Hello

Google Developers Experts

Women Techmakers

GDG Roma

flutteristas

??

UI toolkit for building beautiful,
natively compiled applications for mobile, web, and desktop
from a single codebase,
written in Dart.

An open-source toolkit, made by Google

flutter.dev

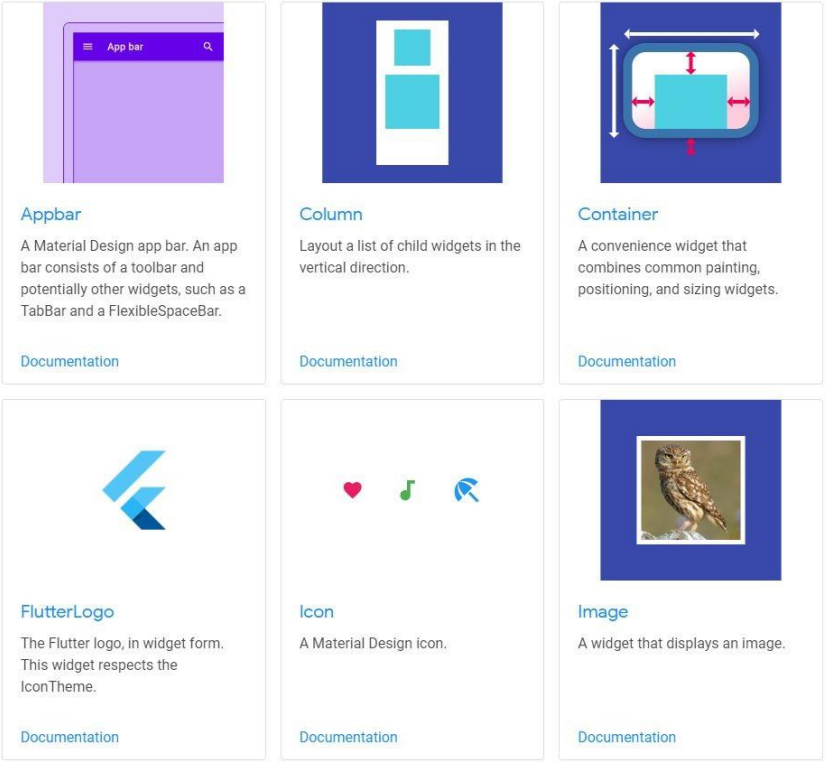
Beautiful

No compromises for UI design

- ☑ Control every pixel
- ☑ Never say no to your “designer”
- ☑ Rich palette of tools

The power of widgets

Everything is a widget!!



https://flutter.dev/docs/development/ui/widgets

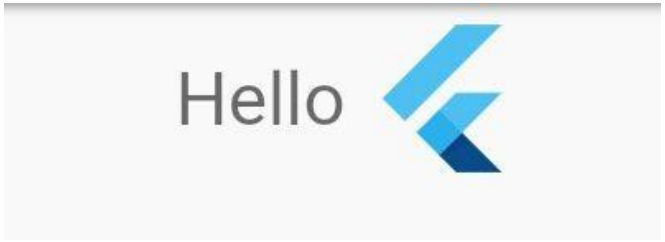
Declarative layout

Create layout by declaring intent

Flutter figures out the “how”

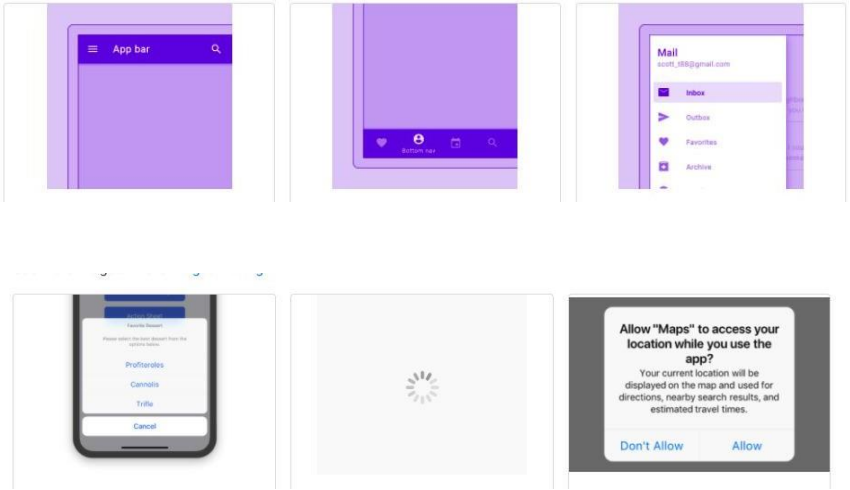
```
Row(
    mainAxisAlignment: MainAxisAlignment.center,
    crossAxisAlignment: CrossAxisAlignment.center,
    children: [
      Text(
        'Hello',
        style:Theme.of(context).textTheme.headline3),
      Padding(
        padding: const EdgeInsets.all(8.0),
        child: FlutterLogo(size: 100),
      ),

    ]
)
```



Beautiful widgets

- Material Components widgets
- Cupertino (iOS-style) widgets



Layout - related Widgets

- Single-child layout widgets
  (Container, Center, Expanded, Padding)
- Multi-child layout widgets
  (Column, Row, ListView, Stack)

Structural Widgets
(Buttons, Icons, Text, Image)

Animation & motion Widgets:

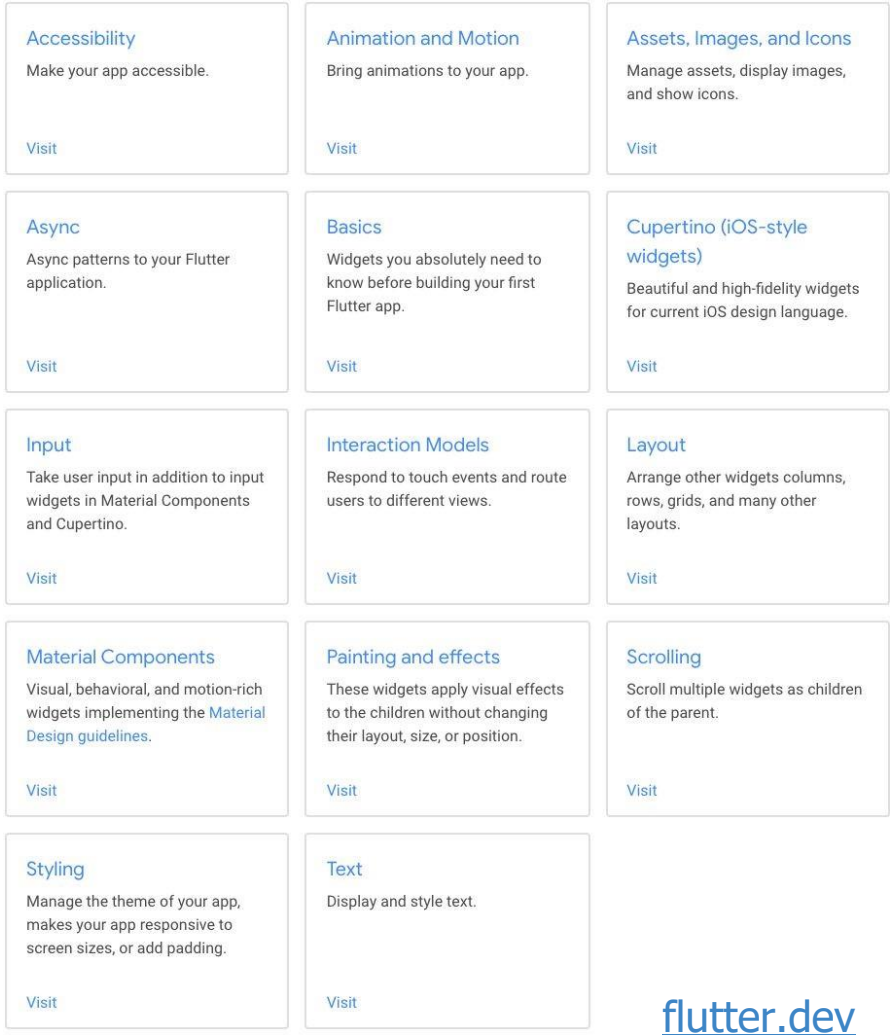
Styling widgets

Scrolling widgets

…..

