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EXPERIMENT NO: - 06

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AIM: - To connect Flutter UI with Firebase database.

Theory: -

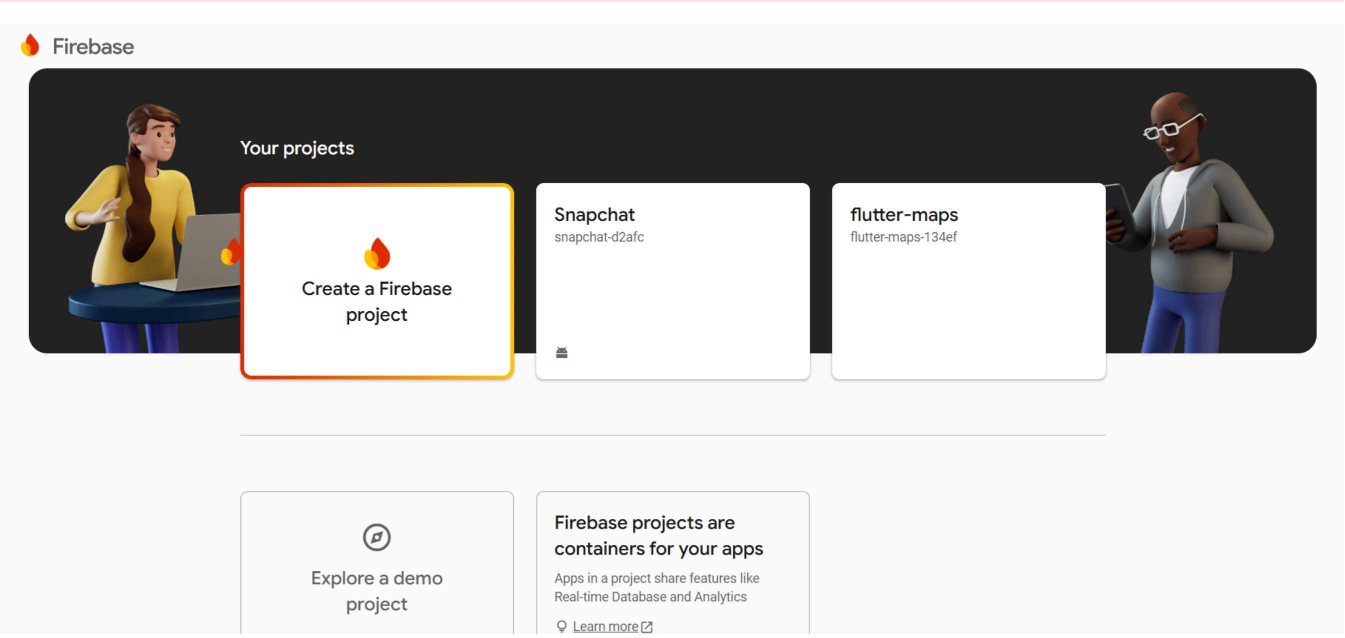
Flutter is an open-source UI toolkit developed by Google for building natively compiled applications for mobile, web, and desktop from a single codebase. Firebase, a Backend-as-a-Service (BaaS) platform, provides real-time database, authentication, and cloud storage services, making it a powerful backend solution for Flutter applications.

By integrating Firebase with Flutter, developers can store and retrieve data in real time, authenticate users, and manage cloud-based data efficiently. This is particularly useful for applications requiring dynamic content updates and user interactions.

➢ Steps to Connect Flutter UI with Firebase Database

Step 1:

