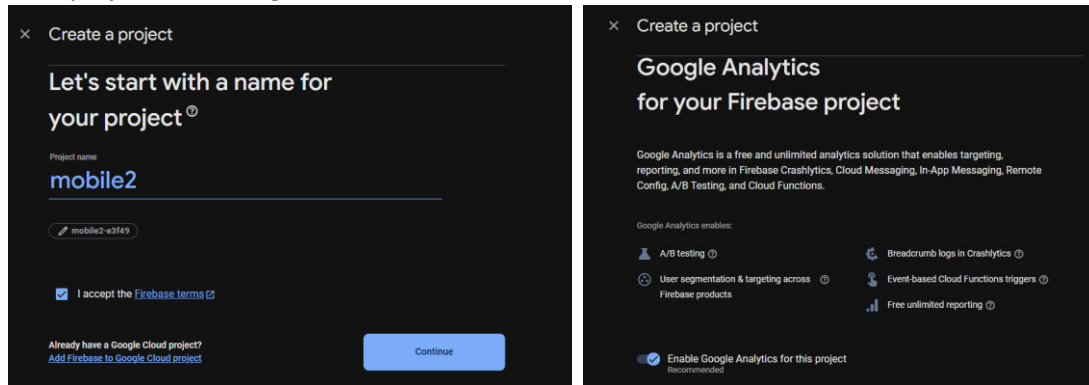


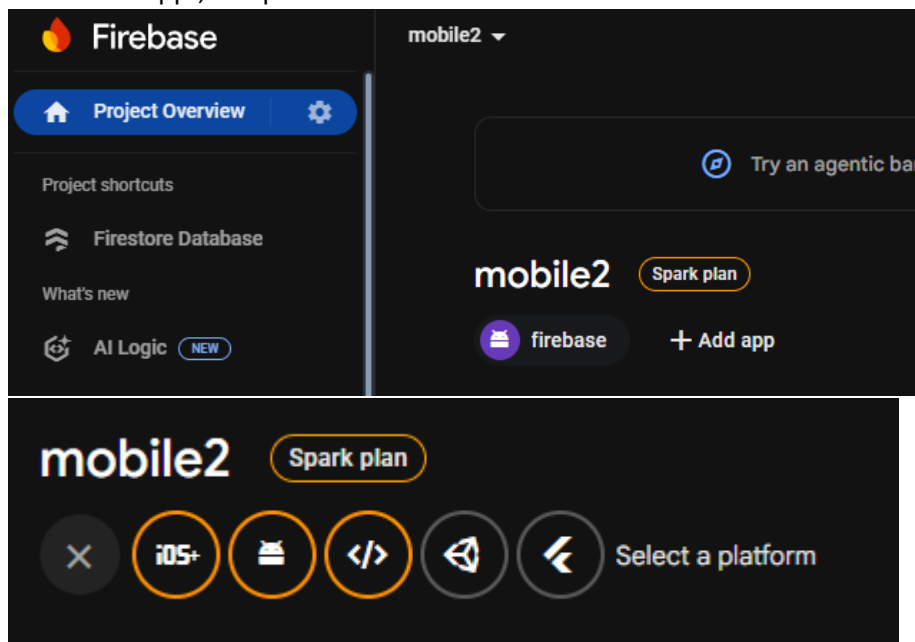
#### TUGAS 4

NIM : 22.230.0001  
NAMA : Fadhli Hilman Saputra  
KELAS : 7P51

1. Membuat akun firebase pada <https://console.firebase.google.com/u/0/mfa>
2. Buat project baru dengan firebase

