

Flutter 2

iOS, Android, Web,
Windows, MacOS, Linux



Oum Saokosal

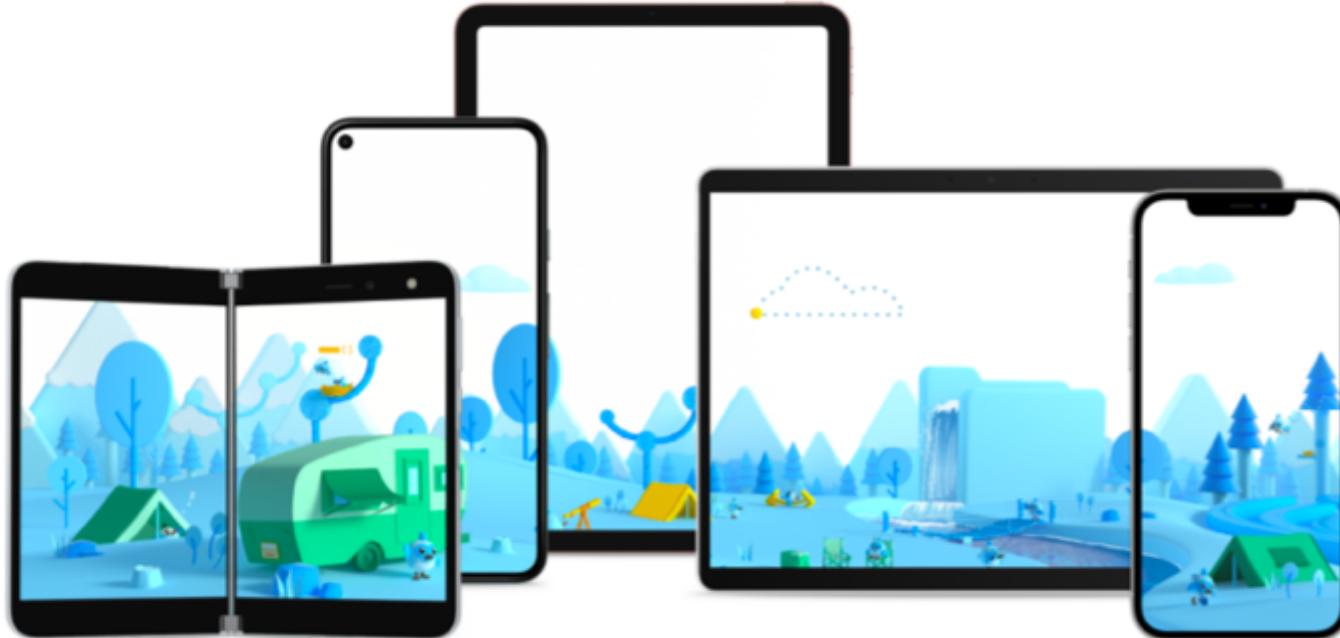
Master of Engineering in
Information Systems, South Korea
012 252 752 (Telegram)



Getting Started with Flutter

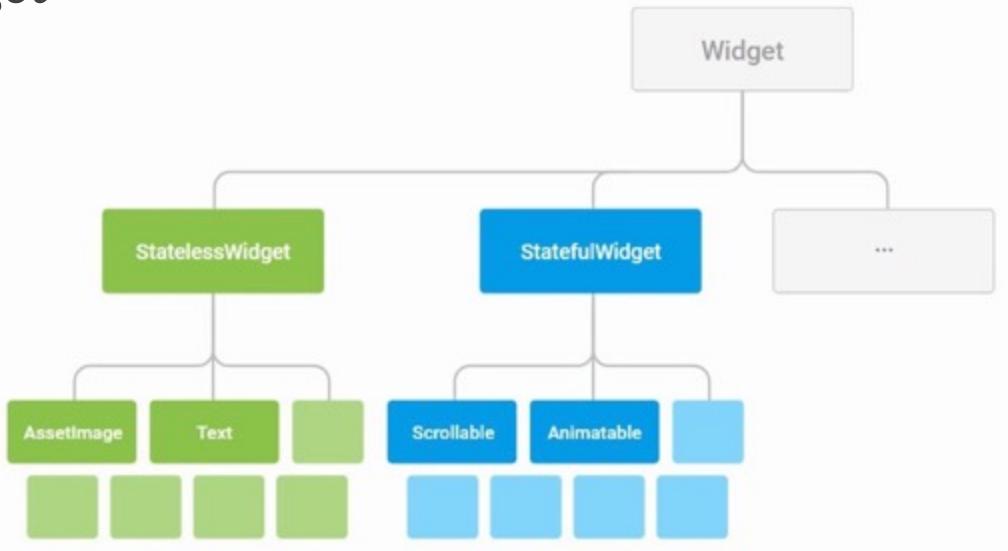
ហេតុអ្នកគ្រប់បាប់ប្រើ Flutter ?

- បង្កើតឡើងដោយ Google នាទី ២០១៧, Flutter គឺជា open source SDK ដែលសំរាប់សរស់រក្សាសម្រាតិជាលក្ខណៈអនុវត្តតិបត្តិការ (Cross Platform) លើ iOS និង Android។ បើនេនដើមឆ្នាំ ២០១៩នេះ Google បានបញ្ចប់ Flutter 2 ដែលភាពអាចបញ្ចប់ App សំរាប់ iOS, Android, Web ឯង និង Desktop App ឯង (MacOS, Windows និង Linux)។

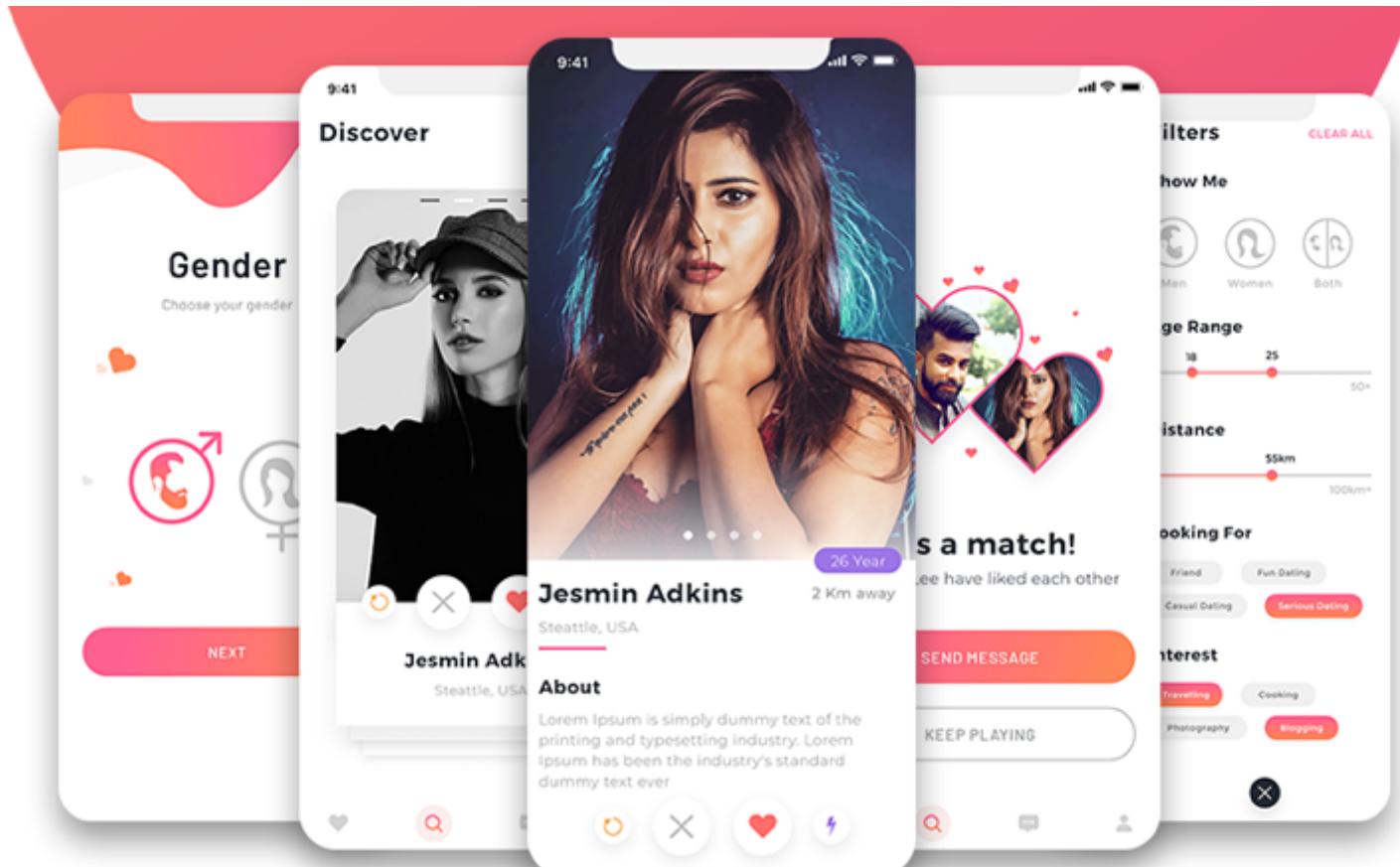


លក្ខណៈសម្រួលរបស់ Flutter

- អាចបង្កើត App ជាលក្ខណៈកូដដើម (native code) សំរាប់ iOS, Android, Web និង Desktop App (MacOS, Windows, Linux)
- ងាយស្រួលសរសើរកូដសំរាប់ UI ដែលប្រើទំនួរចនា Material Design ជាងកូដដើម
- មាន Hot reload ដែលអាចធ្វាស់ប្រចាំនុចក្នុងរាយការណ៍ ដោយមិនបាត់ rebuild
- អ្នកប័យាងគីជា Widget



អ្នកបែងចិត្ត Widget



ដំឡើង Flutter 2 លើ Windows 10

ដំឡើង Flutter លើ Windows 10

តម្រូវការ Hardware:

- យោងកិច Core i5
- យោងកិច RAM 8GB
- ថាំបាច់ត្រូវប្រើ Hard Disk ប្រភេទ SSD
- Support VT (Virtualization Technology)

តម្រូវការ Software:

1. Java JDK
 2. Git for Windows
 3. Flutter SDK
 4. Android Studio + Flutter plugin
ឬ Visual Studio Code + Flutter plugin
 5. Visual Studio 2019 + Desktop development with C++
- ចំណាំ: ត្រូវមាន internet ជាតាំបាច់ក្នុងពេលដំឡើង!



1. បច្ចុល JDK

- អាចចូល Google ហើយវាយពាក្យ JDK
- ចូលទៅទាញយក JDK ទៅតាម version
របស់ Windows (x86 ឬ 64)
- ធ្វើមីនីទាញយក JDK បាន រាជមន្តរអាយ

Login

- បន្ទាប់ពី download ហើយយើងអាចបច្ចុល
ដោយចូច Next Next Next



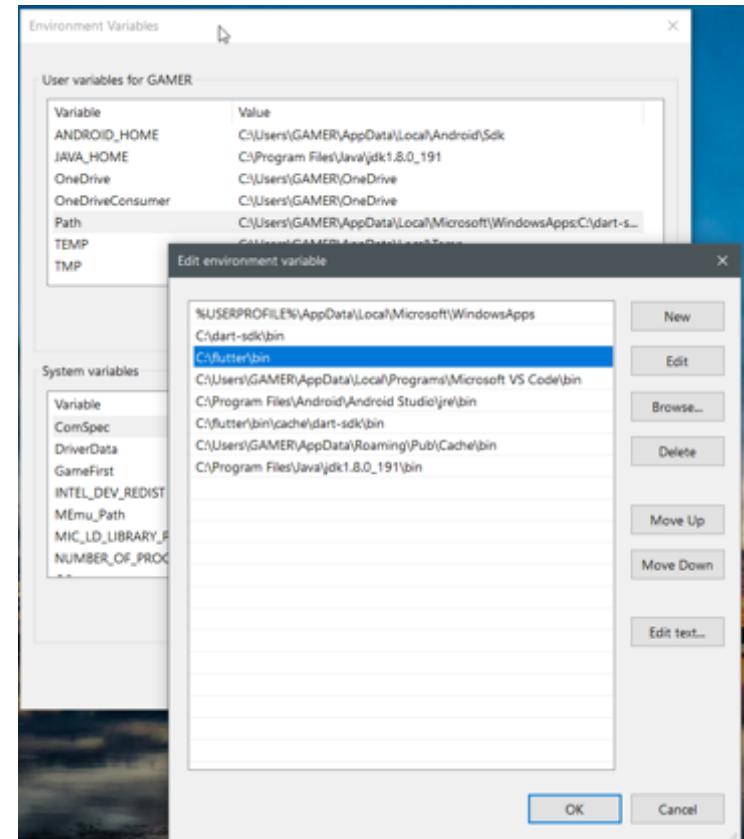
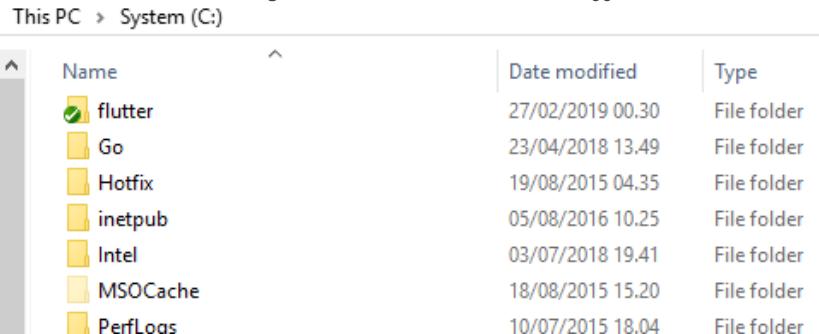
2. បញ្ចូល Git for Windows

- អាចចូល Google ហើយវាយពាក្យ Git for Windows
- ចូលទៅទាញយក Git for Windows ទៅតាម version របស់ Windows (x86 ឬ 64)
- បន្ទាប់ពី download ហើយយើងអាចបញ្ចូល ដោយចូច Next Next Next

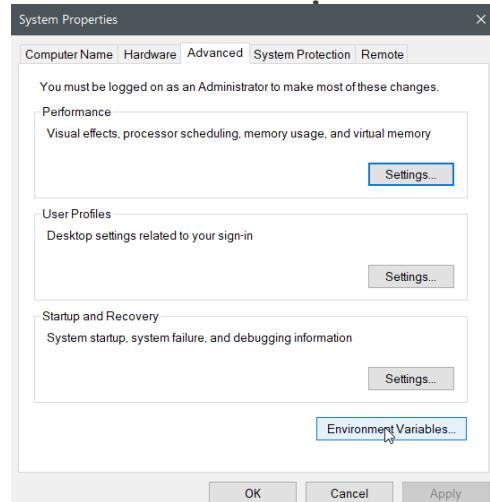


3. ដំឡើង Flutter SDK

1. Download Flutter ចេញពី <https://flutter.dev/docs/get-started/install>
2. Extract ដាក់ចូល Drive C (បញ្ចក់ Drive C ត្រូវតែជាសុទ្ធទិន្នន័យ)



3. ដាក់ path c:\flutter\bin ចូលក្នុង environment



4. Run CMD ក្រើយរាយ៖

```
flutter doctor
```

```
flutter doctor -v
```

5. ធានូទៅ Android ទាមទារអាយុ accept license:

```
flutter doctor --android-licenses
```

