MPL Experiment 6

AIM: - To connect Flutter UI with Firebase Database

Theory: **-** Firebase is a cloud-based platform by Google that provides backend services like authentication, real-time databases, and cloud storage. In Flutter, Firebase can be integrated using the Firebase SDK to store and retrieve data dynamically. The Cloud Firestore database enables real-time data synchronization, making it ideal for Flutter applications.

Steps to Connect Flutter UI with Firebase Database

1. Create a Firebase Project

- Go to Firebase Console.
- Click on "Add Project" → Configure settings → Create the project.

2. Add Firebase to Flutter App

- Open your Flutter project.

```
 Run: flutter pub add firebase_core firebase_firestore
```

- Configure Firebase in android/app/google-services.json (for Android) and ios/Runner/GoogleService-Info.plist (for iOS).

3. Initialize Firebase in Flutter

Modify main.dart:

```
import 'package:firebase_core/firebase_core.dart';
import 'package:flutter/material.dart';

void main() async { WidgetsFlutterBinding.ensureInitialized();
await Firebase.initializeApp();
 runApp(MyApp());
}
```

4. Connect Firestore Database

- In Firebase Console → Firestore → Create a database.

Create a Firestore instance in Flutter:

```
import 'package:cloud_firestore/cloud_firestore.dart';
FirebaseFirestore firestore = FirebaseFirestore.instance;
```

5. Perform CRUD Operations

```
Add Data: firestore.collection('users').add({'name': 'John', 'age': 25});
Retrieve Data: firestore.collection('users').get().then((snapshot) {
for (var doc in snapshot.docs) {
print(doc.data());
}
 });
```

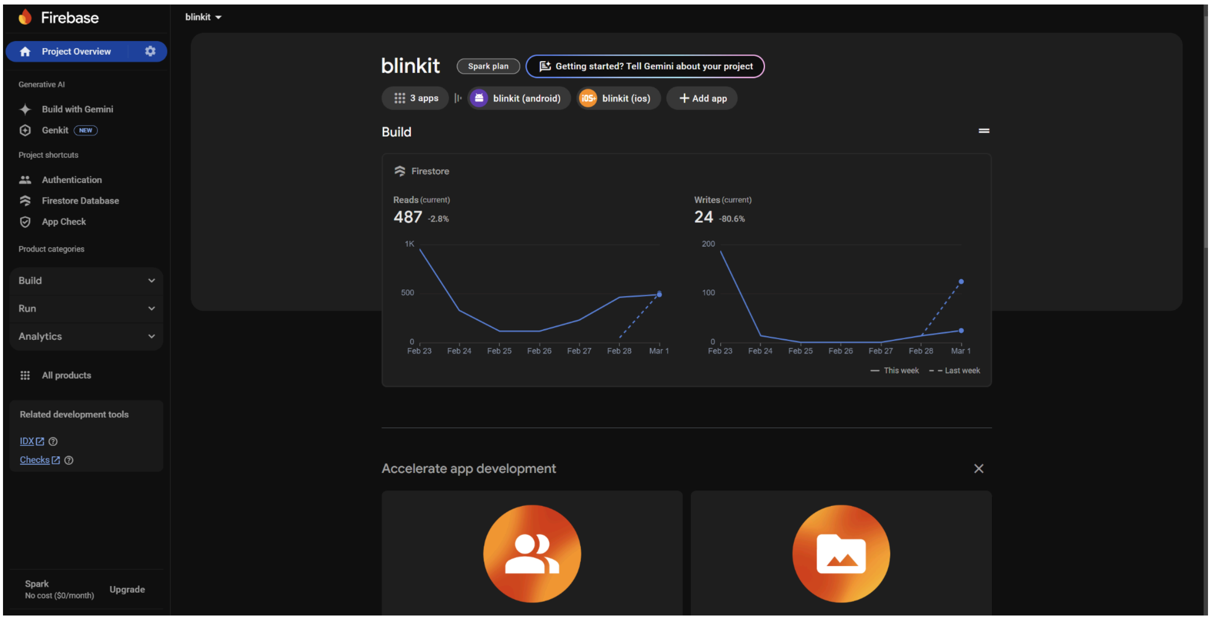
Update Data: firestore.collection('users').doc('docId').update({'age': 26}); Delete Data: firestore.collection('users').doc('docId').delete();
6. Run the App & Test Execute flutter run and verify Firebase data operations in Firestore.

