



Bharatiya Vidya Bhavan's
SARDAR PATEL INSTITUTE OF TECHNOLOGY
(Autonomous Institute Affiliated to University of Mumbai)
Munshi Nagar, Andheri (W), Mumbai – 400 058.
Department of Computer Science and Engineering

Experiment	8
Aim	Implement user authentication and registration using database with flutter
Objective	<ul style="list-style-type: none">• Create Registration page• Create database• Store, fetch, delete values from database.• User Authentication from database
Name	Abhijit Khambekar
UCID	2024510027
Class	FYMCA
Batch	D
Date of Submission	

Technology used	Visual Studio Code
Task	Create a basic registration page and store data in database. Fetch and also delete few entries from database. You can use either firebase database or postgresql.
Code with proper label	<pre>Firestore_options.dart: import 'package:firebase_core/firebase_core.dart' show FirebaseOptions; import 'package:flutter/foundation.dart' show defaultTargetPlatform, kIsWeb, TargetPlatform; class DefaultFirebaseOptions { static FirebaseOptions get currentPlatform { if (kIsWeb) { return web; } switch (defaultTargetPlatform) { case TargetPlatform.android: throw UnsupportedError('DefaultFirebaseOptions have not been configured for android.');</pre>



Bharatiya Vidya Bhavan's
SARDAR PATEL INSTITUTE OF TECHNOLOGY
(Autonomous Institute Affiliated to University of Mumbai)
Munshi Nagar, Andheri (W), Mumbai – 400 058.

Department of Computer Science and Engineering

```
static const FirebaseOptions web = FirebaseOptions(  
  apiKey: 'AIzaSyCsn8KY9A_xF1tA9MpgHfeYxJYMMB7b_GE',  
  appId: '1:480190879700:web:9d3e739514348c2900e841',  
  messagingSenderId: '480190879700',  
  projectId: 'registration1-2583d',  
  authDomain: 'registration1-2583d.firebaseio.com',  
  storageBucket: 'registration1-2583d.firebaseio.com',  
);  
}  
  
Main.dart:  
import 'package:flutter/material.dart';  
import 'package:firebase_core/firebase_core.dart';  
import 'package:cloud_firestore/cloud_firestore.dart';  
import 'package:firebase_auth/firebase_auth.dart';  
import 'firebase_options.dart';  
  
void main() async {  
  WidgetsFlutterBinding.ensureInitialized();  
  await Firebase.initializeApp(  
    options: DefaultFirebaseOptions.currentPlatform,  
  );  
  runApp(const MyApp());  
}  
  
class MyApp extends StatelessWidget {  
  const MyApp({super.key});  
  
  @override  
  Widget build(BuildContext context) {  
    return MaterialApp(  
      title: 'Firebase Web App',  
      theme: ThemeData(  
        primarySwatch: Colors.blue,  
        // 30-60-90 color rule: Primary (60%), Secondary (30%), Accent (10%)  
        colorScheme: const ColorScheme.light(  
          primary: Color(0xFF2196F3), // Blue - 60%  
          secondary: Color(0xFFFFC107), // Amber - 30%  
          tertiary: Color(0xFFFF4336), // Red - 10%  
        ),  
      ),  
      initialRoute: '/login',  
      routes: {  
        '/login': (context) => const LoginPage(),  
        '/register': (context) => const RegistrationPage(),  
        '/terminate': (context) => const TerminatePage(),  
        '/welcome': (context) => const WelcomePage(),  
      },  
    );  
  }  
}  
  
class LoginPage extends StatefulWidget {  
  const LoginPage({super.key});  
  
  @override  
  State<LoginPage> createState() => _LoginPageState();
```