1.1) Go to Firebase Console and Create a Firebase Project



Firebase

Your projects

Create a Firebase project

Snapchat
snapchat-d2afc

flutter-maps
flutter-maps-134ef

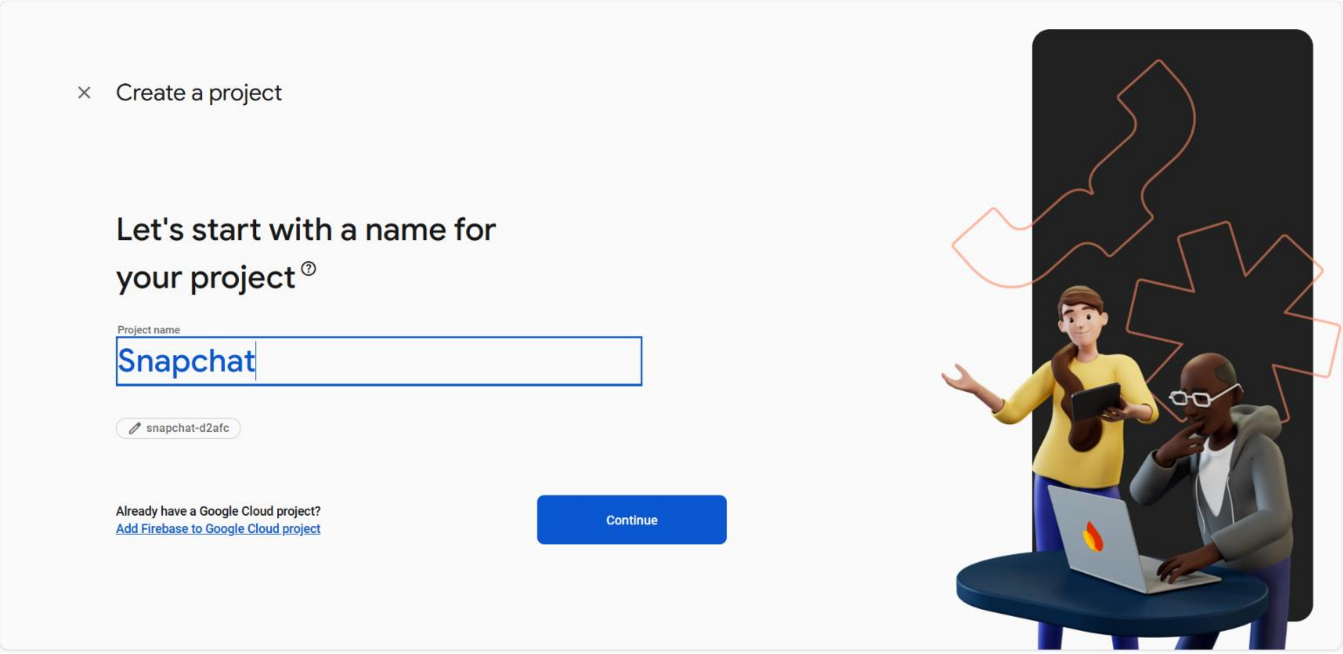
Explore a demo project

Firebase projects are containers for your apps

Apps in a project share features like Real-time Database and Analytics

Learn more

1.2) Click on Create a Project and give it a suitable name.



× Create a project

Let's start with a name for your project

Project name

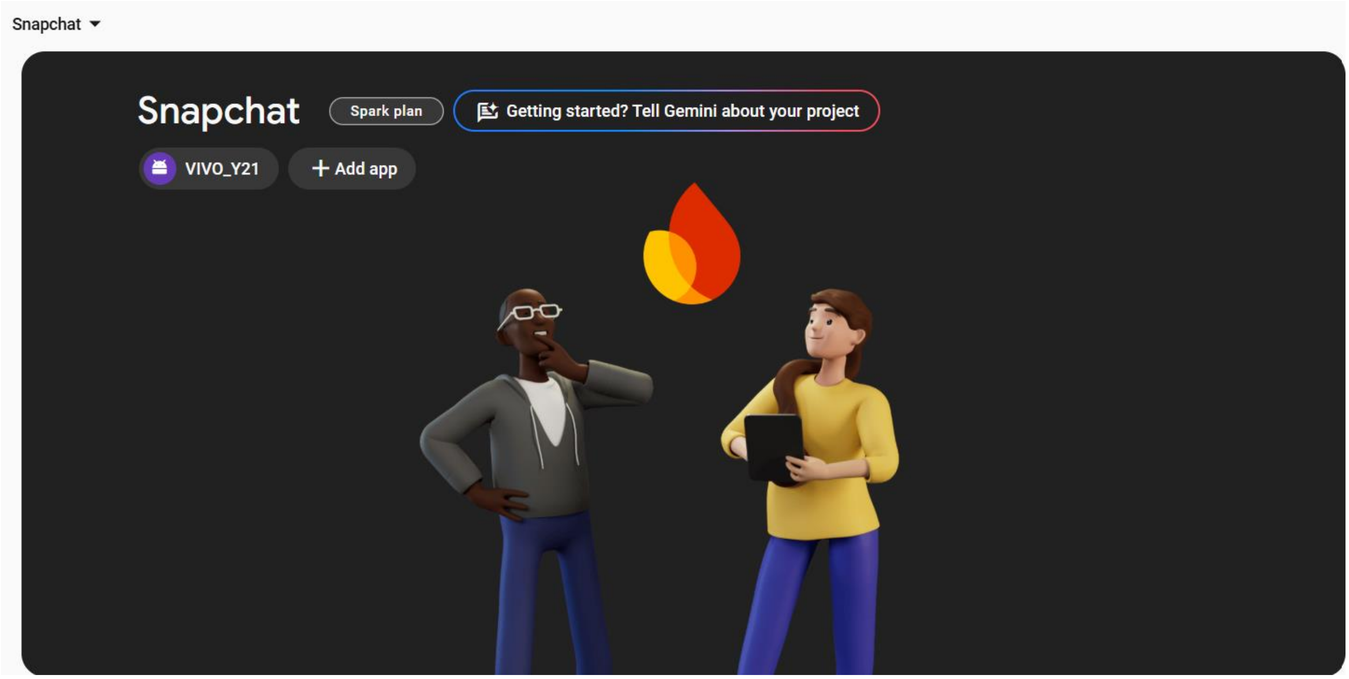
Snapchat

snapchat-d2afc

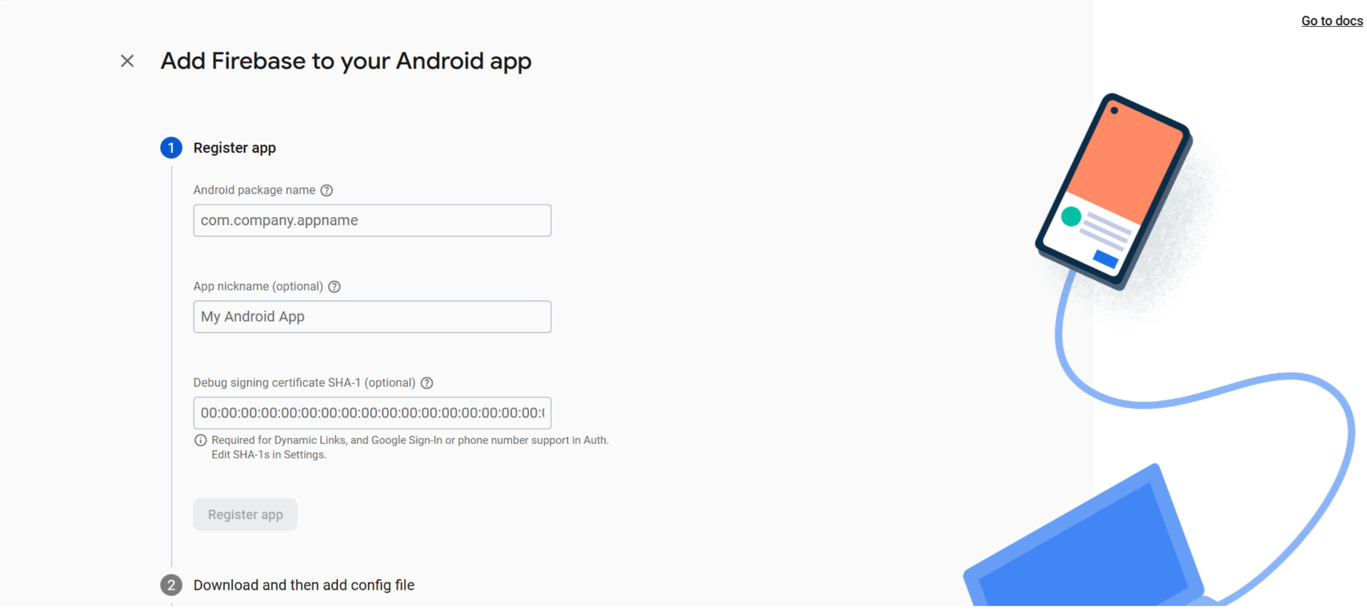
Already have a Google Cloud project?
Add Firebase to Google Cloud project

