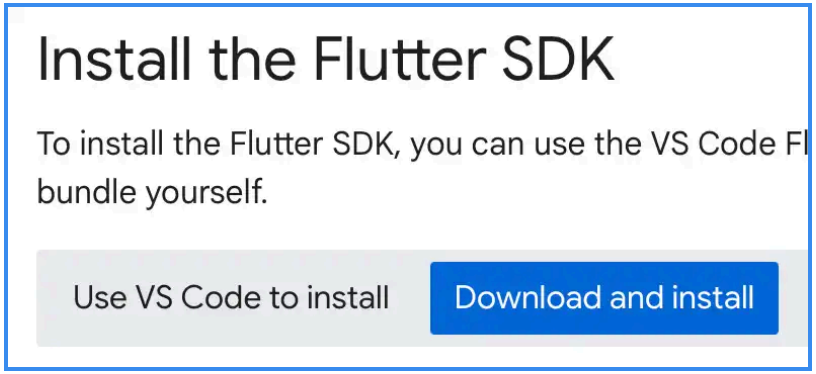
Flutter Installation

Cross-platform Flutter SDK

- Flutter requires many installations and configurations.
- Because it is a cross-platform development tool, it requires installing tools for iOS, Android, and Web apps.

Download Flutter SDK

- https://docs.flutter.dev/get-started/
- Choose your environment and download the SDK.
- Follow the instructions.



The Dart Language

- Dart is the programming language the Flutter SDK uses.
- Dart is automatically installed with the Flutter SDK.

You already know Dart

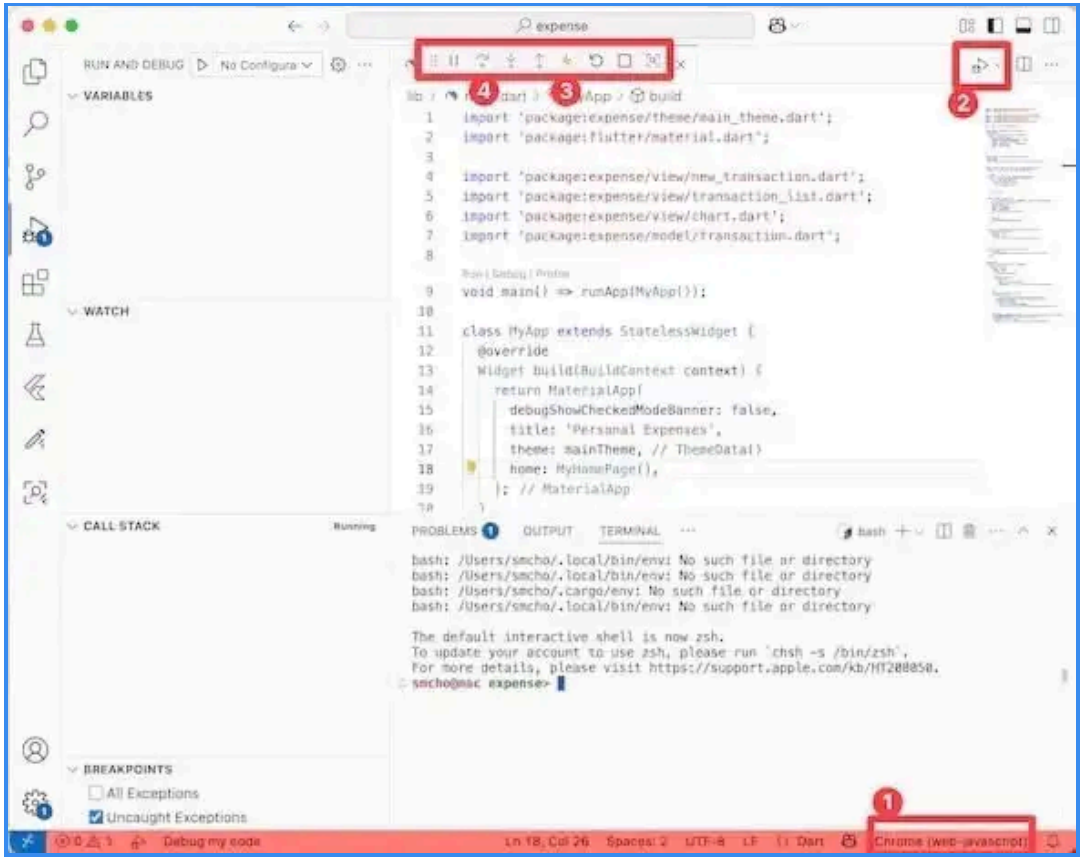
- It is a hybrid of Java and JavaScript.
- It has many Python-like features.
- It has the features that are good for cross-platform development.

