Name : Gaurang Mapuskar Class:D15B
Roll. No:35

Mad Experiment 6

Firebase and Flutter are two powerful tools for developing modern mobile and web applications. Firebase is a platform developed by Google that provides a suite of tools to develop and grow apps, while Flutter is a UI toolkit developed by Google for building natively compiled applications for mobile, web, and desktop from a single codebase. Let's delve into key concepts, features, and steps for both Firebase and Flutter:

Firebase:

Key Concepts:

- **Realtime Database**: A NoSQL cloud database that supports data syncing in real time.
- **Authentication:** Provides ready-to-use authentication services like email/password, social logins, and more.
- **Cloud Firestore:** A flexible, scalable database for mobile, web, and server development.
- **Cloud Functions:** Allows you to run backend code in response to events triggered by Firebase features and HTTPS requests.
- **Cloud Storage**: For storing user-generated content like photos and videos.
- Firebase Hosting: Fast and secure web hosting for your web app's static and dynamic content.
- **Analytics**: Provides insights into user behavior and app usage.
- **Performance Monitoring:** Allows you to gain insights into your app's performance and stability.
- **Remote Config:** Change the behavior and appearance of your app without publishing an app update.
- **Crashlytics**: A tool to track, prioritize, and fix stability issues that erode app quality.

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Features:

- Easy Integration: Firebase can be easily integrated into both iOS and Android applications.
- Real-time Updates: Real-time database and Firestore provide seamless updates to connected clients.
- Authentication: Simplifies user authentication with ready-to-use services.
- Scalability: Firebase automatically scales with your usage, handling hundreds to millions of users.
- Analytics and A/B Testing: Understand your users better with analytics and improve user engagement with A/B testing.
- Hosting and Functions: Allows you to host your web app and write serverless functions easily.
- Cost Effective: Firebase has a generous free tier, making it cost-effective for small to medium-sized apps.

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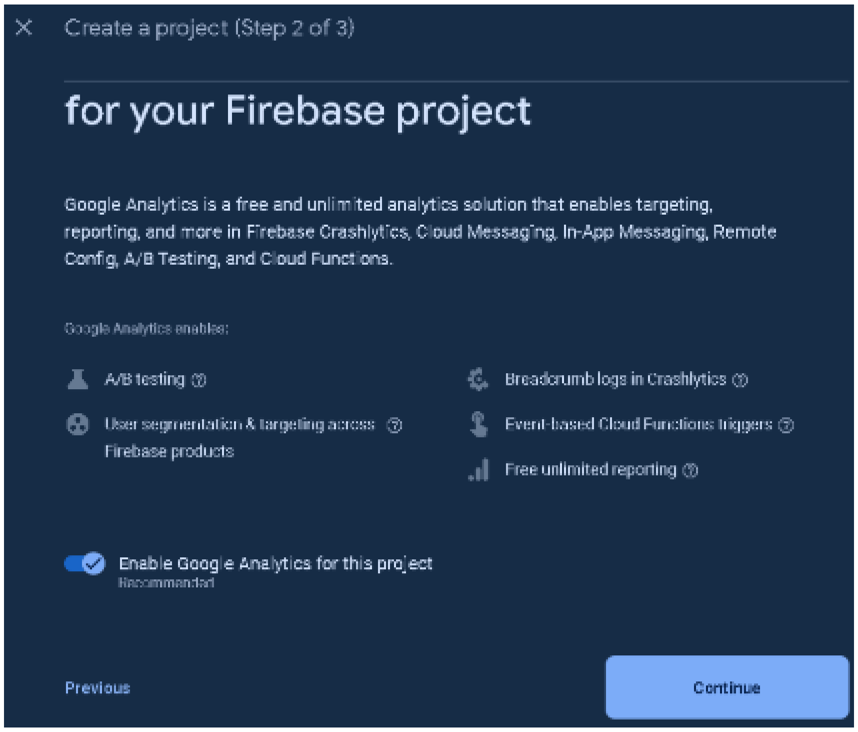
Steps:

Create a Firebase Project:

- Go to the Firebase Console, create a new project, and follow the setup instructions.



for your Firebase project

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

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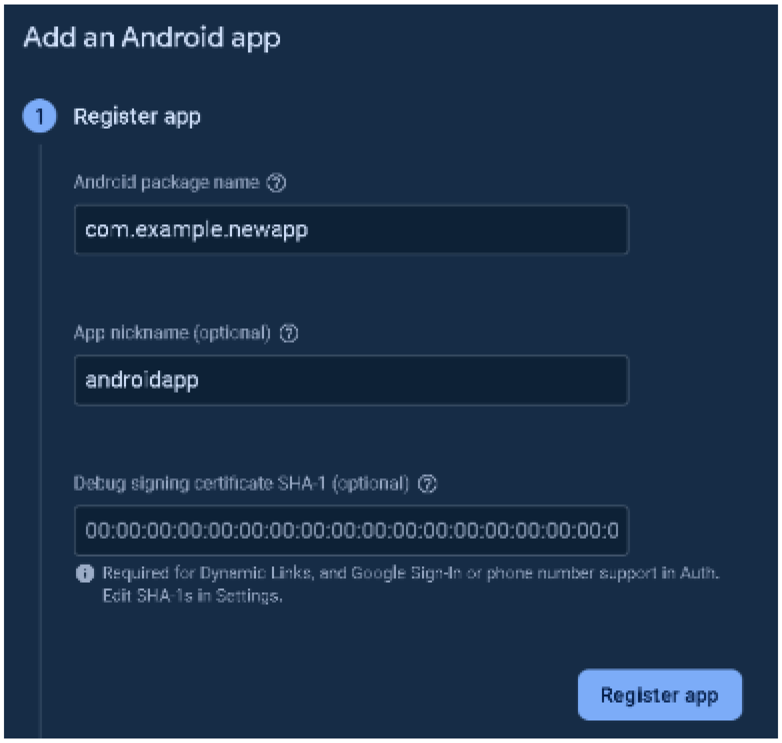


Add an Android app

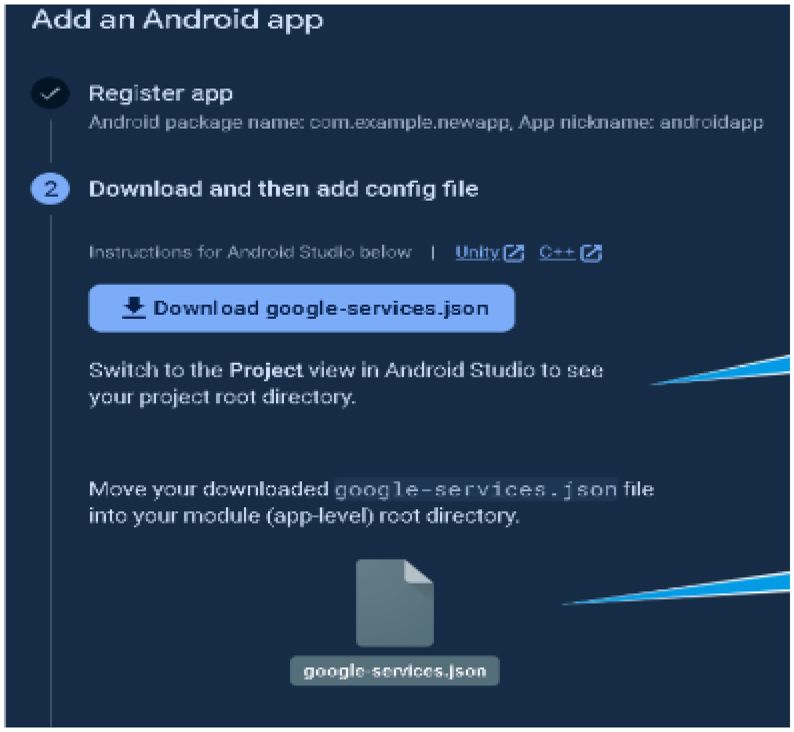
1 Register app

Android package name: com.example.newapp

App nickname (optional): androidapp

Debug signing certificate SHA-1 (optional): 00:00:00:00:00:00:00:00:00:00:00:00:00:00:00:00:00:00:00:0

Required for Dynamic Links, and Google Sign-In or phone number support in Auth. Edit SHA-1s in Settings.