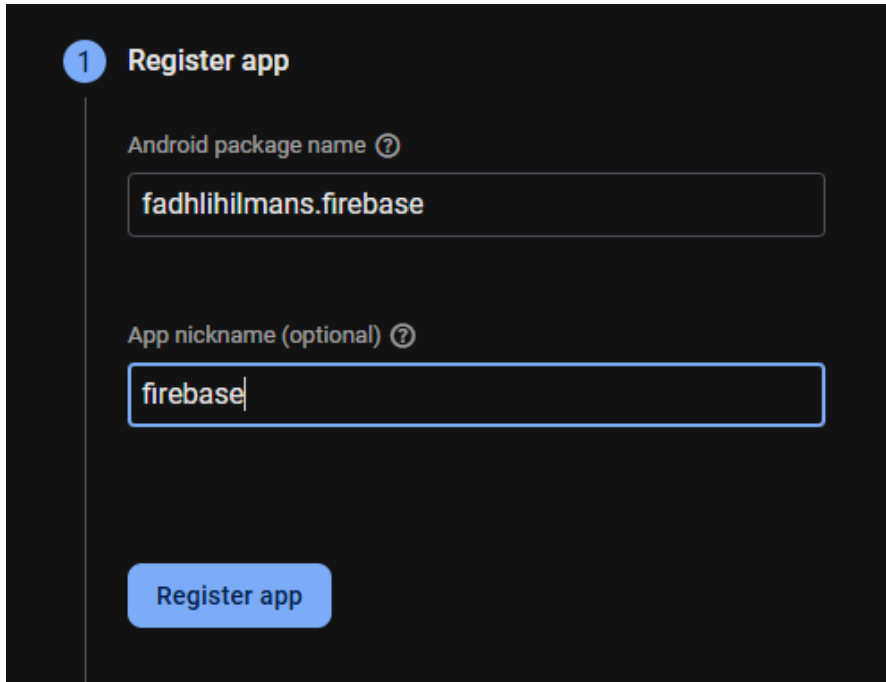


3. Pilih "+add app", lalu pilih "icon android"



4. Ikuti step berikut:

- Lengkapi package name,



**1 Register app**

Android package name ?

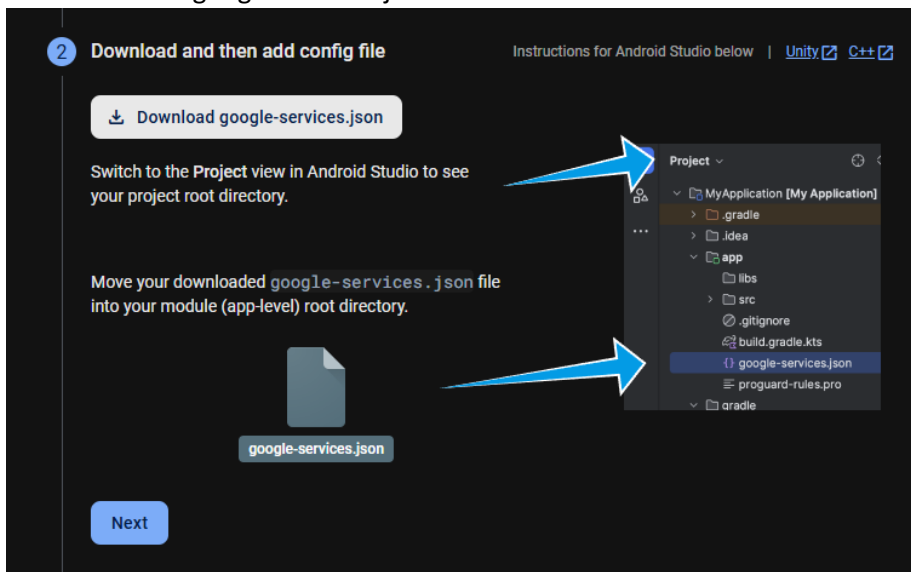
`fadhlihilmans.firebaseio`

App nickname (optional) ?

