**Problem Statement III: Mobile Application:**

Develop a Mobile Application using Flutter or Any Mobile App development framework. The application should have Login page, after successful login navigate to Home Page. Display the list of universities in list view with search feature. On clicking a list item - Show the respective Item details in a new page i.e., University Details Page.

**Solution:**

Github link : https://github.com/TAMILMANI1234/SqardlTask.git

**Required Dependencies:**

firebase\_auth: ^4.6.3

firebase\_core: ^2.14.0

http: ^0.13.4

**firebase\_auth :**

version :4.6.3

Firebase\_auth plugin is the base for all of Firebase Authentication. firebase\_dynamic\_links will be used for Email Link authentication.

**firebase\_core:**

**version :** 2.14.0

The firebase\_core plugin is responsible for connecting your Flutter app to your Firebase project.

**http:**

**version:** 0.13.4

Applications frequently need to perform POST and GET and other HTTP requests. Flutter provides an http package that supports making HTTP requests

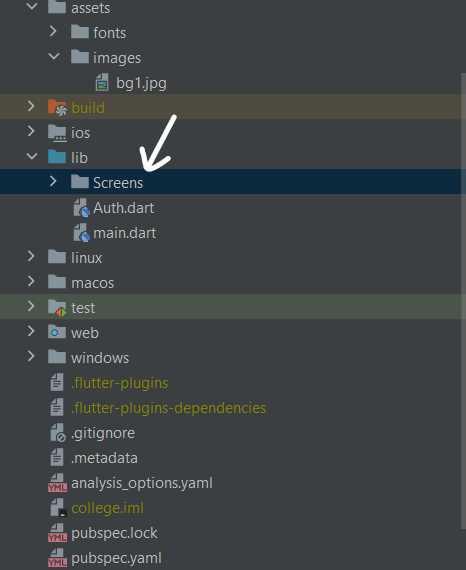
**Procedures:**

**Step 1:**

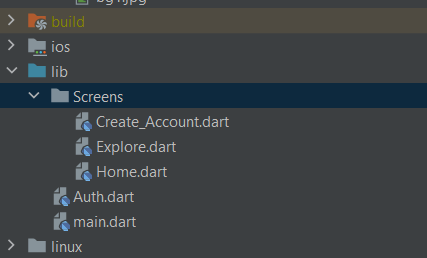
1. Create an Empty Flutter project in Android Studio.

**Step 2:**

1. Add the required dependencies as mentioned above in pubspec.yaml.
2. In terminal type “pup get”, this command get the dependencies.
3. After install all dependencies, create a floder in lib floder called “Screens”



1. Create a following dart file as I shown in the below image



1. Main.dart is a starting point of the project, Add the following code in main,dart. It show the Login page after successful login it will redirect to home screen

import 'package:flutter/material.dart';  
import 'package:firebase\_auth/firebase\_auth.dart';  
import 'package:firebase\_core/firebase\_core.dart';  
import './Screens/Home.dart';  
import './Auth.dart';  
import '../Screens/Create\_Account.dart';  
Future<void> main() async {  
 WidgetsFlutterBinding.*ensureInitialized*();  
 await Firebase.*initializeApp*();  
 runApp(const MyApp());  
}  
  
class MyApp extends StatelessWidget {  
 const MyApp({super.key});  
  
 // This widget is the root of your application.  
 @override  
 Widget build(BuildContext context) {  
 return MaterialApp(  
 title: 'Universities',  
 theme: ThemeData(  
  
 colorScheme: ColorScheme.fromSeed(seedColor: Colors.*deepPurple*),  
 useMaterial3: true,  
 ),  
 home: const MyHomePage(title: 'Flutter Demo Home Page'),  
 debugShowCheckedModeBanner: false,  
 );  
 }  
}  
  
class MyHomePage extends StatefulWidget {  
 const MyHomePage({super.key, required this.title});  
  
 final String title;  
  
 @override  
 State<MyHomePage> createState() => \_MyHomePageState();  
}  
  
class \_MyHomePageState extends State<MyHomePage> {  
  
 @override  
 Widget build(BuildContext context) {  
 return LoginScreen();  
  
