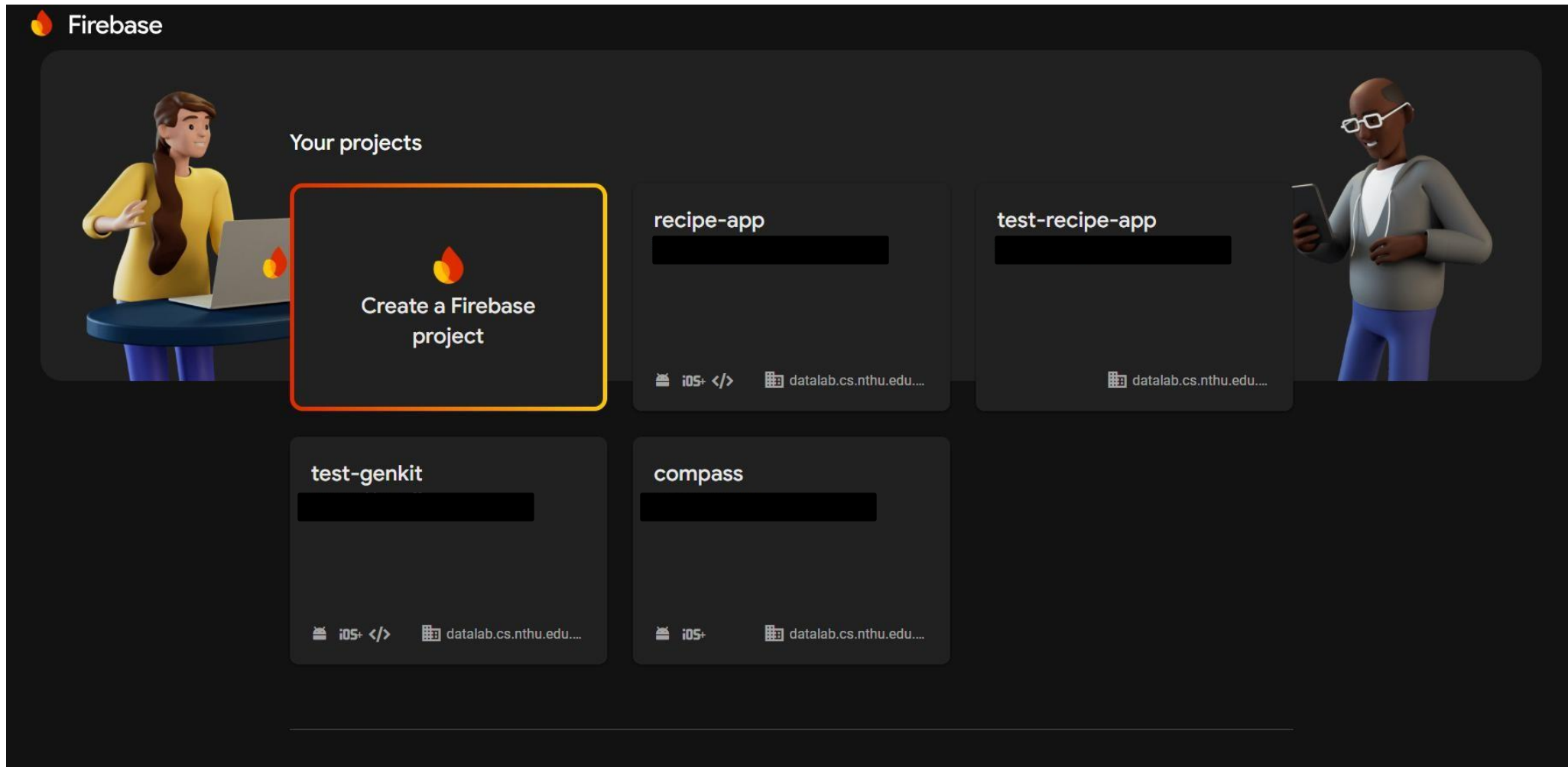


Firestore in Flutter setup

2026 SS


Go to [firebase](https://firebase.google.com) and create a firebase project



× Create a project

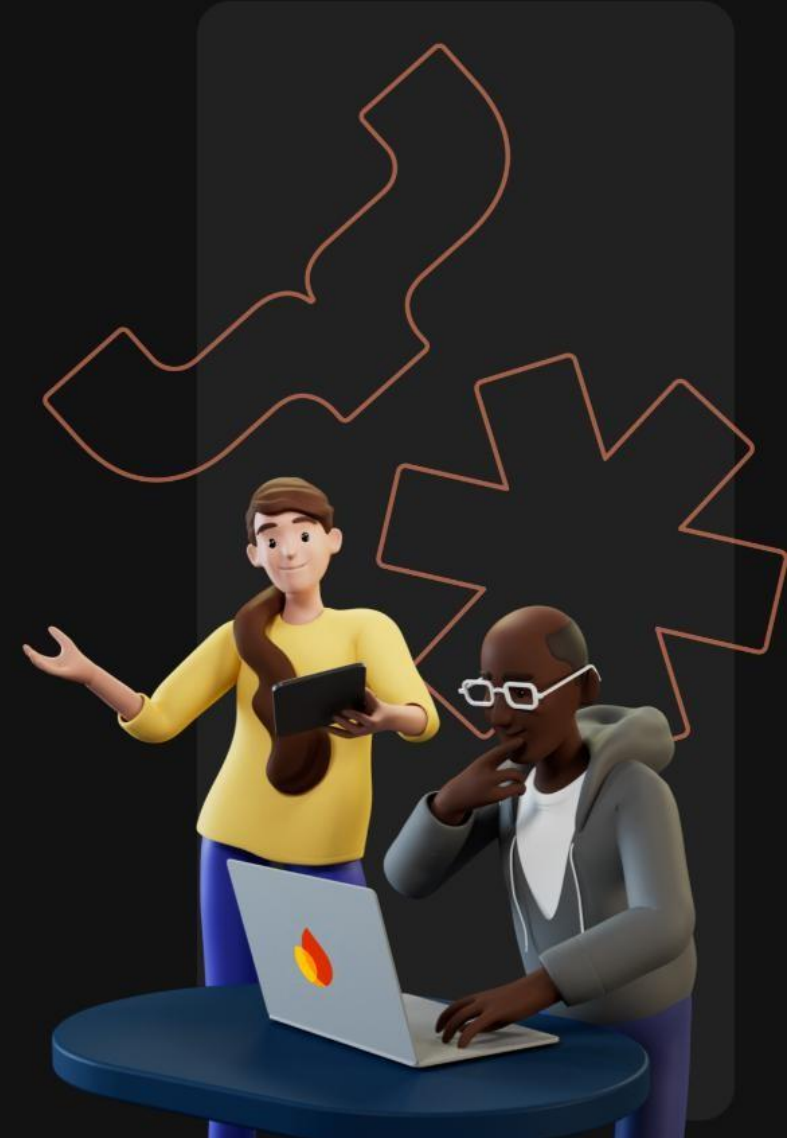
Let's start with a name for
your project [?]

Project name

 todolist-6968e

Already have a Google Cloud project?
[Add Firebase to Google Cloud project](#)

Continue



× Create a project

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 ?

× Breadcrumbs logs in Crashlytics ?

× User segmentation & targeting across
Firebase products ?

× Event-based Cloud Functions triggers ?

× Free unlimited reporting ?

Enable Google Analytics for this project
Recommended

Disable first

Then create

[Previous](#)

Create project

Your projects



Create a Firebase
project

todoist

todoist-6968e

Go into the project you just created

 `datalab.cs.nthu.edu....`

todolist

Spark plan

Getting started? Tell Gemini about your project

Get started by adding Firebase to your app



Add an app to get started



× Add Firebase to your Flutter app

1 Prepare your workspace

The easiest way to get you started is to use the FlutterFire CLI.

Before you continue, make sure to:

- Install the [Firebase CLI](#) and log in (run `firebase login`)
- Install the [Flutter SDK](#)
- Create a Flutter project (run `flutter create`)

Next

2 Install and run the FlutterFire CLI

3 Initialize Firebase and add plugins

Install firebase CLI

- [Windows](#)
- [MacOS](#)
- If you have installed firebase CLI in the previous lab, the following instruction does not have to follow.
- **We recommend using npm install**
 - Install node version manager(nvm)
 - Add nvm to PATH([windows](#), MacOS: should be automatic)
 - \$ nvm install 22.22.3
 - \$ nvm use 22.22.3
 - \$ npm install -g firebase-tools ([Windows problem](#))

