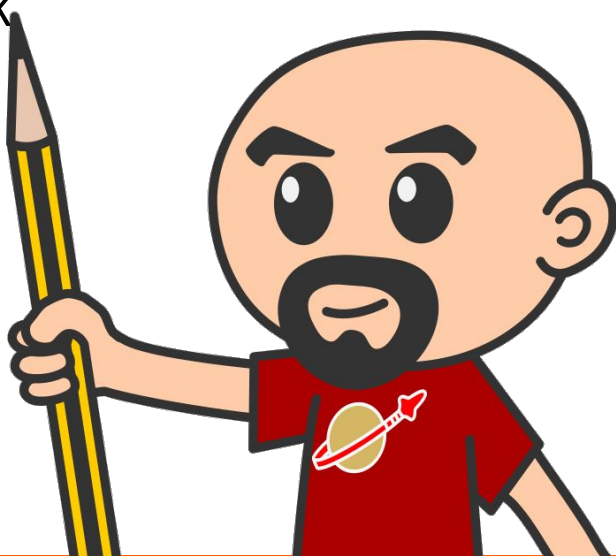


Horacio Gonzalez

@LostInBrittany

Spaniard lost in Brittany, developer,
dreamer and all-around geek



What's Flutter?

Yet another mobile solution?



Flutter

Flutter is Google's new
open-source mobile UI toolkit,
helping developers to craft
high-quality native experiences
across mobile platforms in record
time



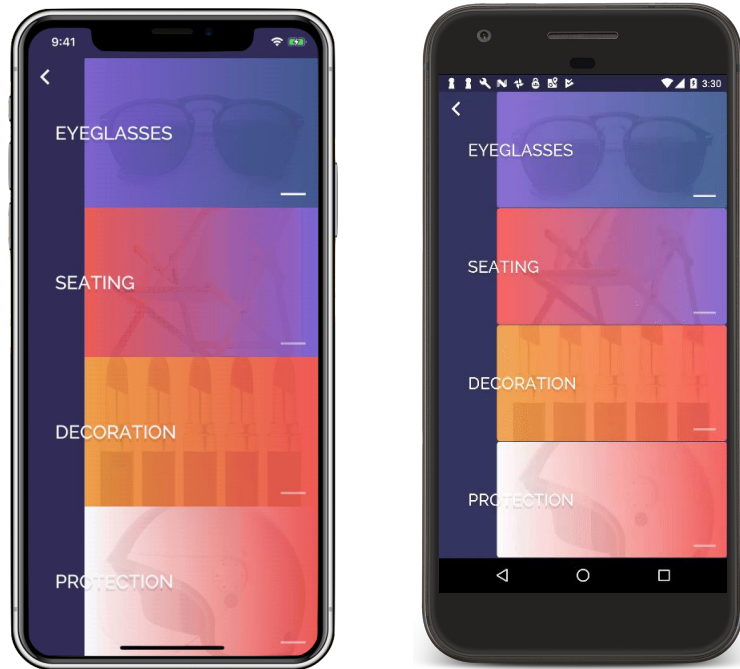
Flutter

Flutter is **Google's** new open-source mobile UI toolkit, helping developers to craft high-quality native experiences across mobile platforms in record time



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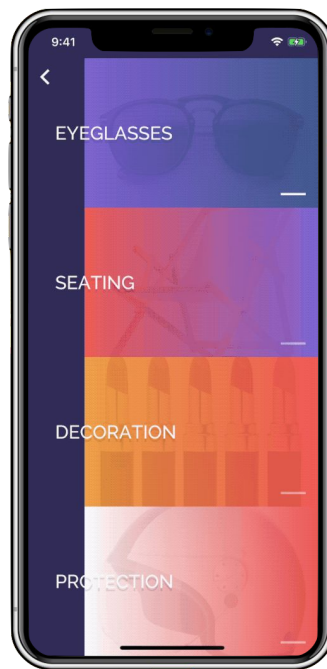
Flutter

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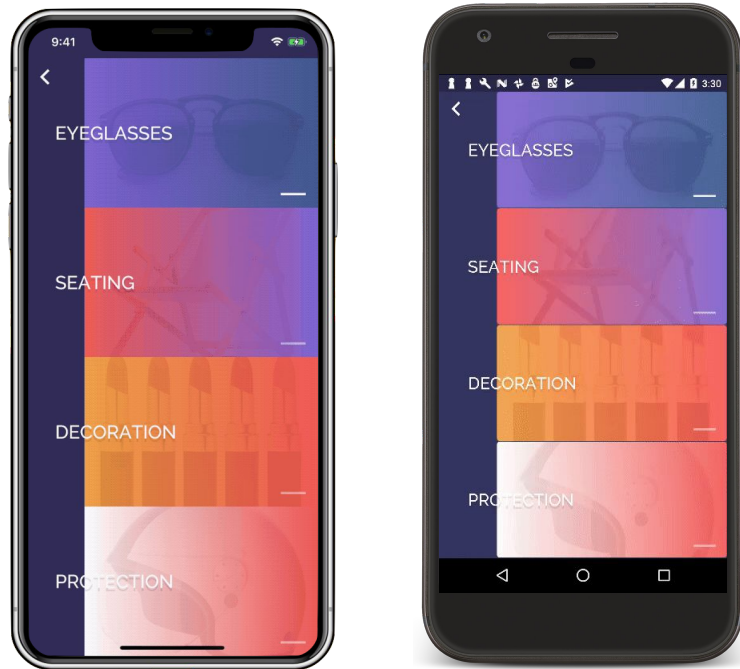
Flutter

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Flutter

Flutter is Google's new
open-source mobile UI toolkit,
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across mobile platforms **in record
time**