 }  
}  
class LoginScreen extends StatefulWidget {  
 const LoginScreen({super.key});  
 @override  
 State<LoginScreen> createState() => \_LoginScreenState();  
}  
  
class \_LoginScreenState extends State<LoginScreen> {  
 String? err\_message ='';  
  
  
 final TextEditingController \_email=TextEditingController();  
 final TextEditingController \_password=TextEditingController();  
 Future<void>Login(String email,String password)async{  
 try{  
 await Auth().Login\_function(email: email, password: password);  
 Navigator.*push*( context,MaterialPageRoute(builder: (context) => const Home()));  
 } on FirebaseAuthException catch(err){  
 setState(() {  
 err\_message=err.message;  
 });  
 showAlert(context,err\_message!);  
 }  
 }  
 @override  
 Widget build(BuildContext context) {  
  
 return Scaffold(  
 body: Container(  
 decoration: const BoxDecoration(  
 image: DecorationImage(  
 image: AssetImage("assets/images/bg1.jpg"),  
 fit: BoxFit.cover),  
 ),  
 child: Padding(  
 padding:EdgeInsets.all(16.0),  
 child:Column(  
 mainAxisAlignment: MainAxisAlignment.center,  
 crossAxisAlignment: CrossAxisAlignment.start,  
 children: [  
 const Center(  
 child: Text(  
 "Indian Universities",  
 style: TextStyle(  
 color: Colors.*black*,  
 fontSize: 28.0,  
 fontWeight: FontWeight.*bold*,  
 fontFamily:'Merriweather\_regular'  
  
 ),  
 ),  
 ),  
 const SizedBox(  
 height: 70.0,  
 ),  
 Container(  
 width: 450,  
 height: 350,  
 child: Card(  
 child: Column(  
 children: [  
 const Center(  
 child: Text(  
 "Login",  
 style: TextStyle(  
 color: Colors.*black*,  
 fontSize: 44.0,  
 fontWeight:FontWeight.*bold*,  
 fontFamily:'Merriweather\_regular'  
 ),  
 ),  
 ),  
 const SizedBox(  
 height: 30.0,  
 ),  
 TextField(  
 controller: \_email,  
 keyboardType: TextInputType.*text*,  
 decoration:const InputDecoration(  
 hintText: "Email",  
 prefixIcon: Icon(Icons.*email*,color: Colors.*black*,)  
 ),  
 ),  
 const SizedBox(  
 height: 26.0,  
 ),  
 TextField(  
 controller: \_password,  
 keyboardType: TextInputType.*visiblePassword*,  
 decoration:const InputDecoration(  
 hintText: "Password",  
 prefixIcon: Icon(Icons.*lock*,color: Colors.*black*,)  
 ),  
 ),  
 const SizedBox(  
 height: 15.0,  
 ),  
  
  
 Center(  
 child: Container(  
 width: 150.0,  
 child: RawMaterialButton(  
 fillColor: Colors.*blueAccent*,  
 elevation: 5.0,  
 shape: RoundedRectangleBorder(  
 borderRadius: BorderRadius.circular(10.0)  
 ),  
 padding:const EdgeInsets.symmetric(vertical: 15),  
 onPressed: () async{  
 await Login(\_email.text, \_password.text);  
 },  
 child:const Text("Login",style: TextStyle(color: Colors.*white*,fontSize: 18.0),),  
 ),  
  
 ),  
 ),  
 const SizedBox(  
 height: 10,  
 ),  
 Container(  
 child: GestureDetector(  
 onTap: () {  
 Navigator.*push*(context,MaterialPageRoute(builder: (context) => Create\_Account() ));  
 },  
 child: Text("Don't have account Click here")  
 )  
 ),  
 ],  
 ),  
 ),  
 ),  
 const SizedBox(  
 height: 18.0,  
 ),  
 ],  
 ),  
  
 ),  
 )  
 );  
  
 }  
}  
showAlert(BuildContext context, String S){  
 AlertDialog alertDialog=AlertDialog(  
 title:const Text('Woops!!'),  
 content: Text(S),  
 actions: [  
 ElevatedButton(onPressed: (){Navigator.*of*(context).pop();}, child:const Text('Ok'))  
 ],  
 );  
 showDialog(  
 context: context,  
 builder: (BuildContext context){  
 return alertDialog;  
 });  
}

Step 3:

1. In home.dart add the following code. It will shows the List of Universities in india by using Listbuilder,data were get from the “ Url: ”“http://universities.hipolabs.com/search?country=India “
2. By using http plugin.