Login Firebase CLI with Google account

- After Firebase CLI is installed In terminal, run **\$ firebase login**
- Follow the pop-up login window and login to the Google account with a billing account

```
victor890915@VictordeMacBook-Pro ~ % 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? No

Visit this URL on this device to log in:
https://accounts.google.com/o/oauth2/auth?client_id=563584335869-fgrhgmd47bqneki
j5i8b5pr03ho849e6.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%2Fcl
oud-platform&response_type=code&state=253403360&redirect_uri=http%3A%2F%2Flocalh
ost%3A9005

Waiting for authentication...

✓  Success! Logged in as swcheng@datalab.cs.nthu.edu.tw
victor890915@VictordeMacBook-Pro ~ %
```

Go back to firebase page and copy

2 Install and run the FlutterFire CLI

From any directory, run this command:

```
$ dart pub global activate flutterfire_cli
```



Then, at the root of your Flutter project directory, run this command:

```
$ flutterfire configure --project=todolist-6968e
```



This automatically registers your per-platform apps with Firebase and adds a `lib/firebase_options.dart` configuration file to your Flutter project.

[Previous](#)

[Next](#)

In your flutter project

- In project directory , run `$ dart pub global activate flutterfire_cli`
- Then run `$flutterfire configure --project=xxxxxxxxxx`
(copy from firebase page)

```
victor890915@VictordeMacBook-Pro todo % flutterfire configure --project=todoapp-3d5c1
i Found 1 Firebase projects. Selecting project todoapp-3d5c1.
? Which platforms should your configuration support (use arrow keys & space to select)? >
■ android
■ ios
■ macos
✓ web
■ windows
```

Choose the platform that you'll use. In this lab we only use web.
(arrow key to select , space to toggle, enter to choose)

