Experiment – 6: Connecting Flutter UI with firebase database.

Aim: To connect Flutter UI with firebase database.

Objectives: After study of this experiment, the student will be able to

• Create a production ready Flutter App by including files and firebase backend service.

Outcomes: After study of this experiment, the student will be able to

 Analyze and Build production ready Flutter App by incorporating backend services and deploying on Android/iOS

Prerequisite: Dart Programming Language

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Requirements: Android Studio, Flutter framework, Internet Connection.

Pre-Experiment Exercise:

Brief Theory:

Firebase is a platform developed by Google for creating mobile and web applications. Firebase is a set of server-side services and tools. If you use Firebase, you don't need to buy or rent your own server. Firebase is made up of over a dozen tools. Let's glance at these three:

- Cloud Firestore A database with an API to read and write data
- Cloud Functions Logic that is kicked off by an API call
- Authentication Single sign-on to allow users to securely log in to your app using their social accounts or a username/password combination

Steps to connect UI with firebase database:

- 1. Visit http://firebase.google.com to register an app with Firebase.
- 2. Create a Firebase Project.
- 3. Create the database by using the option given on your project's dashboard. 4.

Create an Android app.

- a. Going through the next step while creating an android app, the wizard will create a google-services.json file and will tell you where to save it.
- 5. Add FlutterFire plugins.

Laboratory Exercise

A. Program

1. Connect your UI with the firebase database and show the values entered in UI being reflected in the database.

B. Result/Observation

Print out of program code and output.

Post-Experiments Exercise

A. Questions:

- 1. What are the other different databases that you can use to connect your UI?
- 2. Demonstrate the use of firebase Authentication using UI.

B. Conclusion:

1. Write what you have learnt in the experiment.

C. References:

- 1. Beginning App Development with Flutter: Create Cross-Platform Mobile Apps, By Rap Payne, 2019.
- 2. Google Flutter Mobile Development Quick Start Guide, Packt Publishing, 2019.

Login.dart

```
import 'package:firebase_auth/firebase_auth.dart';
                                                                            SizedBox(height: 40),
import 'package:firebase_core/firebase_core.dart';
                                                                            Row(
import 'package:flutter/material.dart';
                                                                             mainAxisAlignment:
                                                                 MainAxisAlignment.spaceBetween,
class MyLogin extends StatefulWidget {
                                                                             children: [
                                                                              Text(
 const MyLogin({super.key});
                                                                               "Sign In",
                                                                               style: TextStyle(
 @override
 State<MyLogin> createState() => _MyLoginState();
                                                                                color: Color(0xff4c505b),
                                                                                fontSize: 27,
                                                                                fontWeight: FontWeight.w700,
class _MyLoginState extends State<MyLogin> {
                                                                               ),
                                                                              ),
 TextEditingController email = TextEditingController();
                                                                              CircleAvatar(
 TextEditingController password = TextEditingController();
                                                                               radius: 30,
                                                                               backgroundColor: Color(0xff4c505b),
 Future <bool> handleAuth() async {
                                                                               child: IconButton(
  try {
                                                                                color: Colors.white,
FirebaseAuth.instance.signInWithEmailAndPassword(
                                                                                onPressed: () async {
    email: email.text.trim(),
                                                                                 bool isLoggedIn = await handleAuth();
    password: password.text.trim(),
                                                                                 if (isLoggedIn) {
   );
                                                                                  Navigator.pushReplacementNamed(context,
                                                                 'home');
   return true;
                                                                                  ScaffoldMessenger.of(context).showSnackBar(
  } catch (e) {
   print('Auth error: $e');
                                                                                   SnackBar(
                                                                                    content: Text("Login in Successfull"),
   return false;
 }
                                                                                   ),
                                                                                  );
 }
                                                                                 } else {
                                                                                  ScaffoldMessenger.of(context).showSnackBar(
 @override
                                                                                   SnackBar(content: Text("Login failed")),
 Widget build(BuildContext context) {
                                                                                  );
  return Container(
                                                                                 }
   decoration: BoxDecoration(
                                                                                },
    image: DecorationImage(
     image: AssetImage('assets/login.png'),
                                                                                icon: Icon(Icons.arrow_forward),
     fit: BoxFit.cover,
                                                                               ),
    ),
   ),
                                                                              ),
                                                                             ],
   child: Scaffold(
                                                                            ),
    backgroundColor: Colors.transparent,
                                                                            SizedBox(height: 40),
    body: Stack(
                                                                            Row(
     children: [
                                                                             mainAxisAlignment:
      Container(
                                                                 MainAxisAlignment.spaceBetween,
       padding: EdgeInsets.only(left: 80, top: 130),
                                                                             children:
       child: Text(
                                                                              TextButton(
        "Welcome\nback",
                                                                               onPressed: () {
        style: TextStyle(color: Colors.white, fontSize: 33),
                                                                                Navigator.pushNamed(context, 'register');
       ),
      ),
                                                                               child: Text(
      SingleChildScrollView(
                                                                                "Sign Up",
       child: Container(
                                                                                style: TextStyle(
        padding: EdgeInsets.only(
                                                                                 decoration: TextDecoration.underline,
         top: MediaQuery.of(context).size.height * 0.5,
                                                                                 fontSize: 18,
         right: 35,
                                                                                 color: Color(0xff4c505b),
         left: 35,
                                                                                ),
        ),
                                                                               ),
        child: Column(
```

```
children: [
                                                                      TextButton(
 TextField(
                                                                        onPressed: () {},
  controller: email,
  decoration: InputDecoration(
                                                                        child: Text(
   fillColor: Colors.grey.shade100,
                                                                         "Forgot Password",
   filled: true,
                                                                         style: TextStyle(
   hintText: "Email",
                                                                          decoration: TextDecoration.underline,
   border: OutlineInputBorder(
                                                                          fontSize: 18,
    borderRadius: BorderRadius.circular(10),
                                                                          color: Color(0xff4c505b),
   ),
                                                                         ),
 ),
 ),
 SizedBox(height: 30),
 TextField(
  controller: password,
  obscureText: true,
  decoration: InputDecoration(
   fillColor: Colors.grey.shade100,
   filled: true,
                                                             ),
   hintText: "Password",
                                                            ),
   border: OutlineInputBorder(
    borderRadius: BorderRadius.circular(10),
                                                           );
   ),
                                                         }
                                                         }
  ),
```

