



# CodeLab Flutter Android Makers 2019

Romain Rastel - Horacio Gonzalez - Pierre Tibulle



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# Who are we?

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## And what's that Breizh thing?



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# Romain Rastel



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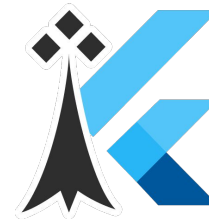
Flutter Lead Expert

<https://github.com/letsar>

<https://medium.com/@lets4r>



**Business  
Services**



Flutter  
**RENNES**



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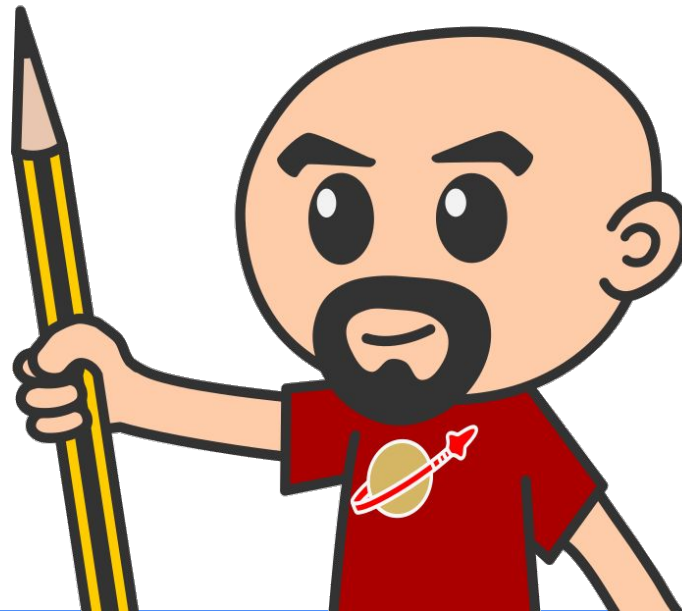
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# Horacio Gonzalez

@LostInBrittany

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



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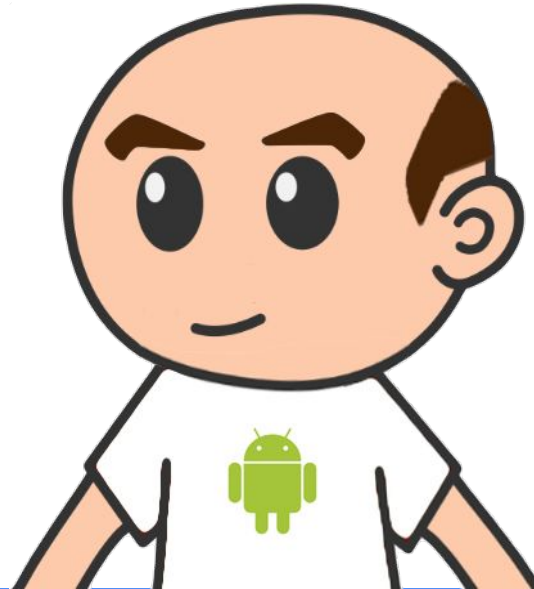
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# Pierre Tibulle



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Developer, Jobcrafter, Maker  
and sketchnoter !



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# Before we begin...

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Did you follow the instructions?



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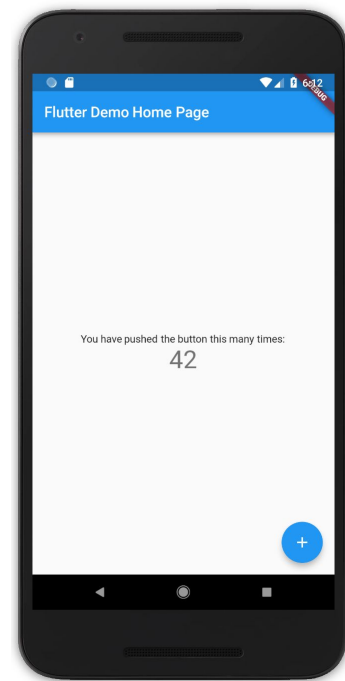
# Before we begin



For this codelab, you need a laptop with an operational Flutter environment :

- <https://flutter.io/docs/get-started/install>
- <https://flutter.io/docs/get-started/editor>
- <https://flutter.io/docs/get-started/test-drive>

If you get this =>  
It's OK 🙌



If you don't, find a pair !!!