Add an Android app

Register app
Android package name: com.example.newapp, App nickname: androidapp

2 Download and then add config file

Instructions for Android Studio below | Unity C++

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.

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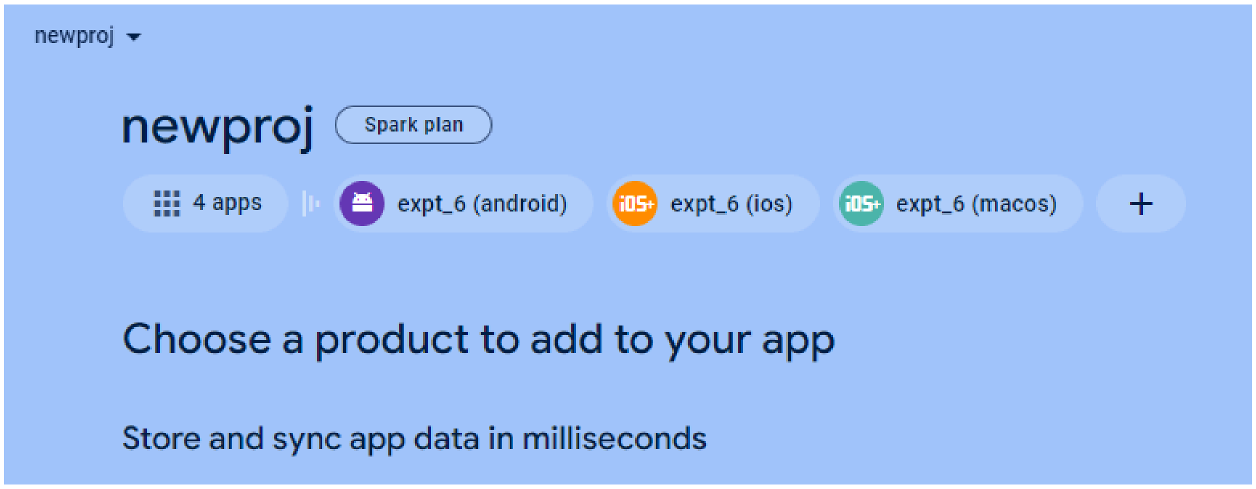
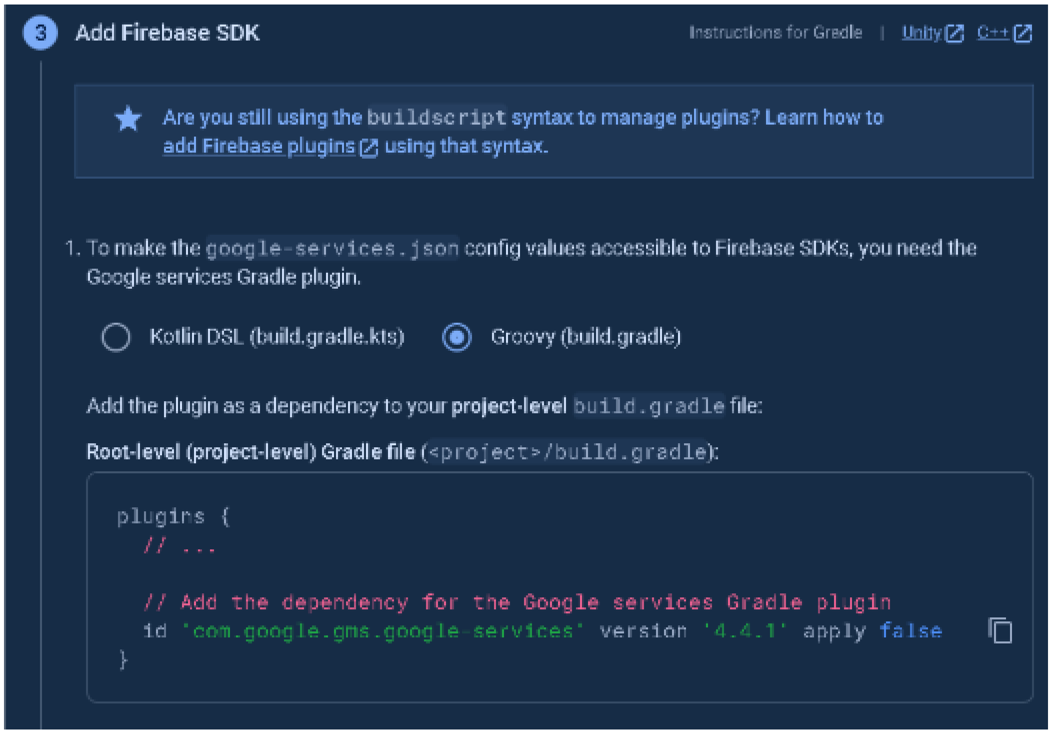