Main.dart

```
import 'package:firebase/home.dart';
import 'package:firebase/login.dart';
import 'package:firebase/register.dart';
import 'package:firebase_core/firebase_core.dart';
import 'package:flutter/material.dart';
void main() async {
 WidgetsFlutterBinding.ensureInitialized();
 await Firebase.initializeApp();
 runApp(
  MaterialApp(
   debugShowCheckedModeBanner: false,
   initialRoute: 'login',
   routes: {
    'login': (context) => MyLogin(),
    'register': (context) => MyRegister(),
    'home': (context) => HomePage(),
   },
  ),
);
```

Register.dart

```
import 'package:firebase_auth/firebase_auth.dart';
                                                                              fillColor: Colors.grey.shade100,
import 'package:flutter/material.dart';
                                                                              filled: true,
                                                                              hintText: "Password",
class MyRegister extends StatefulWidget {
                                                                              border: OutlineInputBorder(
const MyRegister({super.key});
                                                                               borderRadius: BorderRadius.circular(10),
                                                                              ),
 @override
                                                                             ),
State<MyRegister> createState() => _MyRegisterState();
                                                                            ),
                                                                            SizedBox(height: 40),
                                                                            Row(
class _MyRegisterState extends State<MyRegister> {
                                                                             mainAxisAlignment:
                                                                 MainAxisAlignment.spaceBetween,
TextEditingController email = TextEditingController();
                                                                             children: [
TextEditingController password = TextEditingController();
                                                                              Text(
                                                                               "Sign Up",
Future <bool> handleAuth() async {
                                                                               style: TextStyle(
  try {
                                                                                color: Color(0xff4c505b),
   await
FirebaseAuth.instance.createUserWithEmailAndPassword(
                                                                                fontSize: 27,
    email: email.text.trim(),
                                                                                fontWeight: FontWeight.w700,
    password: password.text.trim(),
                                                                               ),
                                                                              ),
  );
  return true;
                                                                              CircleAvatar(
  } catch (e) {
                                                                               radius: 30,
                                                                               backgroundColor: Color(0xff4c505b),
  print('Auth error: $e');
  return false:
                                                                               child: IconButton(
 }
                                                                                color: Colors.white,
}
                                                                                onPressed: () async {
                                                                                  bool isLoggedIn = await handleAuth();
 @override
                                                                                  if (isLoggedIn) {
 Widget build(BuildContext context) {
                                                                                   Navigator.pushReplacementNamed(
  return Container(
                                                                                    context,
   decoration: BoxDecoration(
                                                                                   'login',
    image: DecorationImage(
                                                                                   );
     image: AssetImage('assets/register.png'),
                                                                                   ScaffoldMessenger.of(context).showSnackBar(
     fit: BoxFit.cover,
                                                                                    SnackBar(
   ),
                                                                                     content: Text(
  ),
                                                                                      "Sign Up Successfull, Please Login!",
   child: Scaffold(
                                                                                     ),
    backgroundColor: Colors.transparent,
                                                                                   ),
    body: Stack(
                                                                                   );
     children: [
                                                                                  } else {
      Container(
                                                                                   ScaffoldMessenger.of(context).showSnackBar(
       padding: EdgeInsets.only(left: 80, top: 130),
