



Build Your IT Skill

ណែនាំស្តាប់ពី FLUTTER (អំរិត *Hello World*)



រៀបរាងដោយ៖

គ្រូរោយធីចិត្តនុ

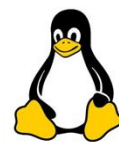
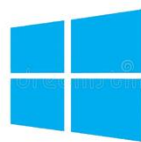
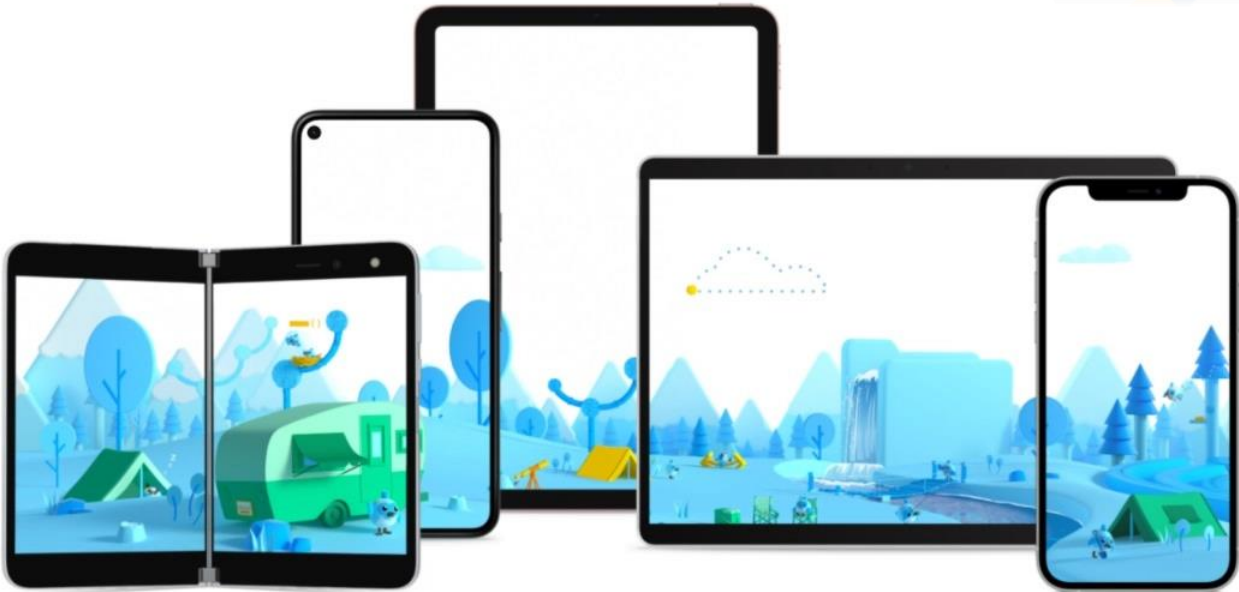
អនុបណ្ឌិត RUPP, TKU

(Software Engineering)

រៀបរៀងដោយ៖

Mr. Pha Phanna, Bs IT

Widget & MaterialApp



I. ណែនាំស្គាល់ពី Flutter

Flutter គឺជា Technology មួយដែលបង្កើតឡើងដោយក្រុមហ៊ុន Google និងត្រូវបាន release ក្នុងខែឧសភា ឆ្នាំ2017 និងប្រើប្រាស់ ភាសា Dart ក្នុងការសរសេរ Flutterនេះ។ Flutter មានសមត្ថភាពក្នុង ការប្រើប្រាស់លើ Multiple OS (Windows , MacOS , Linux , Chrome OS) និងអាចអោយ Developer build application បានជា Multi- Platform :

- ✚ Mobile App (Android & IOS)
- ✚ Desktop App (Mac , Windows , Linux)
- ✚ Web App
- ✚ Embedded System

I. Understand Widget

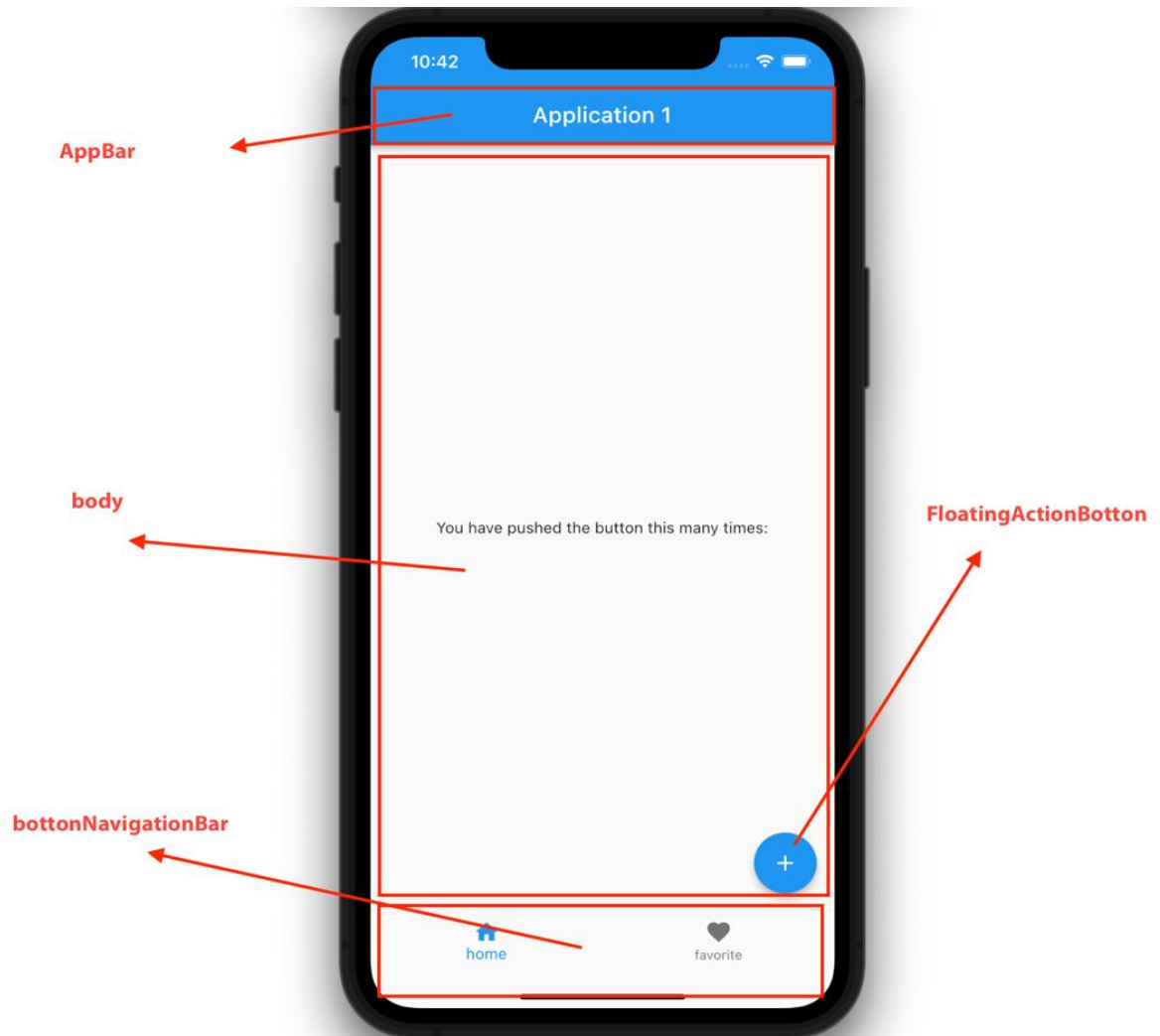
StatelessWidget	StatefulWidget
<ul style="list-style-type: none">• Shortcut (stl)• Can't change state	<ul style="list-style-type: none">✚ Shortcut (stf)• Can change state and have overriding method [initState(),didChangeDependencies(),setState(),didUpdateWidget(),dispose() ,.....]

II. MaterialApp

❖ Scaffold

Scaffold គឺជា widget in Flutter ដែលប្រើក្នុងការ implements the basic material design visual layout structure។

ឧទាហរណ៍ :





❖ main , MaterialApp & Scaffold

```

import 'package:flutter/material.dart';

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

class MyApp extends StatelessWidget {
  const MyApp({Key? key}) : super(key: key);

  @override
  Widget build(BuildContext context) {
    return MaterialApp(
      debugShowCheckedModeBanner: false,
    );
  }
}

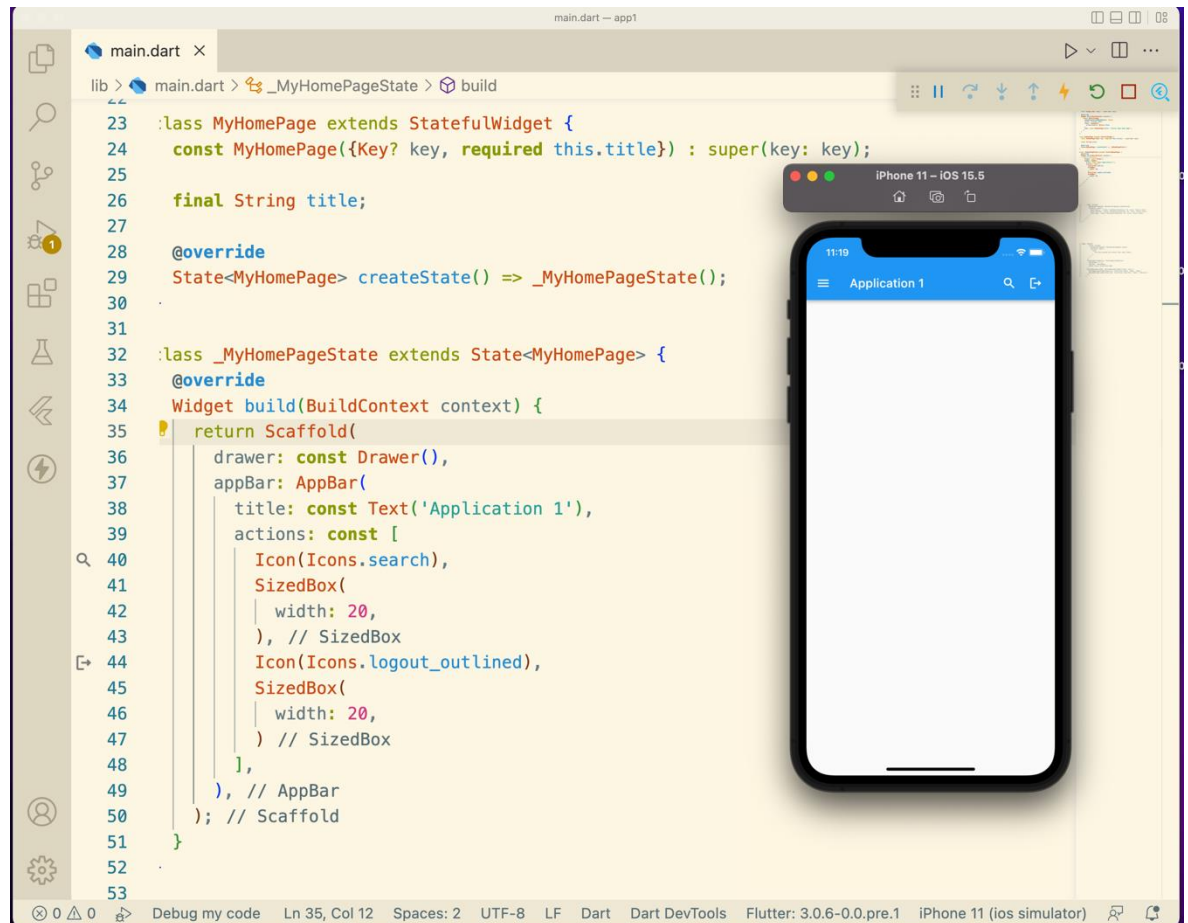
```