Choose a product to add to your app

Store and sync app data in milliseconds

Add Firebase to Your App:

- For Flutter, you'll add the Firebase SDK to your `pubspec.yaml` file.
- Follow the setup instructions provided by Firebase for each service you want to use.



Are you still using the `buildscript` syntax to manage plugins? Learn how to add Firebase plugins using that syntax.

1. To make the `google-services.json` config values accessible to Firebase SDKs, you need the Google services Gradle plugin.

Kotlin DSL (build.gradle.kts) [✓ Groovy (build.gradle)]

Add the plugin as a dependency to your **project-level** `build.gradle` file:

Root-level (project-level) Gradle file (`<project>/build.gradle`):

```
plugins {
  // ...

  // Add the dependency for the Google services Gradle plugin
  id 'com.google.gms.google-services' version '4.4.1' apply false
}
```

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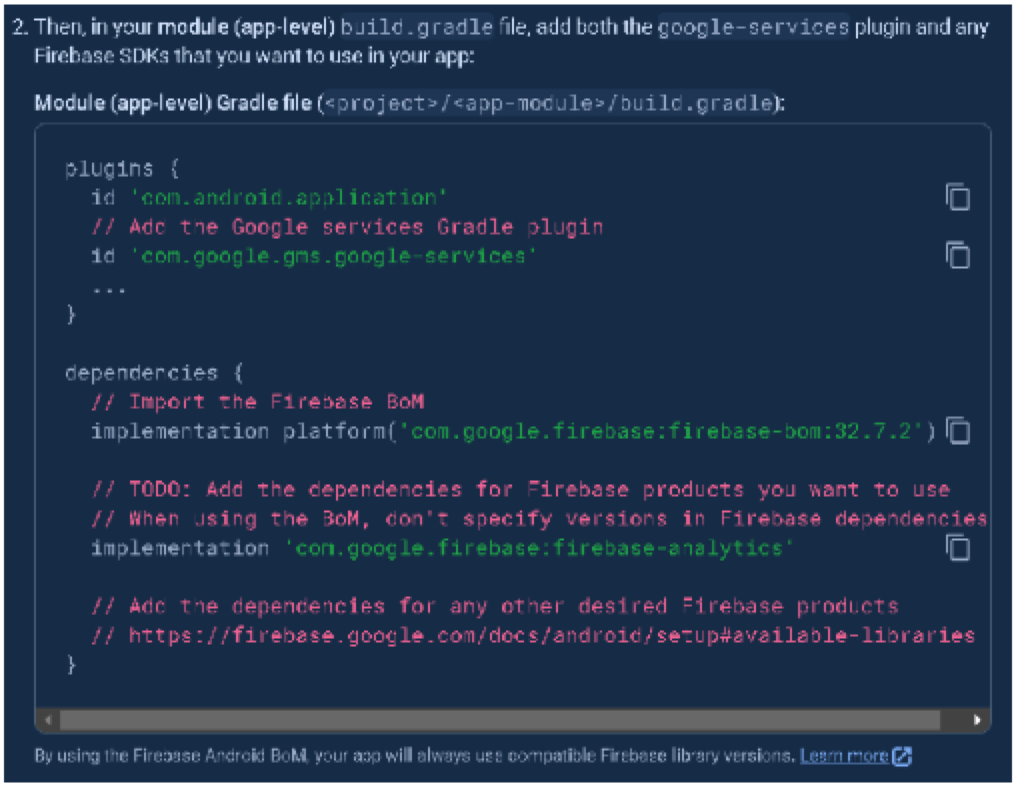