Future<void> fetchdata() async {  
 setState(() {  
 isLoading = true;  
 });  
 final response = await http.get(Uri.*parse*('http://universities.hipolabs.com/search?country=India'));  
 if (response.statusCode == 200) {  
 setState(() {  
 universities = jsonDecode(response.body);  
 });  
 } else {  
 print('Failed to fetch universities');  
 }

Step 3:

1. Each university is displayed in card widget , if tap any one university it will redirect to explore screen to display rest of informations of university by using “onTab()” function

ListView.builder(  
 itemCount: universities.length,  
 itemBuilder: (context, index) {  
 final university = universities[index];  
 return Card(  
 elevation: 5,  
 child: ListTile(  
 leading:const Icon(Icons.*apartment*),  
 title: Text(university['name']),  
 subtitle: Text(university['country']),  
 onTap: (){  
 Navigator.*push*(context,MaterialPageRoute(builder: (context) => Explore(universityData: university)));  
 },  
 ),  
 );  
},

Step 4:

1. In auth.dart , responsible for the firebase authendication

import 'package:firebase\_auth/firebase\_auth.dart';  
class Auth{  
 final FirebaseAuth \_firebaseAuth=FirebaseAuth.*instance*;  
   
  
 Future<void> Login\_function({required String email, required String password}) async{  
 await \_firebaseAuth.signInWithEmailAndPassword(email: email, password: password);  
 }  
  
 Future<void> Create\_credential({required String email, required String password}) async{  
 await \_firebaseAuth.createUserWithEmailAndPassword(email: email, password: password);  
 }  
  
  
 Future<void> Signout() async{  
 await \_firebaseAuth.signOut();  
 }  
}

1. Create a FirebaseAuth instance

final FirebaseAuth \_firebaseAuth=FirebaseAuth.*instance*

1. Create a login function using email and password

Future<void> Login\_function({required String email, required String password}) async{  
 await \_firebaseAuth.signInWithEmailAndPassword(email: email, password: password);  
}

1. Create a account create function

Future<void> Create\_credential({required String email, required String password}) async{  
 await \_firebaseAuth.createUserWithEmailAndPassword(email: email, password: password);  
}

1. Create a signout function
2. Future<void> Signout() async{  
    await \_firebaseAuth.signOut();  
   }

**Connect flutter project to Firebase:**

1. Login to Firebase console.
2. Create a project, while creating it will ask the project unique id it is in flutter project floder
3. After enter the id , click next download the google-services.json and this file is store in projectfloder🡪android🡪app🡪src🡪 google-services.json
4. Add this “apply plugin: 'com.android.application'” in projectfloder🡪android🡪app🡪src🡪build.gradle
5. Add the following two line in dependencies projectfloder🡪android🡪app🡪src🡪build.gradle