Bharatiya Vidya Bhavan's
SARDAR PATEL INSTITUTE OF TECHNOLOGY
(Autonomous Institute Affiliated to University of Mumbai)
Munshi Nagar, Andheri (W), Mumbai – 400 058.
Department of Computer Science and Engineering

```
}

class _LoginPageState extends State<LoginPage> {
  final _usernameController = TextEditingController();
  final _passwordController = TextEditingController();
  String _errorMessage = "";

  Future<void> _login() async {
    try {
      final querySnapshot = await FirebaseFirestore.instance
        .collection('users')
        .where('username', isEqualTo: _usernameController.text)
        .where('password', isEqualTo: _passwordController.text)
        .get();

      if (querySnapshot.docs.isNotEmpty) {
        Navigator.pushNamed(context, '/welcome');
      } else {
        setState(() {
          _errorMessage = 'Login failed';
        });
      }
    } catch (e) {
      setState(() {
        _errorMessage = 'Error: $e';
      });
    }
  }
}

@override
Widget build(BuildContext context) {
  return Scaffold(
    appBar: AppBar(
      title: const Text('Login'),
      backgroundColor: Theme.of(context).colorScheme.primary,
    ),
    body: Padding(
      padding: const EdgeInsets.all(16.0),
      child: Column(
        mainAxisAlignment: MainAxisAlignment.center,
        children: [
          TextField(
            controller: _usernameController,
            decoration: InputDecoration(
              labelText: 'Username',
              border: OutlineInputBorder(),
              filled: true,
              fillColor: Theme.of(context).colorScheme.secondary.withOpacity(0.3),
            ),
          ),
          const SizedBox(height: 16),
          TextField(
            controller: _passwordController,
            decoration: InputDecoration(
              labelText: 'Password',
              border: OutlineInputBorder(),
              filled: true,
              fillColor: Theme.of(context).colorScheme.secondary.withOpacity(0.3),
            ),
          ),
        ],
      ),
    ),
  );
}
```



Bharatiya Vidya Bhavan's
SARDAR PATEL INSTITUTE OF TECHNOLOGY
(Autonomous Institute Affiliated to University of Mumbai)
Munshi Nagar, Andheri (W), Mumbai – 400 058.
Department of Computer Science and Engineering

```
obscureText: true,
),
const SizedBox(height: 16),
Text(
  _errorMessage,
  style: TextStyle(color: Theme.of(context).colorScheme.tertiary),
),
const SizedBox(height: 16),
Row(
  mainAxisAlignment: MainAxisAlignment.center,
  children: [
    ElevatedButton(
      onPressed: _login,
      style: ElevatedButton.styleFrom(
        backgroundColor: Theme.of(context).colorScheme.onSecondary,
      ),
      child: const Text('Login'),
    ),
    const SizedBox(width: 16),
    ElevatedButton(
      onPressed: () => Navigator.pushNamed(context, '/register'),
      style: ElevatedButton.styleFrom(
        backgroundColor: Theme.of(context).colorScheme.secondary,
      ),
      child: const Text('Register'),
    ),
  ],
),
],
),
],
),
);
}
}
```

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

  @override
  State<RegistrationPage> createState() => _RegistrationPageState();
}
```

```
class _RegistrationPageState extends State<RegistrationPage> {
  final _usernameController = TextEditingController();
  final _ageController = TextEditingController();
  final _contactController = TextEditingController();
  final _emailController = TextEditingController();
  final _passwordController = TextEditingController();
  final _confirmPasswordController = TextEditingController();
  final _formKey = GlobalKey<FormState>();
```

```
String? _validateUsername(String? value) {
  if (value == null || value.isEmpty) {
    return 'Username is required';
  }
  if (value.length < 3) {
    return 'Username must be at least 3 characters';
  }
  return null;
}
```



Bharatiya Vidya Bhavan's
SARDAR PATEL INSTITUTE OF TECHNOLOGY
(Autonomous Institute Affiliated to University of Mumbai)
Munshi Nagar, Andheri (W), Mumbai – 400 058.
Department of Computer Science and Engineering

```
}

String? _validateAge(String? value) {
  if (value == null || value.isEmpty) {
    return 'Age is required';
  }
  try {
    final age = int.parse(value);
    if (age < 18 || age > 120) {
      return 'Age must be between 18 and 120';
    }
  } catch (e) {
    return 'Please enter a valid number';
  }
  return null;
}

String? _validateContact(String? value) {
  if (value == null || value.isEmpty) {
    return 'Contact is required';
  }
  if (!RegExp(r'^\d{10}$').hasMatch(value)) {
    return 'Please enter a valid 10-digit phone number';
  }
  return null;
}

String? _validateEmail(String? value) {
  if (value == null || value.isEmpty) {
    return 'Email is required';
  }
  if (!RegExp(r'^[\w-\.\.]+\@([\w-]+\.)+[\w-]{2,4}$').hasMatch(value)) {
    return 'Please enter a valid email address';
  }
  return null;
}

String? _validatePassword(String? value) {
  if (value == null || value.isEmpty) {
    return 'Password is required';
  }
  if (value.length < 6) {
    return 'Password must be at least 6 characters';
  }
  return null;
}