- Command flutter ដើរដីឡើតែៗ

- **Flutter --version**
- **flutter upgrade**
- **flutter clean**
- **flutter pub get**

ផ្លាស់មេណីលិន version

សំភាប់ upgrade flutter

សំភាប់ clean build file

សំភាប់ download package

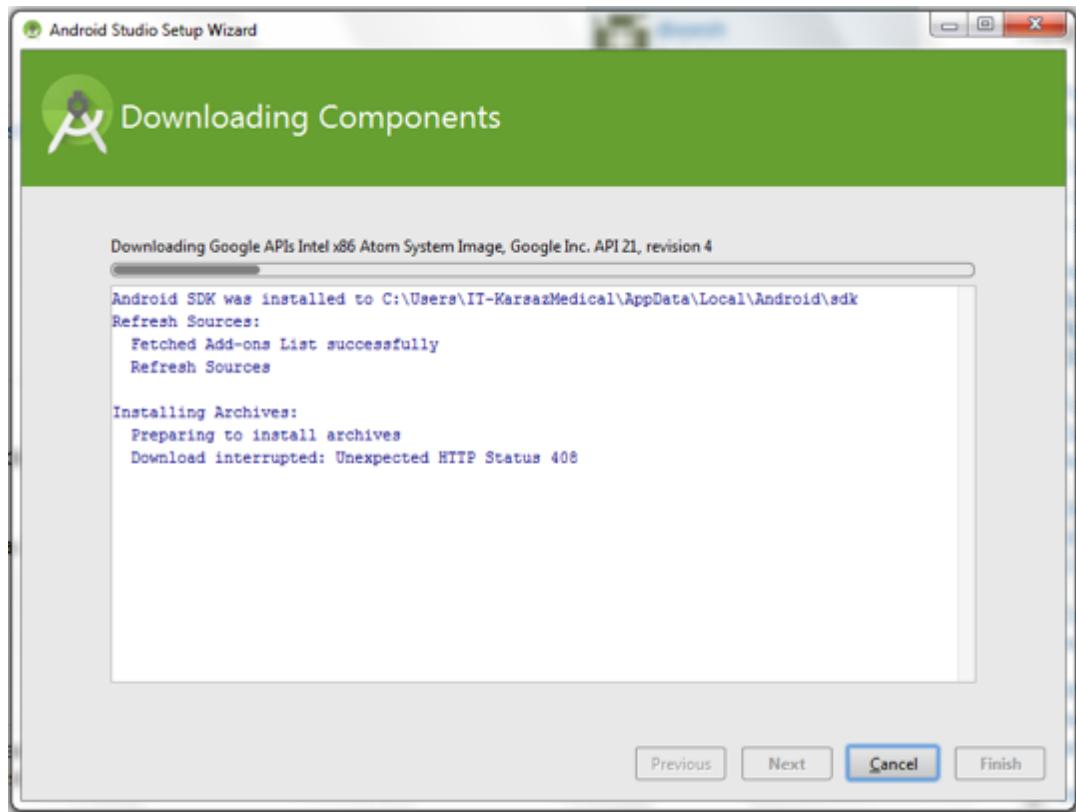
4. ដំឡើង Android Studio

1. Download Android Studio ចេញពី <https://developer.android.com/studio/>



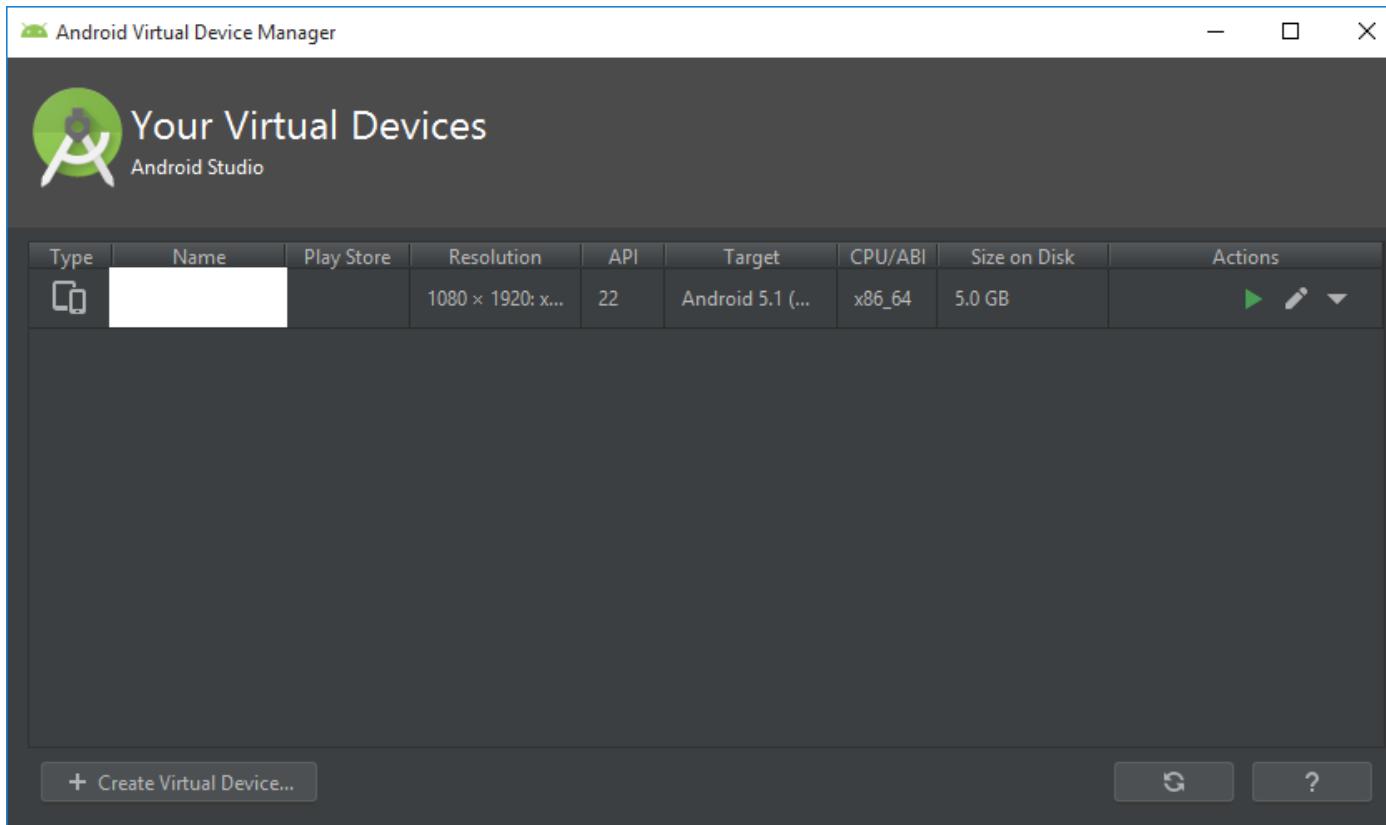
2. ចូច next, next ... ទាល់តែប៉ុណ្ណោះ
បញ្ជាក់ ពេល install គឺមានទារ Internet ដែលលើន ក្រោះត្រូវ download ត្រឹម GB

3. ពេលចាប់ធ្វើមែនបុងរានីងទាញយក component បន្ថែមទៀត

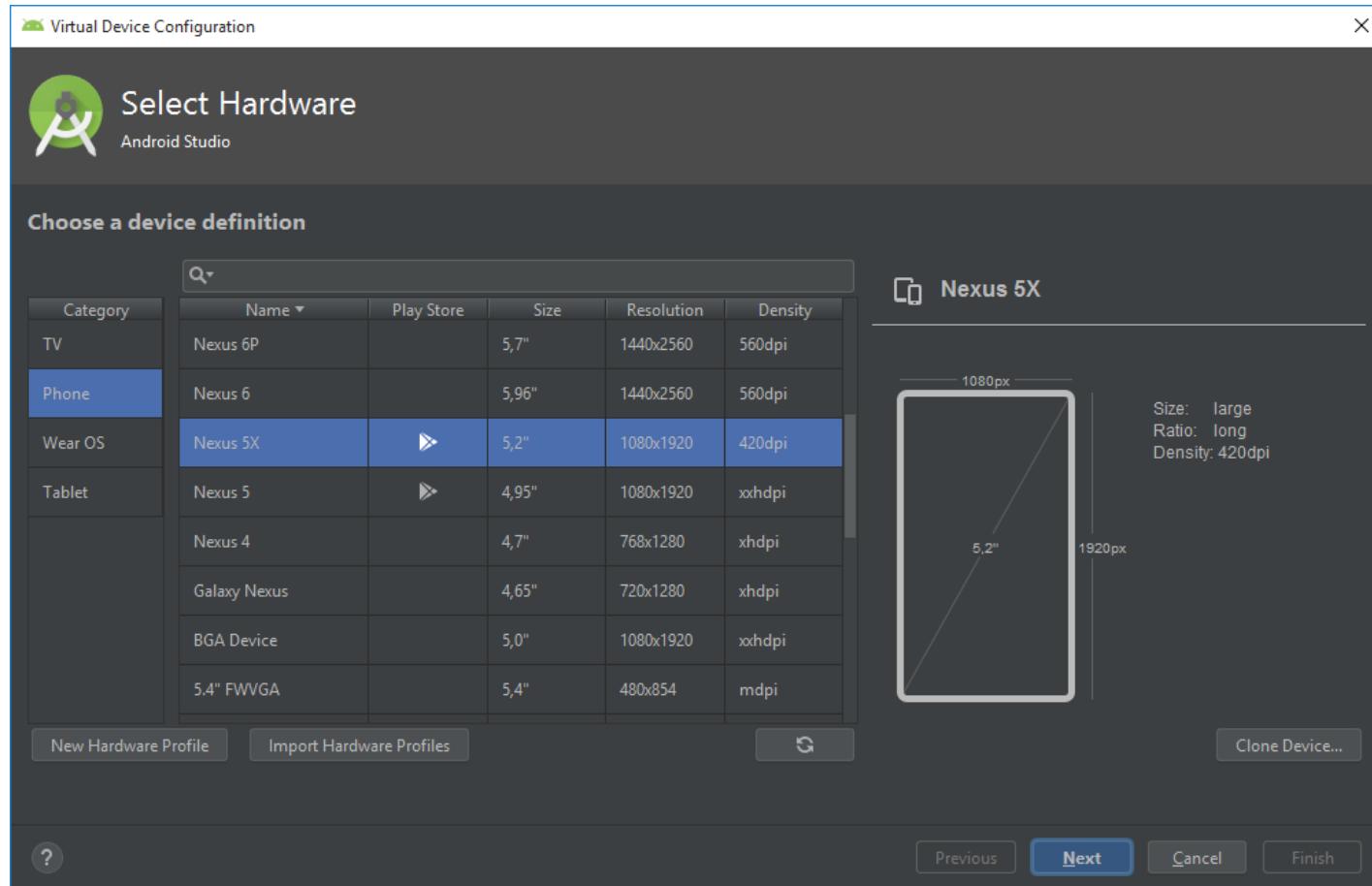


ដំឡើង Emulator

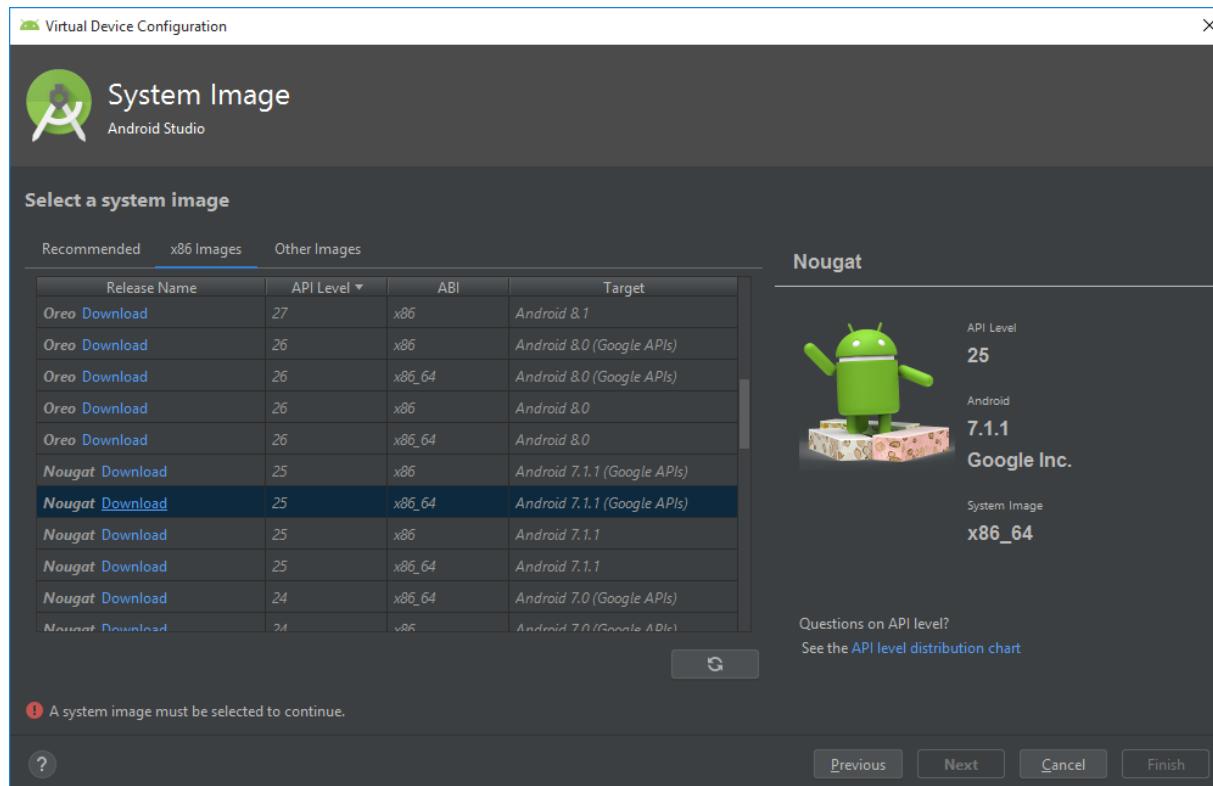
1. ប្រើពិន្ទុ Android Studio -> Tools -> Android -> AVD Manager -> Create Virtual Device.