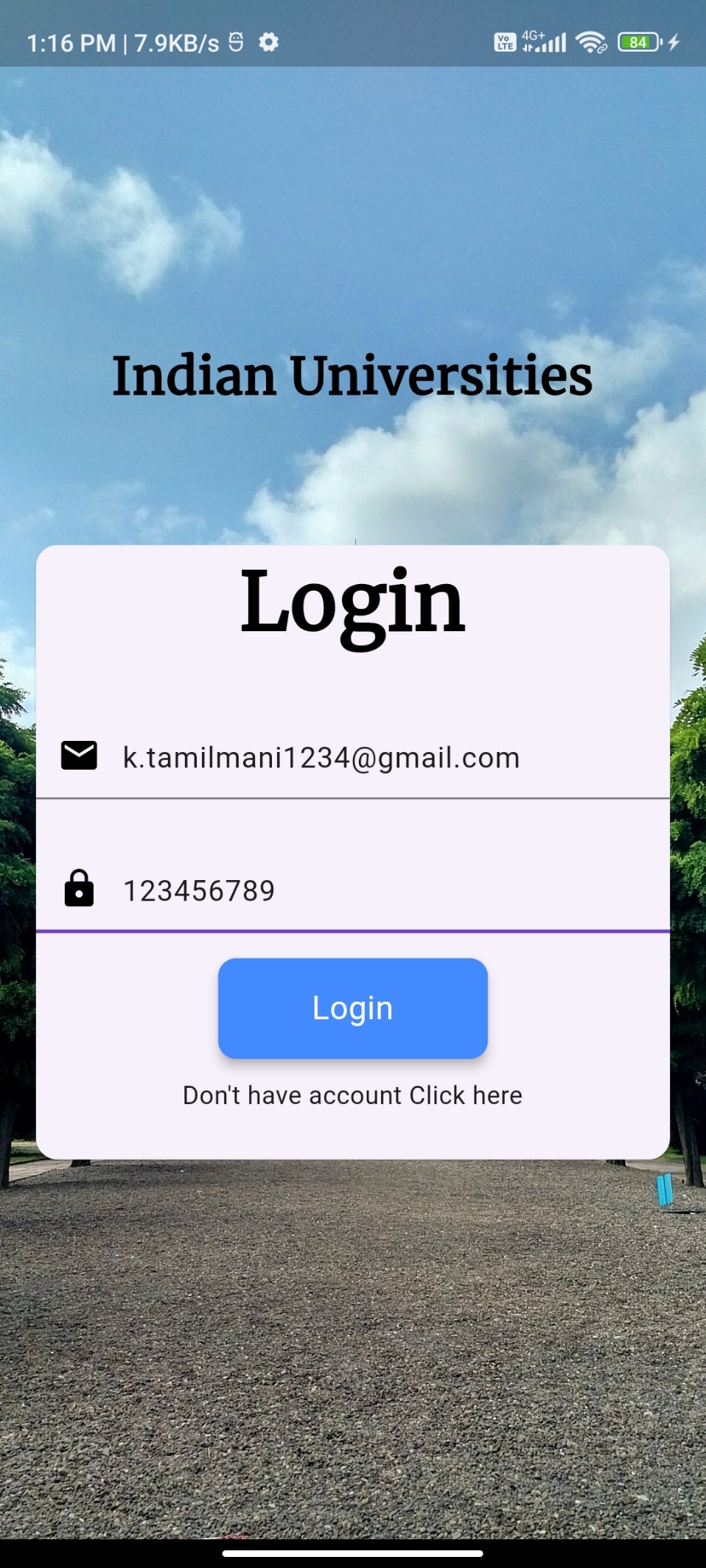
implementation 'com.google.firebase:firebase-analytics'  
implementation platform('com.google.firebase:firebase-bom:32.1.1')