Use VSCode for Dart/Flutter Programming

In many cases, using VS Code can be the simplest way to install Flutter.

- Visit https://docs.flutter.dev/install/with-vs-code to use VSC.
- Install Dart and Flutter VSCode extensions.
- There are many other extensions for Dart/Flutter application development; choose them for your purposes.

- Use VSCode Dart/Flutter extensions to run and debug applications.



Flutter doctor

- When the installation is finished, execute `flutter doctor` in the command line.

```
> flutter doctor

Doctor summary (to see all details, run flutter doctor -v):
[✓] Flutter
[✓] Android toolchain
[✓] Xcode - develop for iOS and macOS (Xcode 16.4)
[✓] Chrome - develop for the web
[✓] Android Studio (version 2023.1)
[✓] IntelliJ IDEA Ultimate Edition (version 2023.3.2)
[✓] VS Code (version 1.100.2)
• No issues found!
```

When you have any issues

We need to install many tools to use Flutter, so we may likely have some issues with the installation.

- Remember you are the `problem solver`.
- Develop your debugging skills as a `professional software engineer`.
- `Start early` to identify the issues as early as possible

Ask for help

- You don't have much time to lose, especially for the installation.
- Ask other team members who successfully installed Flutter.
- Use my office hours to visit and ask.

Discuss the issue with LLM

- AI/LLM can solve your installation issues effectively.
- Copy the error message to LLM.
- Use multiple LLMs when one LLM doesn't give you the correct answers.

- In the AI age, your time is more important than AI time.
- Make LLM as your `junior` software engineer, you being the `senior` software engineer: not the way round.
- It's dangerous if you follow LLM's orders to solve problems.

Make first Flutter app

- Create a directory to host a Flutter app.
- `flutter create` command to create a Flutter project.

```
> flutter create my_first_app
All done!
```

Flutter run

Flutter asks you to choose the platform to run.

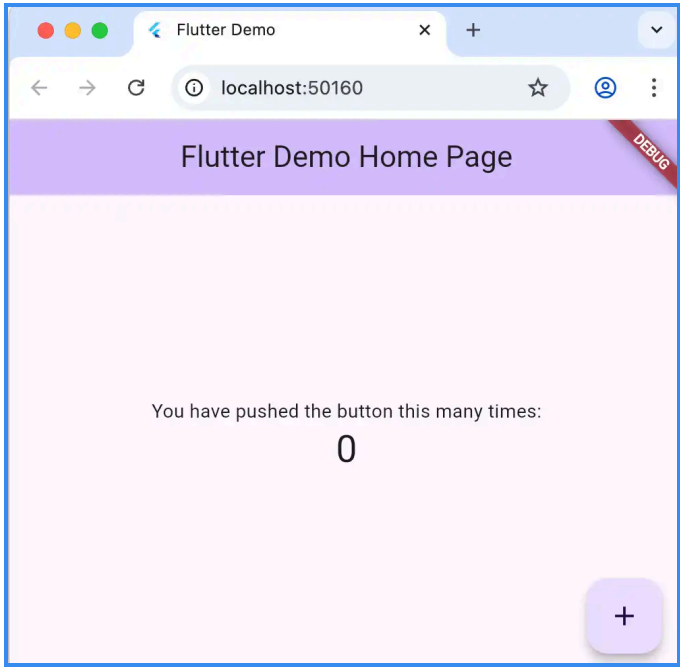
- The output should be different depending on your configuration.
- In this example, I use a Mac and connected a Pixel Google phone and an iPhone.

```
> cd my_first_app
> flutter run

[1]: Pixel 3a (941AY0HQM5)
[2]: iPhone 15 Pro Max (F31F-4002-8103-7D96CD8)
[3]: macOS (macos)
[4]: Chrome (chrome)
```