2. នៅលើ Emulator ណាមួយ

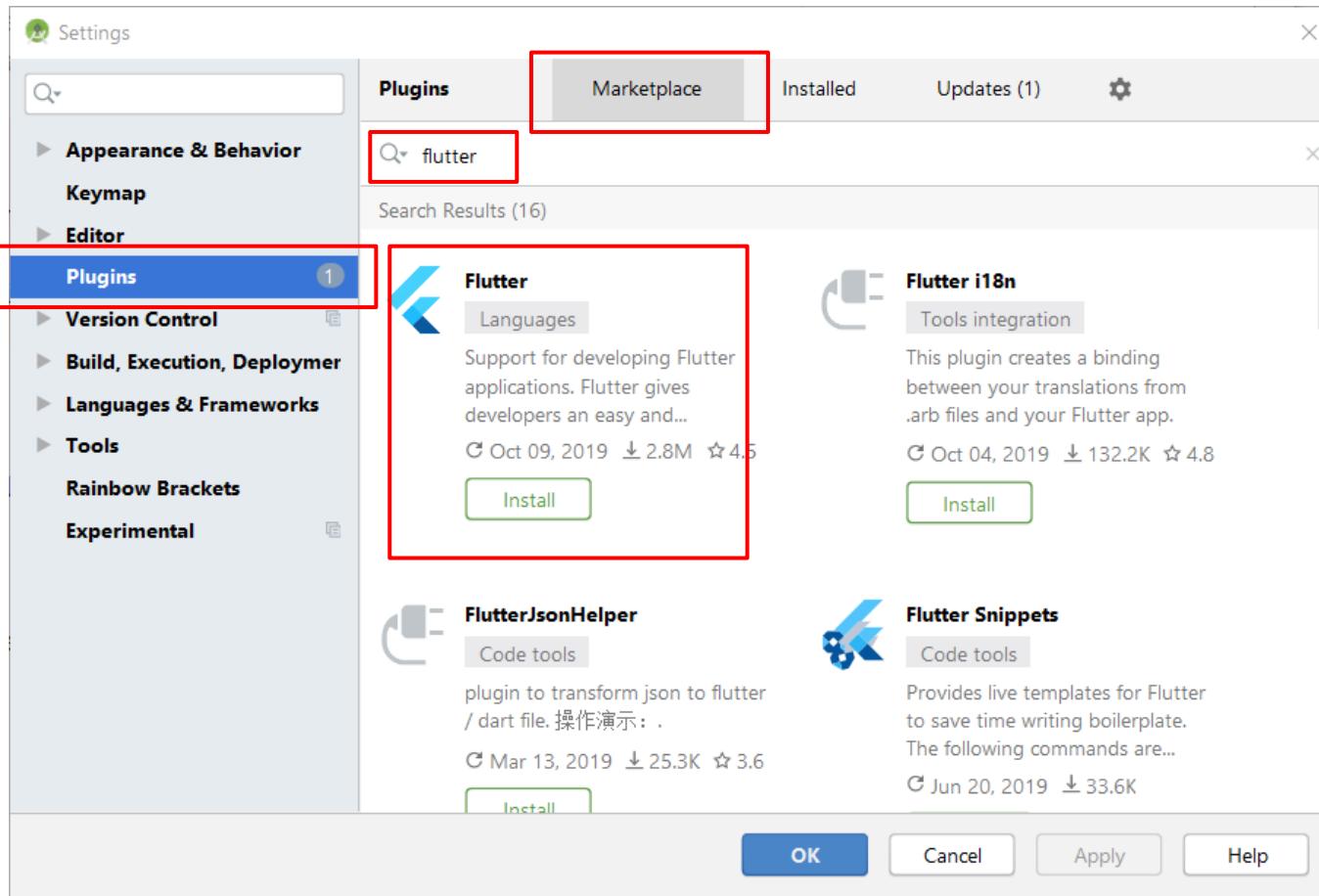


3. ស្ថិកនិសយក version Android ណាមួយដែលបង់តែស្ថិក (មកដល់ចំនួចនេះ ត្រូវ download មុនឡើត)



ដំឡើង Flutter plugin

- ចូច File menu -> Settings -> Plugin -> Marketsplace -> ភីយ flutter -> ចូច enter
- ផស្ត Flutter -> install -> Restart IDE



5. បញ្ចូល Visual Studio 2019 .

1. ចូលទៅ Google ហើយរាយពាក្យ Visual Studio 2019 Community
2. ទាញយកហើយចូច Install
3. ពេល Install ត្រូវអែសយក Option: Desktop development with C++



Modifying — Visual Studio Professional 2019 — 16.3.4

Workloads Individual components Language packs Installation locations

Web & Cloud (4)

- ASP.NET and web development Build web applications using ASP.NET Core, ASP.NET, HTML/JavaScript, and Containers including Docker support.
- Azure development Azure SDKs, tools, and projects for developing cloud apps and creating resources using .NET Core and .NET...
- Python development Editing, debugging, interactive development and source control for Python.
- Node.js development Build scalable network applications using Node.js, an asynchronous event-driven JavaScript runtime.

Windows (3)

- .NET desktop development Build WPF, Windows Forms, and console applications using C#, Visual Basic, and F# with .NET Core and .NET...
- Desktop development with C++ Build modern C++ apps for Windows using tools of your choice, including MSVC, Clang, CMake, or MSBuild.
- Universal Windows Platform development Create applications for the Universal Windows Platform with C#, VB, or optionally C++.

Location
C:\Program Files (x86)\Microsoft Visual Studio\2019\Professional

Installation details

> Visual Studio core editor

✓ Desktop development with C++ *

Included

- ✓ C++ core desktop features

Optional

- ✓ MSVC v142 - VS 2019 C++ x64/x86 build tools (...)
- ✓ Windows 10 SDK (10.0.18362.0)
- ✓ Just-In-Time debugger
- ✓ C++ profiling tools
- ✓ C++ CMake tools for Windows
- ✓ C++ ATL for latest v142 build tools (x86 & x64)
- ✓ Test Adapter for Boost.Test
- ✓ Test Adapter for Google Test
- ✓ Live Share
- ✓ IntelliCode
- C++ MFC for latest v142 build tools (x86 & x64)
- C++/CLI support for v142 build tools (14.23)
- C++ Modules for v142 build tools (x64/x86 – ex...)
- C++ Clang tools for Windows (8.0.1 - x64/x86)
- Incredibuild - Build Acceleration

Total space required 1.24 GB

Install while downloading ▾ Modify

By continuing, you agree to the [License](#) for the Visual Studio edition you selected. We also offer the ability to download other software with Visual Studio. This software is licensed separately, as set out in the [3rd Party Notices](#) or in its accompanying license. By continuing, you also agree to those licenses.

ជំនេរិយ្យFlutter 2 លើ Mac OS

ដំឡើង Flutter លើ Mac OS

ការ Hardware:

- យោងតិច Core i5
- យោងតិច RAM 8GB
- ថាំបាថ់ត្រូវបី Hard Disk ប្រភេទ SSD

ការ Software:

- Java SDK
- HomeBrew
- Ruby Gem
- CocoaPods
- Flutter SDK
- Xcode
- Android Studio + Flutter plugin

ចំណាំ: ត្រូវមាន internet ជាតាំបាថ់ក្នុងពេលដំឡើង!



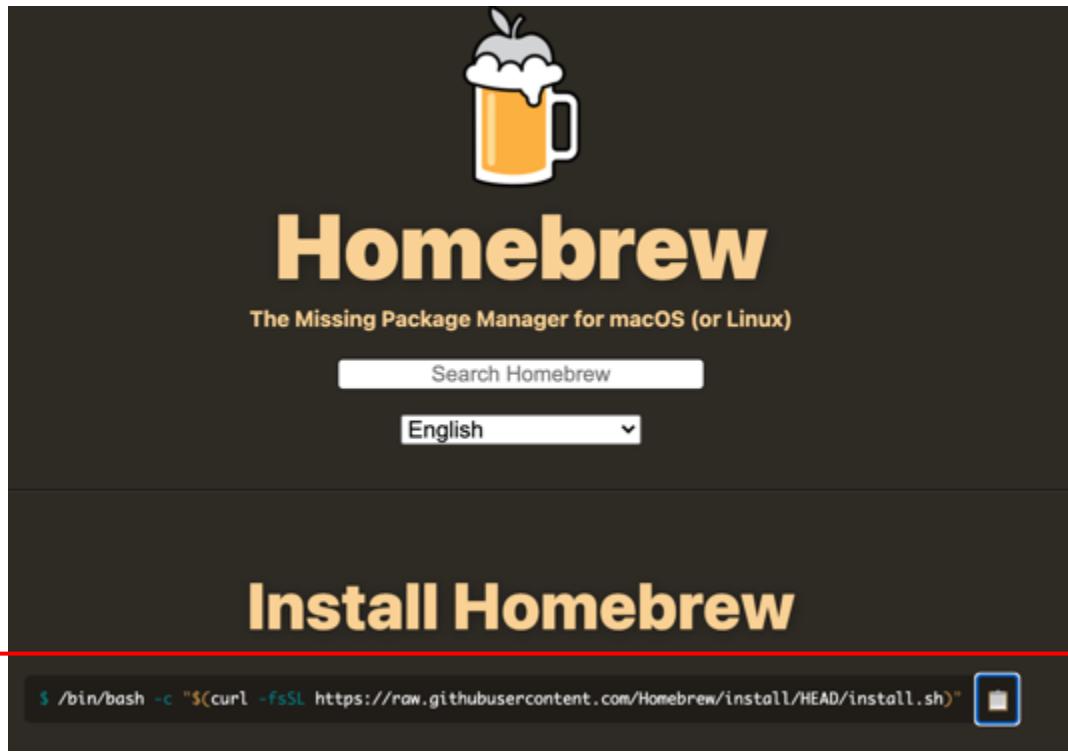
1. បច្ចុល JDK

- អាចចូល Google ហើយវាយពាក្យ JDK
- ចូលទៅទាញយក JDK ទៅតាម version
របស់ MacOS
- ធ្វើមីនីទាញយក JDK បាន វាតាមទាមអាយ
Login
- បន្ទាប់ពី download ហើយយើងអាចបច្ចុល
ដោយចូច Next Next Next

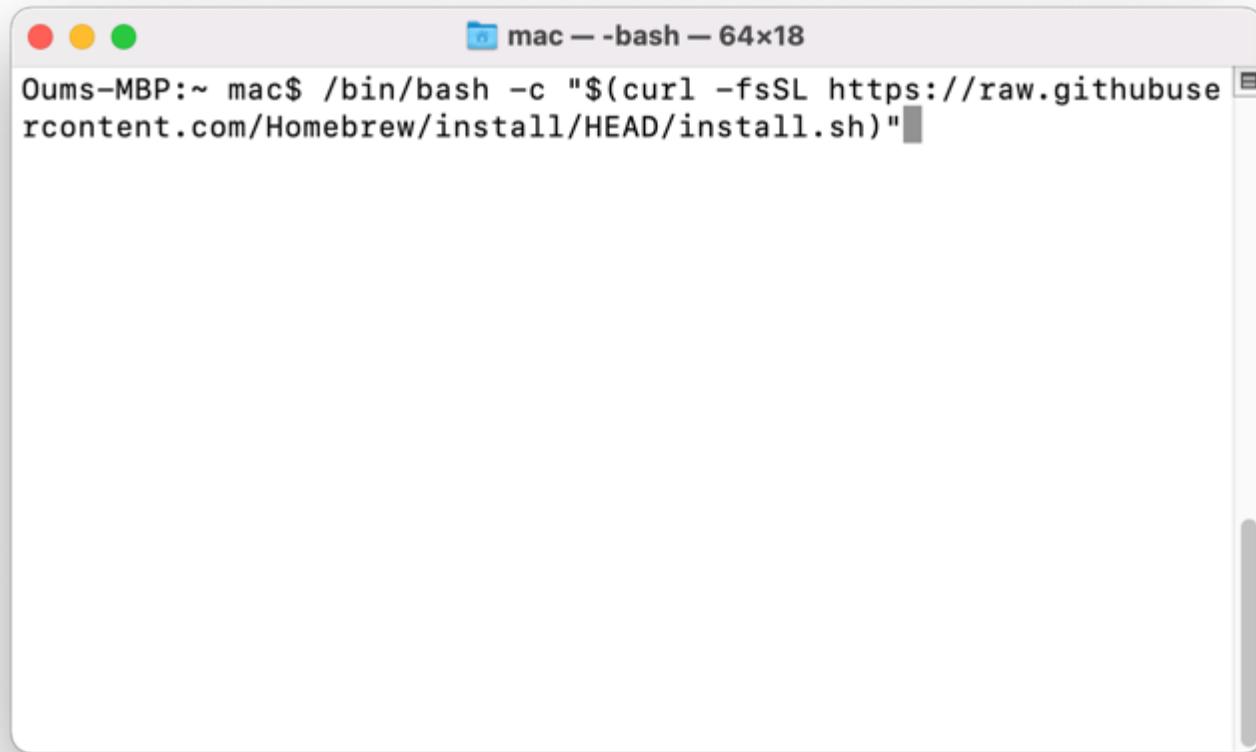


2. បញ្ចប់ HomeBrew

- ចូល <https://brew.sh/> ដើម្បីទូទាត់ copy code មក install Homebrew ក្នុង Terminal:



- Install Homebrew:



```
Oums-MBP:~ mac$ /bin/bash -c "$(curl -fsSL https://raw.githubusercontent.com/Homebrew/install/HEAD/install.sh)"
```

3. បញ្ចូល Ruby Gem

- ចូល <https://rubygems.org/pages/download>

ធ្វើម្រឿន copy code មក install Ruby Gem

ក្នុង Terminal:

```
sudo gem update --system
```



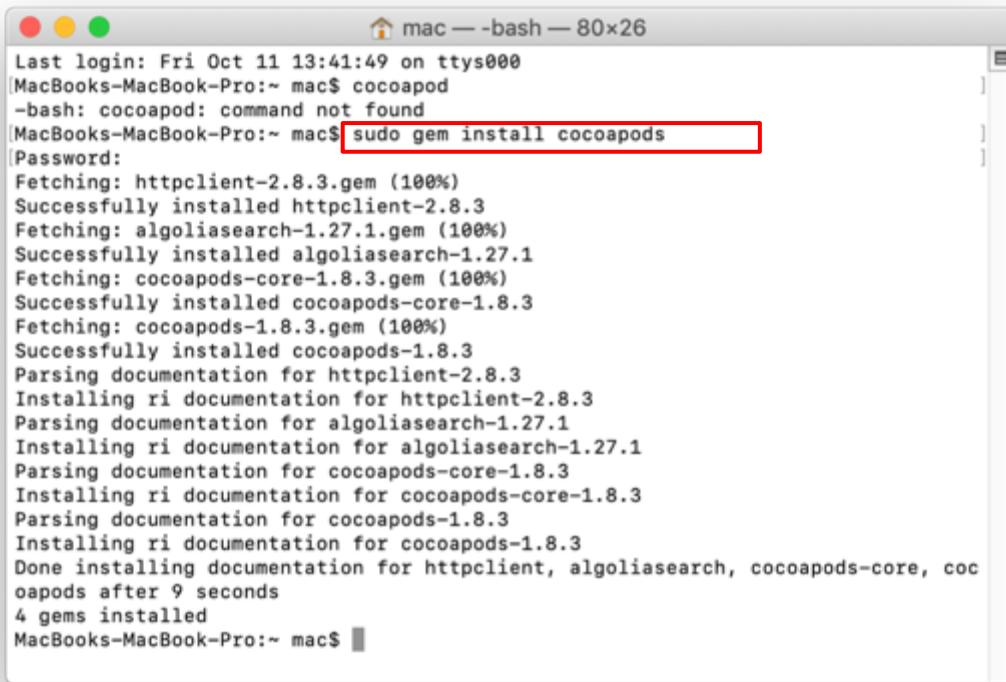
4. ដំឡើង CocoaPods

- ចូល download ឲក CocoaPods តិ <https://cocoapods.org/>

```
sudo gem install cocoapods
```