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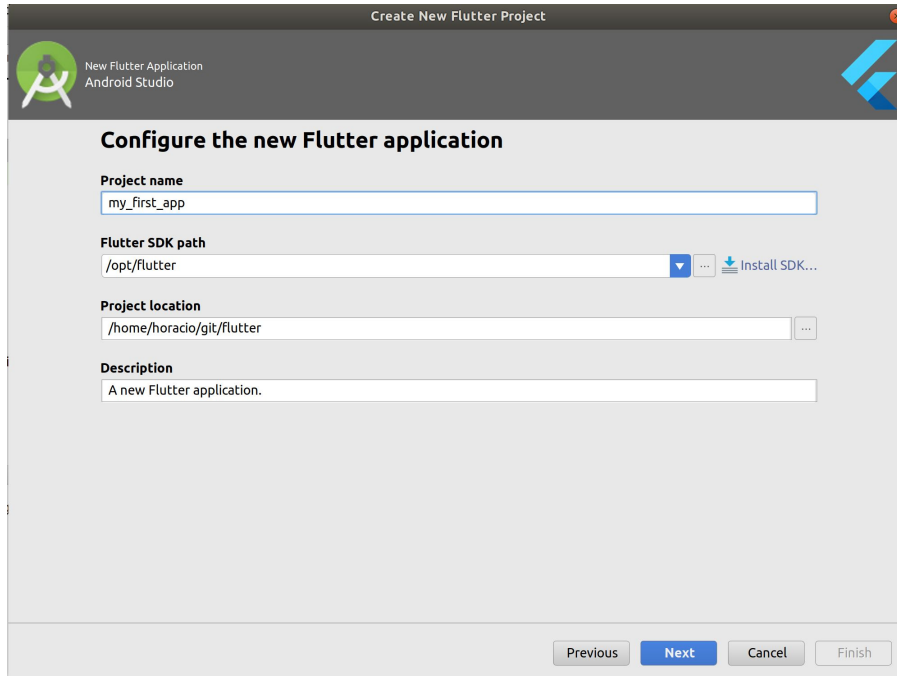
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# Testing your install



Create and test your first app

<https://flutter.io/get-started/test-drive/>



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# What's Flutter?

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Yet another mobile solution?



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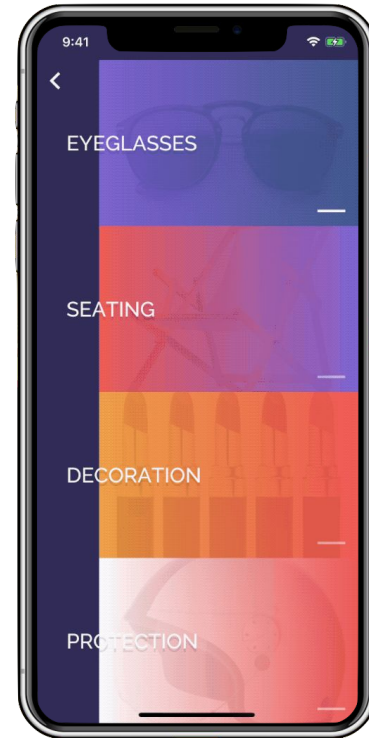


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# Flutter



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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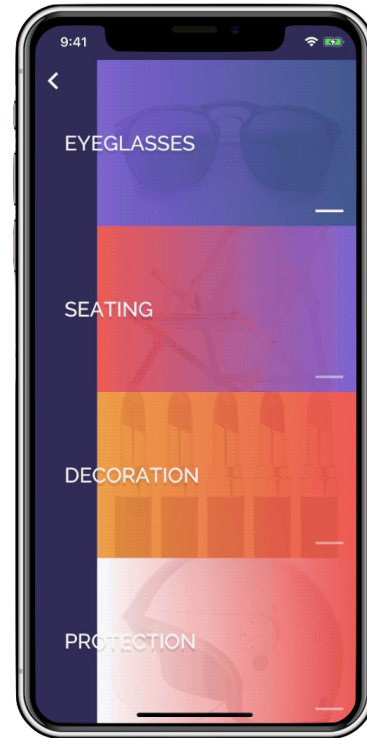


