

Experiment 6

Aim: To Connect Flutter UI with fireBase database

Theory:

Firebase is a comprehensive mobile and web application development platform provided by Google. It offers a wide range of features and services that enable developers to build high-quality apps quickly and efficiently.

At its core, Firebase provides tools for various aspects of app development, including authentication, real-time database, cloud storage, hosting, and more. Here's a breakdown of some key Firebase components:

Authentication: Firebase Authentication allows developers to easily integrate secure authentication methods into their apps. It supports various authentication methods, including email/password, phone number, Google, Facebook, Twitter, and more. This feature handles user management, authentication, and security, making it simple to add user sign-up, sign-in, and access control to apps.

Realtime Database: Firebase Realtime Database is a NoSQL cloud database that enables developers to store and sync data in real time. It's particularly useful for applications that require real-time updates, such as chat apps, collaboration tools, and gaming apps. The database is JSON-based, which makes it flexible and easy to use. It automatically synchronizes data across all connected clients and devices, ensuring that changes made by one user are immediately reflected on others' screens.

Cloud Firestore: Cloud Firestore is Firebase's newer, more scalable NoSQL database solution. It offers more powerful querying capabilities, better scalability, and improved performance compared to the Realtime Database. Firestore organizes data into collections and documents, allowing for more structured and efficient data storage. It also supports real-time updates, offline data access, and powerful querying capabilities.

Cloud Storage: Firebase Cloud Storage provides secure and reliable cloud storage for user-generated content, such as images, videos, and documents. It allows developers to easily upload and download files from their apps using simple APIs. Cloud Storage integrates seamlessly with other Firebase services, making it easy to store and serve user-generated content in Firebase-powered apps.

Hosting: Firebase Hosting allows developers to quickly and securely deploy web apps and static content to a global content delivery network (CDN). It provides fast and reliable hosting with SSL encryption, custom domain support, and automatic scaling. With Firebase Hosting, developers can deploy web apps with just a few simple commands, eliminating the need for complex server configurations and maintenance.

Cloud Functions: Firebase Cloud Functions allow developers to run backend code in response to events triggered by Firebase features and HTTPS requests. It enables developers to extend the functionality of their apps without managing servers or infrastructure. Cloud Functions are written in JavaScript or TypeScript and can be deployed with a single command using the Firebase CLI (Command Line Interface).

Analytics: Firebase Analytics provides insights into app usage and user behavior, helping developers understand how users interact with their apps. It tracks key metrics such as active users, retention, engagement, and conversion, allowing developers to make informed decisions about app improvements and optimizations.

Performance Monitoring: Firebase Performance Monitoring helps developers identify and fix performance issues in their apps. It provides detailed insights into app performance, including app startup time, network latency, and UI responsiveness. Performance Monitoring helps developers optimize their apps for better user experiences and higher ratings.

In addition to these core features, Firebase offers many other services, including Cloud Messaging for push notifications, Remote Config for dynamic app configuration, Machine Learning for integrating machine learning models into apps, and more. Overall, Firebase provides a powerful and comprehensive platform for building, managing, and scaling mobile and web applications.

Code in main.dart:

```
import 'package:firebase_core/firebase_core.dart';
import 'package:flutter/material.dart';
import 'package:flutter/services.dart';
import 'package:flutter_riverpod/flutter_riverpod.dart';
import 'package:youtube/login.dart';

void main() async{
  WidgetsFlutterBinding.ensureInitialized();
  try {
    await Firebase.initializeApp(
      options: FirebaseOptions(
        apiKey: "AlzaSyAyMitBa5a5qF9SSVLyeeu3aZUce_f_y3c", // paste your api key here
        appId: "1:702995124628:android:119b3a052e863e5f757f81", //paste your app id here
        messagingSenderId: "702995124628", //paste your messagingSenderId here
        projectId: "ytclone-87bbb", //paste your project id here
      ),
    );
    runApp(ProviderScope(child: MyApp()));
  } catch (e) {
    print('Error initializing Firebase: $e');
    // Handle the error gracefully, possibly show an error dialog or fallback screen
  }
}

class MyApp extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    SystemChrome.setPreferredOrientations([DeviceOrientation.portraitUp]);
    return MaterialApp(
      title: 'Flutter YouTube UI',
      debugShowCheckedModeBanner: false,
      theme: ThemeData(
        brightness: Brightness.dark,
        bottomNavigationBarTheme:
          const BottomNavigationBarThemeData(selectedItemColor: Colors.white),
      ),
      home: GoogleSignInScreen(),
    );
  }
}
```

Output:

×

Create a project (Step 1 of 3)

Let's start with a name for your project[?]