- បើក terminal រាយ command ខាងក្រោម និងជាក់

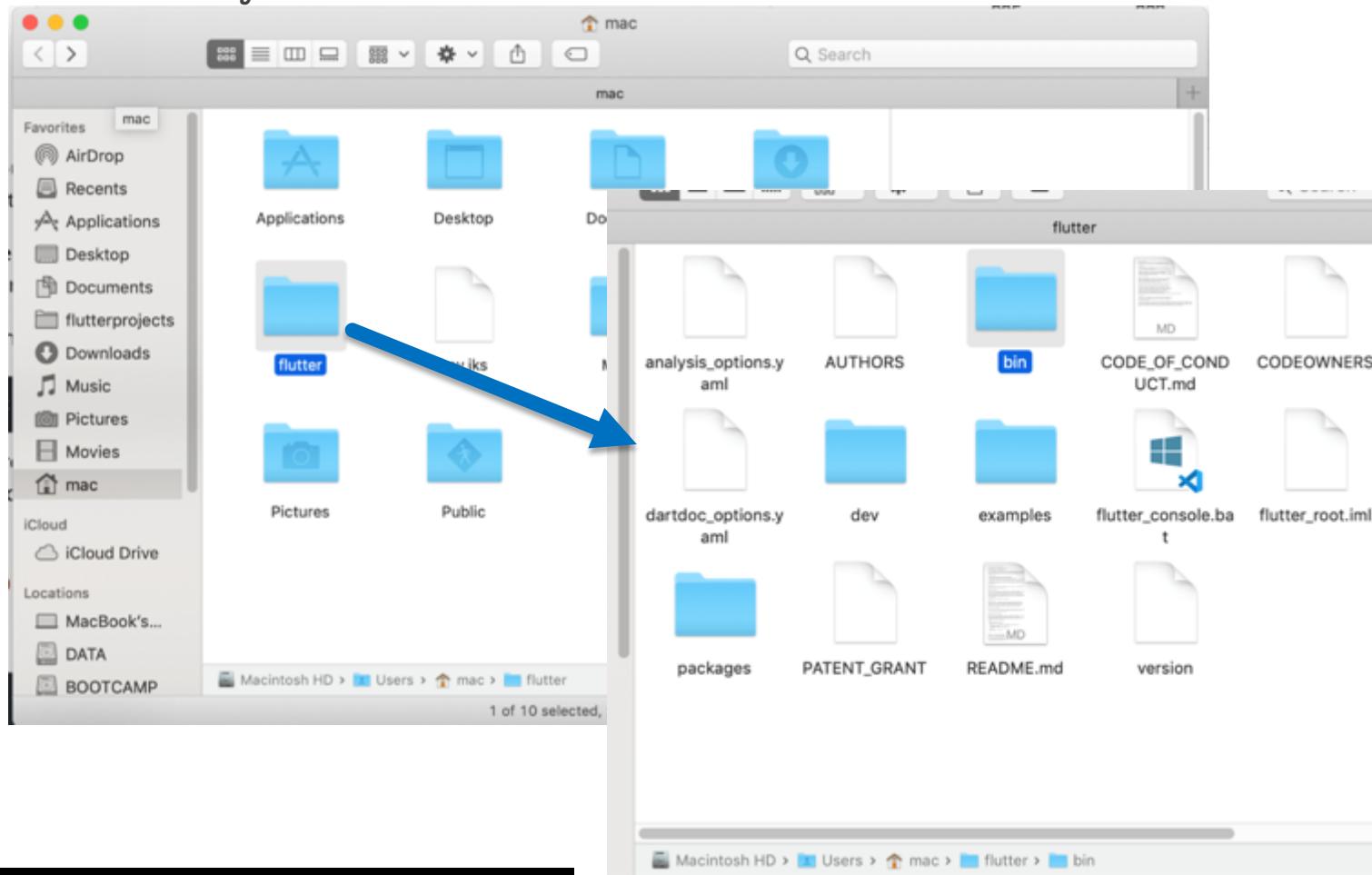
password មាសុំ



```
mac — -bash — 80x26
Last login: Fri Oct 11 13:41:49 on ttys000
MacBooks-MacBook-Pro:~ mac$ cocoapod
-bash: cocoapod: command not found
MacBooks-MacBook-Pro:~ mac$ sudo gem install cocoapods
Password:
Fetching: httpclient-2.8.3.gem (100%)
Successfully installed httpclient-2.8.3
Fetching: algoliasearch-1.27.1.gem (100%)
Successfully installed algoliasearch-1.27.1
Fetching: cocoapods-core-1.8.3.gem (100%)
Successfully installed cocoapods-core-1.8.3
Fetching: cocoapods-1.8.3.gem (100%)
Successfully installed cocoapods-1.8.3
Fetching: cocoapods-1.8.3
Parsing documentation for httpclient-2.8.3
Installing ri documentation for httpclient-2.8.3
Parsing documentation for algoliasearch-1.27.1
Installing ri documentation for algoliasearch-1.27.1
Parsing documentation for cocoapods-core-1.8.3
Installing ri documentation for cocoapods-core-1.8.3
Parsing documentation for cocoapods-1.8.3
Installing ri documentation for cocoapods-1.8.3
Done installing documentation for httpclient, algoliasearch, cocoapods-core, cocoapods after 9 seconds
4 gems installed
MacBooks-MacBook-Pro:~ mac$
```

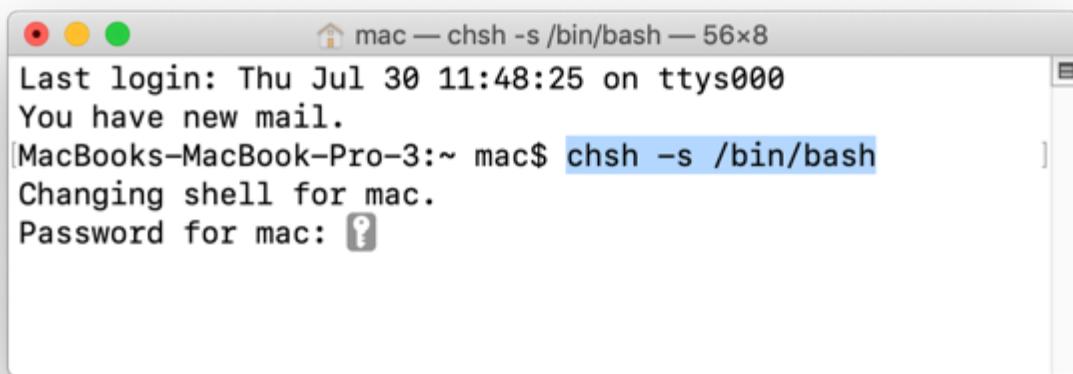
5. ដំឡើង Flutter SDK

1. Download Flutter ចេញពី <https://flutter.dev/docs/get-started/install/macos>
2. Extract ដាក់ចូល folder User



ចំណោះ macOS Catalina

- ករណីដែលយើងកំពុងប្រើ macOS Catalina, នៅ: Terminal របស់យើង អាចប្រើ Zsh shell។ ដូច្នេះយើងត្រូវប្រើមក Bash Shell វិញ ទឹកបងាយស្ថិត ប្រើជាង។
- ធើម្យប្បាតិ Zsh មក Bash គឺស្ម័គ្រាយ cmd ខាងក្រោម៖
`chsh -s /bin/bash`

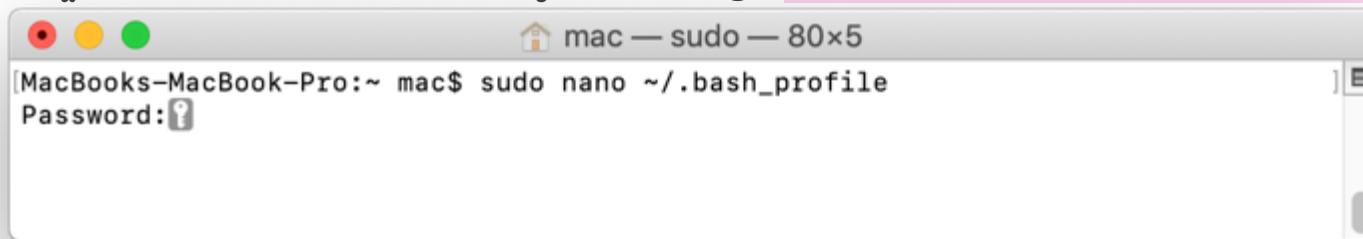


A screenshot of a macOS Terminal window titled "mac — chsh -s /bin/bash — 56x8". The window shows the following text:
Last login: Thu Jul 30 11:48:25 on ttys000
You have new mail.
[MacBooks-MacBook-Pro-3:~ mac\$ chsh -s /bin/bash
Changing shell for mac.
Password for mac: [key icon]

ស្ម័គ្រាយ password របស់ម៉ាសីនឯង។ ពេលកែហើយ ស្ម័គ្រាយបិទ Terminal ហើយបើកវាទ្វើងវិញ។

3. ជាក់ flutter/bin/ ចូលទៅ path

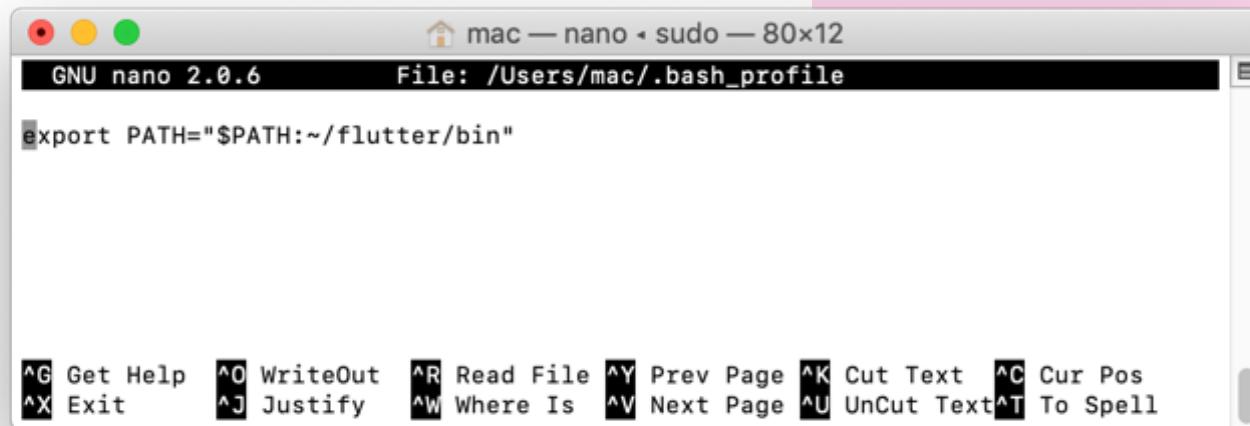
3.1. គ្រជាក់ path អាយុយជាប់រហូត ដោយប្រើ sudo nano ~/.bash_profile



3.2. វ្រចាក់យបញ្ញលិន password មាសីនយើងបើមាន

(បញ្ចក់ ពេលវ័យ password គីវិមិនលោកជាយុងចេញទេ)

3.3. ពេលចូល nano កើត យើងវាយពាក្យ export PATH="\$PATH:~/flutter/bin"



4. Run CMD ក្រើយរៀង៖

```
flutter doctor
```

```
flutter doctor -v
```

5. ជាន់ទៅ Android ទាមទារអាយុ accept license:

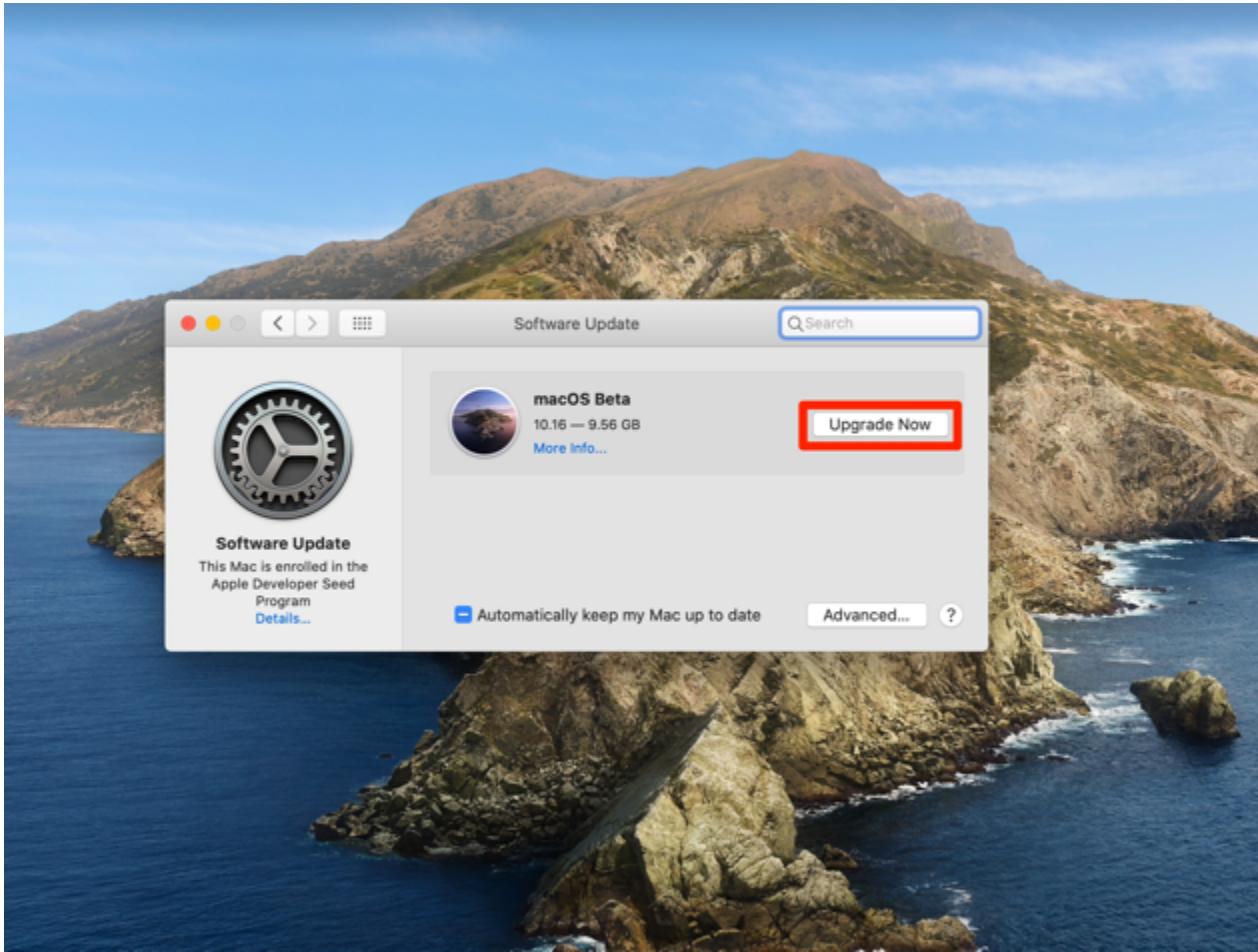
```
flutter doctor --android-licenses
```