2. Then, in your module (app-level) `build.gradle` file, add both the `google-services` plugin and any Firebase SDKs that you want to use in your app:

Module (app-level) Gradle file (`<project>/<app-module>/build.gradle`):

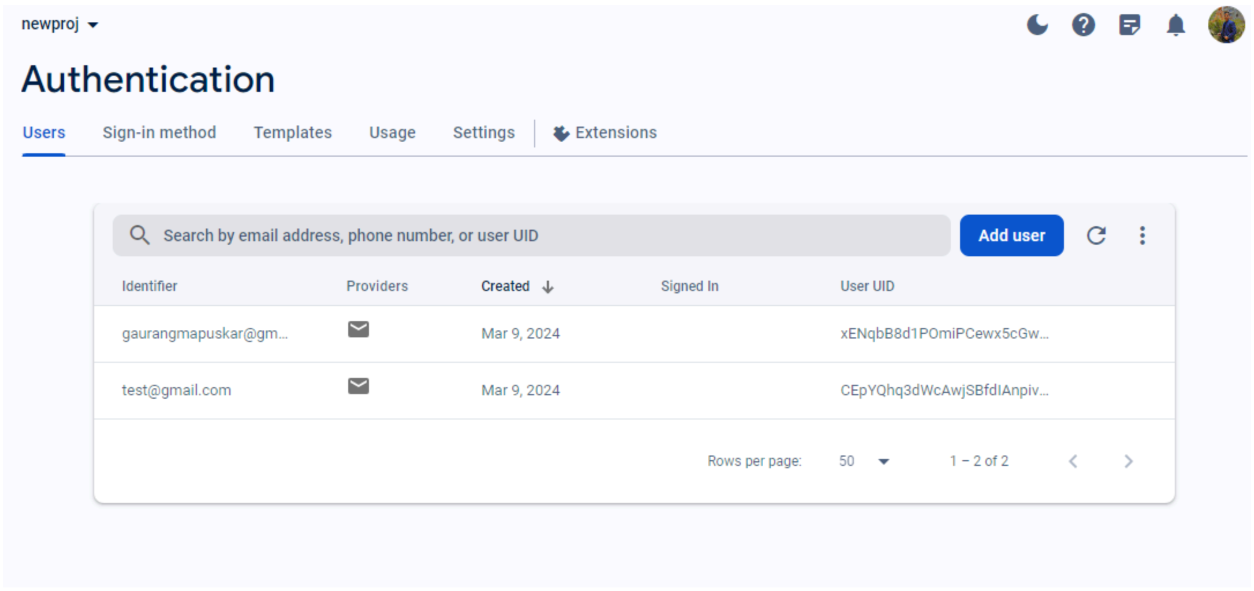
```
plugins {
  id 'com.android.application'
  // Add the Google services Gradle plugin
  id 'com.google.gms.google-services'
  ...
}

dependencies {
  // Import the Firebase BoM
  implementation platform('com.google.firebase:firebase-bom:32.7.2')

  // TODO: Add the dependencies for Firebase products you want to use
  // When using the BoM, don't specify versions in Firebase dependencies
  implementation 'com.google.firebase:firebase-analytics'

  // Add the dependencies for any other desired Firebase products
  // https://firebase.google.com/docs/android/setup#available-libraries
}
```