Step 2:- Add Firebase to Your Flutter App

2.1) Click on Android/iOS/Web based on your Flutter application



2.2) Register your app with a unique package name (found in android/app/build.gradle for Android).



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× Add Firebase to your Android app

1 Register app

Android package name ⓘ

com.company.appname

App nickname (optional) ⓘ

My Android App

Debug signing certificate SHA-1 (optional) ⓘ

00:00:00:00:00:00:00:00:00:00:00:00:00:00:00:00:00:00:00:0

ⓘ Required for Dynamic Links, and Google Sign-In or phone number support in Auth. Edit SHA-1s in Settings.

Register app

2 Download and then add config file

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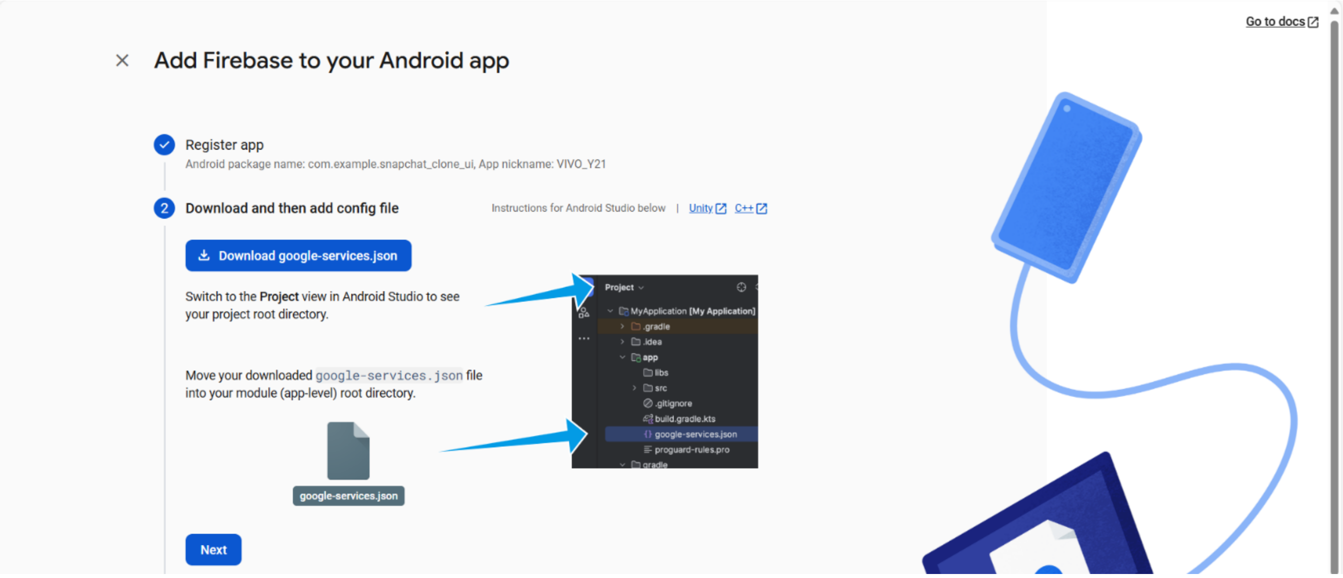
2.3) Download the google-services.json (for Android) & place the JSON file inside android/app/ directory.



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× Add Firebase to your Android app

Register app

Android package name: com.example.snapchat_clone_ui, App nickname: VIVO_Y21

2 Download and then add config file

Instructions for Android Studio below | Unity C++

Download google-services.json

Switch to the **Project** view in Android Studio to see your project root directory.