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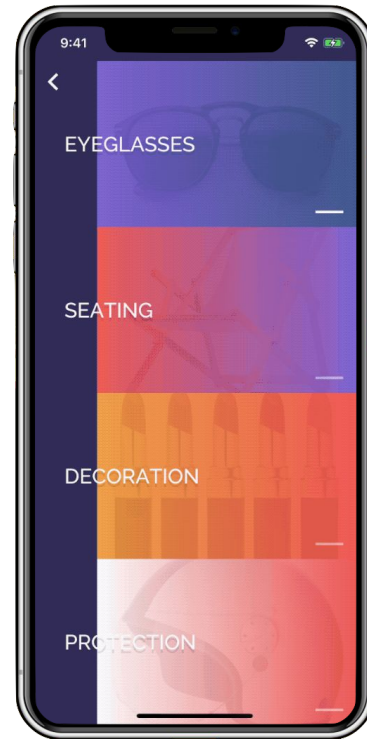


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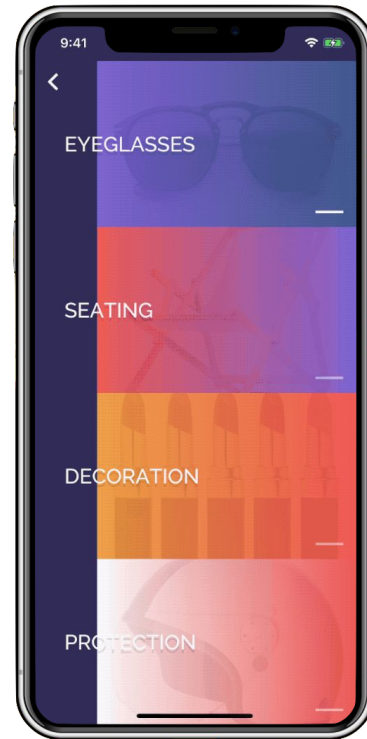


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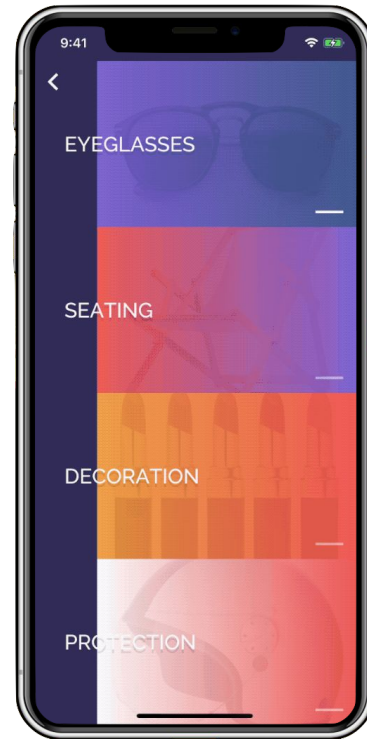


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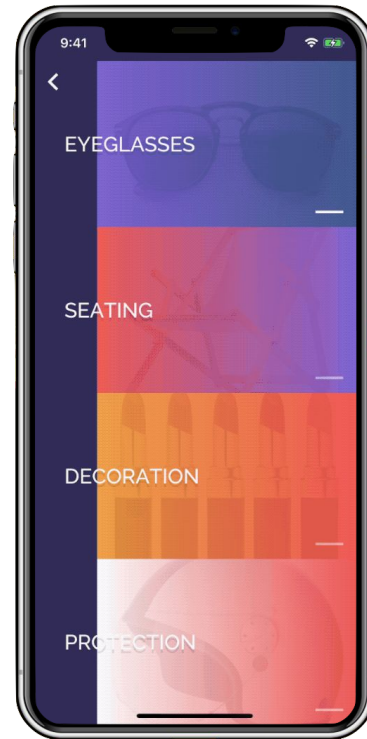