Looking back

Diving into the history of mobile app development



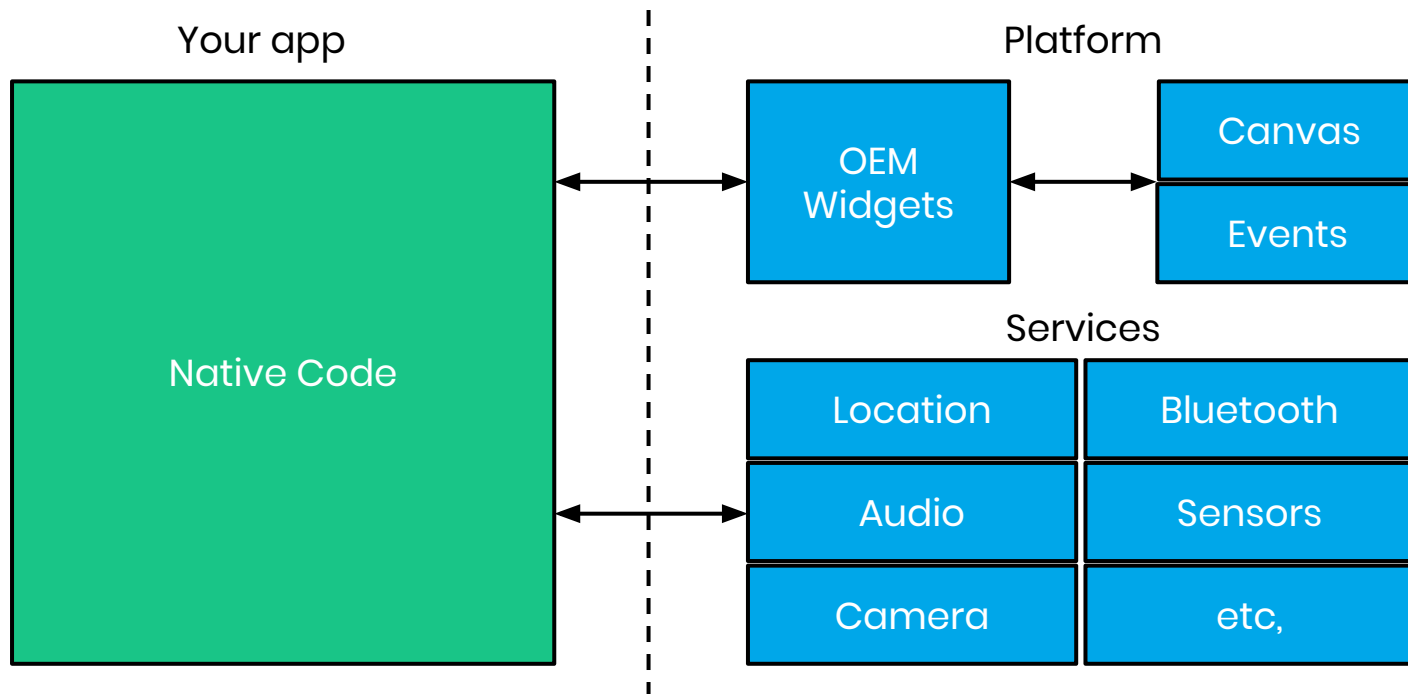
In a time almost forgotten



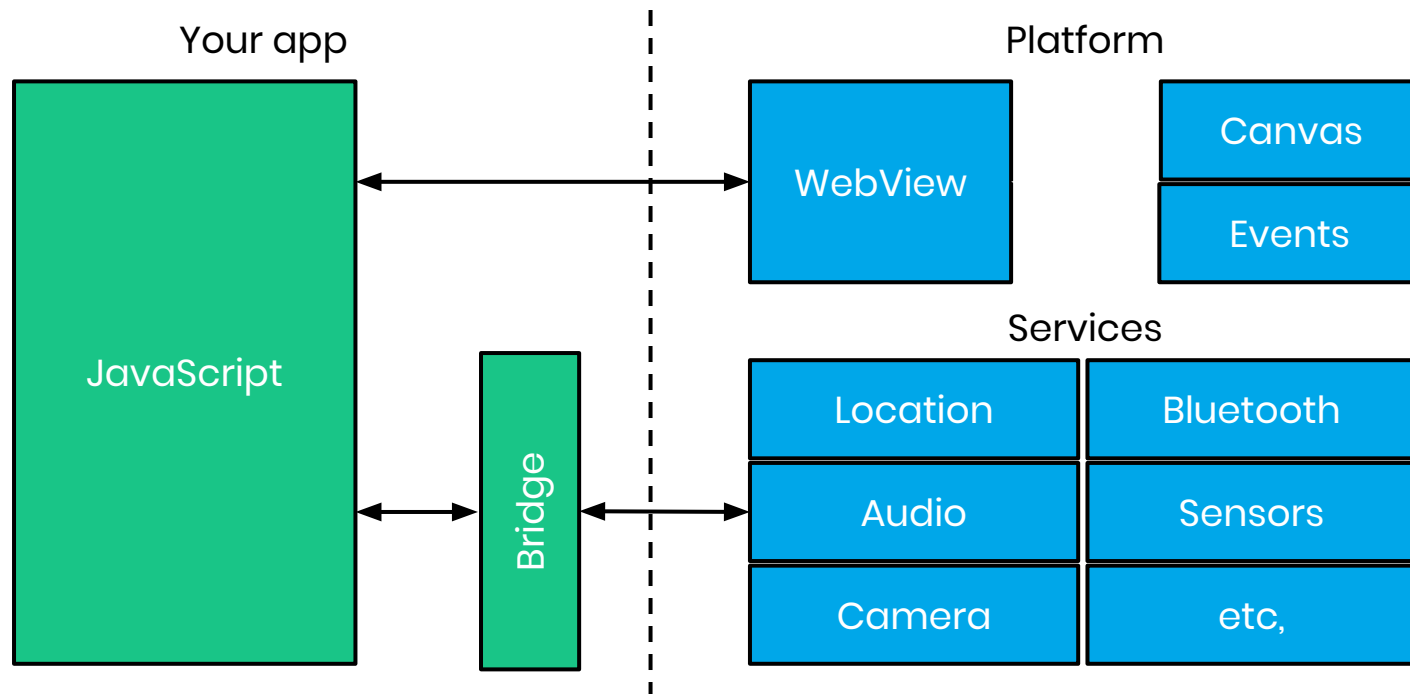
When even internet was young...