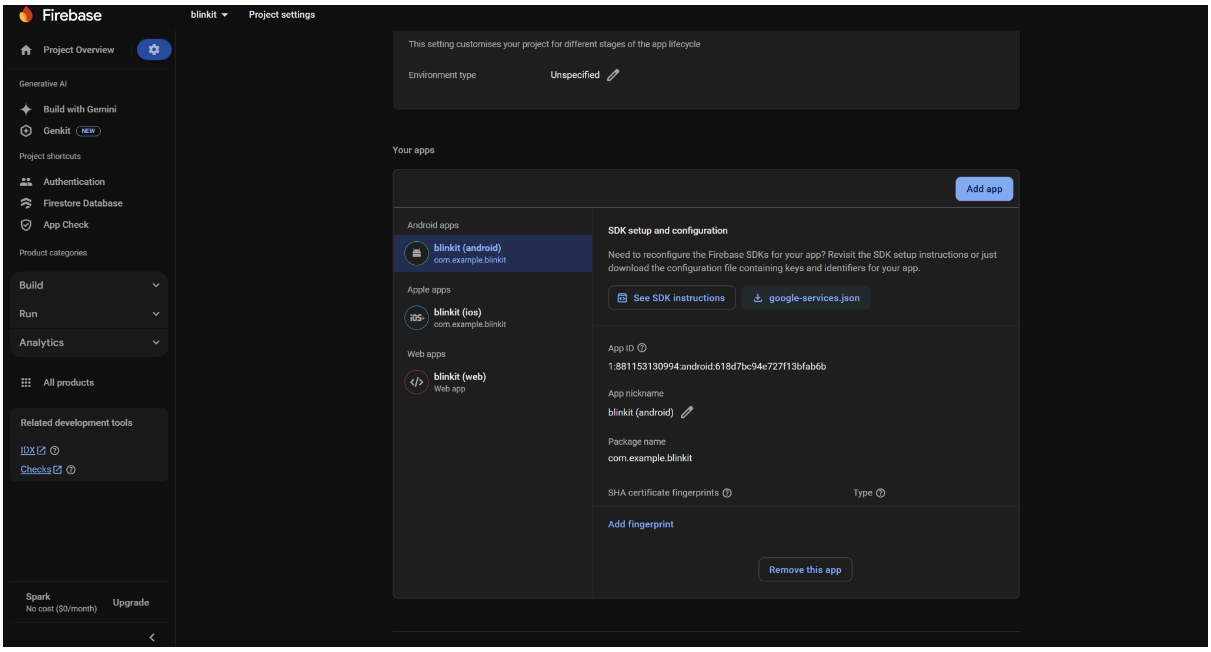
This setup enables a Flutter UI to interact with Firebase in real-time, ensuring seamless data storage and retrieval.

Code:
build.gradle file:

```
plugins {
   id "com.android.application"
   id "kotlin-android"
   // The Flutter Gradle Plugin must be applied after the Android and Kotlin Gradle
plugins.
   id "dev.flutter.flutter-gradle-plugin"
}

android {
   namespace = "com.example.blinkit"
   compileSdk = flutter.compileSdkVersion
   ndkVersion = flutter.ndkVersion

   compileOptions {
      sourceCompatibility = JavaVersion.VERSION_1_8
      targetCompatibility = JavaVersion.VERSION_1_8
   }

   kotlinOptions {
      jvmTarget = JavaVersion.VERSION_1_8
   }

   defaultConfig {
      // TODO: Specify your own unique Application ID
(https://developer.android.com/studio/build/application-id.html).
      applicationId = "com.example.blinkit"
      // You can update the following values to match your application needs.
      // For more information, see: https://flutter.dev/to/review-gradle-config.
      minSdk = flutter.minSdkVersion
      targetSdk = flutter.targetSdkVersion
      versionCode = flutter.versionCode
      versionName = flutter.versionName
      multiDexEnabled true
   }
```

```
    buildTypes {
        release {
            // TODO: Add your own signing config for the release build.
            // Signing with the debug keys for now, so `flutter run --release` works.
            signingConfig = signingConfigs.debug
        }
    }
}

flutter {
    source = "../.."
}
dependencies{
    implementation 'com.google.android.gms:play-services-recaptcha:18.2.0'
    implementation platform('com.google.firebase:firebase-bom:32.7.0')
    implementation 'com.google.firebase:firebase-appcheck-playintegrity'
    implementation 'com.google.firebase:firebase-appcheck-recaptcha-enterprise'
    implementation 'com.google.firebase:firebase-appcheck:17.1.1'
}
apply plugin: 'com.android.application'
apply plugin: 'com.google.gms.google-services' // Add this line
```