6. ដំឡើង XCode

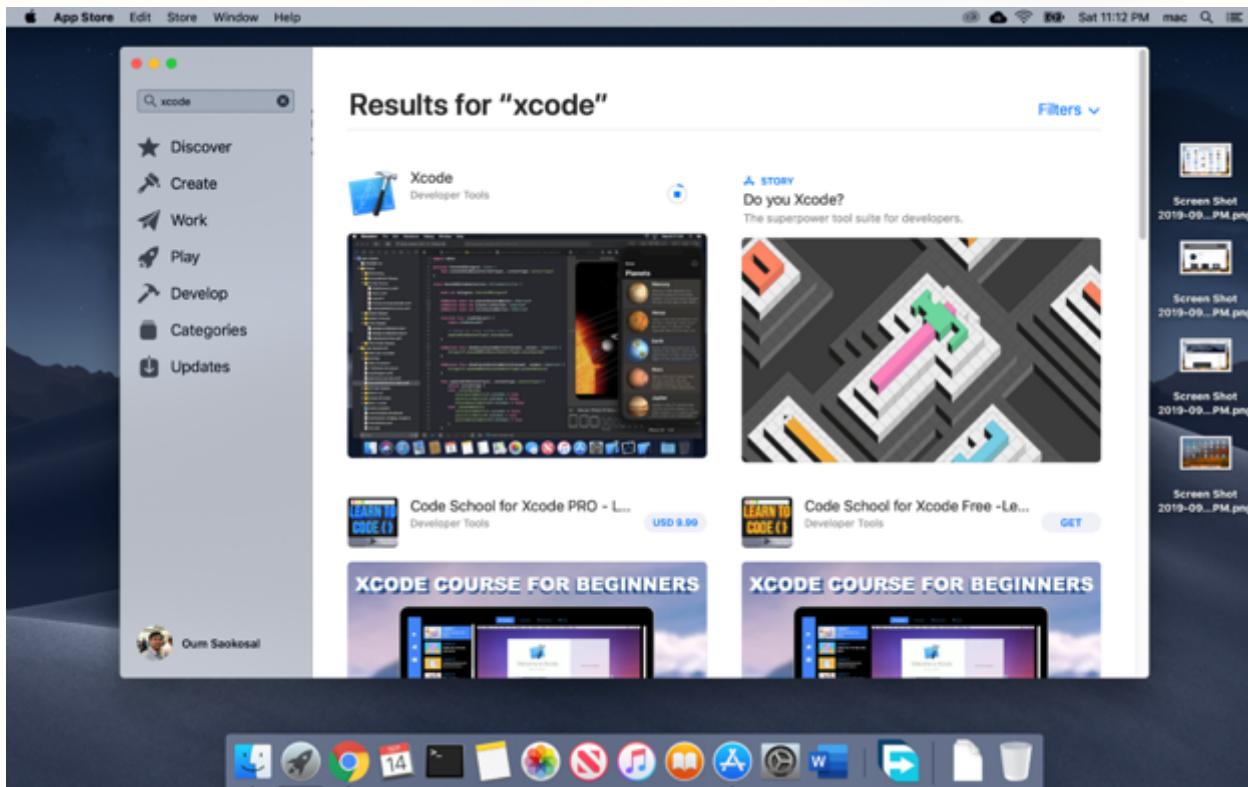
1. យោងត្រូវមាន Apple Account សិន មុននឹងអាច download XCode បាន
2. មុនដំឡើង XCode ត្រូវតែ update MacOS សិន។ បើមិន update ទេ យើងនឹងយើង error ដូចខាងក្រោម៖



3. Update MacOS



4. បន្ទាប់ពី update MacOS រួចហើយ អាចចូលទៅ download XCode ពី AppStore



ត្រូវដែងចាំមិនកិចជាងខេះដែងទេ អាចបើកទុកកិចចានា download តាមមួយយប់!!!

7. ដំឡើង Android Studio

1. Download Android Studio ចេញពី <https://developer.android.com/studio/>



2. ទាញជាក់ចូល Application

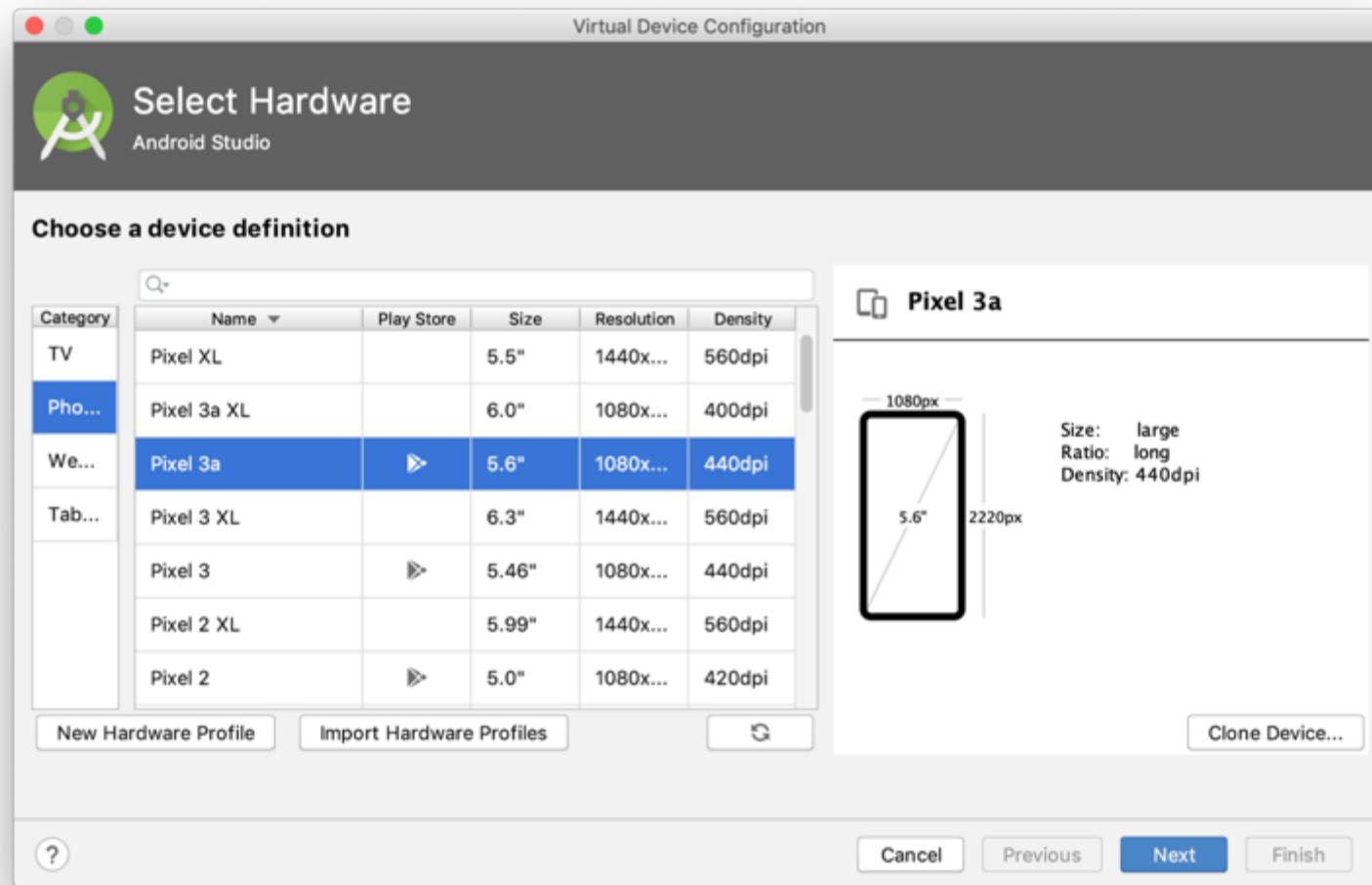
បញ្ជាក់ ពេល install គឺមានទាន Internet ដែលលើន ត្រូវ download ត្រឹម GB

ដំឡើង Emulator

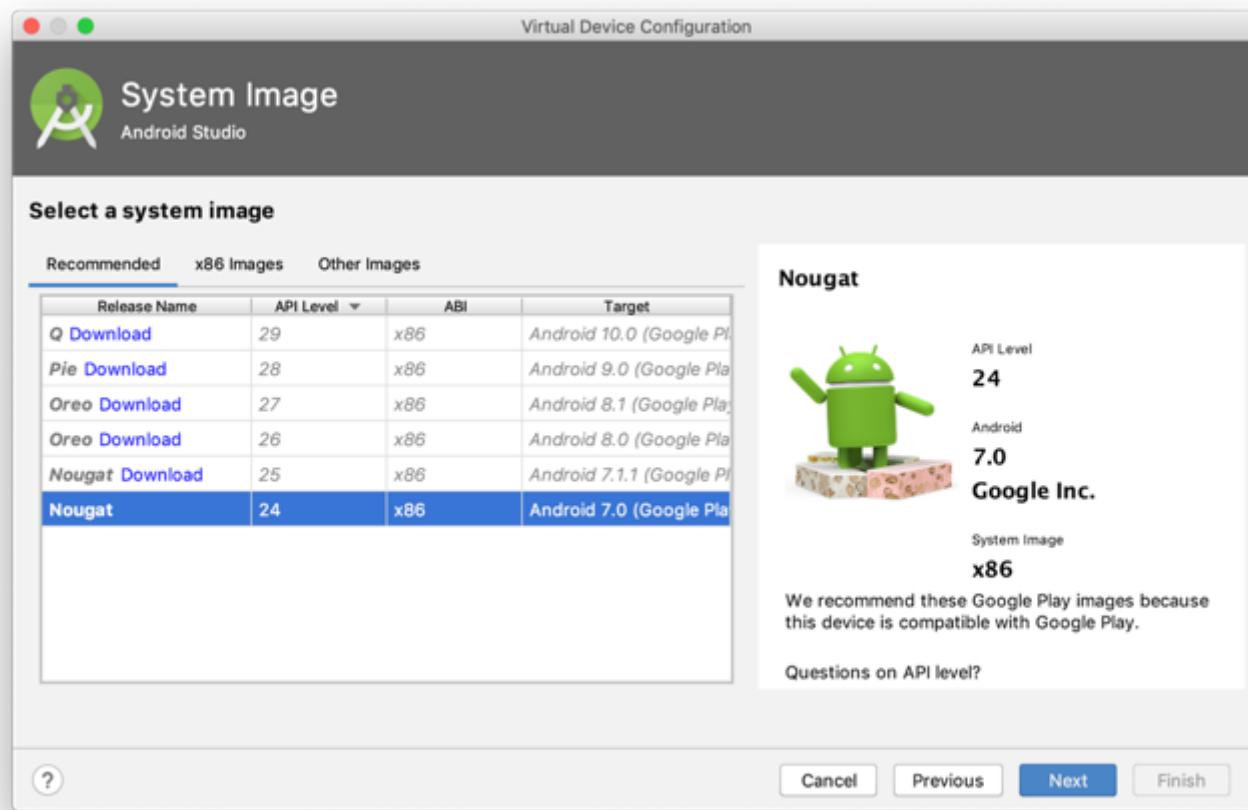
1. ប្រើពិន្ទុ Android Studio -> Tools -> Android -> AVD Manager -> Create Virtual Device.



2. ផ្លូវយក Emulator លាងមួយ

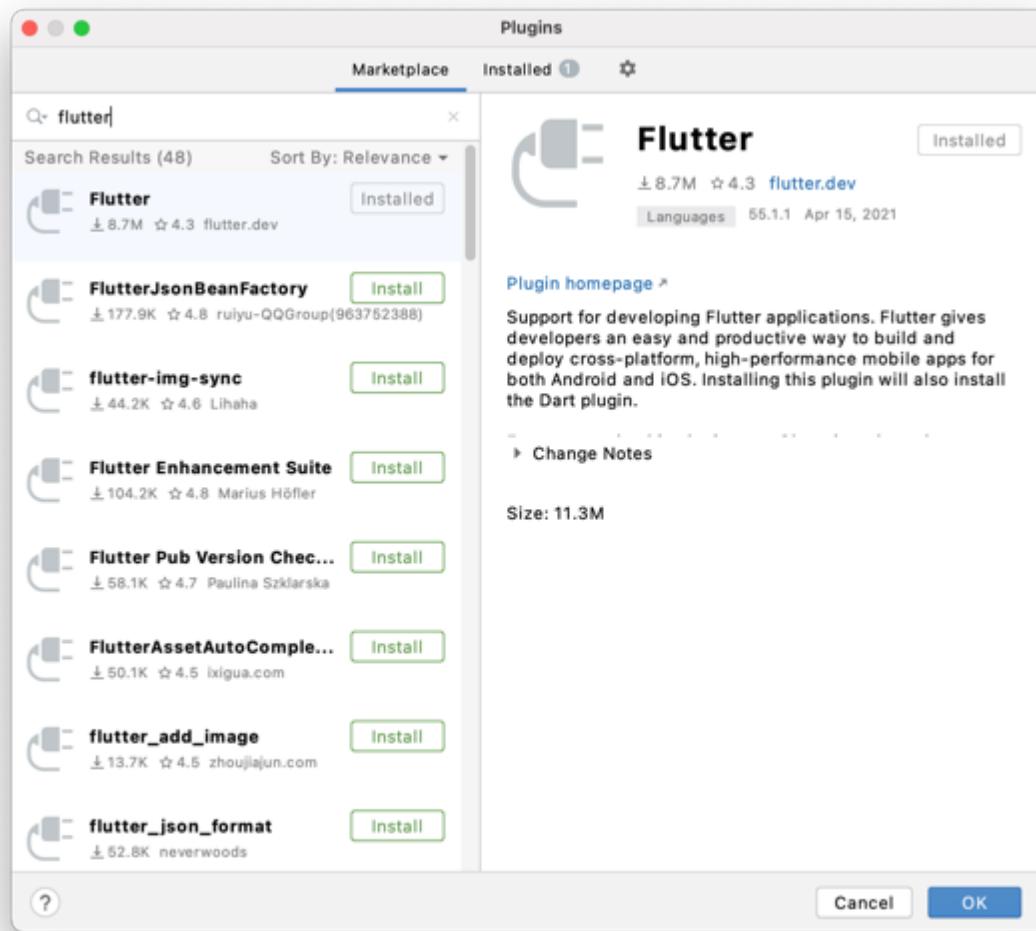


3. សូមនៅលើក version Android ណាមួយដែលបង្កែតស្ថិត (មកដែលចំនួចនេះ ត្រូវ download មុនឡើត)



