#Flutter Notes

Introduction

What is Flutter?

- Flutter is an app SDK for building high-performance, high-fidelity apps for iOS, Android, and web (tech preview) from a single codebase.

- The goal is to enable developers to deliver high-performance apps that feel natural on different platforms. We embrace differences in scrolling behaviours, typography, icons, and more.

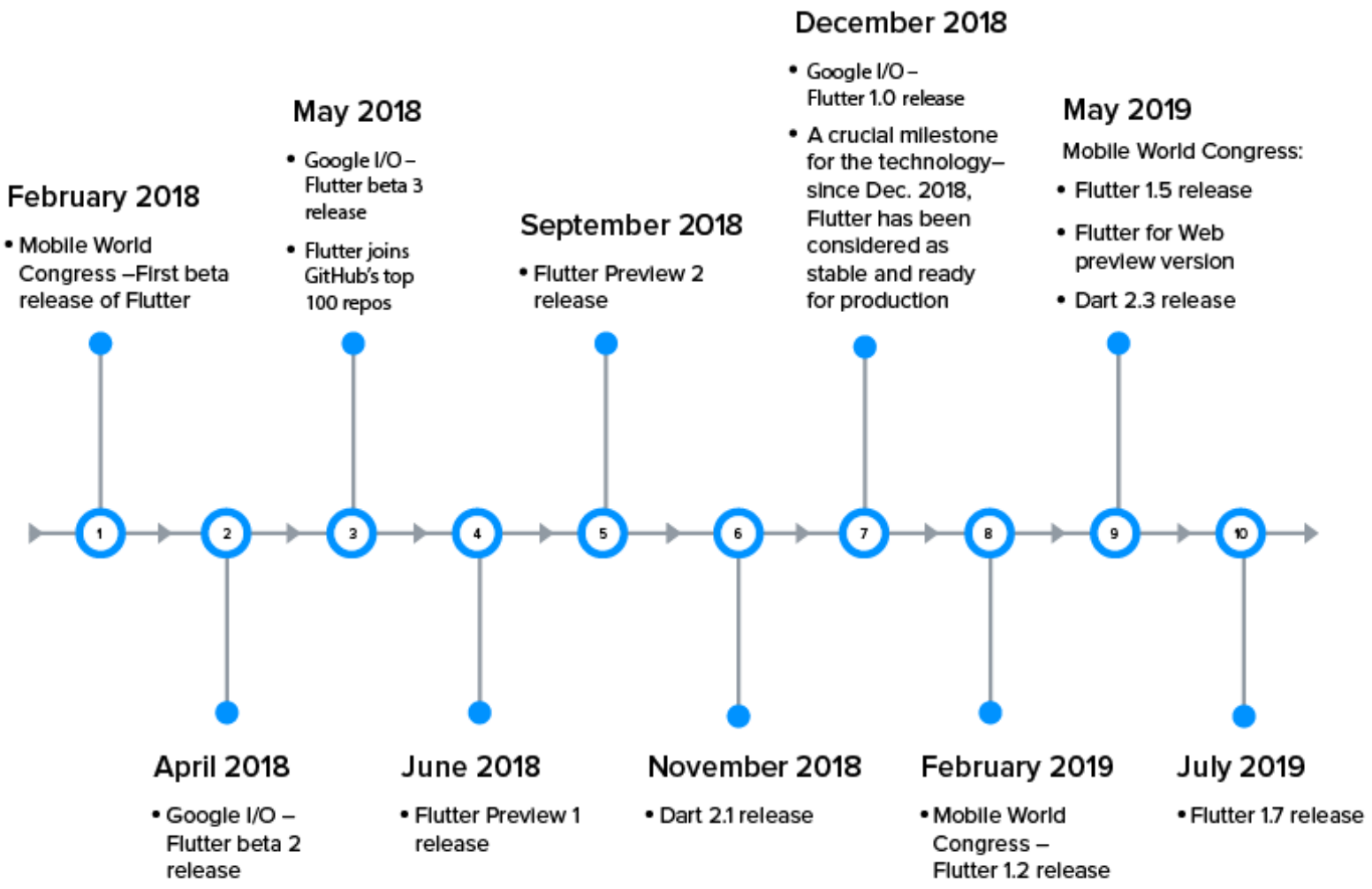
Why use Flutter?

- Be highly productive
  - Develop for iOS and Android from a single codebase
  - Do more with less code, even on a single OS, with a modern, expressive language and a declarative approach
  - Prototype and iterate easily
    - Experiment by changing code and reloading as your app runs (with hot reload)
    - Fix crashes and continue debugging from where the app left off

Cont…

- Create beautiful, highly-customized user experiences
  - Benefit from a rich set of Material Design and Cupertino (iOS-flavor) widgets built using Flutter’s own framework
  - Realize custom, beautiful, brand-driven designs, without the limitations of OEM widget sets

A brief history of Flutter



Advantages

- **Faster User interface Coding**
- **Hot Reload**
- **One codebase for 2 platforms**
- **Requires less testing**
- **Best-suited for MVP:** MVP means Minimum Viable Product
- **High performance**
- **Quick to learn**

Limitations

- No TV support
- Large size app file
- Limited Library support

Installation

- **To Install Flutter to Your PC or Computer Follow Steps as written below:**

1. Go to Following URL :

   https://flutter.dev/docs/get-started/install

2. As Per your PC Os Platform Select Option From Windows ,MacOs or Linux and Continue by Clicking On the Any Of the Platforms

   (We are going to install and set up flutter for the Windows OS) this will redirect you toward the next page where we can download set up zip by clicking blue button given for download

Cont...

3. After Download is Completed Go to Downloads and Copy that Zip File and Extract that zip to your desired location but remember do not extract it in the elevated access privileges location like C:\Program Files\

4. After Extraction Process Completes Open flutter folder and then open flutter_console it will open up the cmd like console where you can run flutter commands.

Cont...

5. Now In the fluttter_console write command as follows:

C:\src\flutter\flutter doctor

This command checks your environment and displays a report of the status of your Flutter installation. Check the output carefully for other software you might need to install or further tasks to perform (shown in bold text).

Thats it you have successfully set up flutter sdk to your PC or Computer

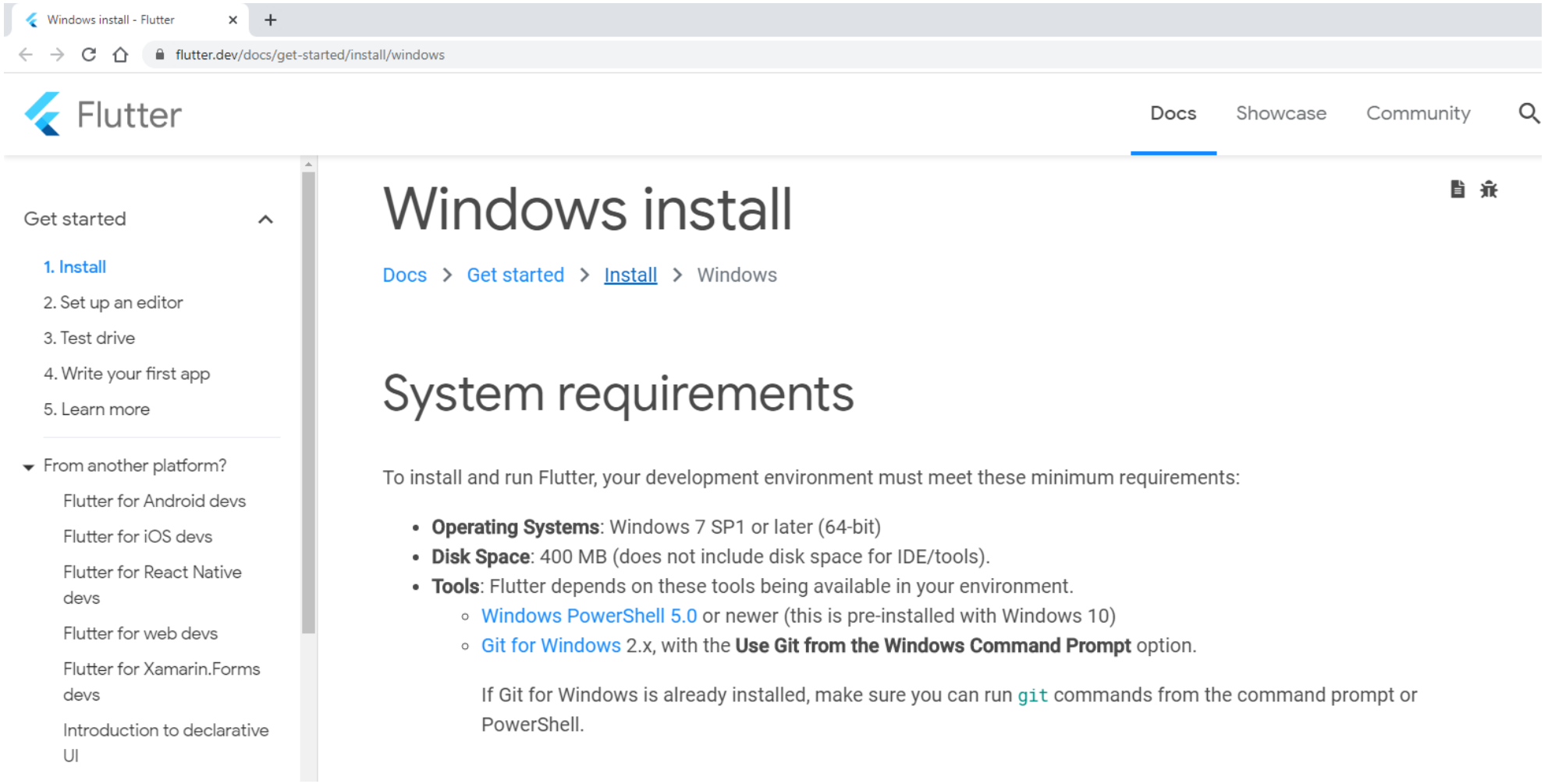
Cont…

- You’ll see the updated string and color in the running app almost immediately.

- That's it you have successfully completed test drive of a flutter project

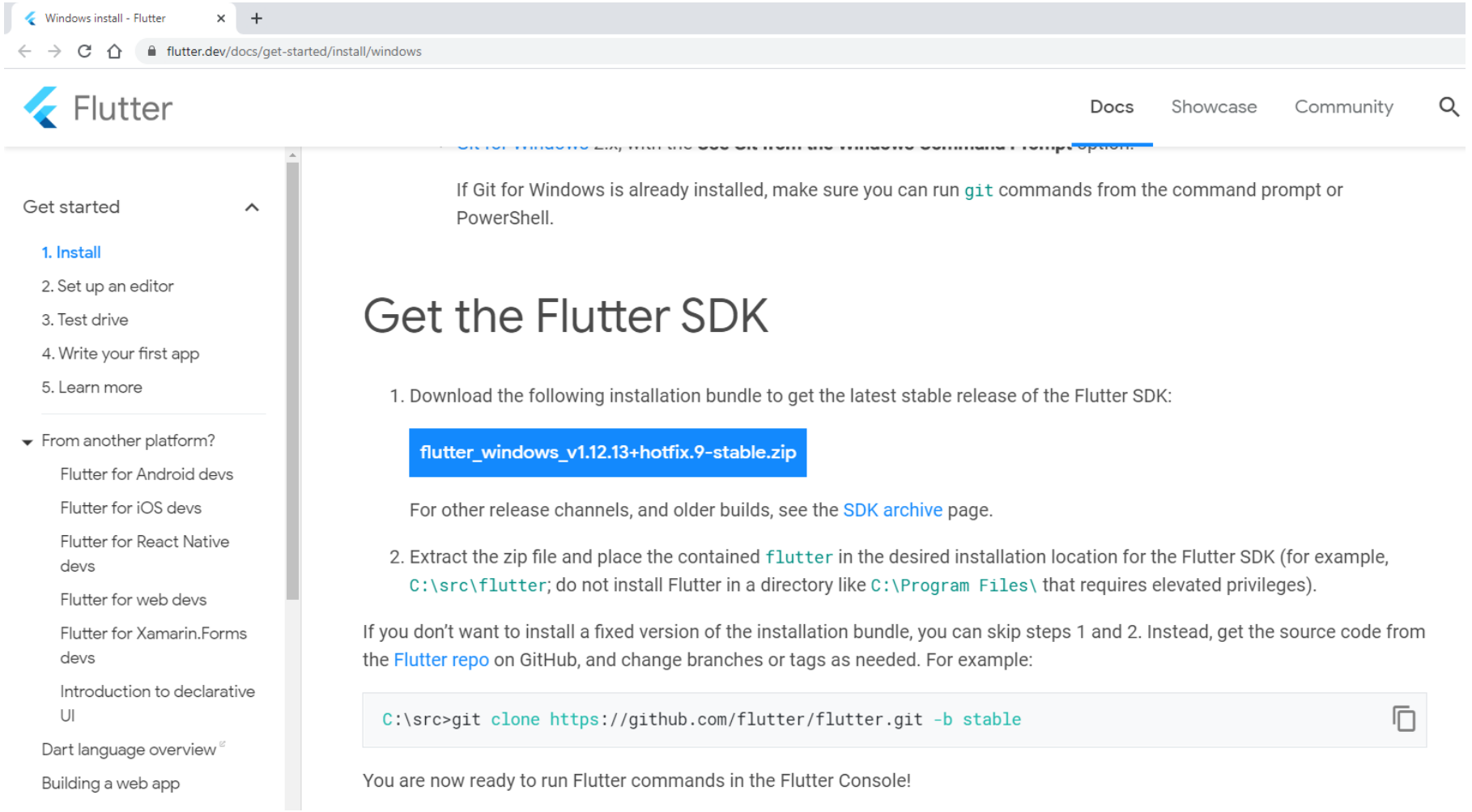
Installation ☺

System Requirements

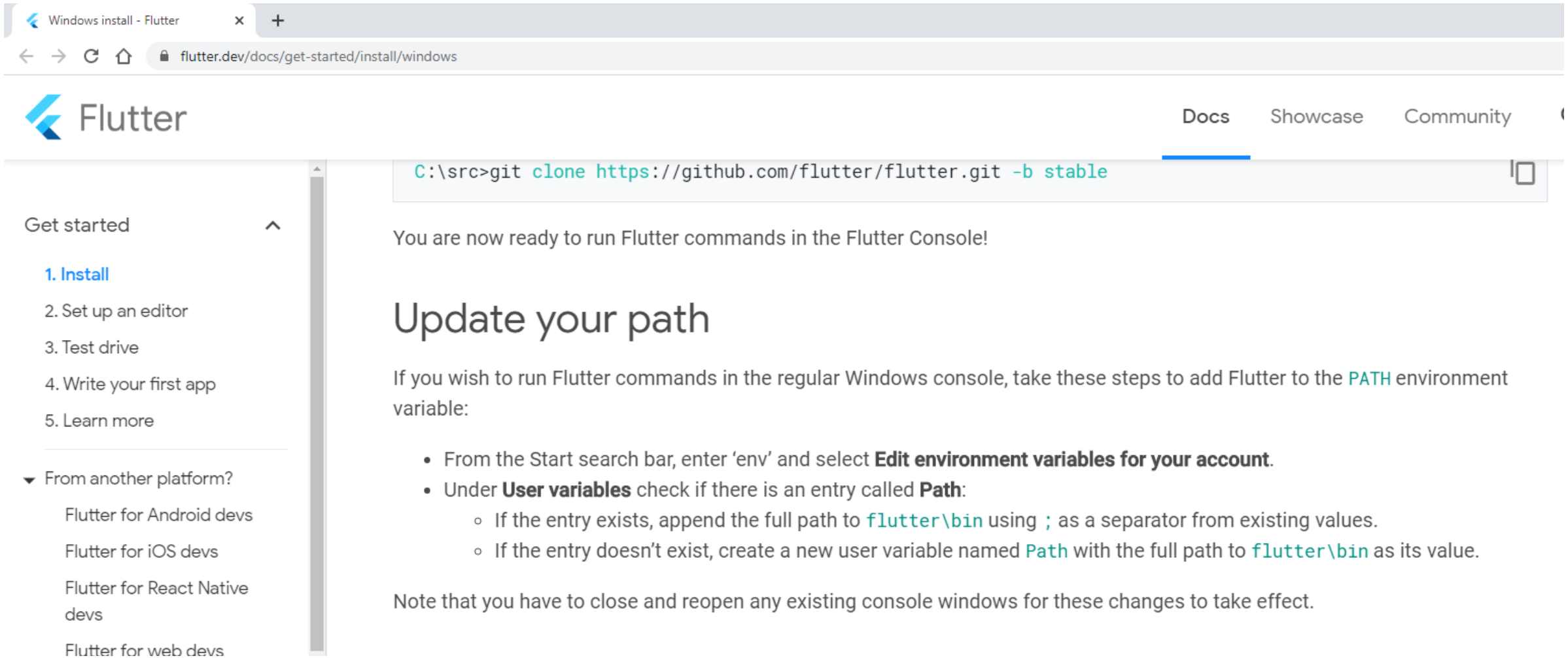


Download Flutter SDK

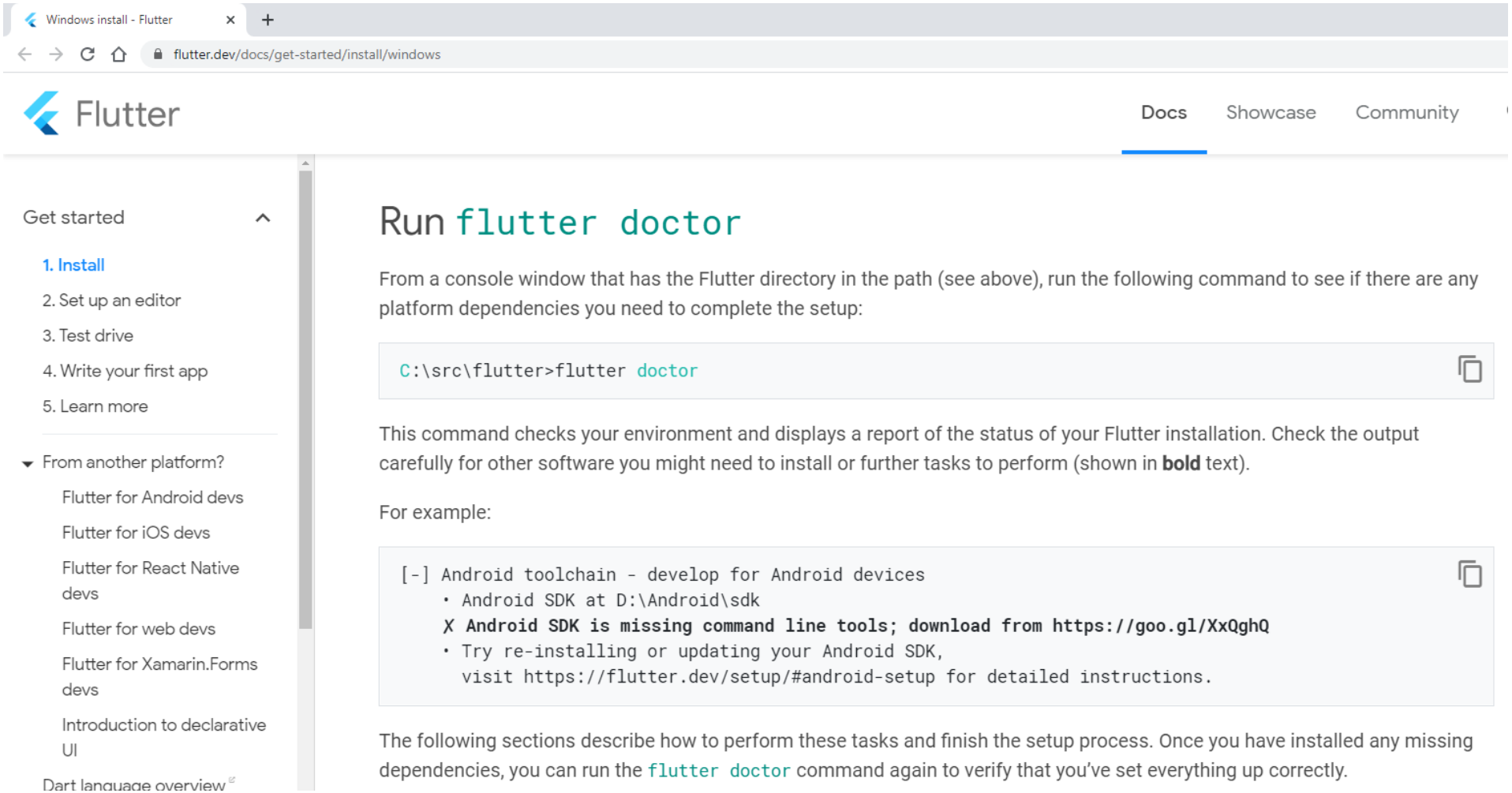
https://flutter.dev/docs/get-started/install/windows



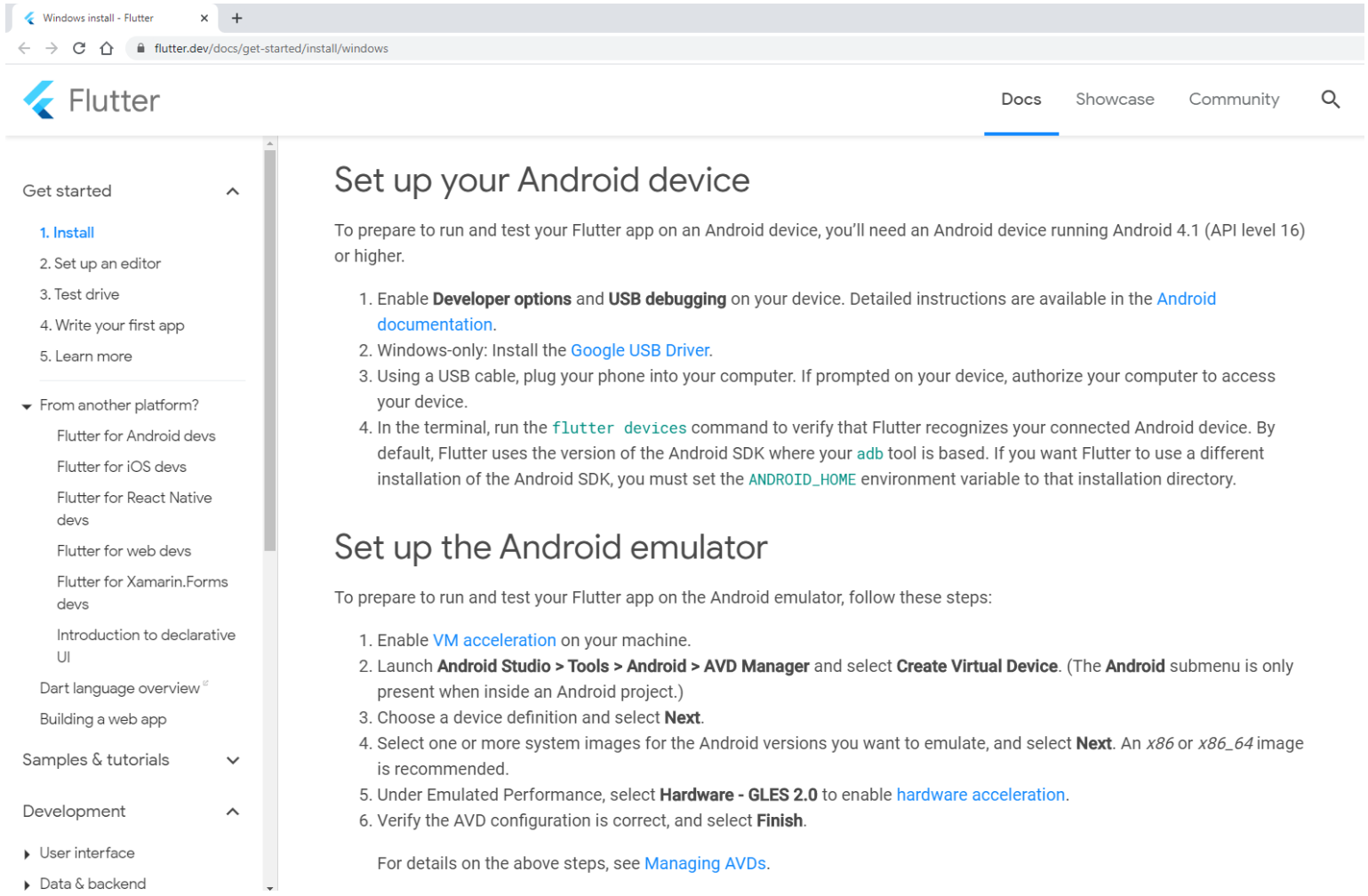
Environment variables



Check Flutter environment



Download and Setup Android

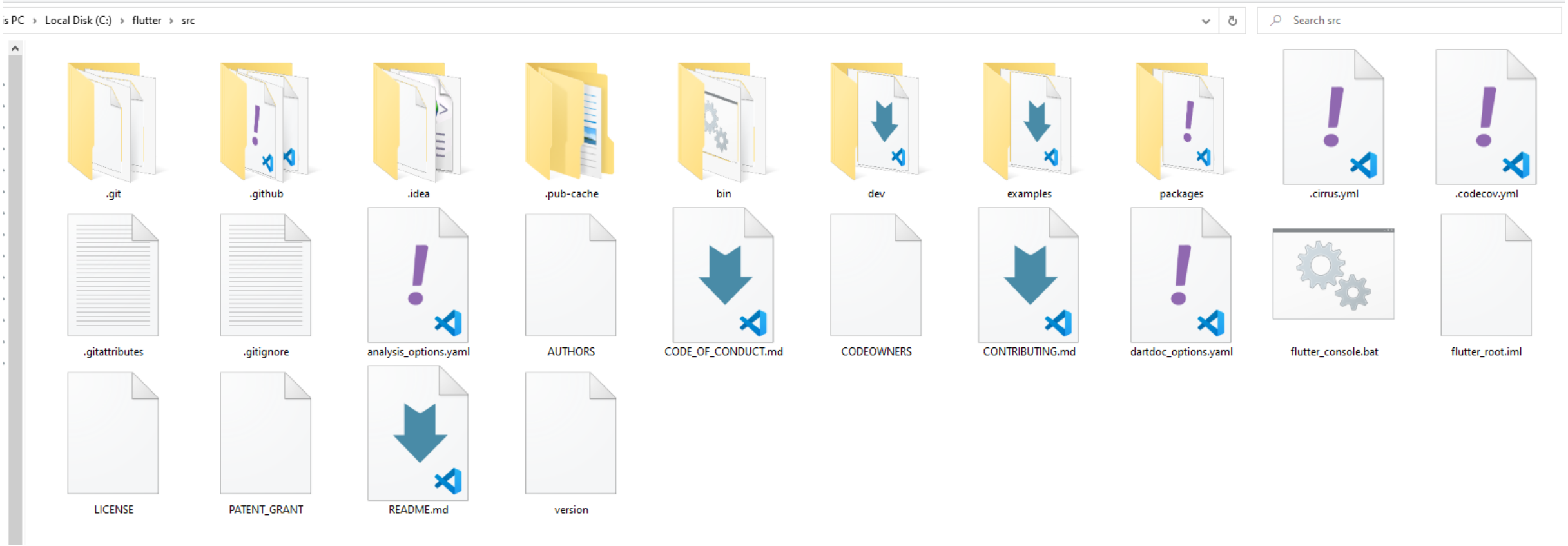


Let's Start Installation ☺

Download and Extract

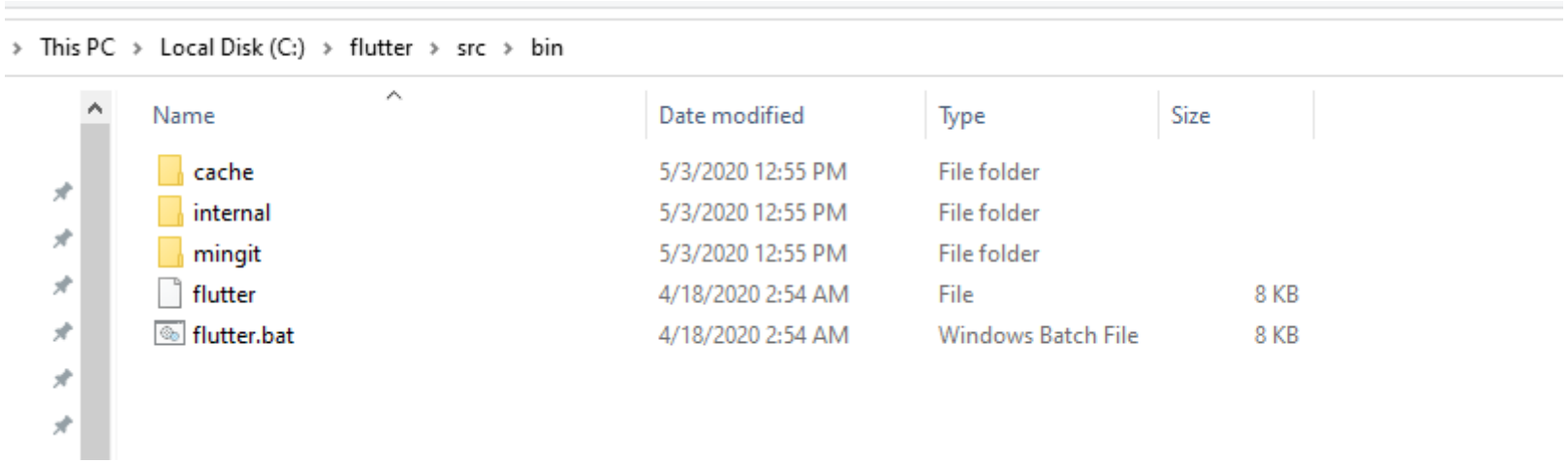
- Download Flutter
- Go to c: drive create new folder “flutter->src”
  - C:\flutter\src
- Extract Flutter Files