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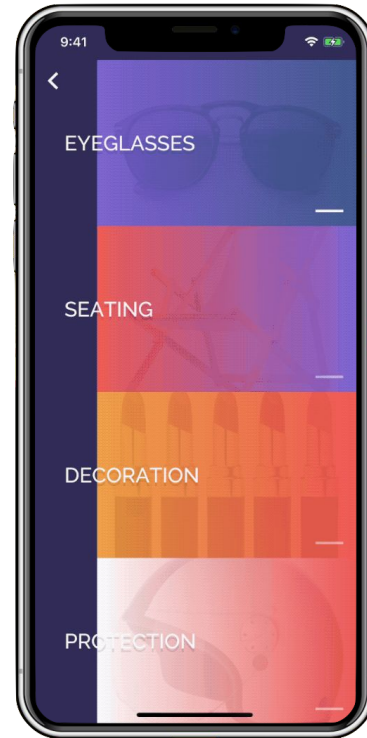


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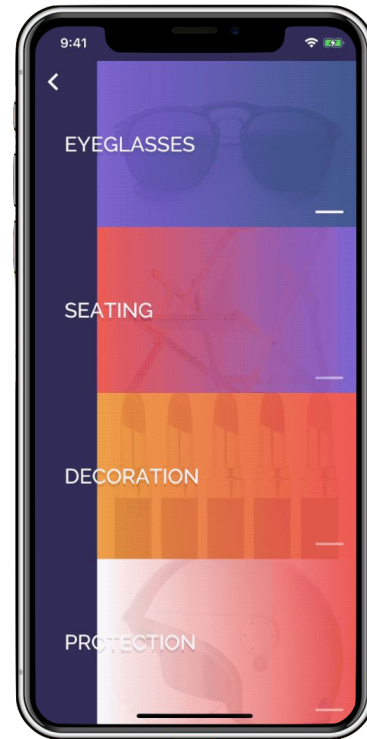


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# Flutter



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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# Looking back

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## Diving into the history of mobile app development



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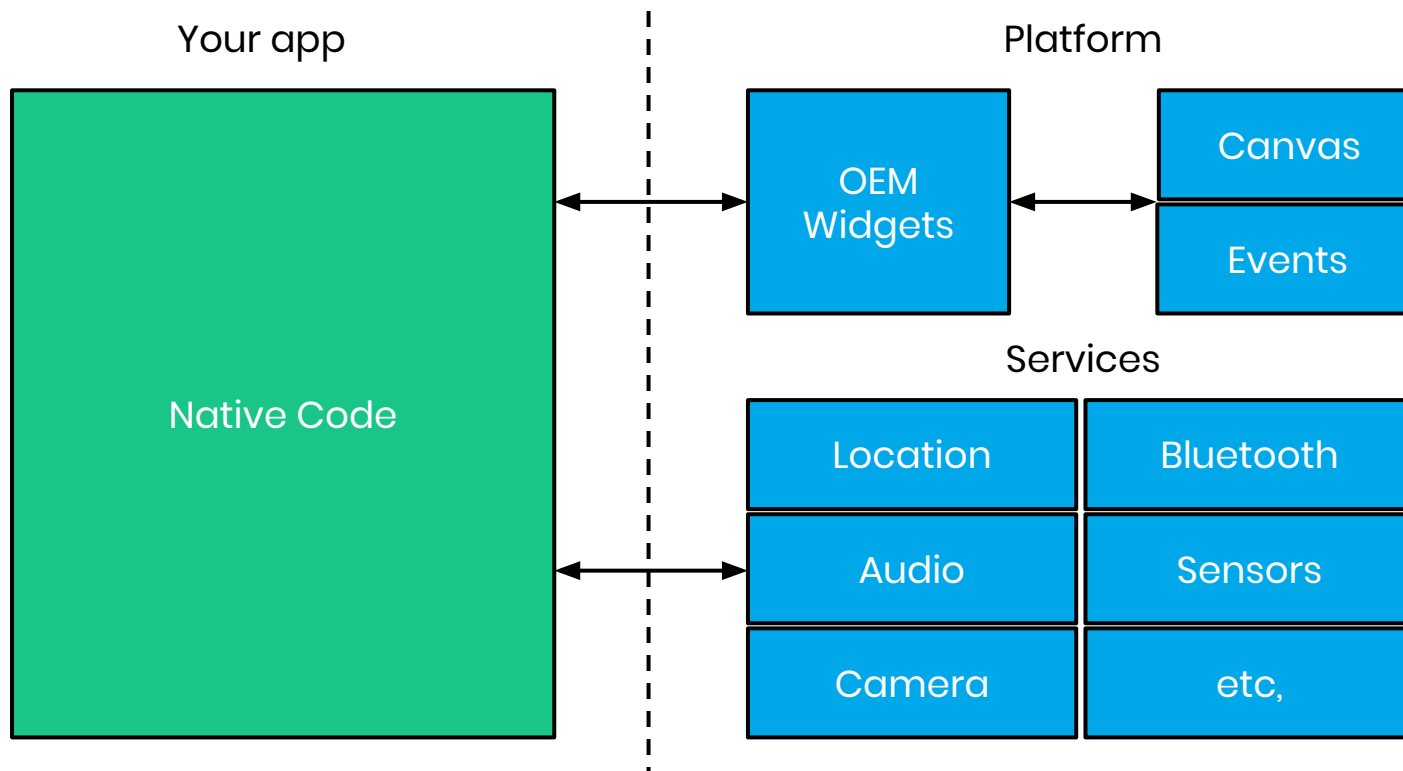