- ✚ **main()** ជាផ្នែកគោលសំខាន់ក្នុងការធ្វើអោយProgramដែលបានសរសេរអាច Run ចេញជា Application បាន
- ✚ **MaterialApp()** MaterialApp() មាន property សំខាន់មួយចំនួនដូចជា
- ✚ debugShowCheckedModeBanner: false សម្រាប់ ដក DebugនៅលើUI ចេញ
- ✚ home: សម្រាប់ហៅ class បន្ទាប់មកប្រើ
- ✚ theme: សម្រាប់ដាក់ពណ៌ទៅលើ MaterialApp ទាំងមូល
 - ✚ Scaffold ជាផ្នែកដែលសរសេរចេញជា App UI និង property ដូចជា :
- ✚ Drawer:Drawer()
- ✚ appBar:AppBar()
- ✚ Body:
- ✚ floatingActionButton:FloatingActionBotton()

i. AppBar & Drawer

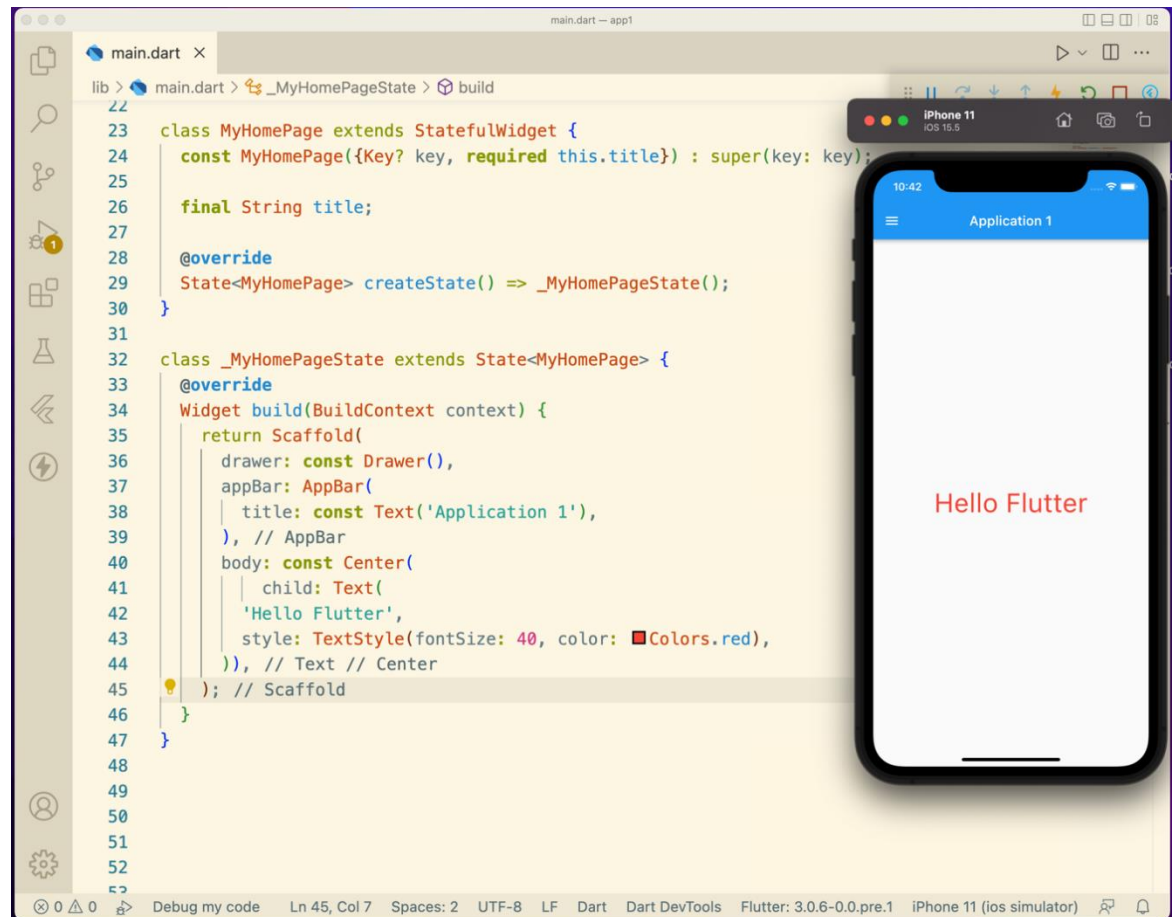
AppBar មាន property ដូចជា :

- ✚ leading:
- ✚ title:
- ✚ bottom:
- ✚ backgroundColor:
- ✚ action:[]