Project name

ytclone

ytclone-2283c

Select parent resource

Continue

×

Create a project (Step 2 of 3)

Google Analytics is a free and unlimited analytics solution that enables targeting, reporting, and more in Firebase Crashlytics, Cloud Messaging, In-App Messaging, Remote Config, A/B Testing, and Cloud Functions.

Google Analytics enables:

 A/B testing[?]

 User segmentation & targeting across Firebase products[?]

 Breadcrumb logs in Crashlytics[?]

 Event-based Cloud Functions triggers[?]

 Free unlimited reporting[?]


 Enable Google Analytics for this project
Recommended


Previous


Continue

Configure Google Analytics

Choose or create a Google Analytics account ⓘ

 Gargi ▼

Automatically create a new property in this account 

Upon project creation, a new Google Analytics property will be created in your chosen Google Analytics account and linked to your Firebase project. This link will enable data flow between the products. Data exported from your Google Analytics property into Firebase is subject to the Firebase terms of service, while Firebase data imported into Google Analytics is subject to the Google Analytics terms of service. [Learn more](#) .

[Previous](#)

Create project



Firebase



Your Firebase projects



Add project

ytclone

ytclone-87bbb




ves.ac.in

Project settings

[General](#) [Cloud Messaging](#) [Integrations](#) [Service accounts](#) [Data privacy](#) [Users and permissions](#)

Your project

Project name [ytclone](#) 

Project ID [ytclone-87bbb](#)

Project number [702995124628](#)

Default GCP resource location [asia-south1](#)

Parent org/folder in GCP [ves.ac.in](#)

Web API Key [\[REDACTED\]](#)

Environment

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

Environment type [Unspecified](#) 

Public settings

These settings control instances of your project shown to the public


Public-facing name [project-\[REDACTED\]](#) 

Support email [2021.gargi.angne@ves.ac.in](#)

Your apps

[Add app](#)

Android apps

 **youtubecclone**
com.example.youtube


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.

[See SDK instructions](#)

[google-services.json](#)

App ID [\[REDACTED\]](#)

App nickname
[youtubecclone](#) 