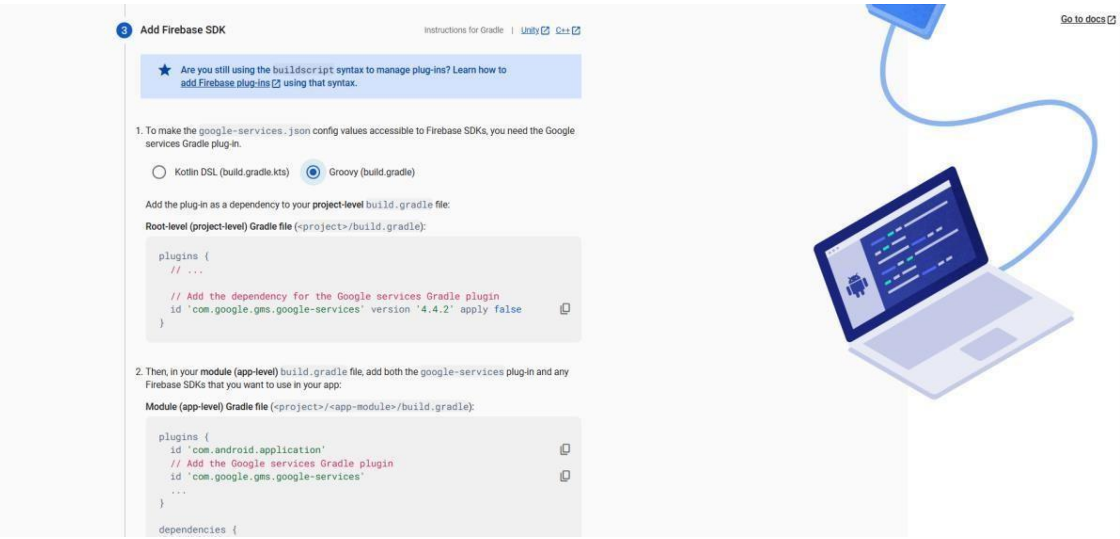
Move your downloaded `google-services.json` file into your module (app-level) root directory.

google-services.json

Next

```
Project
  MyApplication [My Application]
    .gradle
    .idea
    app
      libs
      src
      .gitignore
      build.gradle.kts
      google-services.json
      proguard-rules.pro
    gradle
```

2.4) Add Firebase SDK dependencies to android/build.gradle



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3 Add Firebase SDK

Instructions for Gradle | Unity C++

★ Are you still using the `buildscript` syntax to manage plug-ins? Learn how to add Firebase plug-ins using that syntax.

1. To make the `google-services.json` config values accessible to Firebase SDKs, you need the Google services Gradle plug-in.

○ Kotlin DSL (build.gradle.kts) ● Groovy (build.gradle)

Add the plug-in as a dependency to your **project-level** `build.gradle` file:

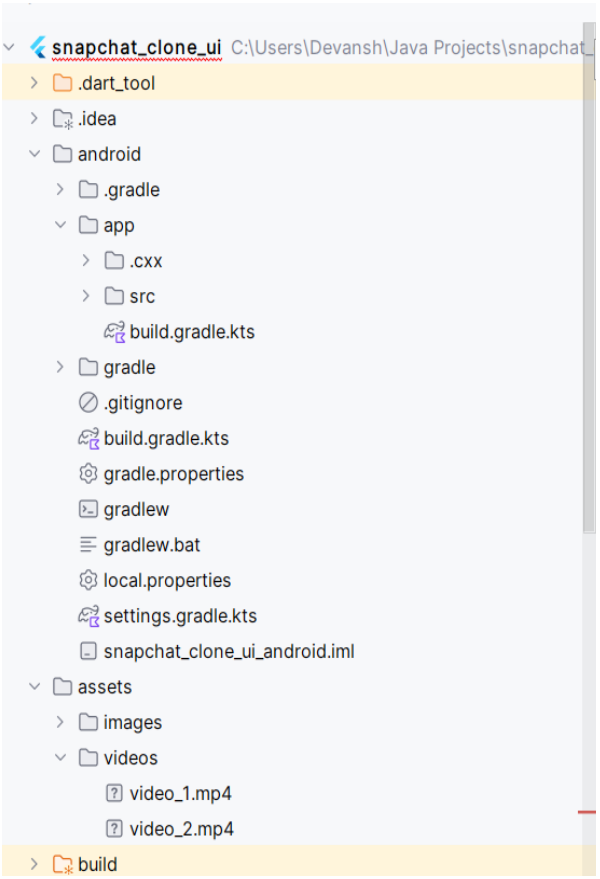
Root-level (project-level) Gradle file (`<project>/build.gradle`):

```
plugins {
  // ...

  // Add the dependency for the Google services Gradle plugin
  id 'com.google.gms.google-services' version '4.4.2' apply false
}
```

2. Then, in your **module (app-level)** `build.gradle` file, add both the `google-services` plug-in and any Firebase SDKs that you want to use in your app:

Module (app-level) Gradle file (`<project>/<app-module>/build.gradle`):

```
plugins {
  id 'com.android.application'
  // Add the Google services Gradle plugin
  id 'com.google.gms.google-services'
  ...
}

dependencies {
```



```
snapchat_clone_ui  C:\Users\Devansh\Java Projects\snapchat_
  .dart_tool
  .idea
  android
    .gradle
    app
      .cxx
      src
      build.gradle.kts
    gradle
    .gitignore
    build.gradle.kts
    gradle.properties
    gradlew
    gradlew.bat
    local.properties
    settings.gradle.kts
    snapchat_clone_ui_android.iml
  assets
    images
    videos
      video_1.mp4
      video_2.mp4
  build
```

Step 3: - Add Firebase Authentication to Your App

3.1) Add Firebase Authentication Dependencies

```
firebase_core: ^3.12.1
flutter_web_auth: ^0.6.0
firebase_auth: ^5.5.1
http: ^1.3.0
```

3.2) Enable Authentication in Firebase Console
Go to **Firebase Console → Authentication**.
Click on **Sign-in method** and enable **Email/Password** (or any other method like Google).Click Save