Flutter Folder

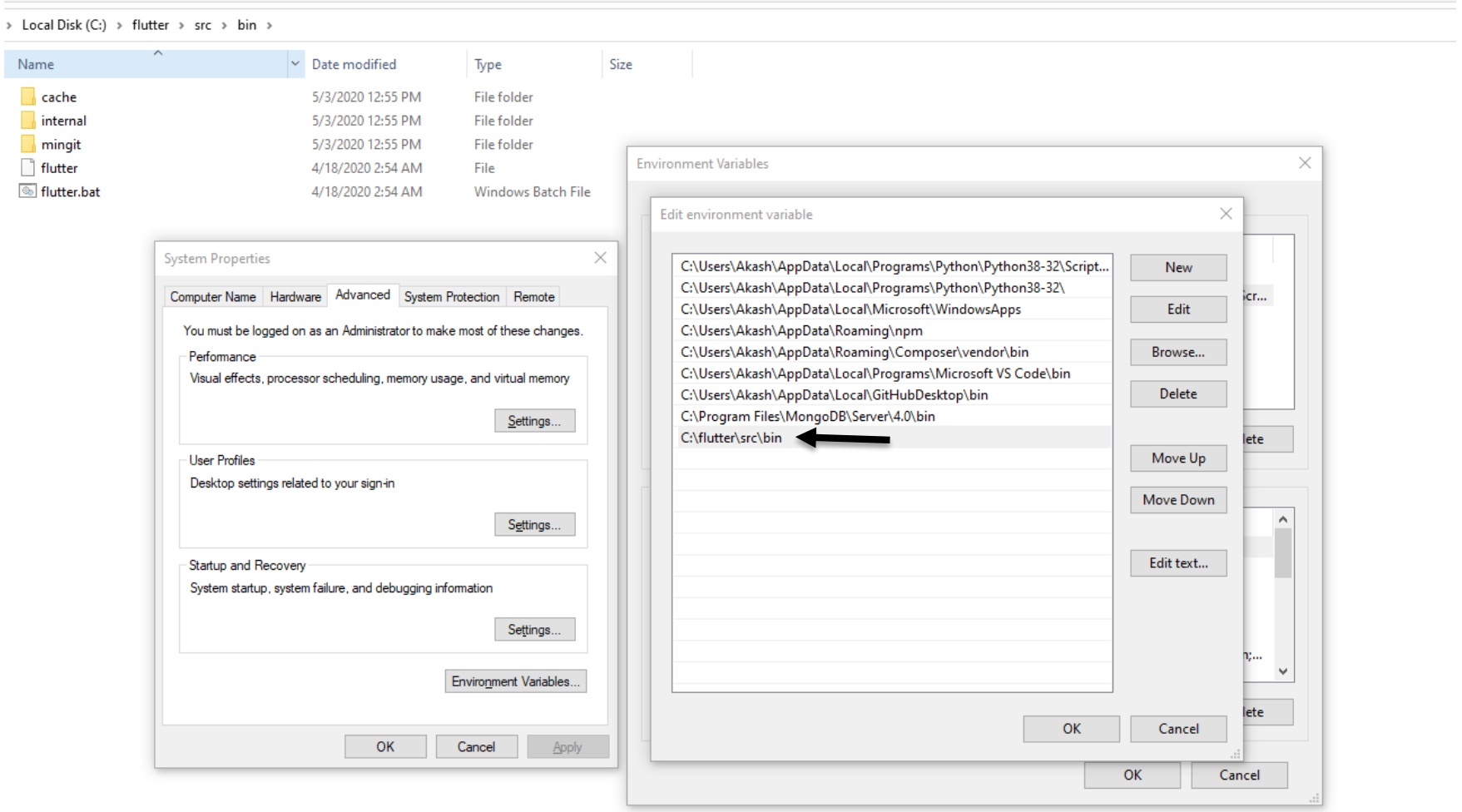


Copy Path

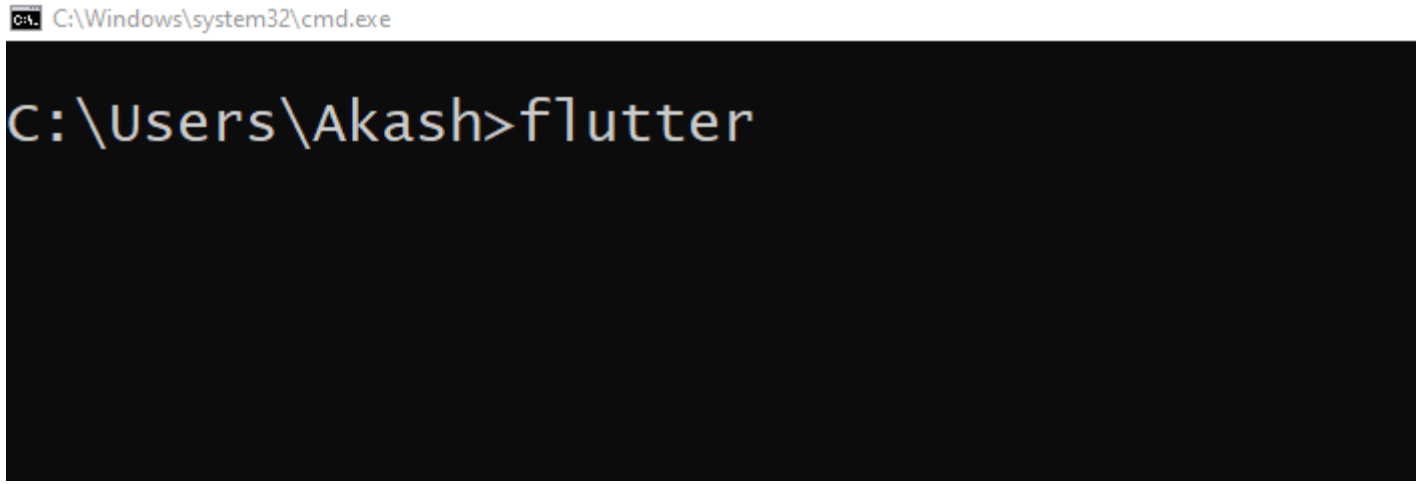
C:\flutter\src\bin



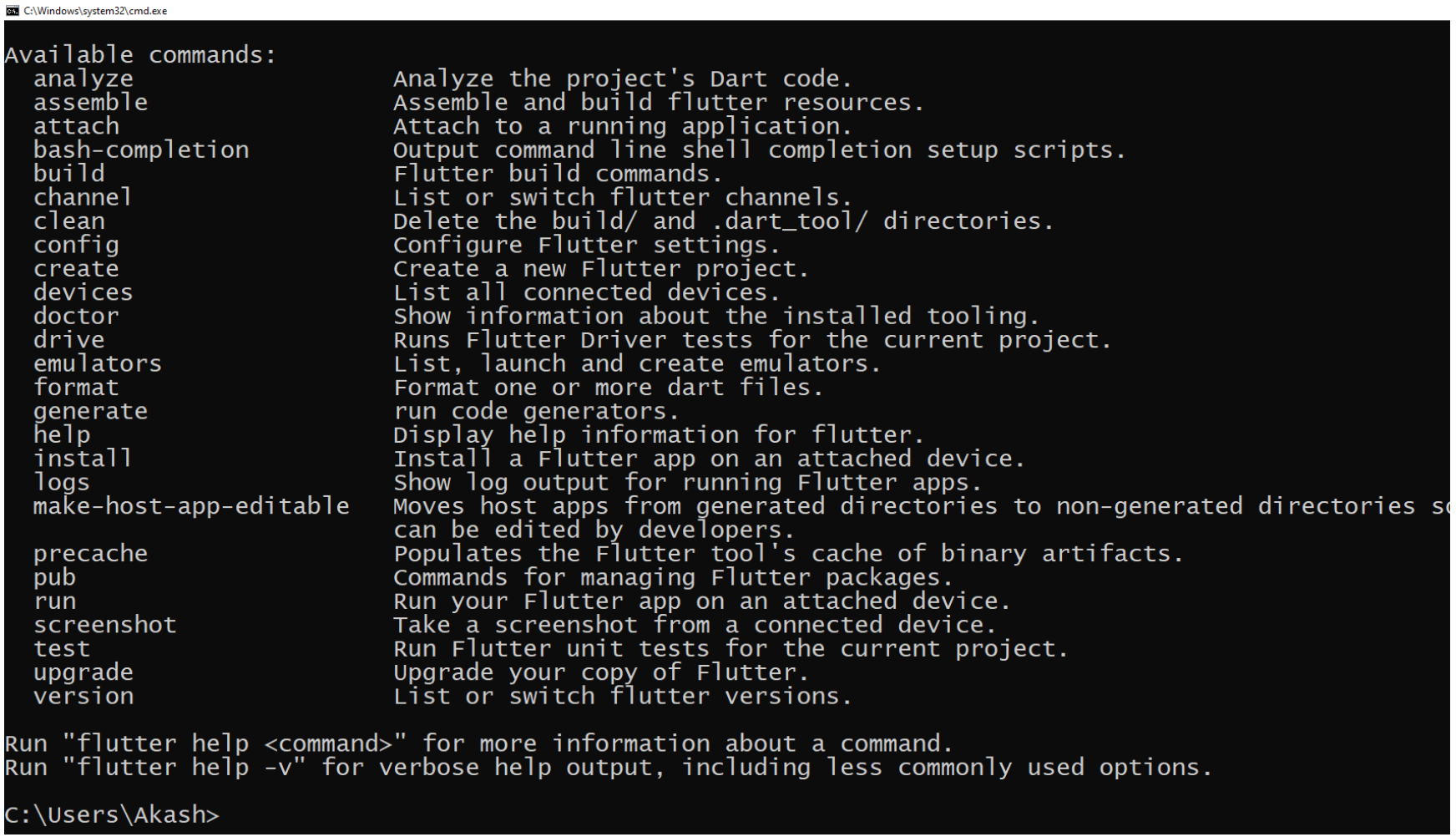
Set Environment Variable



Check Flutter Command



Flutter Default Commands



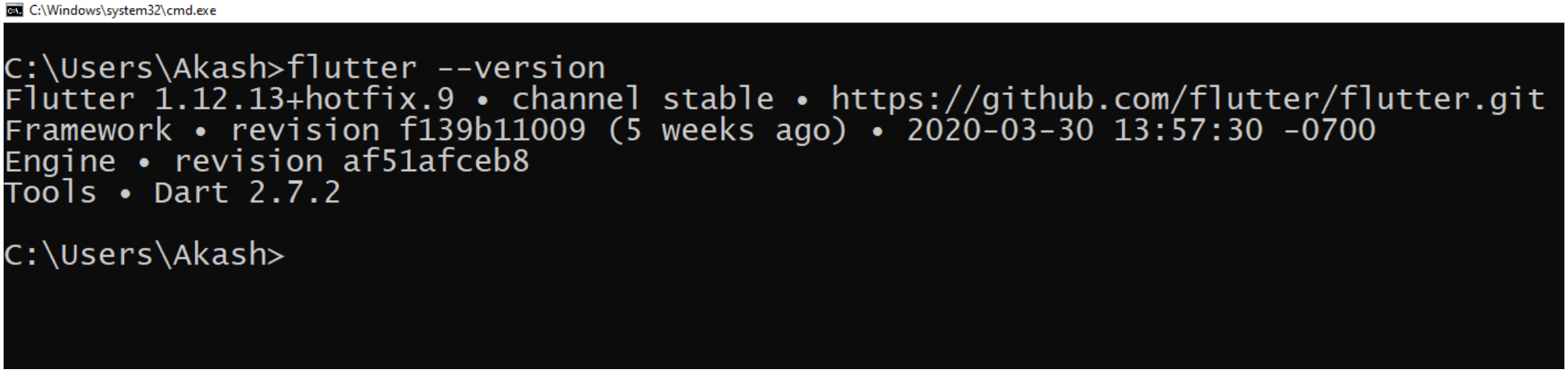
Flutter Commands

C:\Windows\system32\cmd.exe

```
C:\Users\Akash>flutter
Manage your Flutter app development.

Common commands:

  flutter create <output directory>
    Create a new Flutter project in the specified directory.

  flutter run [options]
    Run your Flutter application on an attached device or in an emulator.

Usage: flutter <command> [arguments]

Global options:
-h, --help                  Print this usage information.
-v, --verbose               Noisy logging, including all shell commands executed.
                            If used with --help, shows hidden options.

-d, --device-id             Target device id or name (prefixes allowed).
    --version               Reports the version of this tool.
    --suppress-analytics    Suppress analytics reporting when this command runs.
    --bug-report            Captures a bug report file to submit to the Flutter team.
                            Contains local paths, device identifiers, and log snippets.

    --packages              Path to your ".packages" file.
                            (required, since the current directory does not contain a ".packages" file)
```

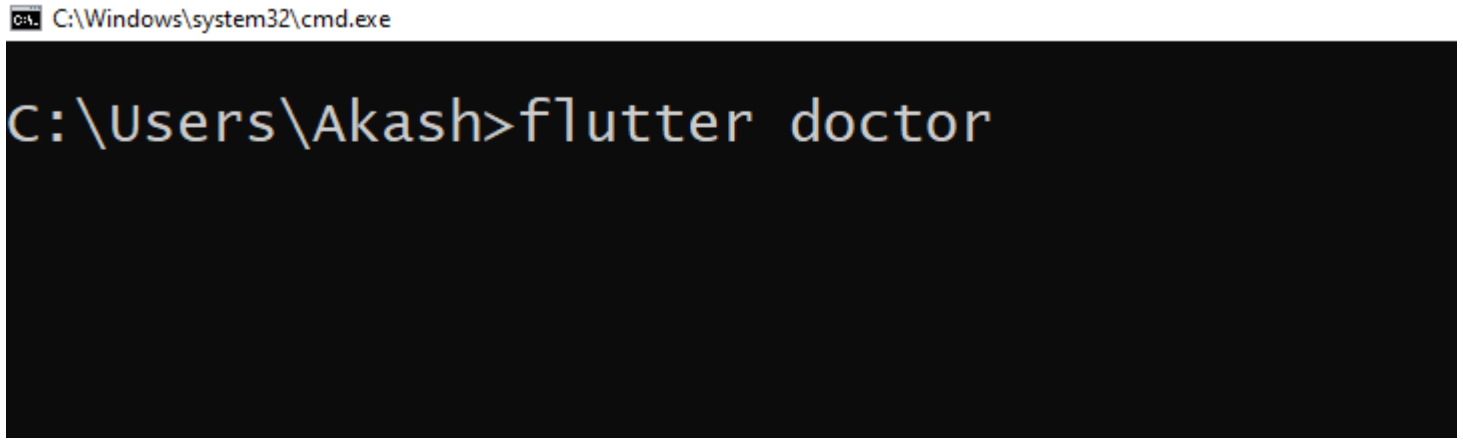
Flutter Version

flutter --version

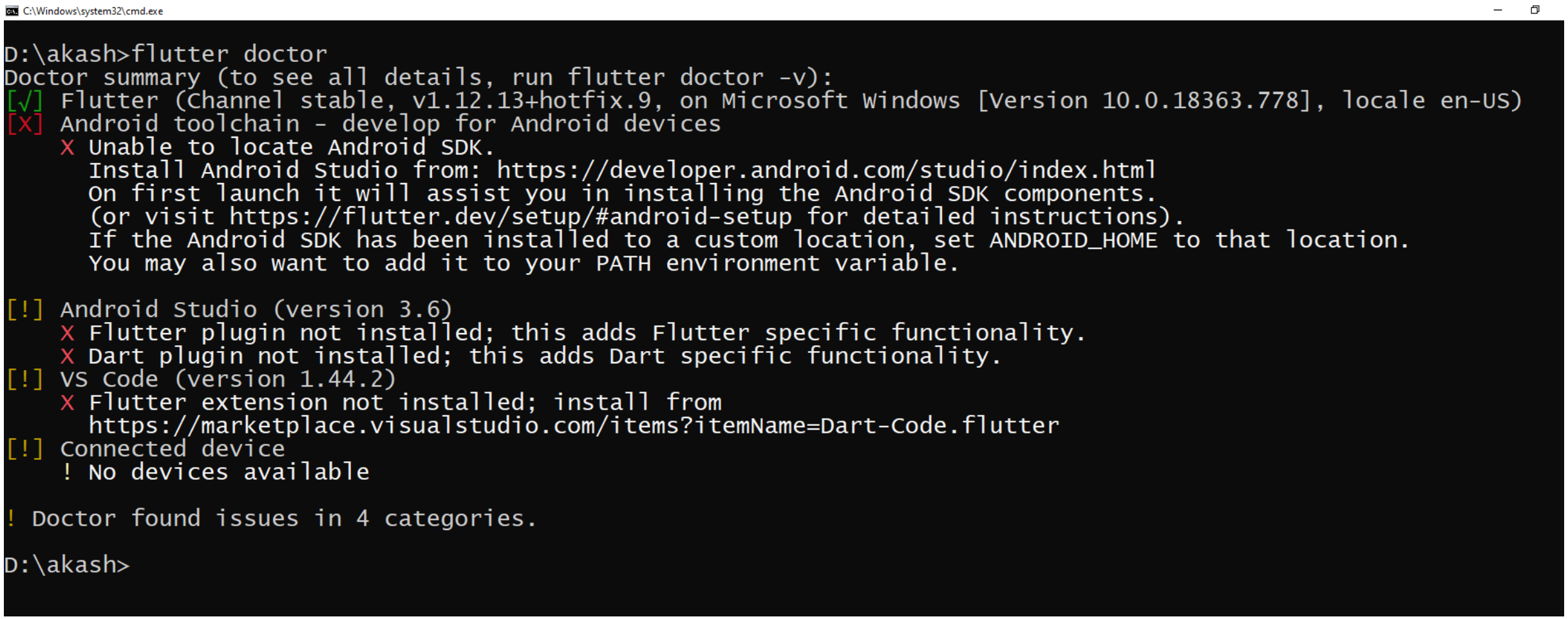


Flutter Doctor

This command checks your environment and displays a report of the status of your Flutter installation.



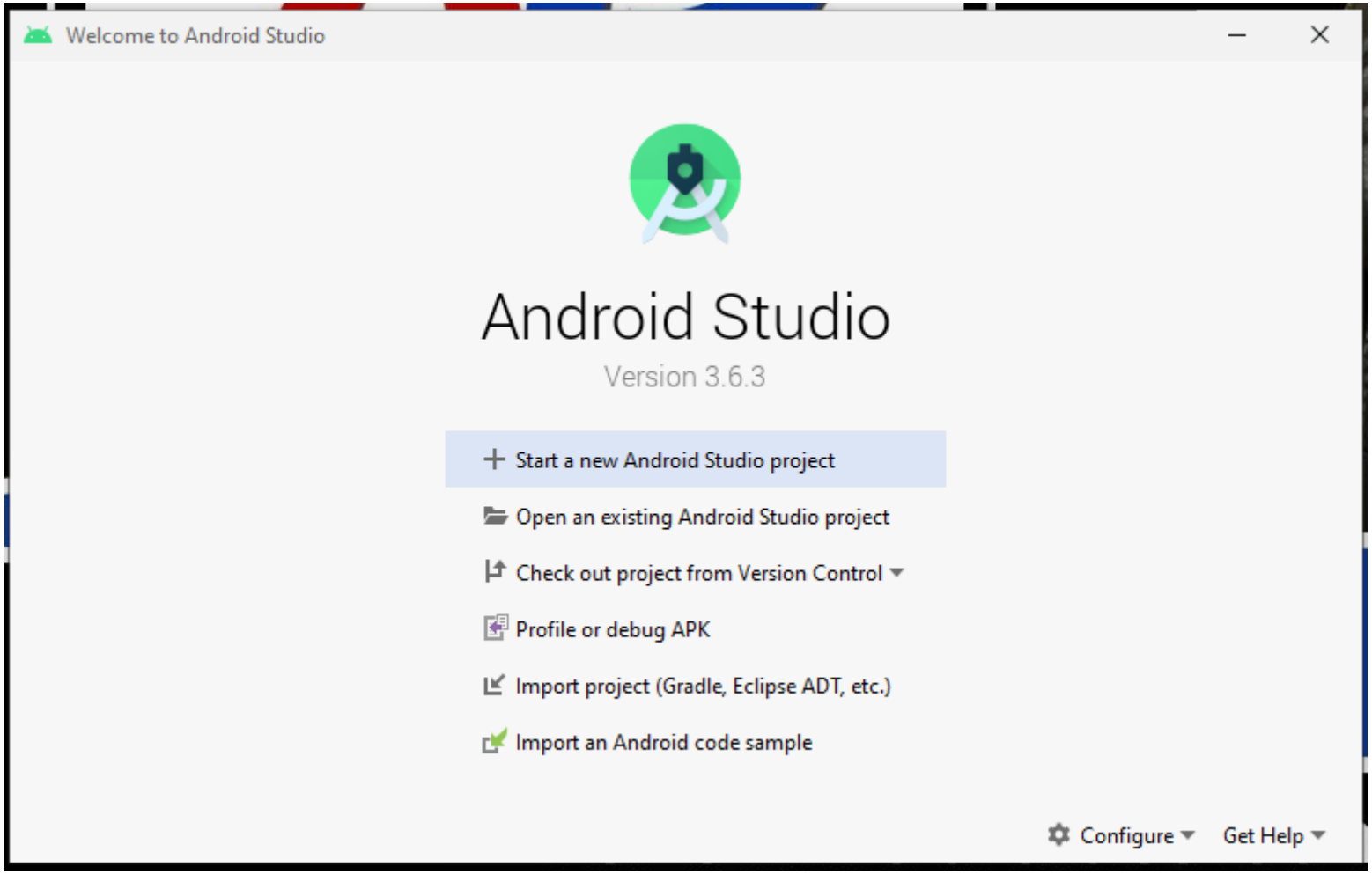
System Requirements



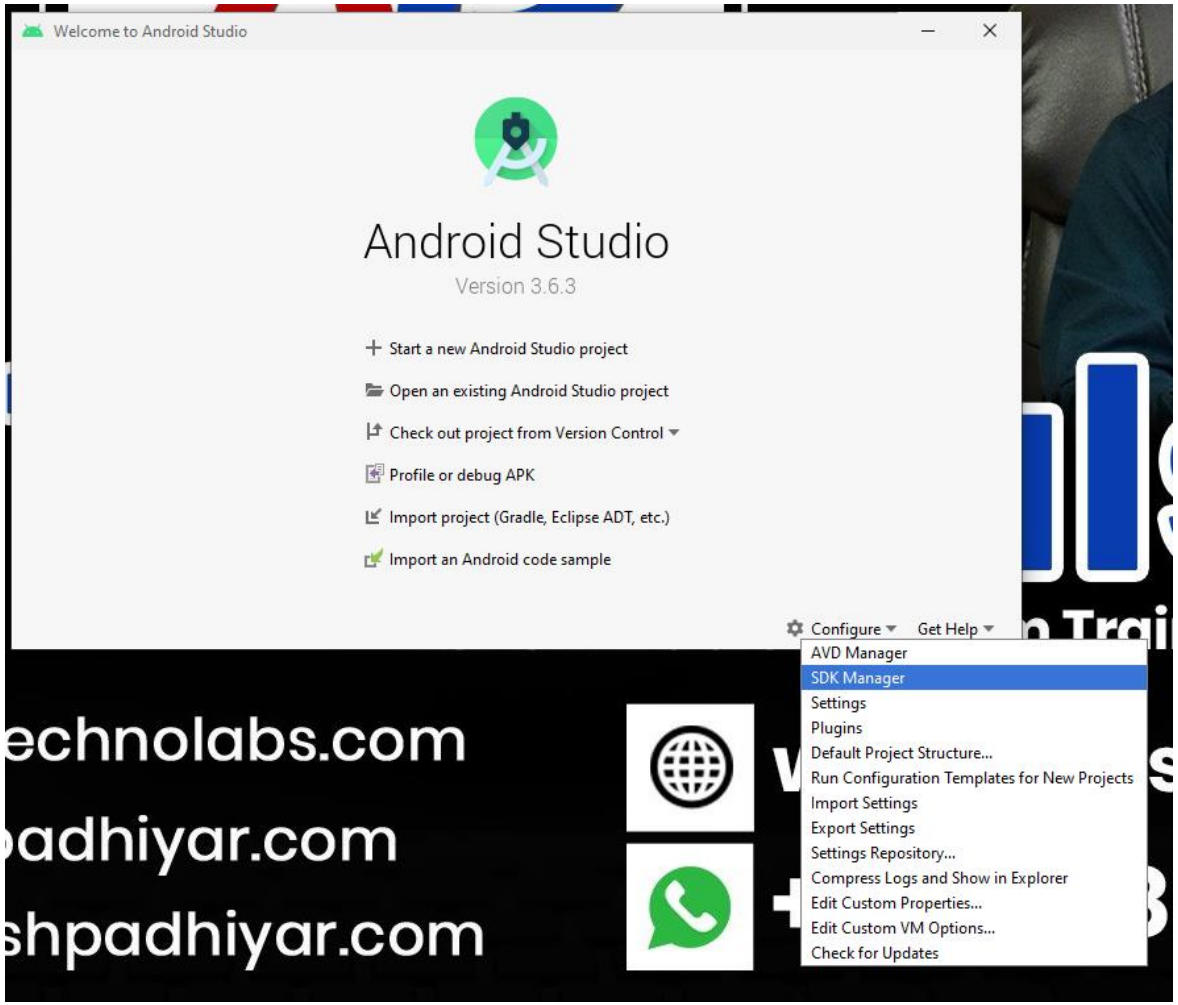
Download

- https://developer.android.com/studio
- https://www.oracle.com/in/java/technologies/javase-downloads.html