Material component Widgets

Cupertino widgets

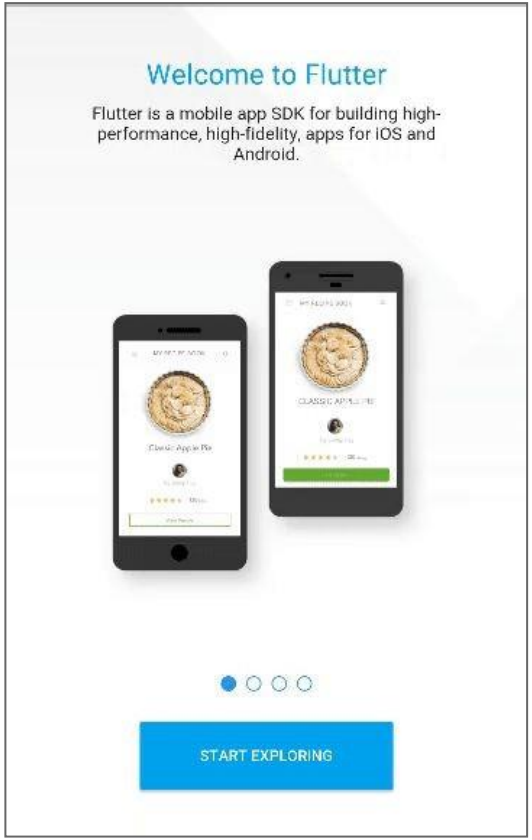


flutter.dev

Fast

High velocity development

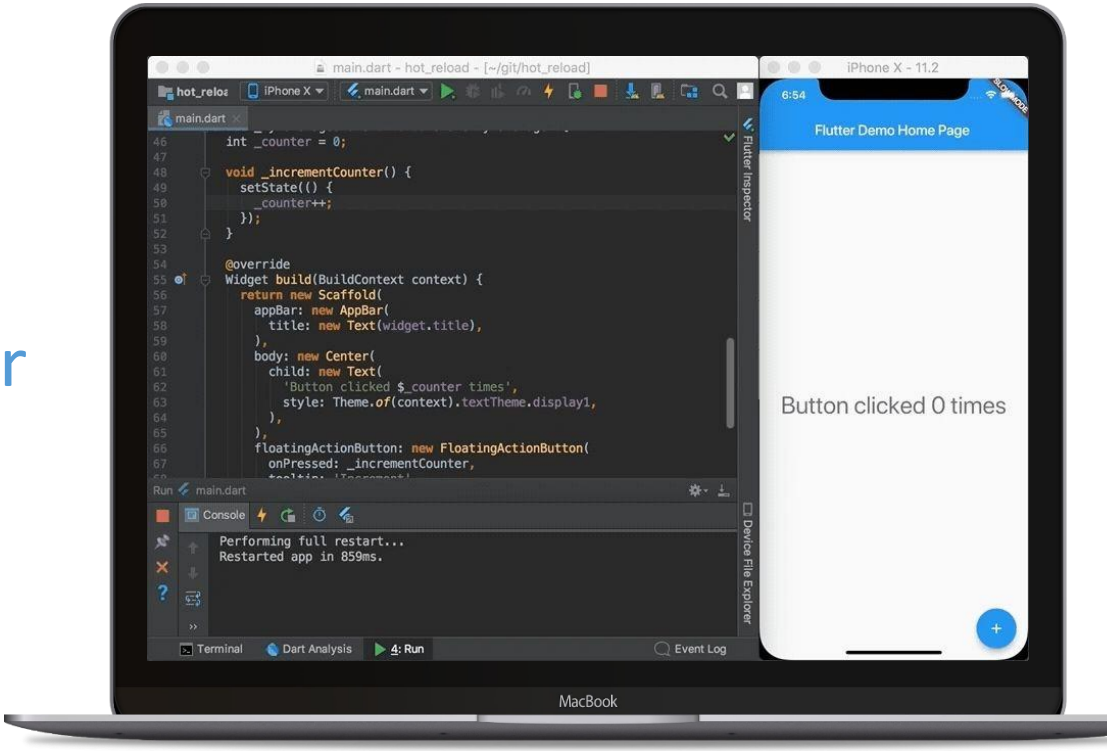
\+ Native performance



- ☑ Graphics engine Skia 2D
- ☑ 60fps, GPU accelerated
- ☑ Compiled to native machine code

Productive

Develop while your app is running



- [x] Paint your app to life
- [x] Hot Reload & Hot Restart
- [x] Revolutionary capabilities for developers and designers

One language

Dart Since 2011

made by Google

Dart

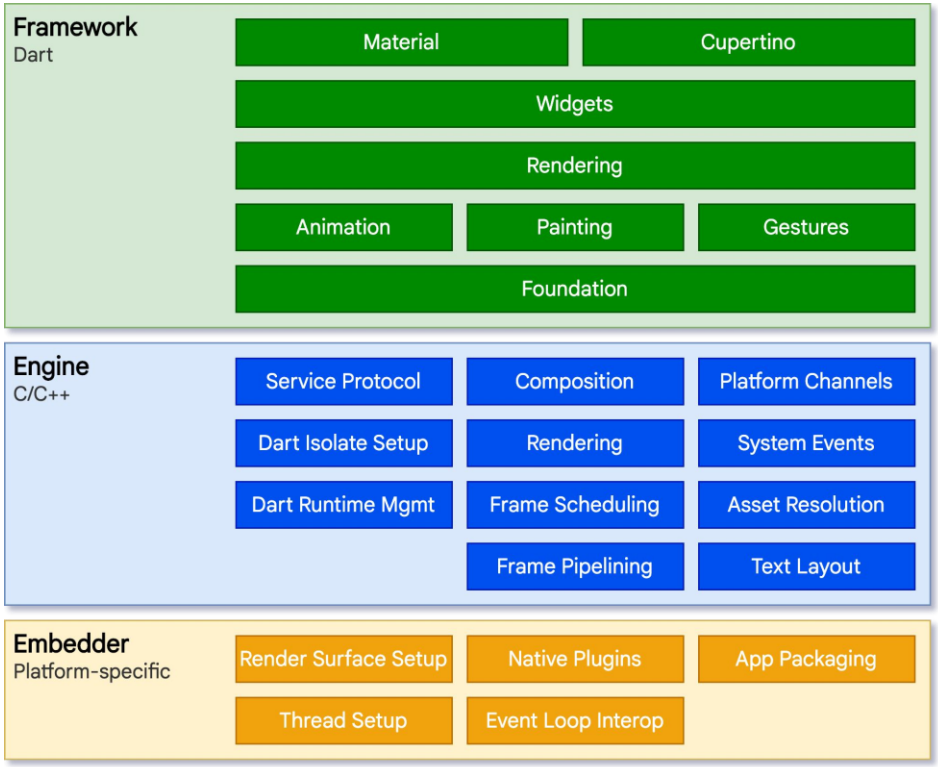
- Client -optimized OOP language for fast apps in any platform
- Dart js compiler
- Just in time and Ahead of time compilation

- [x] Stateful hot reload
- [x] Syntax simplicity
- [x] ‘to -native’ compilation

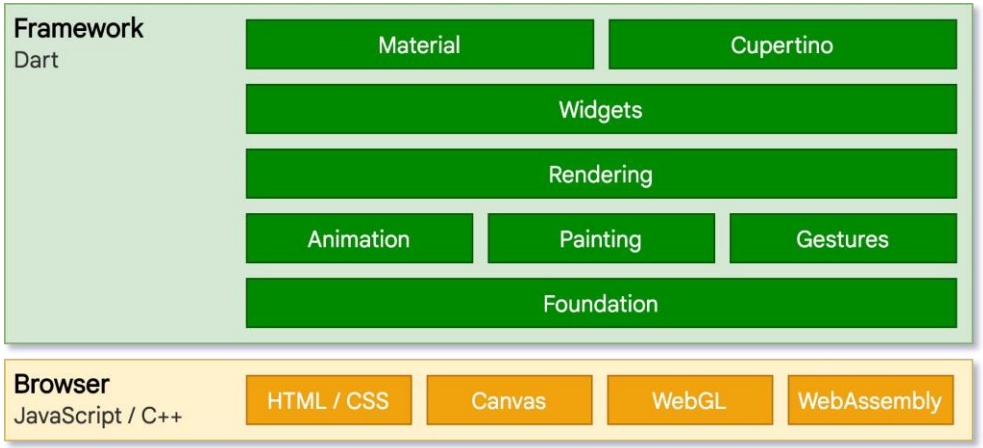
Why

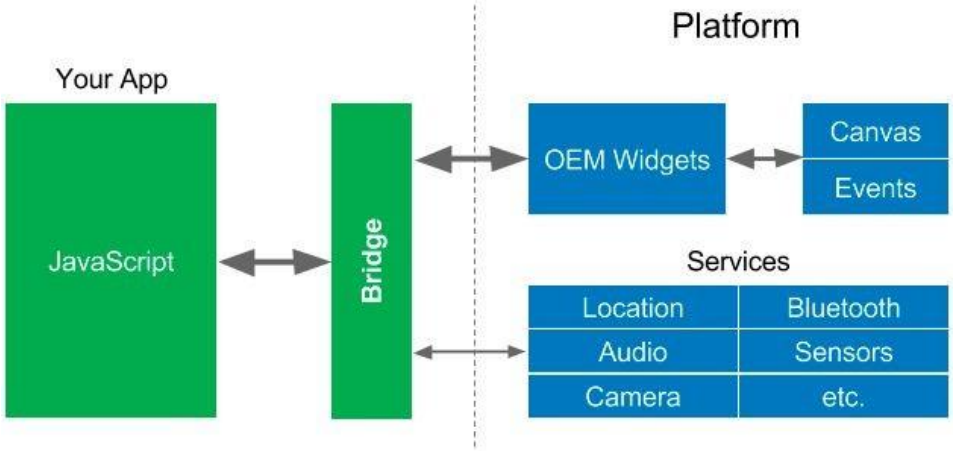
is Unique?