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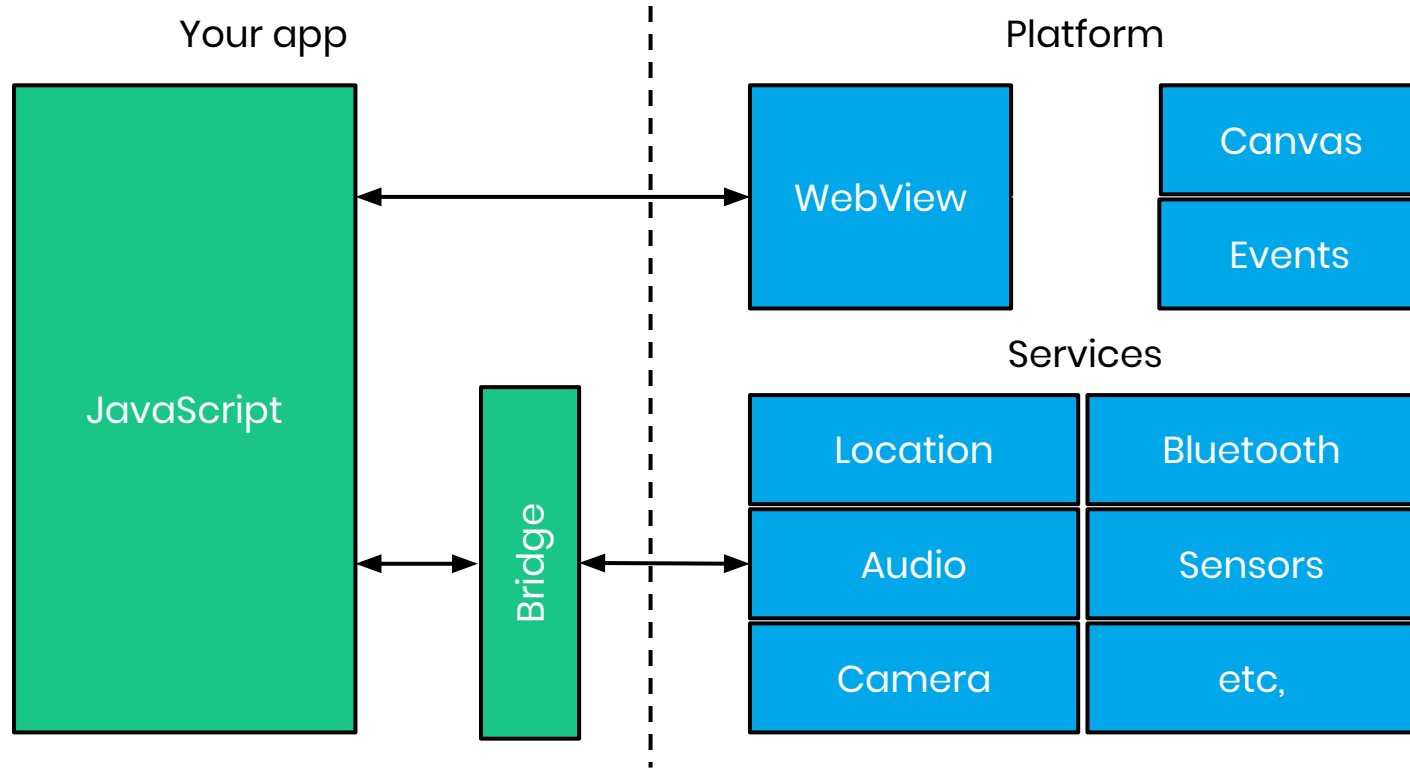