`firebase`

**Register app**

- download google-services.json



**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.

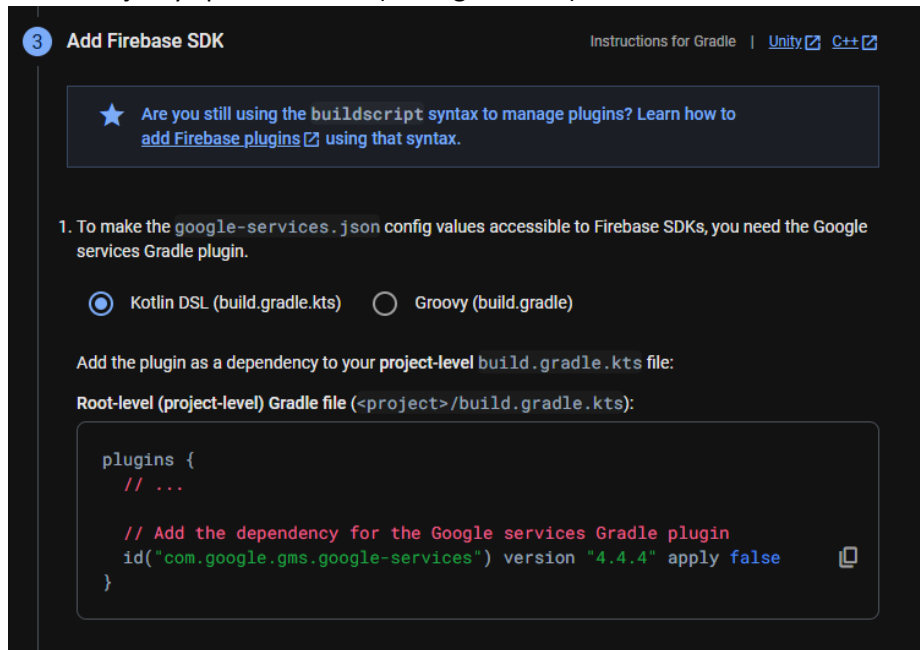
`google-services.json`

**Next**

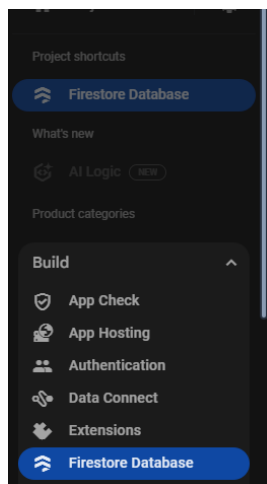
Project view in Android Studio:

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

- selanjutnya pilih kotlin dsl (build.gradle.kts)

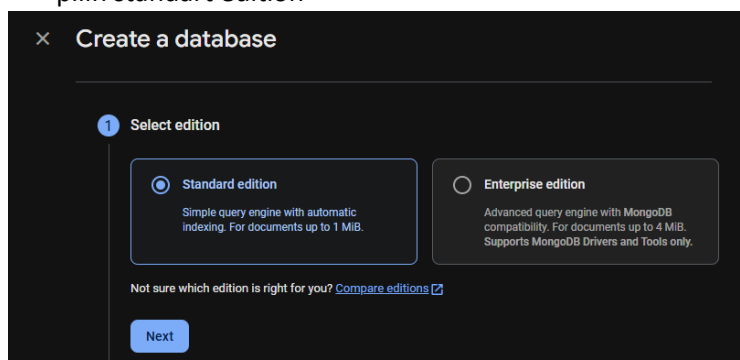


5. Buat database baru dengan cara pilih build → firebase database pada sidebar



6. Selanjutnya create database dan ikuti step berikut:

- pilih standart edition



- ID location biarkan default

× Create a database

2 Database ID & location

Database ID  
(default)

Location  
nam5 (United States)

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

⚠ After you set this location, you cannot change it later. [Learn more](#)

Next

- Pilih Start in test mode

× Create a database

3 Configure

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

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

☒ Start in test mode  
Your data is open by default to enable quick setup. However, you must update your security rules within 30 days to enable long-term client read/write access.

```
rules_version = '2';
service cloud.firestore {
  match /databases/{database}/documents {
    match /{document=**} {
      allow read, write: if
        request.time < timestamp.date(2025, 11, 26);
    }
  }
}
```

⚠ The default security rules for test mode allow anyone with your database reference to view, edit and delete all data in your database for the next 30 days