Architecture overview

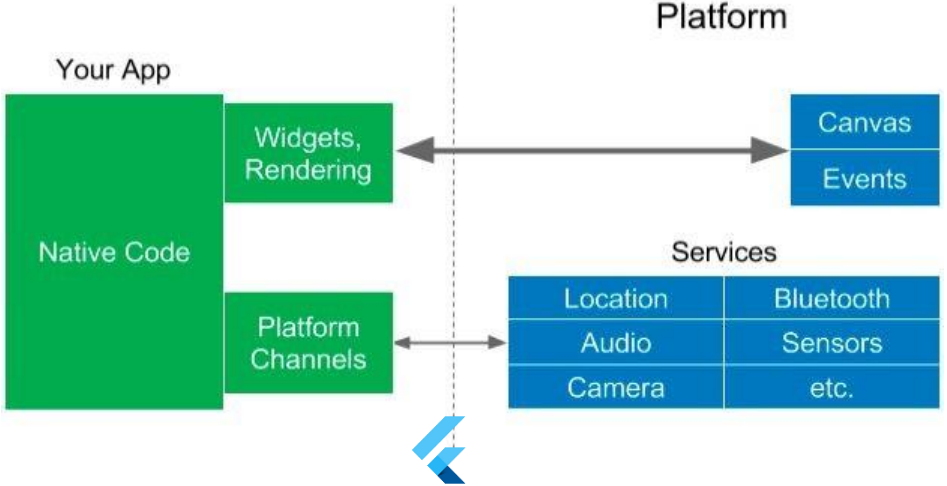


Web

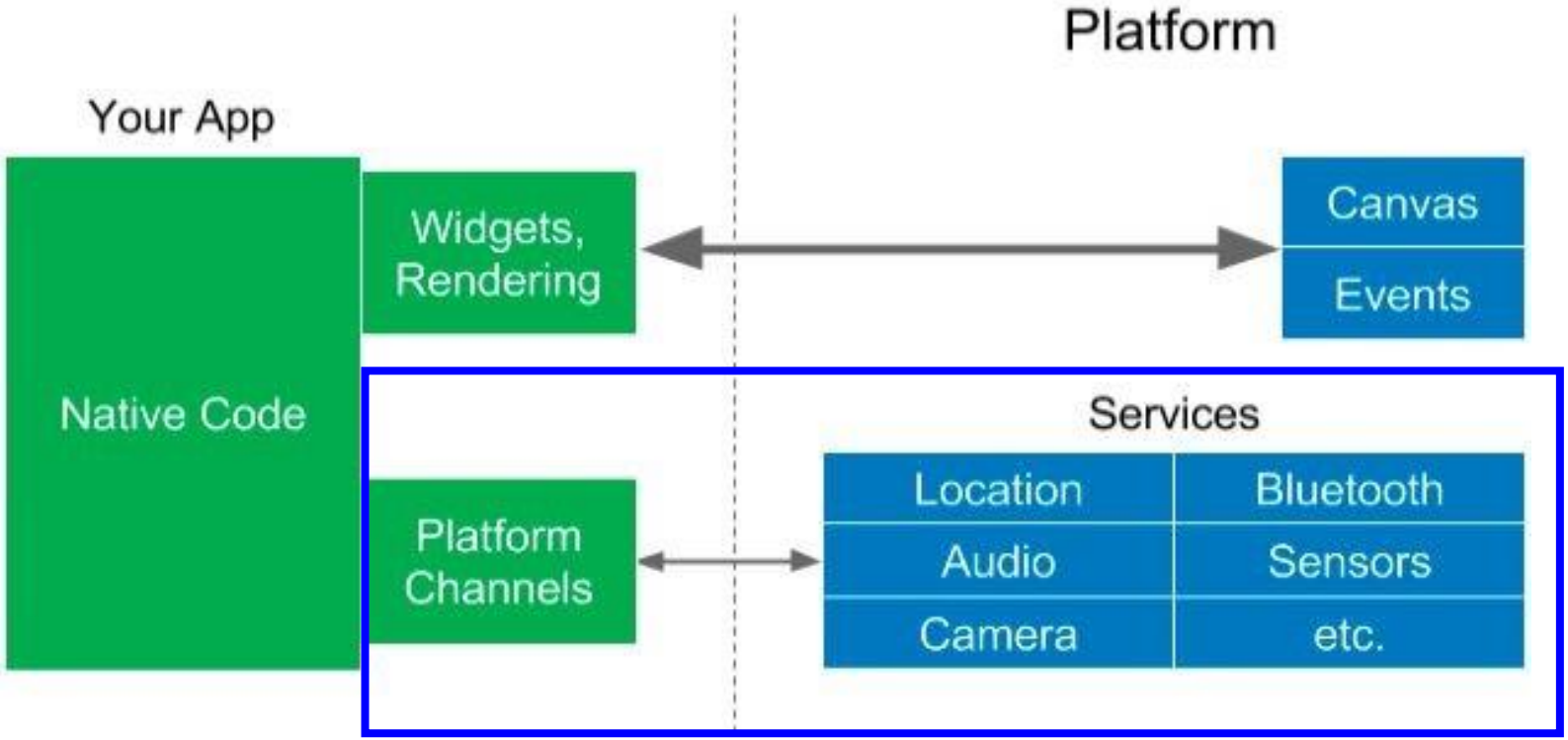

Framework
Dart
Material
Cupertino
Widgets
Rendering
Animation
Painting
Gestures
Foundation
Browser
JavaScript / C++
HTML / CSS
Canvas
WebGL
WebAssembly

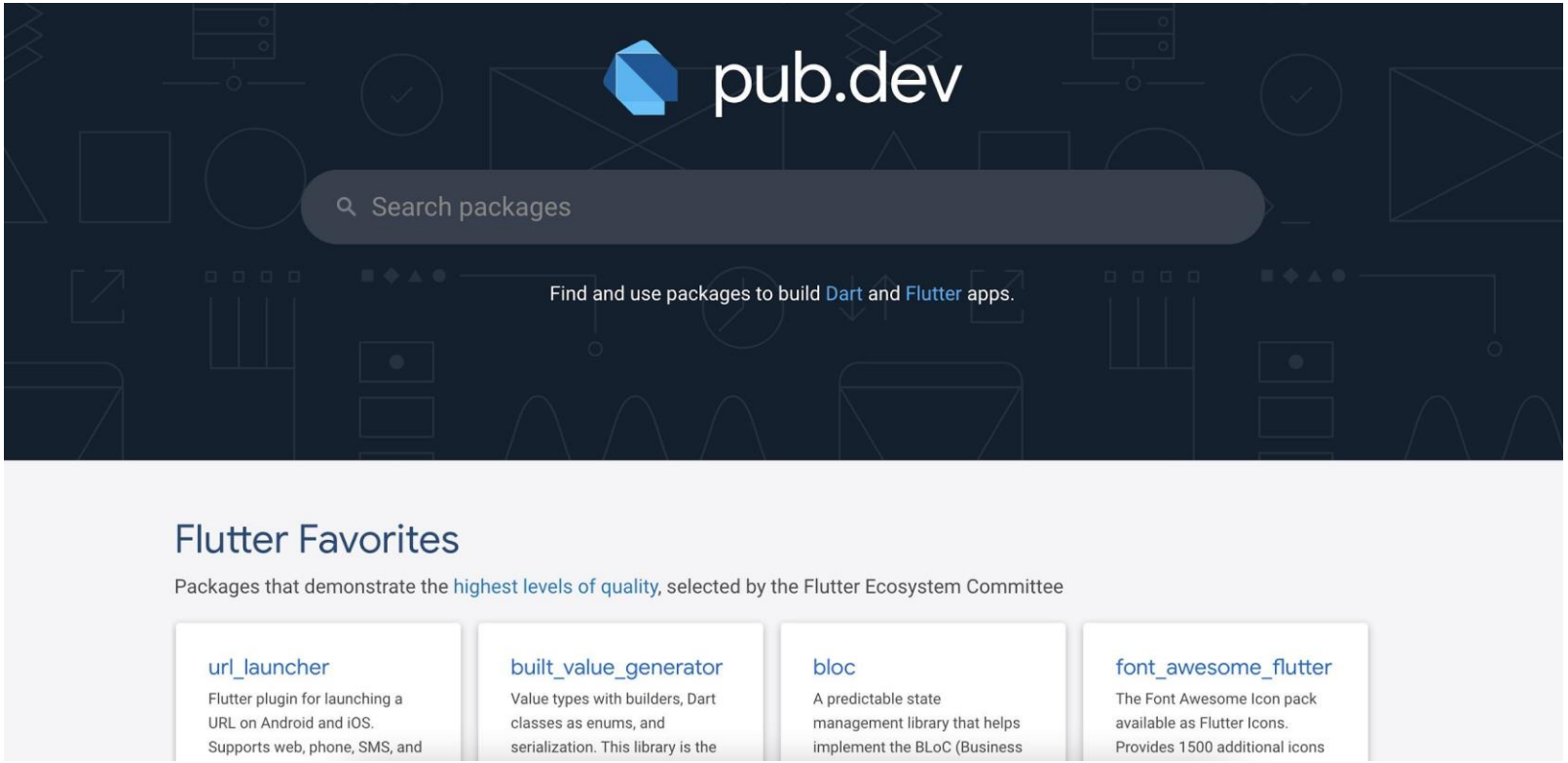

Platform
Your App
JavaScript
Bridge
OEM Widgets
Canvas
Events
Services
Location
Bluetooth
Audio
Sensors
Camera
etc.