                                                                                    SnackBar(content: Text("Login failed")),
       child: Text(
                                                                                   );
        "Welcome\nback",
                                                                                 }
        style: TextStyle(color: Colors.white, fontSize: 33),
                                                                                },
       ),
      ),
                                                                                icon: Icon(Icons.arrow_forward),
      SingleChildScrollView(
       child: Container(
        padding: EdgeInsets.only(
                                                                             1,
         top: MediaQuery.of(context).size.height * 0.5,
                                                                            ),
         right: 35,
                                                                            SizedBox(height: 40),
         left: 35,
        ),
                                                                             mainAxisAlignment:
        child: Column(
                                                                 MainAxisAlignment.spaceBetween,
         children: [
                                                                             children: [
```

```
TextField(
                                                                     TextButton(
 decoration: InputDecoration(
                                                                       onPressed: () {
  fillColor: Colors.grey.shade100,
                                                                        Navigator.pushNamed(context, 'login');
  filled: true,
  hintText: "Name",
                                                                       child: Text(
  border: OutlineInputBorder(
                                                                        "Sign In",
   borderRadius: BorderRadius.circular(10),
                                                                        style: TextStyle(
                                                                         decoration: TextDecoration.underline,
  ),
 ),
                                                                         fontSize: 18,
),
                                                                         color: Color(0xff4c505b),
SizedBox(height: 30),
TextField(
 controller: email,
 decoration: InputDecoration(
  fillColor: Colors.grey.shade100,
  filled: true,
  hintText: "Email",
  border: OutlineInputBorder(
   borderRadius: BorderRadius.circular(10),
  ),
 ),
),
SizedBox(height: 30),
TextField(
 controller: password,
 obscureText: true,
 decoration: InputDecoration(
```

Home.dart

```
import 'package:firebase_auth/firebase_auth.dart';
                                                                      padding: EdgeInsets.only(top: 150),
import 'package:flutter/material.dart';
                                                                      child: Column(
                                                                       children: [
                                                                        Text("Welcome !!", style: TextStyle(fontSize: 30)),
class HomePage extends StatefulWidget {
const HomePage({super.key});
                                                                        SizedBox(height: 40),
                                                                        Text(
                                                                          "${user!.email}",
State<HomePage> createState() => _HomePageState();
                                                                          style: TextStyle(fontSize: 20, fontWeight:
                                                                 FontWeight.bold),
                                                                        ),
class _HomePageState extends State<HomePage> {
                                                                       1,
                                                                      ),
final user = FirebaseAuth.instance.currentUser;
                                                                     ),
Future <bool> handleLogout(BuildContext context) async {
                                                                    floatingActionButton: FloatingActionButton(
                                                                     onPressed: () async {
  await FirebaseAuth.instance.signOut();
                                                                      bool success = await handleLogout(context);
  return true;
 } catch (e) {
                                                                      if (success) {
  print('Logout error: $e');
                                                                       Navigator.pushReplacementNamed(context, 'login');
                                                                      }
  return false;
                                                                     },
 }
}
                                                                     child: lcon(lcons.login_rounded),
                                                                    ),
 @override
                                                                   );
Widget build(BuildContext context) {
                                                                  }
 return Scaffold(
                                                                 }
  appBar: AppBar(title: Text("Shawn's App")),
  body: Center(
    child: Container(
```