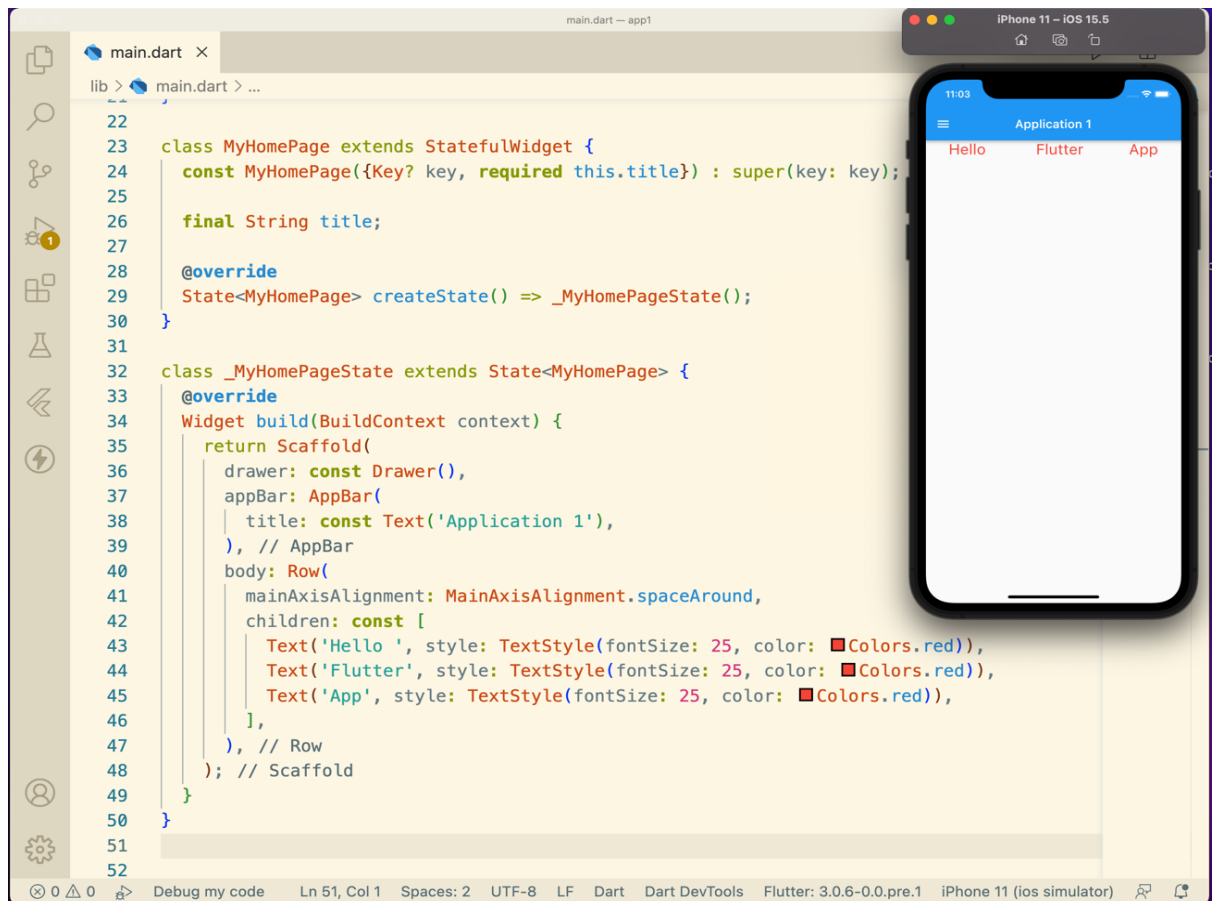


ii. Body

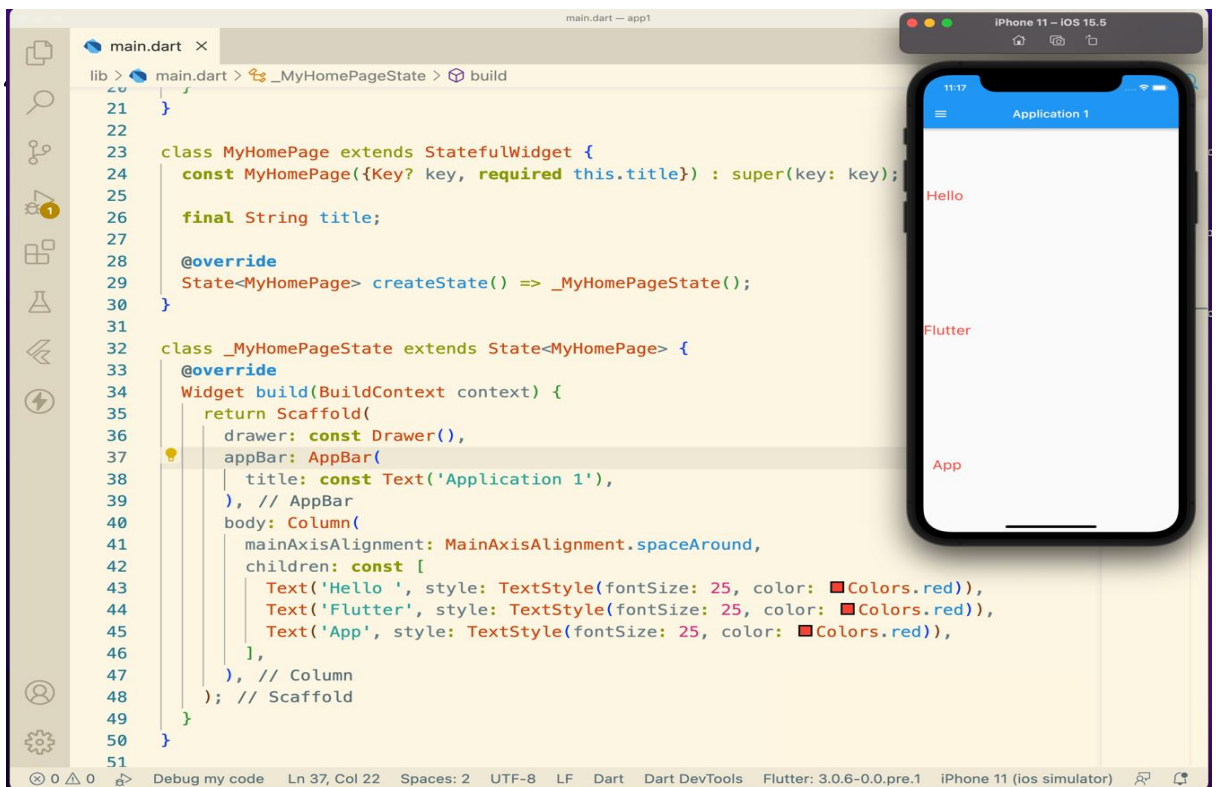
1. Text and Center



2. Row and Column



3. Container



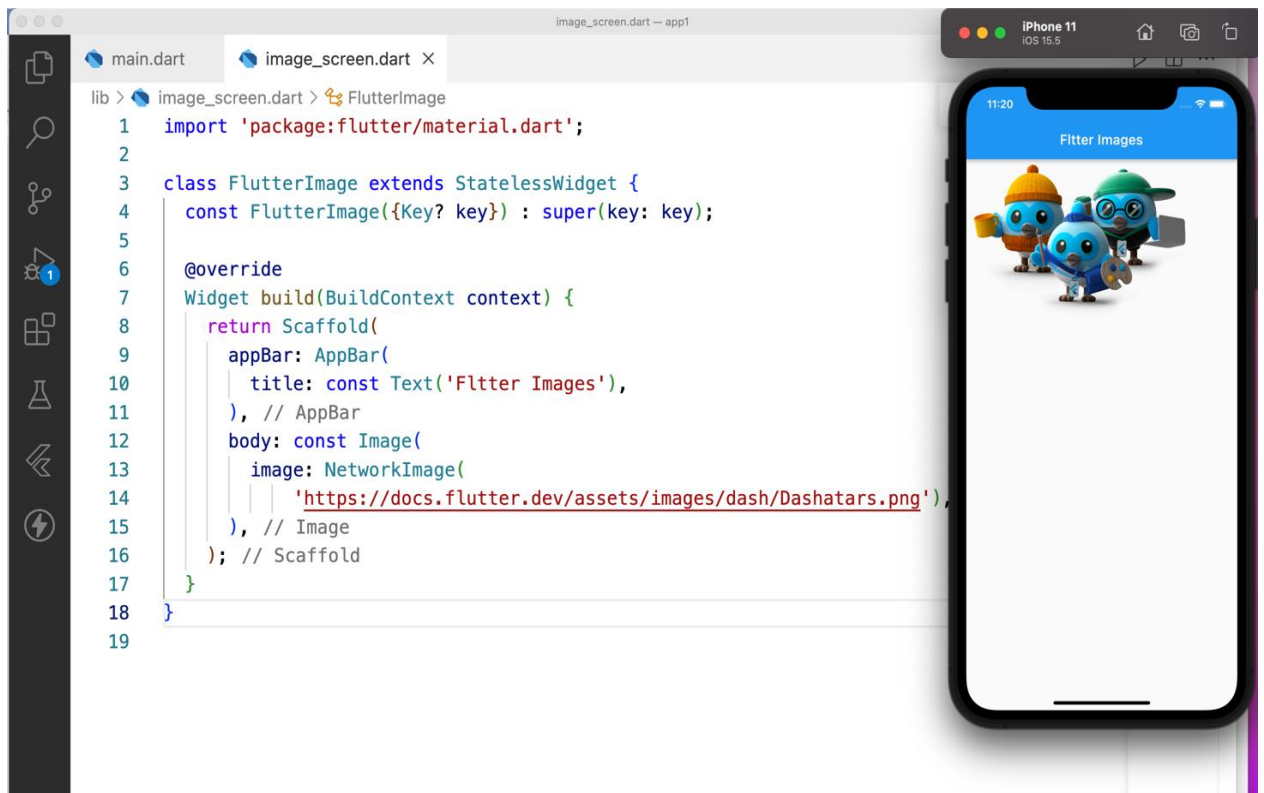


```
main.dart x
lib > main.dart > _MyHomePageState > build
23 class MyHomePage extends StatefulWidget {
24   const MyHomePage({Key? key, required this.title}) : super(key: key);
25
26   final String title;
27
28   @override
29   State<MyHomePage> createState() => _MyHomePageState();
30 }
31
32 class _MyHomePageState extends State<MyHomePage> {
33   @override
34   Widget build(BuildContext context) {
35     return Scaffold(
36       drawer: const Drawer(),
37       appBar: AppBar(
38         title: const Text('Application 1'),
39       ), // AppBar
40       body: Center(
41         child: Container(
42           height: 200,
43           width: 200,
44           color: Colors.blue,
45           child: const Center(
46             child: Text('Widget1'),
47           ), // Center
48         ), // Container
49       ), // Center
50     ); // Scaffold
51   }
52 }
53
```

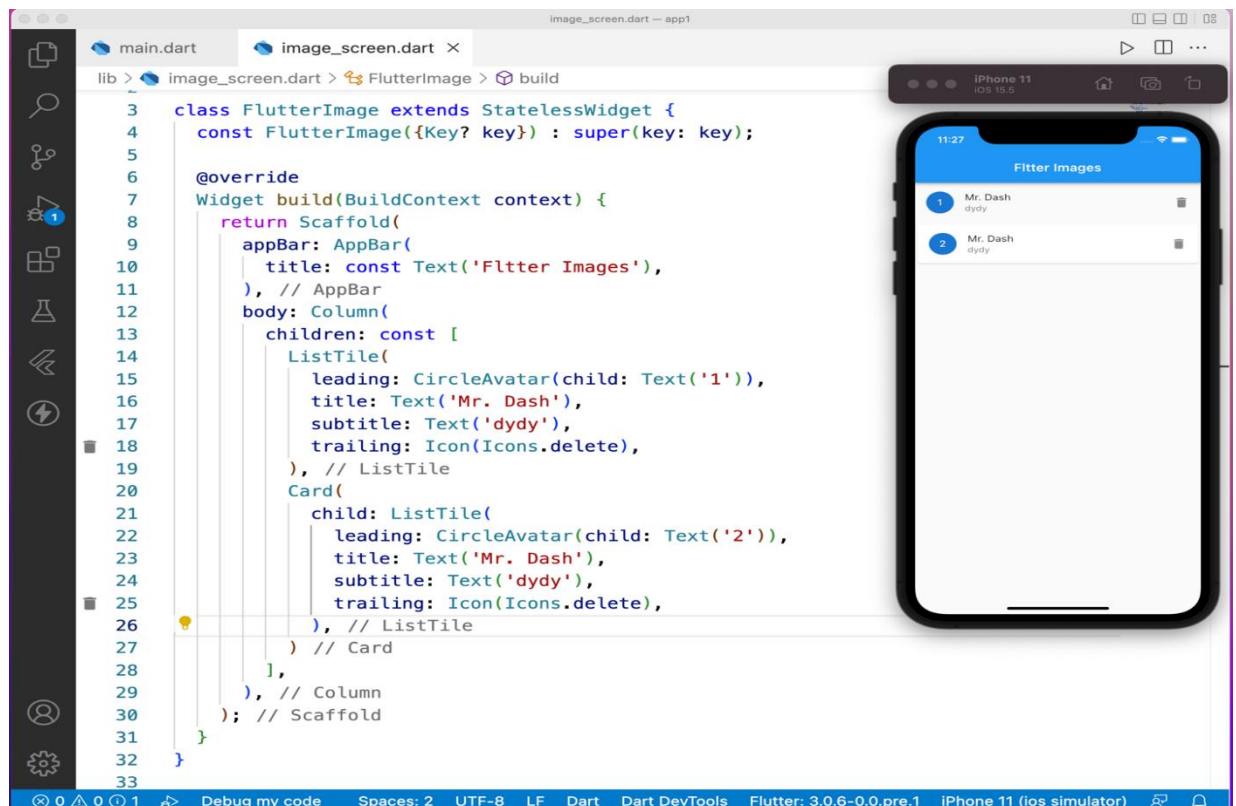
```
main.dart x
lib > main.dart > _MyHomePageState > build
23 class MyHomePage extends StatefulWidget {
24   const MyHomePage({Key? key}) : super(key: key);
25   @override
26   State<MyHomePage> createState() => _MyHomePageState();
27 }
28
29 class _MyHomePageState extends State<MyHomePage> {
30   @override
31   Widget build(BuildContext context) {
32     return Scaffold(
33       drawer: const Drawer(),
34       appBar: AppBar(
35         title: const Text('Application 1'),
36       ), // AppBar
37       body: Row(
38         children: [
39           Expanded(
40             child: Container(
41               height: 200,
42               color: Colors.blue,
43               child: const Center(
44                 child: Text('Widget1'),
45               ), // Center
46             ), // Container
47           ), // Expanded
48           Expanded(
49             child: Container(
50               height: 200,
51               color: Colors.red,
52               child: const Center(
53                 child: Text('Widget1'),
54               ), // Center
55             ), // Container
56           ), // Expanded
57         ],
58       ), // Row
59     ); // Scaffold
60   }
61 }