1. Add this line in dependencies projectfloder🡪android🡪app🡪build.gradle

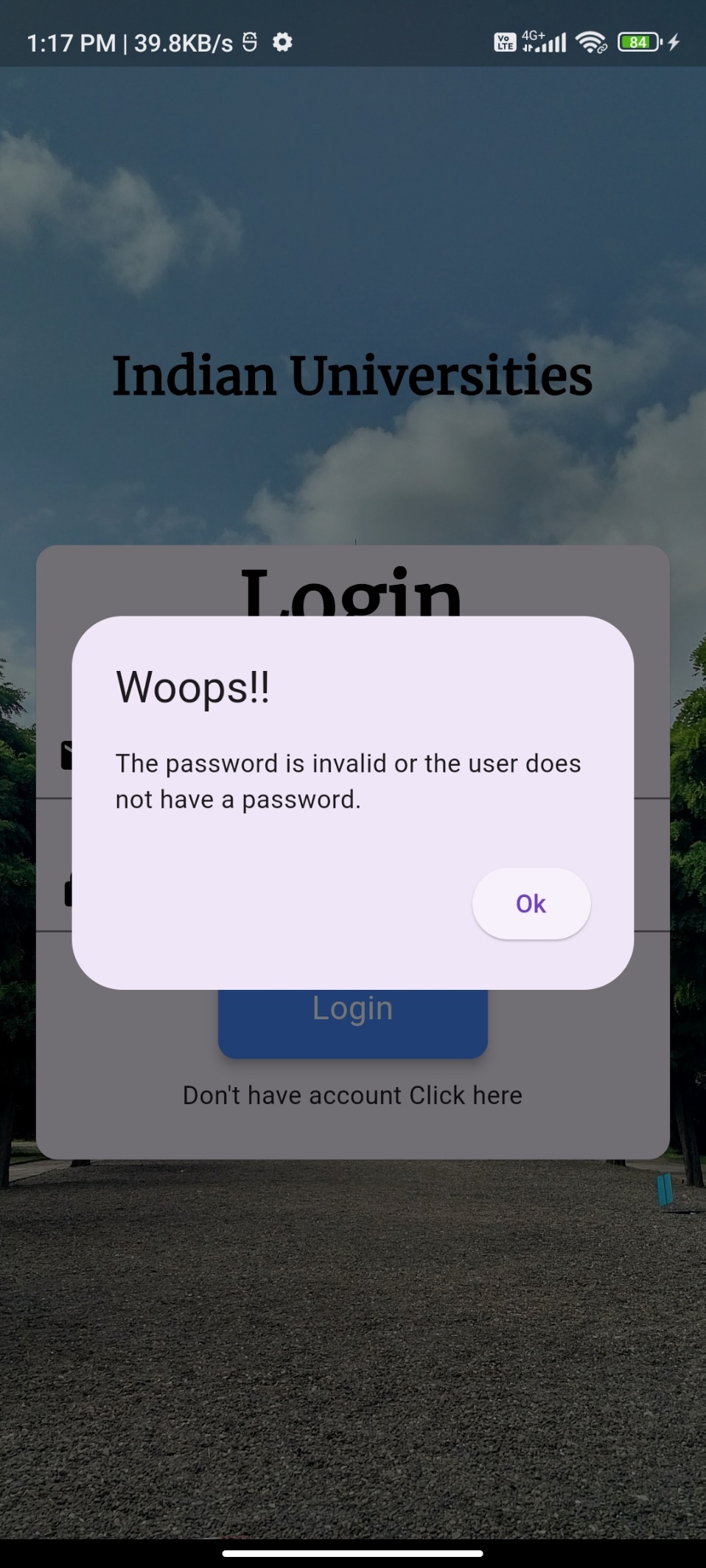
classpath "com.google.gms:google-services:4.3.14"

1. Finally run the project.

**OUTPUT SCREENS ARE FOLLOWING**

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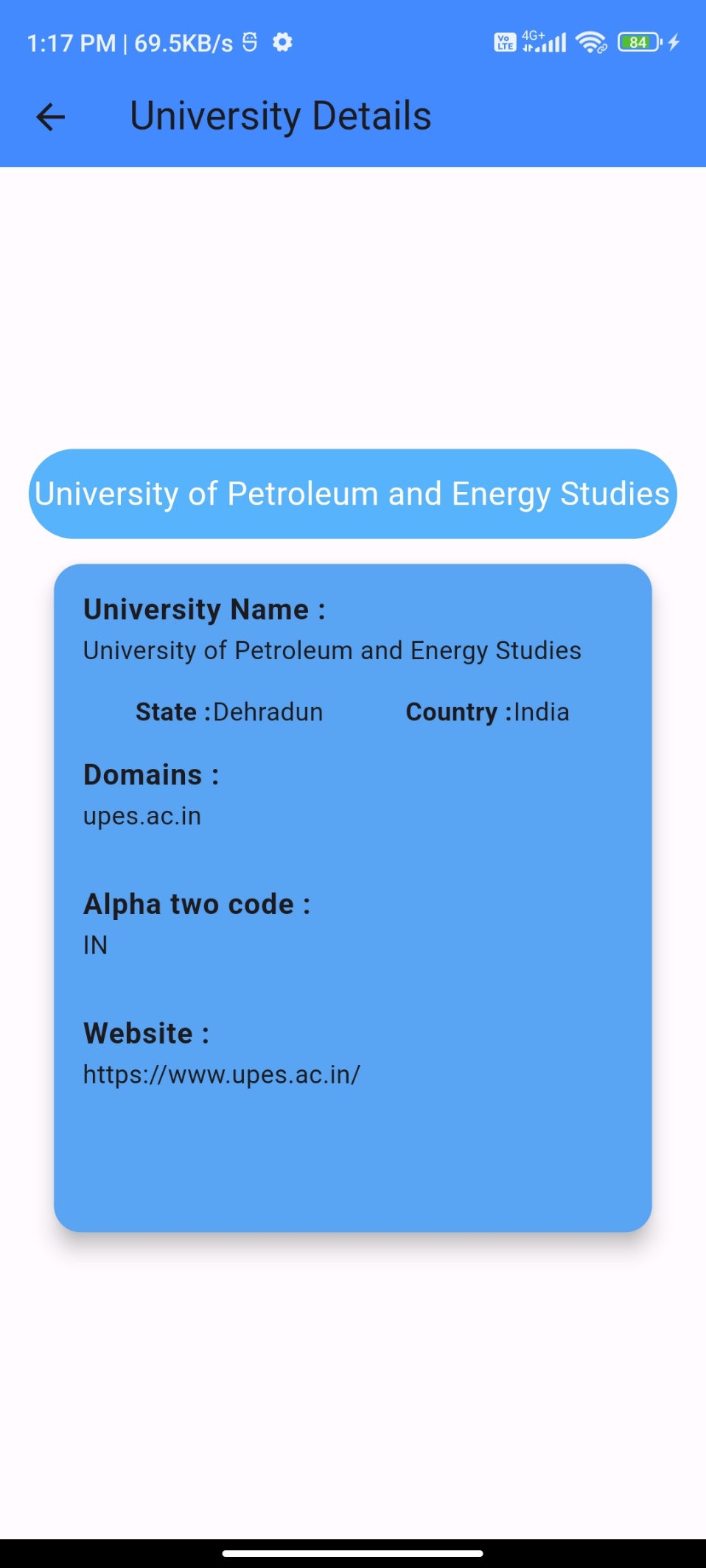
**Login Screen**