By using the Firebase Android BoM, your app will always use compatible Firebase library versions. Learn more



newproj

Authentication

Identifier	Providers	Created	Signed In	User UID
gaurangmapuskar@gm...	✉	Mar 9, 2024		xENqbB8d1POmiPCewx5cGw...
test@gmail.com	✉	Mar 9, 2024		CEpYQhq3dWcAwjSBfdIAnpiv...

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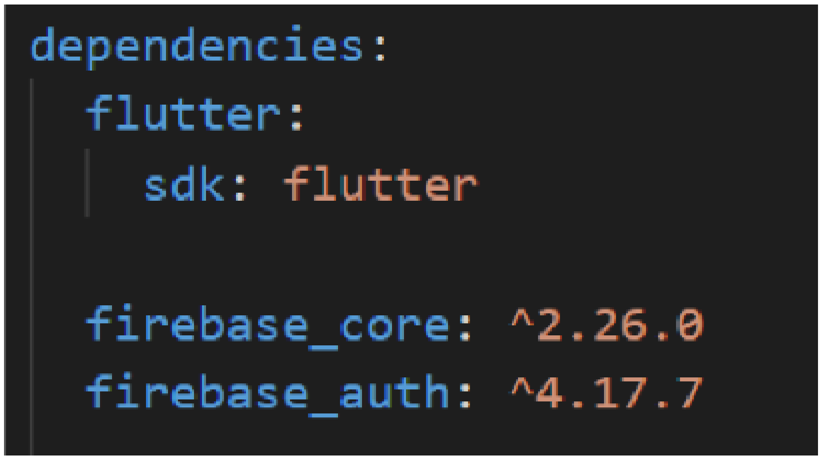
Initialize Firebase:

- In your Flutter app, initialize Firebase in the `main.dart` file or wherever appropriate.
- This step typically involves configuring Firebase services with your app's credentials.

Use Firebase Services:

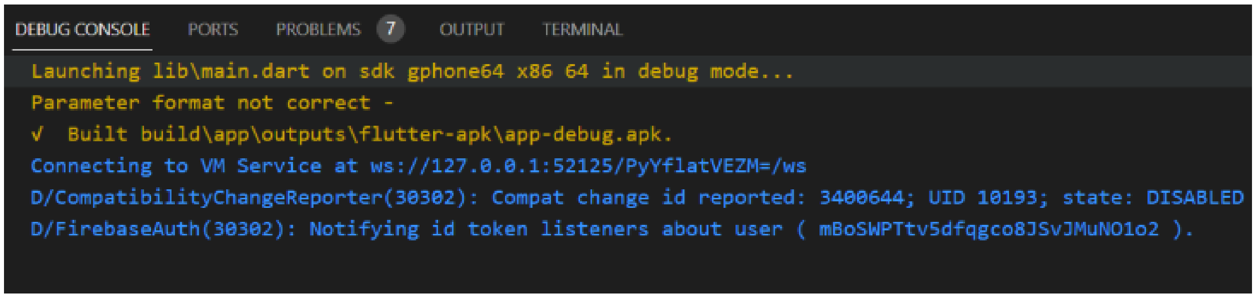
- Use Firebase services like Realtime Database, Firestore, Authentication, etc., in your Flutter app as needed.
- Firebase provides detailed documentation and code examples for each service.



```
dependencies:
  flutter:
    sdk: flutter

  firebase_core: ^2.26.0
  firebase_auth: ^4.17.7
```