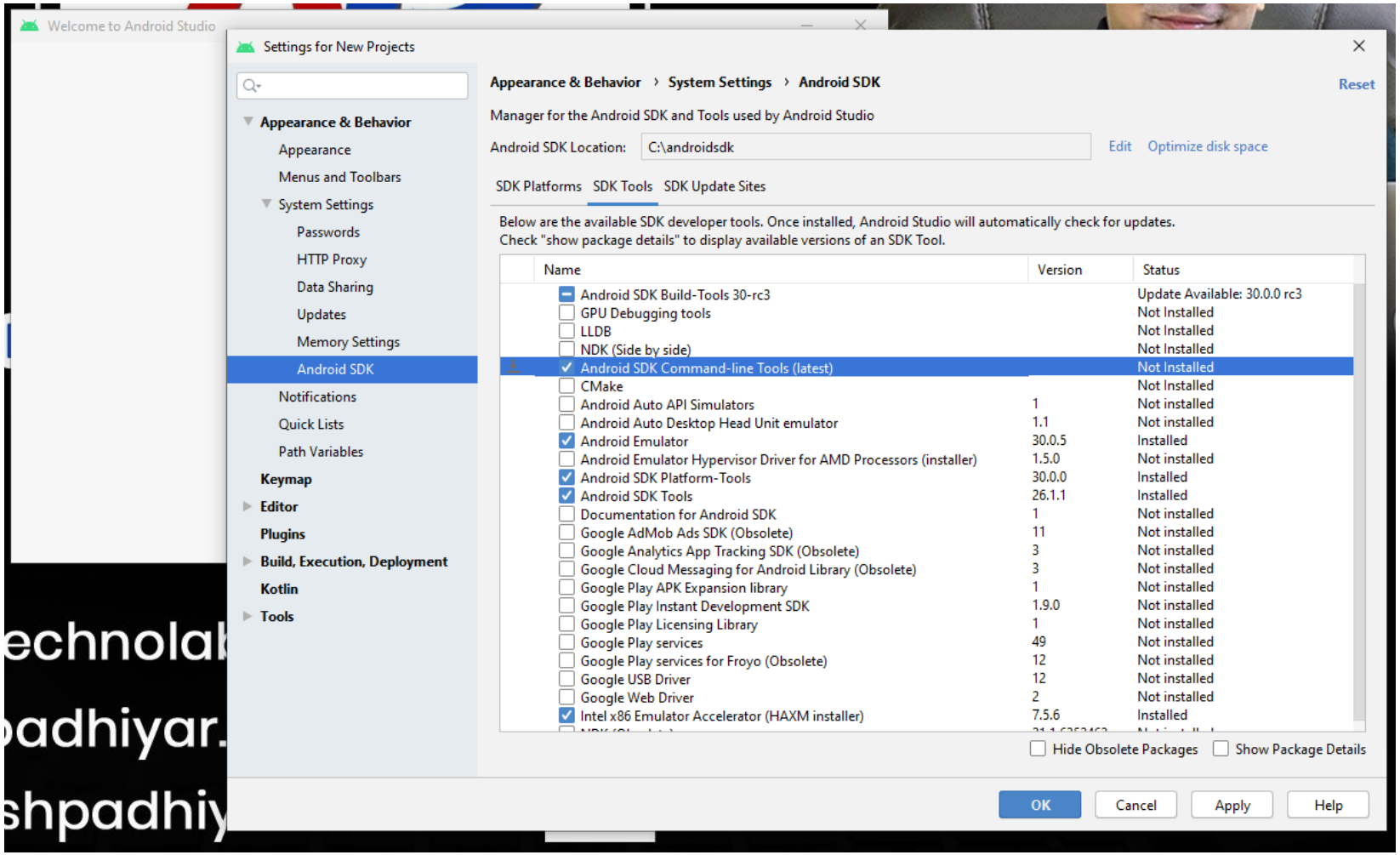
Android Screen



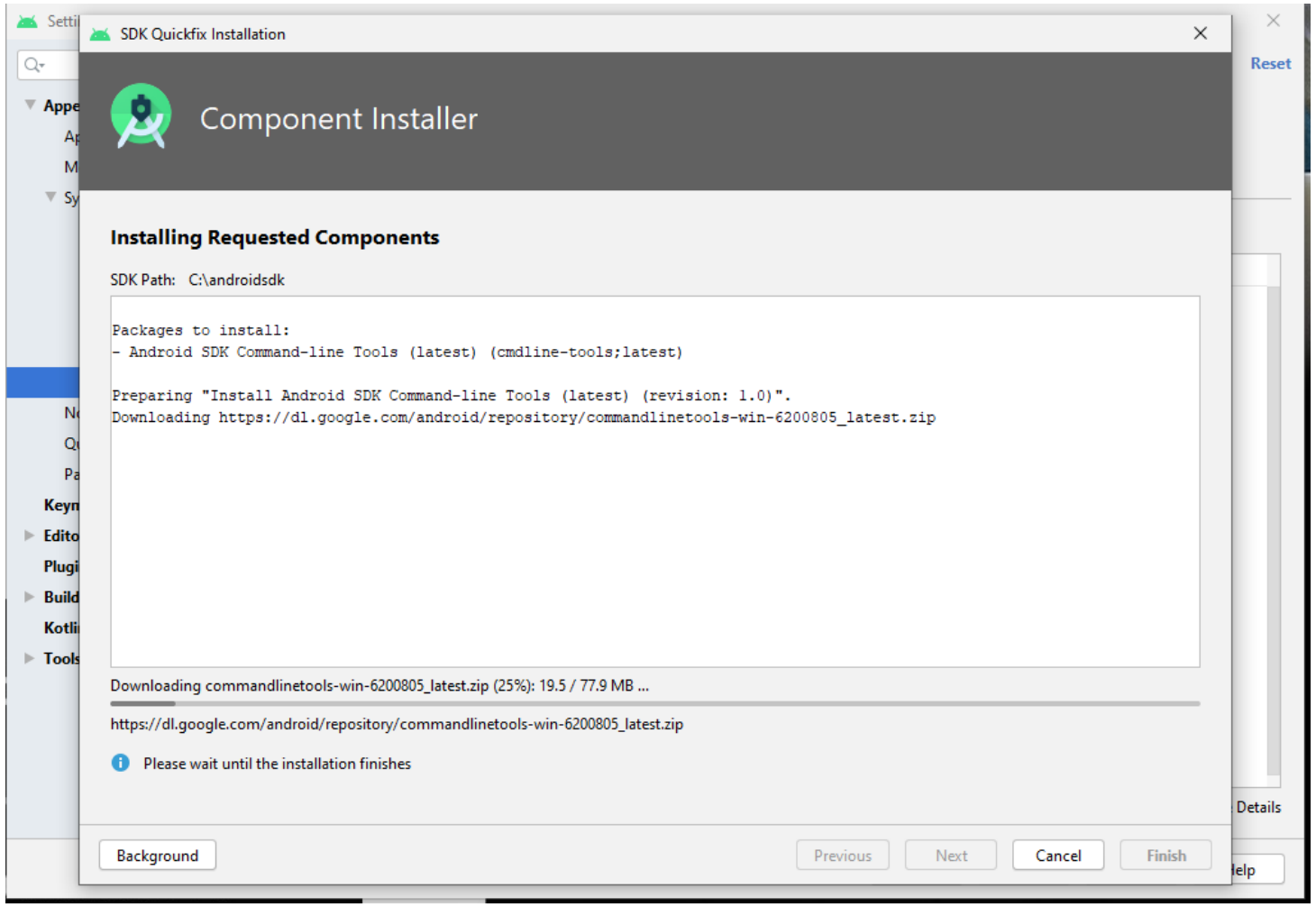
Configure SDK



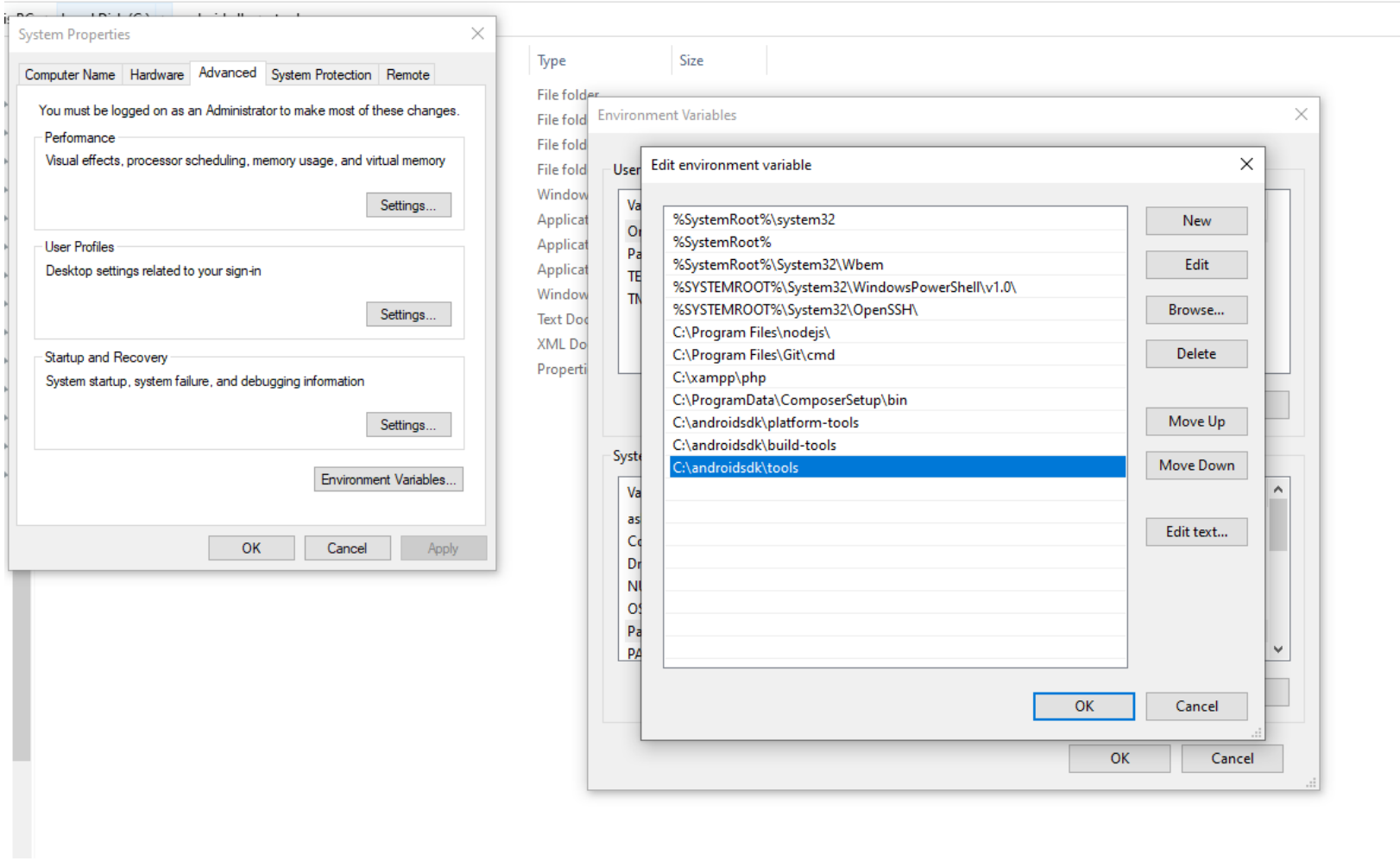
Download SDK Tools



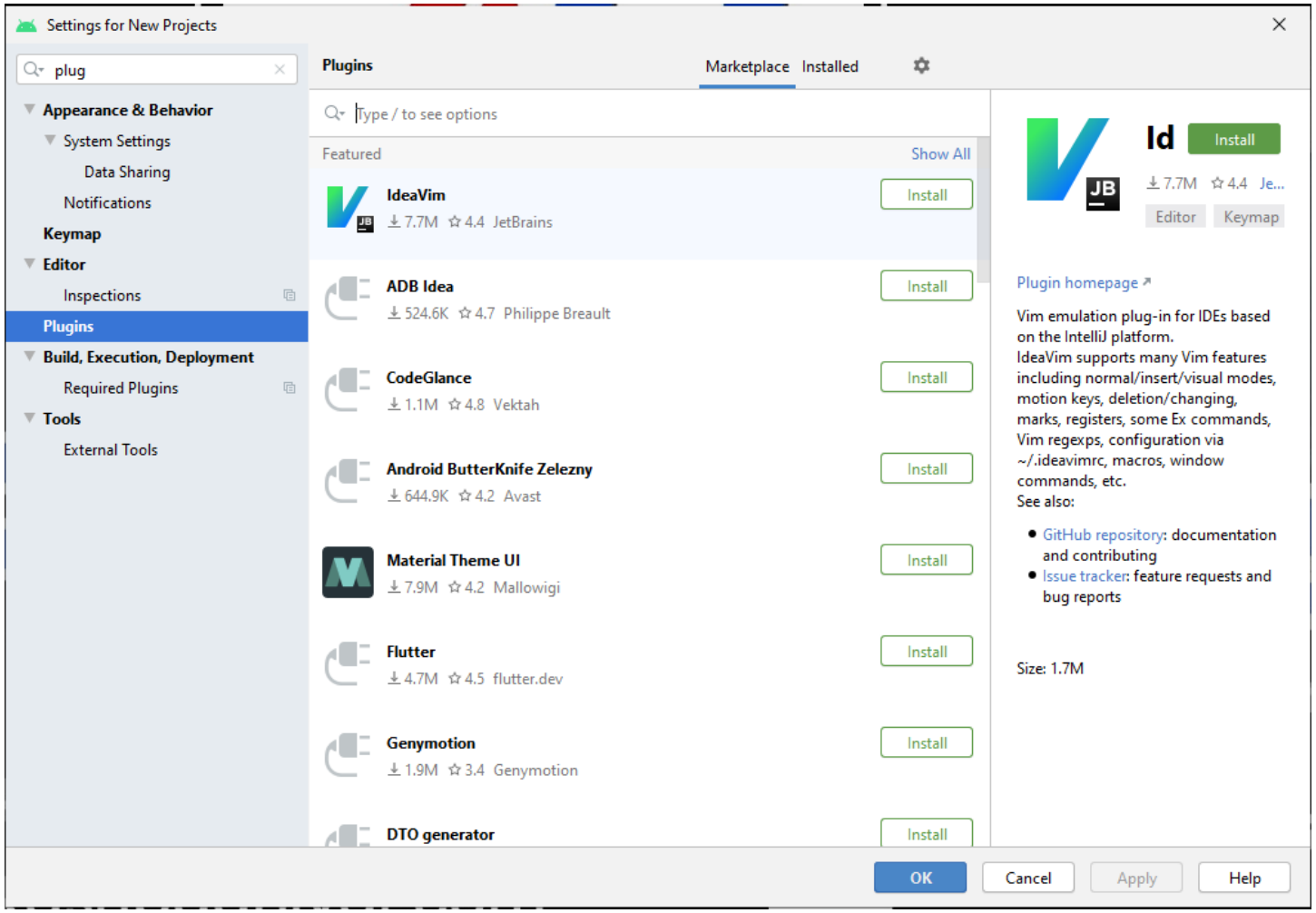
Downloading SDK Tools



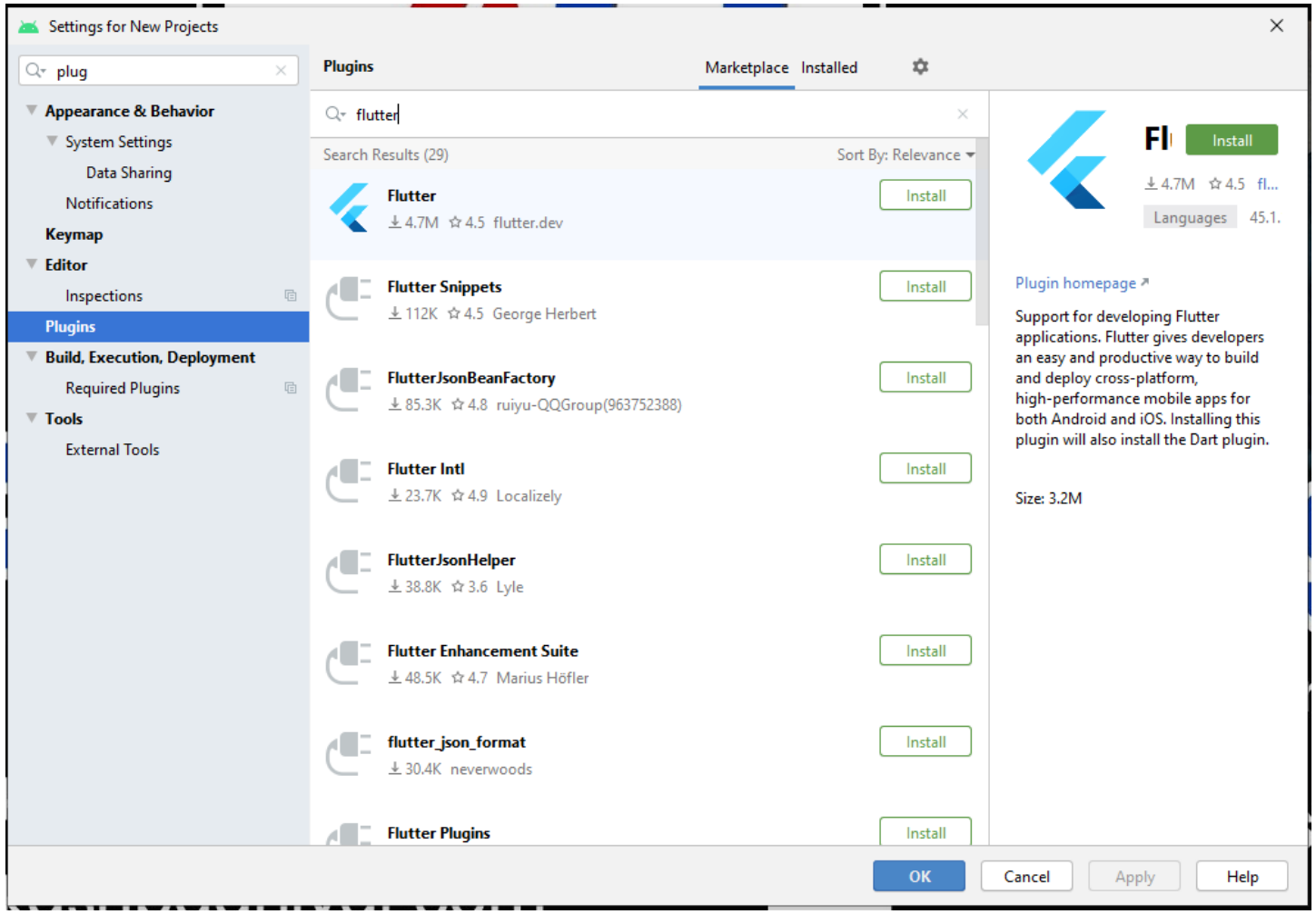
Android Environment Variables



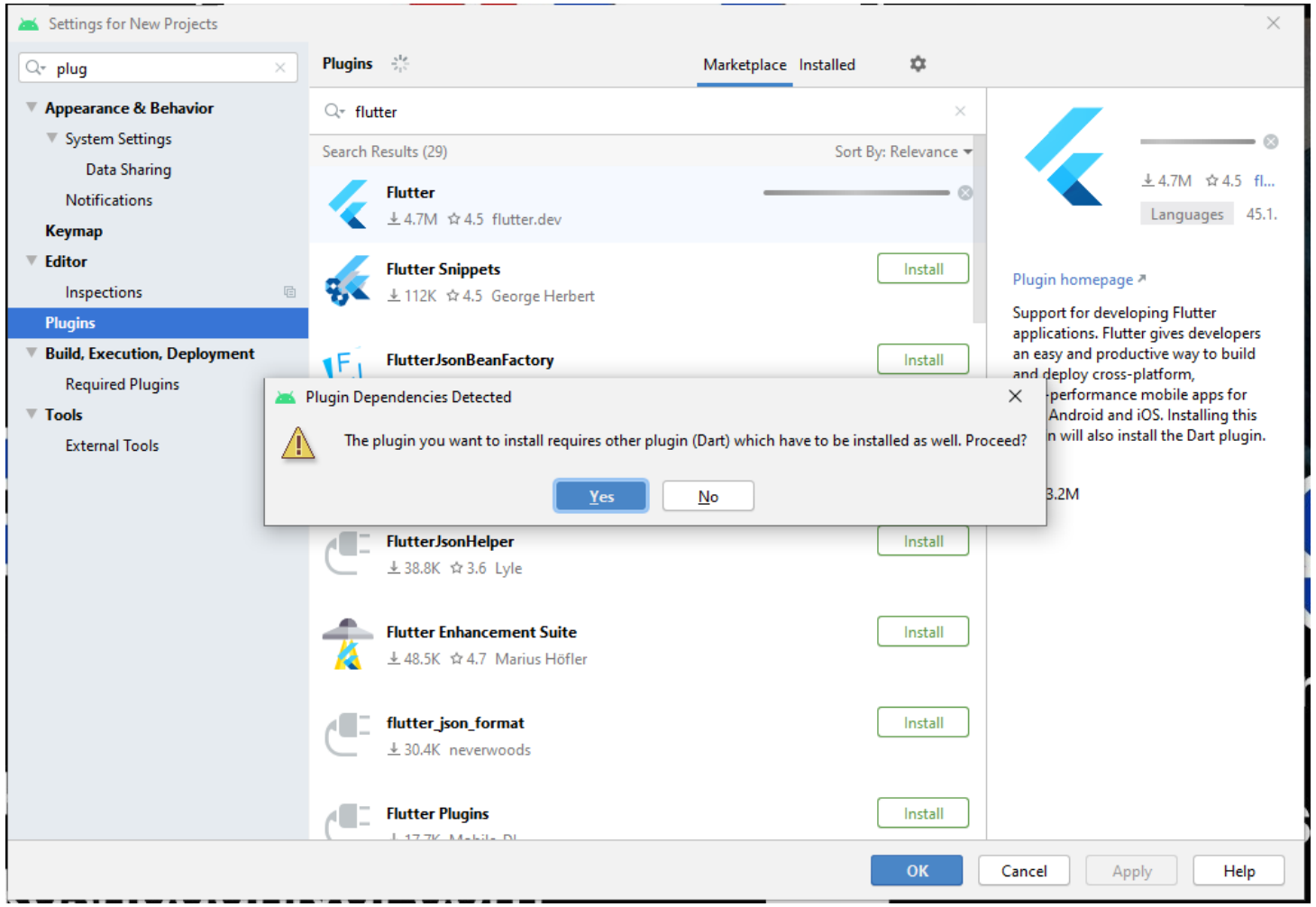
Download Plugin



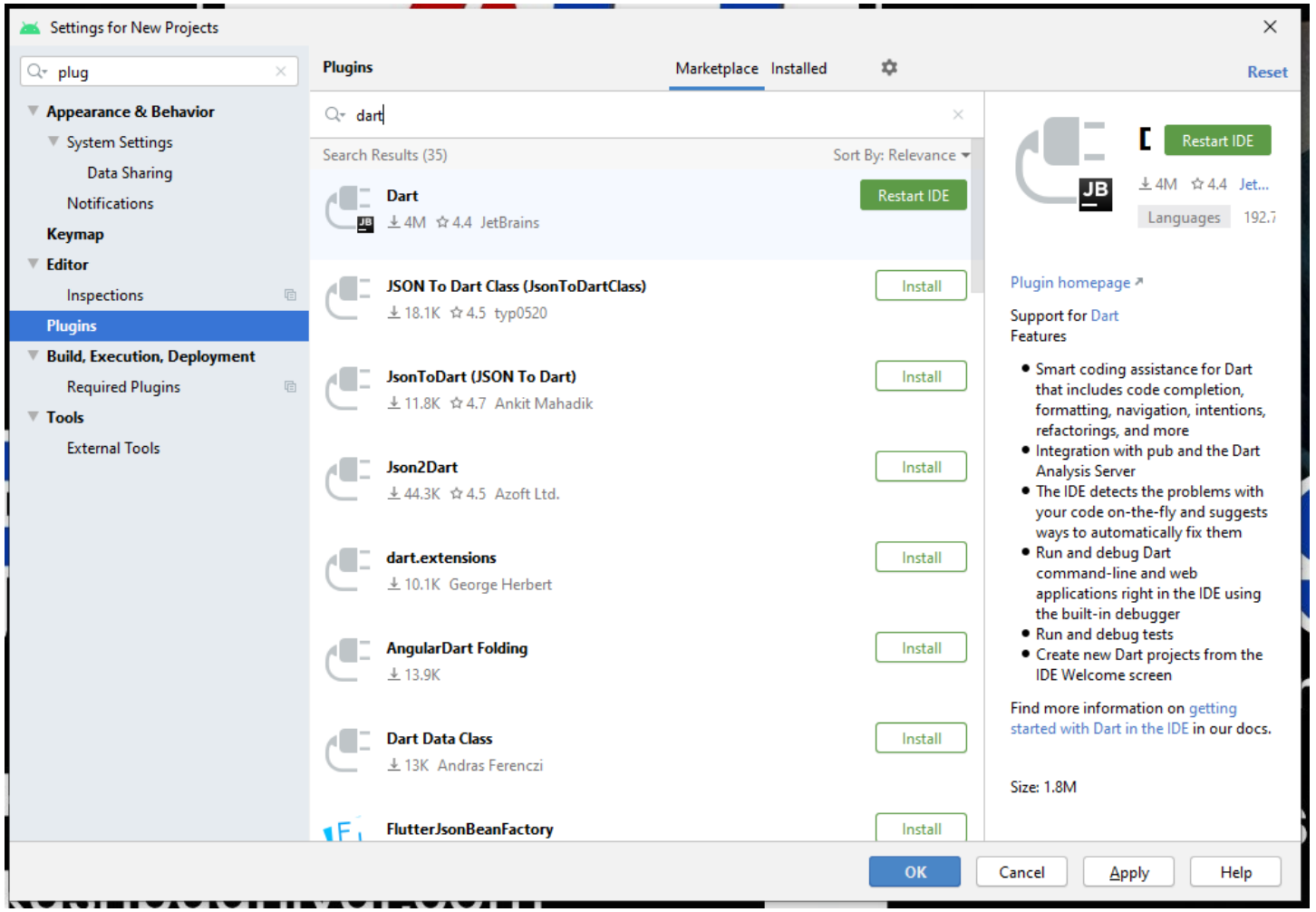
Download Flutter Plugin