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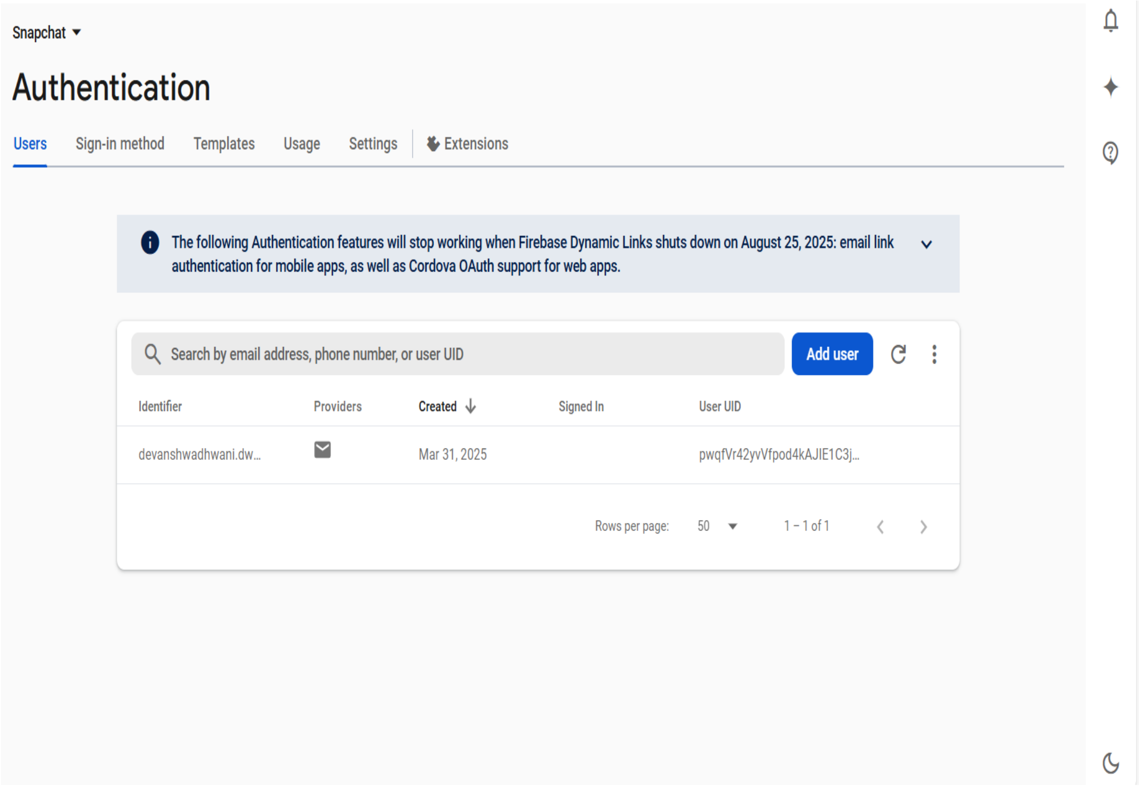

Authentication

The following Authentication features will stop working when Firebase Dynamic Links shuts down on August 25, 2025: email link authentication for mobile apps, as well as Cordova OAuth support for web apps.

Search by email address, phone number, or user UID

Identifier	Providers	Created ↓	Signed In	User UID
devanshwadhwani.dw...	✉	Mar 31, 2025		pwqfVr42yvVfpod4kAJIE1C3j...

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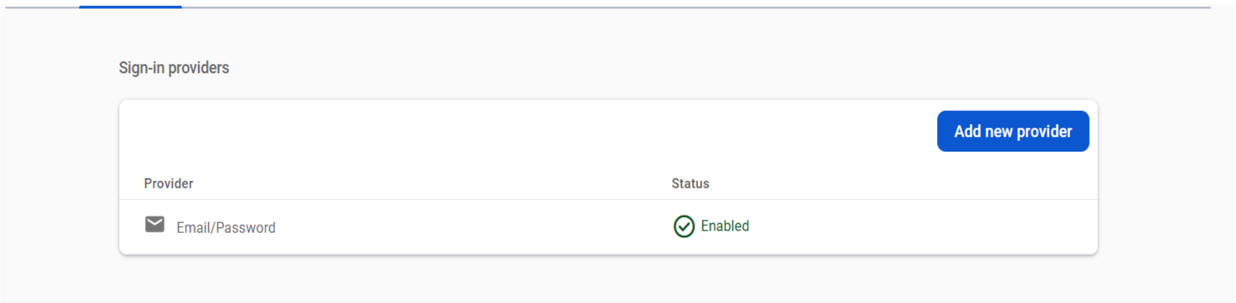

Sign-in providers

Add new provider

Provider	Status
✉ Email/Password	✓ Enabled

3.3) Implement Authentication in Flutter
Modify main.dart

```
import 'package:flutter/material.dart';
import 'package:snapchat_clone_ui/screens/home_screen.dart';
import 'package:snapchat_clone_ui/screens/initial_screen.dart';
import 'package:snapchat_clone_ui/screens/login_screen.dart';
import 'package:snapchat_clone_ui/screens/signup_screen.dart';
import ‘package:firebase_core’

void main() {
  runApp(MyApp());
}

class MyApp extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    return MaterialApp(
      debugShowCheckedModeBanner: false,
      theme: ThemeData(primaryColor: Color(0xFF838486)),
      initialRoute: '/',
      routes: {
        '/': (context) => InitialScreen(),
        '/login_screen': (context) => LoginScreen(),
        '/signup_screen': (context) => SignupScreen(),
        '/home_screen': (context) => HomeScreen(),
      },
    );
  }
}
```

Step 4: -Configure Firebase Realtime Database

4.1) Go to Firebase Console → Realtime Database.

4.2) Click **Create Database** → Choose location → Set rules (for development, set read/write to true).

4.3) Click **Publish**.