This setting customises your project for different stages of the app lifecycle

Environment type Unspecified

Your apps

Android apps

blinkit (android)
com.example.blinkit

Apple apps

blinkit (ios)
com.example.blinkit

Web apps

blinkit (web)
Web app

SDK setup and configuration

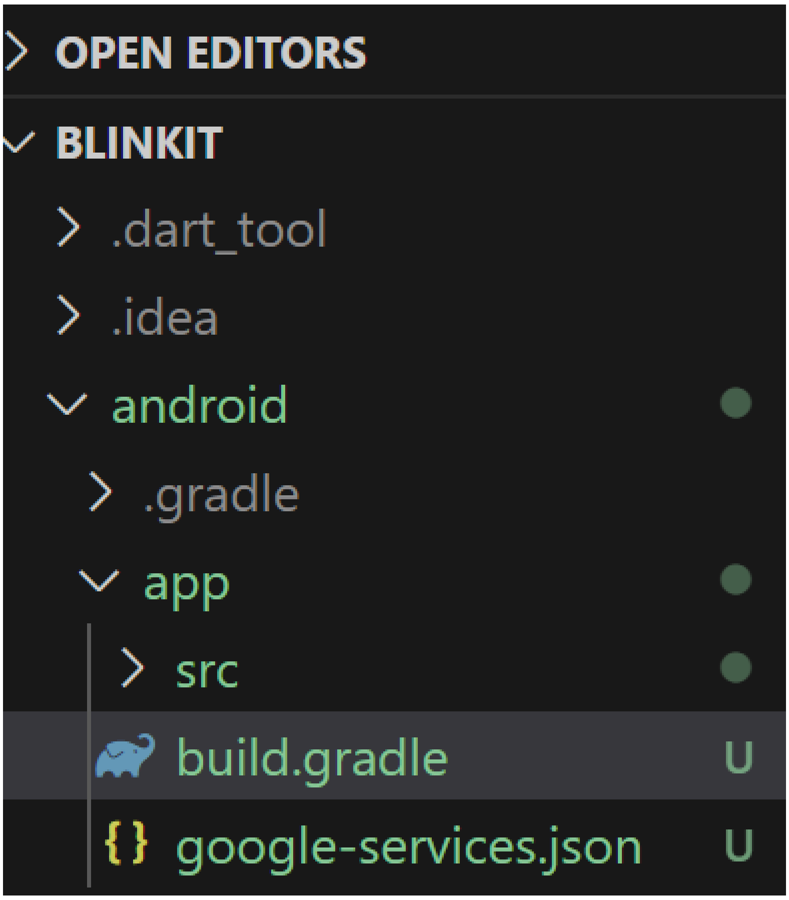
Need to reconfigure the Firebase SDKs for your app? Revisit the SDK setup instructions or just download the configuration file containing keys and identifiers for your app.