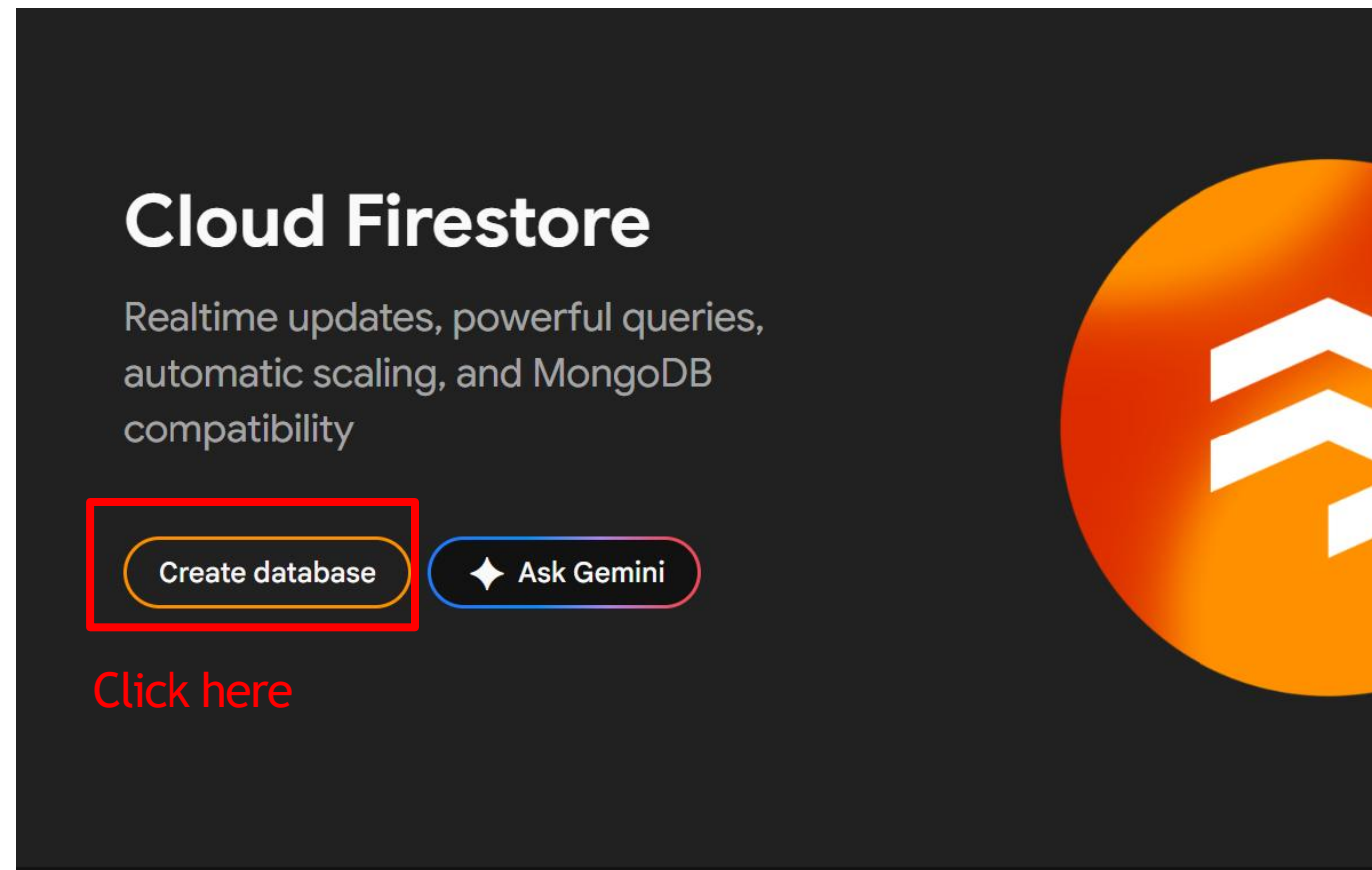
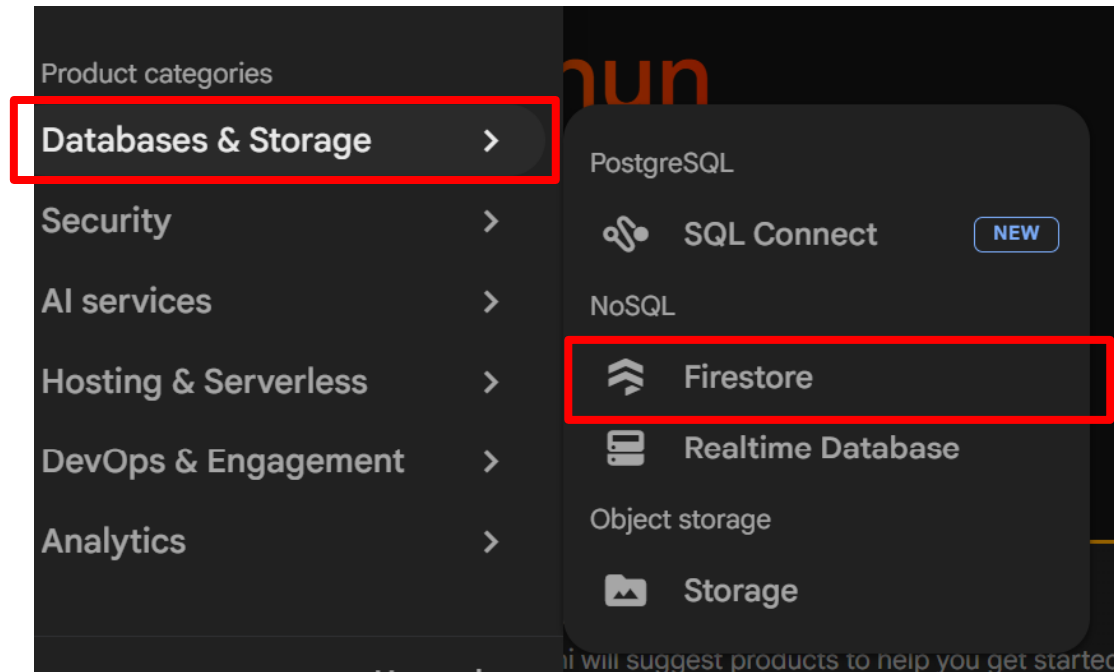
In your flutter project

- Choose the firebase project you've created
- After running flutter configure, you should see `firebase_options.dart` under `/lib`

Possible problems

- Insecure world writable dir in PATH, mode 040777
- Flutterfire not in PATH
- MacOS: cannot load such file -- xcodeproj (LoadError)

Go back to FireBase console



Select Standard (not enterprise)

× Create a database

1 Select edition

Standard edition


Simple query engine with automatic indexing

Supports Core operations

Enterprise edition

Advanced query engine with self-managed indexing.