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- Code:

- Login_Screen.dart

```
import 'package:flutter/material.dart';
import 'package:font_awesome_flutter/font_awesome_flutter.dart';
import 'package:snapchat_clone_ui/custom_widgets/custom_widgets.dart';

const FaIcon hiddenEye = FaIcon(FontAwesomeIcons.eyeSlash);
const FaIcon eye = FaIcon(FontAwesomeIcons.eye);

class LoginScreen extends StatefulWidget {
  @override
  _LoginScreenState createState() => _LoginScreenState();
}

class _LoginScreenState extends State<LoginScreen> {
  bool _obscureText = true;
  Widget eyeStatus = hiddenEye;

  void _toggle() {
    setState(() {
      _obscureText = !_obscureText;
      if (_obscureText == false) {
        eyeStatus = eye;
      } else {
        eyeStatus = hiddenEye;
      }
    });
  }

  @override
  Widget build(BuildContext context) {
    return Scaffold(
      appBar: AppBar(
        leading: GestureDetector(
          onTap: () {
            Navigator.pop(context);
          },
          child: Icon(Icons.arrow_back_ios, color: Colors.grey),
        ),
        elevation: 0,
        backgroundColor: Colors.white,
      ),
      body: Center(
```

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```
child: SingleChildScrollView(
  child: Center(
    child: Column(
      mainAxisAlignment: MainAxisAlignment.spaceEvenly,
      children: [
        Text(
          "Log in",
          style: TextStyle(fontSize: 40, color: Colors.black),
        ),
        SizedBox(height: 20),
        CustomSnapTextField(
          label: "USERNAME OR EMAIL",
          isPasswordField: false,
          autoFocus: true,
        ),
        SizedBox(height: 20),
        Column(
          children: [
            Container(
              alignment: Alignment.centerLeft,
              margin: EdgeInsets.symmetric(horizontal: 50),
              child: Text(
                "PASSWORD",
                style: TextStyle(
                  fontSize: 18,
                  fontWeight: FontWeight.bold,
                  color: Color(0xFF51B5E5),
                ),
              ),
            ),
            Padding(
              padding: const EdgeInsets.symmetric(horizontal: 50),
              child: TextField(
                obscureText: _obscureText,
                autofocus: false,
                cursorHeight: 33,
                cursorWidth: 2,
                decoration: InputDecoration(
                  suffixIcon: GestureDetector(
                    onTap: () {
                      _toggle();
                    },
                    child: eyeStatus,
                  ),
                  floatingLabelBehavior: FloatingLabelBehavior.never,
                  contentPadding: EdgeInsets.all(6),
                ),
                cursorColor: Color(0xFF69B77D),
              ),
            ),
          ],
            ),
            SizedBox(height: 60),
            //Forgot your password
            GestureDetector(
              onTap: () {
                //forgot your password
              },
              child: Text(
                "Forgot your password?",
                style: TextStyle(
                  fontSize: 17,
                  fontWeight: FontWeight.bold,
                  color: Color(0xFF51B5E5),
                ),
              ),
            ),
            SizedBox(height: 90),