Cancel Create

## 7. Selanjutnya pilih Start Collection

- Collection id isi “mahasiswa” sebagai nama table

Start a collection

1 Give the collection an ID — 2 Add its first document

Parent path  
/

Collection ID ⓘ  
mahasiswa

Cancel Next

- Inputkan nim, nama, prodi, kelas serta tipe data dan value

### Start a collection

✓ Give the collection an ID

2 Add its first document

Document parent path

/mahasiswa

Document ID

1

Field

nim

=

Type

string

⊖

String

22.230.0001

Field

nama

=

Type

string

⊖

String

fadhli hilman saputra

Field

prodi

=

Type

string

⊖

String

Sistem Informasi

Field

kelas

=

Type

string

⊖

String

7P51

⊕ Add field

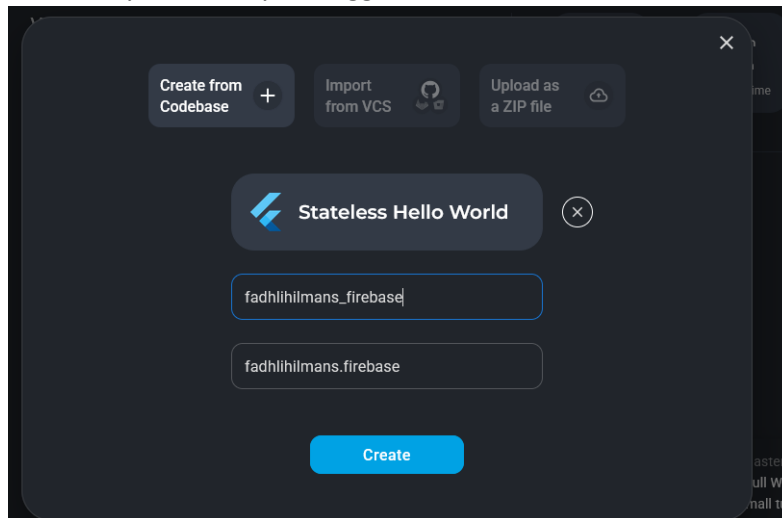
Cancel Save

🏠 > mahasiswa > 1 ✎

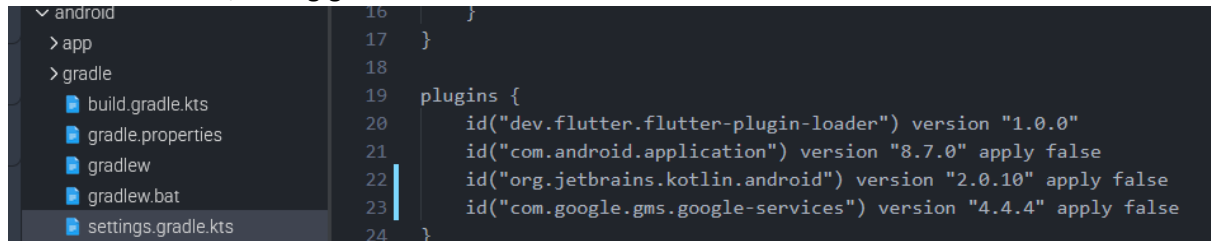
More in Google Cloud

(default)	mahasiswa	1
+ Start collection	+ Add document	+ Start collection
mahasiswa >	1 >	+ Add field
		kelas: "7P51"
		nama: "fadhli hilman saputra"
		nim: "22.230.0001"
		prodi: "Sistem Informasi"

8. Buat project pada <https://flutlab.io/>
9. Create project, sesuaikan packagename dengan penamaan android packagename pada firebase sebelumnya, disini saya menggunakan nama "fadhlililmans.firebase"