String? _validateConfirmPassword(String? value) {
  if (value == null || value.isEmpty) {
    return 'Please confirm your password';
  }
  if (value != _passwordController.text) {
    return 'Passwords do not match';
  }
  return null;
}

Future<void> _register() async {
  if (_formKey.currentState!.validate()) {
```



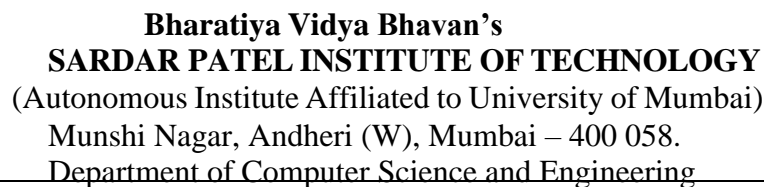
Bharatiya Vidya Bhavan's
SARDAR PATEL INSTITUTE OF TECHNOLOGY
(Autonomous Institute Affiliated to University of Mumbai)
Munshi Nagar, Andheri (W), Mumbai – 400 058.
Department of Computer Science and Engineering

```
try {
    await FirebaseFirestore.instance.collection('users').add({
      'username': _usernameController.text,
      'age': int.parse(_ageController.text),
      'contact': _contactController.text,
      'email': _emailController.text,
      'password': _passwordController.text,
    });

    ScaffoldMessenger.of(context).showSnackBar(
      SnackBar(
        content: Text(
          'Successful Registration',
          style: TextStyle(color: Theme.of(context).colorScheme.primary),
        ),
      ),
    );

    // Clear fields
    _usernameController.clear();
    _ageController.clear();
    _contactController.clear();
    _emailController.clear();
    _passwordController.clear();
    _confirmPasswordController.clear();
  } catch (e) {
    ScaffoldMessenger.of(context).showSnackBar(
      SnackBar(
        content: Text(
          'Error: $e',
          style: TextStyle(color: Theme.of(context).colorScheme.tertiary),
        ),
      ),
    );
  }
} else {
  // Check if all fields are empty
  if (_usernameController.text.isEmpty &&
    _ageController.text.isEmpty &&
    _contactController.text.isEmpty &&
    _emailController.text.isEmpty &&
    _passwordController.text.isEmpty &&
    _confirmPasswordController.text.isEmpty) {
    ScaffoldMessenger.of(context).showSnackBar(
      SnackBar(
        content: Text(
          'All fields are required',
          style: TextStyle(color: Theme.of(context).colorScheme.tertiary),
        ),
      ),
    );
  }
}

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



```

        title: const Text('Register'),
        backgroundColor: Theme.of(context).colorScheme.primary,
      ),
      body: Padding(
        padding: const EdgeInsets.all(16.0),
        child: SingleChildScrollView(
          child: Form(
            key: _formKey,
            child: Column(
              children: [
                TextFormField(
                  controller: _usernameController,
                  decoration: InputDecoration(
                    labelText: 'Username',
                    border: OutlineInputBorder(),
                    filled: true,
                    fillColor:
Theme.of(context).colorScheme.secondary.withOpacity(0.3),
                  ),
                  validator: _validateUsername,
                ),
                const SizedBox(height: 16),
                TextFormField(
                  controller: _ageController,
                  decoration: InputDecoration(
                    labelText: 'Age',
                    border: OutlineInputBorder(),
                    filled: true,
                    fillColor:
Theme.of(context).colorScheme.secondary.withOpacity(0.3),
                  ),
                  keyboardType: TextInputType.number,
                  validator: _validateAge,
                ),
                const SizedBox(height: 16),
                TextFormField(
                  controller: _contactController,
                  decoration: InputDecoration(
                    labelText: 'Contact',
                    border: OutlineInputBorder(),
                    filled: true,
                    fillColor:
Theme.of(context).colorScheme.secondary.withOpacity(0.3),
                  ),
                  validator: _validateContact,
                ),
                const SizedBox(height: 16),
                TextFormField(
                  controller: _emailController,
                  decoration: InputDecoration(
                    labelText: 'Email ID',
                    border: OutlineInputBorder(),
                    filled: true,
                    fillColor:
Theme.of(context).colorScheme.secondary.withOpacity(0.3),
                  ),
                  keyboardType: TextInputType.emailAddress,
                  validator: _validateEmail,
                ),
              ],
            ),
          ),
        ),
      ),
    ),
  ),
);