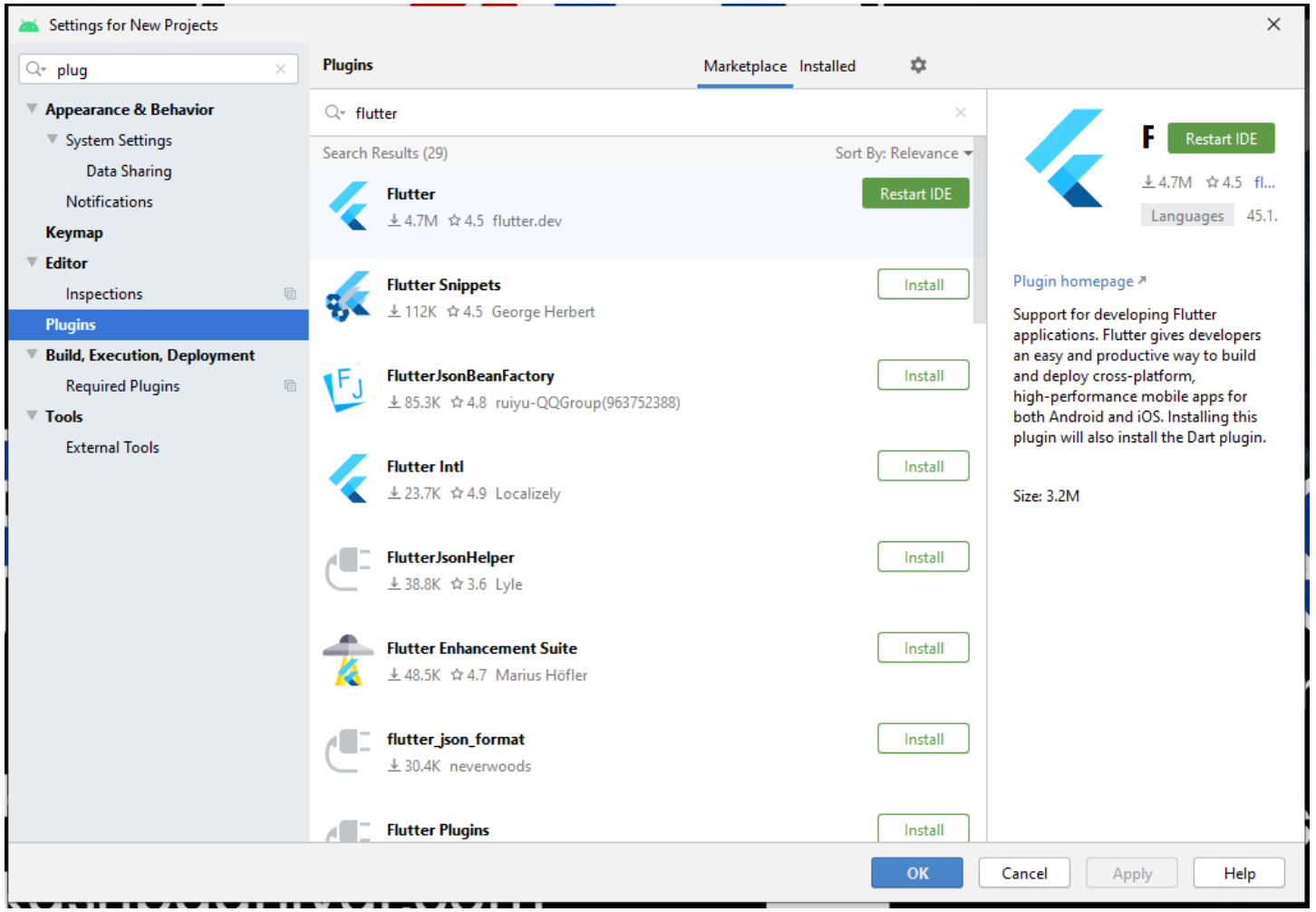
Download Dart Plugin



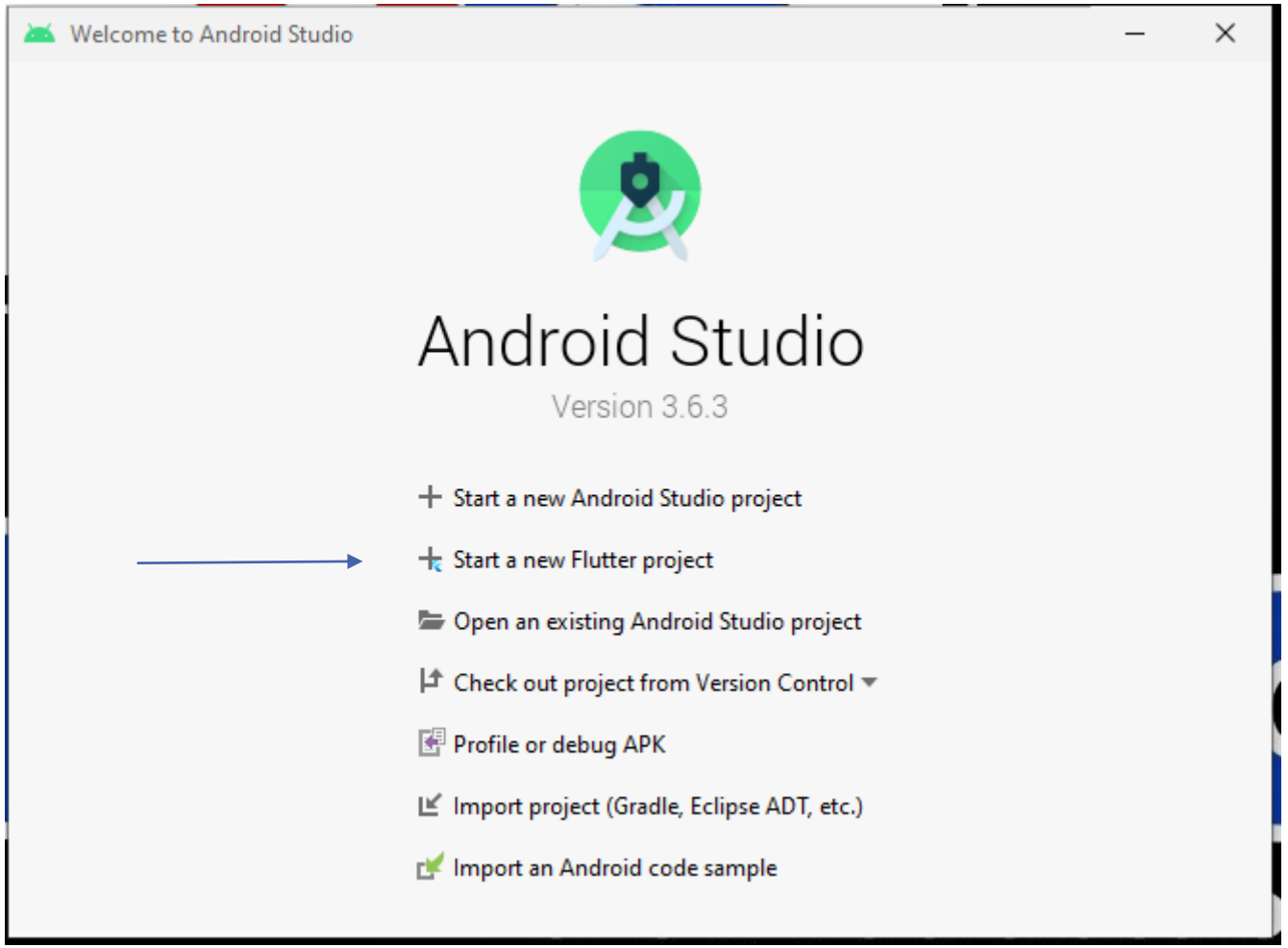
Download Dart Plugin



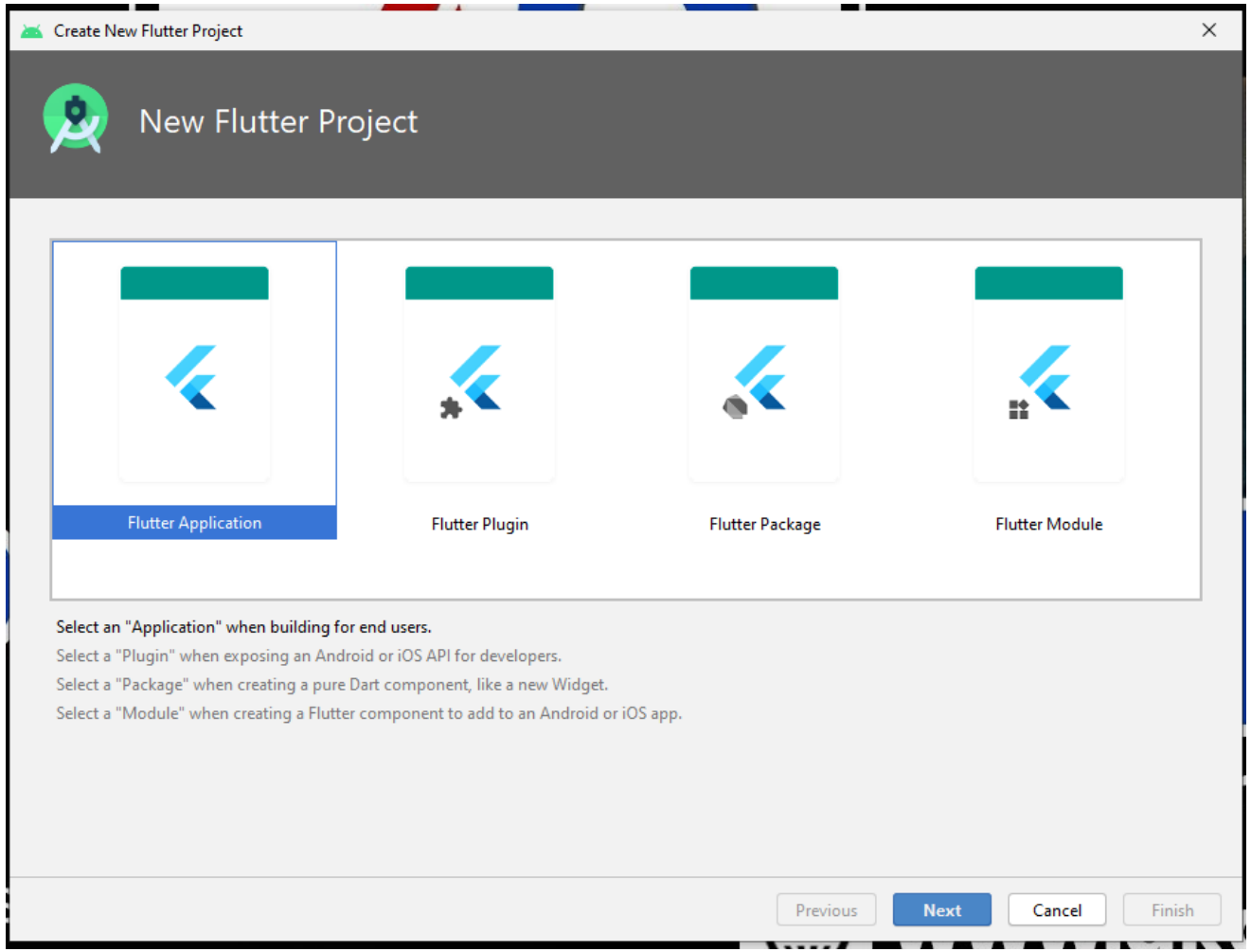
Restart Android Studio



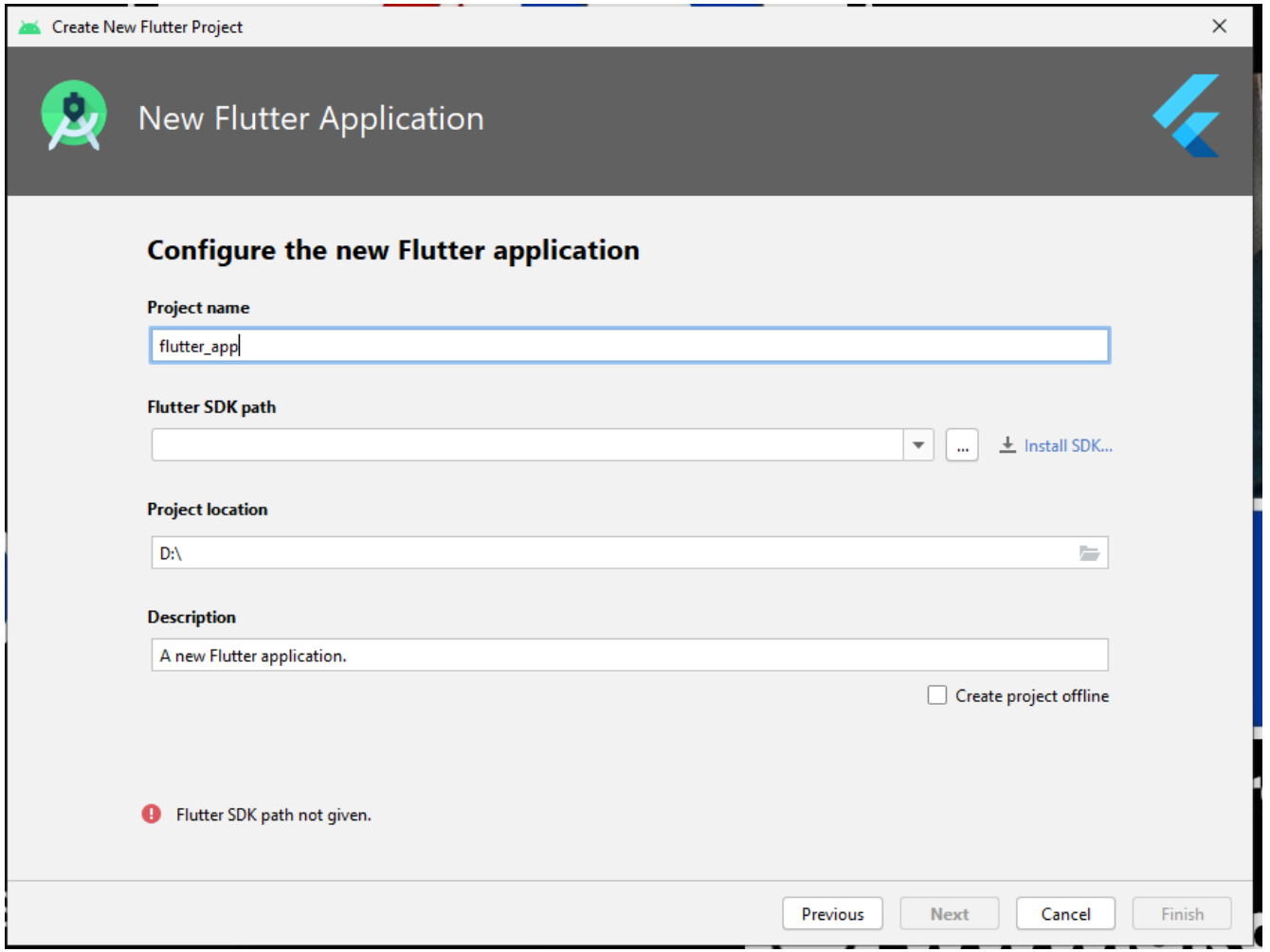
Flutter is Ready in Android Studio



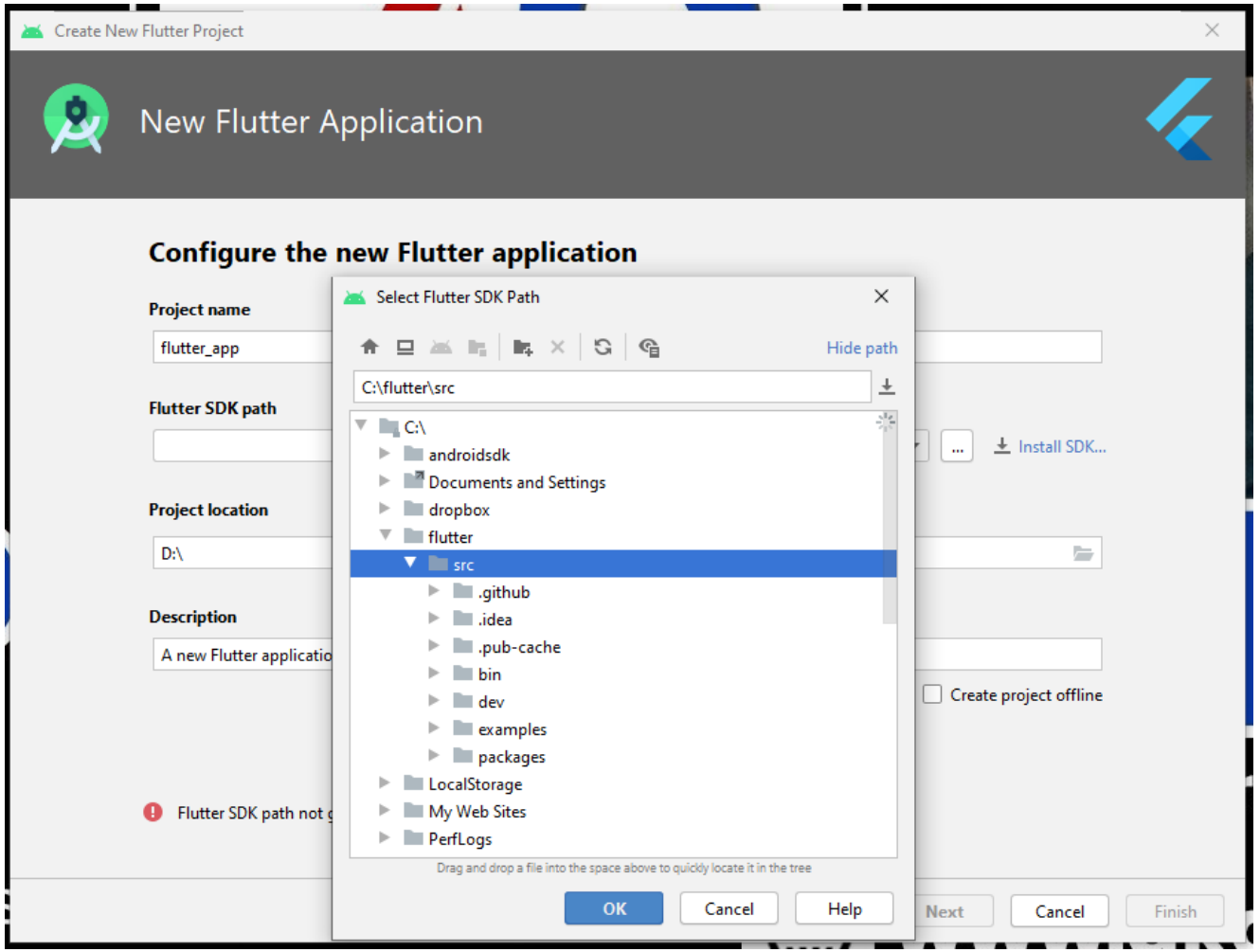
Flutter Application



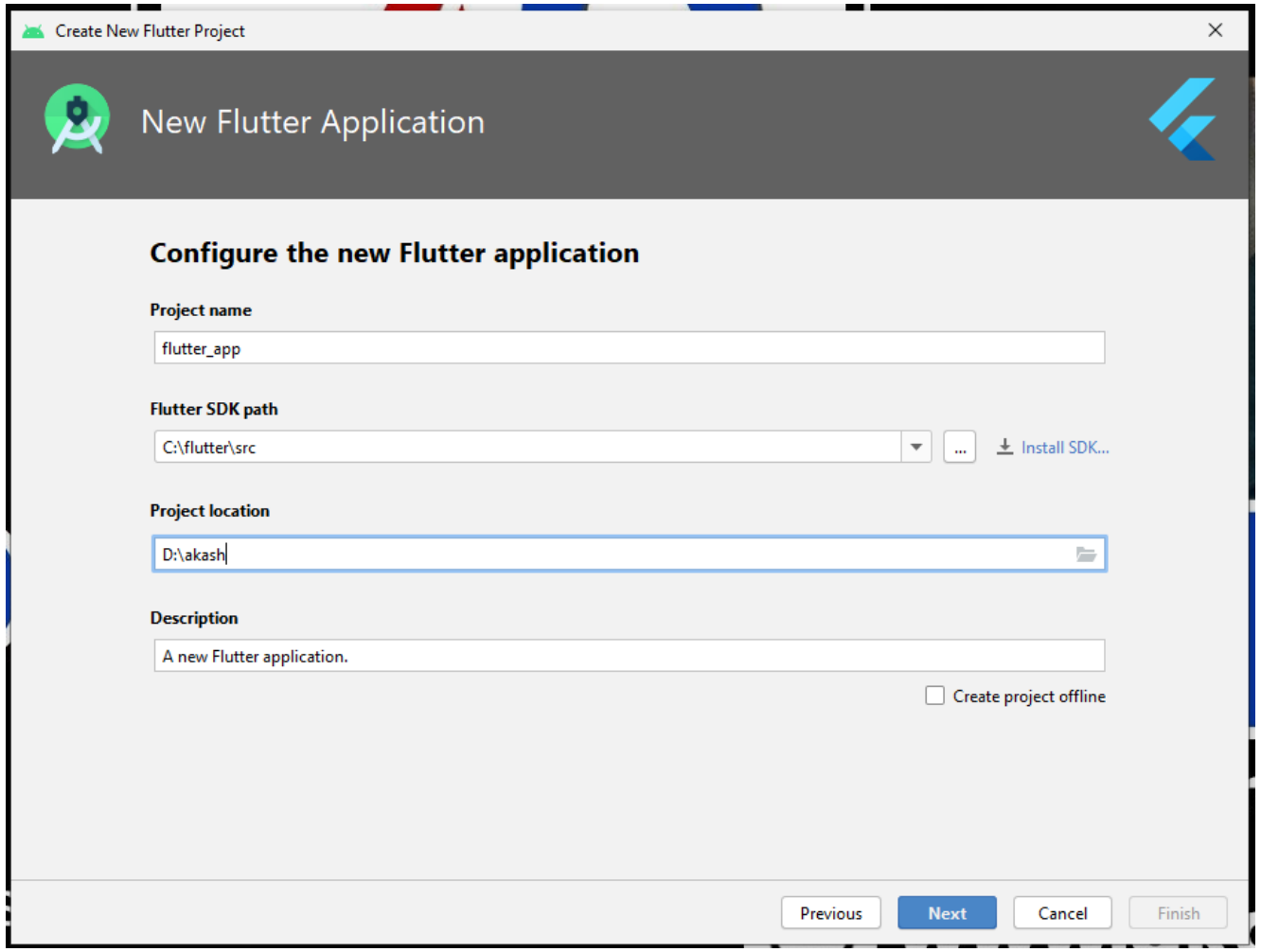
Configure Flutter Application