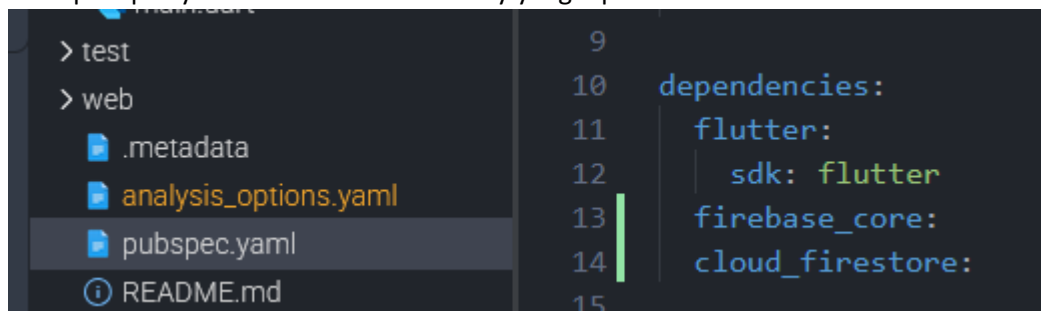
10. Pada file : android/setting.gradle.kts



Penjelasan :

- Ubah Versi Kotlin Menjadi: 2.0.10 agar kompatible dengan versi terbaru
- Tambahkan **id("com.google.gms.google-services") version "4.4.4" apply false**  
Ini adalah plugin Google Services. Ia digunakan untuk memproses file konfigurasi Google (seperti google-services.json) dan secara otomatis menambahkan dependensi yang diperlukan untuk layanan seperti Firebase

11. Buka pubspec.yaml lalu tambahkan library yang diperlukan:



Penjelasan :

- **firebase\_core** : Diperlukan sebagai inisialisasi layanan Firebase. wajib menyertakan package ini agar aplikasi Flutter dapat terhubung dengan firebase
- **cloud\_firestore** : Diperlukan secara spesifik untuk menggunakan layanan basis data dari Google, yaitu Cloud Firestore

12. Buka file : android/app/build.gradle.kts

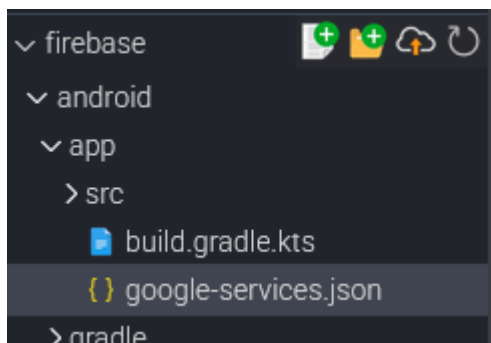
- Tambahkan id("com.google.gms.google-services")

```
1 plugins {  
2     id("com.android.application")  
3     id("kotlin-android")  
4     // The Flutter Gradle Plugin must be appl  
5     id("dev.flutter.flutter-gradle-plugin")  
6     id("com.google.gms.google-services")  
7 }  
8
```

- Tambahkan dependensi berikut:

```
dependencies {  
    implementation(platform("com.google.firebase:firebase-bom:34.4.0"))  
    implementation("com.google.firebase:firebase-analytics")  
}
```

13. Letakkan (upload) file google-services.json yang sudah didownload pada android/app/



14. Ganti minSdkVersion di file android/app/build.gradle.kts menjadi 23 agar dapat menggunakan fitur Firebase

```
defaultConfig {  
    // TODO: Specify your own unique Application ID (https://deve  
    applicationId = "fadhlihilmans.firebaseio"  
    // You can update the following values to match your applicat  
    // For more information, see: https://flutter.dev/to/review-g  
    // minSdk = flutter.minSdkVersion  
    minSdk = 23  
    targetSdk = flutter.targetSdkVersion  
    versionCode = flutter.versionCode  
    versionName = flutter.versionName  
}
```