Package name
com.example.youtube

Authentication

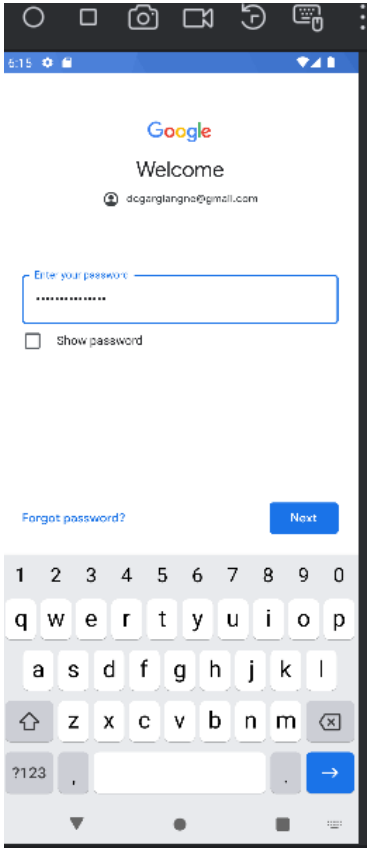
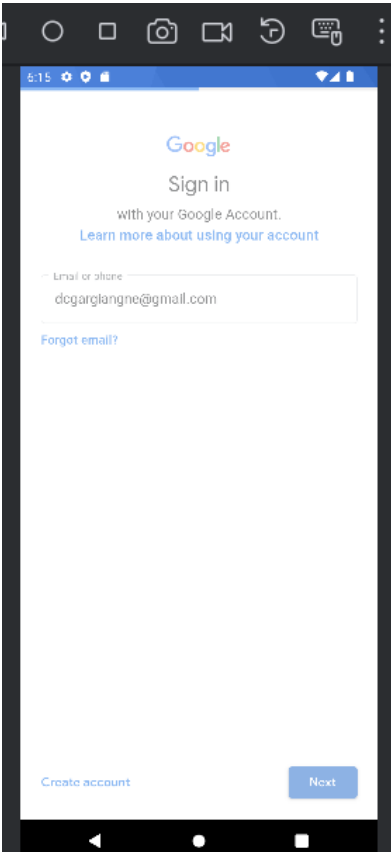
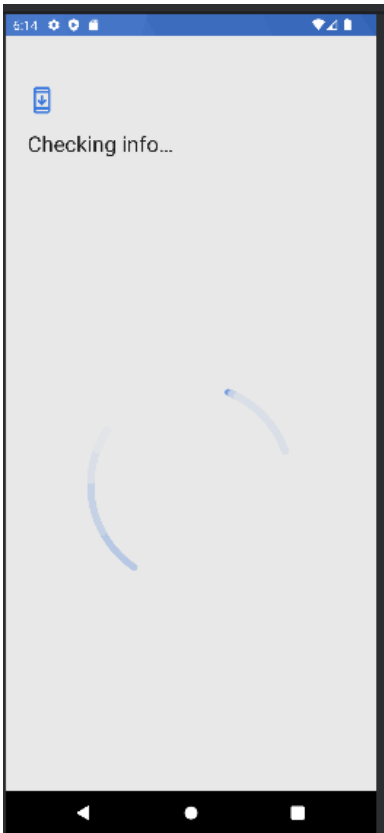
Users Sign-in method Templates Usage Settings Extensions

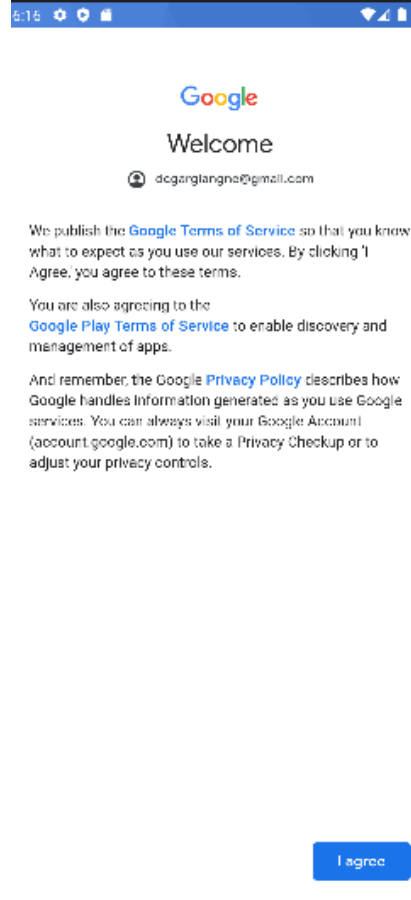
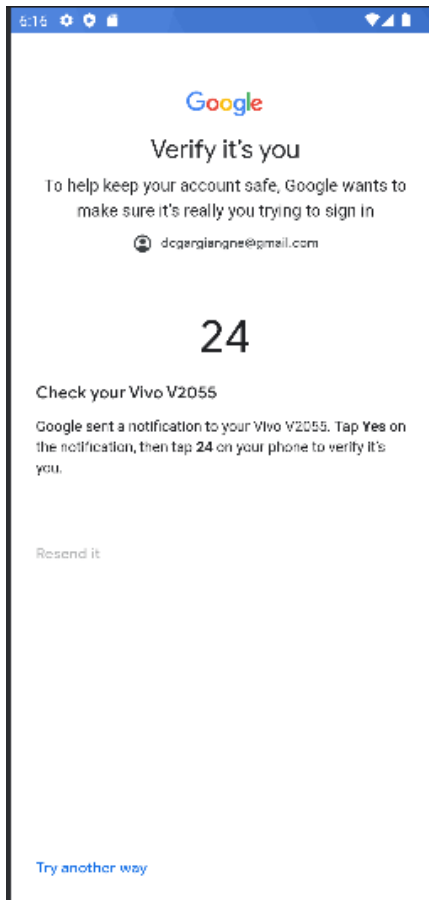
Search by email address, phone number, or user UID