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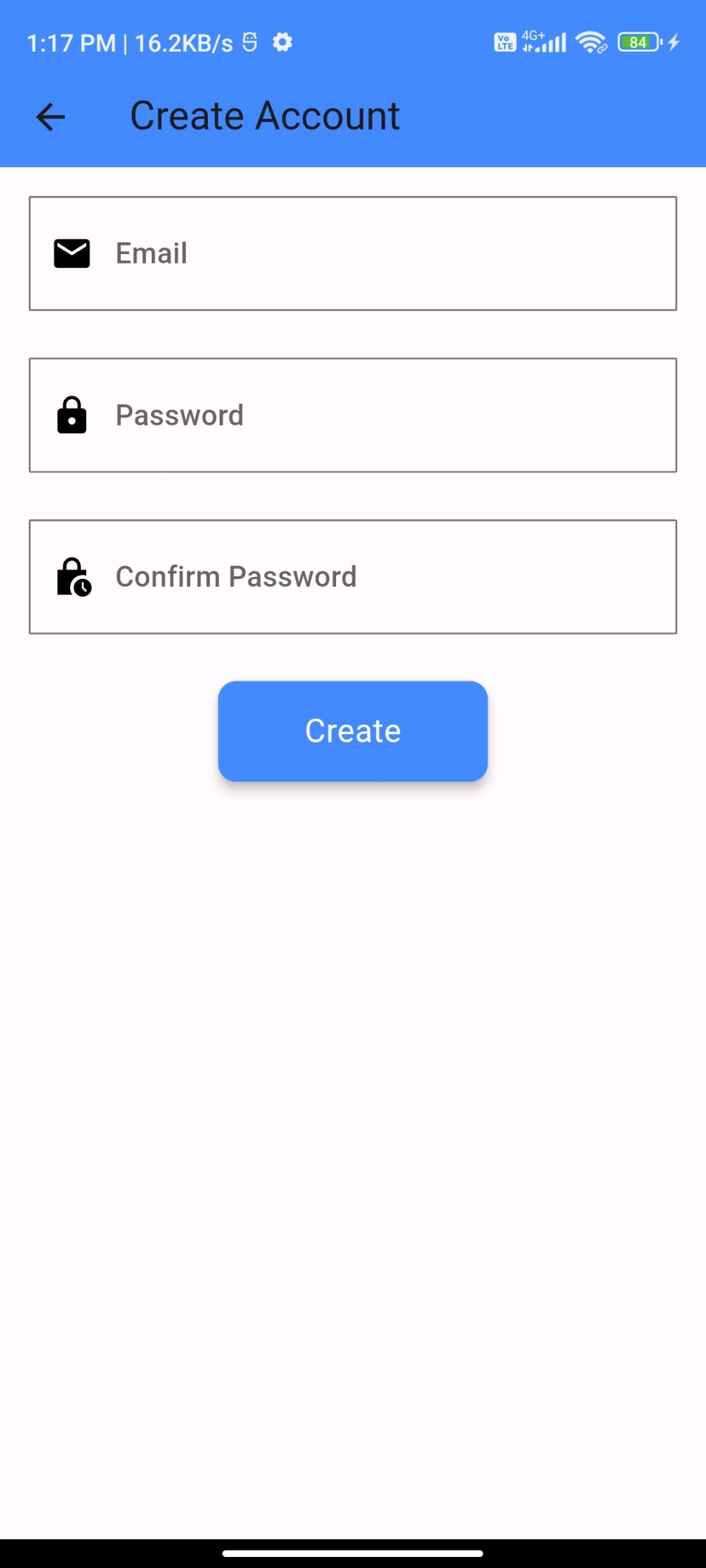
**If login is failed show alert**