VS


Platform
Your App
Native Code
Widgets, Rendering
Platform Channels
Canvas
Events
Services
Location
Bluetooth
Audio
Sensors
Camera
etc.

Plugins/Packages

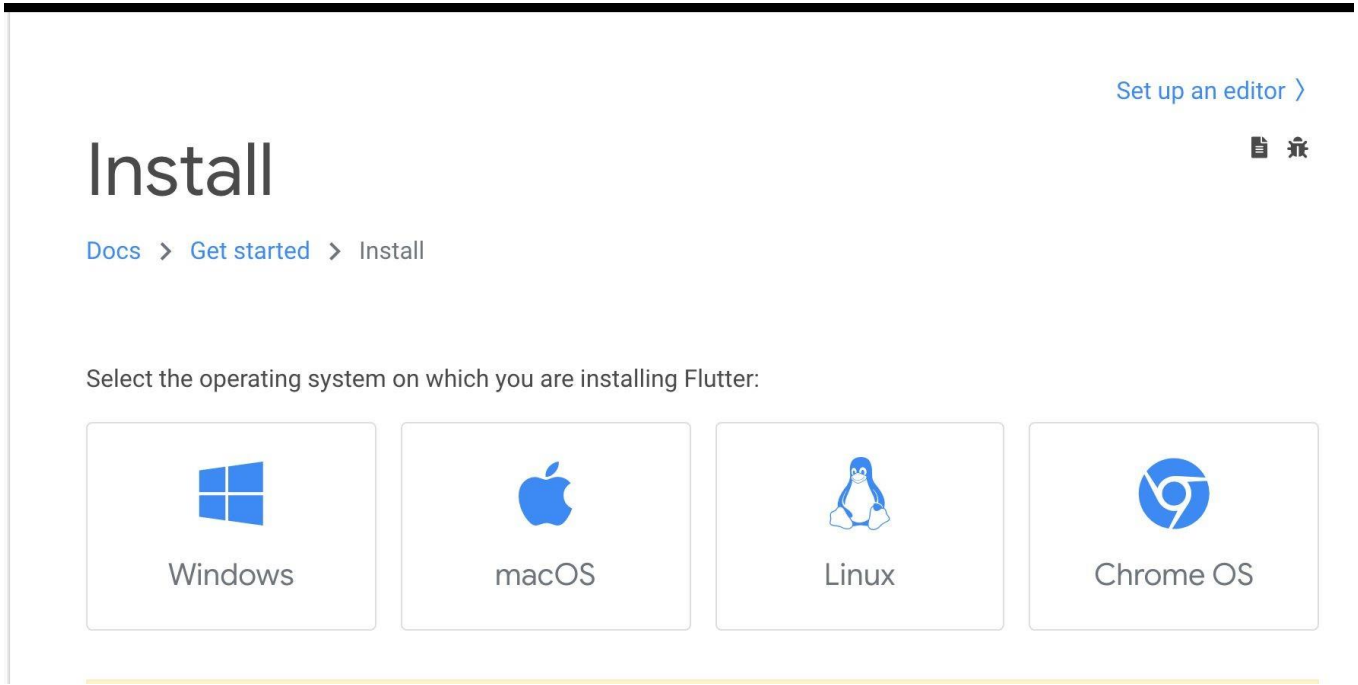



pub.dev
Search packages
Find and use packages to build Dart and Flutter apps.
Flutter Favorites
Packages that demonstrate the highest levels of quality, selected by the Flutter Ecosystem Committee
url_launcher
Flutter plugin for launching a URL on Android and iOS. Supports web, phone, SMS, and
built_value_generator
Value types with builders, Dart classes as enums, and serialization. This library is the
bloc
A predictable state management library that helps implement the BLoC (Business
font_awesome_flutter
The Font Awesome Icon pack available as Flutter Icons. Provides 1500 additional icons

Why

is Awesome?