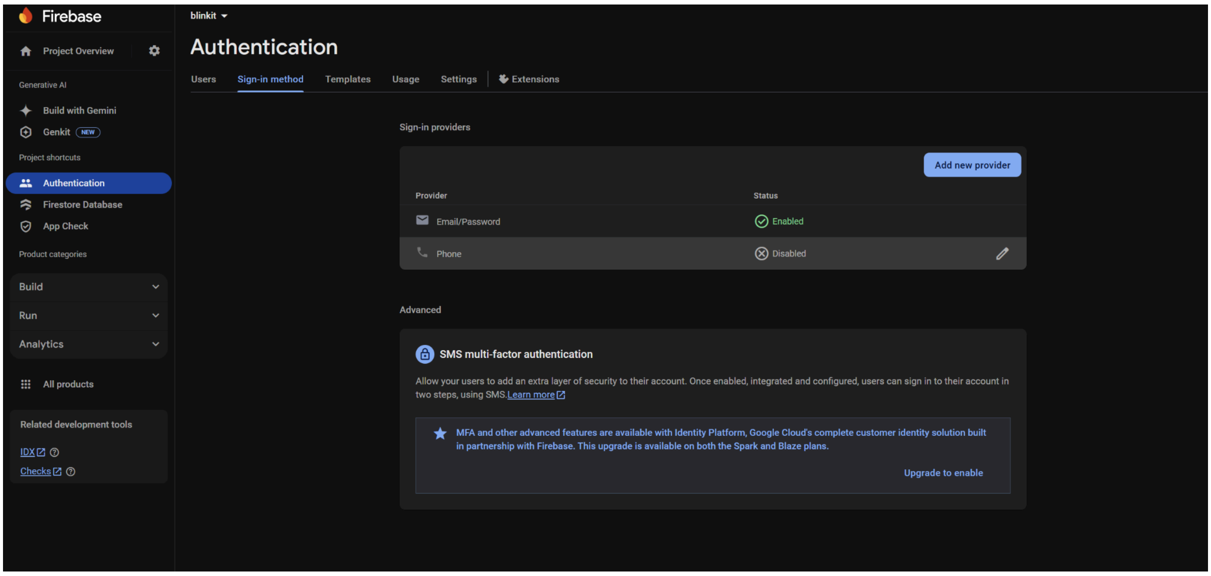
App ID
1:881153130994:android:618d7bc94e727f13bfab6b

App nickname
blinkit (android)

Package name
com.example.blinkit

SHA certificate fingerprints Type





Authentication

Sign-in providers

Provider	Status
Email/Password	Enabled
Phone	Disabled

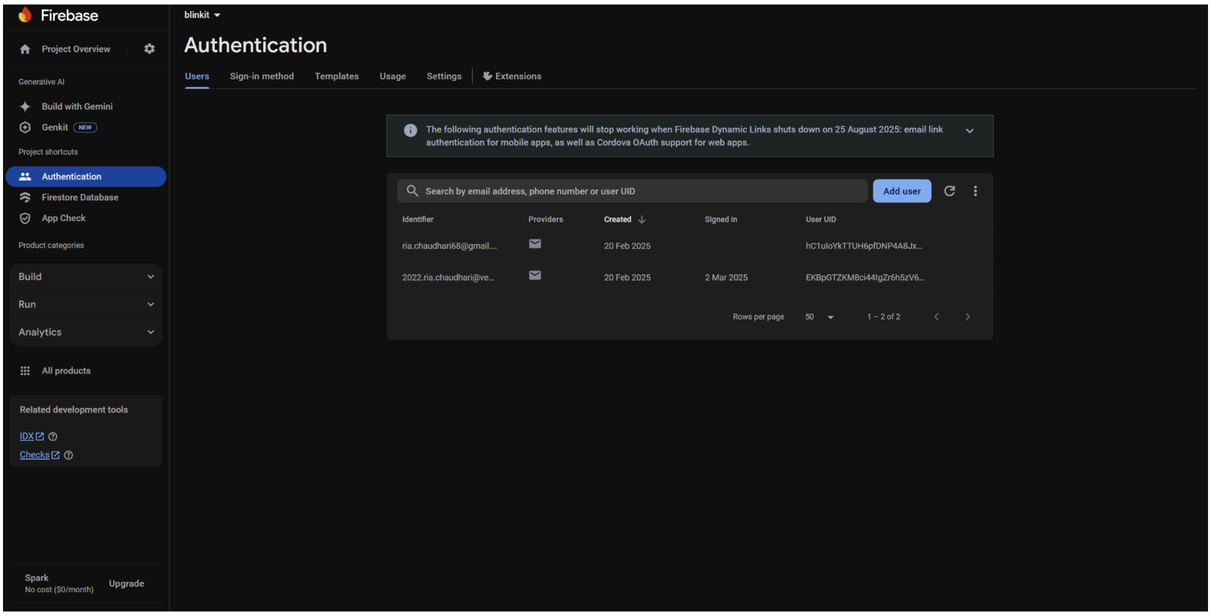
Advanced

SMS multi-factor authentication

Allow your users to add an extra layer of security to their account. Once enabled, integrated and configured, users can sign in to their account in two steps, using SMS. Learn more

MFA and other advanced features are available with Identity Platform, Google Cloud's complete customer identity solution built in partnership with Firebase. This upgrade is available on both the Spark and Blaze plans.