Supports Core, Pipelines, and MongoDB operations

Not sure which edition is right? [Compare editions](#) 

Next

2 Database ID & location


2 Database ID & location

Database ID


(default)


Location

nam5 (United States)


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

Choose the place you want.
Recommend to choose a place close to you


 After you set this location, you cannot change it later

[Learn more](#) 

Next

 Database ID & location

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(2026, 6, 17);
    }
  }
}
```

 **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

Setup security rules

- Under your project

Run `$ firebase init firestore`, there should be two new files (firestore.rules , firestore.indexes).

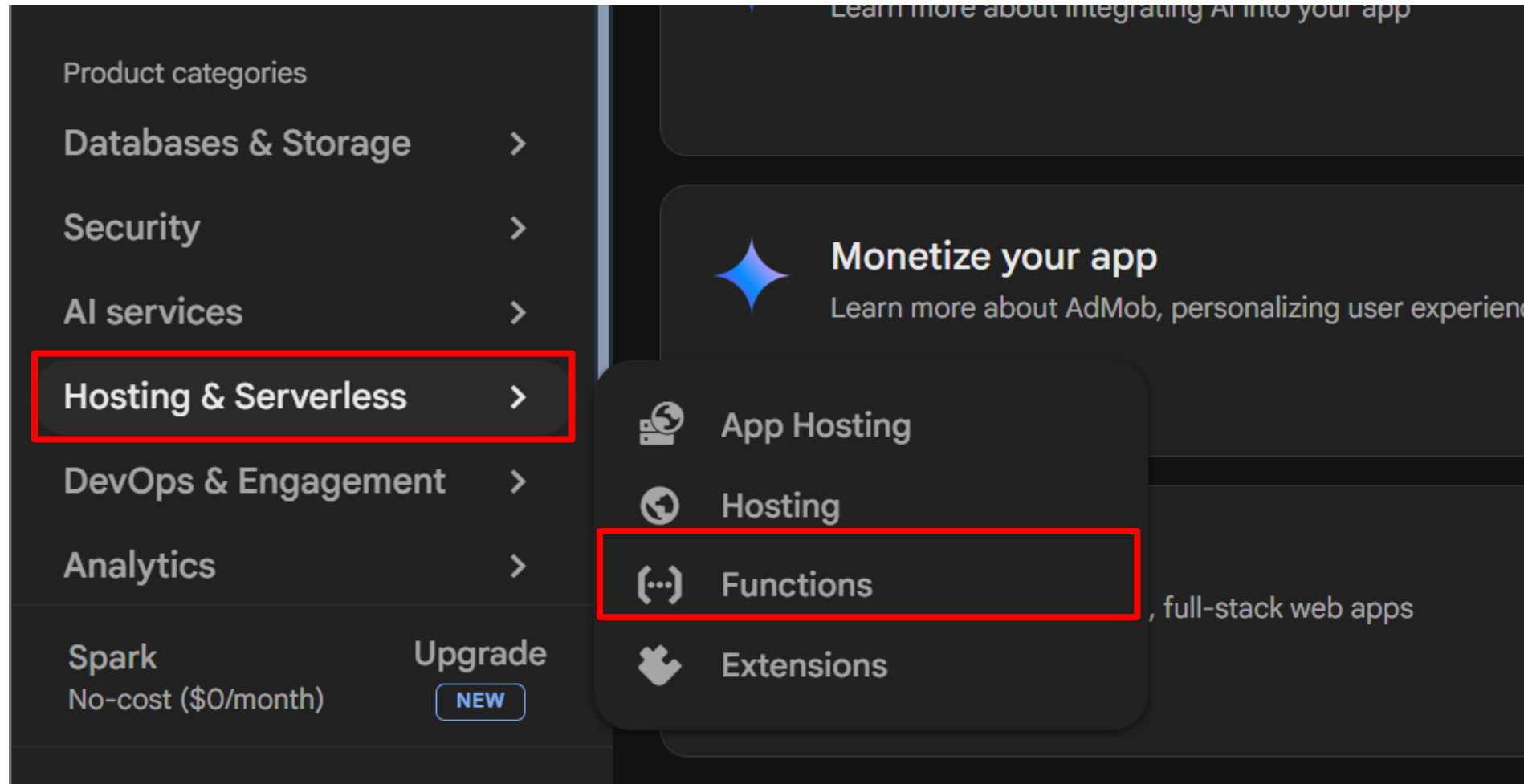
- These are system generated rules, but we have written our own rules, so delete them
- Move the “resources/firestore” folder out to the surface level (For Lab, don't do this in example.)
- Because we organized them in a folder, we must update the `firebase.json`