Set up

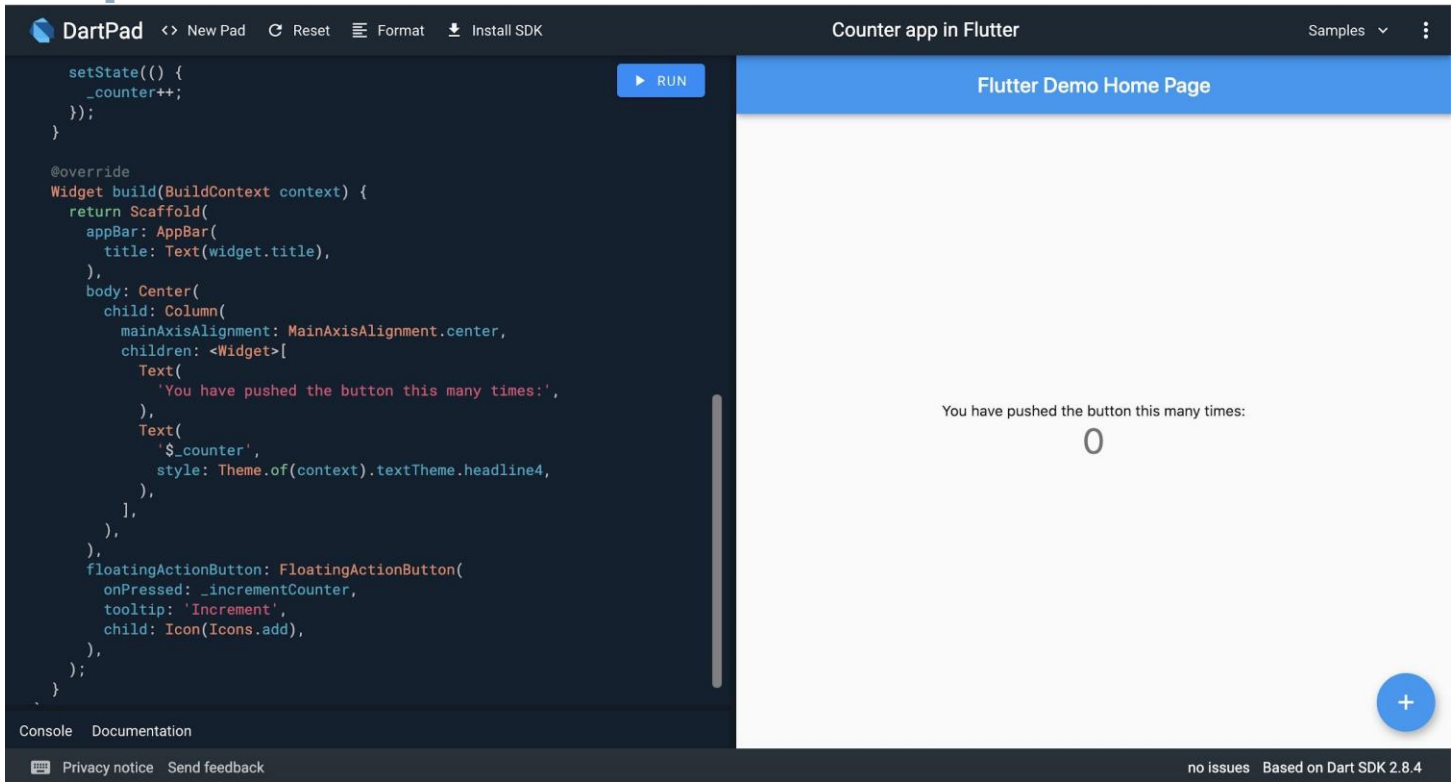


https://flutter.dev/docs/get-started/install

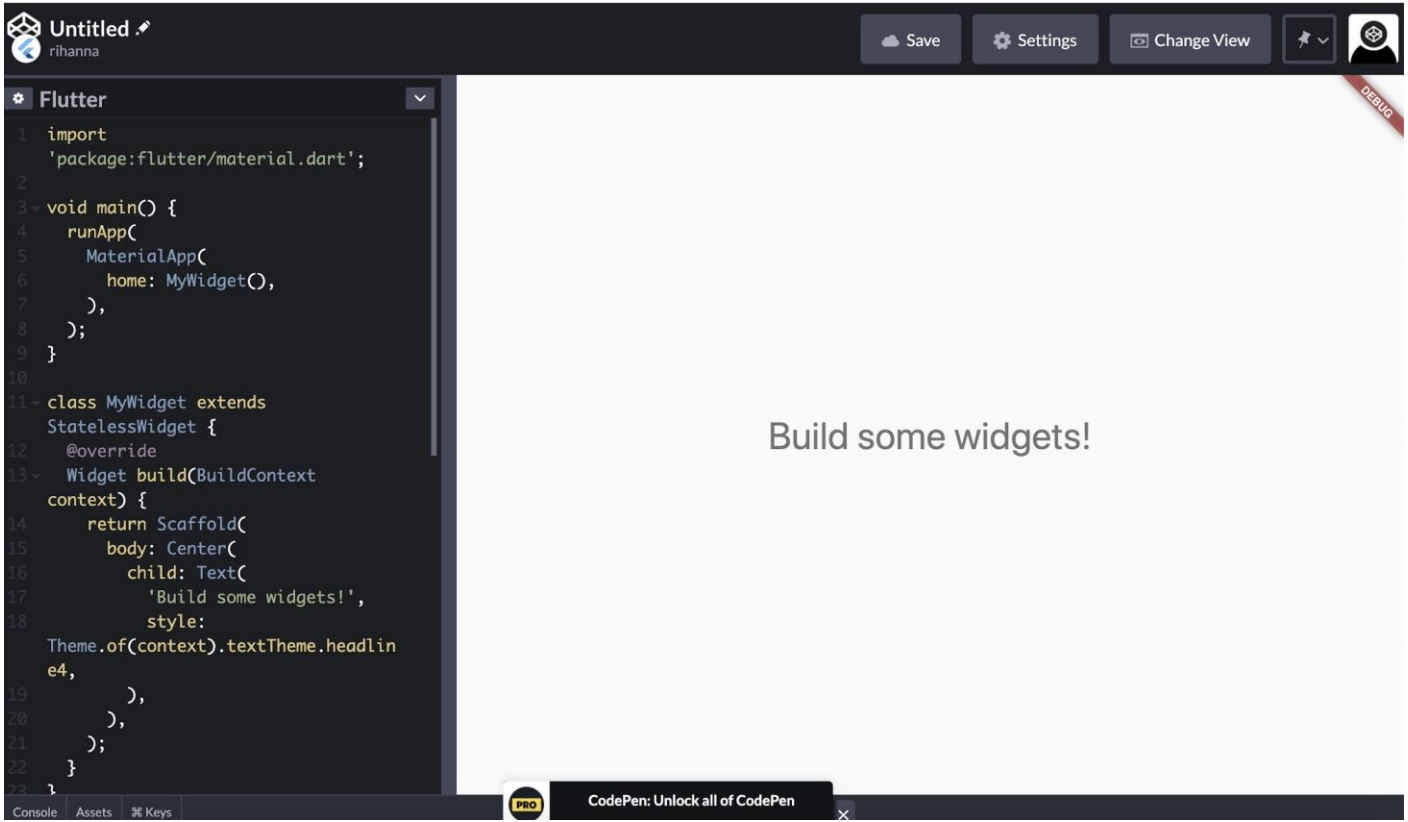
IDE Support

flutter.dev/docs/get-started/editor

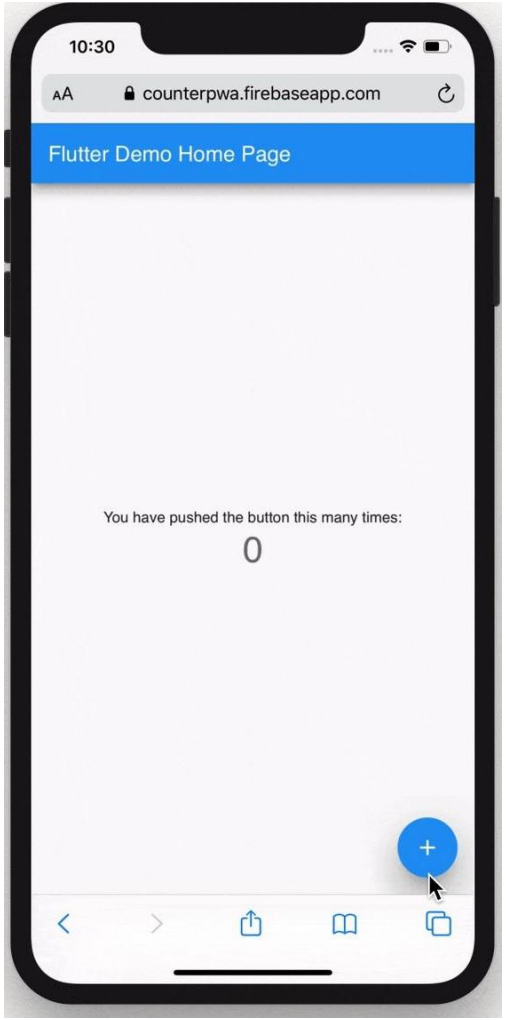
dartpad.dev

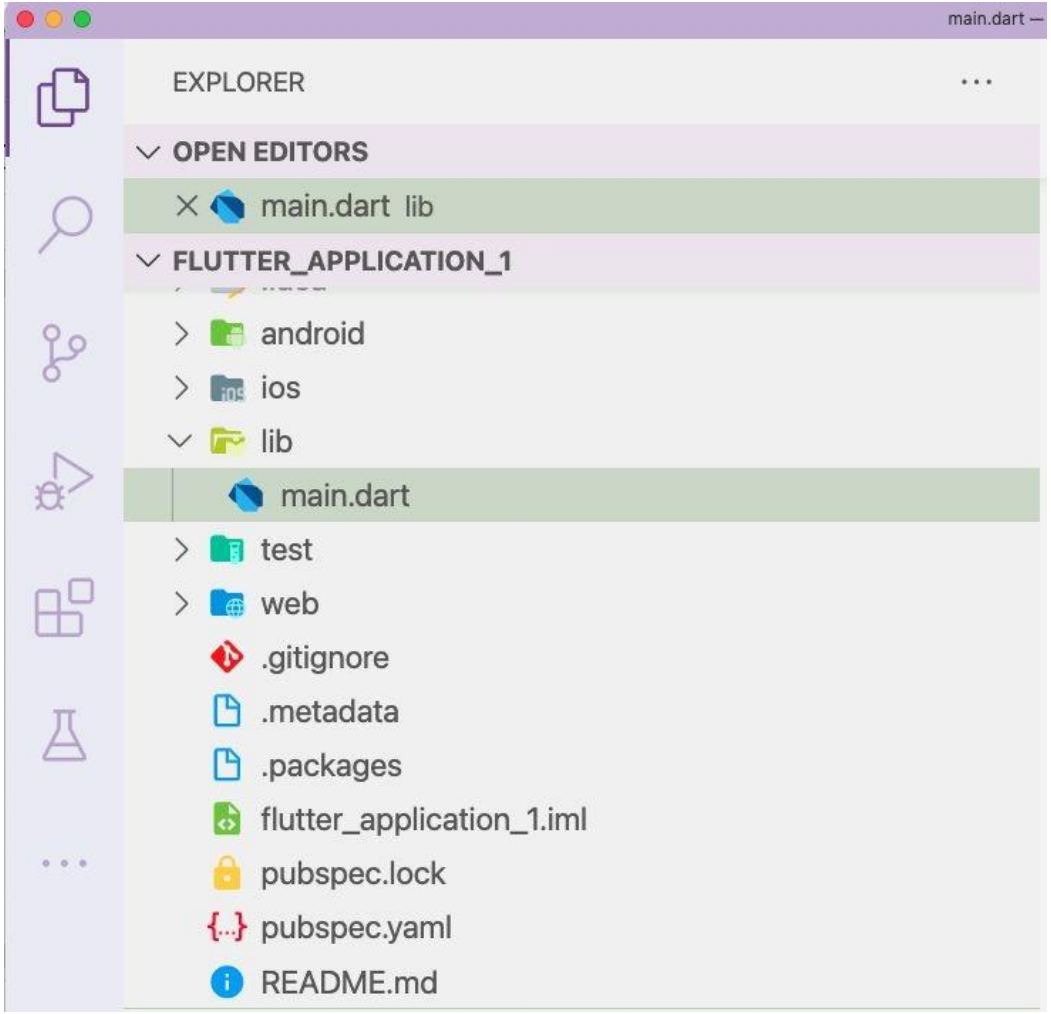

DartPad
New Pad
Reset
Format
Install SDK
Counter app in Flutter
Samples
RUN
setState(() {
_counter++;
});
}
@override
Widget build(BuildContext context) {
return Scaffold(
appBar: AppBar(
title: Text(widget.title),
),
body: Center(
child: Column(
mainAxisAlignment: MainAxisAlignment.center,
children: <Widget>[
Text(
'You have pushed the button this many times:',
),
Text(
'$_counter',
style: Theme.of(context).textTheme.headline4,
),
],
),
),
floatingActionButton: FloatingActionButton(
onPressed: _incrementCounter,
tooltip: 'Increment',
child: Icon(Icons.add),
),
);
}
Console
Documentation
Flutter Demo Home Page
You have pushed the button this many times:
0
Privacy notice
Send feedback
no issues
Based on Dart SDK 2.8.4