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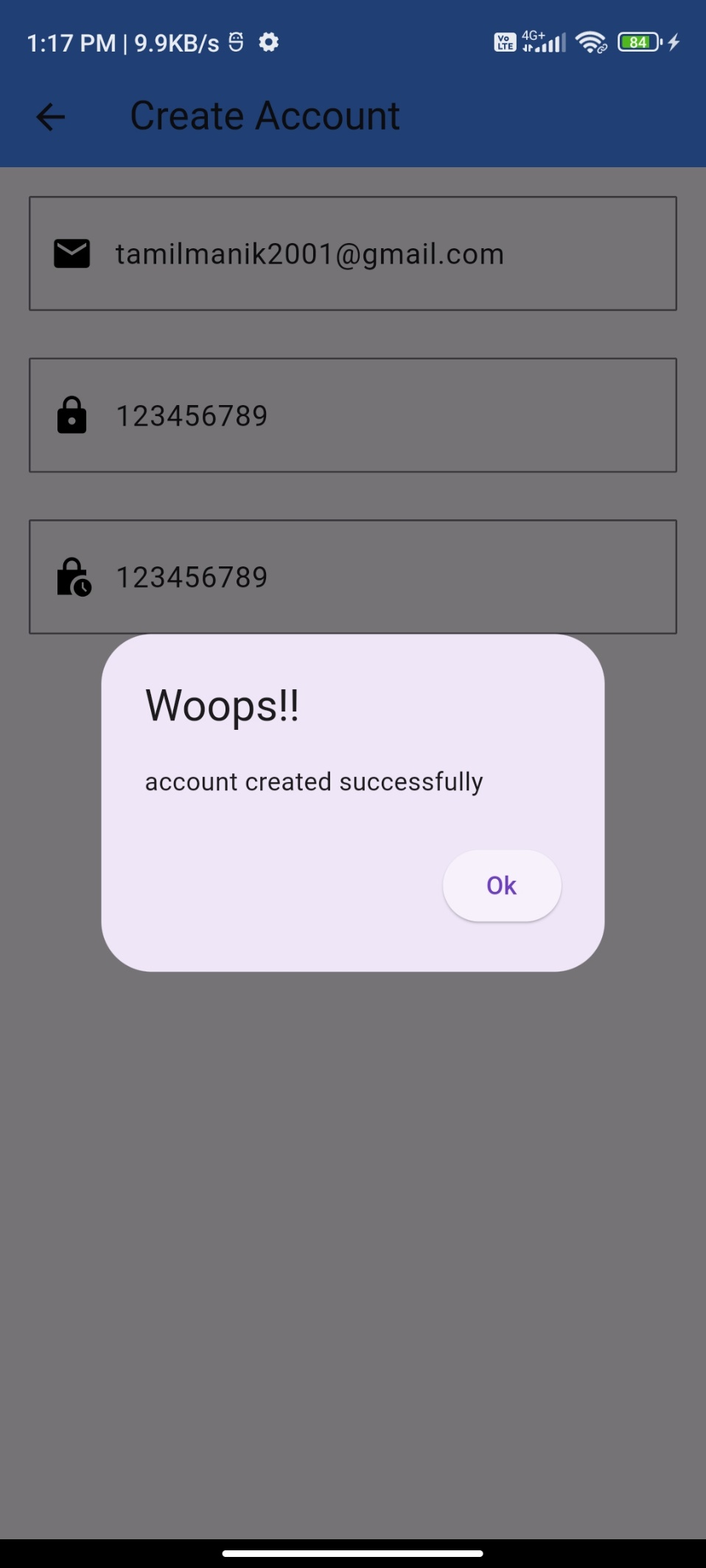
**Successful login redirect to home screen**