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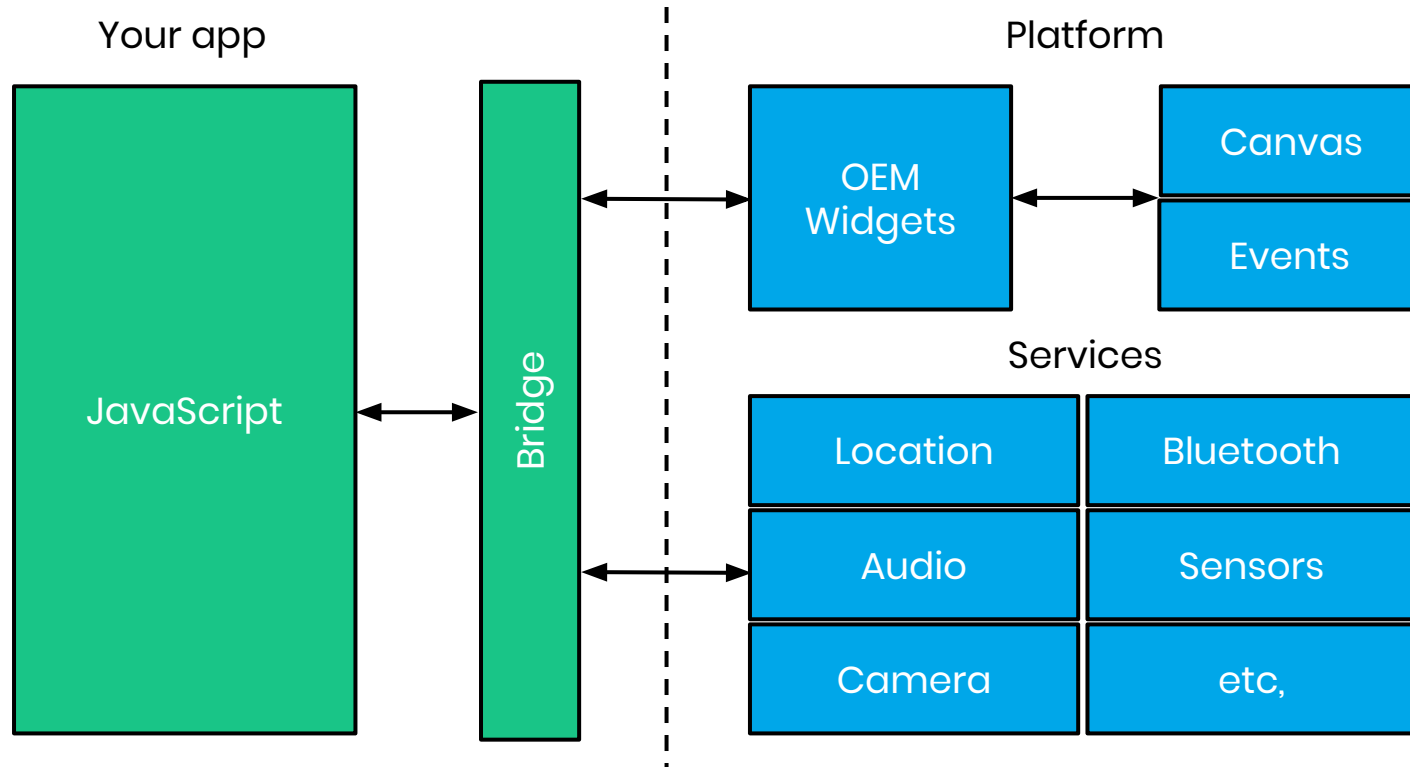
# At the beginning there were the SDKs