ដំឡើង Flutter plugin

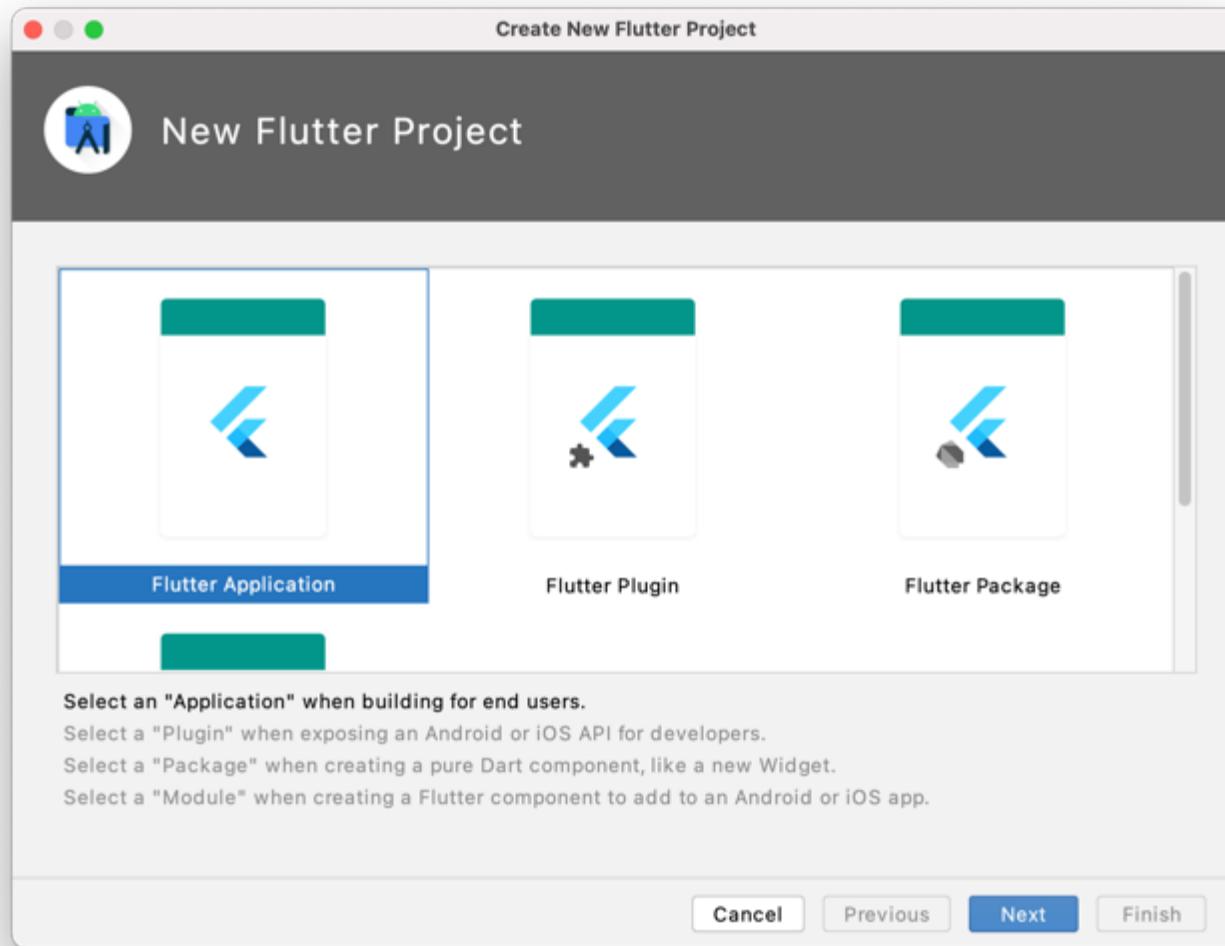
- ចូច Android Studio -> Preferences -> Plugin -> Marketplace -> ស្លាក flutter -> ចូច enter
- ផ្តល់Flutter -> install -> Restart IDE



បង្កើត Project

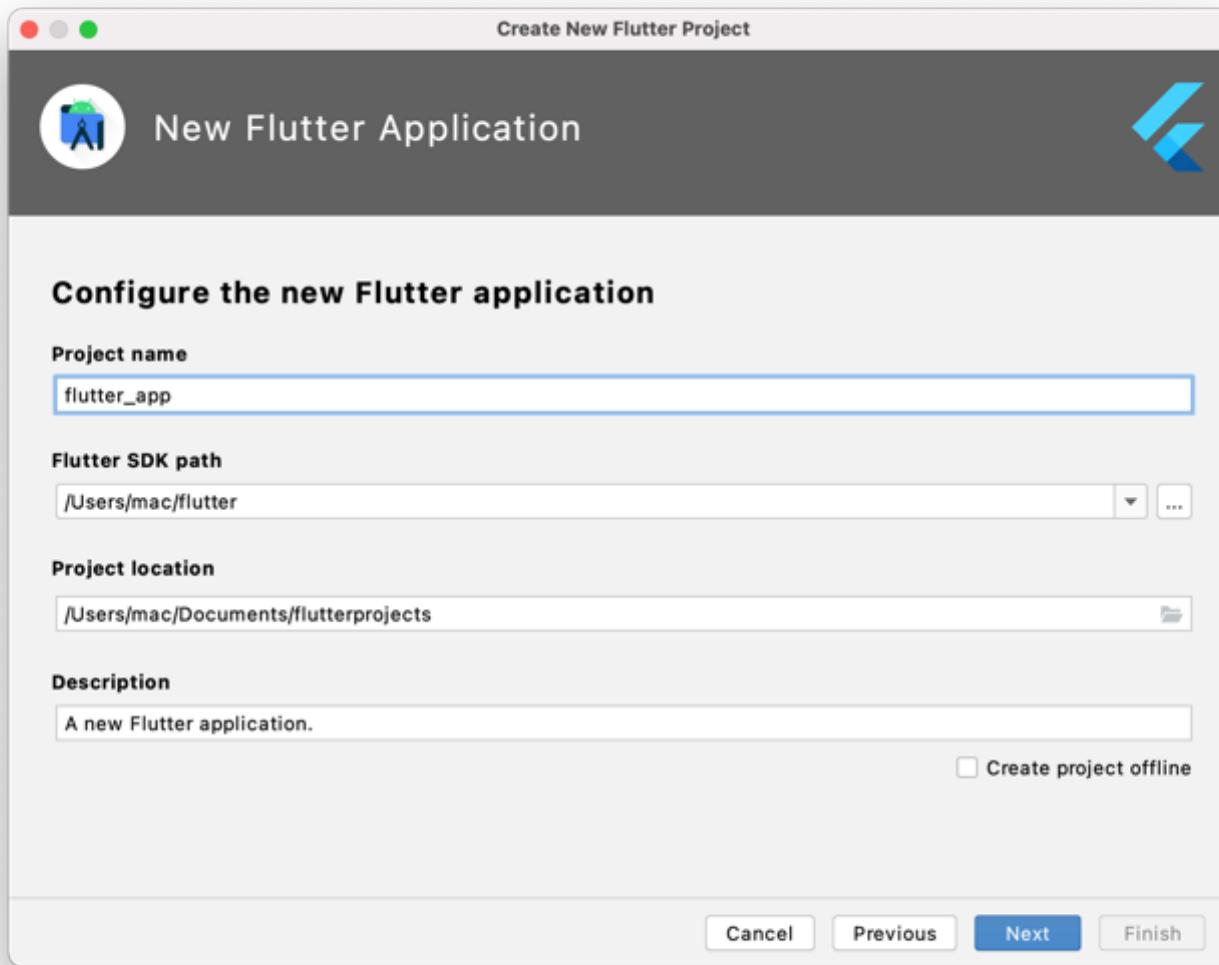
បង្កើត Flutter project

1. File -> New -> New Flutter Project -> Flutter Application -> Next

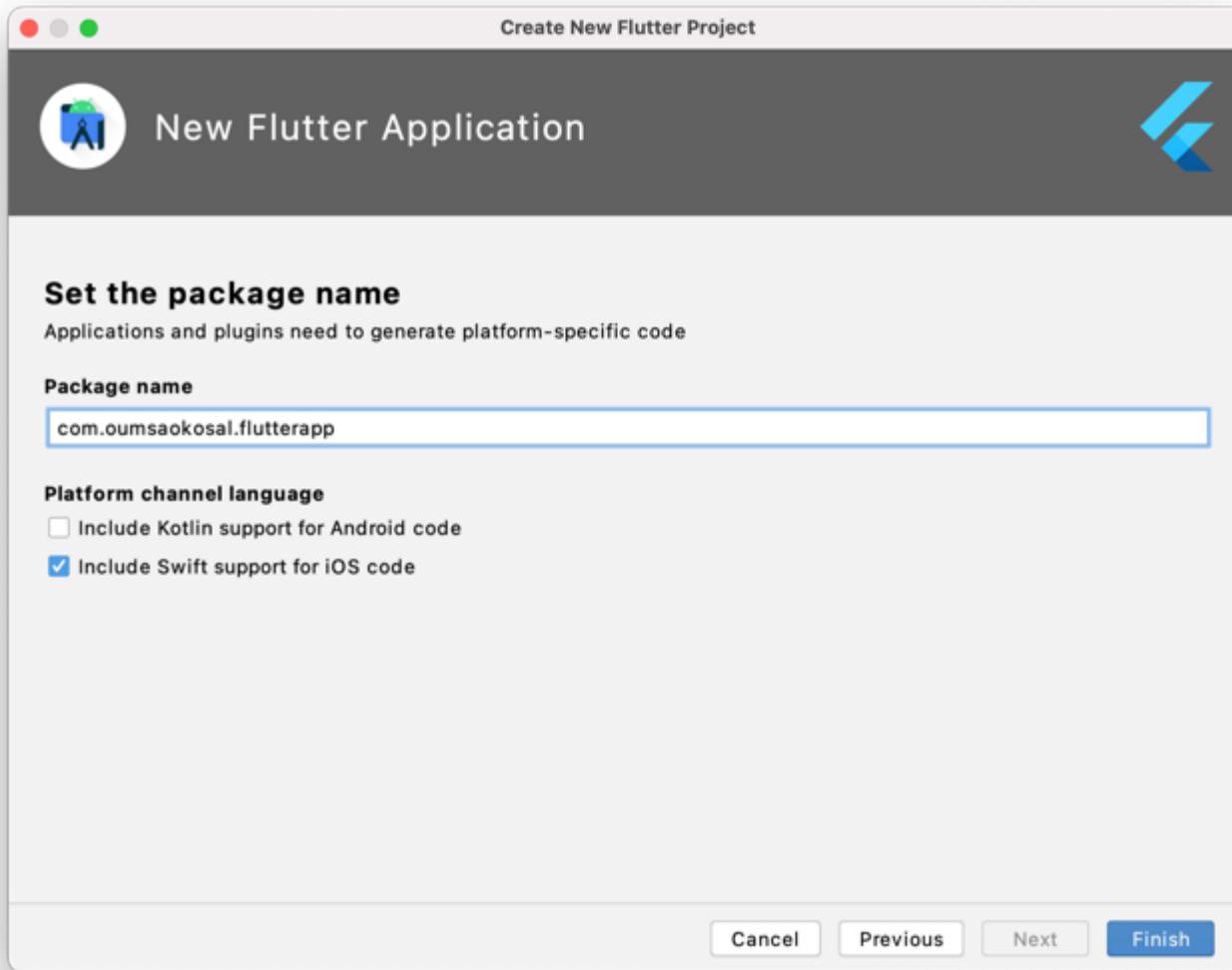


2. project name -> ຜົນ flutter SDK path -> project location ->

Next



3. ជាក់ company domain -> ធ្វើកែវកិត include Kotlin -> Finish





A screenshot of an IDE (Android Studio) showing a Flutter project named "flutter_app". The main.dart file is open in the editor. The code defines the application's entry point and its root widget.

```
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,
      ),
      home: MyHomePage(title: 'Flutter Demo Home Page'),
    );
}

class MyHomePage extends StatefulWidget {
  MyHomePage({Key key, this.title}) : super(key: key);
}
```

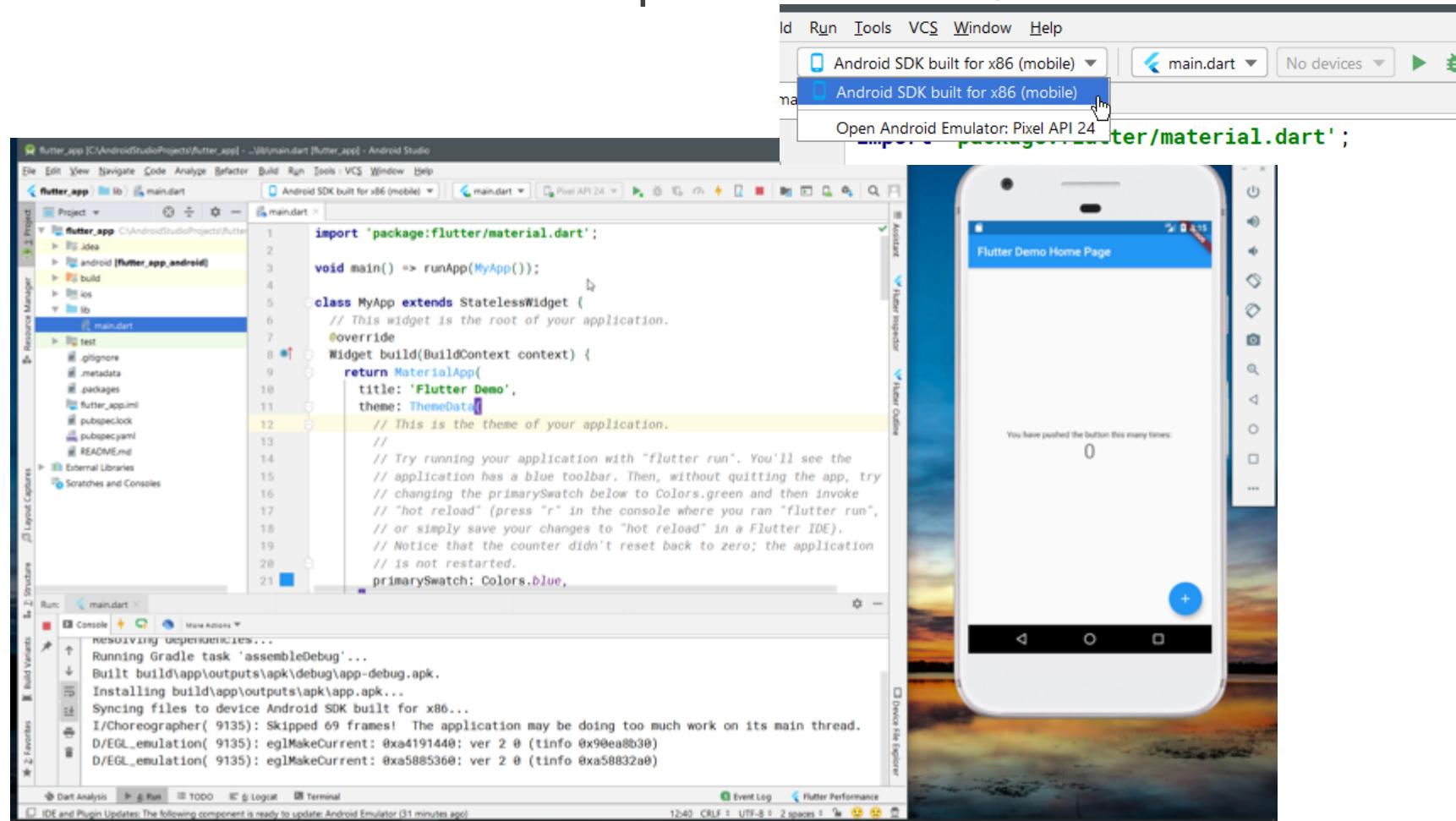
The IDE interface includes a Project tree on the left, a toolbar at the top, and various inspection and analysis tools along the bottom.



