

EXPERIMENT NO.6

Aim : To Set Up Firebase with Flutter for iOS and Android App

Theory:

What is Firebase?

Firebase is a comprehensive platform for mobile and web application development, providing various services and tools to help developers build high-quality apps. It was initially developed by Firebase, Inc., which was acquired by Google in 2014.

Firebase offers a wide range of features, including:

1. **Authentication:** Firebase Authentication provides easy-to-use SDKs and UI libraries to authenticate users to your app.
2. **Realtime Database:** Firebase Realtime Database is a cloud-hosted NoSQL database that allows you to store and sync data between your users in real-time.
3. **Cloud Firestore:** Firestore is Firebase's next-generation cloud-native database. It offers more powerful querying, offline data sync, and automatic scaling.
4. **Cloud Functions:** Firebase Cloud Functions allow you to run server-side code in response to events triggered by Firebase features and HTTPS requests.
5. **Cloud Storage:** Firebase Storage provides secure file uploads and downloads for your app, including support for images, videos, and other user-generated content.
6. **Cloud Messaging:** Firebase Cloud Messaging (FCM) allows you to send notifications and messages to your users across platforms.
7. **Performance Monitoring:** Firebase Performance Monitoring helps you understand app performance issues and improve app quality over time.
8. **Crashlytics:** Firebase Crashlytics is a real-time crash reporting tool that helps you track, prioritize, and fix stability issues in your app.
9. **Remote Config:** Firebase Remote Config allows you to change the behavior and appearance of your app without publishing app updates.
10. **Analytics:** Firebase Analytics provides insight into user behavior and engagement with your app.

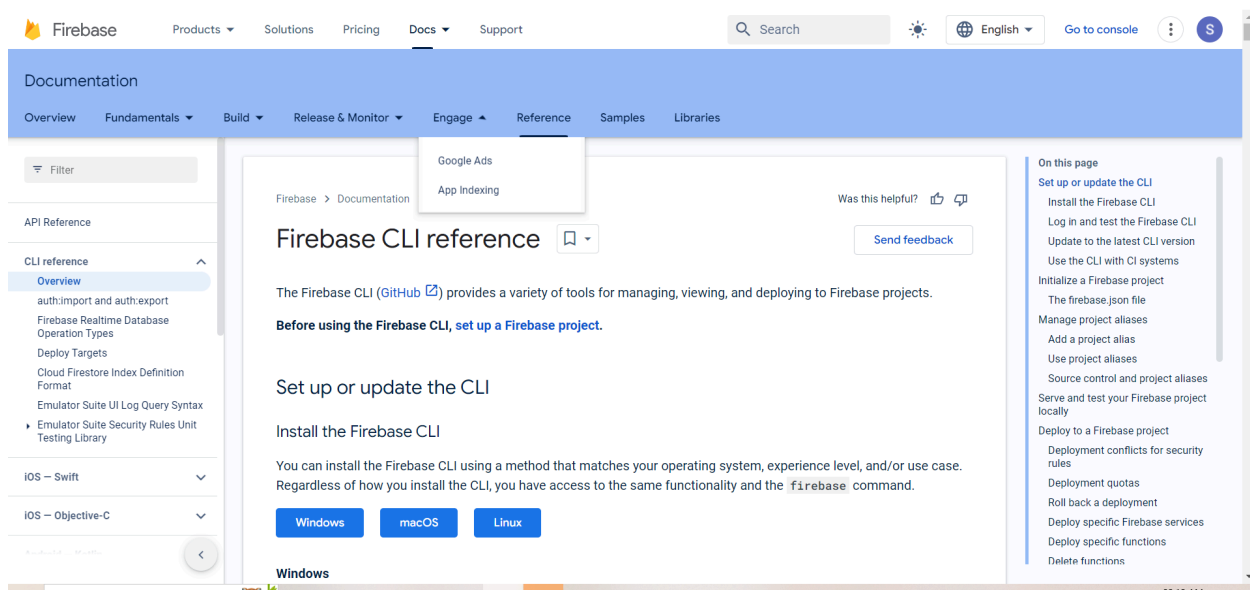
These are just some of the services offered by Firebase. It provides a unified platform that simplifies backend development, reduces server-side code, and helps developers focus on building great user experiences

Prerequisites to set up Firebase with Flutter:

- A Google account to use Firebase.
- Developing for iOS will require XCode.
- To download and install Flutter.
- To download and install Android Studio and Visual Studio Code.
- It is recommended to install plugins for your code editor:
 - Flutter and Dart plugins installed for Android Studio.
 - Flutter extension installed for Visual Studio Code.

