EXPERIMENT NO: - 06

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AIM: To connect flu er UI with firebase database.

Introduc on to Firebase and Flu er Integra on

Firebase is a comprehensive pla orm developed by Google, designed to help developers build highquality applica ons for both mobile and web. It provides essen al services such as real- me databases, authen ca on, cloud storage, hos ng, and much more. One of the most widely used Firebase services is the Firebase Real me Database, which is a NoSQL cloud database that allows data to be stored and synced in real- me across all connected devices. Flu er, on the other hand, is an open-source UI so ware development kit created by Google, which allows developers to build na vely compiled applica ons for mobile, web, and desktop from a single codebase. Its rich set of pre-designed widgets and powerful tools makes Flu er an a rac ve op on for developing visually appealing and performant applica ons. Integra ng Firebase with Flu er allows developers to leverage the full poten al of Firebase services in their applica ons. By using Firebase's Real me Database, Flu er apps can achieve features such as real- me data synchroniza on, secure authen ca on, and cloud-based storage. This combina on enables developers to create powerful, scalable, and feature-rich mobile and web applica ons.

Firebase Real me Database Overview

Firebase Real me Database is a cloud-hosted NoSQL database that stores data in a JSON-like format. The key characteris c of this database is its real- me synchroniza on feature, meaning that any changes made to the database are instantly reflected on all clients (i.e., devices) connected to it. This makes it an ideal solu on for applica ons that require frequent updates and need to maintain synchronized data across mul ple users or devices, such as messaging apps, social media pla orms, or collabora ve tools.

The Firebase Real me Database is structured as a tree of data, where each node in the tree can contain key value pairs. This structure allows for easy data retrieval and modifica on. Firebase's real- me capabili es enable apps to immediately receive updates to the data whenever it changes, without the need to refresh or reload the page. Addi onally, the database supports offline data persistence, meaning that even if the user's device loses its internet connec on, the app can s ll func on by using the locally cached data.

Se ng Up Firebase in Flu er :
To connect a Flu er app with Firebase, the following steps are typically followed:

1. Crea ng a Firebase Project: To start using Firebase with Flu er, the first step is to create a Firebase project in the Firebase Console. Once the project is created, developers can associate their Flu er app with the Firebase project by following the pla orm-specific instruc ons for Android or iOS. This usually involves configuring API keys, downloading configura on files, and adding them to the Flu er project.
2. Integra ng Firebase SDK in Flu er: A er the Firebase project is set up, developers need to integrate Firebase's SDK into the Flu er app. This involves adding the necessary dependencies to the Flu er project's pubspec.yaml file. For Firebase's Real me Database, the package firebase_database

is used. Addi onally, Firebase's core SDK (firebase_core) must also be included to ini alize Firebase services.

3. Ini alizing Firebase: Before any Firebase func onality can be used, it is essen al to ini alize Firebase in the Flu er app. This is done by calling Firebase.ini alizeApp() in the main entry point of the app (usually in the main.dart file). Firebase needs to be ini alized before interac ng with any Firebase services, such as the Real me Database, Cloud Firestore, or Authen ca on.

Code:

```
Signup.dart import 'package:flu
er/material.dart'; import
'../widgets/custom_text_field.dart'; import
'../widgets/custom_bu on.dart'; import
'../widgets/gender_selec on.dart'; import
'../widgets/profile_avatar.dart';

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

 @override
 _SignupPageState createState() => _SignupPageState();
}

class _SignupPageState extends State<SignupPage> {  final TextEdi
ngController _emailController = TextEdi ngController();  final TextEdi
ngController _passwordController = TextEdi ngController();  final
TextEdi ngController _firstNameController = TextEdi ngController();
final TextEdi ngController _lastNameController = TextEdi
ngController();  final TextEdi ngController _birthdayController =
TextEdi ngController();
 String gender = "Male";

 void _signup() {
  // Handle signup logic here
  Navigator.pushNamed(context, '/home');
 }

 @override
 Widget build(BuildContext context) {
  return Scaffold(  appBar: AppBar(
leading: IconBu on(  icon: const
Icon(Icons.arrow_back),
    onPressed: () {
     Navigator.pop(context);
    },
   ),
  ),
  body: Padding(
```

```
      padding: const
EdgeInsets.all(20.0),        child:
Column(          children: [
          ProfileAvatar(onTap: () {
print("Profile Avatar Clicked!");            }),
          const     SizedBox(height:
20),          Row(            children:
[                              Expanded(
child: CustomTextField(
                    controller: _firstNameController, label: "First name")),
              const SizedBox(width:
10),               Expanded(
child: CustomTextField(
                    controller: _lastNameController, label: "Last name")),
            ],
          ),
          const SizedBox(height: 10),
          CustomTextField(controller: _birthdayController, label: "Birthday"),
const SizedBox(height: 10),
          GenderSelec on(onGenderSelected: (selectedGender) {
setState(() {
              gender = selectedGender;
            });
          }),
          CustomTextField(controller: _emailController, label: "Email"),
          const     SizedBox(height:     10),
CustomTextField(                  controller:
_passwordController,
              label:         "Password",
isPassword: true),               const
SizedBox(height:                  20),
GestureDetector(               onTap:
_signup,
            child: CustomBu on(
text: "Next",
              onPressed: () {},
            ),
          ),
        ],
      ),
    ),
  );
 }
}

Login.dart  import  'package:flu  er/material.dart';
import            'signup_page.dart';              import
'../widgets/custom_text_field.dart';              import
```

```
'../widgets/custom_bu           on.dart';           import
'home_page.dart'; // Import the HomePage

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

  @override
  Widget build(BuildContext context) {     final TextEdi ngController
_emailController = TextEdi ngController();     final TextEdi ngController
_passwordController = TextEdi ngController();

    void _login() {
      // Handle login logic
here       Navigator.push(
context,
       MaterialPageRoute(builder: (context) => const HomePage()),
      );
    }

    return Scaffold(
body: Padding(
       padding: const EdgeInsets.all(20.0),
child: Column(
         mainAxisAlignment: MainAxisAlignment.center,
children: [
           const Icon(Icons.facebook, size: 80, color: Colors.blue),
           const  SizedBox(height:  20),
CustomTextField(            controller:
_emailController,
             label: "Email",
           ),
           const     SizedBox(height:     10),
CustomTextField(                  controller:
_passwordController,
             label: "Password",
isPassword: true,
           ),
           const      SizedBox(height:
20),                  GestureDetector(
onTap: _login,                     child:
CustomBu on(                       text:
"Login",                onPressed: () {
                 Navigator.pushNamed(context, '/home');
               },
             ),
           ),
           TextBu on(
onPressed: () {},
             child: const Text("Forgot Password?"),
```

```
          ),
          const     SizedBox(height:
20),                GestureDetector(
onTap:                ()              {
Navigator.push(             context,
              MaterialPageRoute(builder: (context) => const SignupPage()),
            );
           },
           child: CustomBu on(
text: "Create new account",
             onPressed: () {
               Navigator.pushNamed(context, '/signup');
             },
           ),
          ),
          const SizedBox(height: 10),
          const Text("Meta", style: TextStyle(color: Colors.grey)),
        ],
      ),
    ),
  );
 }
}
```

Output