Run Flutter 2 บน Windows

Run ជាមួយនឹង Android Emulator

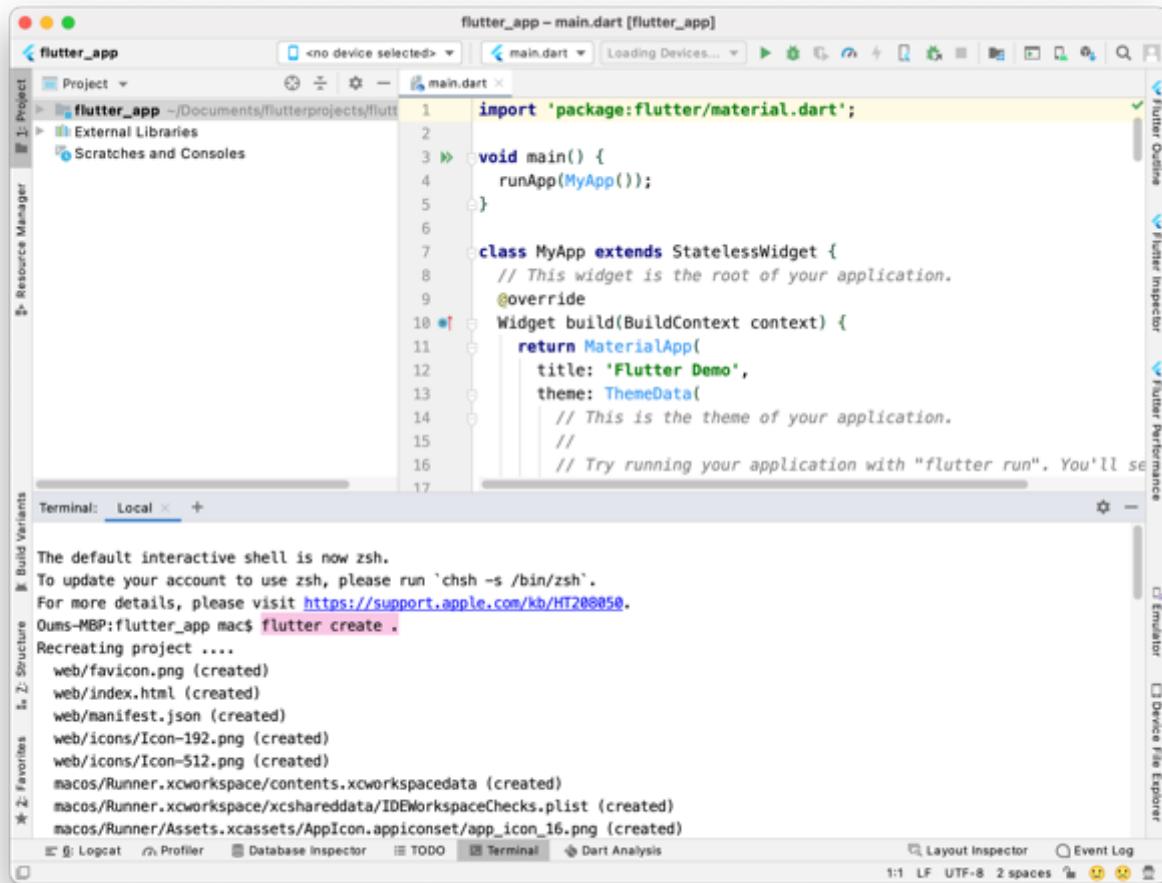
- ផ្តល់ឈ្មោះ emulator -> ចូច button play



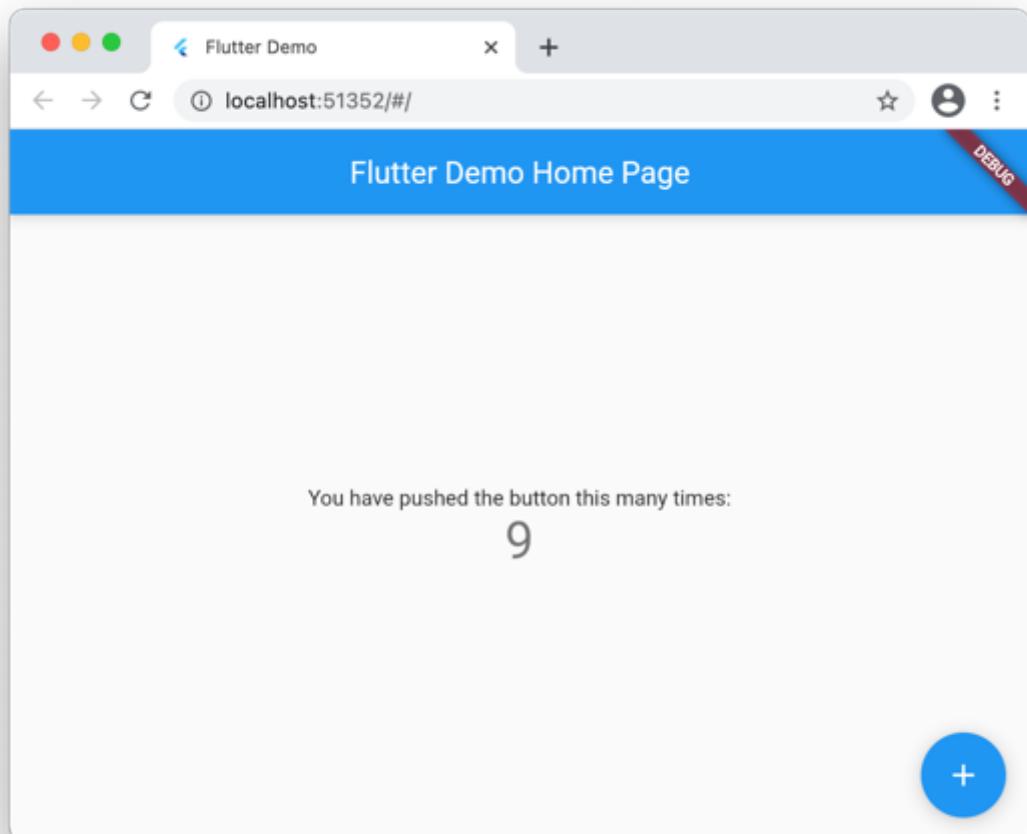
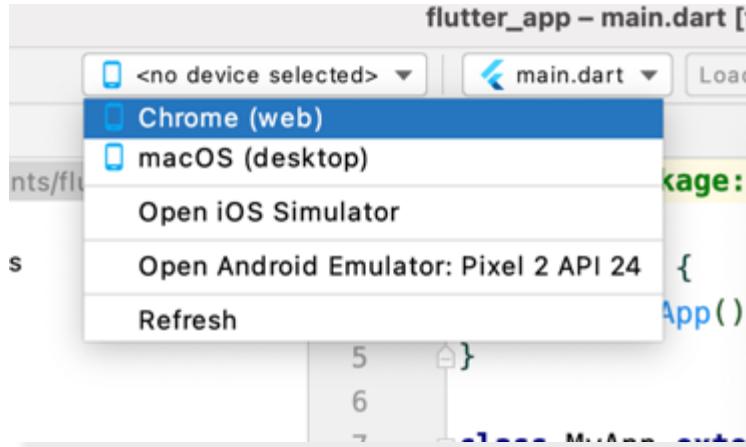
Run នៅលើ Web Browser (Windows & MacOS)

1. ចូល Terminal ដែលនៅក្នុង Android Studio ហើយរាយ៖

flutter create .



2. ផ្តល់ឱ្យក្នុង Chrome (Web)



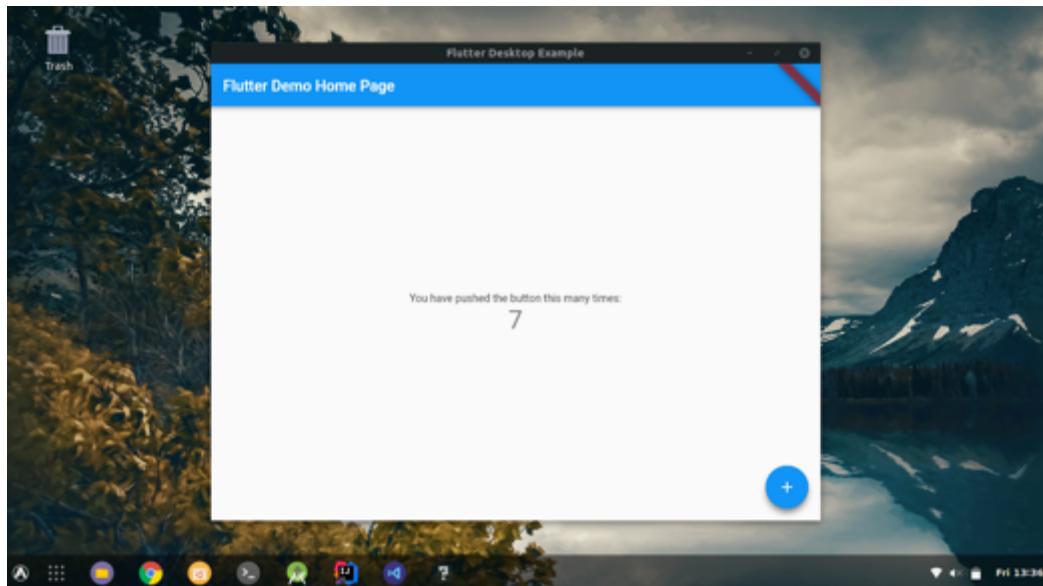
3. ប្រាក់ command:

```
flutter run -d chrome
```

Run នៅលើ Desktop App (Windows App)

- ចូល Terminal ហើយវាយ command ចំណែនាំ

1. flutter config --enable-windows-desktop
2. flutter create --platforms=windows,macos,linux .
3. flutter build windows
4. flutter run -d windows