Implementation:

1. Installing firebase CLI in our system



2. Run command in command prompt to install firebase in our system

```
Command Prompt
Microsoft Windows [Version 10.0.19045.4046]
(c) Microsoft Corporation. All rights reserved.

C:\Users\HP>npm install -g firebase-tools

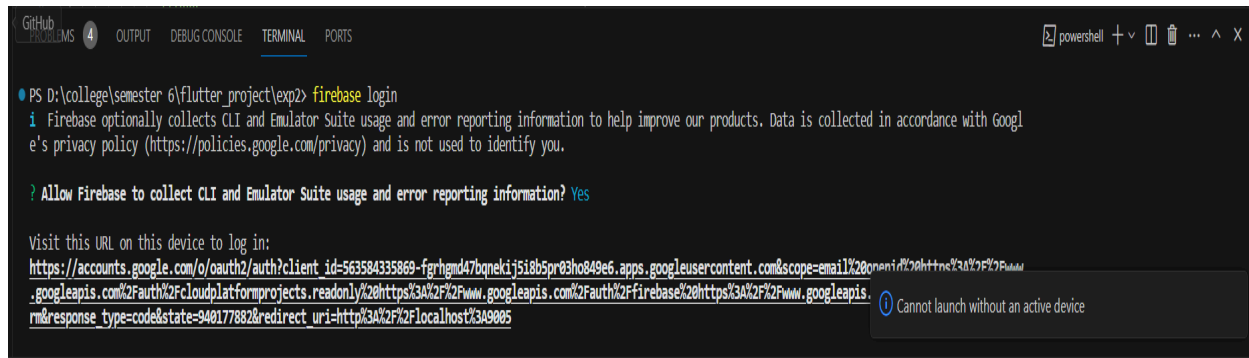
added 644 packages in 1m

6 packages are looking for funding
  run `npm fund` for details

npm notice
npm notice New major version of npm available! 9.3.1 -> 10.5.0
npm notice Changelog: https://github.com/npm/cli/releases/tag/v10.5.0
npm notice Run `npm install -g npm@10.5.0` to update!
npm notice

C:\Users\HP>
```

3. Login into the firebase with your account



A terminal window with tabs for GitHub, PROBLEMS, OUTPUT, DEBUG CONSOLE, TERMINAL, and PORTS. The terminal shows the command `firebase login` being executed. It displays a message about Firebase's data collection policy and asks for permission to collect CLI and Emulator Suite usage. The user responds with 'Yes'. A URL is provided for login. A notification bubble on the right says 'Cannot launch without an active device'.

```
PS D:\college\semester 6\flutter_project\exp2> firebase login
i Firebase optionally collects CLI and Emulator Suite usage and error reporting information to help improve our products. Data is collected in accordance with Google's privacy policy (https://policies.google.com/privacy) and is not used to identify you.

? Allow Firebase to collect CLI and Emulator Suite usage and error reporting information? Yes

Visit this URL on this device to log in:
https://accounts.google.com/o/oauth2/auth?client_id=563584335869-fgrhmd47bqnekij5i8b5pr83ho849e6.apps.googleusercontent.com&scope=email%20openid%20https%3A%2F%2Fwww.googleapis.com%2Fauth%2Fcloudplatformprojects.readonly%20https%3A%2F%2Fwww.googleapis.com%2Fauth%2Ffirebase%20https%3A%2F%2Fwww.googleapis.com%2Fauth%2Fuserinfo.email&response_type=code&state=940177882&redirect_uri=http%3A%2F%2Flocalhost%3A9005
```