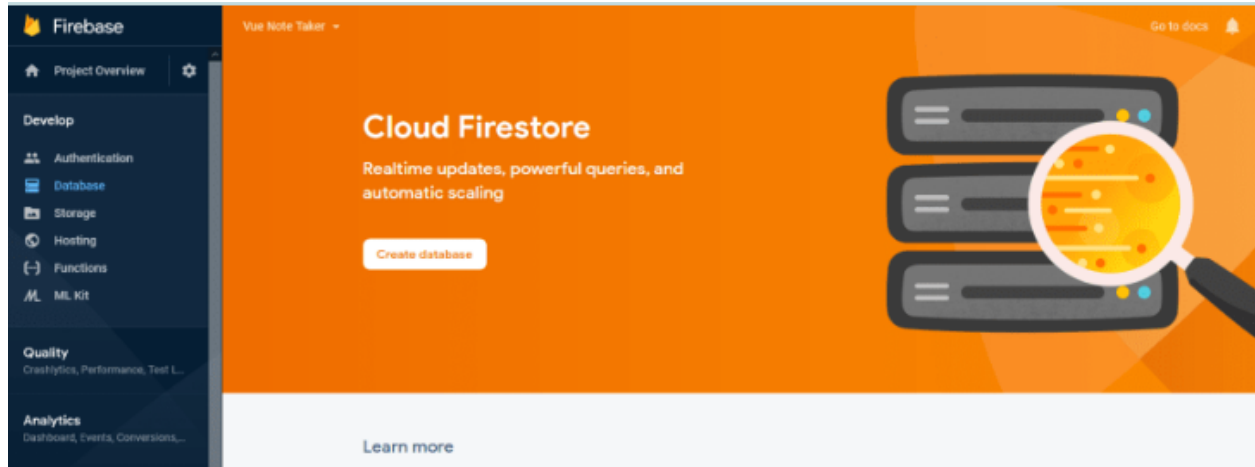
Add user

Identifier	Providers	Created ↓	Signed In	User UID
dcgargiangne@gmail.c...		Feb 21, 2024	Feb 23, 2024	[REDACTED]
2021.gargl.angne@ves....		Feb 21, 2024	Feb 21, 2024	[REDACTED]

Rows per page: 50 1 – 2 of 2







Create database

1 Secure rules for Cloud Firestore

2 Set Cloud Firestore location

After you define your data structure, you will need to write rules to secure your data.
[Learn more](#)

☐ Start in production mode
Your data will be private by default. Client read/write access will only be granted as specified by your security rules.

☒ Start in test mode
Your data will be open by default to enable quick setup. Client read/write access will be denied after 30 days if security rules are not updated.

```
rules_version = '2';
service cloud.firestore {
  match /databases/{database}/documents {
    match /(document=**) {
      allow read, write: if
        request.time < timestamp.date(2020, 5, 1);
    }
  }
}
```

1 Anyone with your database reference will be able to read or write to your database for 30 days

Enabling Cloud Firestore will prevent you from using Cloud Datastore with this project, notably from the associated App Engine app.

Cancel

Next

Create database

1 Secure rules for Cloud Firestore

2 Set Cloud Firestore location

Your location setting is where your Cloud Firestore data will be stored.

After you set this location, you cannot change it later. Also, this location setting will be the location for your default Cloud Storage bucket.

Learn more

Cloud Firestore location

nam5 (us-central)

Enabling Cloud Firestore will prevent you from using Cloud Datastore with this project, notably from the associated App Engine app.

Cancel

Done

Cloud Firestore

Data Rules Indexes Usage Extensions

Protect your Cloud Firestore resources from abuse, such as billing fraud or phishing [Configure App Check](#)

Panel view Query builder

🏠 > video > VHL1h76sN4baCPnk4gfk More in Google Cloud		
🏠 (default)	📁 video	📄 VHL1h76sN4baCPnk4gfk
+ Start collection	+ Add document	+ Start collection
video >	VHL1h76sN4baCPnk4gfk >	+ Add field
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