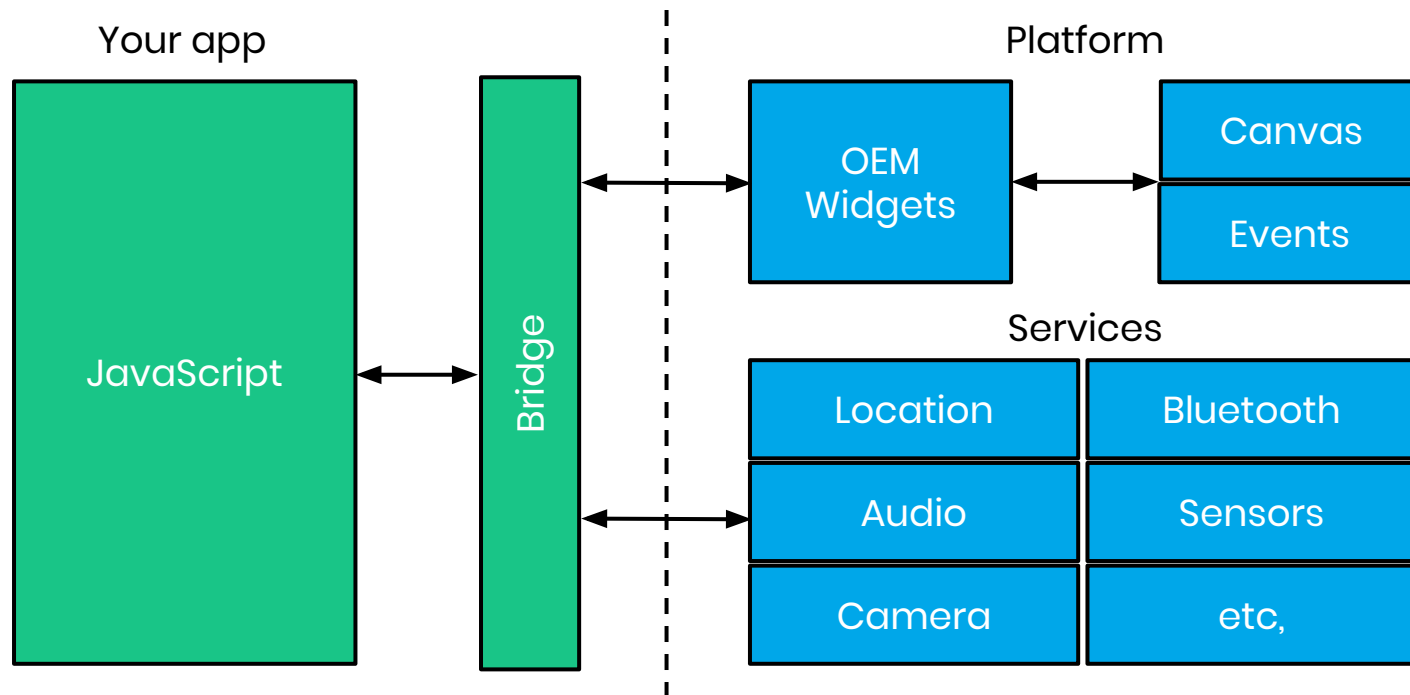
At the beginning there were the SDKs



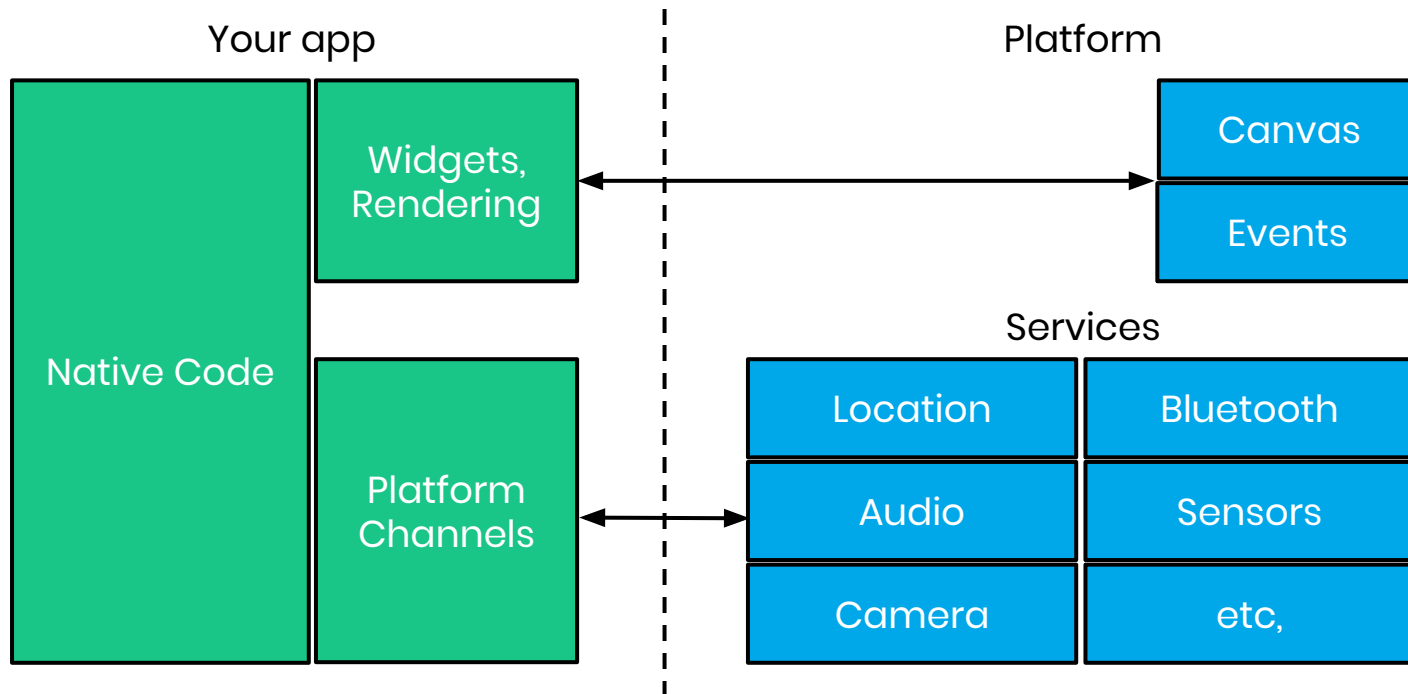
Then the Webviews...



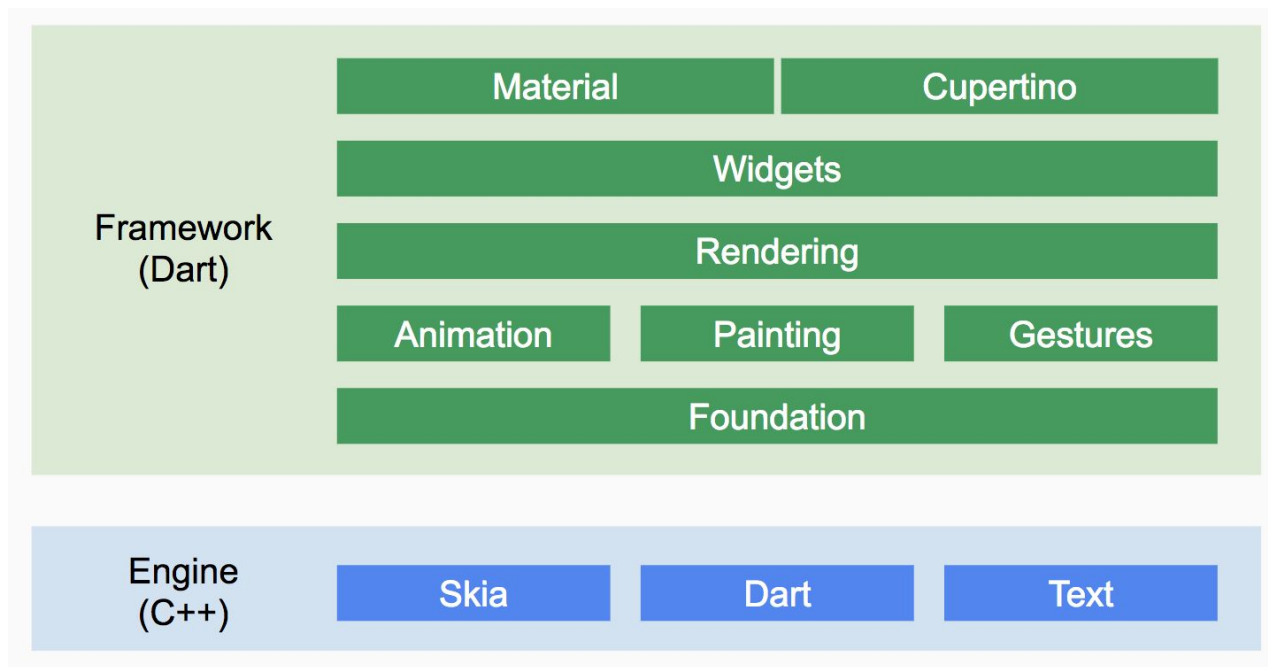
And the Reactive views



Enter Flutter



Flutter architecture



But why Dart?