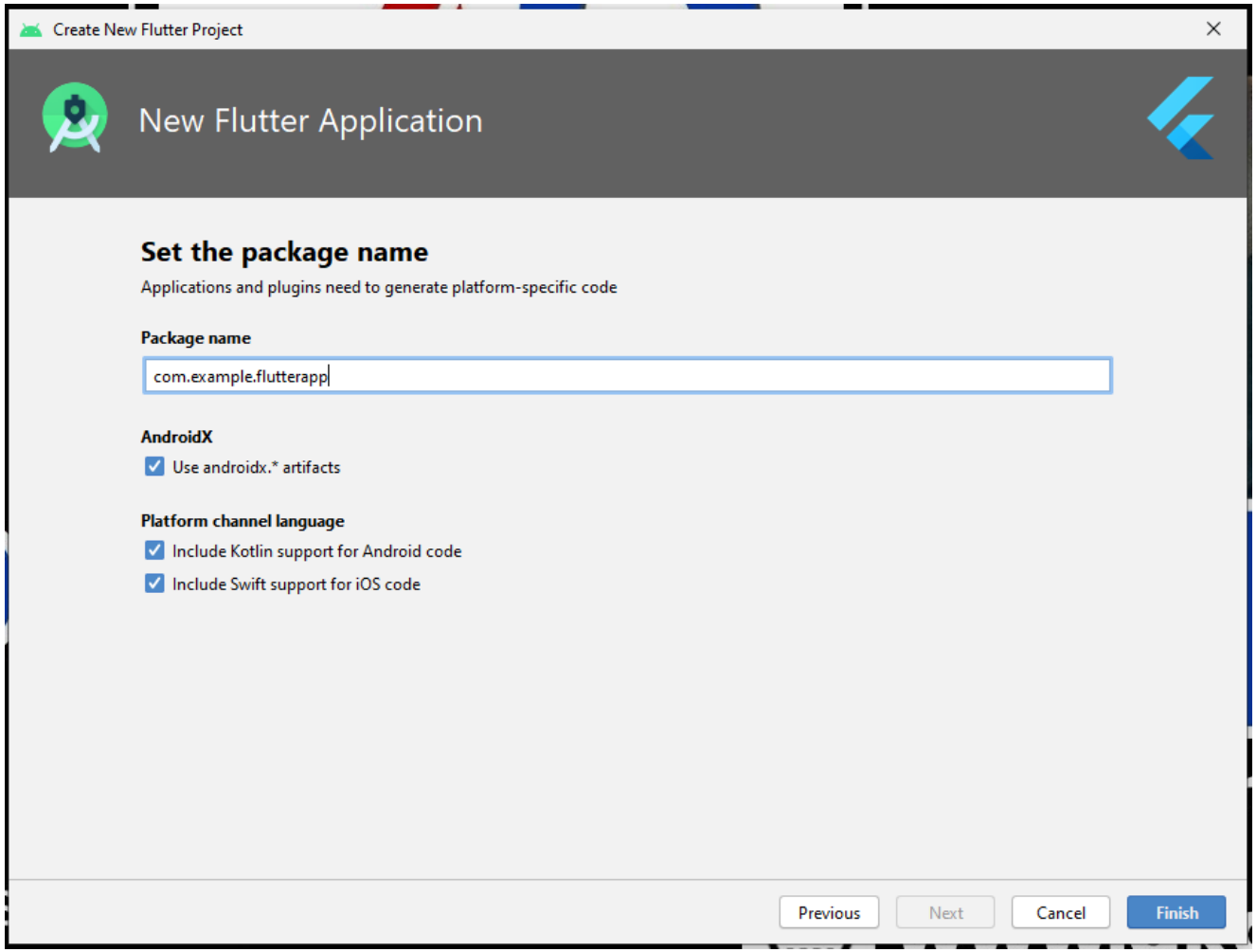
Select Flutter SDK Path



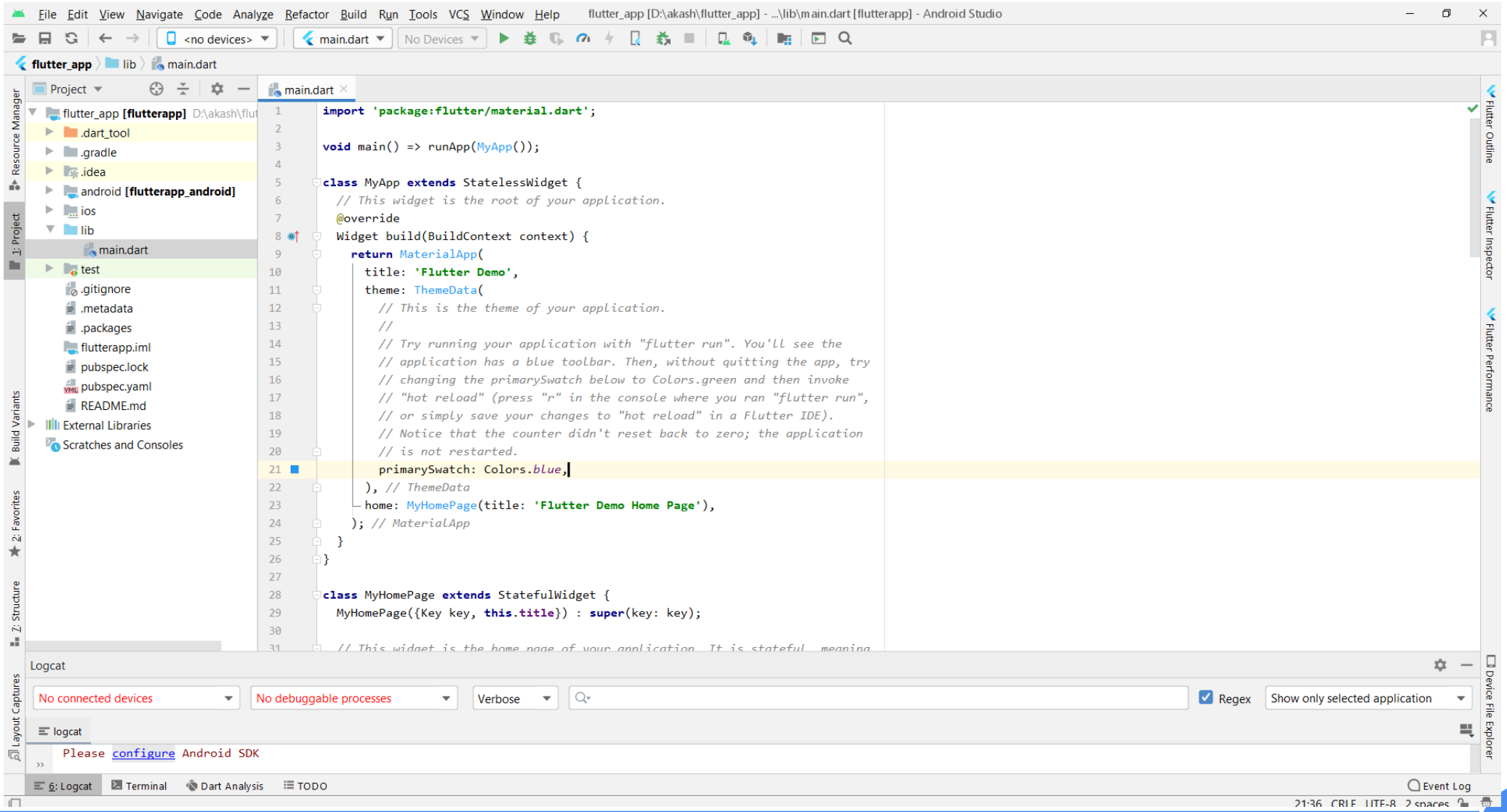
Select Project Location



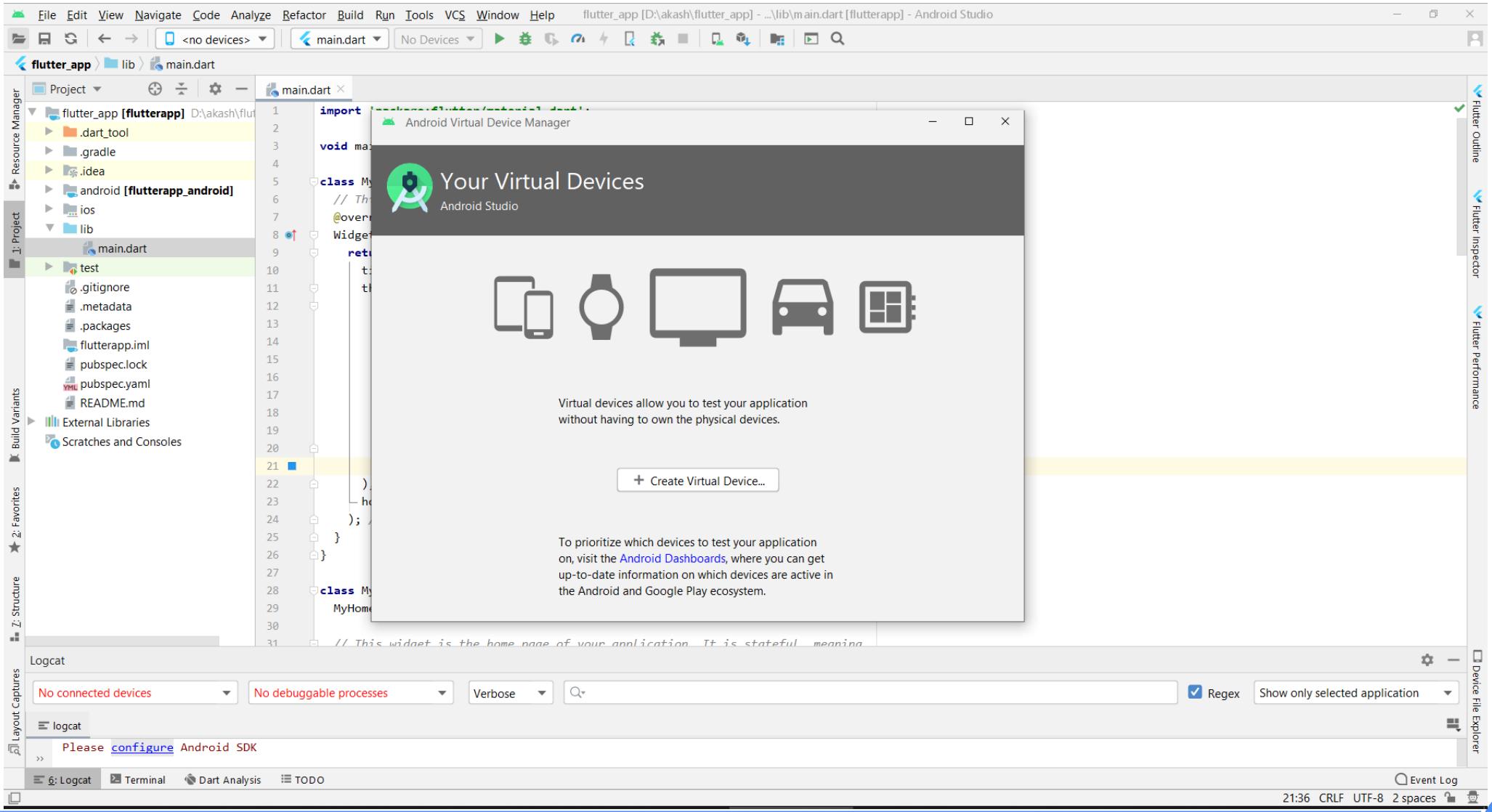
Specify Package Name



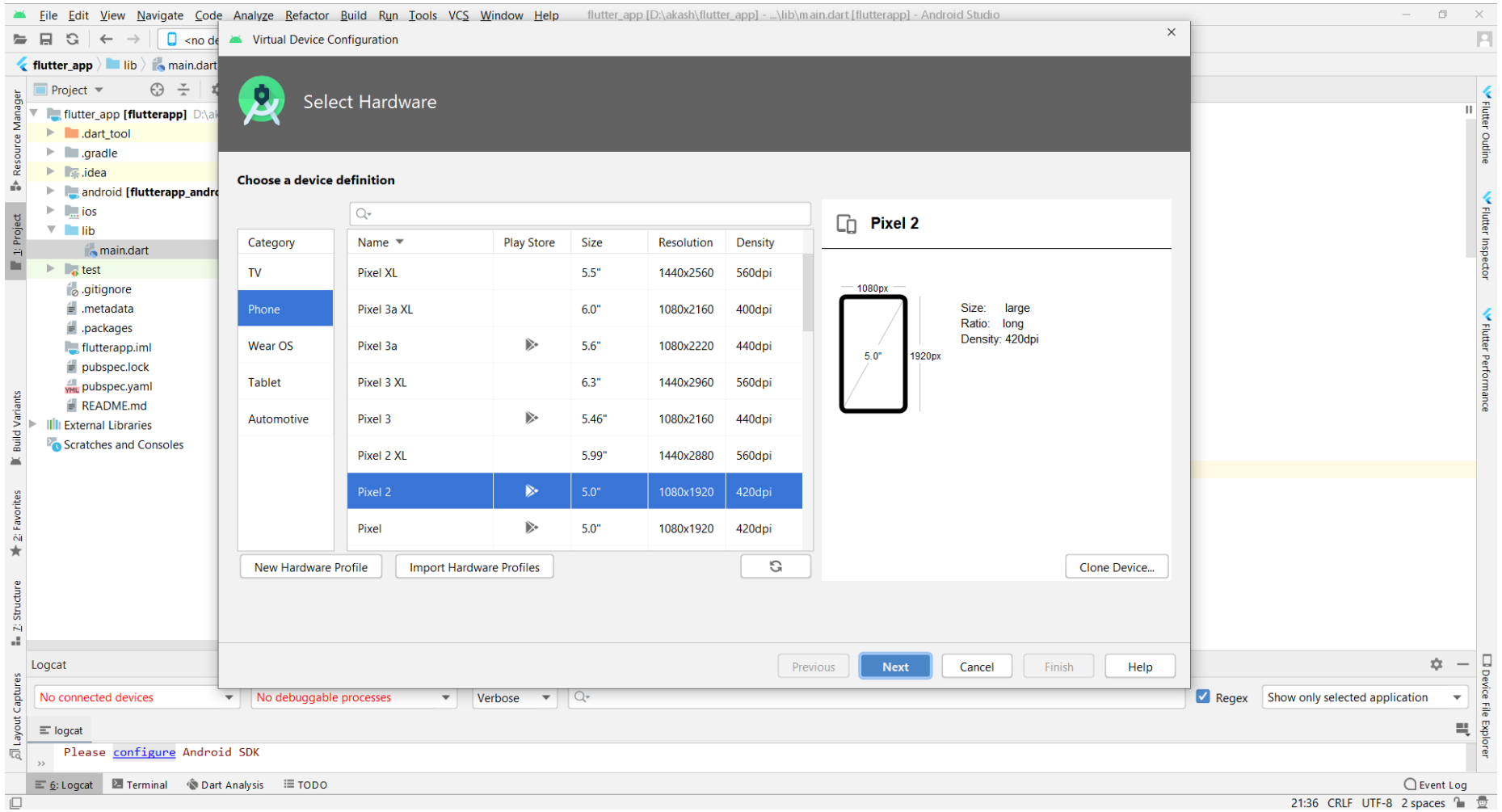
Flutter Coding



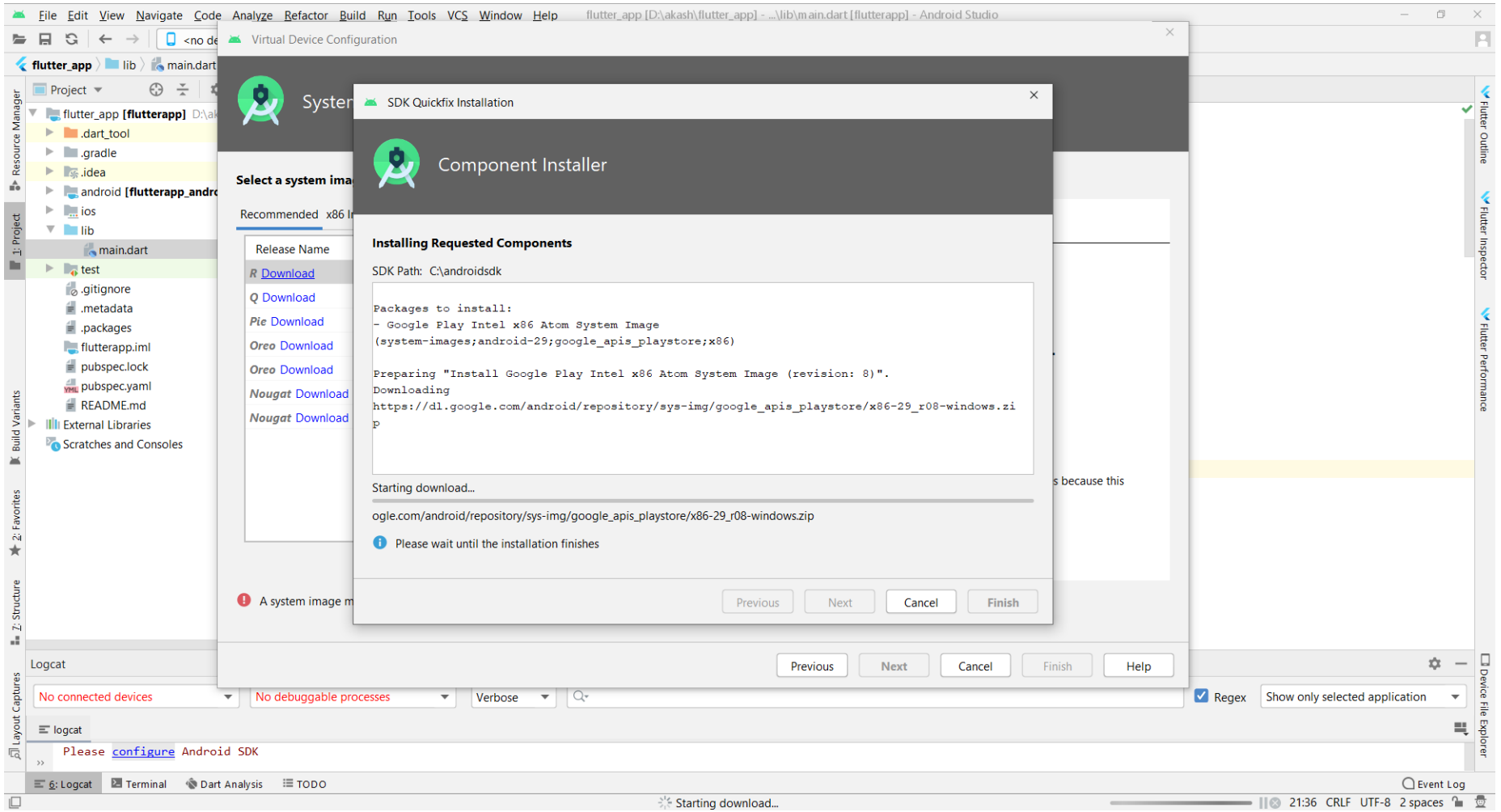
Create Virtual Device



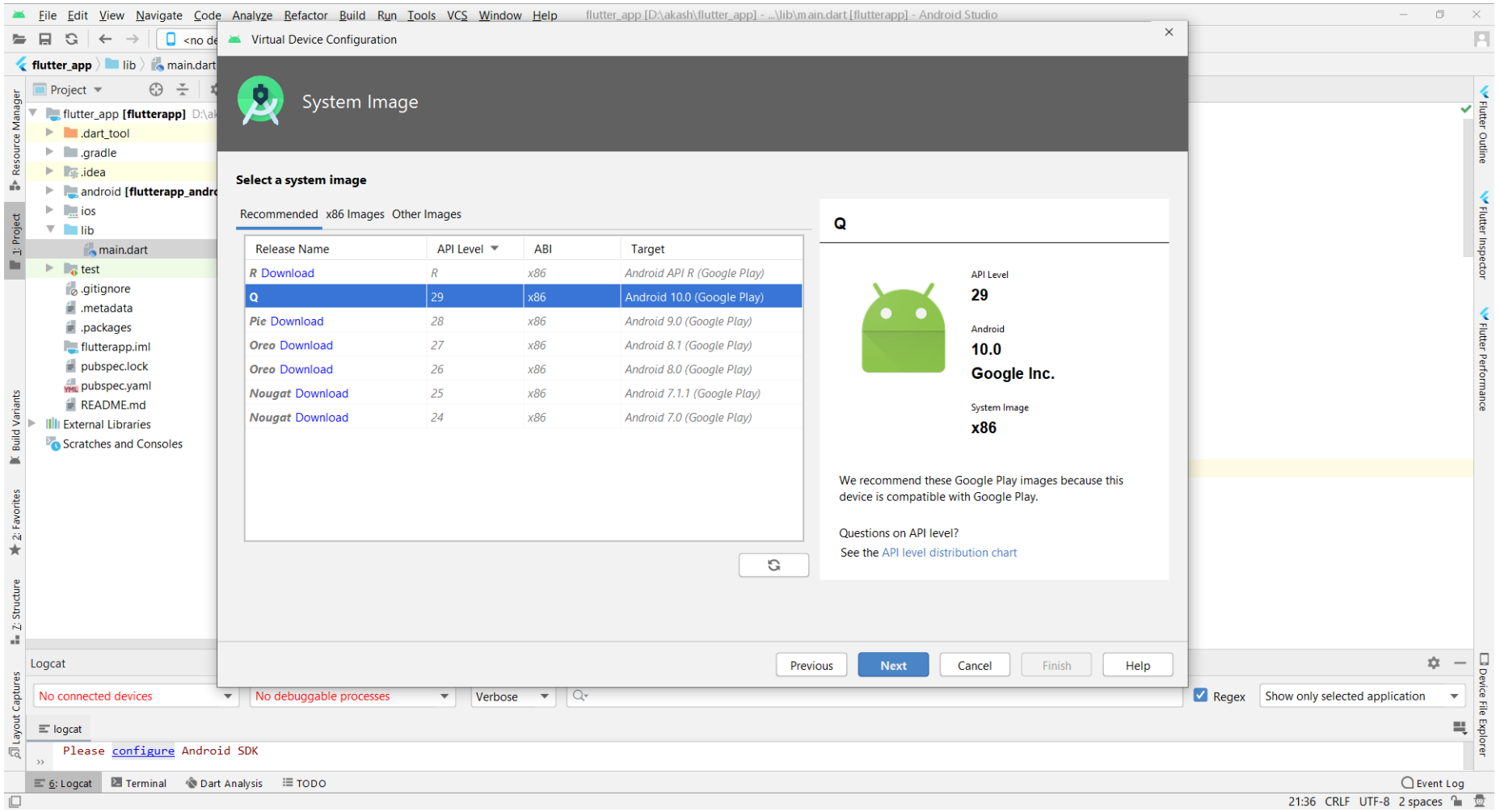
Download AVD



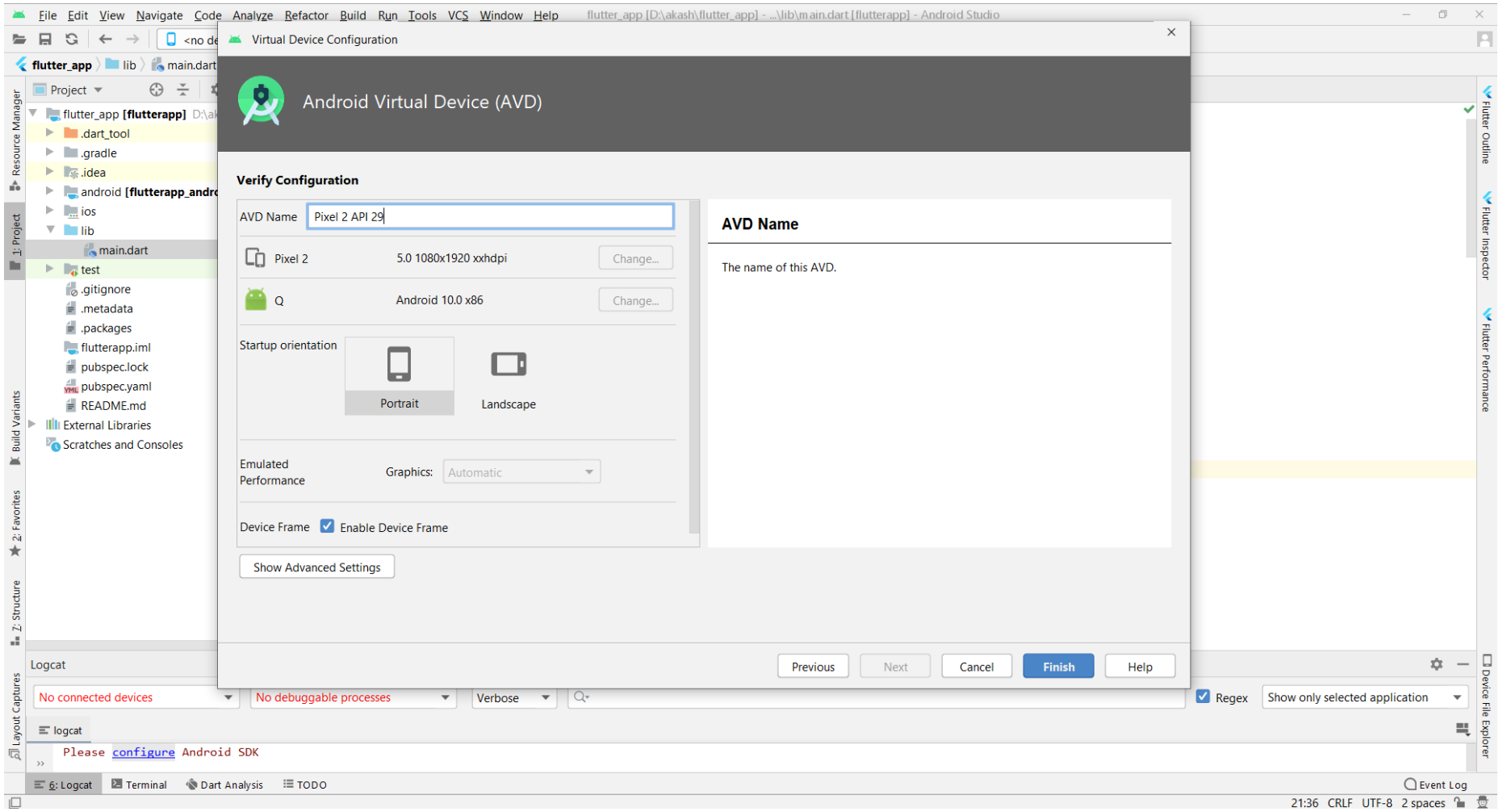
Downloading...