```

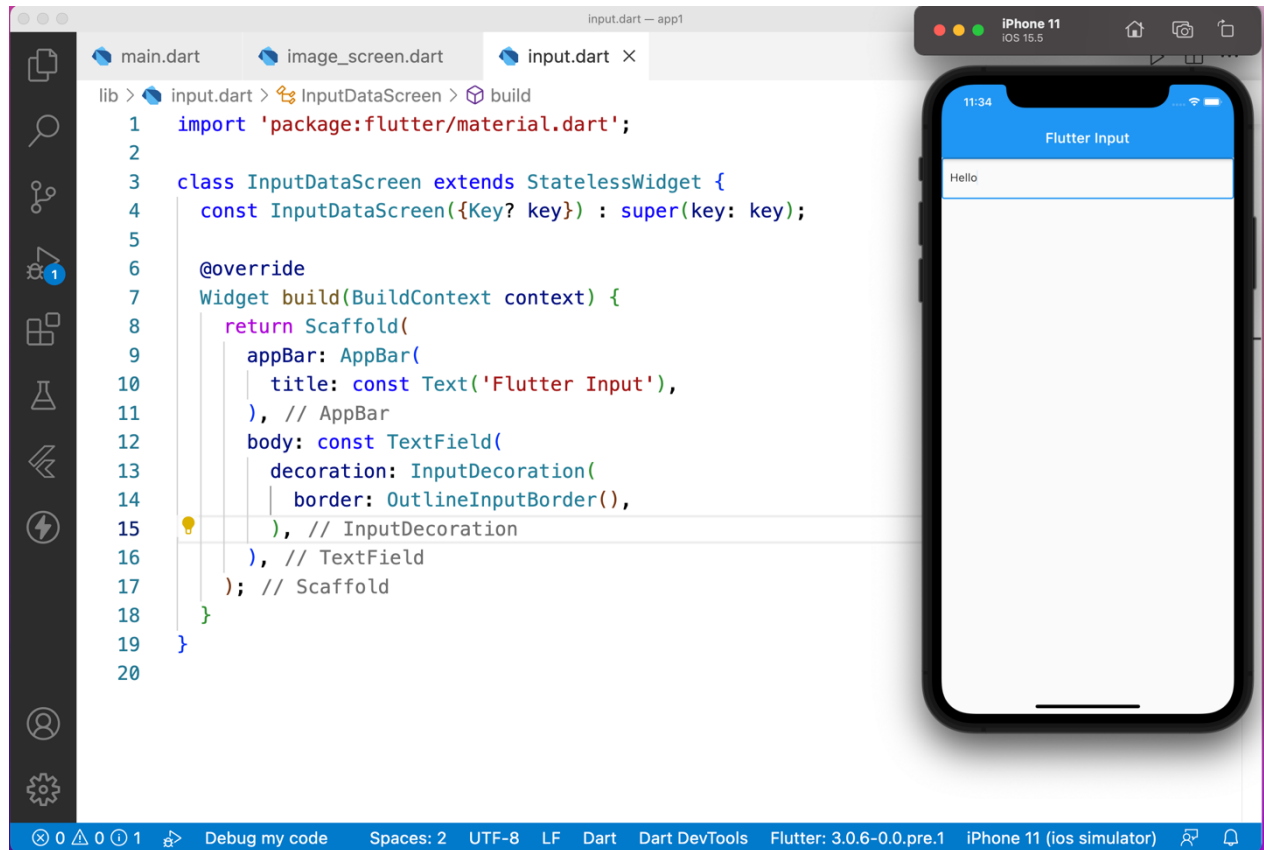
5. Image



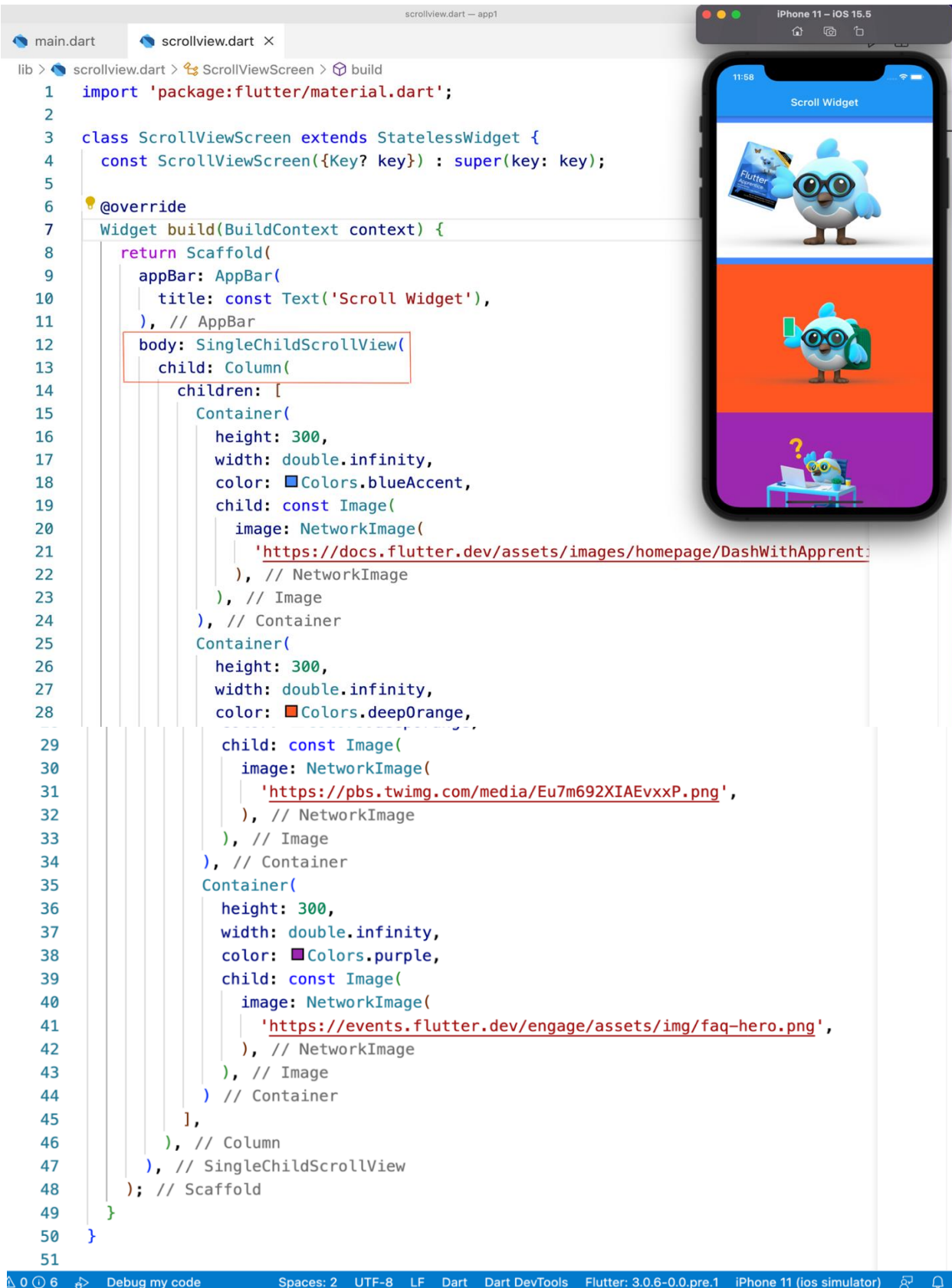
6. ListTile , Card



7. TextField



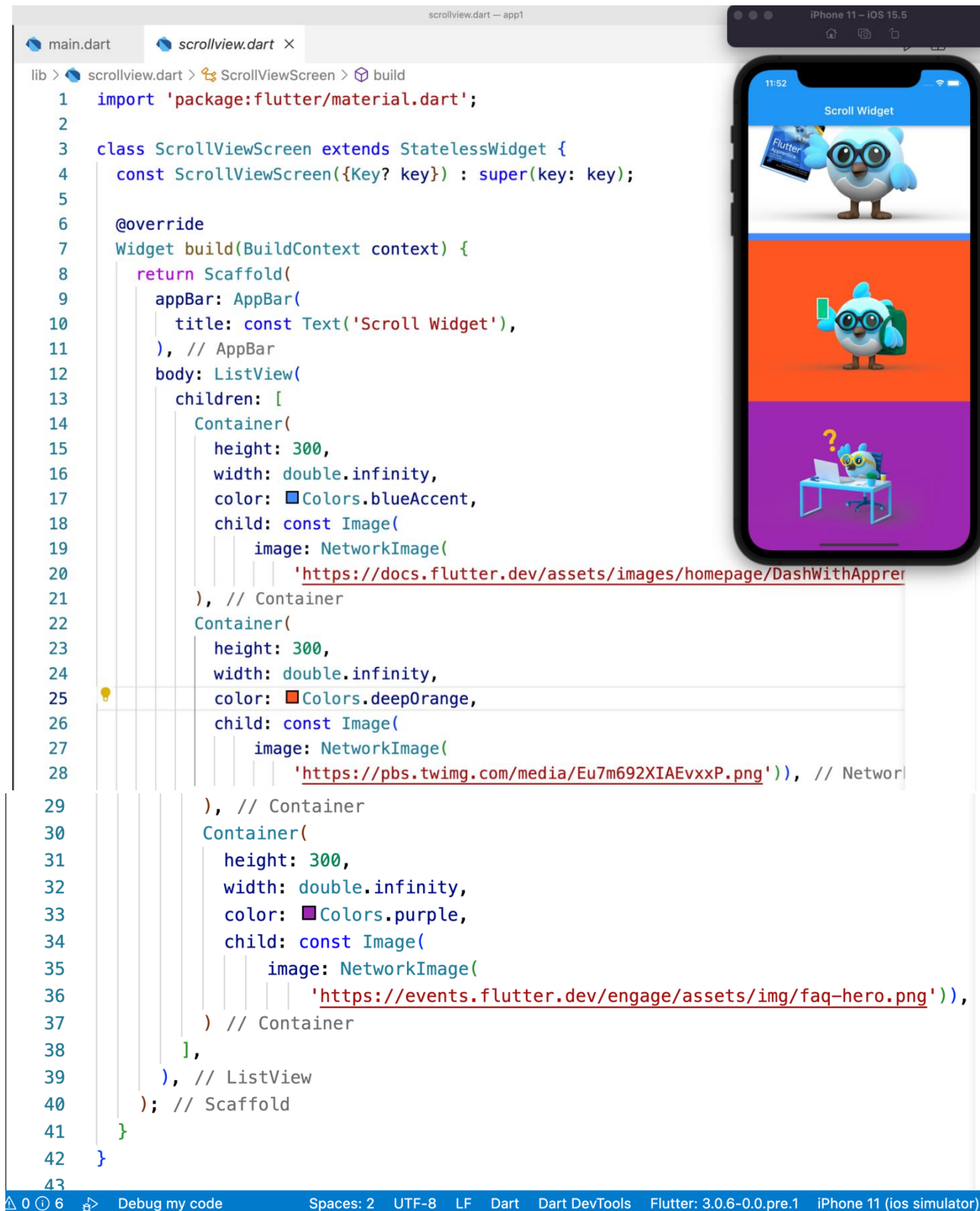
8. SingleChildScrollView



The screenshot displays a code editor with a Dart file named `scrollview.dart`. The code defines a `ScrollViewScreen` class that extends `StatelessWidget`. The `build` method returns a `Scaffold` widget. The `AppBar` has a title `Scroll Widget`. The `body` is a `SingleChildScrollView` containing a `Column` of three `Container` widgets. Each `Container` has a fixed height of 300, width of `double.infinity`, and a different background color: `Colors.blueAccent`, `Colors.deepOrange`, and `Colors.purple`. Each container contains a `NetworkImage` from a different URL. To the right of the code editor, a mobile simulator (iPhone 11 - iOS 15.5) shows the rendered app. The app has a blue header with the title 'Scroll Widget' and three vertically stacked sections with different background colors (blue, orange, purple) and images of a cartoon bird.

```
lib > scrollview.dart > ScrollViewScreen > build
1 import 'package:flutter/material.dart';
2
3 class ScrollViewScreen extends StatelessWidget {
4   const ScrollViewScreen({Key? key}) : super(key: key);
5
6   @override
7   Widget build(BuildContext context) {
8     return Scaffold(
9       appBar: AppBar(
10        title: const Text('Scroll Widget'),
11      ), // AppBar
12      body: SingleChildScrollView(
13        child: Column(
14          children: [
15            Container(
16              height: 300,
17              width: double.infinity,
18              color: Colors.blueAccent,
19              child: const Image(
20                image: NetworkImage(
21                  'https://docs.flutter.dev/assets/images/homepage/DashWithApprentice.png',
22                ), // NetworkImage
23              ), // Image
24            ), // Container
25            Container(
26              height: 300,
27              width: double.infinity,
28              color: Colors.deepOrange,
29              child: const Image(
30                image: NetworkImage(
31                  'https://pbs.twimg.com/media/Eu7m692XIAEvxxP.png',
32                ), // NetworkImage