```



Bharatiya Vidya Bhavan's
SARDAR PATEL INSTITUTE OF TECHNOLOGY
(Autonomous Institute Affiliated to University of Mumbai)
Munshi Nagar, Andheri (W), Mumbai – 400 058.
Department of Computer Science and Engineering

```
const SizedBox(height: 16),
 TextFormField(
  controller: _passwordController,
  decoration: InputDecoration(
    labelText: 'Password',
    border: OutlineInputBorder(),
    filled: true,
    fillColor:
Theme.of(context).colorScheme.secondary.withOpacity(0.3),
  ),
  obscureText: true,
  validator: _validatePassword,
),
const SizedBox(height: 16),
 TextFormField(
  controller: _confirmPasswordController,
  decoration: InputDecoration(
    labelText: 'Confirm Password',
    border: OutlineInputBorder(),
    filled: true,
    fillColor:
Theme.of(context).colorScheme.secondary.withOpacity(0.3),
  ),
  obscureText: true,
  validator: _validateConfirmPassword,
),
const SizedBox(height: 16),
Row(
  mainAxisAlignment: MainAxisAlignment.center,
  children: [
    ElevatedButton(
      onPressed: () => Navigator.pushNamed(context, '/login'),
      style: ElevatedButton.styleFrom(
        backgroundColor: Theme.of(context).colorScheme.secondary,
      ),
      child: const Text('Back'),
    ),
    const SizedBox(width: 16),
    ElevatedButton(
      onPressed: _register,
      style: ElevatedButton.styleFrom(
        backgroundColor: Theme.of(context).colorScheme.onSecondary,
      ),
      child: const Text('Register'),
    ),
    const SizedBox(width: 16),
    ElevatedButton(
      onPressed: () => Navigator.pushNamed(context, '/terminate'),
      style: ElevatedButton.styleFrom(
        backgroundColor: Theme.of(context).colorScheme.tertiary,
      ),
      child: const Text('Terminate'),
    ),
  ],
),
],
),
],
),
),
),
```




Bharatiya Vidya Bhavan's
SARDAR PATEL INSTITUTE OF TECHNOLOGY
(Autonomous Institute Affiliated to University of Mumbai)
Munshi Nagar, Andheri (W), Mumbai – 400 058.
Department of Computer Science and Engineering

```
),  
);  
}  
}  
  
class TerminatePage extends StatefulWidget {  
  const TerminatePage({super.key});  
  
  @override  
  State<TerminatePage> createState() => _TerminatePageState();  
}  
  
class _TerminatePageState extends State<TerminatePage> {  
  final _usernameController = TextEditingController();  
  final _emailController = TextEditingController();  
  final _passwordController = TextEditingController();  
  
  Future<void> _terminate() async {  
    try {  
      final querySnapshot = await FirebaseFirestore.instance  
        .collection('users')  
        .where('username', isEqualTo: _usernameController.text)  
        .where('email', isEqualTo: _emailController.text)  
        .where('password', isEqualTo: _passwordController.text)  
        .get();  
  
      if (querySnapshot.docs.isNotEmpty) {  
        await querySnapshot.docs.first.reference.delete();  
        ScaffoldMessenger.of(context).showSnackBar(  
          SnackBar(  
            content: Text(  
              'Termination Successful',  
              style: TextStyle(color: Theme.of(context).colorScheme.primary),  
            ),  
          ),  
        );  
      } else {  
        ScaffoldMessenger.of(context).showSnackBar(  
          SnackBar(  
            content: Text(  
              'User does not exist',  
              style: TextStyle(color: Theme.of(context).colorScheme.tertiary),  
            ),  
          ),  
        );  
      }  
    } catch (e) {  
      ScaffoldMessenger.of(context).showSnackBar(  
        SnackBar(  
          content: Text(  
            'Error: $e',  
            style: TextStyle(color: Theme.of(context).colorScheme.tertiary),  
          ),  
        ),  
      );  
    }  
  }  
}  
  
@override
```



Bharatiya Vidya Bhavan's
SARDAR PATEL INSTITUTE OF TECHNOLOGY
(Autonomous Institute Affiliated to University of Mumbai)
Munshi Nagar, Andheri (W), Mumbai – 400 058.