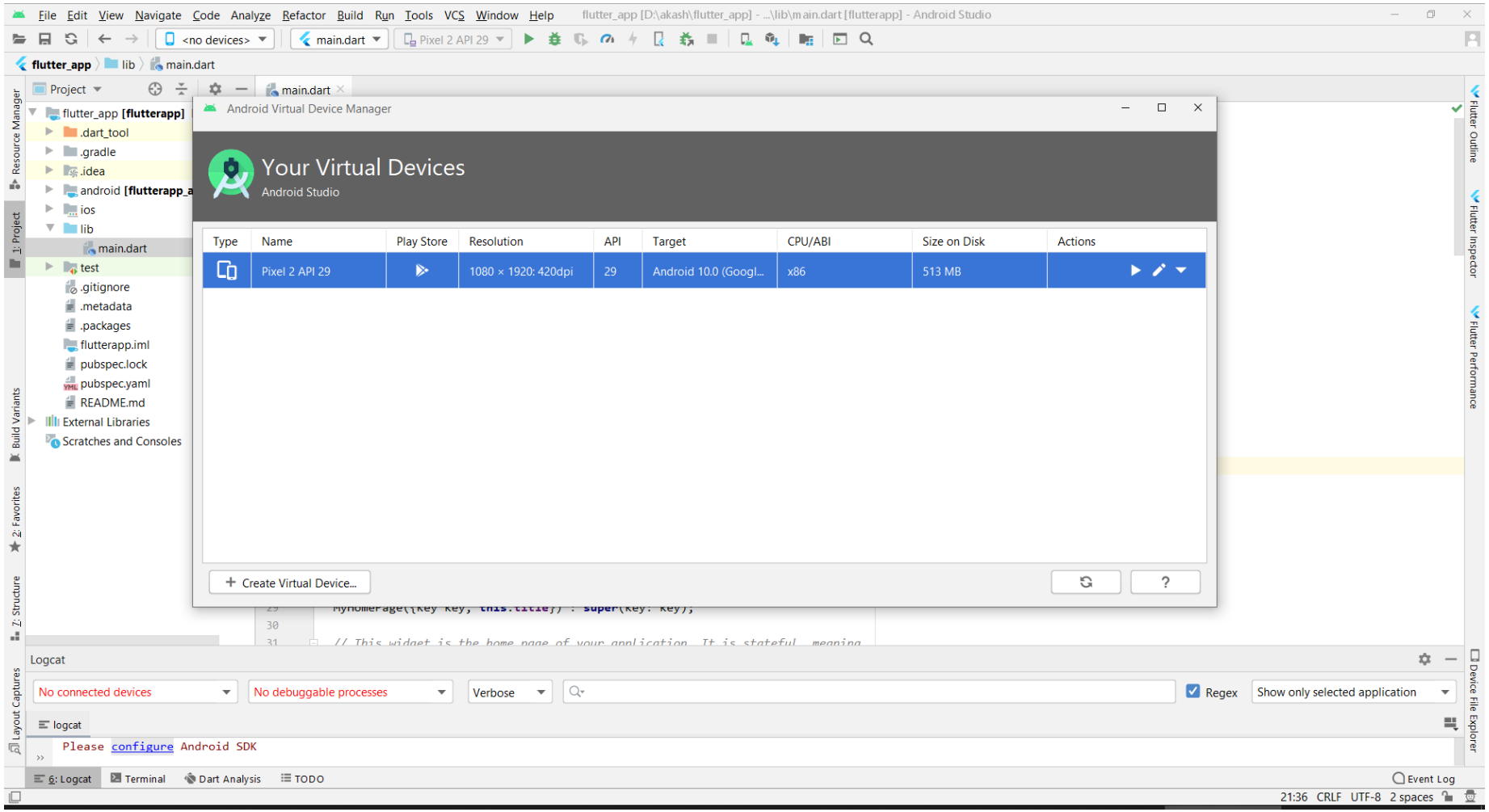
Select Android API



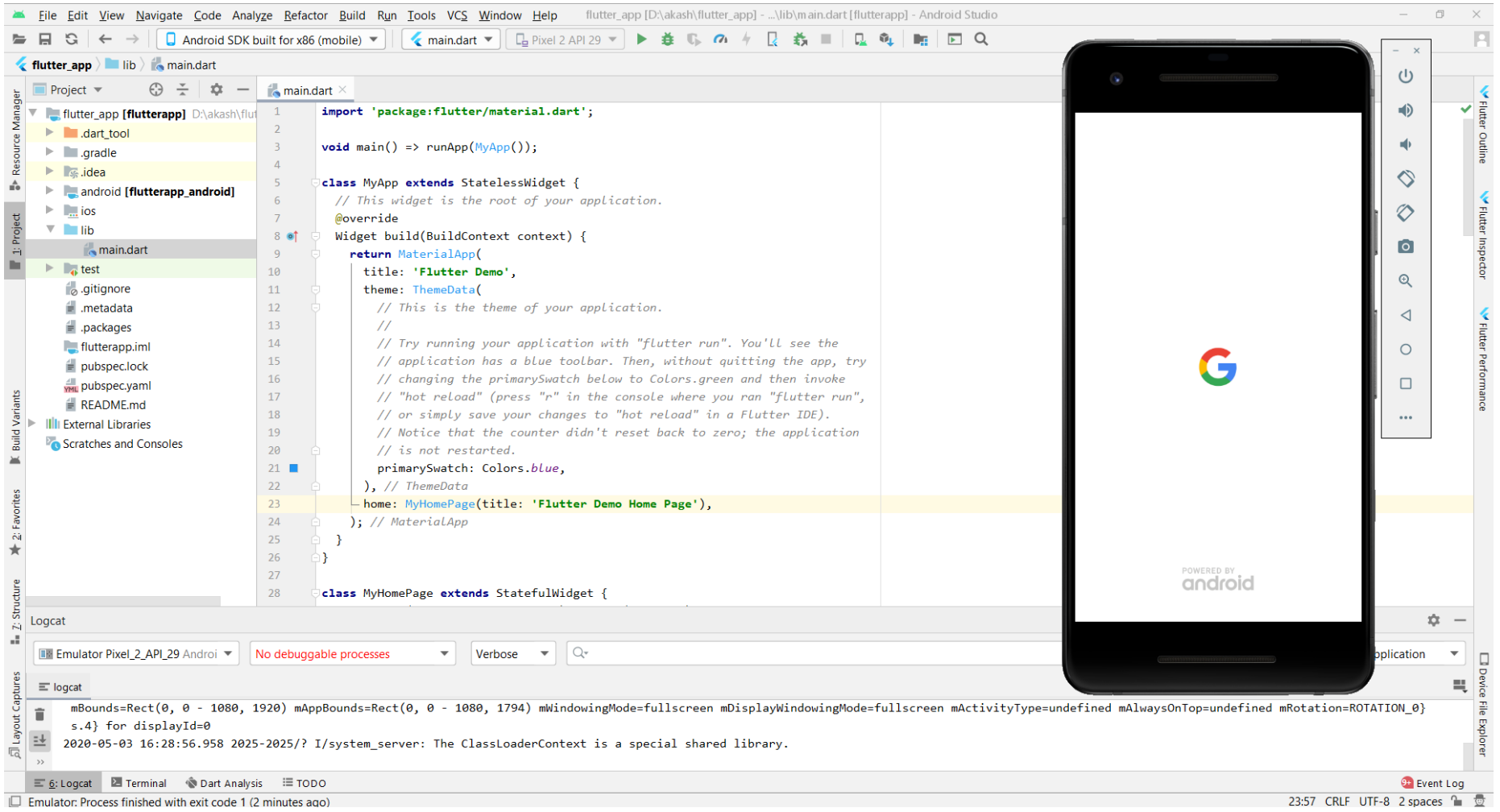
Create AVD


Virtual Device Configuration
Android Virtual Device (AVD)
Verify Configuration
AVD Name
Pixel 2 API 29
Pixel 2
5.0 1080x1920 xxhdpi
Change...
Q
Android 10.0 x86
Change...
Startup orientation
Portrait
Landscape
Emulated Performance
Graphics:
Automatic
Device Frame
Enable Device Frame
Show Advanced Settings
AVD Name
The name of this AVD.
Previous
Next
Cancel
Finish
Help
Please configure Android SDK

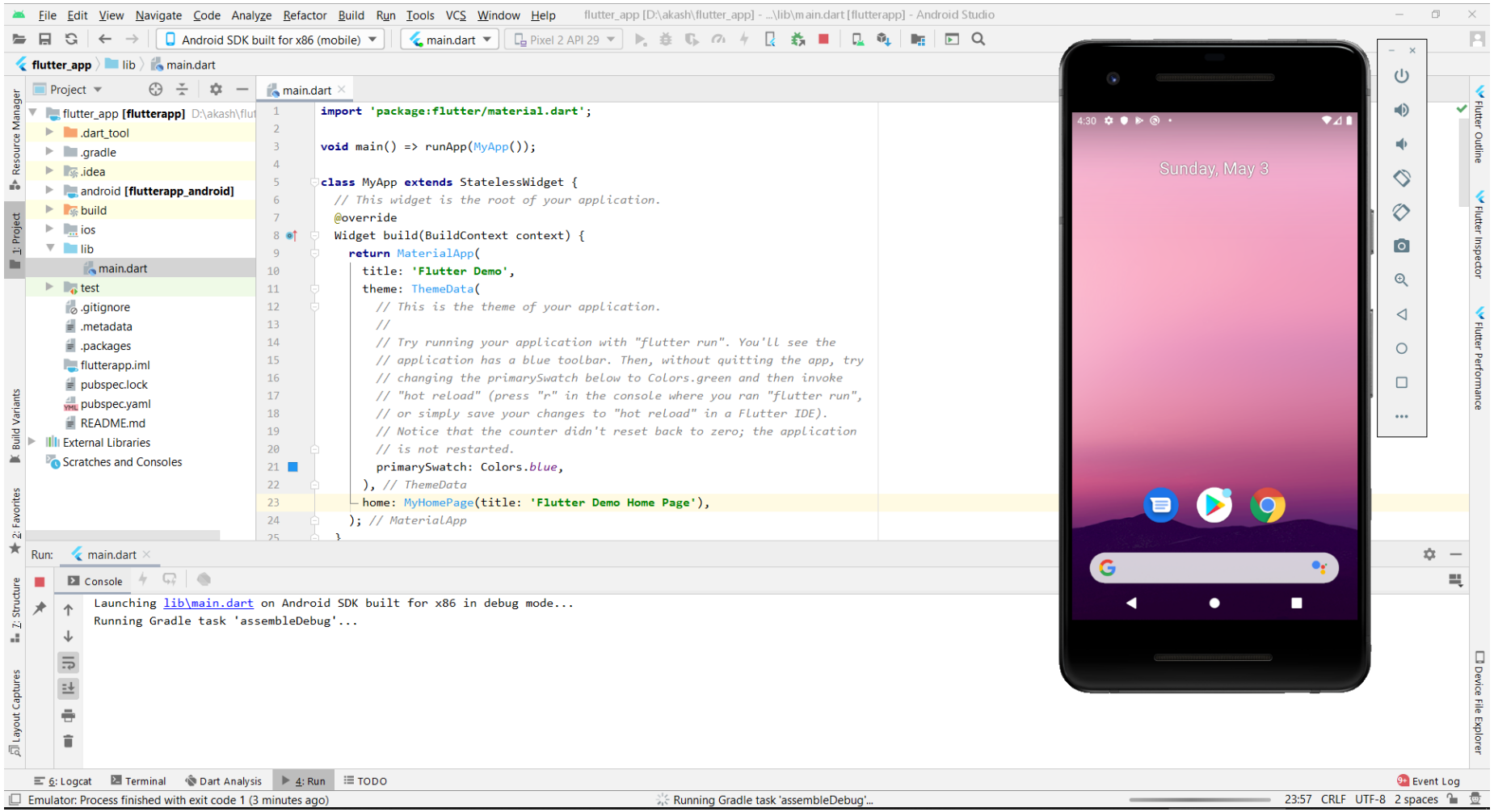
Start Virtual Device



Waiting .. ☺


File Edit View Navigate Code Analyze Refactor Build Run Tools VCS Window Help
flutter_app [D:\akash\flutter_app] - ...\lib\main.dart [flutterapp] - Android Studio
Android SDK built for x86 (mobile)
main.dart
Pixel 2 API 29
flutter_app
lib
main.dart
Project
flutter_app [flutterapp] D:\akash\flu
.dart_tool
.gradle
.idea
android [flutterapp_android]
ios
lib
main.dart
test
.gitignore
.metadata
.packages
flutterapp.iml
pubspec.lock
pubspec.yaml
README.md
External Libraries
Scratches and Consoles
import 'package:flutter/material.dart';
void main() => runApp(MyApp());
class MyApp extends StatelessWidget {
// This widget is the root of your application.
@override
Widget build(BuildContext context) {
return MaterialApp(
title: 'Flutter Demo',
theme: ThemeData(
// This is the theme of your application.
//
// Try running your application with "flutter run". You'll see the
// application has a blue toolbar. Then, without quitting the app, try
// changing the primarySwatch below to Colors.green and then invoke
// "hot reload" (press "r" in the console where you ran "flutter run",
// or simply save your changes to "hot reload" in a Flutter IDE).
// Notice that the counter didn't reset back to zero; the application
// is not restarted.
primarySwatch: Colors.blue,
), // ThemeData
home: MyHomePage(title: 'Flutter Demo Home Page'),
); // MaterialApp
}
}
class MyHomePage extends StatefulWidget {
POWERED BY
android
Logcat
Emulator Pixel_2_API_29 Androi
No debuggable processes
Verbose
logcat
mBounds=Rect(0, 0 - 1080, 1920) mAppBounds=Rect(0, 0 - 1080, 1794) mWindowingMode=fullscreen mDisplayWindowingMode=fullscreen mActivityType=undefined mAlwaysOnTop=undefined mRotation=ROTATION_0}
s.4} for displayId=0
2020-05-03 16:28:56.958 2025-2025/? I/system_server: The ClassLoaderContext is a special shared library.
6: Logcat
Terminal
Dart Analysis
TODO
Event Log
Emulator: Process finished with exit code 1 (2 minutes ago)
23:57 CRLF UTF-8 2 spaces

Waiting .. ☺


File Edit View Navigate Code Analyze Refactor Build Run Tools VCS Window Help
flutter_app [D:\akash\flutter_app] - ...\lib\main.dart [flutterapp] - Android Studio
Android SDK built for x86 (mobile)
main.dart
Pixel 2 API 29
flutter_app lib main.dart
Project
flutter_app [flutterapp] D:\akash\flu
.dart_tool
.gradle
.idea
android [flutterapp_android]
build
ios
lib
main.dart
test
.gitignore
.metadata
.packages
flutterapp.iml
pubspec.lock
pubspec.yaml
README.md
External Libraries
Scratches and Consoles
import 'package:flutter/material.dart';
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// This is the theme of your application.
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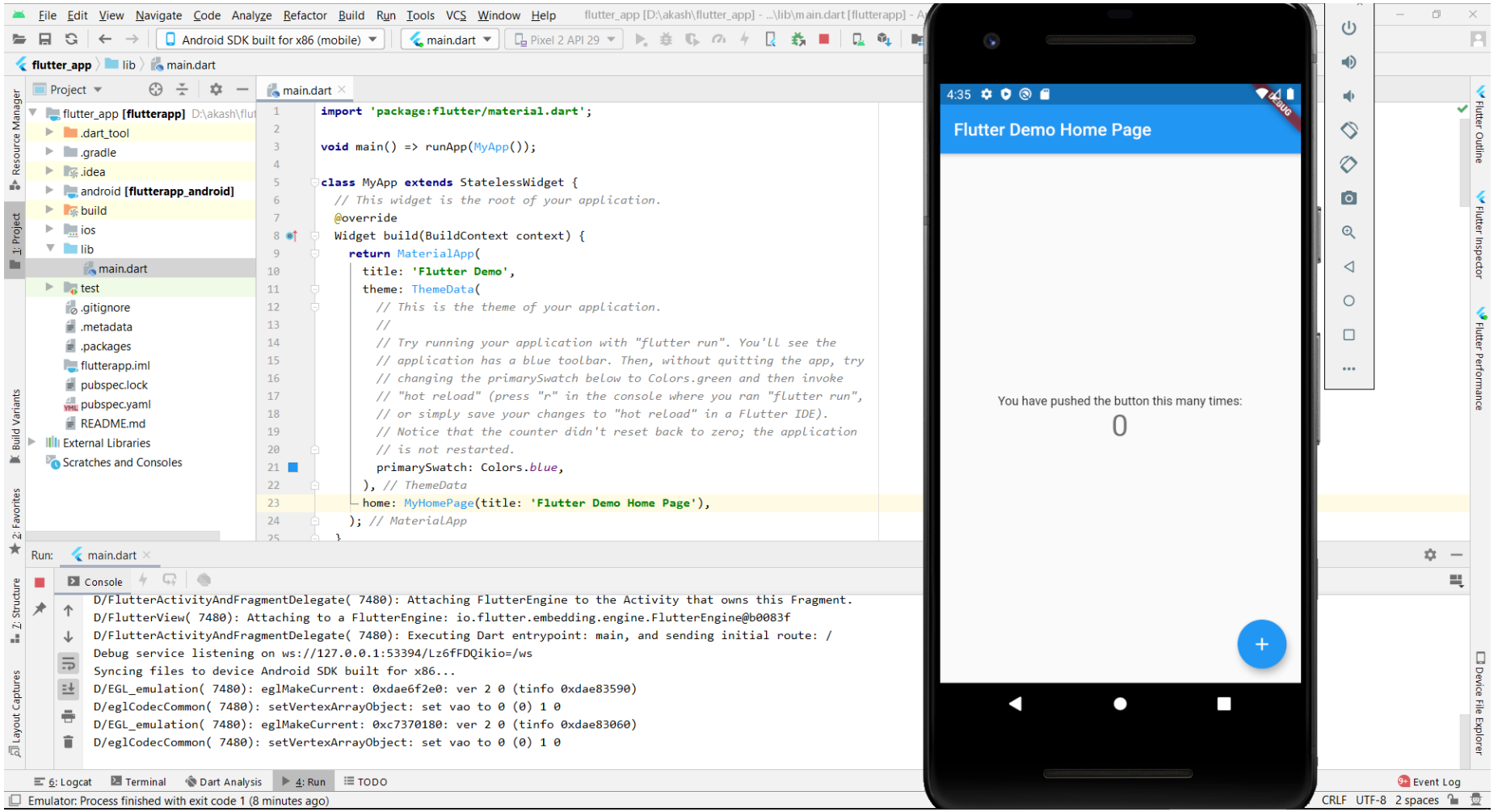
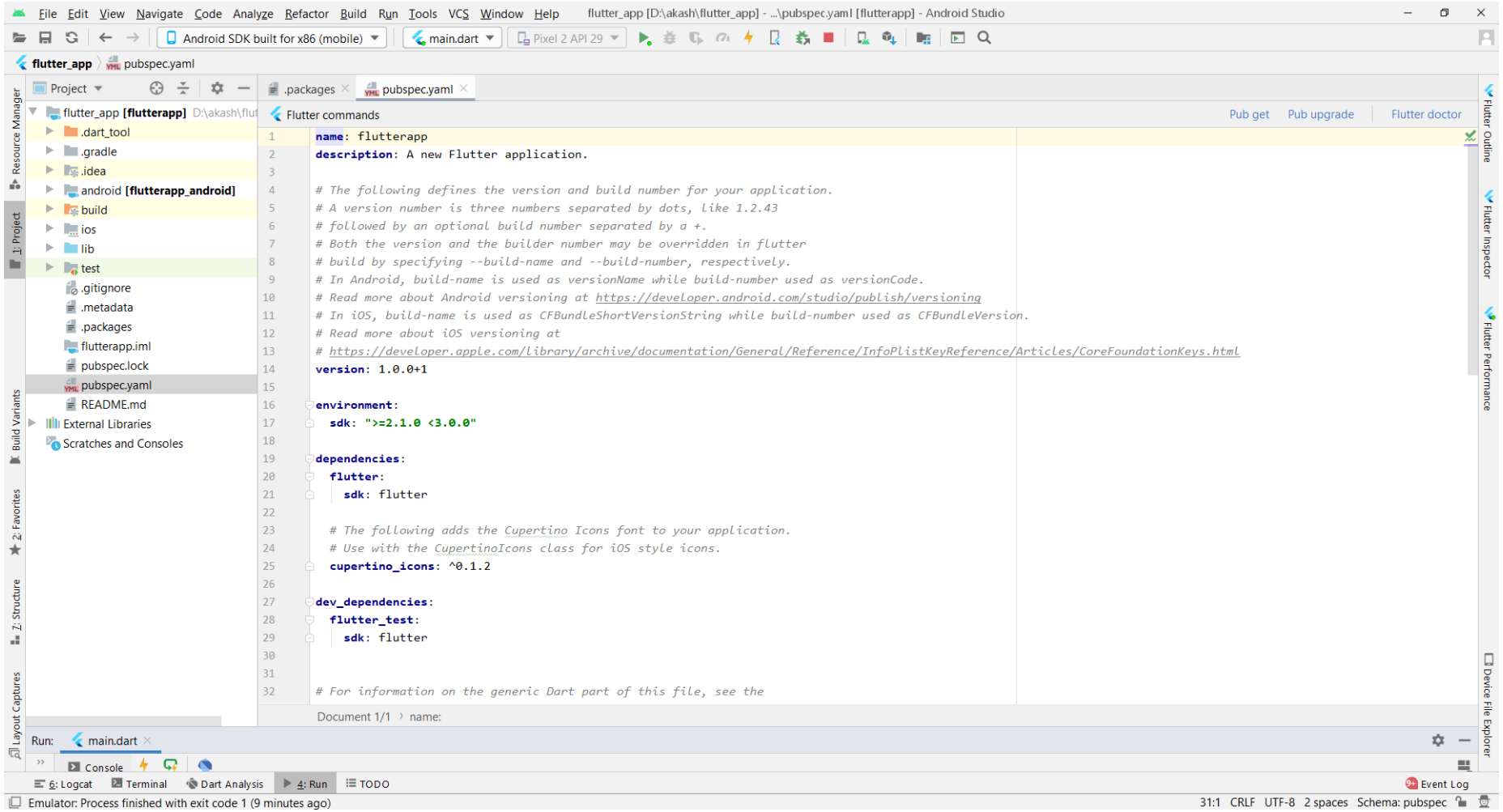
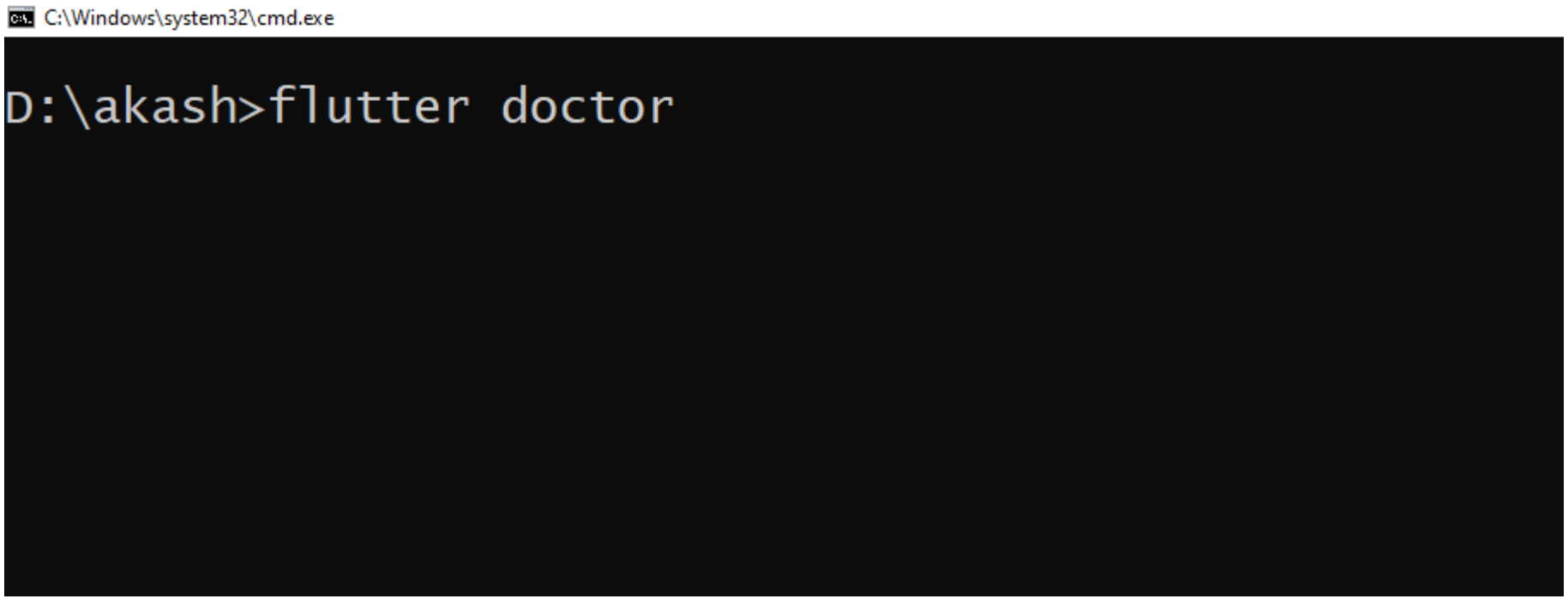
// or simply save your changes to "hot reload" in a Flutter IDE).
// Notice that the counter didn't reset back to zero; the application
// is not restarted.
primarySwatch: Colors.blue,
), // ThemeData
home: MyHomePage(title: 'Flutter Demo Home Page'),
); // MaterialApp
}
Run: main.dart
Console
Launching lib\main.dart on Android SDK built for x86 in debug mode...
Running Gradle task 'assembleDebug'...
4:30
Sunday, May 3
6: Logcat
Terminal
Dart Analysis
4: Run
TODO
Event Log
Emulator: Process finished with exit code 1 (3 minutes ago)
Running Gradle task 'assembleDebug'...
23:57 CRLF UTF-8 2 spaces