33              ), // Image
34            ), // Container
35            Container(
36              height: 300,
37              width: double.infinity,
38              color: Colors.purple,
39              child: const Image(
40                image: NetworkImage(
41                  'https://events.flutter.dev/engage/assets/img/faq-hero.png',
42                ), // NetworkImage
43              ), // Image
44            ), // Container
45          ],
46        ), // Column
47      ), // SingleChildScrollView
48    ); // Scaffold
49  }
50 }
51
```

9. ListView



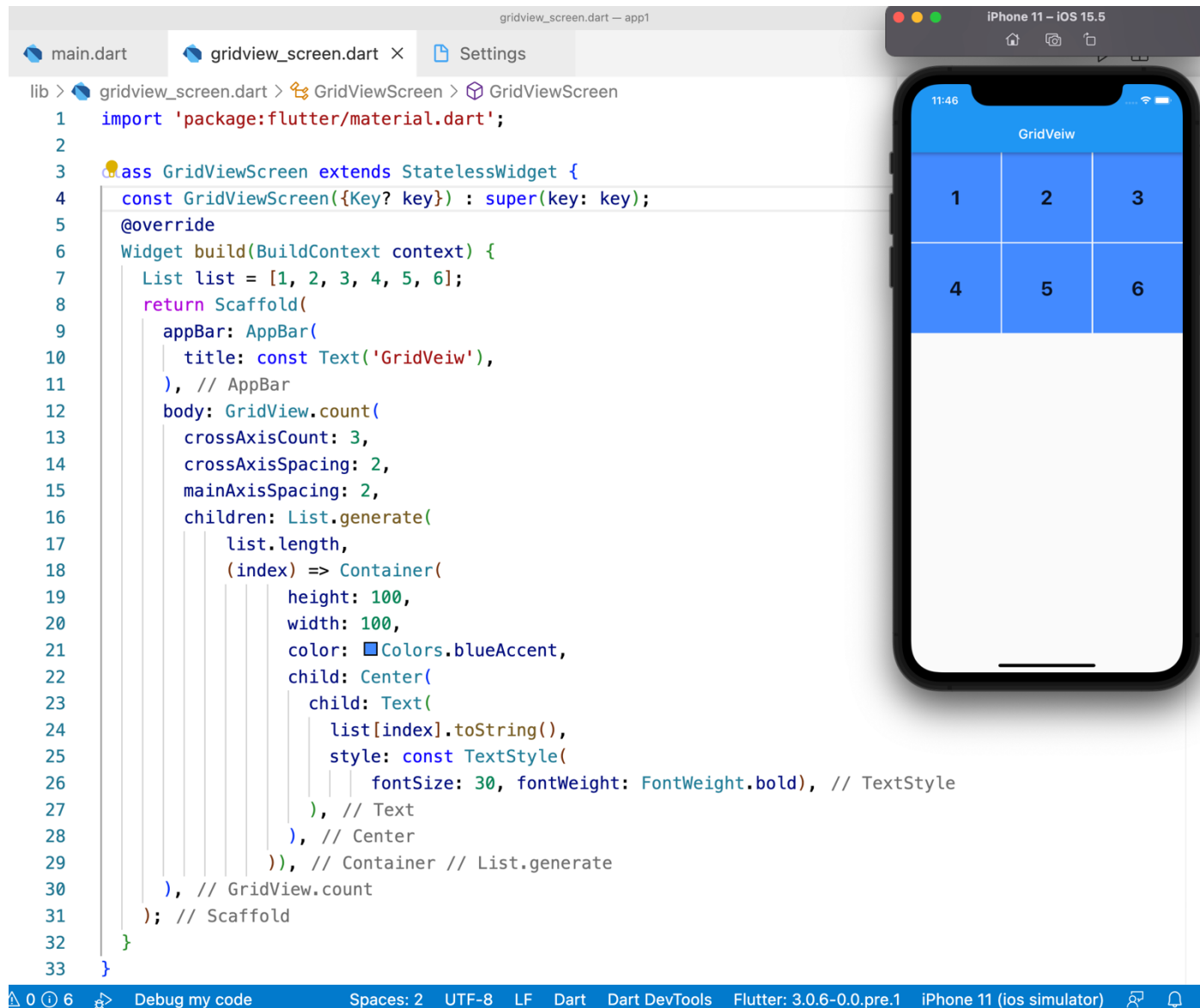
```

lib > scrollview.dart > ScrollViewScreen > build
1  import 'package:flutter/material.dart';
2
3  class ScrollViewScreen extends StatelessWidget {
4    const ScrollViewScreen({Key? key}) : super(key: key);
5
6    @override
7    Widget build(BuildContext context) {
8      return Scaffold(
9        appBar: AppBar(
10         title: const Text('Scroll Widget'),
11       ), // AppBar
12       body: ListView(
13         children: [
14           Container(
15             height: 300,
16             width: double.infinity,
17             color: Colors.blueAccent,
18             child: const Image(
19               image: NetworkImage(
20                 'https://docs.flutter.dev/assets/images/homepage/DashWithAppre
21             ), // Container
22           Container(
23             height: 300,
24             width: double.infinity,
25             color: Colors.deepOrange,
26             child: const Image(
27               image: NetworkImage(
28                 'https://pbs.twimg.com/media/Eu7m692XIAEvxxP.png'), // Networ
29             ), // Container
30           Container(
31             height: 300,
32             width: double.infinity,
33             color: Colors.purple,
34             child: const Image(
35               image: NetworkImage(
36                 'https://events.flutter.dev/engage/assets/img/faq-hero.png'),
37             ), // Container
38         ],
39       ), // ListView
40     ); // Scaffold
41   }
42 }
43
  
```


10. GridView

ចំពោះ GridView មានដូចជា

- ✚ GridView.count()
- ✚ GridView.builder()
- ✚ GridView.extent()
- ✚ GridView.custom()