Choose Chrome

- You will see the Web App start.



Hot Reload

- You don't have to restart when you develop a Flutter application.
- You can type `r` in the command line to reload and restart your application.

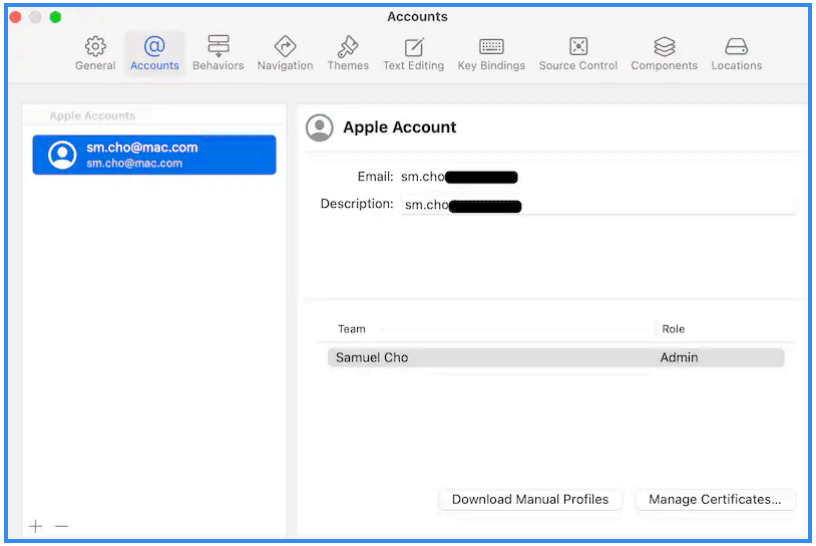
Choose iOS or Android

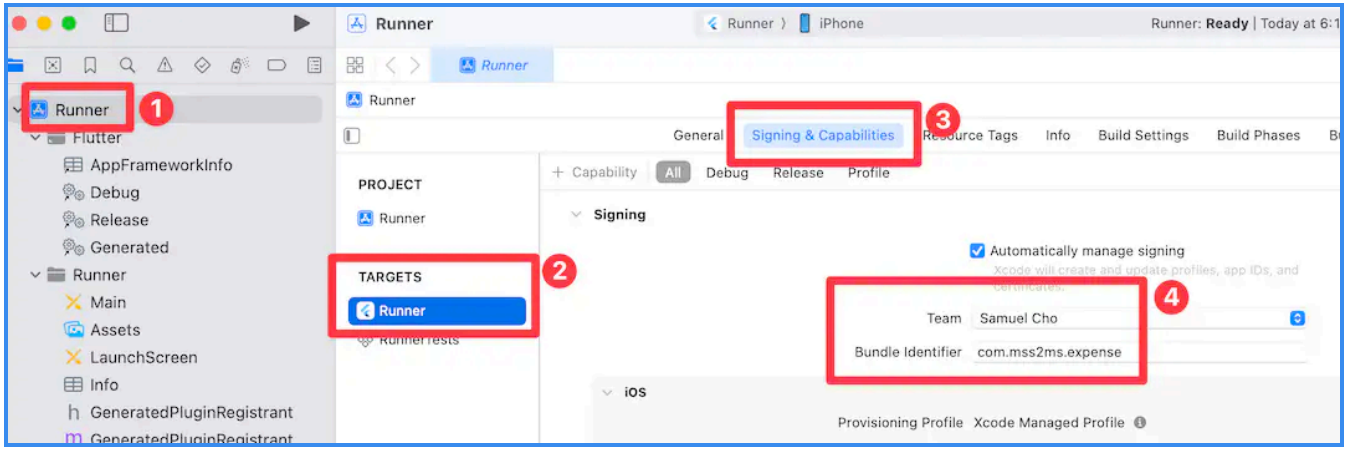
- Depending on your situation, choose iOS when you have an iPhone, and Android when you have an Android phone.