Because Google, duh!
...or maybe there are good reasons?



Dart can be compiled AOT or JIT

Development builds:

Custom **VM** offers
super fast hot reload
change cycle

Release builds:

Full AOT-compilation to **native machine code** offers **super fast startup and execution**



Dart's allocation and GC

- Many new objects:
 - Lock-free, fast allocation
- Short-lived objects:
 - Precise, generational garbage collection



Dart is an easy, familiar language

An easy language:

- No exotic syntax
- Easy to read, easy to write
- Very expressive

A familiar language:

- JavaScript devs find it easy to learn
- Java / C# devs even more



Layout

**How Flutter does layout?
CSS like? XML like?**



Traditional rule based layouts

Large set of rules

- Fixed
- Applied to all the widgets

Cascading application

- Interactions & conflicts
- Low performance



Chrome team experiment

Could a different layout model allow faster rendering?

- Each widget specifies its own simple layout model
- Less rules, heavily optimized
- Complex layouts are turned into widgets



Everything is a widget

Layouts

Margin

Padding

Themes

Application

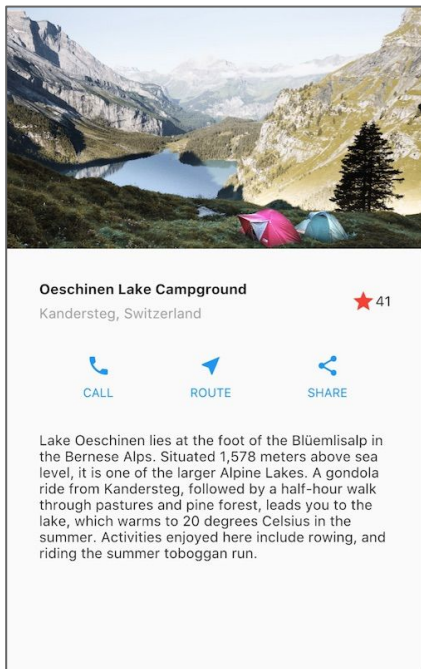
Navigation

are widgets

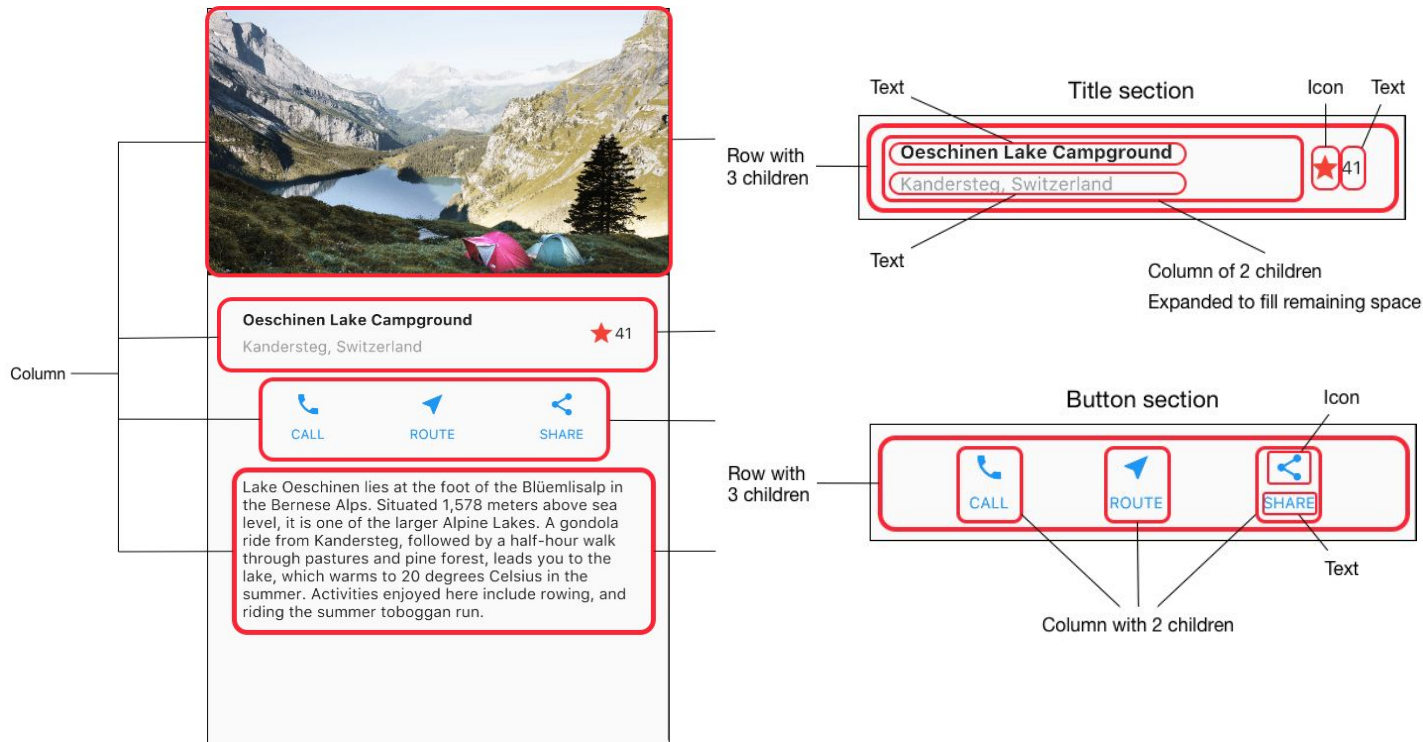
even scrolling is a widget!