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**Screen show the particular university details**

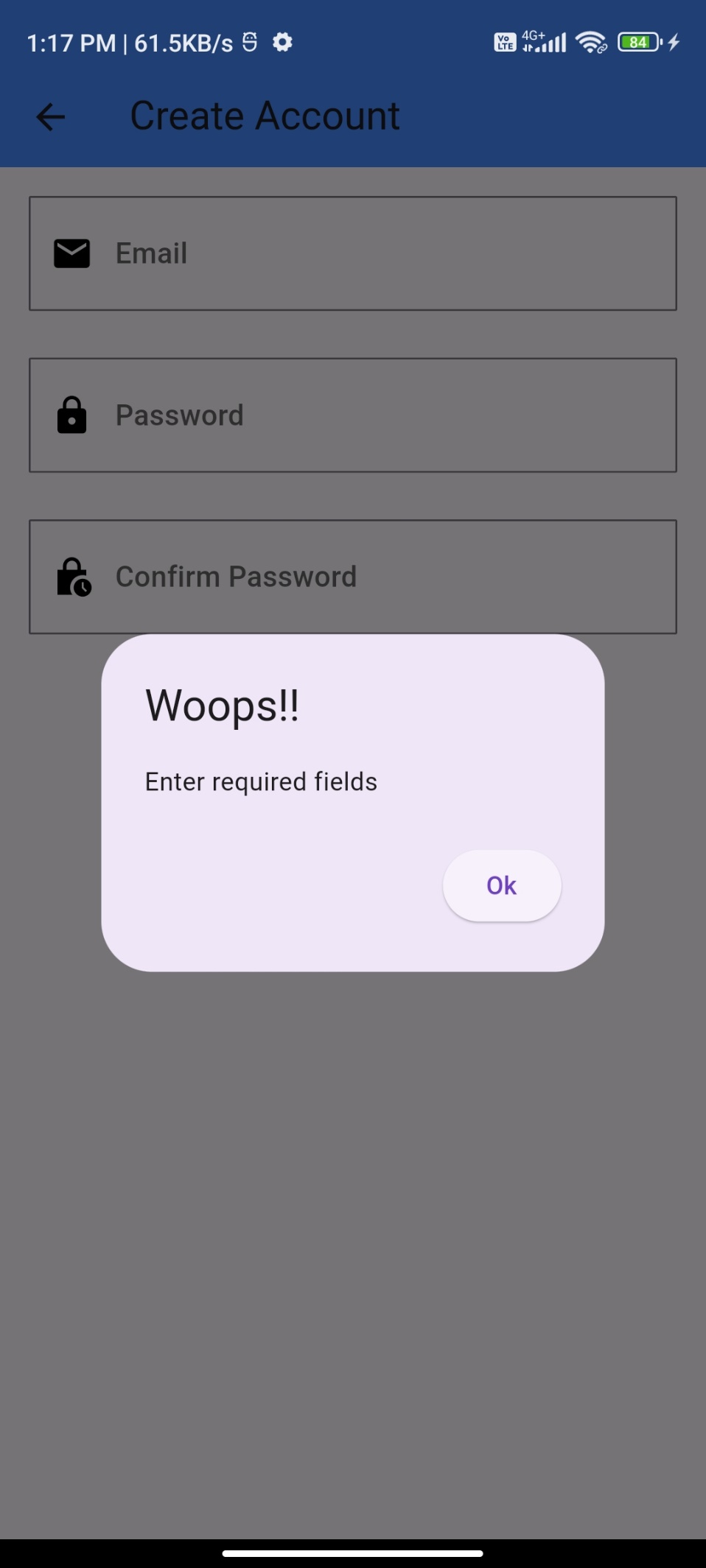
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**Account creation screen**

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**After create an account it shows alert and navigate to login screen**

**in Screen**

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**Form validation functionallity**