For iOS

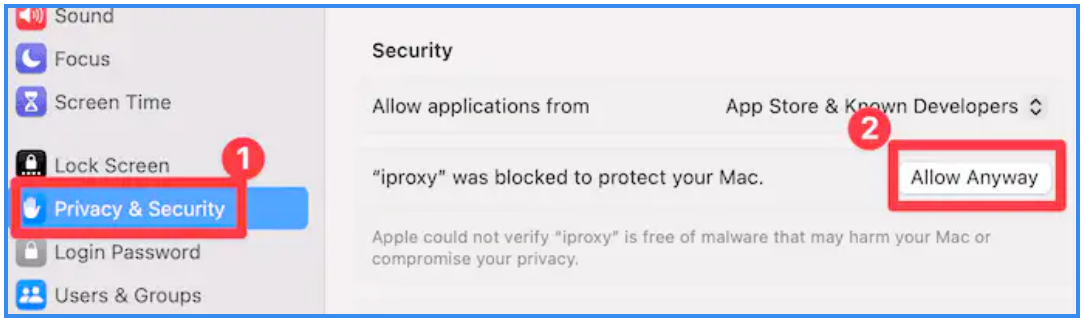
- Choose iPhone (only when you have a connected iPhone)
- You must use Xcode to open the Xcode project (Runner.xcodeproj) in the iOS directory.
- You also have to join the Apple Developer Program.

- To build iOS/Mac applications, we must use Signing & Capabilities to download and register the certificate.




Runner
Runner 〉 iPhone
Runner: Ready | Today at 6:1
Runner
Runner
Flutter
AppFrameworkInfo
Debug
Release
Generated
Runner
Main
Assets
LaunchScreen
Info
GeneratedPluginRegistrant
1
General
Signing & Capabilities
Resource Tags
Info
Build Settings
Build Phases
3
PROJECT
Runner
TARGETS
Runner
2
+ Capability
All
Debug
Release
Profile
Signing
Automatically manage signing
Team
Samuel Cho
Bundle Identifier
com.mss2ms.expense
4
iOS
Provisioning Profile
Xcode Managed Profile

- You need to allow the apps that should be executed through Privacy & Security.



Debugging the App

- You can use VSC for debugging.
- You can also use a web browser to monitor and debug code.

```
A Dart VM Service on iPhone 15 Pro Max is available at:
http://127.0.0.1:50770/IzI3dFCMBec=/
The Flutter DevTools debugger and profiler on iPhone 15 Pro Max is available at:
http://127.0.0.1:9100?uri=http://127.0.0.1:50770/IzI3dFCMBec=/
```

For Android

- Choose Android Phone (in this example, Google Pixel).
- It installs necessary files, builds the code, and runs on Android.
- You can also use a web browser to monitor and debug code.

Developer Mode On

- For both iOS and Android, be sure to turn on `Developer mode`.
- For deploying (selling) your app:
    - With iOS, register for the Developer program ($99/year)
    - With Android, use the Google Store.

Simulators

Flutter can use the Simulator for both iOS and Android.

- They are slow, and Android requires more setup and configuration.
- Before releasing the application, we must test it on real mobile devices.