codepen.io

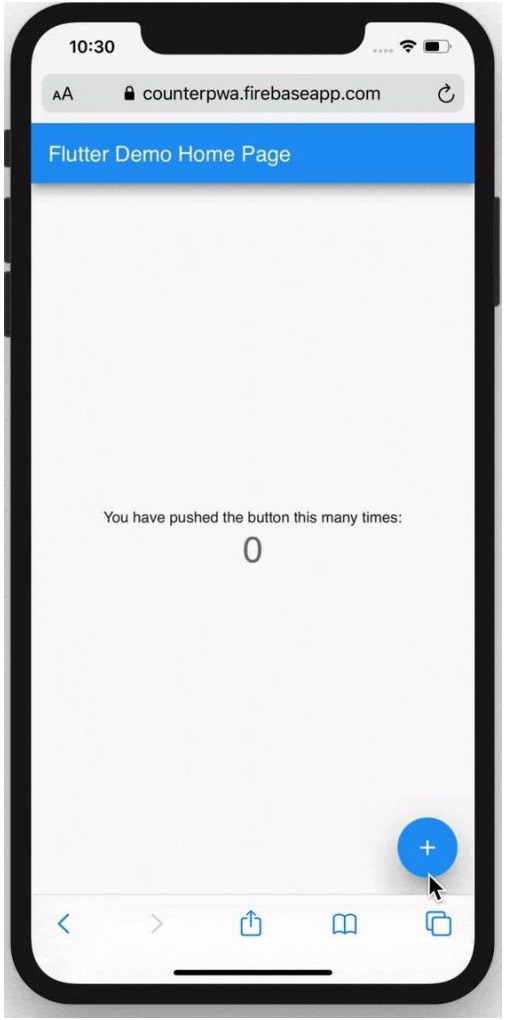

Untitled
rihanna
Save
Settings
Change View
Flutter
import
'package:flutter/material.dart';
void main() {
runApp(
MaterialApp(
home: MyWidget(),
),
);
}
class MyWidget extends
StatelessWidget {
@override
Widget build(BuildContext
context) {
return Scaffold(
body: Center(
child: Text(
'Build some widgets!',
style:
Theme.of(context).textTheme.headlin
e4,
),
),
);
}
}
DEBUG
Build some widgets!
Console
Assets
⌘ Keys
PRO
CodePen: Unlock all of CodePen

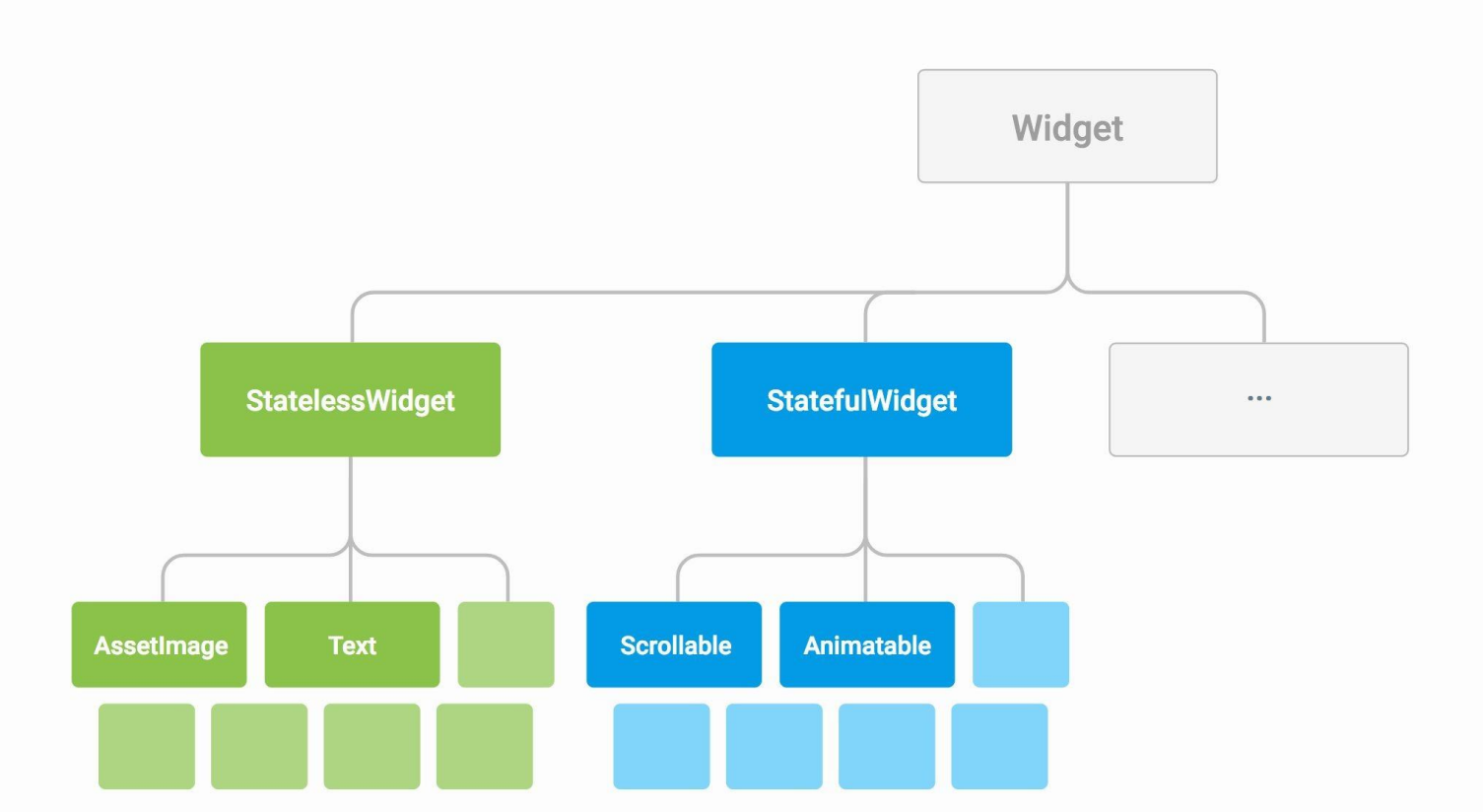
app


10:30
AA
counterpwa.firebaseapp.com
Flutter Demo Home Page
You have pushed the button this many times:
0
+

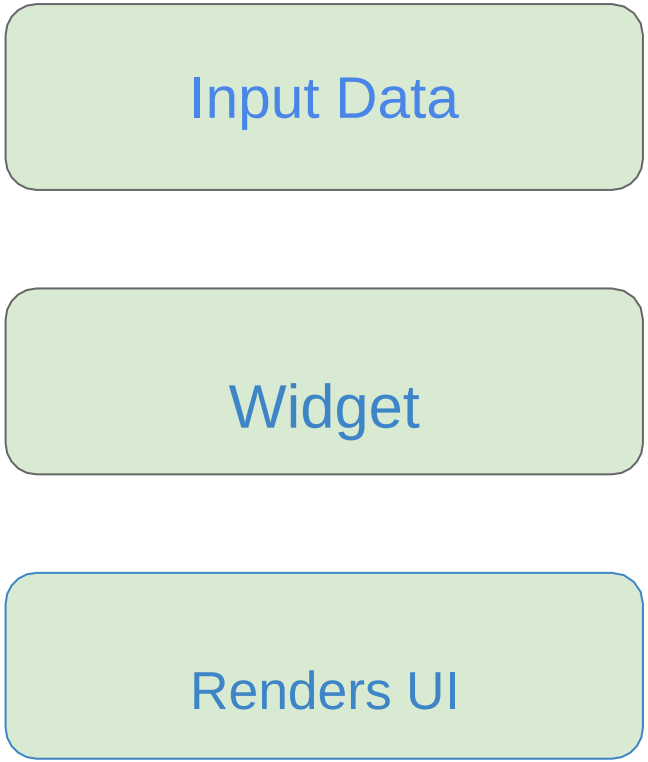

main.dart —
EXPLORER
OPEN EDITORS
main.dart lib
FLUTTER_APPLICATION_1
android
ios
lib
main.dart
test
web
.gitignore
.metadata
.packages
flutter_application_1.iml
pubspec.lock
pubspec.yaml
README.md