Upgrade to enable



Authentication

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

Identifier	Providers	Created	Signed in	User UID
ria.chaudhari68@gmail....	✉	20 Feb 2025		hC1uIoYkTTUH6pfDNP4A8Jx...
2022.ria.chaudhari@ve...	✉	20 Feb 2025	2 Mar 2025	EKBpGTZKM8ci44tgZr6h5zV6...

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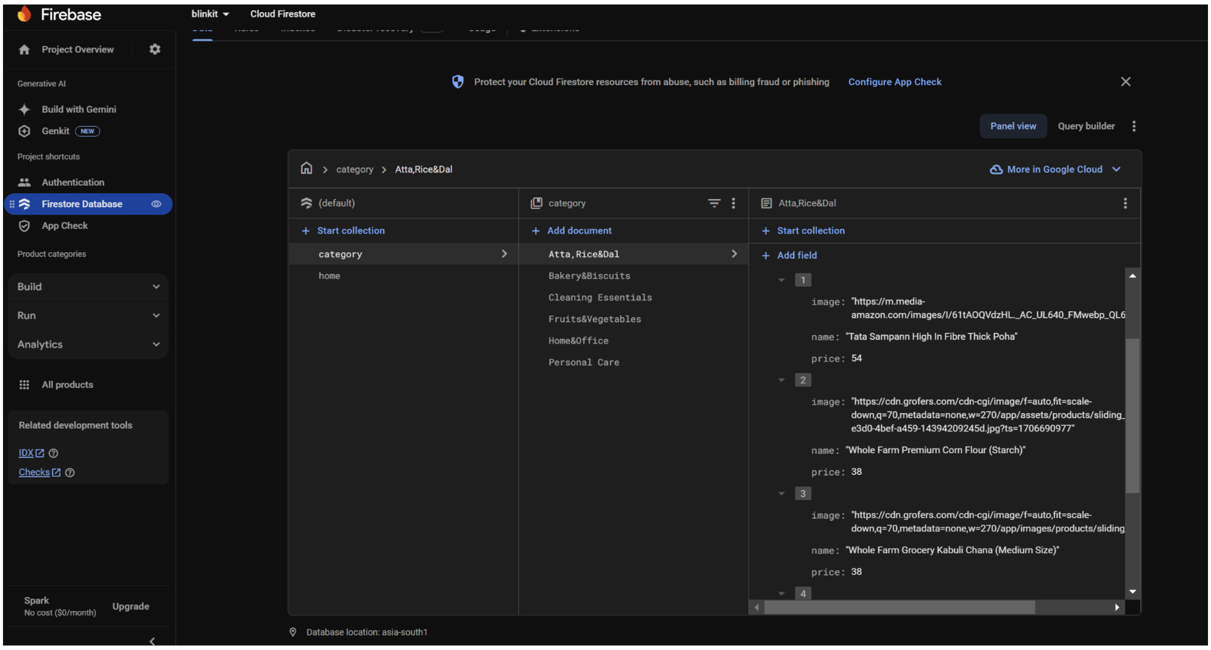

Protect your Cloud Firestore resources from abuse, such as billing fraud or phishing

category > Atta,Rice&Dal

(default)	category	Atta,Rice&Dal
category	Atta,Rice&Dal	
home	Bakery&Biscuits	
	Cleaning Essentials	
	Fruits&Vegetables	
	Home&Office	
	Personal Care	

```
1
  image: "https://m.media-amazon.com/images/I/61tAOQVdzHL._AC_UL640_FMwebp_QL6
  name: "Tata Sampann High In Fibre Thick Poha"
  price: 54
2
  image: "https://cdn.grofers.com/cdn-cgi/image/f=auto,fit=scale-down,q=70,metadata=none,w=270/app/assets/products/sliding_
  e3d0-4bef-a459-14394209245d.jpg?ts=1706690977"
  name: "Whole Farm Premium Corn Flour (Starch)"
  price: 38
3
  image: "https://cdn.grofers.com/cdn-cgi/image/f=auto,fit=scale-down,q=70,metadata=none,w=270/app/images/products/sliding
  name: "Whole Farm Grocery Kabuli Chana (Medium Size)"
  price: 38
4
```

Database location: asia-south1