After Running the Firebase Code:



```
Launching lib\main.dart on sdk gphone64 x86 64 in debug mode...
Parameter format not correct -
√  Built build\app\outputs\flutter-apk\app-debug.apk.
Connecting to VM Service at ws://127.0.0.1:52125/PyYflatVEZM=/ws
D/CompatibilityChangeReporter(30302): Compat change id reported: 3400644; UID 10193; state: DISABLED
D/FirebaseAuth(30302): Notifying id token listeners about user ( mBoSWPTtv5dfqgco8JSvJMuNO1o2 ).
```

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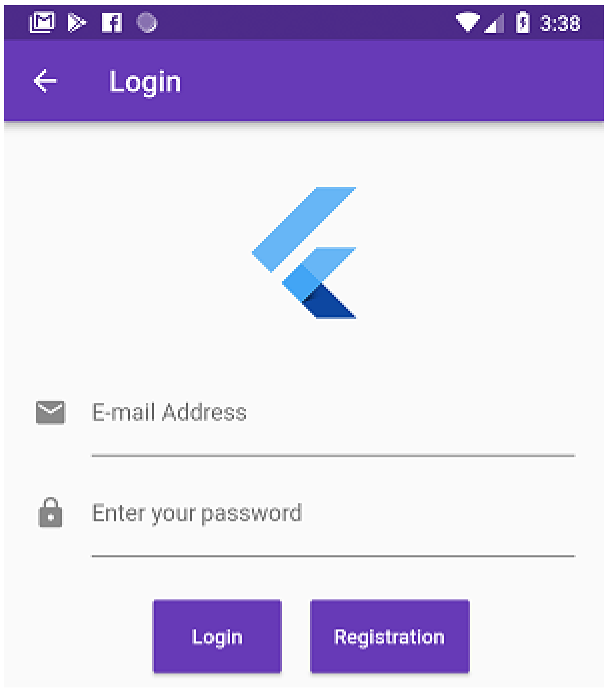
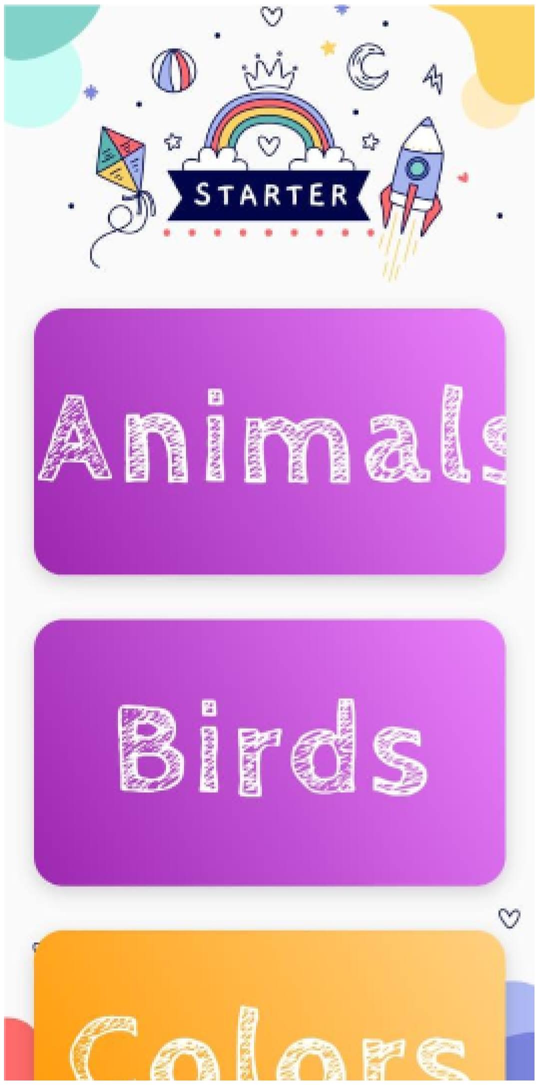

3:38
Login
E-mail Address
Enter your password
Login
Registration


STARTER
Animals
Birds
Colors