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



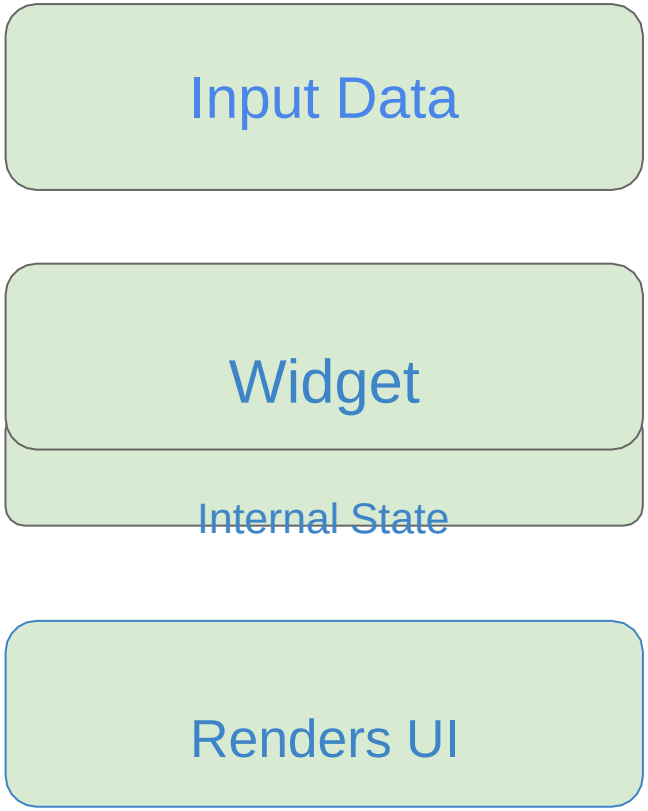

Widget
StatelessWidget
StatefulWidget
...
AssetImage
Text
Scrollable
Animatable

Stateless widget



```dart
class MyApp extends StatelessWidget {
 @override
 Widget build(BuildContext context) {
   return MaterialApp(
     title: 'Flutter Demo',
     theme: ThemeData(
       primarySwatch: Colors.blue,
     ),
     home: MyHomePage(title: 'Flutter Demo Home Page'),
   );
 }
}
```

Stateful widget



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

    final String title;

    @override
    _MyHomePageState createState() => _MyHomePageState();
}
```

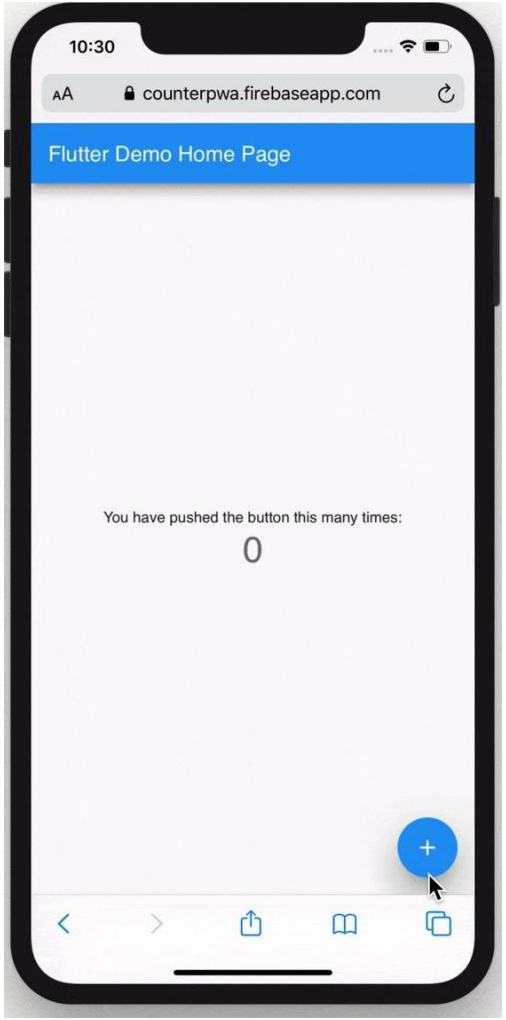
```dart
class _MyHomePageState extends State<MyHomePage>{
      int _counter = 0;

      void _incrementCounter() {
        setState(() {
          _counter++;
        });
      }
```

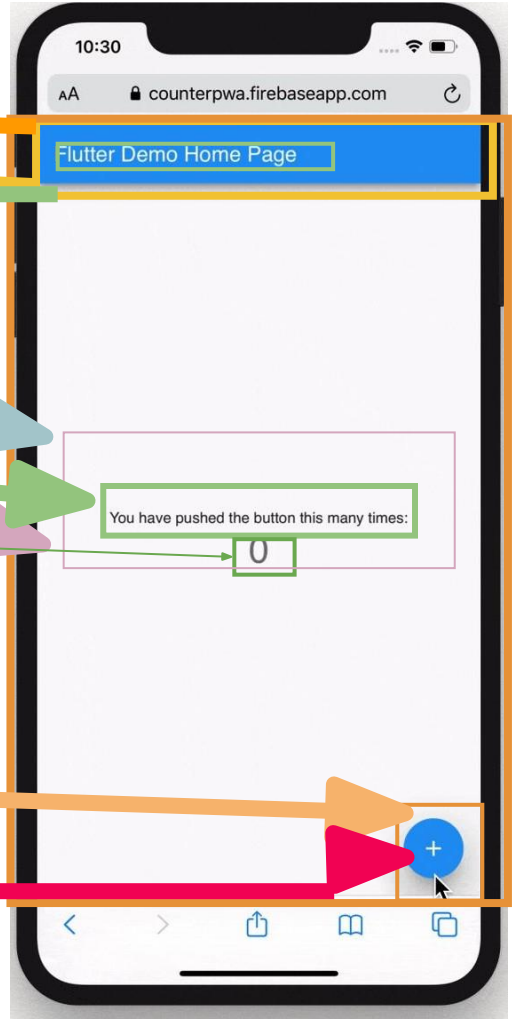
.

.

.