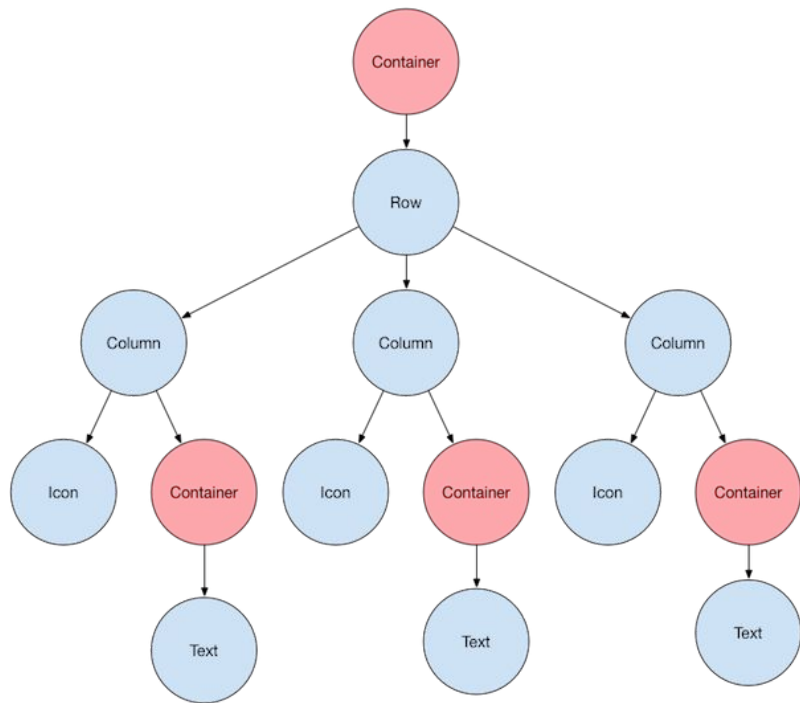
Le Layout



Le Layout



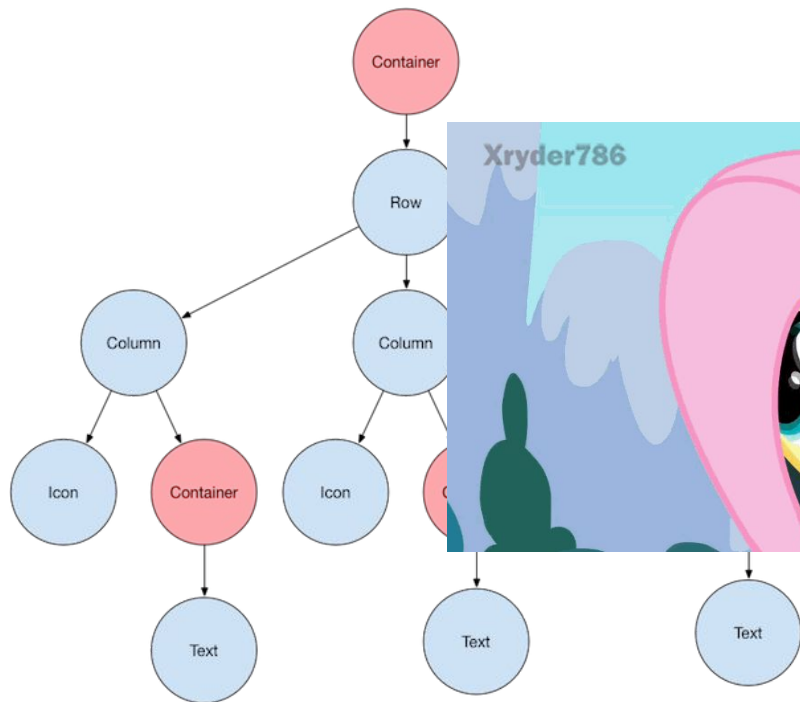
Le Layout



```
class MyApp extends StatelessWidget {  
  @override  
  Widget build(BuildContext context) {  
    Widget titleSection = new Container(  
      padding: const EdgeInsets.all(32.0),  
      child: new Row(  
        children: [  
          new Expanded(  
            child: new Column(  
              crossAxisAlignment: CrossAxisAlignment.start,  
              children: [  
                new Container(  
                  padding: const EdgeInsets.only(bottom: 8.0),  
                  child: new Text(  
                    'Oeschinen Lake Campground',  
                    style: new TextStyle(  
                      fontWeight: FontWeight.bold,  
                    ),  
                  ),  
                new Text(  
                  'Kandersteg, Switzerland',  
                  style: new TextStyle(  
                    color: Colors.grey[500],  
                  ),  
                ),  
              ],  
            ),  
          new Icon(  
            Icons.star,  
            color: Colors.red[500],  
          ),  
          new Text('41'),  
        ],  
      ),  
    ),  
  ),  
);
```



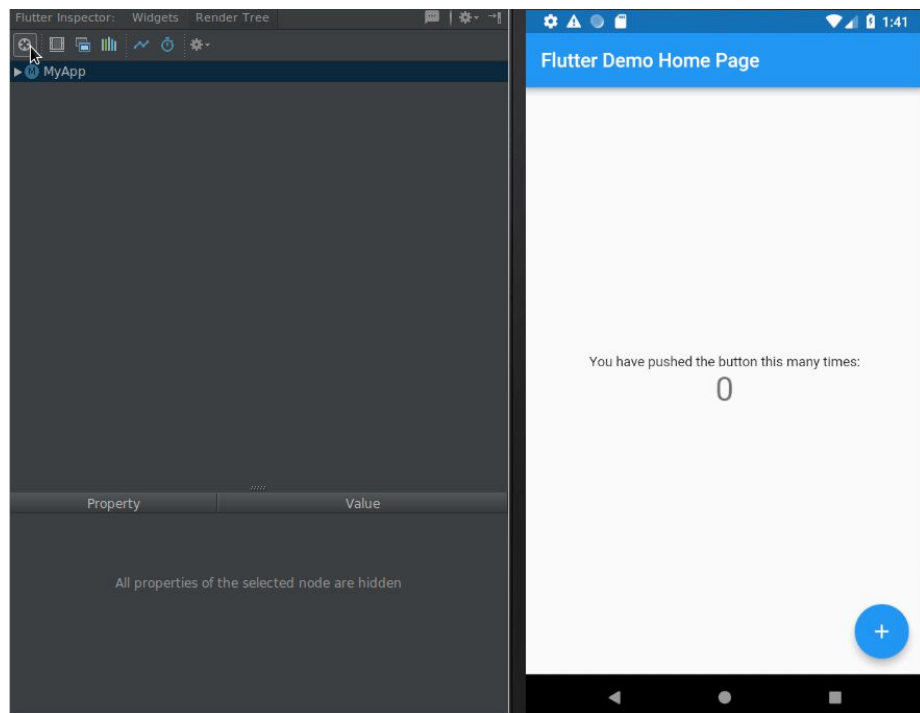
Le Layout



```
class MyApp extends StatelessWidget {  
  @override  
  Widget build(BuildContext context) {  
    Widget titleSection = new Container(  
      padding: const EdgeInsets.all(32.0),  
      child: new Row(  
  
        child: new Column(  
          mainAxisAlignment: CrossAxisAlignment.start,  
          children:   
            new Text(  
              'Xryder786',  
              style: new TextStyle(  
                color: Colors.green,   
                fontWeight: FontWeight bold,  
                fontSize: 24,  
              ),  
            new Text(  
              'Lake Campground',  
              style: new TextStyle(  
                color: Colors.grey[500],  
                fontWeight: FontWeight normal,  
                fontSize: 16,  
              ),  
            new Text(  
              'Switzerland',  
              style: new TextStyle(  
                color: Colors.grey[500],  
                fontWeight: FontWeight normal,  
                fontSize: 16,  
              ),  
            new Icon(  
              Icons.star,  
              color: Colors.red[500],  
            ),  
            new Text('4.1'),  
          ],  
        ),  
        new Icon(  
          Icons.star,  
          color: Colors.red[500],  
        ),  
        new Text('4.1'),  
      ],  
    ),  
  ),  
}
```



Widget Inspector



Responsive ?