## 15. Menyiapkan halaman home:

```
1 import 'package:cloud_firestore/cloud_firestore.dart';
2 import 'package:flutter/material.dart';
3
4 class Home extends StatefulWidget {
5   @override
6   HomeState createState() => HomeState();
7 }
8
9 class HomeState extends State<Home> {
10   @override
11   Widget build(BuildContext context) {
12     return Scaffold(
13       appBar: AppBar(
14         title: Text('Database Firebase'),
15       ),
16       floatingActionButton: FloatingActionButton(
17         onPressed: () {},
18         child: Icon(Icons.add),
19       ),
20       body: StreamBuilder(
21         stream: FirebaseFirestore.instance.collection('mahasiswa').snapshots(),
22         builder: (context, snapshot) {
23           if (snapshot.hasData) {
24             return Container(
25               padding: EdgeInsets.fromLTRB(5, 10, 5, 5),
26               child: Card(
27                 child: ListView.builder(
28                   shrinkWrap: true,
29                   itemCount: snapshot.data!.docs.length,
30                   itemBuilder: (context, index) {
31                     DocumentSnapshot documentSnapshot =
32                       snapshot.data!.docs[index];
33                     return Column(
34                       children: [
35                         GestureDetector(
36                           child: ListTile(
37                             leading: Icon(Icons.person),
38                             title: Text(documentSnapshot["nim"]),
39                             // subtitle: Text(documentSnapshot["nama"]),
40                             subtitle: Column(
41                               crossAxisAlignment: CrossAxisAlignment
42                                 .start, // Agar teks rata kiri
43                               children: [
44                                 Text(documentSnapshot["nama"]),
45                                 Text(
46                                   'Prodi: ${documentSnapshot["prodi"]}',
47                                   style: TextStyle(fontSize: 12),
48                                 ),
49                                 Text(
50                                   'Kelas: ${documentSnapshot["kelas"]}',
51                                   style: TextStyle(fontSize: 12),
52                                 ),
53                               ],
54                             ),
55                             trailing: Icon(Icons.navigate_next_rounded),
56                           ),
57                         ),
58                         Divider(
59                           color: Colors.black,
60                           indent: 10,
61                           endIndent: 10,
62                         )
63                       ],
64                     );
65                   },
66                 ),
67               );
68             } else {
69               return Center(
70                 child: CircularProgressIndicator(
71                   backgroundColor: Colors.black,
72                 ),
73               );
74             }
75           }
76         ),
77       );
78     }
79   }
80 }
81
```



Penjelasan singkat :

```
home.dart lib\home.dart
import 'package:cloud_firestore/cloud_firestore.dart';
import 'package:flutter/material.dart';
```

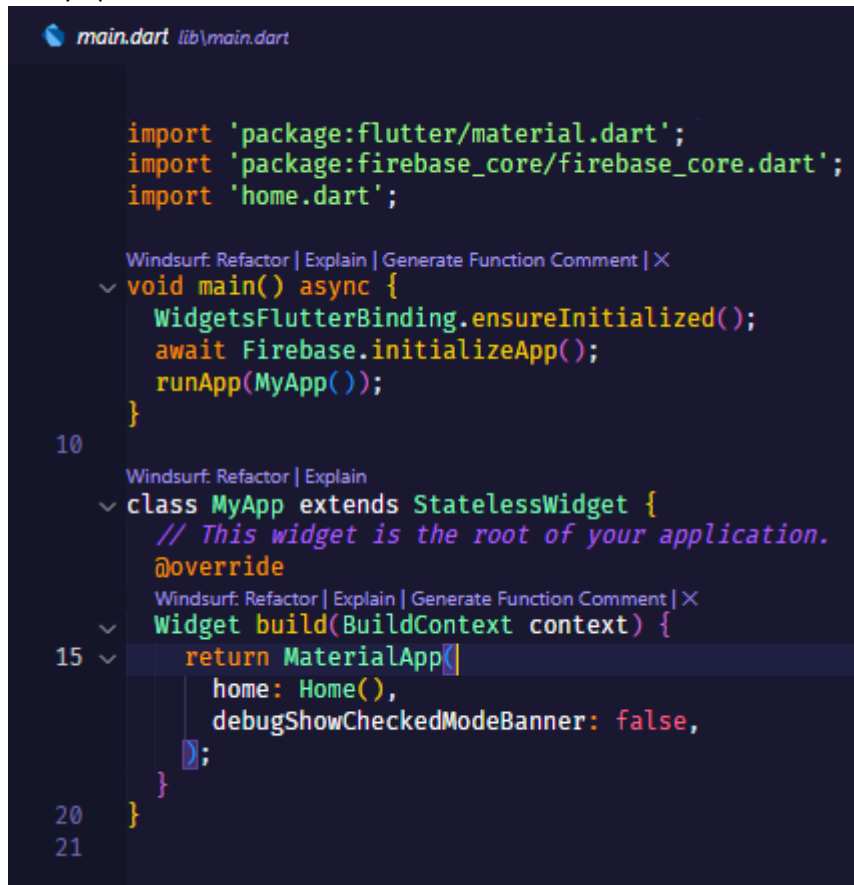
- import 'package:cloud\_firestore/cloud\_firestore.dart'; Memungkinkan penggunaan Cloud Firestore untuk berinteraksi dengan database
- import 'package:flutter/material.dart'; Mengimpor semua widget dan tema dasar Flutter.

```
body: StreamBuilder(
  stream: FirebaseFirestore.instance.collection('mahasiswa').snapshots(),
  builder: (context, snapshot) {
    if (snapshot.hasData) {
      return Container(
        // ...
      );
    } else {
      return Center(
        child: CircularProgressIndicator(
          backgroundColor: Colors.black,
        ),
      );
    }
  }
);
```

