Aim : To set up firebase with flutter for Android Apps.

Theory : Firebase is a platform developed by google that provides a wide-range of services including database , authenticating cloud function and More

Key features :
- Authentication : Support EMails / Password phone authentication of third party provides like google facebook and apps
- cloud firestore / Relatime Database : Real time data synchronization
- cloud storage : Secure file storage
- FCM Analysis : Push notification of user behaviours tracking

Setup : 1] create a firebase project
2] configure for Android / ios of download config files
3] Add dependencies in pubspec.yaml
4] Initialise firebase

Conclusion :
Firebase with flutter simplifies backend Management allowing developers to focus on building feature rich apps quickly.

Step 1: Set up Firebase Project

1. Go to the Firebase Console: Visit Firebase Console.

2. Create a new project: Click on "Add project" and follow the prompts to create a Firebase project

3. Enable Android App: After your Firebase project is created, click on the "Android" icon to set up Firebase for Android.

Step 2: Register Your Android App with Firebase

1. Enter your Android package name: This is the unique identifier for your Android app. You can find it in your Flutter project under android/app/src/main/AndroidManifest. Xml.

2. Download google-services. json: After registering your app, Firebase will give you a google-services. json file. Download it.

3. Add google-services. json to your project:
Place the google-services. json file in the android/app directory of your Flutter project.

Step 3: Modify android/build. gradle
1. Open android/build. gradle and add the following classpath inside the dependencies section:
classpath 'com.google.gms:google-services:4.3.15' // Add this line

Step 4: Modify android/app/build.gradle
1. Open android/app/build. gradle and add the following line at the bottom of the file
apply plugin: 'com.google.gms.google-services' // Add this line

2. In the dependencies section, add the Firebase SDK dependencies for the services you want to use (e.g., Firestore, Firebase Auth, etc.). Example for Firebase Core:
dependencies 1

// Add this line
implementation platform(' com.google. firebase:firebase-bom:32.0.0')
implementation 'com.google. firebase:firebase-analytics ,

Step 5: Add Firebase SDK to Your Flutter App

1. Open pubspec. yaml and add the required Firebase dependencies. For example:
dependencies:
flutter.
sdk: flutter

firebase_core: ^2.10.0
Add this line
firebase_auth: ^4.0.0 # Example for Firebase Auth (add other
Firebase packages as needed)

2. Run the following command to install the dependencies:
flutter pub get

Step 6: Initialize Firebase in Flutter
1. Open your lib/main.dart file.

2. Import Firebase and initialize it as follows:
import 'package:firebase_core/firebase_core.dart';
import 'package:flutter/material.dart' ;
void main() async i
WidgetsFlutterBinding. ensureInitialized() ;
await Firebase.initializeApp(); // Initialize Firebase runApp (MyApp()) ;
class MyApp extends StatelessWidget t
@override
Widget build(BuildContext context) / return MaterialApp(home: Scaffold
appBar: AppBar(title: Text ('Firebase Setup Example')), body: Center (child: Text ('Firebase is
working!')),
implementation 'com.google. firebase:firebase-analytics ,

Step 7: Add Firebase SDK to Your Flutter App
1. Open pubspec. yaml and add the required Firebase dependencies. For example:
dependencies:
flutter.
sdk: flutter
firebase_core: ^2.10.0
Add this line
firebase_auth: ^4.0.0 # Example for Firebase Auth (add other
Firebase packages as needed)

2. Run the following command to install the dependencies:
flutter pub get

Step 8: Initialize Firebase in Flutter
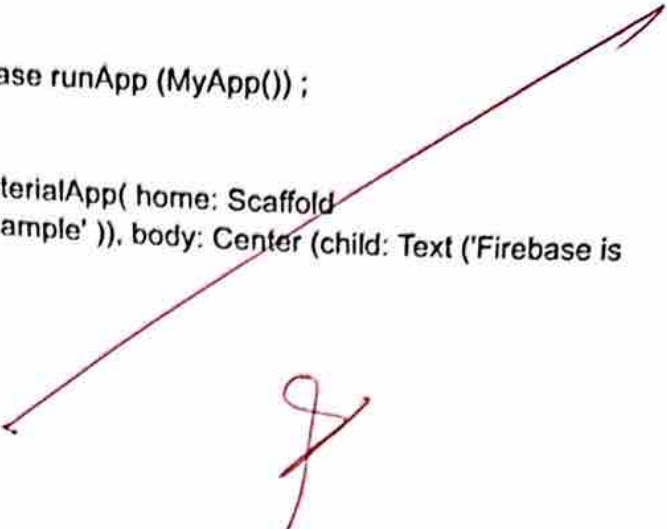1. Open your lib/main.dart file.

2. Import Firebase and initialize it as follows:
import 'package:firebase_core/firebase_core.dart';
import 'package:flutter/material.dart' ;
void main() async i

```
WidgetsFlutterBinding. ensureInitialized() ;
await Firebase.initializeApp(); // Initialize Firebase runApp (MyApp()) ;
class MyApp extends StatelessWidget t
@override
Widget build(BuildContext context) / return MaterialApp( home: Scaffold
appBar: AppBar(title: Text ('Firebase Setup Example' )), body: Center (child: Text ('Firebase is
working!')),
```