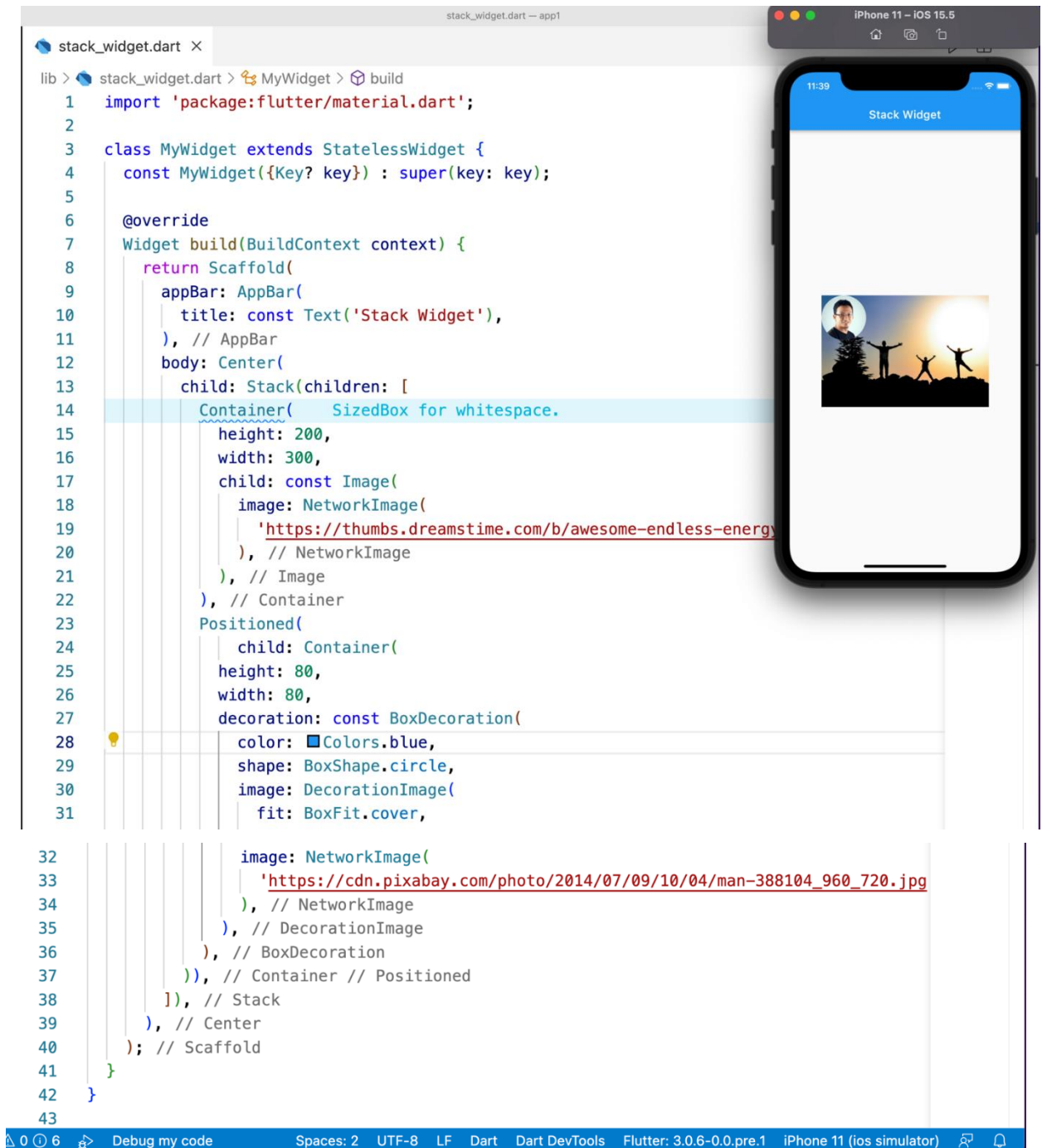


The screenshot displays a code editor with the following Dart code for a Flutter application:

```
lib > gridview_screen.dart > GridViewScreen > GridViewScreen
1 import 'package:flutter/material.dart';
2
3 class GridViewScreen extends StatelessWidget {
4   const GridViewScreen({Key? key}) : super(key: key);
5   @override
6   Widget build(BuildContext context) {
7     List list = [1, 2, 3, 4, 5, 6];
8     return Scaffold(
9       appBar: AppBar(
10        title: const Text('GridVeiw'),
11      ), // AppBar
12      body: GridView.count(
13        crossAxisCount: 3,
14        crossAxisSpacing: 2,
15        mainAxisSpacing: 2,
16        children: List.generate(
17          list.length,
18          (index) => Container(
19            height: 100,
20            width: 100,
21            color: Colors.blueAccent,
22            child: Center(
23              child: Text(
24                list[index].toString(),
25                style: const TextStyle(
26                  fontSize: 30, fontWeight: FontWeight.bold), // TextStyle
27              ), // Text
28            ), // Center
29          ), // Container // List.generate
30        ), // GridView.count
31      ); // Scaffold
32    }
33  }
```

On the right, a mobile simulator (iPhone 11 - iOS 15.5) shows the rendered output: a 2x3 grid of blue squares. The top row contains the numbers 1, 2, and 3, and the bottom row contains 4, 5, and 6. The text is centered and bold within each square.

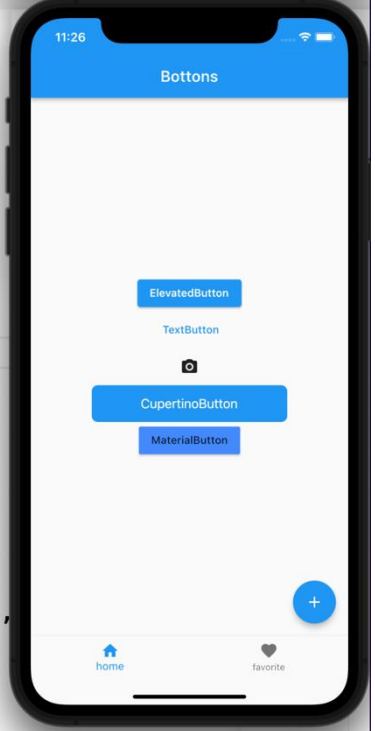
11. Stack



i. FlaottingActonBotton & BottonNavigationBar

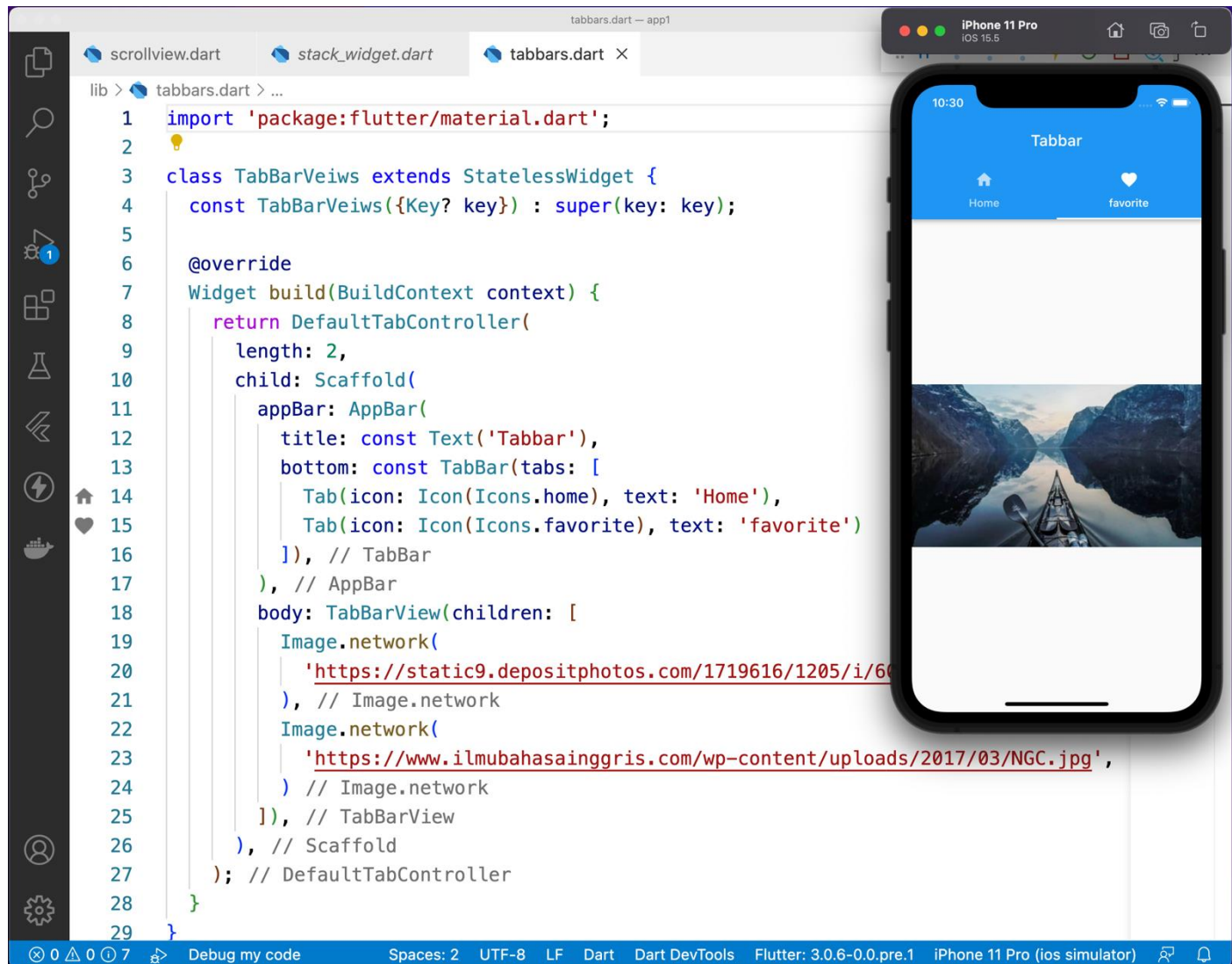
```

lib > button_screen.dart > TestButtonScreen > build
1  import 'package:flutter/cupertino.dart';
2  import 'package:flutter/material.dart';
3
4  class TestButtonScreen extends StatelessWidget {
5    const TestButtonScreen({Key? key}) : super(key: key);
6
7    @override
8    Widget build(BuildContext context) {
9      return Scaffold(
10       appBar: AppBar(
11         title: const Text('Buttons'),
12       ), // AppBar
13       body: Center(
14         child: Column(
15           mainAxisAlignment: MainAxisAlignment.center,
16           children: [
17             ElevatedButton(
18               onPressed: () {}, child: const Text('ElevatedButton')),
19             TextButton(
20               onPressed: () {},
21               child: const Text(
22                 'TextButton',
23               ), // Text // TextButton
24             IconButton(onPressed: () {}, icon: const Icon(Icons.camera_alt)),
25             CupertinoButton(
26               color: Colors.blue,
27               child: const Text('CupertinoButton'),
28               onPressed: () {}), // CupertinoButton
29             MaterialButton(
30               color: Colors.blueAccent,
31               onPressed: () {},
32               child: const Text('MaterialButton'),
33             ) // MaterialButton
34           ],
35         ), // Column
36       ), // Center
37       floatingActionButton: FloatingActionButton(
38         onPressed: () {},
39         tooltip: 'Increment',
40         child: const Icon(Icons.add),
41       ), // FloatingActionButton
42       bottomNavigationBar: BottomNavigationBar(items: const [
43         BottomNavigationBarItem(icon: Icon(Icons.home), label: 'home'),
44         BottomNavigationBarItem(icon: Icon(Icons.favorite), label: 'favorite')
45       ]), // BottomNavigationBar
46     ); // Scaffold
47   }
48 }
          
```