Department of Computer Science and Engineering

	<pre>Widget build(BuildContext context) { return Scaffold(appBar: AppBar(title: const Text('Terminate Account'), backgroundColor: Theme.of(context).colorScheme.primary,), body: Padding(padding: const EdgeInsets.all(16.0), child: Column(mainAxisAlignment: MainAxisAlignment.center, children: [TextField(controller: _usernameController, decoration: InputDecoration(labelText: 'Username', border: OutlineInputBorder(), filled: true, fillColor: Theme.of(context).colorScheme.secondary.withOpacity(0.3),),), const SizedBox(height: 16), TextField(controller: _emailController, decoration: InputDecoration(labelText: 'Email ID', border: OutlineInputBorder(), filled: true, fillColor: Theme.of(context).colorScheme.secondary.withOpacity(0.3),), keyboardType: TextInputType.emailAddress,), const SizedBox(height: 16), TextField(controller: _passwordController, decoration: InputDecoration(labelText: 'Password', border: OutlineInputBorder(), filled: true, fillColor: Theme.of(context).colorScheme.secondary.withOpacity(0.3),), obscureText: true,), const SizedBox(height: 16), Row(mainAxisAlignment: MainAxisAlignment.center, children: [ElevatedButton(onPressed: () => Navigator.pushNamed(context, '/register'), style: ElevatedButton.styleFrom(backgroundColor: Theme.of(context).colorScheme.secondary,), child: const Text('Back'),), const SizedBox(width: 16), ElevatedButton(onPressed: _terminate, style: ElevatedButton.styleFrom(backgroundColor: Theme.of(context).colorScheme.tertiary,),),],),],),),); }</pre>
--	---



Bharatiya Vidya Bhavan's
SARDAR PATEL INSTITUTE OF TECHNOLOGY
(Autonomous Institute Affiliated to University of Mumbai)
Munshi Nagar, Andheri (W), Mumbai – 400 058.
Department of Computer Science and Engineering

	<pre>child: const Text('Terminate'),),],),],),),); } } class WelcomePage extends StatelessWidget { const WelcomePage({super.key}); @override Widget build(BuildContext context) { return Scaffold(appBar: AppBar(title: const Text('Welcome'), backgroundColor: Theme.of(context).colorScheme.primary,), body: Center(child: Column(mainAxisAlignment: MainAxisAlignment.center, children: [Text('Welcome Home', style: TextStyle(fontSize: 48, fontWeight: FontWeight.bold, color: Theme.of(context).colorScheme.primary,),), const SizedBox(height: 16), Text('Your Journey Begins Here!', style: TextStyle(fontSize: 24, color: Theme.of(context).colorScheme.secondary,),),],),),); } }</pre>
Screenshots	
Question and Answers	<p>Answer the following Questions:</p> <p>1. Write the connection steps, step-by-step for database connectivity.</p> <p>Solution: 1: Create a Firebase project and add your app with configuration files for Android/iOS.</p>



Bharatiya Vidya Bhavan's
SARDAR PATEL INSTITUTE OF TECHNOLOGY
(Autonomous Institute Affiliated to University of Mumbai)
Munshi Nagar, Andheri (W), Mumbai – 400 058.
Department of Computer Science and Engineering

	<p>2: Set up a Flutter project with firebase_core and cloud_firestore dependencies.</p> <p>3: Configure platform-specific Firebase settings by adding configuration files and updating build files.</p> <p>4: Initialize Firebase in your Flutter app using Firebase.initializeApp() in main.dart.</p> <p>5: Enable Firestore, perform CRUD operations, display data, and secure with appropriate rules.</p>
Conclusion	Learned how to connect with firebase console and understood how to insert and delete records.

Screenshots:



Bharatiya Vidya Bhavan's
SARDAR PATEL INSTITUTE OF TECHNOLOGY
(Autonomous Institute Affiliated to University of Mumbai)
Munshi Nagar, Andheri (W), Mumbai – 400 058.
Department of Computer Science and Engineering

Login

DEBUG

Username

Password

LoginRegister



Bharatiya Vidya Bhavan's
SARDAR PATEL INSTITUTE OF TECHNOLOGY
(Autonomous Institute Affiliated to University of Mumbai)
Munshi Nagar, Andheri (W), Mumbai – 400 058.
Department of Computer Science and Engineering