File Edit View Navigate Code Analyze Refactor Build Run Tools VCS Window Help
flutter_app [D:\akash\flutter_app] - ...\lib\main.dart [flutterapp]
Android SDK built for x86 (mobile)
main.dart
Pixel 2 API 29
flutter_app lib main.dart
Project
flutter_app [flutterapp] D:\akash\flu
.dart_tool
.gradle
.idea
android [flutterapp_android]
build
ios
lib
main.dart
test
.gitignore
.metadata
.packages
flutterapp.iml
pubspec.lock
pubspec.yaml
README.md
External Libraries
Scratches and Consoles
import 'package:flutter/material.dart';
void main() => runApp(MyApp());
class MyApp extends StatelessWidget {
// This widget is the root of your application.
@override
Widget build(BuildContext context) {
return MaterialApp(
title: 'Flutter Demo',
theme: ThemeData(
// This is the theme of your application.
//
// Try running your application with "flutter run". You'll see the
// application has a blue toolbar. Then, without quitting the app, try
// changing the primarySwatch below to Colors.green and then invoke
// "hot reload" (press "r" in the console where you ran "flutter run",
// or simply save your changes to "hot reload" in a Flutter IDE).
// Notice that the counter didn't reset back to zero; the application
// is not restarted.
primarySwatch: Colors.blue,
), // ThemeData
home: MyHomePage(title: 'Flutter Demo Home Page'),
); // MaterialApp
}
Run: main.dart
Console
D/FlutterActivityAndFragmentDelegate(7480): Attaching FlutterEngine to the Activity that owns this Fragment.
D/FlutterView(7480): Attaching to a FlutterEngine: io.flutter.embedding.engine.FlutterEngine@b0083f
D/FlutterActivityAndFragmentDelegate(7480): Executing Dart entrypoint: main, and sending initial route: /
Debug service listening on ws://127.0.0.1:53394/Lz6fFDQikio=/ws
Syncing files to device Android SDK built for x86...
D/EGL_emulation(7480): eglMakeCurrent: 0xdae6f2e0: ver 2 0 (tinfo 0xdae83590)
D/eglCodecCommon(7480): setVertexArrayObject: set vao to 0 (0) 1 0
D/EGL_emulation(7480): eglMakeCurrent: 0xc7370180: ver 2 0 (tinfo 0xdae83060)
D/eglCodecCommon(7480): setVertexArrayObject: set vao to 0 (0) 1 0
6: Logcat
Terminal
Dart Analysis
4: Run
TODO
Event Log
Emulator: Process finished with exit code 1 (8 minutes ago)
CRLF UTF-8 2 spaces
4:35
DEBUG
Flutter Demo Home Page
You have pushed the button this many times:
0
Resource Manager
1: Project
Build Variants
2: Favorites
Z: Structure
Layout Captures
Flutter Outline
Flutter Inspector
Flutter Performance
Device File Explorer

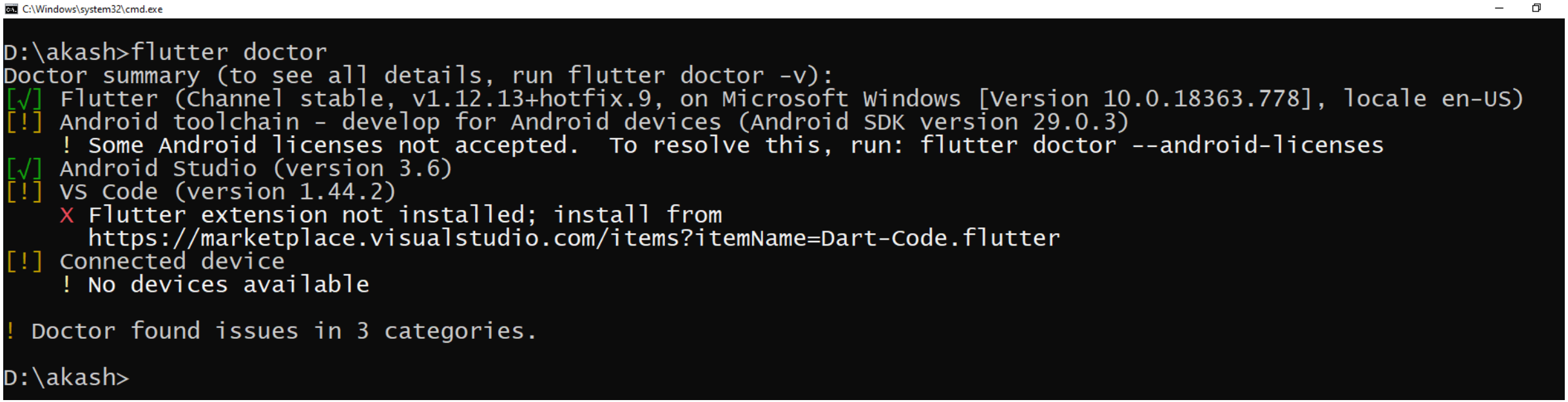
Pubspec.yaml



Flutter doctor



Requirement Satisfy ☺




4 GB of RAM
My PC
Android Studio

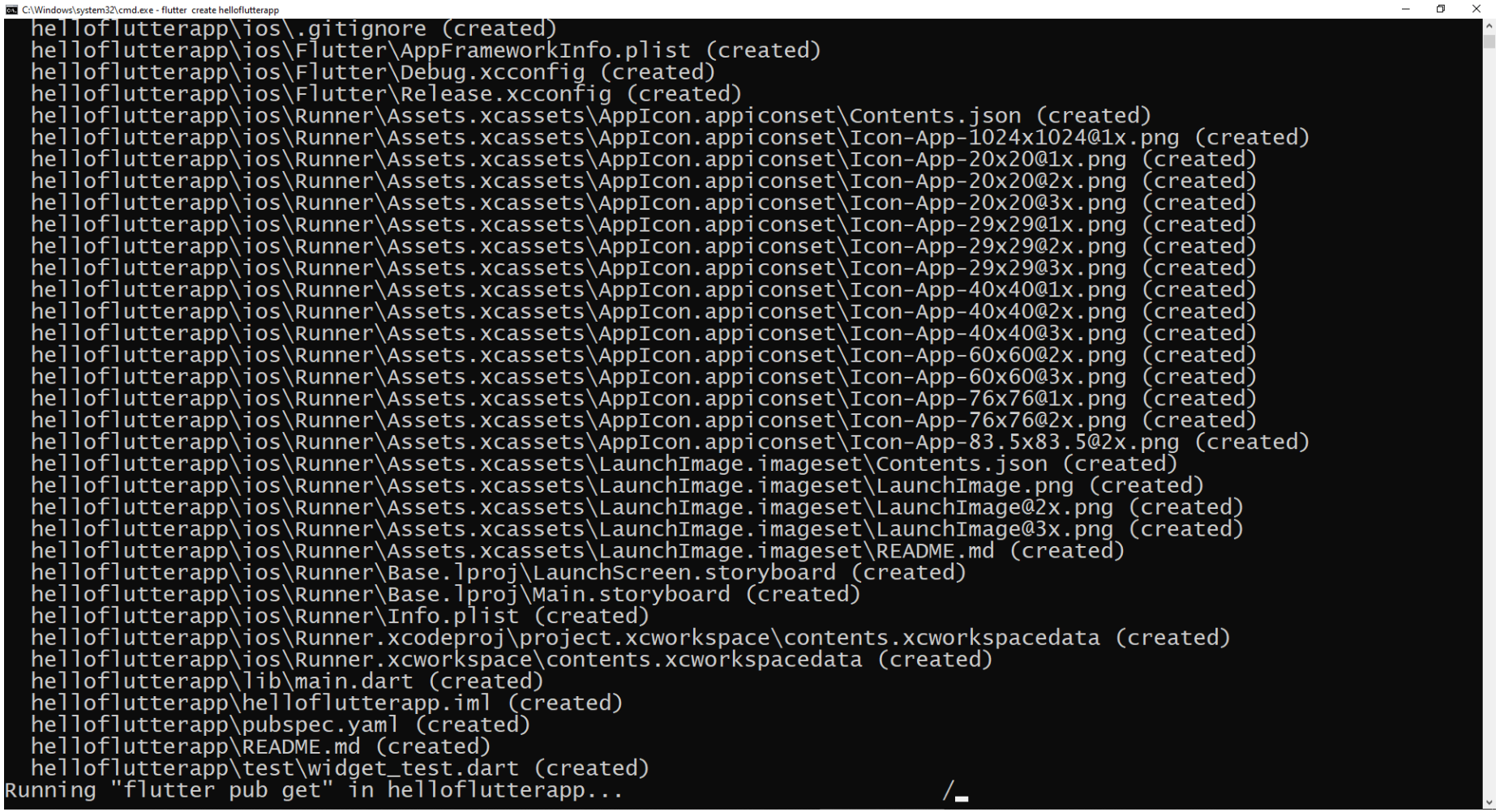
Visual Studio Code

Command Line Project Create

- We can Create Flutter Project using command line
- No need to run Android Studio.

Create Project

Wait ☺


C:\Windows\system32\cmd.exe - flutter create helloflutterapp
helloflutterapp\ios\.gitignore (created)
helloflutterapp\ios\Flutter\AppFrameworkInfo.plist (created)
helloflutterapp\ios\Flutter\Debug.xcconfig (created)
helloflutterapp\ios\Flutter\Release.xcconfig (created)
helloflutterapp\ios\Runner\Assets.xcassets\AppIcon.appiconset\Contents.json (created)
helloflutterapp\ios\Runner\Assets.xcassets\AppIcon.appiconset\Icon-App-1024x1024@1x.png (created)
helloflutterapp\ios\Runner\Assets.xcassets\AppIcon.appiconset\Icon-App-20x20@1x.png (created)
helloflutterapp\ios\Runner\Assets.xcassets\AppIcon.appiconset\Icon-App-20x20@2x.png (created)
helloflutterapp\ios\Runner\Assets.xcassets\AppIcon.appiconset\Icon-App-20x20@3x.png (created)
helloflutterapp\ios\Runner\Assets.xcassets\AppIcon.appiconset\Icon-App-29x29@1x.png (created)
helloflutterapp\ios\Runner\Assets.xcassets\AppIcon.appiconset\Icon-App-29x29@2x.png (created)
helloflutterapp\ios\Runner\Assets.xcassets\AppIcon.appiconset\Icon-App-29x29@3x.png (created)
helloflutterapp\ios\Runner\Assets.xcassets\AppIcon.appiconset\Icon-App-40x40@1x.png (created)
helloflutterapp\ios\Runner\Assets.xcassets\AppIcon.appiconset\Icon-App-40x40@2x.png (created)
helloflutterapp\ios\Runner\Assets.xcassets\AppIcon.appiconset\Icon-App-40x40@3x.png (created)
helloflutterapp\ios\Runner\Assets.xcassets\AppIcon.appiconset\Icon-App-60x60@2x.png (created)
helloflutterapp\ios\Runner\Assets.xcassets\AppIcon.appiconset\Icon-App-60x60@3x.png (created)
helloflutterapp\ios\Runner\Assets.xcassets\AppIcon.appiconset\Icon-App-76x76@1x.png (created)
helloflutterapp\ios\Runner\Assets.xcassets\AppIcon.appiconset\Icon-App-76x76@2x.png (created)
helloflutterapp\ios\Runner\Assets.xcassets\AppIcon.appiconset\Icon-App-83.5x83.5@2x.png (created)
helloflutterapp\ios\Runner\Assets.xcassets\LaunchImage.imageset\Contents.json (created)
helloflutterapp\ios\Runner\Assets.xcassets\LaunchImage.imageset\LaunchImage.png (created)
helloflutterapp\ios\Runner\Assets.xcassets\LaunchImage.imageset\LaunchImage@2x.png (created)
helloflutterapp\ios\Runner\Assets.xcassets\LaunchImage.imageset\LaunchImage@3x.png (created)
helloflutterapp\ios\Runner\Assets.xcassets\LaunchImage.imageset\README.md (created)
helloflutterapp\ios\Runner\Base.lproj\LaunchScreen.storyboard (created)
helloflutterapp\ios\Runner\Base.lproj\Main.storyboard (created)
helloflutterapp\ios\Runner\Info.plist (created)
helloflutterapp\ios\Runner.xcodeproj\project.xcworkspace\contents.xcworkspacedata (created)
helloflutterapp\ios\Runner.xcworkspace\contents.xcworkspacedata (created)
helloflutterapp\lib\main.dart (created)
helloflutterapp\helloflutterapp.iml (created)
helloflutterapp\pubspec.yaml (created)
helloflutterapp\README.md (created)
helloflutterapp\test\widget_test.dart (created)
Running "flutter pub get" in helloflutterapp...

Project Created

```
C:\Windows\system32\cmd.exe
  helloflutterapp\ios\Runner\Assets.xcassets\LaunchImage.imageset\LaunchImage@2x.png (created)
  helloflutterapp\ios\Runner\Assets.xcassets\LaunchImage.imageset\LaunchImage@3x.png (created)
  helloflutterapp\ios\Runner\Assets.xcassets\LaunchImage.imageset\README.md (created)
  helloflutterapp\ios\Runner\Base.lproj\LaunchScreen.storyboard (created)
  helloflutterapp\ios\Runner\Base.lproj\Main.storyboard (created)
  helloflutterapp\ios\Runner\Info.plist (created)
  helloflutterapp\ios\Runner.xcodeproj\project.xcworkspace\contents.xcworkspacedata (created)
  helloflutterapp\ios\Runner.xcworkspace\contents.xcworkspacedata (created)
  helloflutterapp\lib\main.dart (created)
  helloflutterapp\helloflutterapp.iml (created)
  helloflutterapp\pubspec.yaml (created)
  helloflutterapp\README.md (created)
  helloflutterapp\test\widget_test.dart (created)
Running "flutter pub get" in helloflutterapp...                     9.9s
Wrote 68 files.

All done!
[√] Flutter: is fully installed. (Channel stable, v1.12.13+hotfix.9, on Microsoft Windows [Version
    10.0.18363.778], locale en-US)
[!] Android toolchain - develop for Android devices: is partially installed; more components are available.
    (Android SDK version 29.0.3)
[√] Android Studio: is fully installed. (version 3.6)
[!] VS Code: is partially installed; more components are available. (version 1.44.2)
[!] Connected device: is not available.

Run "flutter doctor" for information about installing additional components.

In order to run your application, type:

  $ cd helloflutterapp
  $ flutter run

Your application code is in helloflutterapp\lib\main.dart.


D:\akash>
```

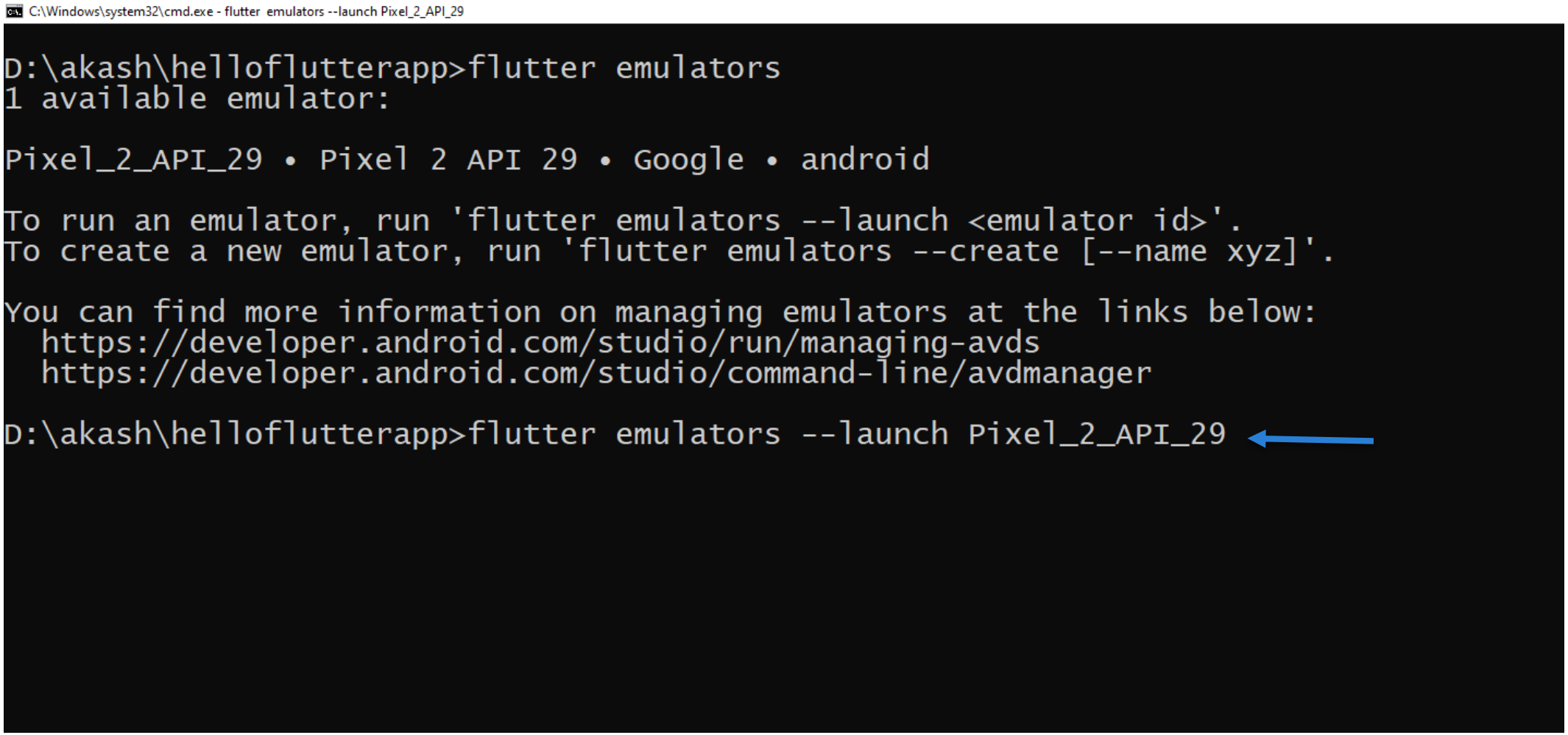
Get Installed Emulators

flutter emulators

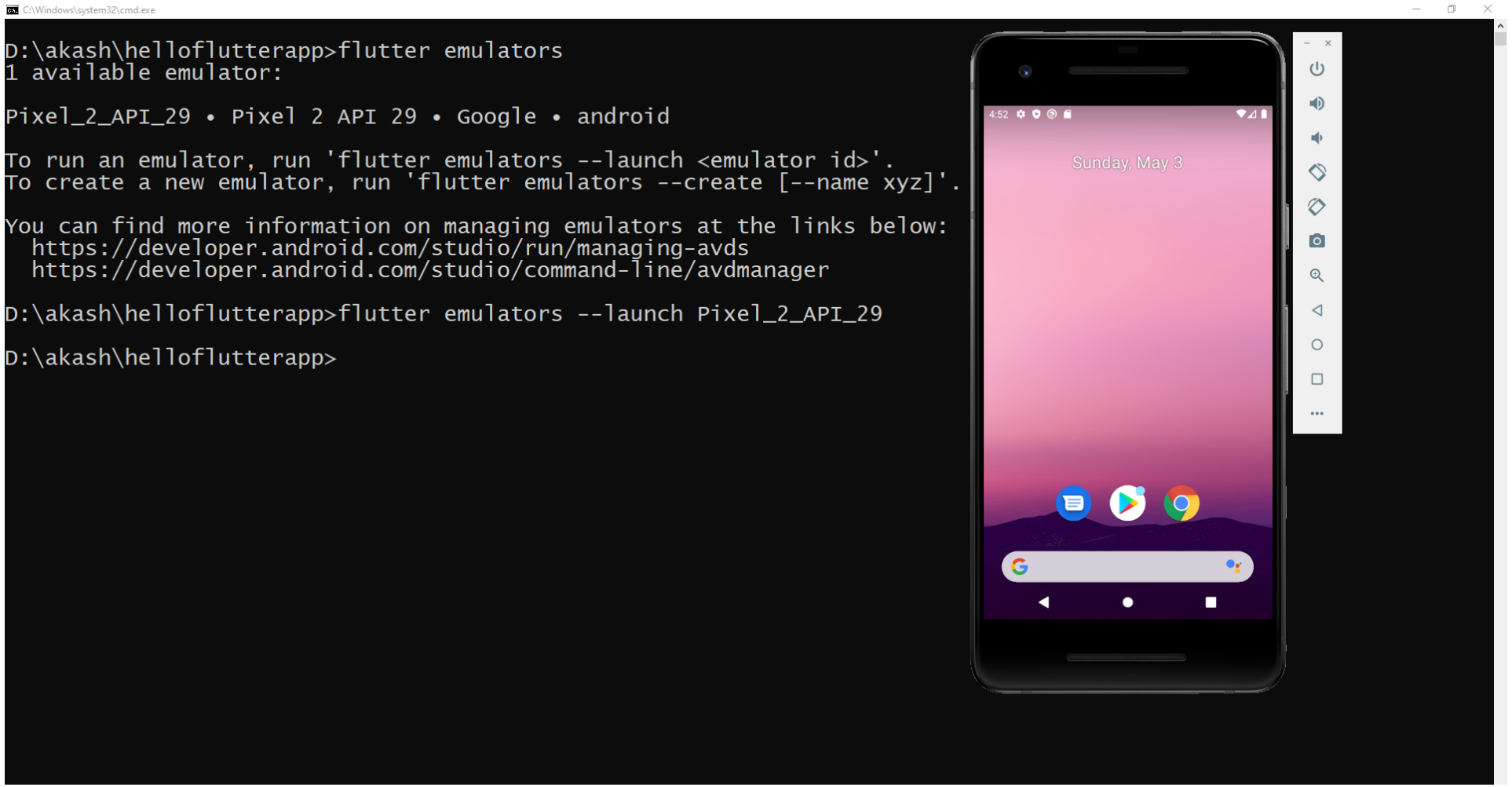
C:\Windows\system32\cmd.exe

```
D:\akash\helloflutterapp>flutter emulators
1 available emulator:

Pixel_2_API_29 • Pixel 2 API 29 • Google • android

To run an emulator, run 'flutter emulators --launch <emulator id>'.
To create a new emulator, run 'flutter emulators --create [--name xyz]'.

You can find more information on managing emulators at the links below:
  https://developer.android.com/studio/run/managing-avds
  https://developer.android.com/studio/command-line/avdmanager

D:\akash\helloflutterapp>
```