A terminal window showing the output of `dart pub global activate flutterfire_cli`. It includes a message about Google Analytics usage and a list of installed and available packages.

```
rm&response_type=code&state=940177882&redirect_uri=http%3A%2F%2Flocalhost%3A9005
Waiting for authentication...

+ Success! Logged in as 2021.swarnika.singh@ves.ac.in
PS D:\college\semester 6\flutter_project\exp2> dart pub global activate flutterfire_cli

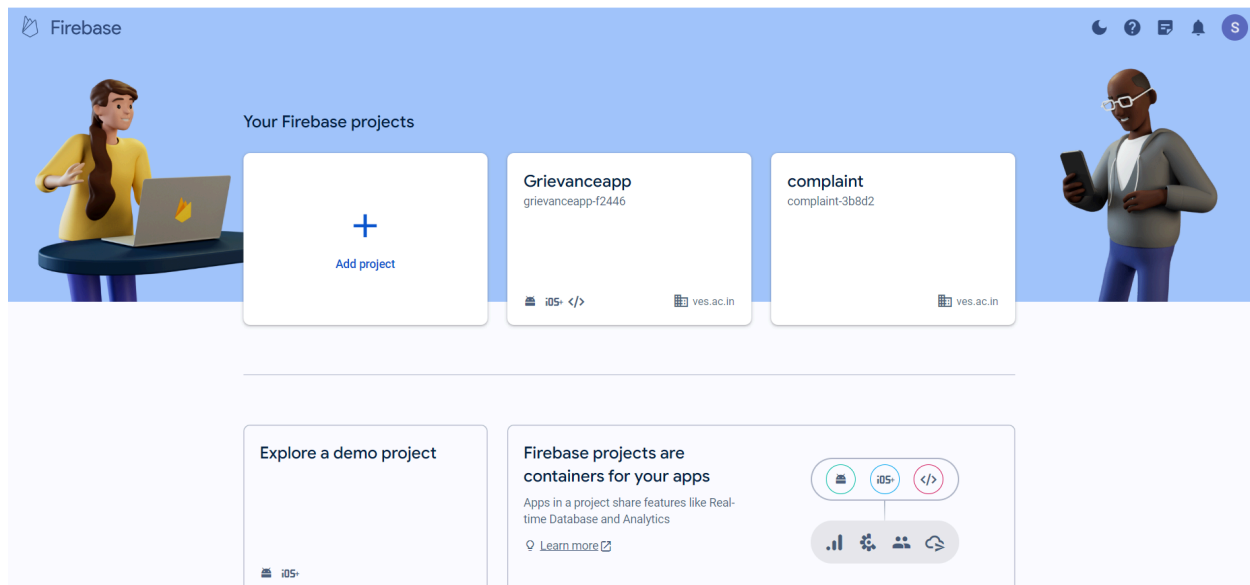
The Dart tool uses Google Analytics to report feature usage statistics
and to send basic crash reports. This data is used to help improve the
Dart platform and tools over time.

To disable reporting of analytics, run:

dart --disable-analytics

+ ansi_styles 0.3.2+1s... (3.1s)
+ args 2.4.2
+ async 2.11.0
+ boolean_selector 2.1.1
+ characters 1.3.0
+ ci 0.1.0
+ cli_util 0.3.5 (0.4.1 available)
+ clock 1.1.1
+ collection 1.18.0
+ dart_console 1.2.0
+ deep_pick 0.10.0 (1.0.0 available)
+ ffi 2.1.0 (2.1.2 available)
+ file 6.1.4 (7.0.0 available)
+ flutterfire_cli 0.2.7
+ http 0.13.6 (1.2.1 available)
+ http_parser 4.0.2
+ interact 2.2.0
+ intl 0.18.1 (0.19.0 available)
+ json_annotation 4.8.1
+ matcher 0.12.16+1
+ meta 1.12.0
+ path 1.9.0
+ petitparser 6.0.2
+ platform 3.1.4
+ process 4.2.4 (5.0.2 available)
+ pub_semver 2.1.4
+ pub_updater 0.2.4 (0.4.0 available)
+ pubspec 2.3.0
```