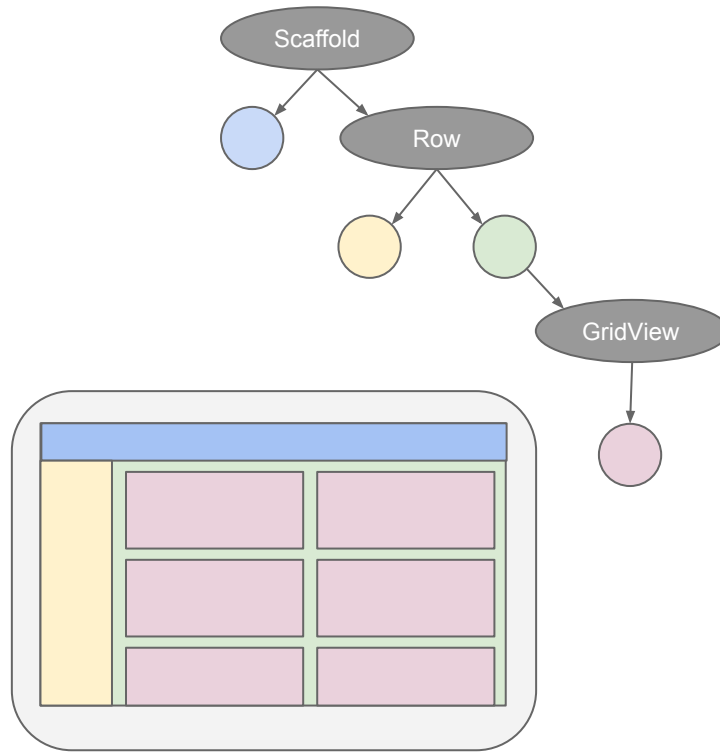
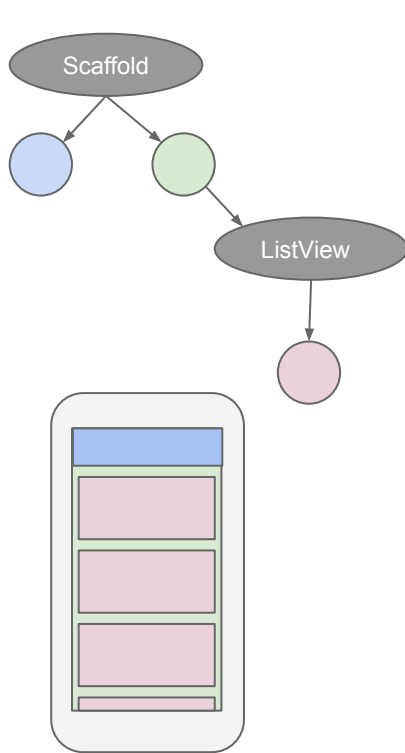


MediaQuery

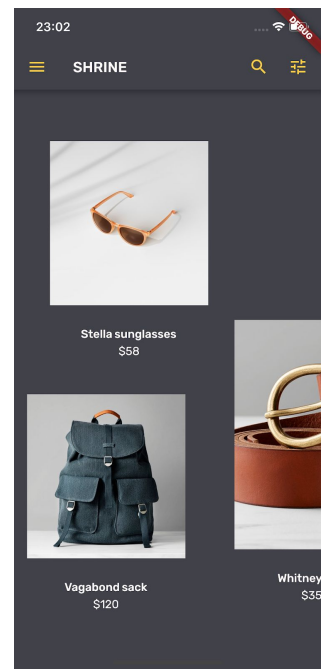
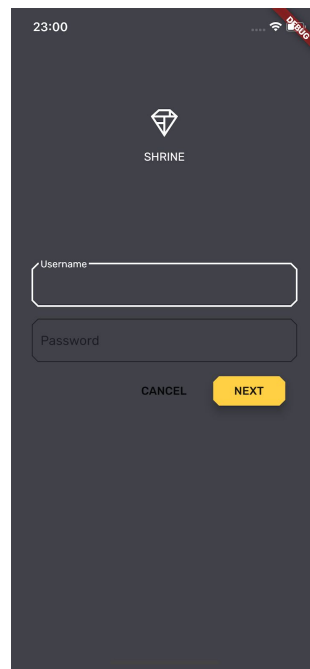
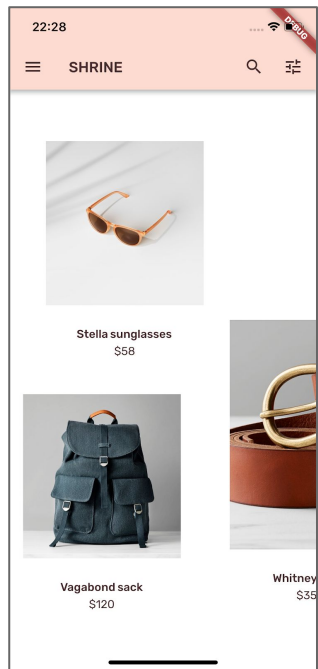
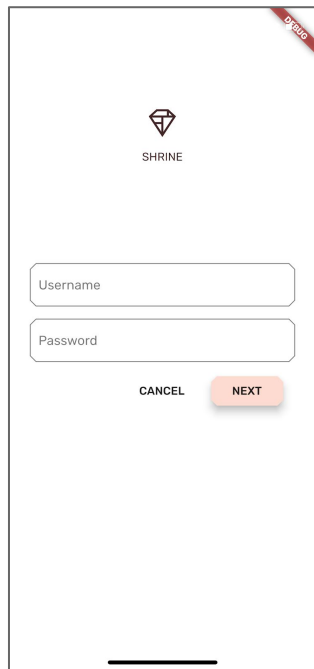
Establishes a subtree in which media queries resolve to the given data.



Responsive !



Gestion des thèmes



Material Design 2.0

Buttons



RaisedButton

A Material Design raised button. A raised button consists of a rectangular piece of material that hovers over the interface.

[Documentation](#)



FloatingActionButton

A floating action button is a circular icon button that hovers over content to promote a primary action in the application. Floating action buttons are...

[Documentation](#)



FlatButton

A flat button is a section printed on a Material Components widget that reacts to touches by filling with color.

[Documentation](#)



IconButton

An icon button is a picture printed on a Material widget that reacts to touches by filling with color (ink).

[Documentation](#), [Samples](#)



PopupMenuButton

Displays a menu when pressed and calls onSelected when the menu is dismissed because an item was selected.

[Documentation](#), [Samples](#)



AppBar

A horizontal arrangement of buttons.

[Documentation](#)

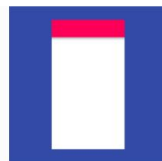
App structure and navigation



Scaffold

Implements the basic Material Design visual layout structure. This class provides APIs for showing drawers, snack bars, and bottom sheets.

[Documentation](#), [Samples](#)



AppBar

A Material Design app bar. An app bar consists of a toolbar and potentially other widgets, such as a TabBar and a FlexibleSpaceBar.