0 1 6 Debug my code Spaces: 2 UTF-8 LF Dart Dart DevTools Flutter: 3.0.6-0.0.pre.1 iPhone 11 (ios simulator)

ii. Tabbar & TabbarView



iii. Widget with Packet

Website ដែលអាចទាញយក package ជាច្រើន របស់ Dart

<https://pub.dev/>

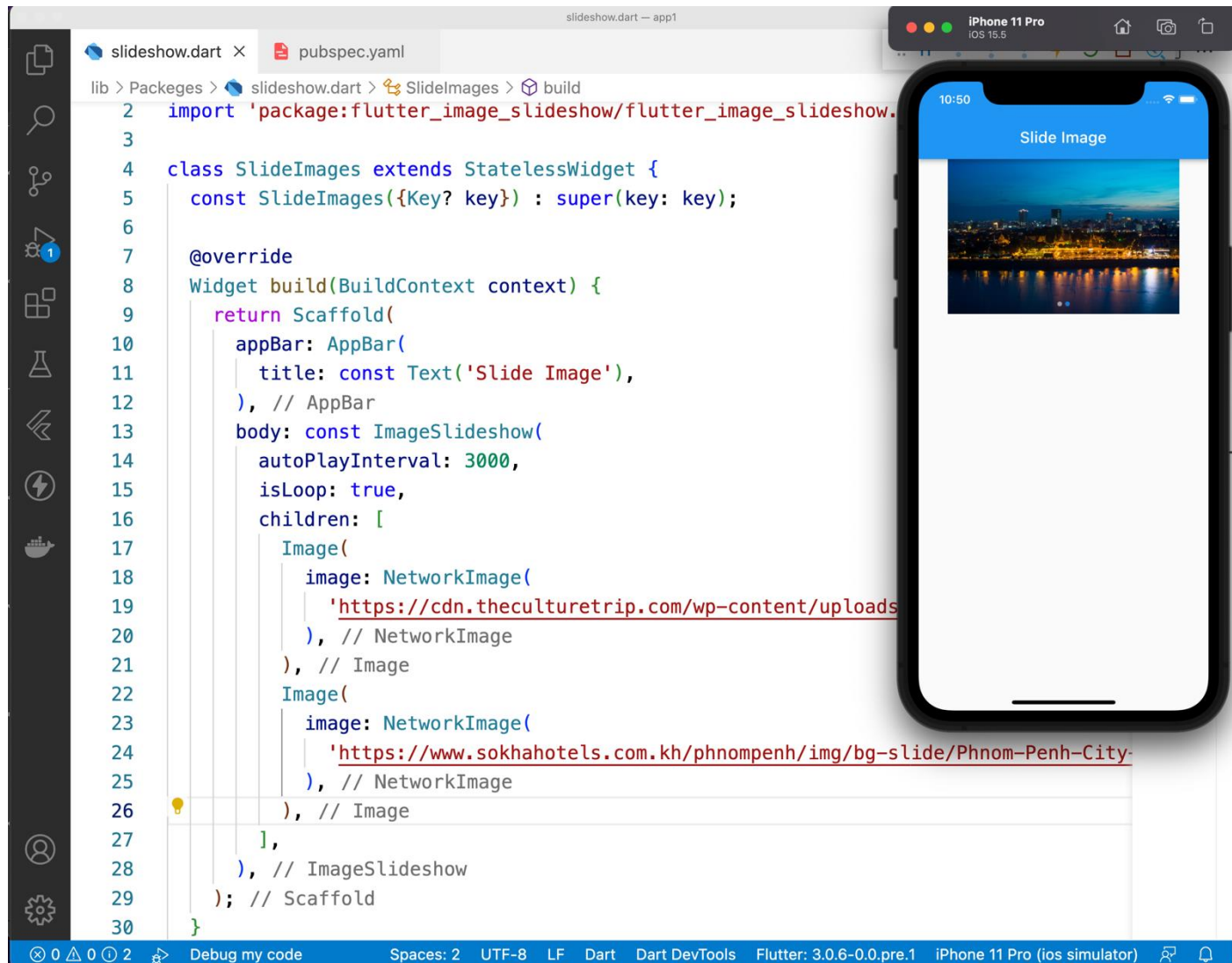
1. Image slideshow



```
slideshow.dart  pubspec.yaml ×
pubspec.yaml
28 # versions available, run `flutter pub outdated`.
29 dependencies:
30   flutter_image_slideshow: ^0.1.3
31   flutter:
32     sdk: flutter
33
34
```

Add packages to pubspace.yaml

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2. Open camera and Gallery

Add packages

image_picker: ^0.8.5+3

Android config

ទីតាំង `Android>app>src>main>AndroidManifest.xml`

`android:requestLegacyExternalStorage="true"`

IOS config

ទីតាំង ios>Runner>Infor.plist

```
<key>UISupportedInterfaceOrientations</key>

<key>NSCameraUsageDescription</key>

<string> To choose user profile image</string>

<key>NSMicrophoneUsageDescription</key>

<string>Use to capture audio for image picker plugin</string>
```

Code:

```
Future<void> getImagefromCamera() async {

  final image = await ImagePicker().pickImage(

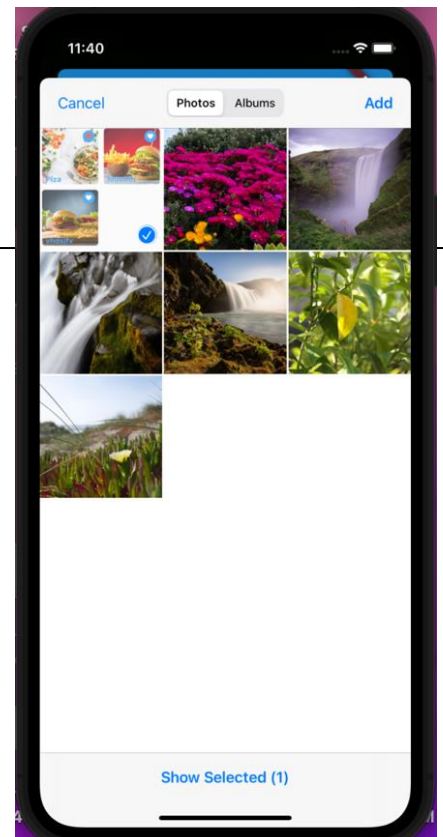
    source: ImageSource.camera, imageQuality: 100);

  setState(() {

    _image = File(image!.path);

  });

}
```





3. Google Map

1. Add Package

dependencies:

google_maps_flutter: ^2.1.10

flutter:

sdk: flutter

2. Config android phone

minSDK

```
android {  
    defaultConfig {  
        minSdkVersion 20  
    }  
}
```

Link API key

[Google Developers Console](#)

```
<manifest ...  
<application ...  
    <meta-data android:name="com.google.android.geo.API_KEY"  
        android:value="YOUR KEY HERE"/>
```

3 .IOS

```
import UIKit  
import Flutter  
import GoogleMaps
```

@UIApplicationMain

@objc class AppDelegate: FlutterAppDelegate {

override func application(
 _ application: UIApplication,

_ application: UIApplication,

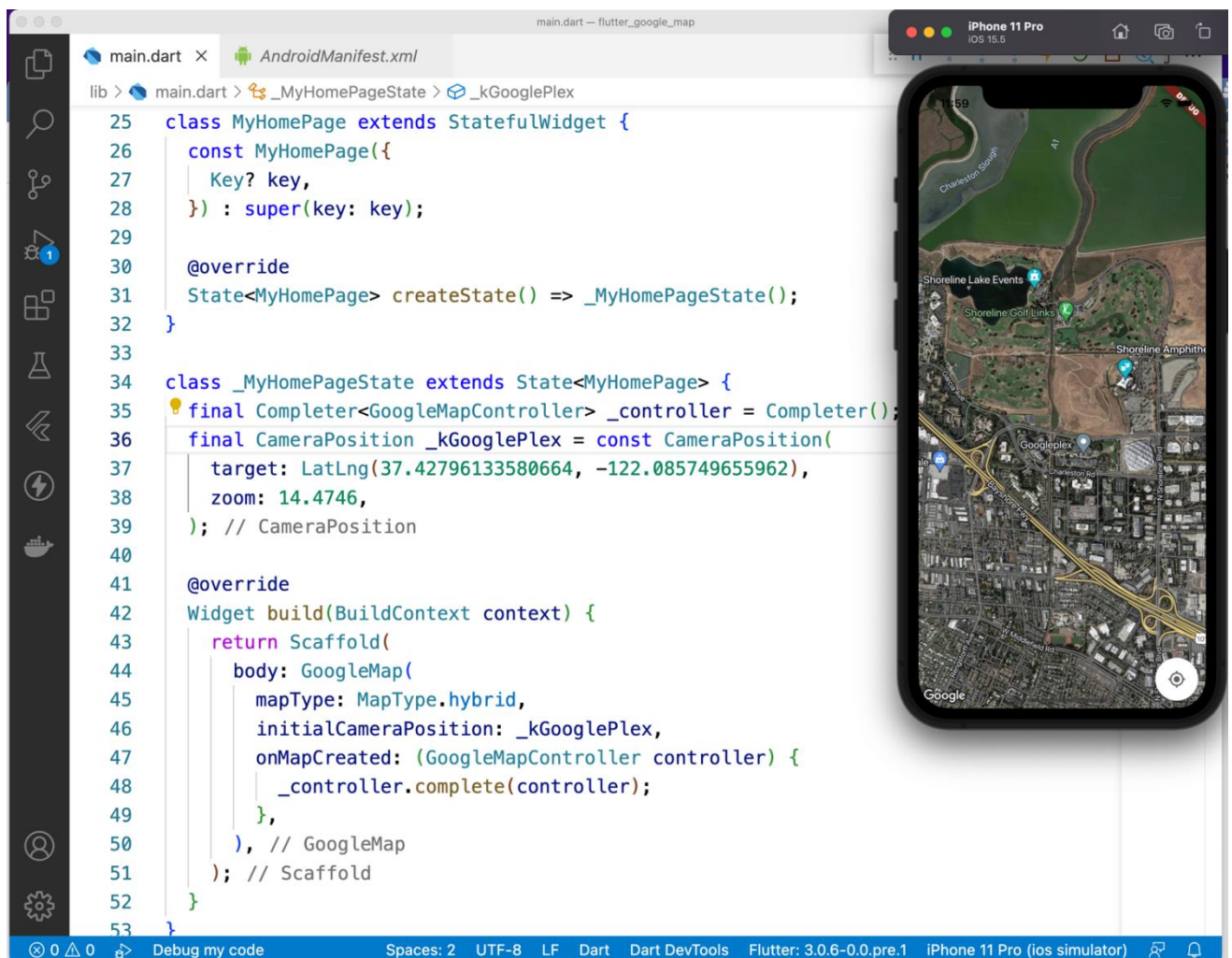
didFinishLaunchingWithOptions launchOptions: [UIApplication.LaunchOptionsKey: Any] ?

```

) -> Bool {
  GMSServices.provideAPIKey( "YOUR KEY HERE" )
  GeneratedPluginRegistrant.register( with: self )
  return super.application( application, didFinishLaunchingWithOptions:
launchOptions )
}
}

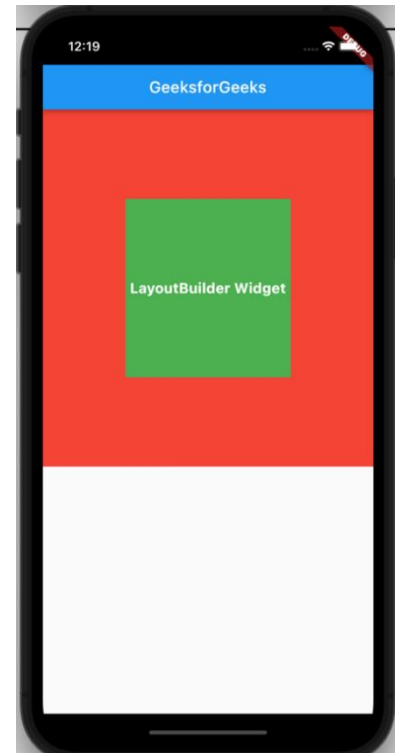
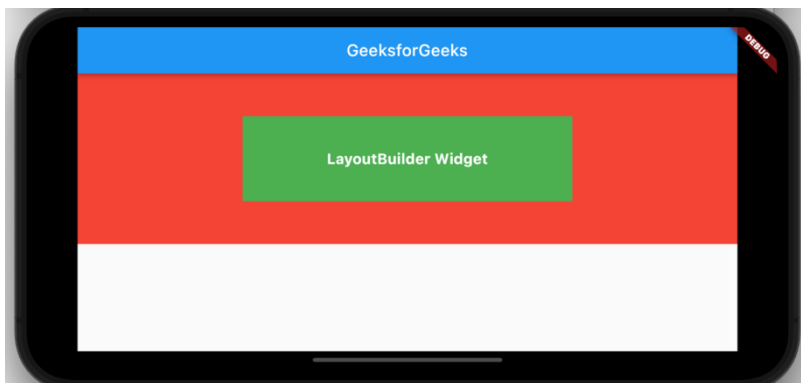
```