4. Create a new project in firebase for the backend



5. Go to terminal of VS code and open this project of firebase through the terminal

```
i Firebase web app loginagain (web) is not registered on Firebase project grievanceapp-f2446.
i Registered a new Firebase web app on Firebase project grievanceapp-f2446.
Firebase configuration file lib\firebase_options.dart generated successfully with the following Firebase apps:

Platform  Firebase App Id
web       1:242633284233:web:383a921d3f566634178458
android  1:242633284233:android:83ca7125caf5be00178458
ios       1:242633284233:ios:4896d875434ad3bd178458
macos    1:242633284233:ios:2eb344c83e2a7b15178458

Learn more about using this file and next steps from the documentation:
> https://firebase.google.com/docs/flutter/setup
PS D:\college\semester 6\flutter_project\exp2\login2> flutter pub add firebase_core
Resolving dependencies...
+ firebase_core 2.25.5
+ firebase_core_platform_interface 5.0.0
+ firebase_core_web 2.11.5
+ flutter_lints 2.0.3 (3.0.1 available)
+ flutter_web_plugins 0.0.0 from sdk flutter
+ js 0.6.7 (0.7.1 available)
+ lints 2.1.1 (3.0.0 available)
+ matcher 0.12.16 (0.12.16+1 available)
+ material_color_utilities 0.5.0 (0.8.0 available)
+ meta 1.10.0 (1.12.0 available)
+ path 1.8.3 (1.9.0 available)
+ test_api 0.6.1 (0.7.0 available)
+ web 0.3.0 (0.5.0 available)
Changed 6 dependencies!
9 packages have newer versions incompatible with dependency constraints.
Try 'flutter pub outdated' for more information.
Building with plugins requires symlink support.

Please enable Developer Mode in your system settings. Run
```

6. Run the flutter app

```
PS D:\college\semester 6\flutter_project\exp2\login2> start ms-settings:developers
PS D:\college\semester 6\flutter_project\exp2\login2> flutter run
Connected devices:
Windows (desktop) • windows • windows-x64 • Microsoft Windows [Version 10.0.19045.4046]
Chrome (web) • chrome • web-javascript • Google Chrome 122.0.6261.95
Edge (web) • edge • web-javascript • Microsoft Edge 122.0.2365.59
[1]: Windows (windows)
[2]: Chrome (chrome)
[3]: Edge (edge)
Please choose one (or "q" to quit): 2
Launching lib/main.dart on Chrome in debug mode...
Waiting for connection from debug service on Chrome... 38.4s
This app is linked to the debug service: ws://127.0.0.1:53973/TLwxs5FWTy0=/ws
Debug service listening on ws://127.0.0.1:53973/TLwxs5FWTy0=/ws

To hot restart changes while running, press "r" or "R".
For a more detailed help message, press "h". To quit, press "q".

A Dart VM Service on Chrome is available at: http://127.0.0.1:53973/TLwxs5FWTy0=
The Flutter DevTools debugger and profiler on Chrome is available at: http://127.0.0.1:9101?uri=http://127.0.0.1:53973/TLwxs5FWTy0=
```

7. Code for backend

```
import 'package:firebase_auth/firebase_auth.dart';

import 'package:flutter/material.dart';
import 'package:loginagain/pages/home_page.dart';
import 'package:loginagain/pages/login_page.dart';

class AuthPage extends StatelessWidget {
  const AuthPage({super.key});

  @override
  Widget build(BuildContext context) {
    return Scaffold(
      body: StreamBuilder<User?>(
        stream: FirebaseAuth.instance.authStateChanges(),

        builder: (context, snapshot) {
          //user is logged in
          if (snapshot.hasData) {
            return GrievanceDashboard();
          }
          else {
            return LoginPage();
          }
        }
      )
    );
  }
}
```

```
//user is not logged in

    )
  );
}
}
```

8. Authentication for login page in firebase

The image shows two screenshots of the Firebase Authentication console for a project named 'Grievanceapp'.