Run Emulators



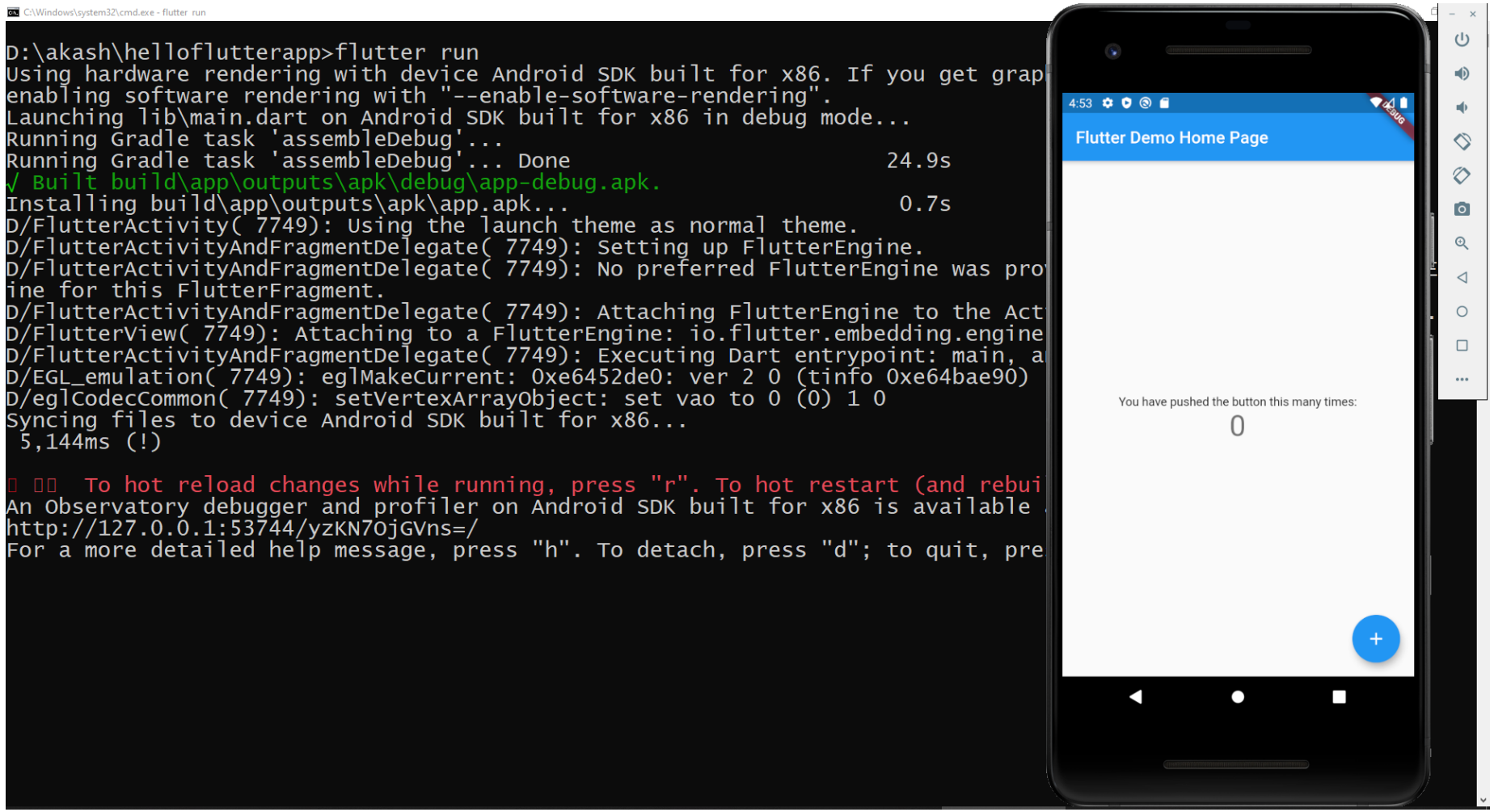
Ready to Launch App ☺



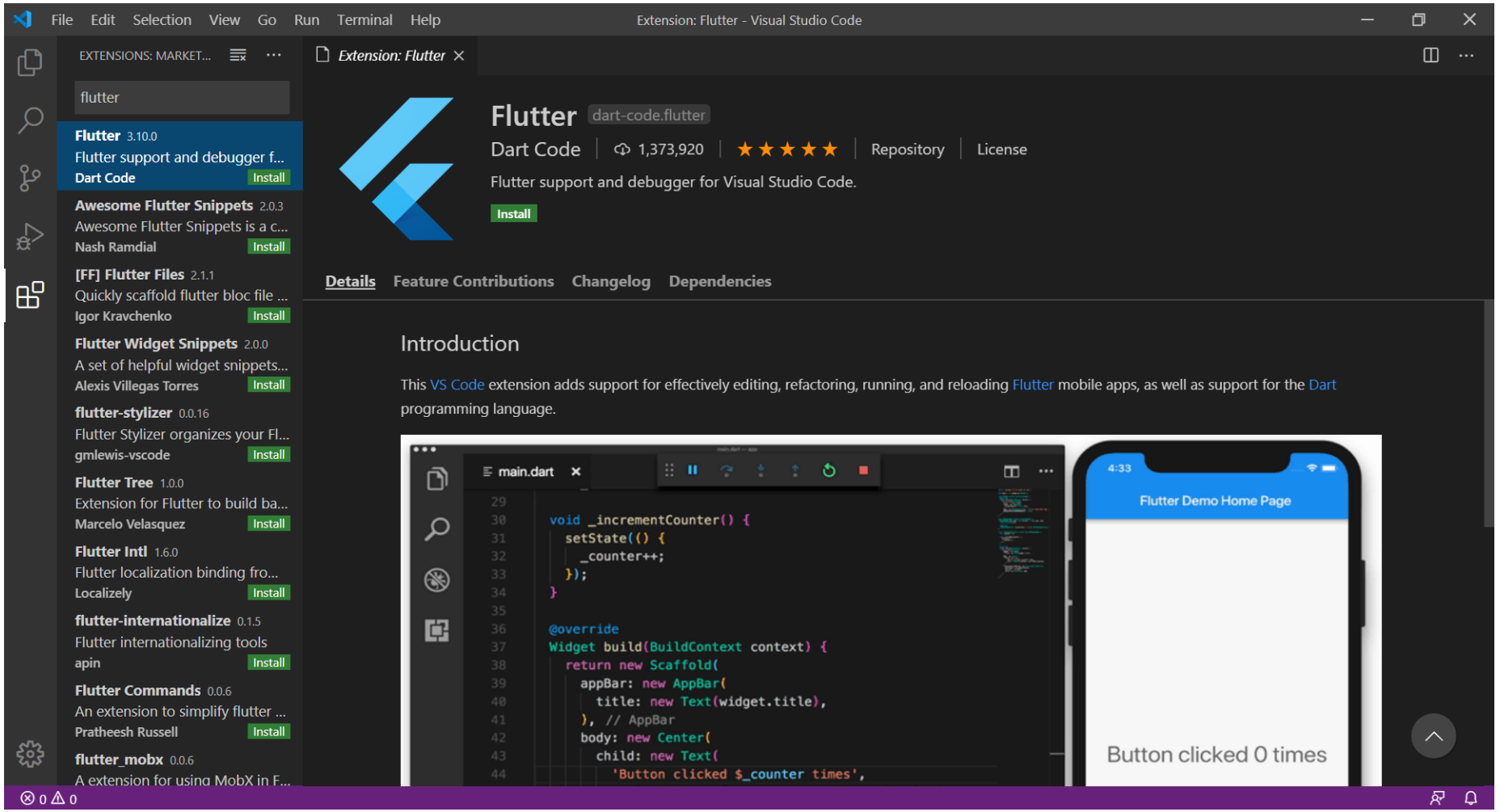
Run Project


C:\Windows\system32\cmd.exe
D:\akash\helloflutterapp>flutter run

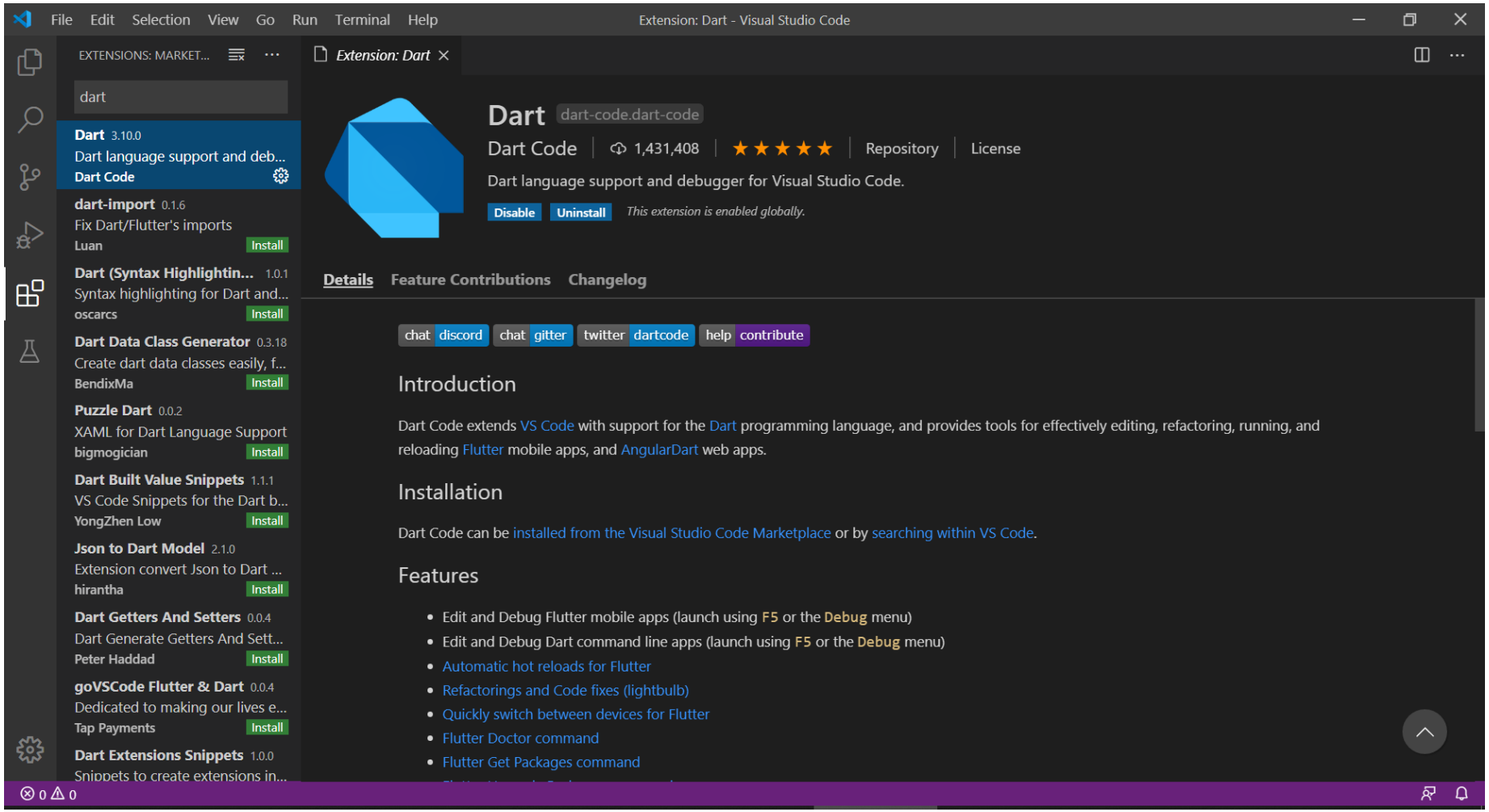
Finally ☺


C:\Windows\system32\cmd.exe - flutter run
D:\akash\helloflutterapp>flutter run
Using hardware rendering with device Android SDK built for x86. If you get grap
enabling software rendering with "--enable-software-rendering".
Launching lib\main.dart on Android SDK built for x86 in debug mode...
Running Gradle task 'assembleDebug'...
Running Gradle task 'assembleDebug'... Done 24.9s
√ Built build\app\outputs\apk\debug\app-debug.apk.
Installing build\app\outputs\apk\app.apk... 0.7s
D/FlutterActivity(7749): Using the launch theme as normal theme.
D/FlutterActivityAndFragmentDelegate(7749): Setting up FlutterEngine.
D/FlutterActivityAndFragmentDelegate(7749): No preferred FlutterEngine was pro
ine for this FlutterFragment.
D/FlutterActivityAndFragmentDelegate(7749): Attaching FlutterEngine to the Act
D/FlutterView(7749): Attaching to a FlutterEngine: io.flutter.embedding.engine
D/FlutterActivityAndFragmentDelegate(7749): Executing Dart entrypoint: main, a
D/EGL_emulation(7749): eglMakeCurrent: 0xe6452de0: ver 2 0 (tinfo 0xe64bae90)
D/eglCodecCommon(7749): setVertexArrayObject: set vao to 0 (0) 1 0
Syncing files to device Android SDK built for x86...
5,144ms (!)
To hot reload changes while running, press "r". To hot restart (and rebui
An Observatory debugger and profiler on Android SDK built for x86 is available
http://127.0.0.1:53744/yzKN7OjGVns=/
For a more detailed help message, press "h". To detach, press "d"; to quit, pre
4:53
DEBUG
Flutter Demo Home Page
You have pushed the button this many times:
0

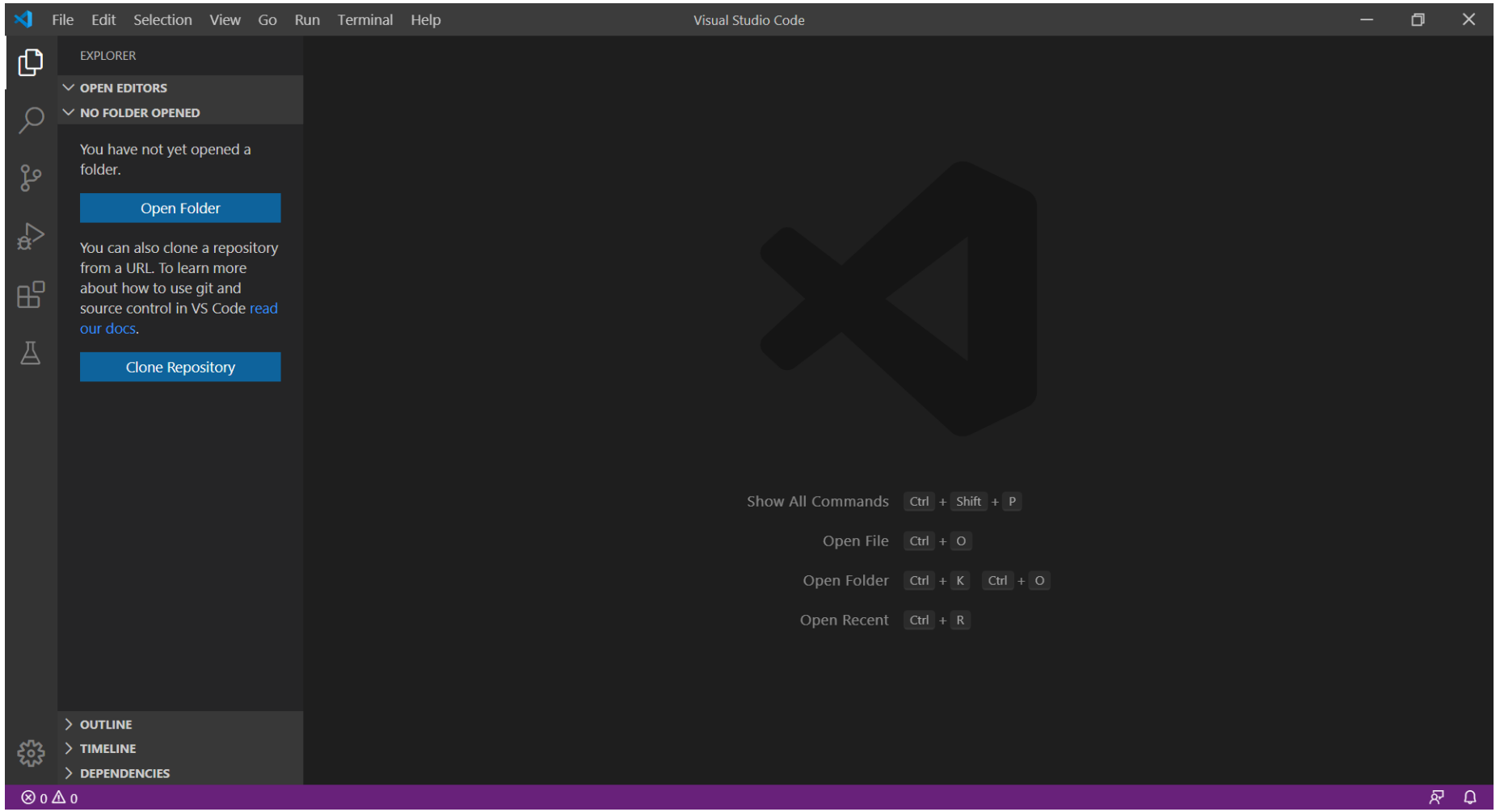
Flutter Visual Studio Extension



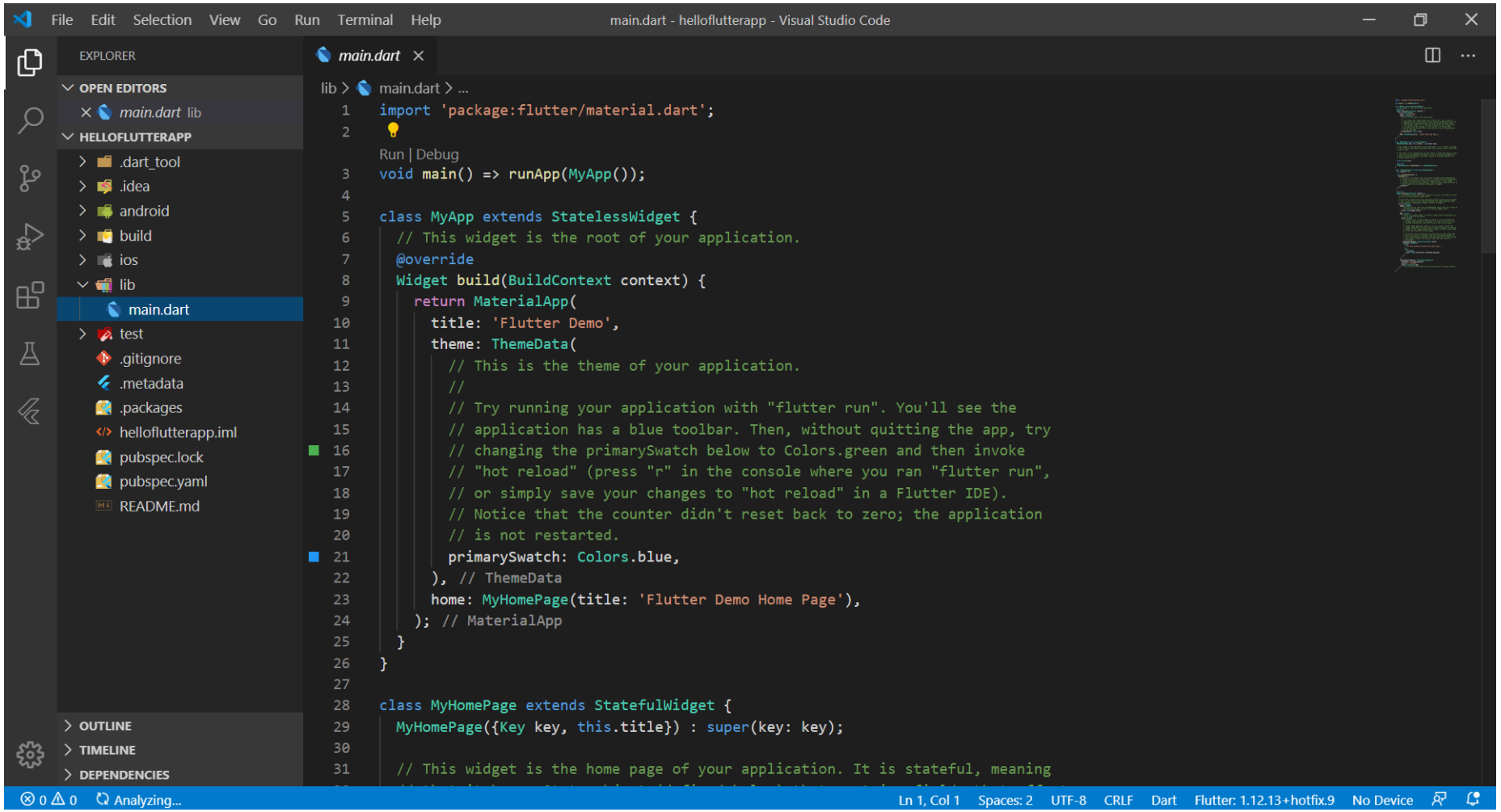
Dart Visual Studio Extension



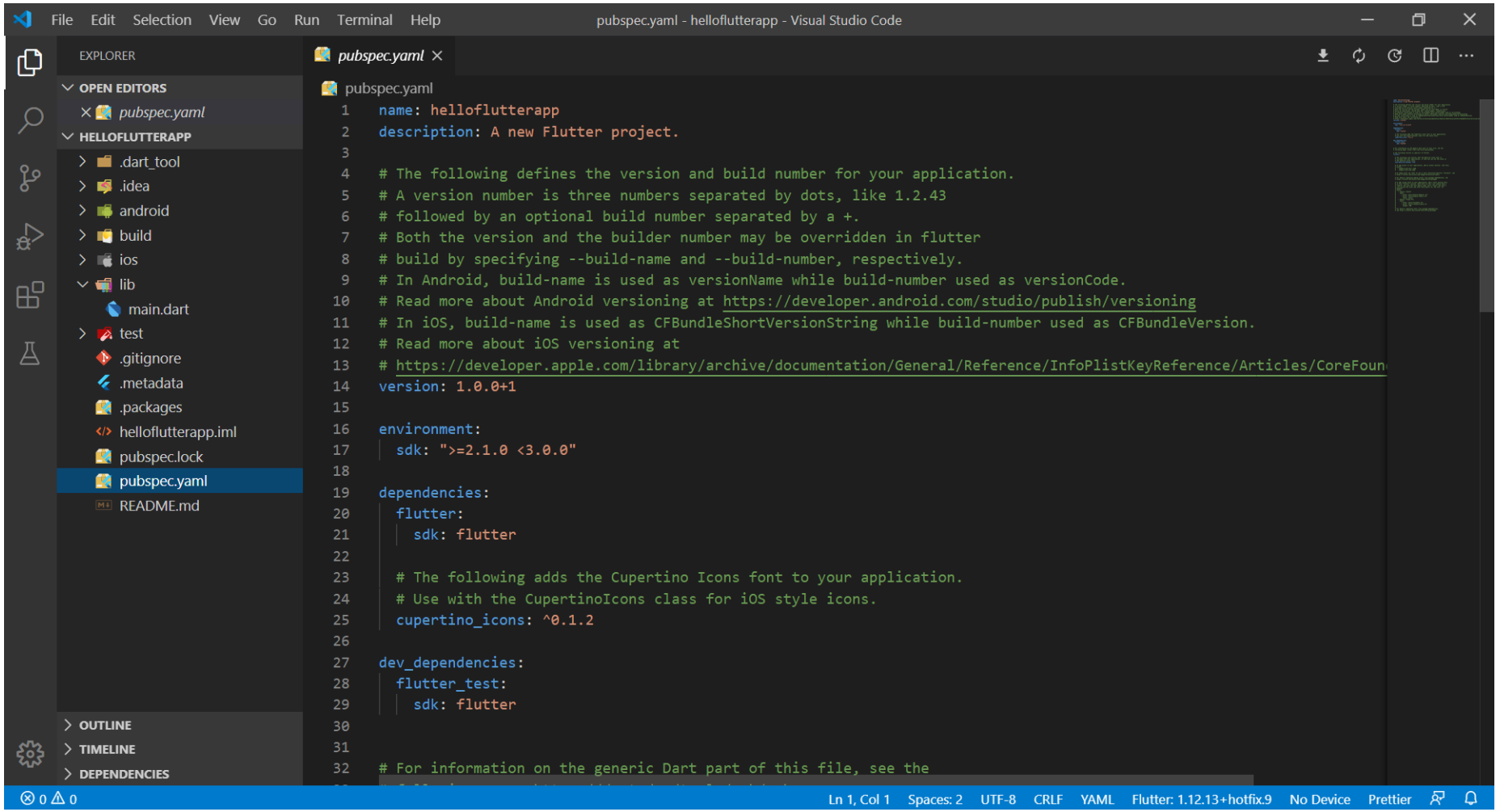
Open Project



Main.dart


File Edit Selection View Go Run Terminal Help
main.dart - helloflutterapp - Visual Studio Code
EXPLORER
OPEN EDITORS
main.dart lib
HELLOFLUTTERAPP
.dart_tool
.idea
android
build
ios
lib
main.dart
test
.gitignore
.metadata
.packages
helloflutterapp.iml
pubspec.lock
pubspec.yaml
README.md
OUTLINE
TIMELINE
DEPENDENCIES
main.dart
lib > main.dart > ...
import 'package:flutter/material.dart';
Run | Debug
void main() => runApp(MyApp());
class MyApp extends StatelessWidget {
// This widget is the root of your application.
@override
Widget build(BuildContext context) {
return MaterialApp(
title: 'Flutter Demo',
theme: ThemeData(
// This is the theme of your application.
//
// Try running your application with "flutter run". You'll see the
// application has a blue toolbar. Then, without quitting the app, try
// changing the primarySwatch below to Colors.green and then invoke
// "hot reload" (press "r" in the console where you ran "flutter run",
// or simply save your changes to "hot reload" in a Flutter IDE).
// Notice that the counter didn't reset back to zero; the application
// is not restarted.
primarySwatch: Colors.blue,
), // ThemeData
home: MyHomePage(title: 'Flutter Demo Home Page'),
); // MaterialApp
}
}
class MyHomePage extends StatefulWidget {
MyHomePage({Key key, this.title}) : super(key: key);
// This widget is the home page of your application. It is stateful, meaning
0 0 Analyzing...
Ln 1, Col 1 Spaces: 2 UTF-8 CRLF Dart Flutter: 1.12.13+hotfix.9 No Device

Pubspec.yaml

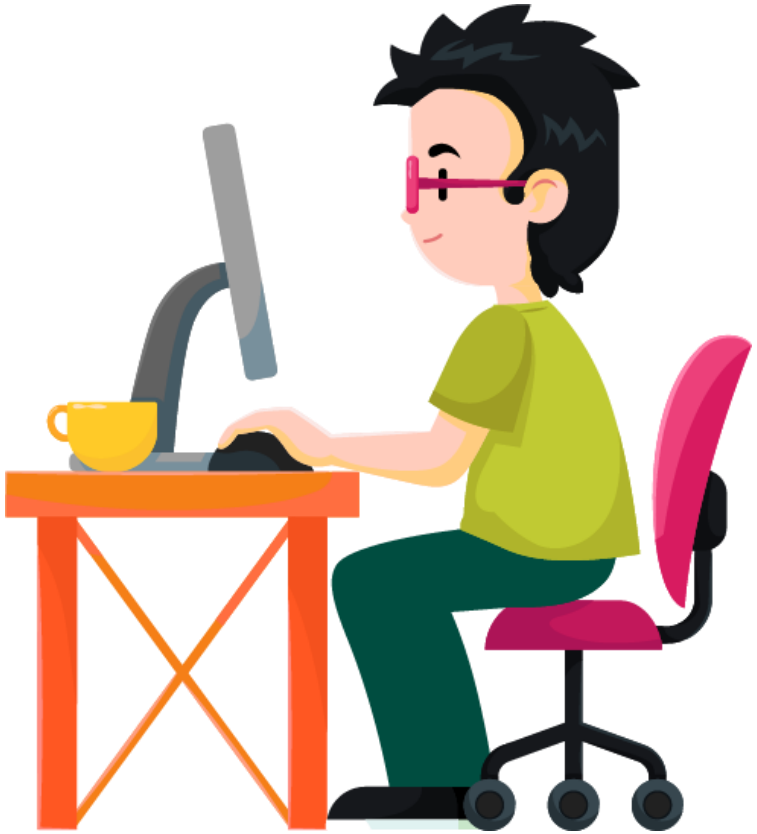


Quick Steps

- Flutter create
- Flutter emulators
- Flutter emulators --launch
- Flutter run


THANK YOU FOR LISTENING!
ANY QUESTIONS?

Get Exclusive Video Tutorials



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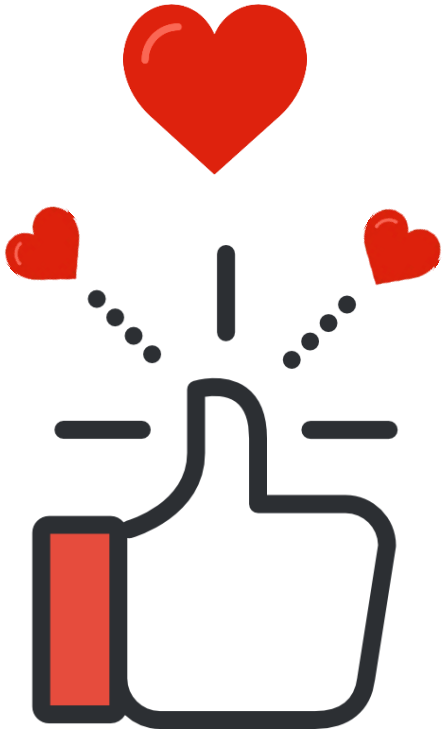
https://www.sulekha.com/akash-technolabs-navrangpura-ahmedabad-contact-address/ahmedabad



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