- Bagian ini mengambil semua data dari "collection" yang bernama 'mahasiswa' di Cloud Firestore dan akan terus diteruskan dengan snapshot
- if (snapshot.hasData) , Memeriksa apakah stream sudah menerima data dari Firebase. Jika ya, tampilkan daftar; jika tidak, masuk ke blok else (menampilkan CircularProgressIndicator)



## 16. Menyiapkan halaman main.dart



```
main.dart lib/main.dart

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

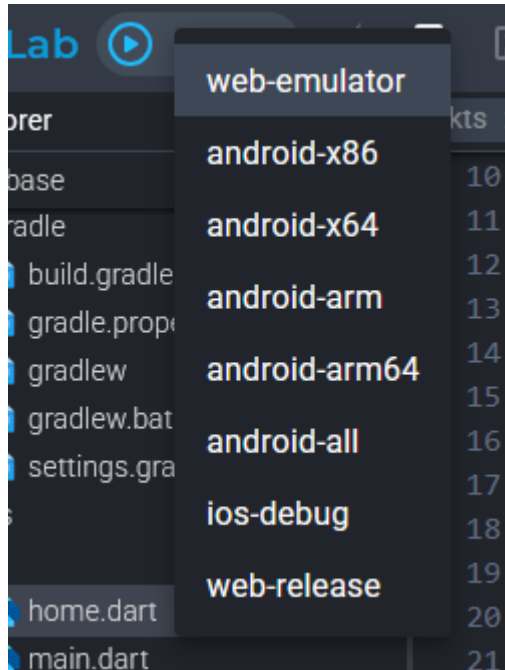
Windsurf: Refactor | Explain | Generate Function Comment | X
void main() async {
  WidgetsFlutterBinding.ensureInitialized();
  await Firebase.initializeApp();
  runApp(MyApp());
}
10

Windsurf: Refactor | Explain
class MyApp extends StatelessWidget {
  // This widget is the root of your application.
  @override
  Windsurf: Refactor | Explain | Generate Function Comment | X
  Widget build(BuildContext context) {
15   return MaterialApp(
    home: Home(),
    debugShowCheckedModeBanner: false,
  );
20 }
21
```

Penjelasan singkat :

- `import 'package:flutter/material.dart';`; Mengimpor semua widget dan tema dasar Material Design Flutter
- `import 'package:firebase_core/firebase_core.dart';`; Mengimpor package Firebase Core yang diperlukan untuk menginisialisasi (menghubungkan) aplikasi dengan proyek Firebase Anda.
- `import 'home.dart';`; Mengimpor file `home.dart` yang berisi kelas `Home`, yaitu halaman utama (tampilan daftar data) yang akan ditampilkan pertama kali.
- Mengatur widget `Home()` (yang berisi tampilan data Firestore) sebagai halaman awal aplikasi.

17. Jalankan proyek :



- Pilih android-arm64
- Lalu download pada hp
- Buka aplikasi hasil download tersebut