The top screenshot shows the 'Sign-in method' tab. It displays a table of sign-in providers:

Provider	Status
Email/Password	Enabled

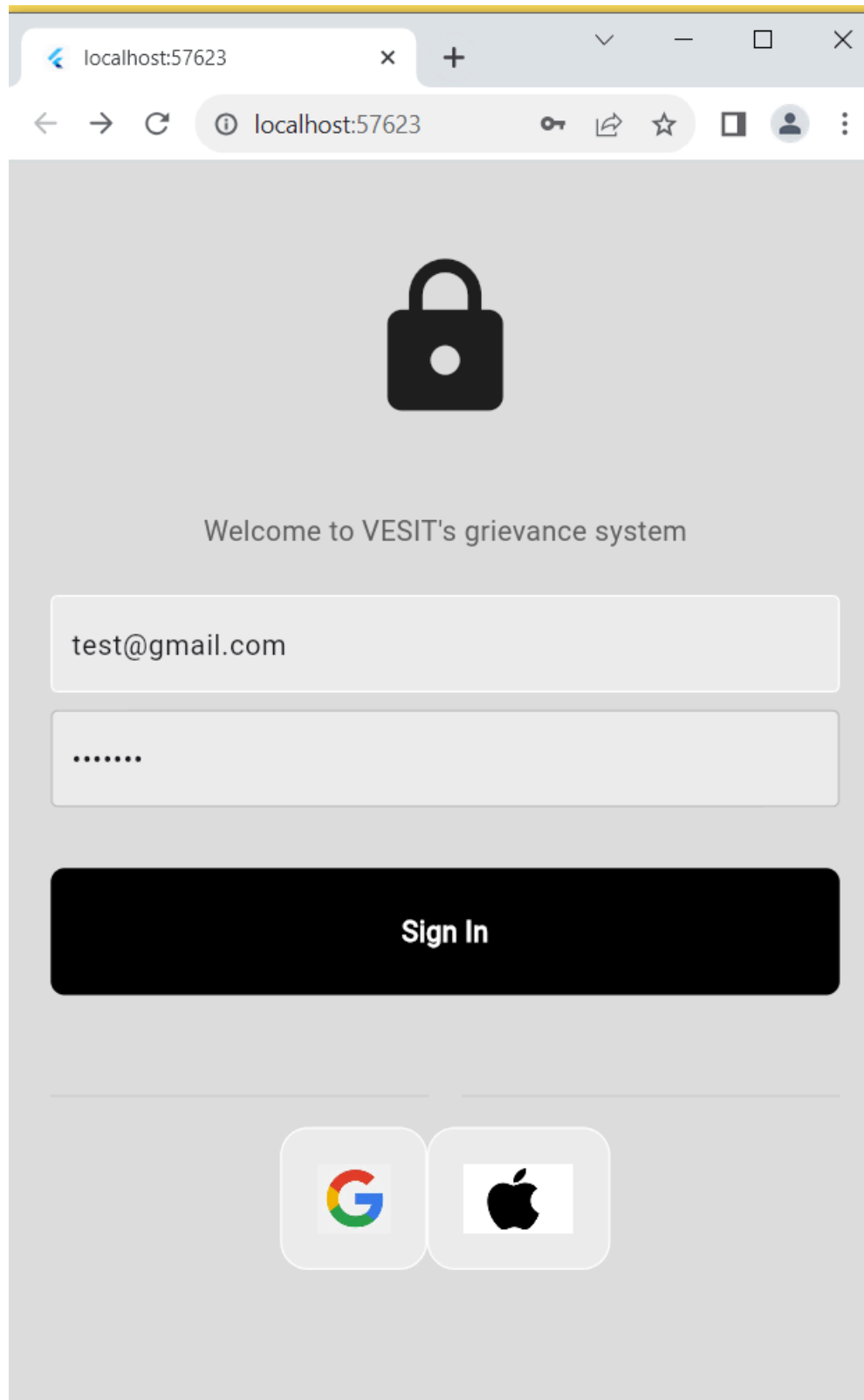
There is an 'Add new provider' button in the top right corner of the providers list.