            //Login button
            Padding(
              padding: const EdgeInsets.symmetric(horizontal: 80),
              child: GestureDetector(
                onTap: () {
                  Navigator.pushNamed(context, '/home_screen');
                },
                child: Container(
                  margin: EdgeInsets.only(top: 20),
                  child: Text(
                    "Log in",
                    style: TextStyle(
                      fontSize: 25,
                      color: Colors.white,
                      fontWeight: FontWeight.bold,
                    ),
                  ),
                  alignment: Alignment.center,
                  height: 55,
                  width: double.infinity,
                  decoration: BoxDecoration(
                    color: Color(0xFFADB6BD),
                    borderRadius: BorderRadius.circular(80),
                  ),
                ),
              ),
            ),
          ],
        ),
      ),
    ),
  ),
);
```

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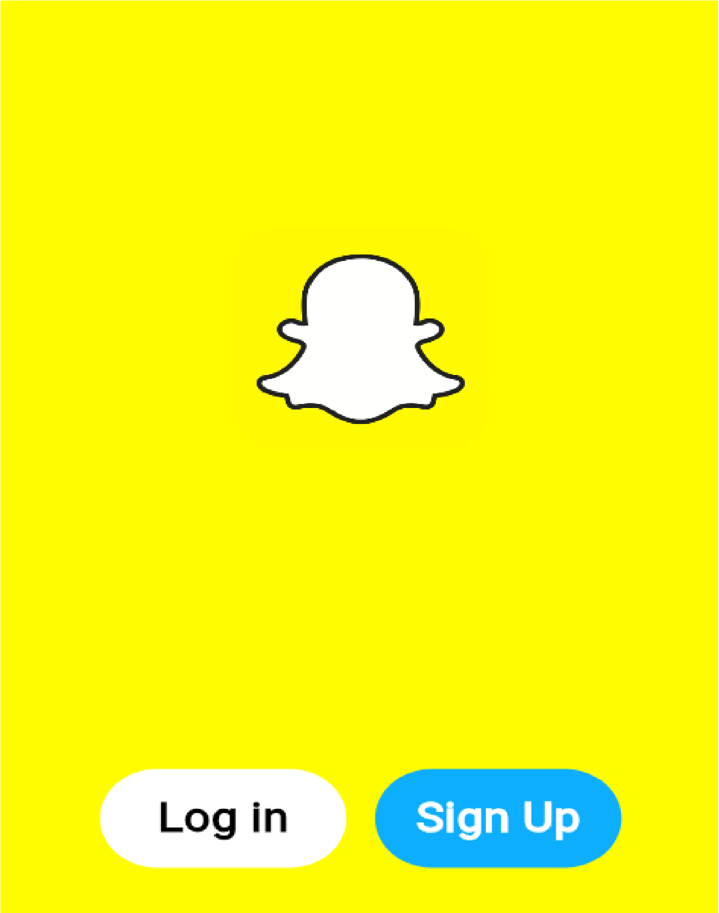

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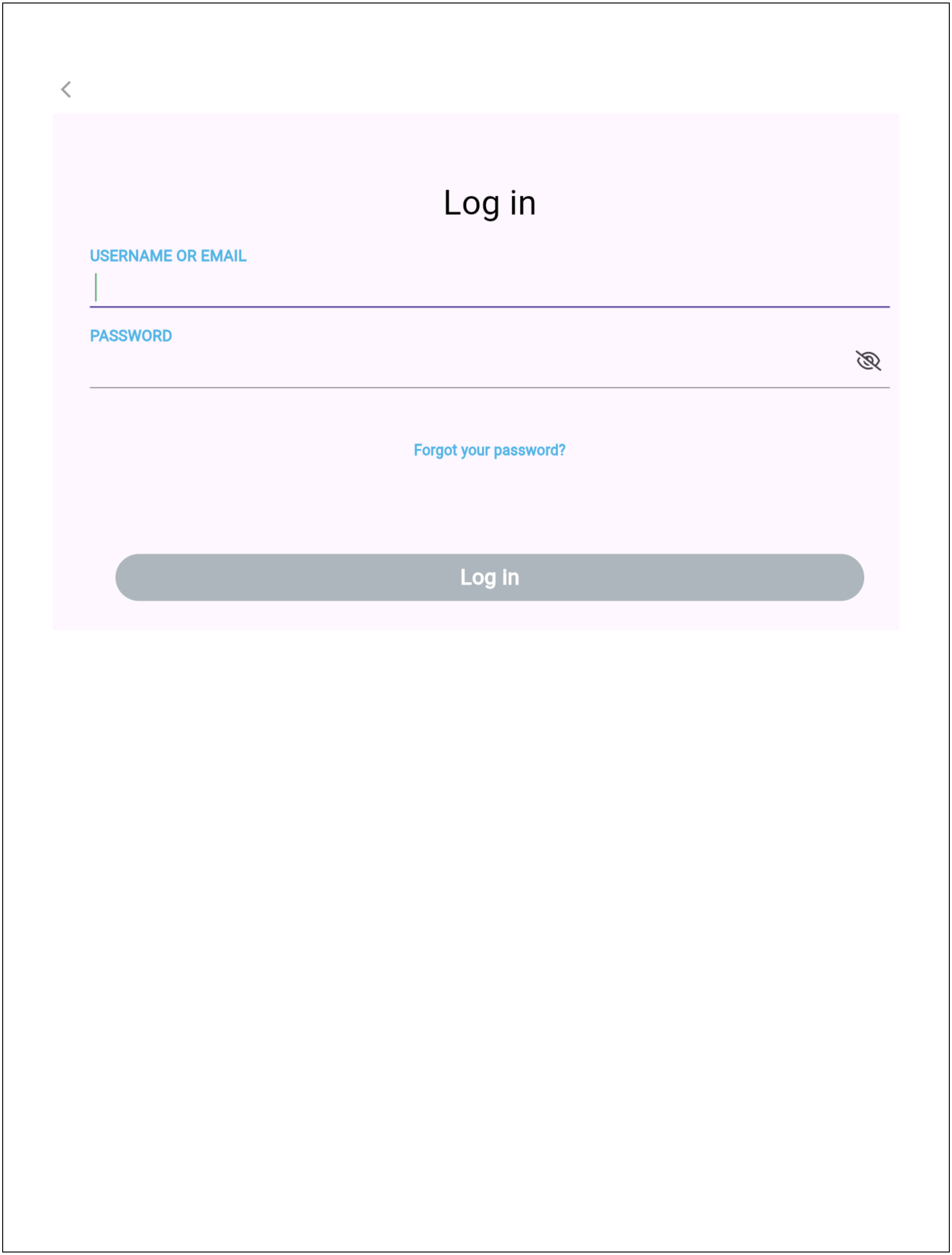
Log in
USERNAME OR EMAIL
PASSWORD
Forgot your password?
Log in

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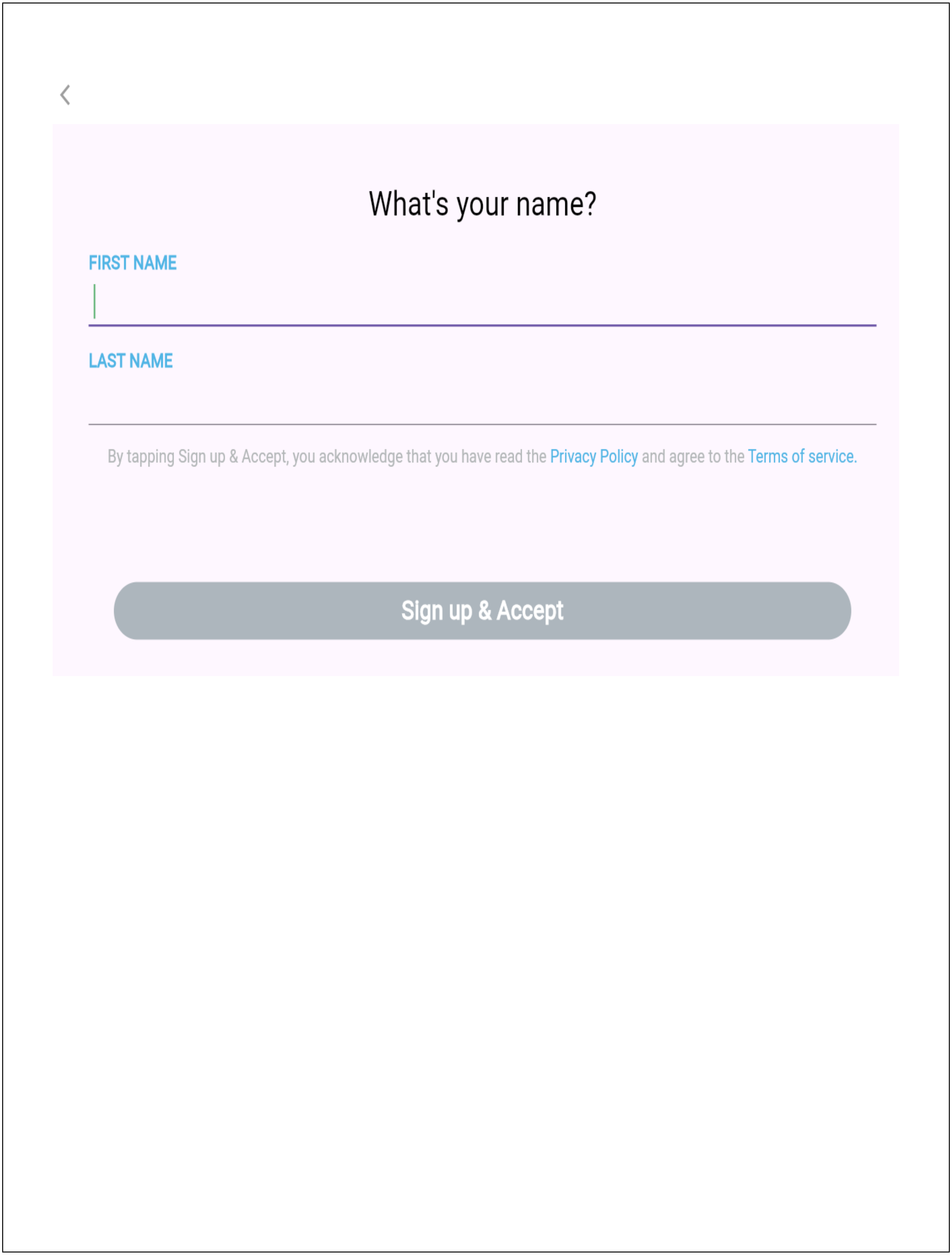

What's your name?

FIRST NAME

LAST NAME

By tapping Sign up & Accept, you acknowledge that you have read the Privacy Policy and agree to the Terms of service.

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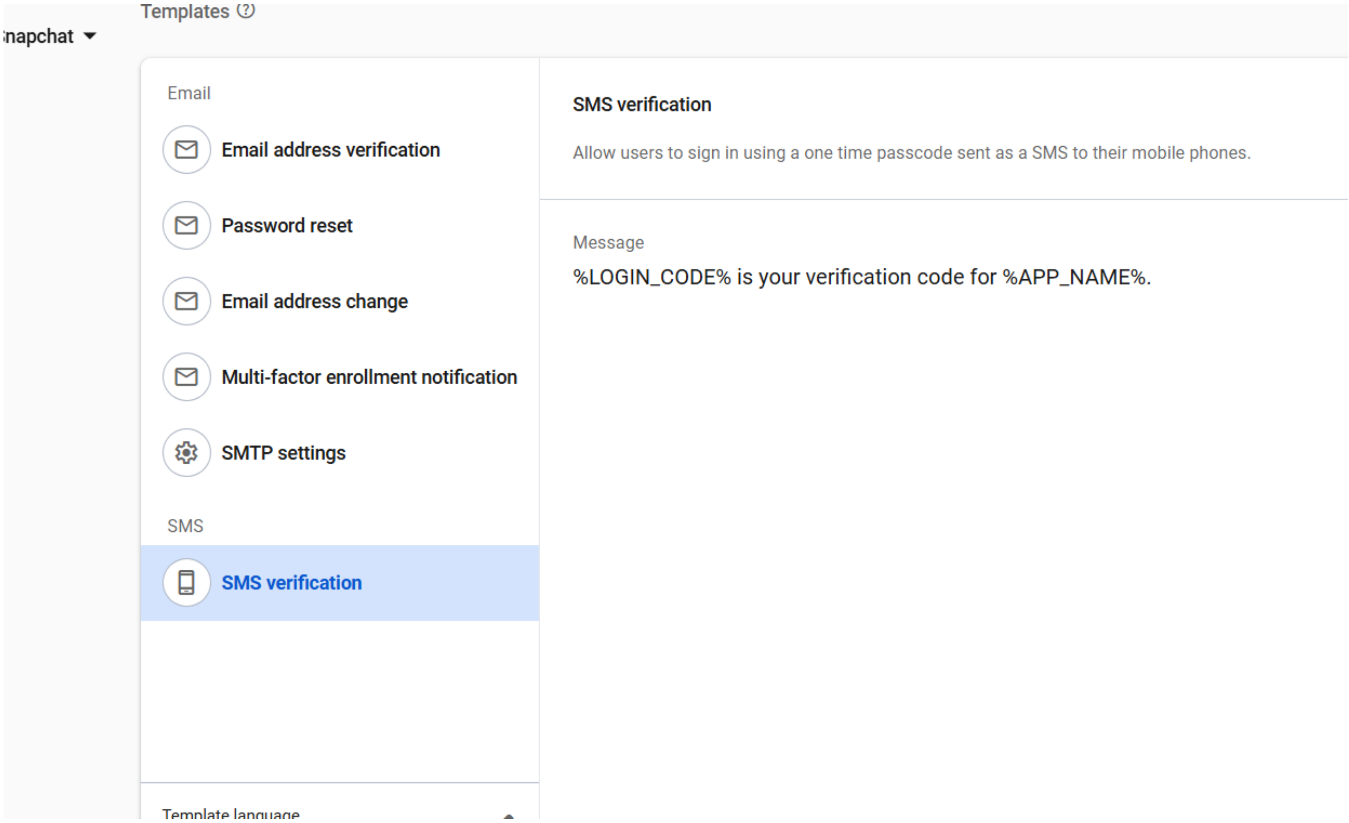

SMS verification

Allow users to sign in using a one time passcode sent as a SMS to their mobile phones.

Message

%LOGIN_CODE% is your verification code for %APP_NAME%.