```
Widget build(BuildContext context) {
  return Scaffold(
    appBar: AppBar(title: Text(widget.title)),
    body: Center(
      child: Column(
        mainAxisAlignment: MainAxisAlignment.center,
        children: <Widget>[
          Text(
            'You have pushed the button this many times:',
          ),
          Text( '$_counter',
            style: Theme.of(context).textTheme.headline4,
          ),
        ],
      )),
    floatingActionButton: FloatingActionButton(
      onPressed: _incrementCounter,
      tooltip: 'Increment',
      child: Icon(Icons.add),
    ), );
}
```



Demo

BETWEEN FLUTTER AND DART, WHICH IS THE PROGRAMMING LANGUAGE AND WHICH IS THE FRAMEWORK?

WHAT IS A WIDGET IN FLUTTER?

HOW MANY TYPES OF WIDGETS ARE THERE IN FLUTTER?

WHAT ARE THE ADVANTAGES OF FLUTTER?

WHAT IS HOT RELOAD IN FLUTTER?

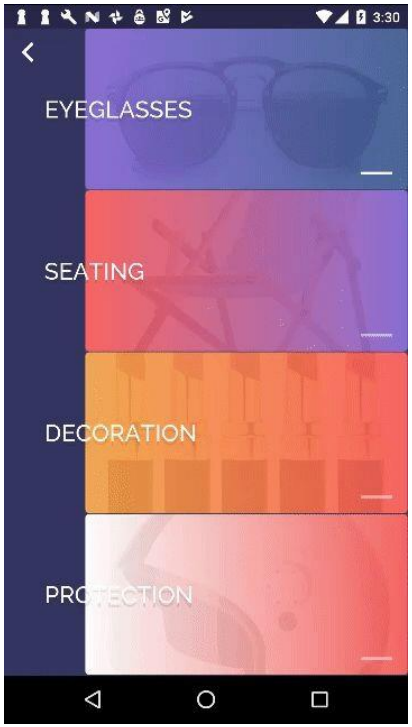
DURING A TYPICAL DEVELOPMENT CYCLE, YOU TEST AN APP USING FLUTTER RUN AT THE COMMAND LINE, OR BY USING THE RUN AND DEBUG OPTIONS IN YOUR IDE. BY DEFAULT, FLUTTER BUILDS A DEBUG VERSION OF YOUR APP. QUESTION, WHAT ARE THE DIFFERENT BUILD MODES IN FLUTTER?

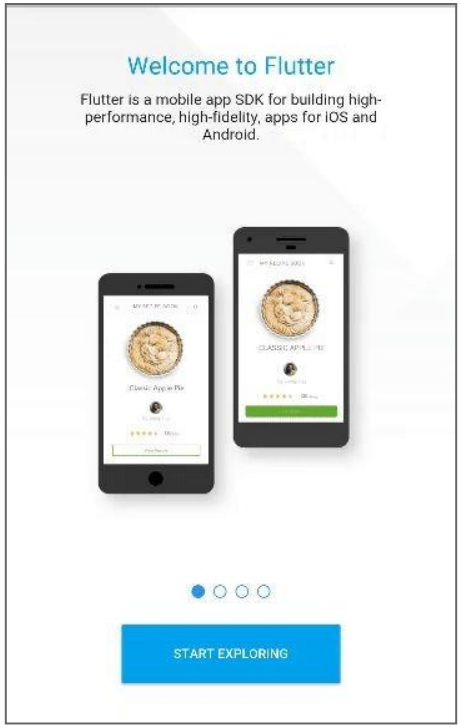
WHAT ARE THE BENEFITS OF FLUTTER?

WHAT ARE PACKAGES IN FLUTTER?

Recap

Great looking and fast Apps





One codebase on every screen


flutter build android [--release]

flutter build ios [--release]


flutter build linux [--release]


flutter build macos [--release]


flutter build windows [--release]

flutter build web [--release]

flutter.dev/desktop
flutter.dev/web

Getting started with

- From another platform?
  - Flutter for Android devs
  - Flutter for iOS devs
  - Flutter for React Native devs
  - Flutter for web devs
  - Flutter for Xamarin.Forms devs

flutter.dev/docs/get-started/flutter-for/android-devs

Newbie

- Checkout examples
- Watch Flutter videos/courses
- Read Flutter documentations
- Play and practice
- Find a friend to learn with

- Dart code lab
- Tour of dart
- Dart video tutorials

Flutter docs / blogs

- flutter.dev
- flutter.faq
- flutter.community
- flutter.medium

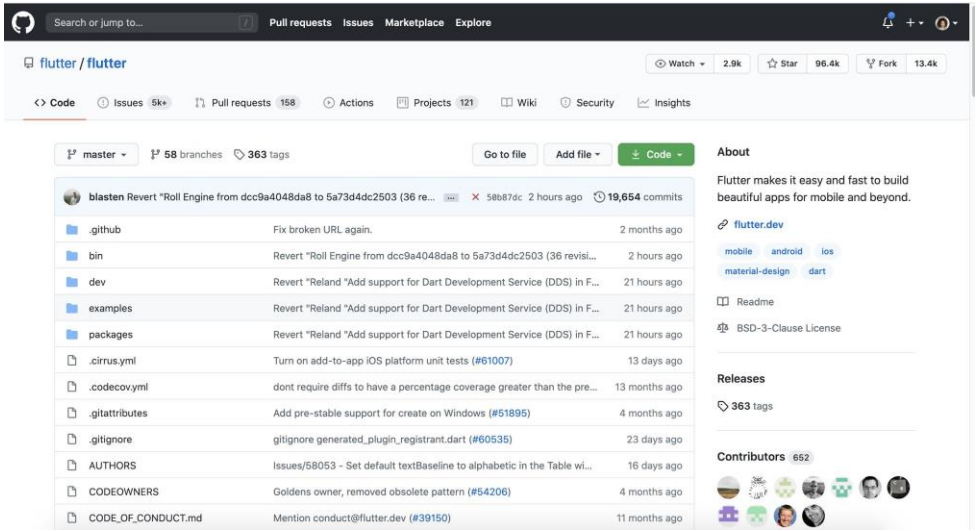
- flutter.showcases
- codepen.io/flutter
- itsallwidgets.com
- latest codelabs
- fluttergems.dev

Coding GIF by Memecandy from giphy.com

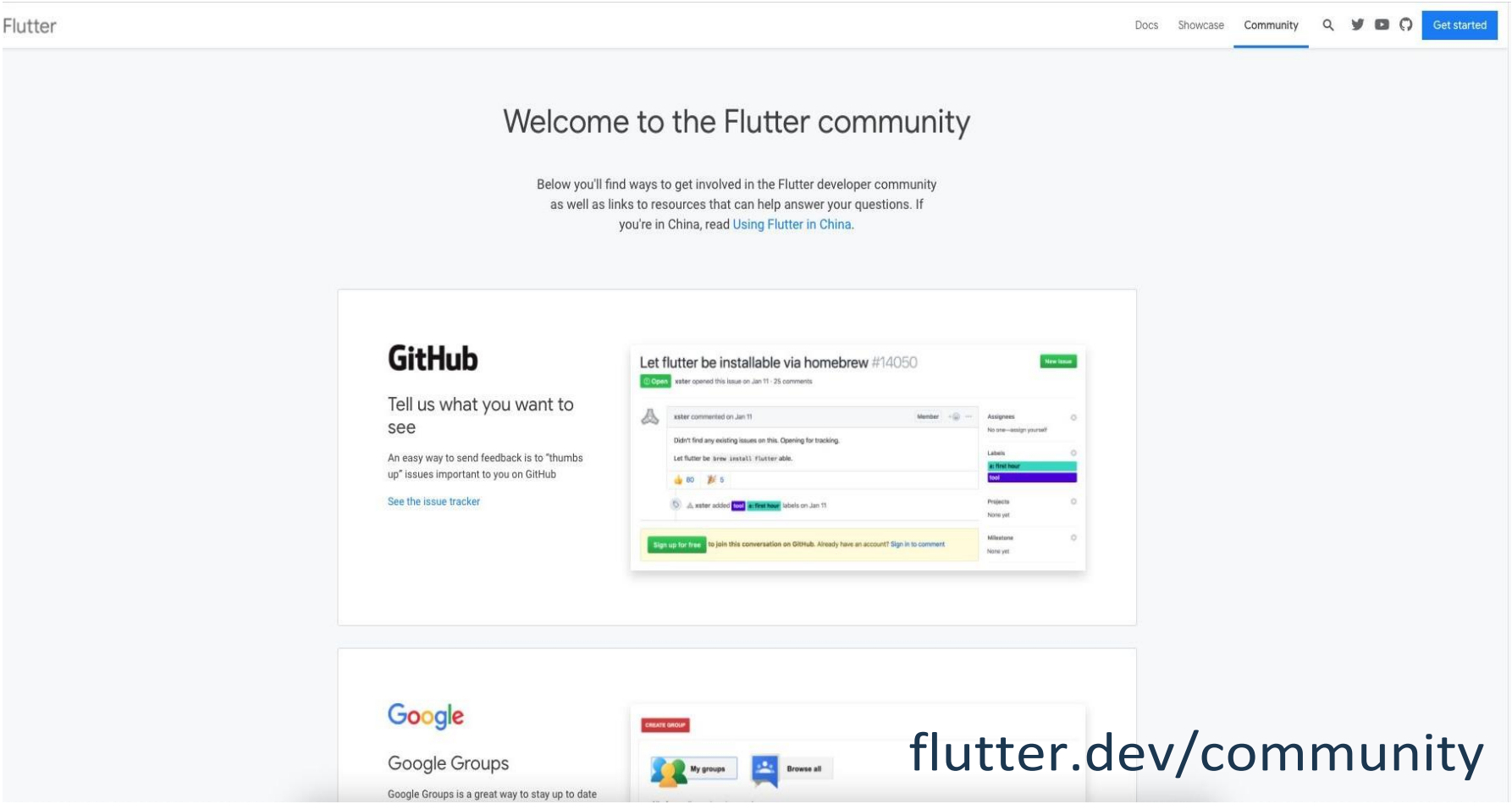
- The Flutter boring show
- Widget of the week
- Flutter in focus

Open

Everything is free
100% community contribution



github.com/flutter/


Flutter
Docs
Showcase
Community
Get started
Welcome to the Flutter community
Below you'll find ways to get involved in the Flutter developer community as well as links to resources that can help answer your questions. If you're in China, read Using Flutter in China.
GitHub
Tell us what you want to see
An easy way to send feedback is to "thumbs up" issues important to you on GitHub
See the issue tracker
Let flutter be installable via homebrew #14050
Google
Google Groups
Google Groups is a great way to stay up to date
My groups
Browse all
flutter.dev/community

World-wide community of people whose gender identity is either female or non-binary

flutteristas.org

IS FLUTTER LIMITED TO THE MOBILE WORLD ONLY?

(FACT)

FLUTTER IS AN OPEN-SOURCE USER INTERFACE SOFTWARE DEVELOPMENT KIT WHICH MEANS THERE ARE SOME ADVANTAGES TO UTILIZING AN OPEN SOURCE SDK LIKE TRANSPARENCY – AN OPEN SOURCE CODE MEANS THE CODE IS FULLY AVAILABLE FOR THE WORLD TO SEE, AND (IN MOST CASES) FOR ANYONE TO CONTRIBUTE. EVERY LIBRARY HAS OWNERS WHO CONTROL FINAL EDITS, BUT ANYONE IN THE DEVELOPER COMMUNITY CAN MAKE SUGGESTIONS AND TAKE PART.

(FACT)

SOME COMPANIES THAT USE FLUTTER: GOOGLE, EBAY, TENCENT, THE NEW YORK TIMES, BMW, ETC.

(TRIVIA)

DO YOU KNOW THAT IT TOOK ALMOST 9 YEARS BEFORE GOOGLE RELEASED DART'S FIRST STABLE RELEASE? DART WAS FIRST APPEARED IN OCTOBER 10, 2011 AND THE FIRST STABLE RELEASE WAS RELEASED ON MARCH 23, 2020.

Any questions?