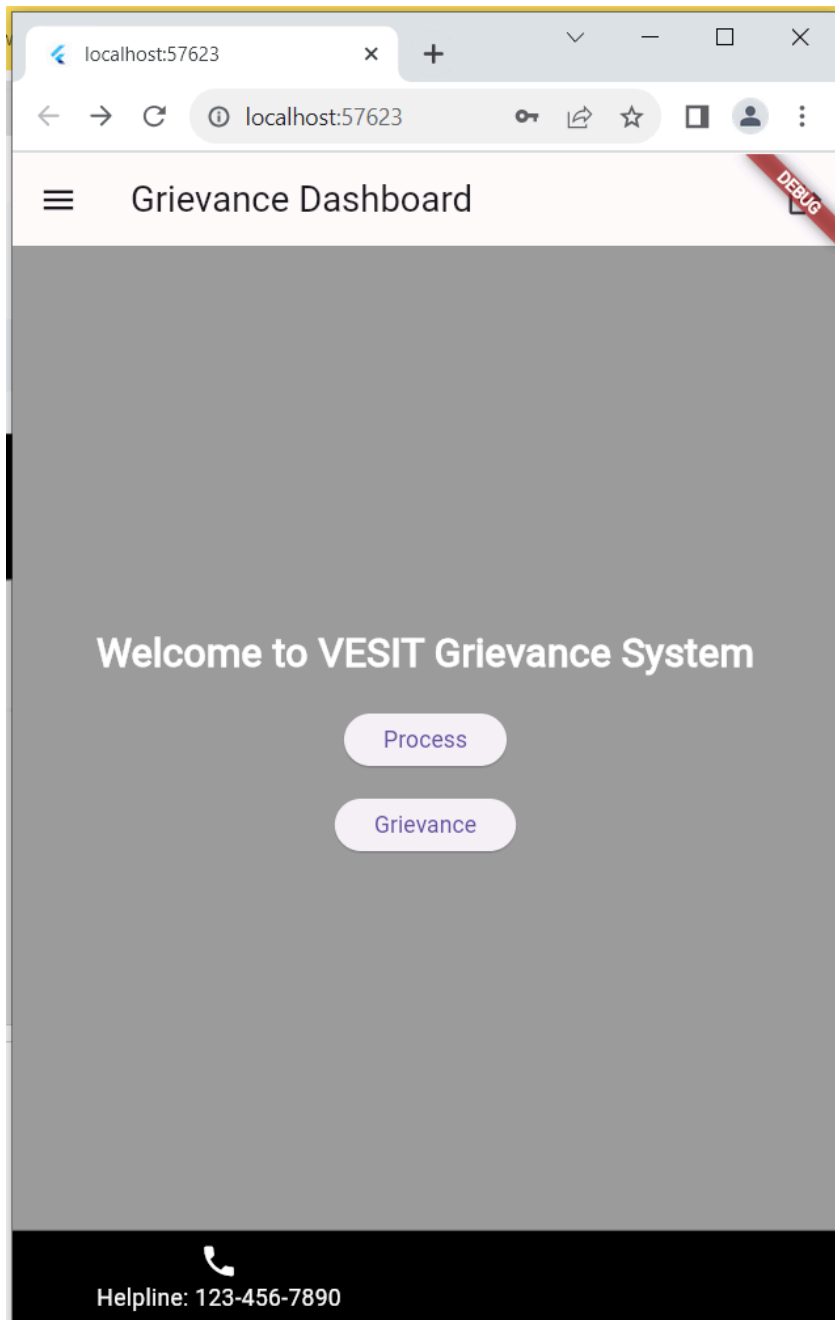
The bottom screenshot shows the 'Users' tab. A modal dialog titled 'Add an Email/Password user' is open, allowing the addition of a new user. The modal contains the following fields and buttons:

- Email:** test@gmail.com
- Password:** test123
- Buttons:** Cancel, Add user

Below the modal, a message states: 'No users for this project yet'.

9. Testing the firebase connection





Conclusion: Thus we have setup firebase with flutter in our app.