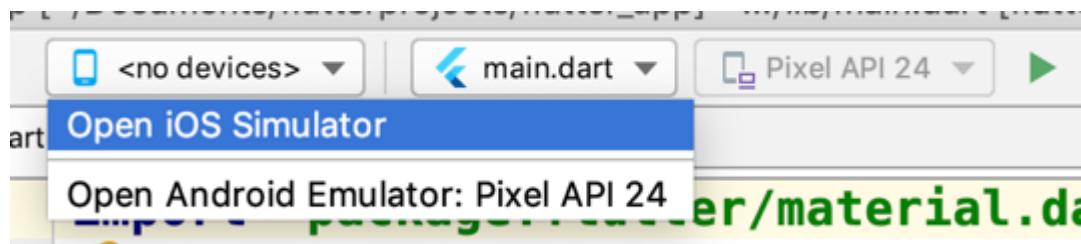


Run Flutter 2 លើ MacOS

Run ជាមួយ iPhone Simulator

- ពីរក្រារបែងបានកំឡើង XCode
ហើយ ដូច្នេះយើងអាចប្រើ iPhone

Simulation បាន



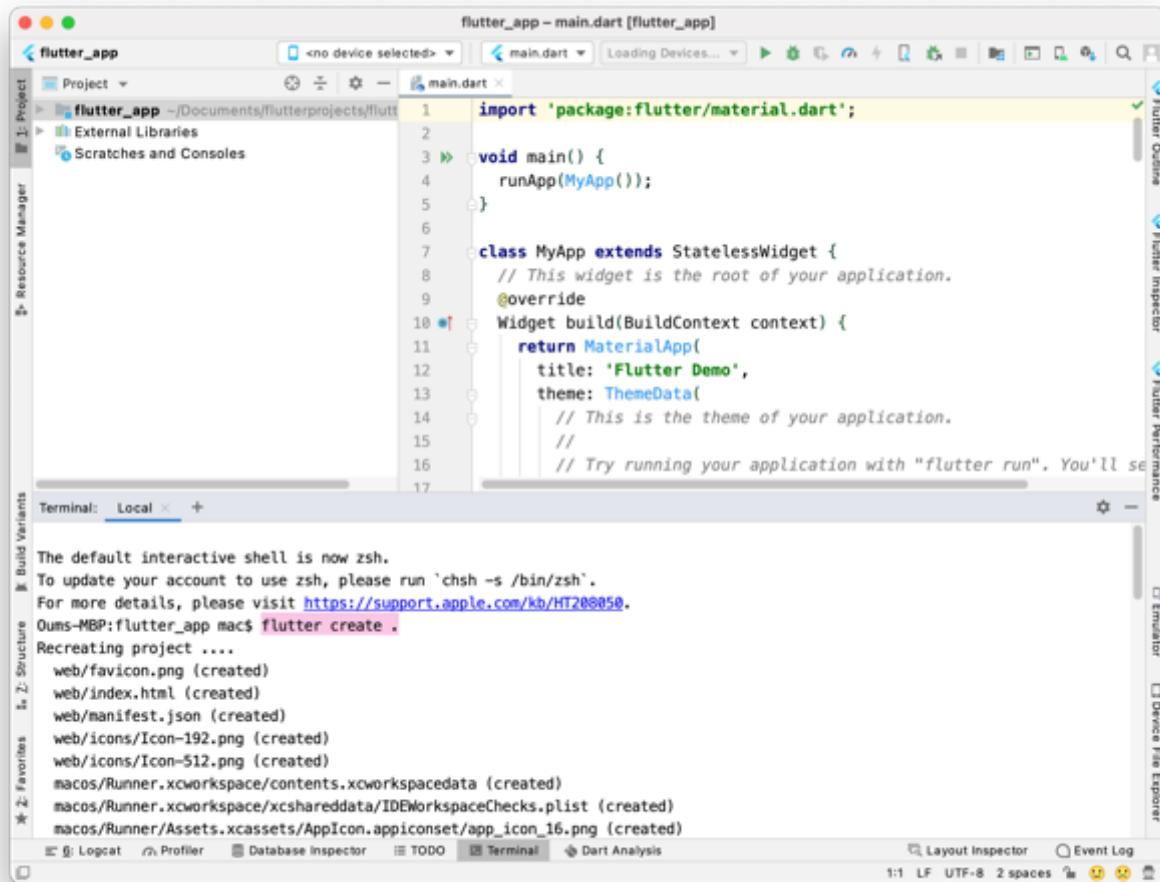
- ចូចលើ button play ជាការស្របចា



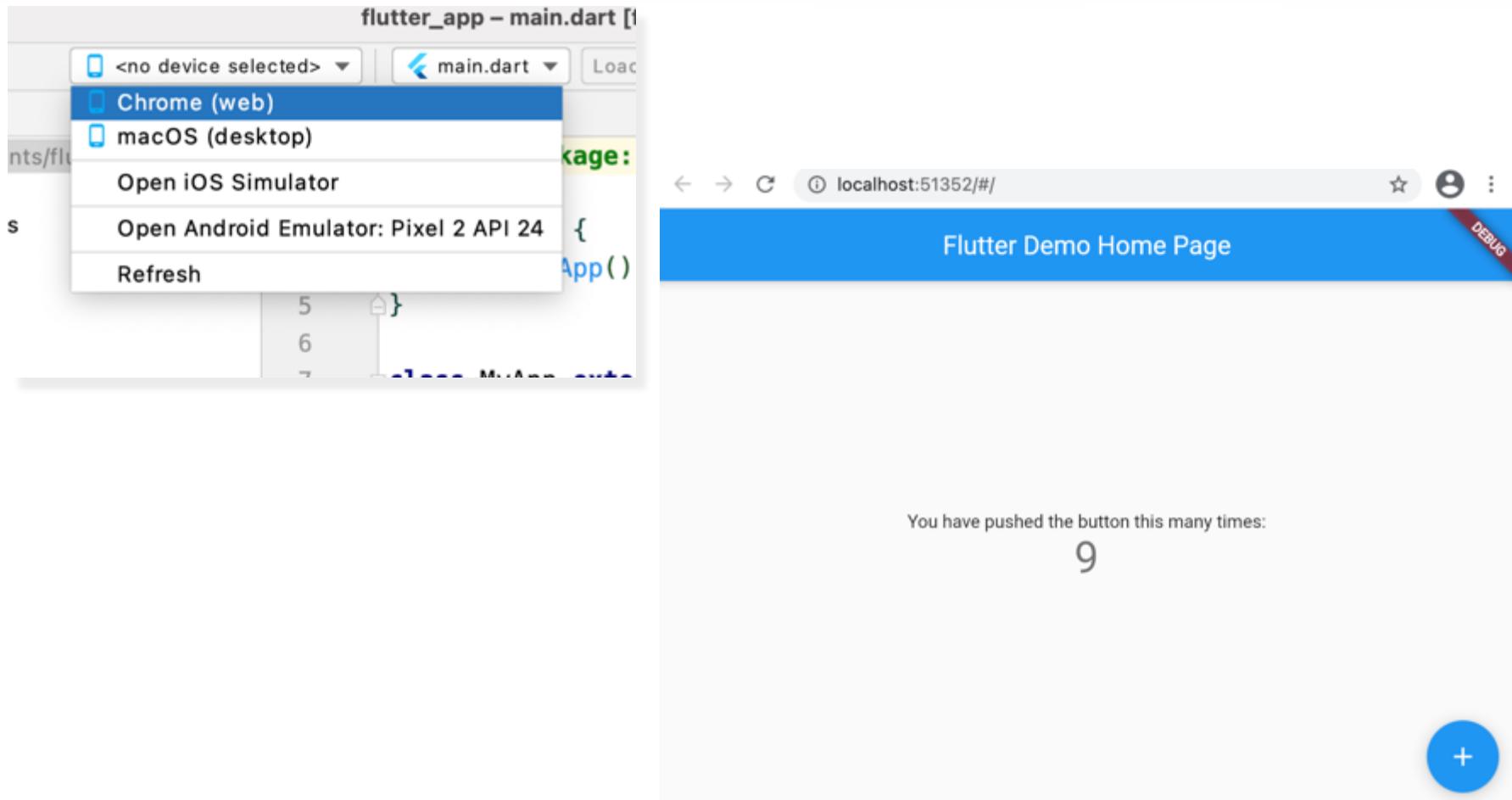
Run នៅលើ Web Browser (Windows & MacOS)

1. ចូល Terminal ដែលនៅក្នុង Android Studio ហើយរាយ៖

flutter create .



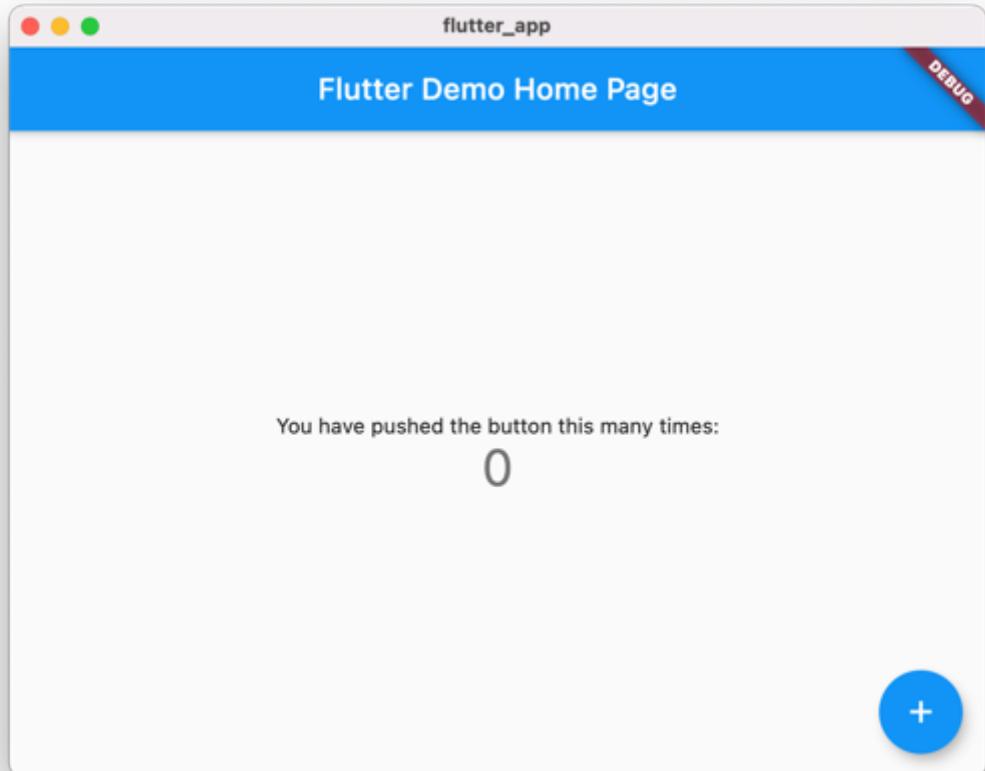
2. ផ្តល់ព័ត៌មានទៅ Chrome (Web)



Run នៅលើ Desktop App (MacOS App)

- ចូល Terminal ហើយវាយ command ចំណែនាំ

1. flutter config --enable-macos-desktop
2. flutter create --platforms=windows,macos,linux .
3. flutter build macos
4. flutter run -d macos



ពាប់ធ្វើមសរសែរក្នុង

ចាប់ផ្តើមសរស់រក្សាឃ

* ដើម្បីភាពងាយស្ថូល យើងនឹងចាប់ផ្តើមសរស់វា Dart នៅក្នុង Android Studio

1. បង្កើត project ថ្មី
2. លួបក្នុងចំណាំអស់ពី main.dart ក្នុង lib folder
3. បន្ទាប់មកសរស់រក្សាឃខាងក្រោម៖

```
import 'package:flutter/material.dart';

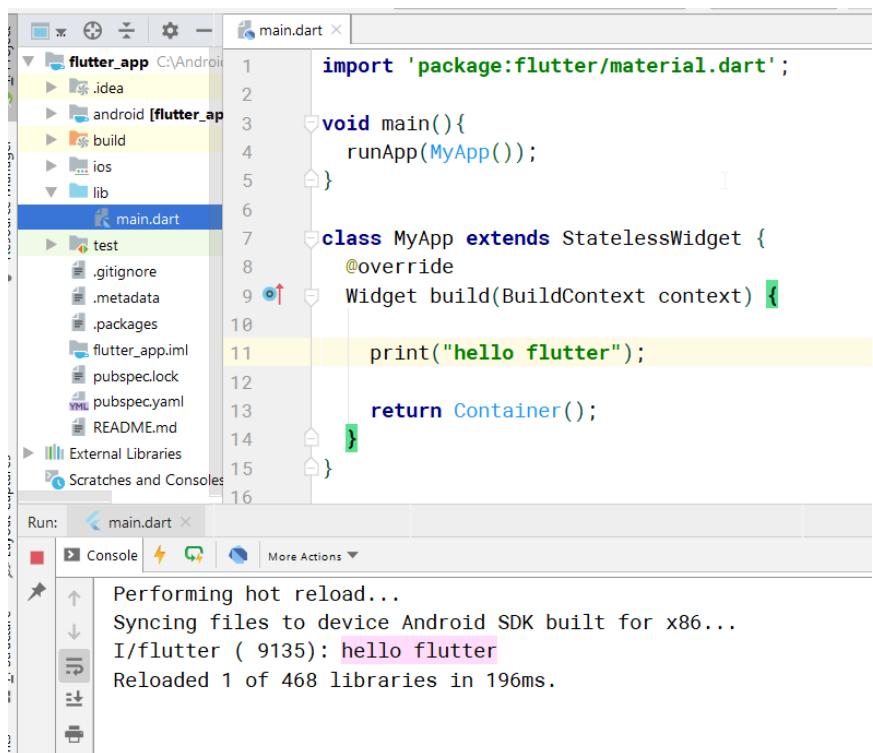
void main(){
    runApp(MyApp());
}

class MyApp extends StatelessWidget {
    @override
    Widget build(BuildContext context) {

        print("hello flutter");

        return Container();
    }
}
```

4. ចូច button play ដើម្បី run



បង្កើតទំនួន App ដោយក្នុងត្រូវមានបន្ទាត់

```
import 'package:flutter/material.dart';

void main() => runApp(MyApp());

class MyApp extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    return MaterialApp(
      debugShowCheckedModeBanner: false,
      home: Scaffold(
        appBar: AppBar(title: Text("Hello Flutter 2")),
        body: Container(
          alignment: Alignment.center,
          child: Image.network("https://avatars1.githubusercontent.com/u/1609975?s=200&v=4"),
        ),
        bottomNavigationBar: BottomAppBar(
          child: Row(
            mainAxisAlignment: MainAxisAlignment.spaceAround,
            children: <Widget>[
              IconButton(icon: Icon(Icons.home), onPressed: (){}),
              IconButton(icon: Icon(Icons.play_circle_filled), onPressed: (){}),
              IconButton(icon: Icon(Icons.perm_identity), onPressed: (){}),
              IconButton(icon: Icon(Icons.menu), onPressed: (){}),
            ],
          ),
        );
    }
}
```

Android Studio File Edit View Navigate Code Analyze Refactor Build Run Tools VCS Window Help

flutter_app - main.dart [flutter_app]

flutter_app lib main.dart iPhone 12 Pro Max (mobile) main.dart Loading Devices... 5:02 Sun 18 Apr 5:02 PM

Project Resource Manager Favorites Structure Logcat Profiler Database Inspector TODO Terminal Dart Analysis Run Layout Inspector Event Log

Flutter Outline Flutter Inspector Flutter Performance Emulator Device File Explorer

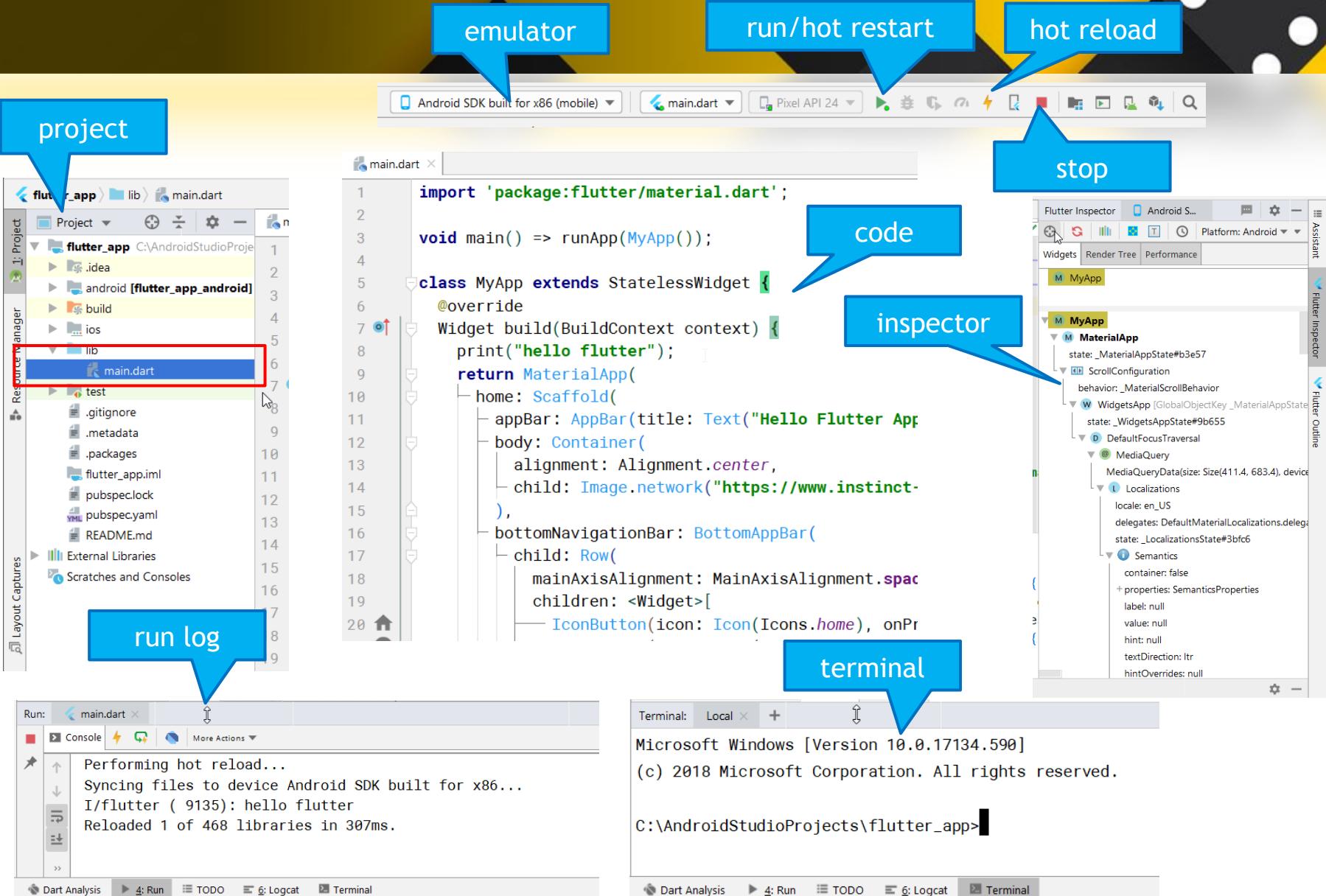
```
import 'package:flutter/material.dart';

void main() => runApp(MyApp());

class MyApp extends StatelessWidget {
    @override
    Widget build(BuildContext context) {
        return MaterialApp(
            debugShowCheckedModeBanner: false,
            home: Scaffold(
                appBar: AppBar(title: Text("Hello Flutter 2")),
                body: Container(
                    alignment: Alignment.center,
                    child: Image.network("https://avatars1.githubusercontent.com/u/1609975?s=200&v=4"),
                ),
                bottomNavigationBar: BottomAppBar(
                    child: Row(
                        mainAxisAlignment: MainAxisAlignment.spaceAround,
                        children: <Widget>[
                            IconButton(icon: Icon(Icons.home), onPressed: (){}),
                            IconButton(icon: Icon(Icons.play_circle_filled), onPressed: (){}),
                            IconButton(icon: Icon(Icons.perm_identity), onPressed: (){}),
                            IconButton(icon: Icon(Icons.menu), onPressed: (){}),
                        ],
                    ),
                ),
            );
    }
}
```

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សិក្សាបែវ Android Studio IDE សំភប់ Flutter



របៀបដោះស្រាយ ក្នុងពេលមាន Error

ពេលខ្លះ IDE និង Flutter មានការ error ណាមួយ ដែលបណ្តាលអាយ
យើងមិនអាចបើក android emulator បាន។ យើងអាចសាកល្បងដោះ
ស្រាយបញ្ហាតាមរបៀប៖

1. Tools menu -> Flutter -> Flutter clean
2. File menu -> Invalidate Caches/Restart -> Invalidate and Restart
3. លូប android emulator ចាស់ចេញ ហើយបង្កើត emulator ឡើងវិញ