[Documentation](#), [Samples](#)



BottomNavigationBar

Bottom navigation bars make it easy to explore and switch between top-level views in a single tap. The BottomNavigationBar widget implements...

[Documentation](#)



TabBar

A Material Design widget that displays a horizontal row of tabs.

[Documentation](#), [Samples](#)



TabBarView

A page view that displays the widget which corresponds to the currently selected tab. Typically used in conjunction with a TabBar.

[Documentation](#), [Samples](#)



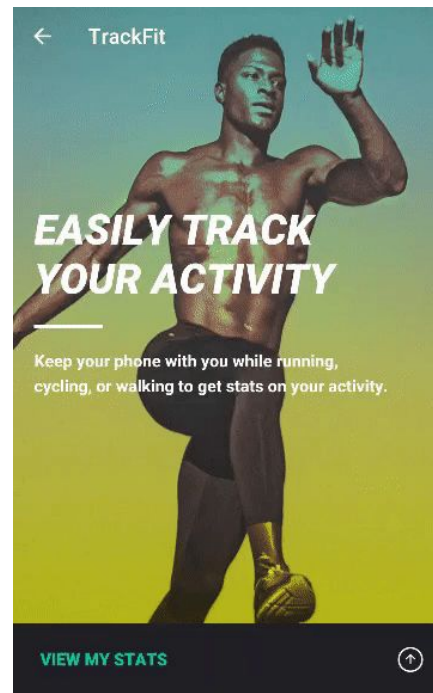
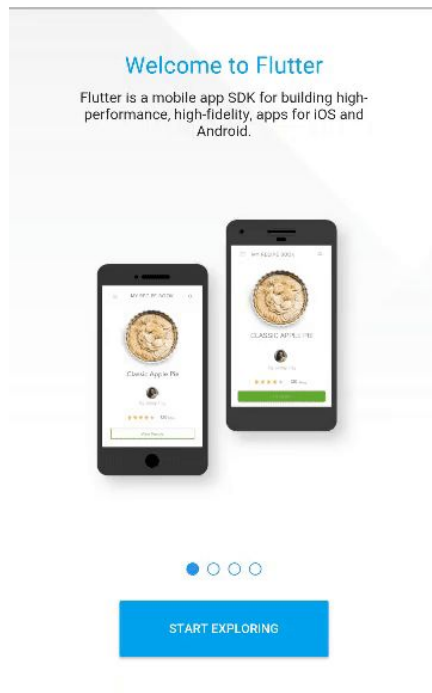
MaterialApp

A convenience widget that wraps a number of widgets that are commonly required for applications implementing Material Design.

[Documentation](#)



Blazing fast and flexible layouts



Show us some code

There are developers in the room,
you know...



Let's begin with a Hello World...

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

void main() {
  runApp(
    new Center(
      child: new Text(
        'Hello, world!',
        textDirection: TextDirection.ltr,
      ),
    ),
  );
}
```

You will never do that IRL...



Extending StatelessWidget

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

class MyAppBar extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    return new Center(
      child: new Text(
        'Hello, world!',
        textDirection: TextDirection.ltr,
      ),
    );
  }
}

void main() {
  runApp(new MyAppBar());
}
```

A widget's main job is to implement a build function



Complex layouts

```
body: new Column(  
  children: [  
    imageSection(  
      path: 'images/lake.jpg',  
    ),  
    titleSection(  
      heading: 'Oeschinen Lake Campground',  
      subtitle: 'Kandersteg, Switzerland',  
      stars: stars,  
    ),  
    buttonSection(),  
    textSection(  
      text:  
        'Lake Oeschinen lies at the...'),  
  ],  
)
```

column →

image →



titles →

Oeschinen Lake Campground

Kandersteg, Switzerland



actions →



CALL



ROUTE



SHARE

text →

Lake Oeschinen lies at the foot of the Blüemlisalp in the Bernese Alps. Situated 1,578 meters above sea level, it is one of the larger Alpine Lakes. A gondola ride from Kandersteg, followed by a half-hour walk through pastures and pine forest, leads you to the lake, which warms to 20 degrees Celsius in the summer. Activities enjoyed here include rowing, and riding the summer toboggan run.



'UI-as-code'

```
new Row(  
  mainAxisAlignment: MainAxisAlignment.spaceEvenly,  
  children: [  
    new IconAction(icon: Icons.call, label: 'CALL'),  
    new IconAction(icon: Icons.near_me, label: 'ROUTE'),  
    new IconAction(icon: Icons.share, label: 'SHARE'),  
  ]  
)
```



CALL



ROUTE



SHARE

Composability

```
class IconAction extends StatelessWidget {  
  const IconAction({this.icon, this.label, this.onTap});  
  
  Widget build(BuildContext context) {  
    return new InkWell(  
      child: new Column(  
        children: [  
          new Icon(icon, color: primaryColor),  
          new Container(  
            margin: const EdgeInsets.only(top: 8.0),  
            child: new Text(  
              Label  
              style: new TextStyle(color: primaryColor),  
            ),  
          ),  
        ],  
      ),  
      onTap: onTap,  
    );  
  }  
}
```



CALL



ROUTE



SHARE



Why to choose Flutter?

OK, so it's a new technology to build mobile apps,
rather cool, yeah... but why should I choose it?



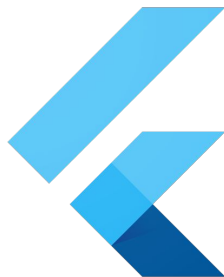
Why choose Flutter?