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III. Responsive Widget

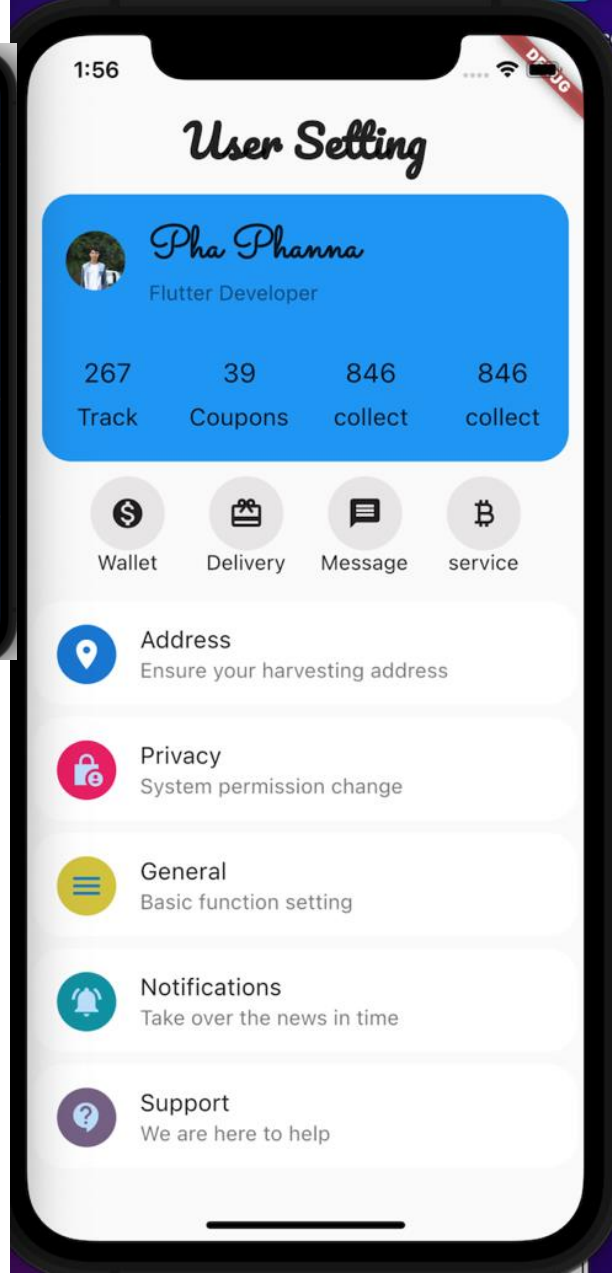
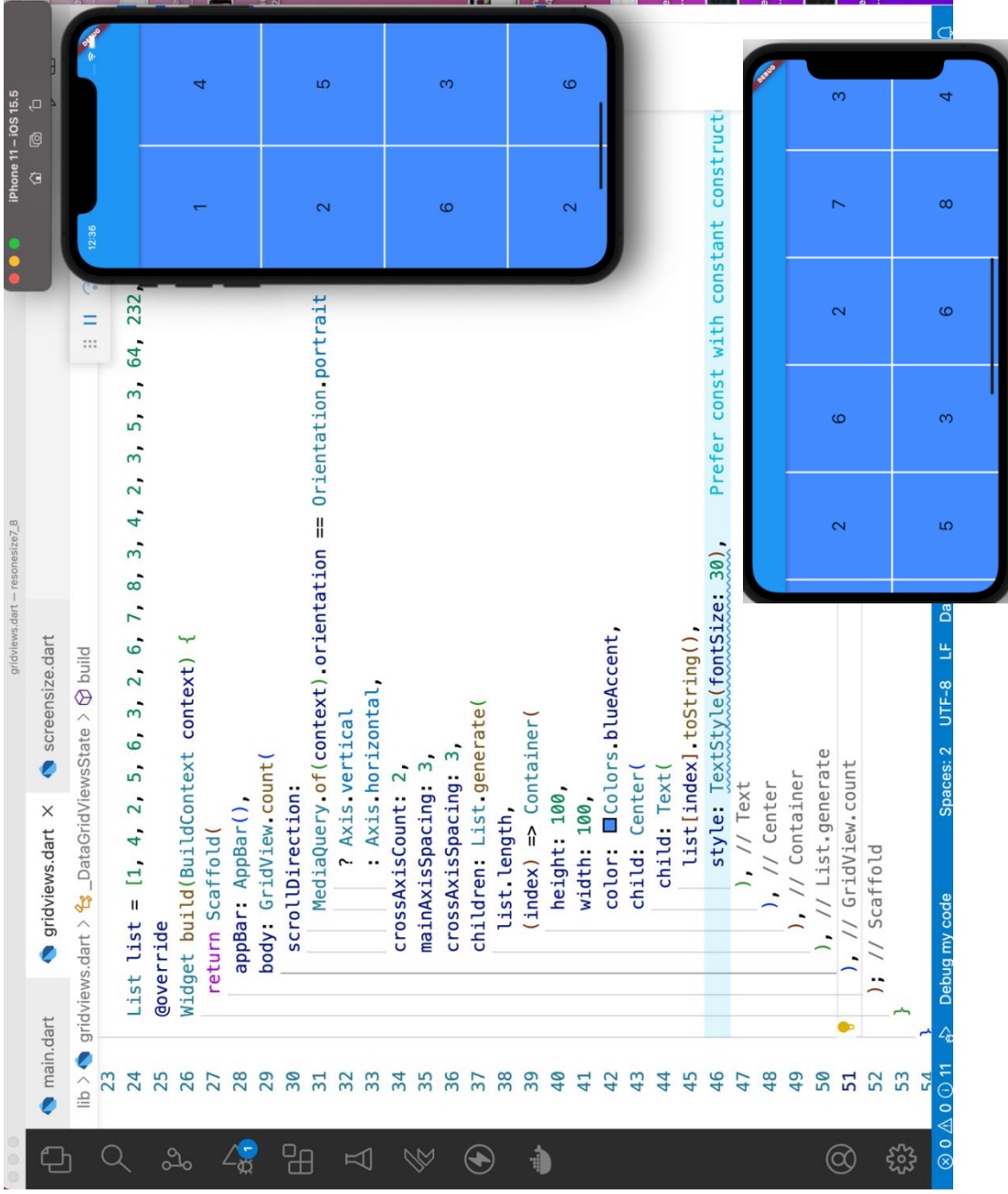
```
@override  
void initState() {  
    super.initState();  
    SystemChrome.setPreferredOrientations([  
        DeviceOrientation.portraitUp,  
        DeviceOrientation.landscapeRight,  
        DeviceOrientation.landscapeLeft
```





```
main.dart — resonsize7_8
main.dart × gridviews.dart screensize.dart
lib > main.dart > _MyHomePageState
46
47 @override
48 Widget build(BuildContext context) {
49   double sizeScreen = MediaQuery.of(context).size.width;  The value of the loca
50
51   return SafeArea(
52     child: Scaffold(
53       appBar: AppBar(title: const Text('GeeksforGeeks')),
54       body: Container(
55         color: Colors.red,
56         height: MediaQuery.of(context).size.height * 0.5,
57         width: MediaQuery.of(context).size.width,
58         alignment: Alignment.center,
59         child: LayoutBuilder(
60           builder: (BuildContext ctx, BoxConstraints constraints) {
61             return Container(
62               color: Colors.green,
63               alignment: Alignment.center,
64               height: constraints.maxHeight * 0.5,
65               width: constraints.maxWidth * 0.5,
66               child: const Text('LayoutBuilder Widget',
67                 style: TextStyle(
68                   fontSize: 18,
69                   fontWeight: FontWeight.bold,
70                   color: Colors.white,
71                 )), // TextStyle // Text
72             ); // Container
73           }, // LayoutBuilder
74         ), // Container
75       ), // Scaffold
76     ); // SafeArea
77   }
```

Example2:



លំហាត់អនុវត្ត