← Register

DEBUG

Username

Age

Contact

Email ID

Password

Confirm Password

Back

Register

Terminate



Bharatiya Vidya Bhavan's
SARDAR PATEL INSTITUTE OF TECHNOLOGY
(Autonomous Institute Affiliated to University of Mumbai)
Munshi Nagar, Andheri (W), Mumbai – 400 058.
Department of Computer Science and Engineering

← Terminate Account

DEBUG

Username

Email ID

Password

Back

Terminate



Bharatiya Vidya Bhavan's
SARDAR PATEL INSTITUTE OF TECHNOLOGY
(Autonomous Institute Affiliated to University of Mumbai)
Munshi Nagar, Andheri (W), Mumbai – 400 058.
Department of Computer Science and Engineering

← Register

DEBUG

Username

Username is required

Age

Age is required

Contact

Contact is required

Email ID

Email is required

Password

Password is required

Confirm Password

Please confirm your password

Back

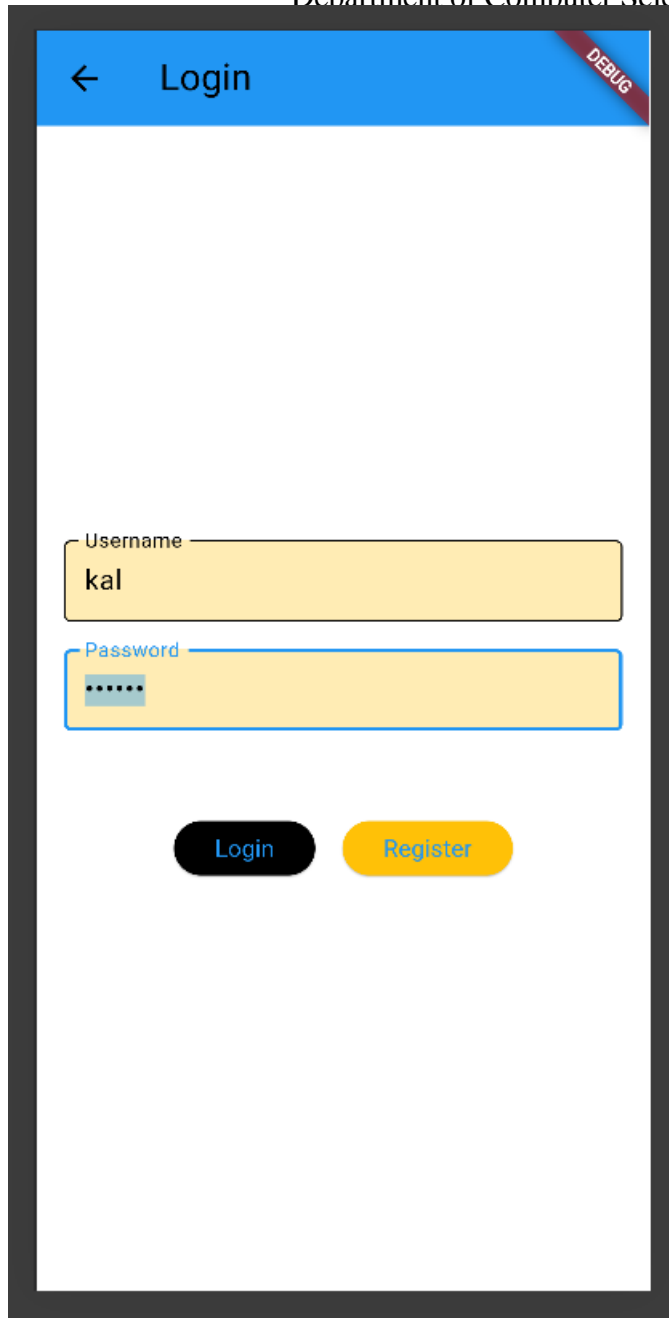
Register

Terminate

All fields are required



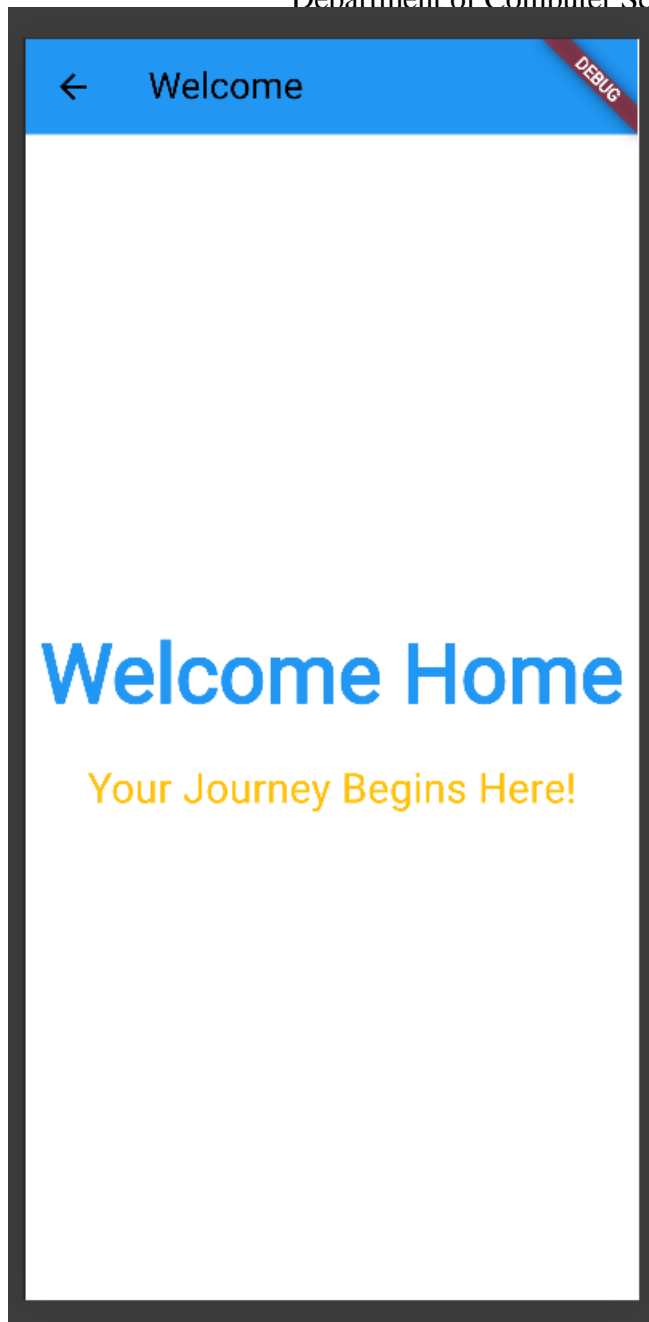
Bharatiya Vidya Bhavan's
SARDAR PATEL INSTITUTE OF TECHNOLOGY
(Autonomous Institute Affiliated to University of Mumbai)
Munshi Nagar, Andheri (W), Mumbai – 400 058.
Department of Computer Science and Engineering



A mobile application login screen mockup. The screen is framed by a dark grey border. At the top, there is a blue header bar with a white back arrow on the left and the word "Login" in white. A red diagonal banner with the word "DEBUG" in white is located in the top right corner of the header. Below