance.currentUser!.uid)
        .getGroupMembers(widget.groupId)
        .then((val) {
      setState(() {
        members = val;
      });
    });
  }

  String getName(String r) {
    return r.substring(r.indexOf("_") + 1);
  }

  String getId(String res) {
    return res.substring(0, res.indexOf("_"));
  }

  @override
  Widget build(BuildContext context) {
    return Scaffold(
      appBar: AppBar(
        centerTitle: true,
```

```
        elevation: 0,
        backgroundColor: Theme.of(context).primaryColor,
        title: const Text("Group Info"),
        actions: [
          IconButton(
              onPressed: () {
                showDialog(
                    barrierDismissible: false,
                    context: context,
                    builder: (context) {
                      return AlertDialog(
                        title: const Text("Exit"),
                        content:
                            const Text("Are you sure you exit the group? "),
                        actions: [
                          IconButton(
                            onPressed: () {
                              Navigator.pop(context);
                            },
                            icon: const Icon(
                              Icons.cancel,
                              color: Colors.red,
                            ),
                          ),
                          IconButton(
                            onPressed: () async {
                              DatabaseService(
                                      uid: FirebaseAuth
                                          .instance.currentUser!.uid)
                                  .toggleGroupJoin(
                                      widget.groupId,
                                      getName(widget.adminName),
                                      widget.groupName)
                                  .whenComplete(() {
                                nextScreenReplace(context, const
HomePage());
                              });
                            },
                            icon: const Icon(
                              Icons.done,
                              color: Colors.green,
                            ),
                          ),
                        ],
                      );
```

```dart
        });
      },
      icon: const Icon(Icons.exit_to_app))
  ],
),
body: Container(
  padding: const EdgeInsets.symmetric(horizontal: 20, vertical: 20),
  child: Column(
    children: [
      Container(
        padding: const EdgeInsets.all(20),
        decoration: BoxDecoration(
          borderRadius: BorderRadius.circular(30),
          color: Theme.of(context).primaryColor.withOpacity(0.2)),
        child: Row(
          mainAxisAlignment: MainAxisAlignment.start,
          children: [
            CircleAvatar(
              radius: 30,
              backgroundColor: Theme.of(context).primaryColor,
              child: Text(
                widget.groupName.substring(0, 1).toUpperCase(),
                style: const TextStyle(
                    fontWeight: FontWeight.w500, color: Colors.white),
              ),
            ),
            const SizedBox(
              width: 20,
            ),
            Column(
              crossAxisAlignment: CrossAxisAlignment.start,
              children: [
                Text(
                  "Group: ${widget.groupName}",
                  style: const TextStyle(fontWeight: FontWeight.w500),
                ),
                const SizedBox(
                  height: 5,
                ),
                Text("Admin: ${getName(widget.adminName)}")
              ],
            )
          ],
        ),
      ),
```

```dart
          memberList(),
        ],
      ),
    ),
  );
}


memberList() {
  return StreamBuilder(
    stream: members,
    builder: (context, AsyncSnapshot snapshot) {
      if (snapshot.hasData) {
        if (snapshot.data['members'] != null) {
          if (snapshot.data['members'].length != 0) {
            return ListView.builder(
              itemCount: snapshot.data['members'].length,
              shrinkWrap: true,
              itemBuilder: (context, index) {
                return Container(
                  padding:
                      const EdgeInsets.symmetric(horizontal: 5, vertical:
10),
                  child: ListTile(
                    leading: CircleAvatar(
                      radius: 30,
                      backgroundColor: Theme.of(context).primaryColor,
                      child: Text(
                        getName(snapshot.data['members'][index])
                            .substring(0, 1)
                            .toUpperCase(),
                        style: const TextStyle(
                            color: Colors.white,
                            fontSize: 15,
                            fontWeight: FontWeight.bold),
                      ),
                    ),
                    title: Text(getName(snapshot.data['members'][index])),
                    subtitle:
Text(getId(snapshot.data['members'][index])),
                  ),
                );
              },
            );
          } else {
            return const Center(
```

```
                child: Text("NO MEMBERS"),
              );
            }
          } else {
            return const Center(
              child: Text("NO MEMBERS"),
            );
          }
        } else {
          return Center(
              child: CircularProgressIndicator(
            color: Theme.of(context).primaryColor,
          ));
        }
      },
    );
  }
}
```

Constraints.dart

```
import "package:flutter/material.dart";

class Constants {
  static String appId = "1:118377027214:web:91b204cfe143cdbe0a5bdf";
  static String apiKey = "AIzaSyBhYwnPQ62TMvOk3rsUzY7a3B6xY3x1tTs";
  static String messagingSenderId = "118377027214";
  static String projectId = "chatappflutter-a3725";
```

Chapter- 6

CONCLUSION

Our project is only a humble venture to satisfy the needs to manage their project work. Several user-friendly coding has also adopted. Theis's package shall prove to be a powerful package in satisfying all the requirements of the school. The objective of software planning is to provide a frame word that enables the manager to make reasonable estimates made within a limited time frame at the beginning of the software project and should be updated regularly as the project progresses.

At the end it is concluded that we have made effort on following points

- A description of the background and context of the project and its relation to work alreadydone in the area.
- Made a statement of the aims and obj dives of the project.
- Description of Purpose, Scope, and applicability.
- We define the problem on which we are working in the project.
- We describe the requirement specifications of the system and the actions that can be doneon these things.
- We understand the problem domain and produce a model of the system, which describesoperations that can be performed on the system.
- We included features and operations in detail, including screen layouts.
- We designed user interface and security issues related to system.
- Finally, the system is implemented and tested according to test cases.

Chapter-7

FUTURE SCOPE OF PROJECT

- We can give more advance software for Online Chat Application including more facilities
- We will host the platform on online servers to make it accessible worldwide Integratemultiple load balancers to distribute the loads of the system
- Include offline chatting within a particular range
- Implement the backup mechanism for taking backup of codebase and database on regularbasis on different servers

Chapter-8

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