```
},  
"firestore": {  
  "rules": "firestore/firestore.rules",  
  "indexes": "firestore/firestore.indexes.json"  
},
```

Modify the path and save

- Run `$ flutterfire configure`
 - Reuse `firebase.json`
- **Deploy to firebase:** `$ firebase deploy --only firestore:rules`

Go back to FireBase console



Go back to FireBase console

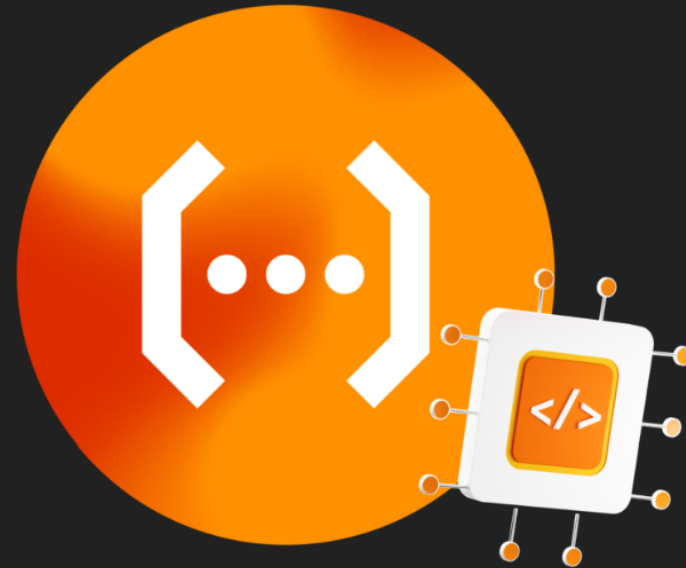
Functions

Run your mobile backend code without managing servers

i To use Functions, upgrade your project's pricing plan

Upgrade project

Click upgrade



Your billing account



Select or create a Cloud Billing account to upgrade to the pay-as-you-go (Blaze) plan



Claim \$300 of free credits to get started with Firebase!

[Learn more](#)

Selected plan

Pay as you go Blaze Plan

[See full plan details](#)

Choose a Cloud Billing account

Available Cloud Billing accounts ↑

You don't have a Cloud Billing Account
We'll help you create a billing account that you can link to your project

Create a Cloud Billing account



Create a Google Cloud billing account for Firebase

Step 1 of 2 Account Information



Switch account

Country

Taiwan

Email updates

- I would like to receive periodic emails on news, product updates and special offers from Google Cloud and Google Cloud Partners.

By using this application, you agree to the [Google Cloud Platform](#), [Supplemental Free Trial](#), and [any applicable services and APIs Terms of Service](#).

Agree & continue

Extend Firebase usage and quota

Get everything you need to build, run and scale your app, including advanced Firebase features. As a bonus, you'll gain access to Google Cloud products and APIs.

\$300 in free credits

Get \$300 on us to spend towards Firebase and Google Cloud services over the next 90 days.

No automatic charges

You only start paying if you decide to activate a full, pay-as-you-go Google Cloud account or choose to prepay. You'll keep any remaining free credit.



Create a Google Cloud billing account for Firebase

Step 2 of 2 Payment Information Verification

Don't worry, this trial is still free. Collecting your payment information helps us verify your identity to reduce fraud. You won't be charged unless you manually activate a full pay-as-you go account or choose to prepay.

Contact information

Add name and address



Your info is saved in a [payments profile](#) and shared across Google services

Start free

Extend Firebase usage and quota

Get everything you need to build, run and scale your app, including advanced Firebase features. As a bonus, you'll gain access to Google Cloud products and APIs.

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No automatic charges

You only start paying if you decide to activate a full, pay-as-you-go Google Cloud account or choose to prepay. You'll keep any remaining free credit.

Create a Google Cloud account

Step 2 of 2 Payment Verification

Don't worry, this trial is still active. Your payment information helps us verify your account. You won't be charged unless you choose to prepare for production.

Contact information

Add name and address

Your info is saved in a payment profile for use with our services

Start free

Contact information

Only **Organization** profiles can have multiple users. If you select an **Individual** profile, you agree that use of your profile is for your trade, business, craft, or profession. In some countries, this selection affects your tax options. Your profile type can't be changed after signing up. [Learn more about payments profiles](#)

Profile type
Individual

Legal name

Postal code

Street address

Apt, suite, etc. (optional)

Fill up this page

Cancel

Save



Sign up and

Build, run and
manage Firebase
with access to
APIs.

Upgrade Firebase
over the next 90

ES

Decide to activate
Cloud account or
any remaining

Step 2 of 2 Payment Information Verification

Don't worry, this trial is still free. Collecting your payment information helps us verify your identity to reduce fraud. You won't be charged unless you manually activate a full pay-as-you-go account or choose to prepay.


Contact information

Change

Tax information

Tax status: Unregistered individual

Payment method

 Change

Your info is saved in a [payments profile](#) and shared across Google services

Start free

Extend Firebase usage and quota

Get everything you need to build, run and scale your app, including advanced Firebase features. As a bonus, you'll gain access to Google Cloud products and APIs.

\$300 in free credits

Get \$300 on us to spend towards Firebase and Google Cloud services over the next 90 days.

No automatic charges

You only start paying if you decide to activate a full, pay-as-you-go Google Cloud account or choose to prepay. You'll keep any remaining free credit.

← Set a billing budget



Send an email to all administrators on the billing account when cost for the project approaches or exceeds this amount

Billing to

My Billing Account

[View account](#)

Budget amount in TWD

10


You'll get an email at \$5.00 (50%), \$9.00 (90%), \$10.00 (100%), and can customize this later in the [Google Cloud Console](#) .

Skip this step

Continue

Link Cloud Billing account

This project will be linked to a Cloud Billing account for pay-as-you-go Firebase and Google Cloud services

 You will now be charged based on your usage of paid [Firebase and Google Cloud services](#) beyond the no-cost quota

Selected plan

Pay as you go Blaze Plan

[See full plan details](#)

Billing to

My Billing Account

[View account](#)

Budget amount in TWD

10

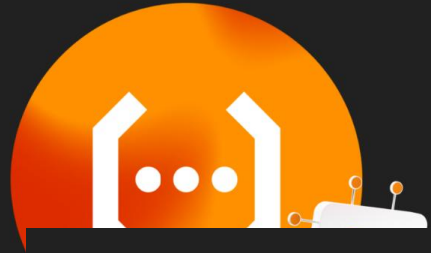
Cancel

Link Cloud Billing account

Functions

Run your mobile backend code without managing servers

Get started



Set up Functions



1 Install — 2 Deploy

To use Functions, you need to install Firebase command line tools using npm ([Node.js](#))

Install Firebase tools:

```
$ npm install -g firebase-tools
```



Not working? You may need to [change npm permissions](#)

If you've previously installed Firebase command line tools, run the install command again to make sure you have the latest version

Cancel

Continue

System will tell you to install a tool using npm

If you've done this, you can skip

Setup cloud functions

- Move the “resources/functions” folder out to the surface level (For Lab, don't do this in example.)
- Run `$ firebase init functions`

```
✓ Would you like to initialize a new codebase, or overwrite an existing one?
  Overwrite

Overwriting codebase default...

✓ What language would you like to use to write Cloud Functions? JavaScript
✓ Do you want to use ESLint to catch probable bugs and enforce style? No
+ Wrote functions/package.json
✓ File functions/index.js already exists. Overwrite? No
i Skipping write of functions/index.js
+ Wrote functions/.gitignore
✓ Do you want to install dependencies with npm now? Yes
```

- Run `$ flutterfire configure`



```
✓ You have an existing `firebase.json` file and possibly already configured
your project for Firebase. Would you prefer to reuse the values in your exist
ing `firebase.json` file to configure your project? · yes
```

- Deploy function to firebase by using:

```
$firebase deploy --only functions
```

- In “/android/app/build.gradle”, change `minSdkVersion` to 21 or higher

Back to Firebase console.

函式	觸發條件	版本	要求數量 (24 小時)	執行個體數量下限/上限	逾時時間
todoAppDecrementUserItemCount us-west1	 document.deleted	v2	0	0 / 40	1 分鐘
todoAppIncrementUserItemCount us-west1	 document.created	v2	0	0 / 40	1 分鐘

Successfully deployed cloud functions

- Test by assigning to-do's to other user and see if the if the user's number of to-do items increases