Beautiful



Fast



Flutter

Productive



Extensible



Beautiful

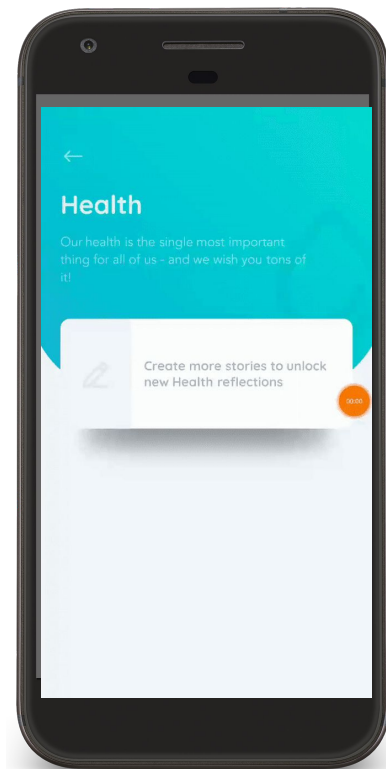
Control every pixel on the screen

Make your brand come to life

Never say "no" to your designer

Stand out in the marketplace

Win awards with beautiful UI



Fast

Brings the power of a games engine to user experience development

60fps, GPU accelerated

Compiled to native machine code



Productive

Sub-second reload times

Paint your app to life

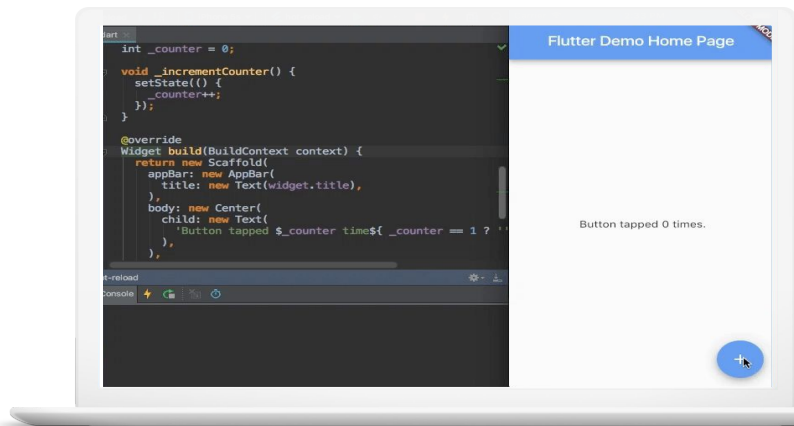
Iterate rapidly on features

Test hypotheses quicker than ever

More time to experiment & test features

Single-codebase for faster collab

3X Productivity Gains



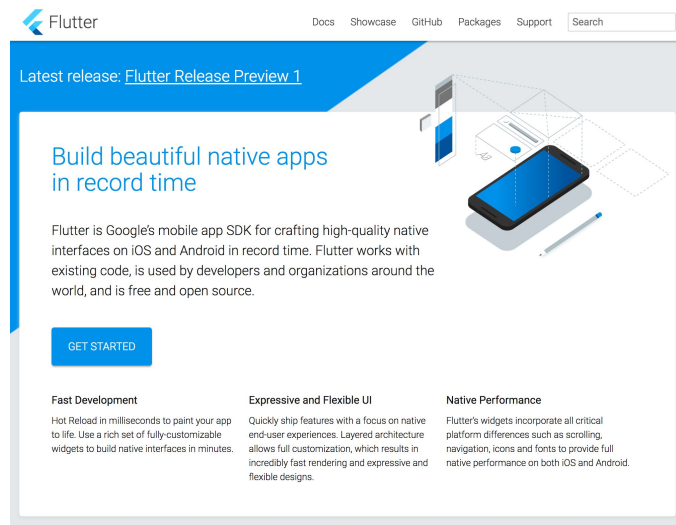
Extensible

Everything is free and open source

Layered architecture: easy to extend

Deep platform integrations

Hundreds of third-party packages (ads, videos, database, cloud etc.)

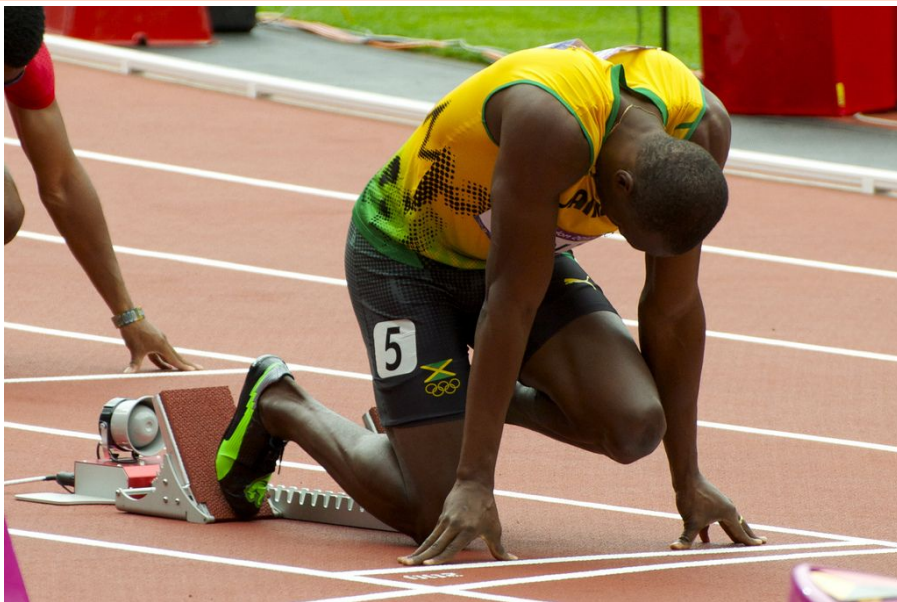


A wonderful time to begin with Flutter

Flutter is getting momentum, and the 1.0 is around
the corner...



Flutter 1.0 on the starting blocks



Latest release: Flutter Release Preview 2



Getting momentum

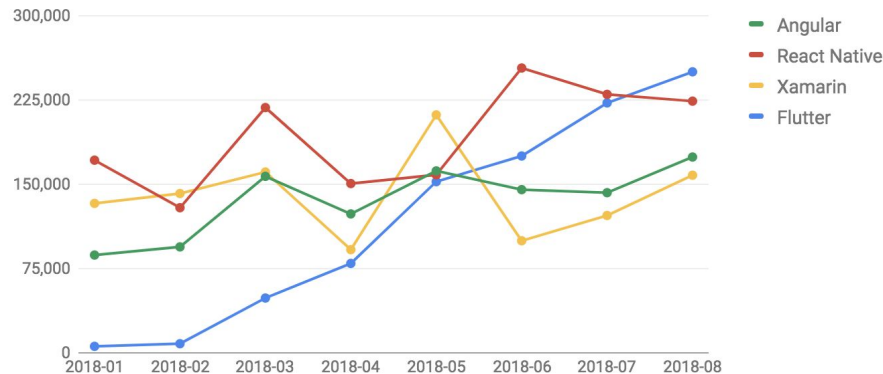
Top Active Software Repos on GitHub

Rank	Repo	Stars
1	twbs/bootstrap	127,344
2	vuejs/vue	113,839
3	facebook/react	111,154
4	tensorflow/tensorflow	109,412
5	d3/d3	78,734
...		
40	pallets/flask	38,739
41	moment/moment	38,562
42	GoogleChrome/puppeteer	38,118
43	getlantern/lantern	37,487
44	jakubroztocil/httpie	37,319
45	flutter/flutter	37,099
46	trekhleb/javascript-algorithms	36,776
47	django/django	36,369
48	jeekyll/jeekyll	35,402
49	ReactiveX/RxJava	35,356
50	ionic-team/ionic	35,309

Source: GitHub
<https://github.com/timsneath/github-tracker>



StackOverflow Question Views



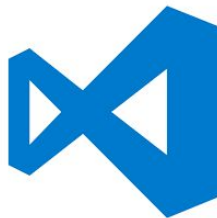
Integration with popular tools



Android Studio



Xcode



VS Code



Firebase



Android APIs



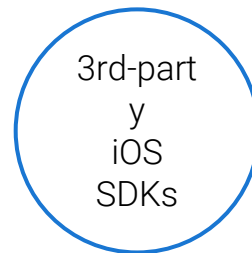
iOS APIs



Material Design



Redux



Thank you!