the header, the main content area is white. It features two yellow input fields: the first is labeled "Username" and contains the text "kal"; the second is labeled "Password" and contains six dots. Below these fields are two rounded buttons: a black one labeled "Login" and a yellow one labeled "Register".



Bharatiya Vidya Bhavan's
SARDAR PATEL INSTITUTE OF TECHNOLOGY
(Autonomous Institute Affiliated to University of Mumbai)
Munshi Nagar, Andheri (W), Mumbai – 400 058.
Department of Computer Science and Engineering





Bharatiya Vidya Bhavan's
SARDAR PATEL INSTITUTE OF TECHNOLOGY
(Autonomous Institute Affiliated to University of Mumbai)
Munshi Nagar, Andheri (W), Mumbai – 400 058.
Department of Computer Science and Engineering

← Terminate Account

DEBUG

Username

kal

Email ID

test@ok.com

Password

.....

Back

Terminate



Bharatiya Vidya Bhavan's
SARDAR PATEL INSTITUTE OF TECHNOLOGY
(Autonomous Institute Affiliated to University of Mumbai)
Munshi Nagar, Andheri (W), Mumbai – 400 058.
Department of Computer Science and Engineering

← Terminate Account

DEBUG

Username

kal

Email ID

test@ok.com

Password

Back

Terminate

Termination Successful



Bharatiya Vidya Bhavan's
SARDAR PATEL INSTITUTE OF TECHNOLOGY
(Autonomous Institute Affiliated to University of Mumbai)
Munshi Nagar, Andheri (W), Mumbai – 400 058.
Department of Computer Science and Engineering

← Login

DEBUG

Username

kal

Password

.....

Login failed

Login

Register