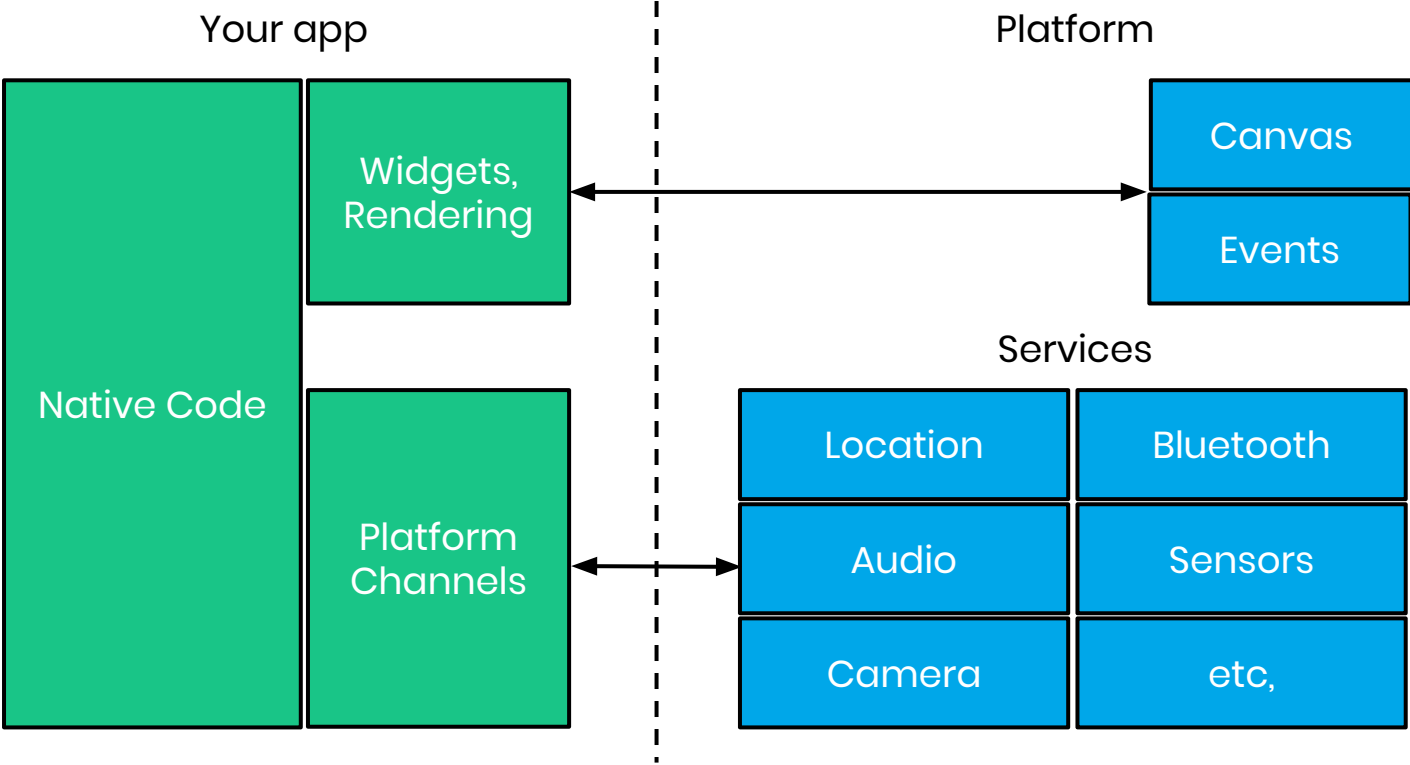
# Then the Webviews...



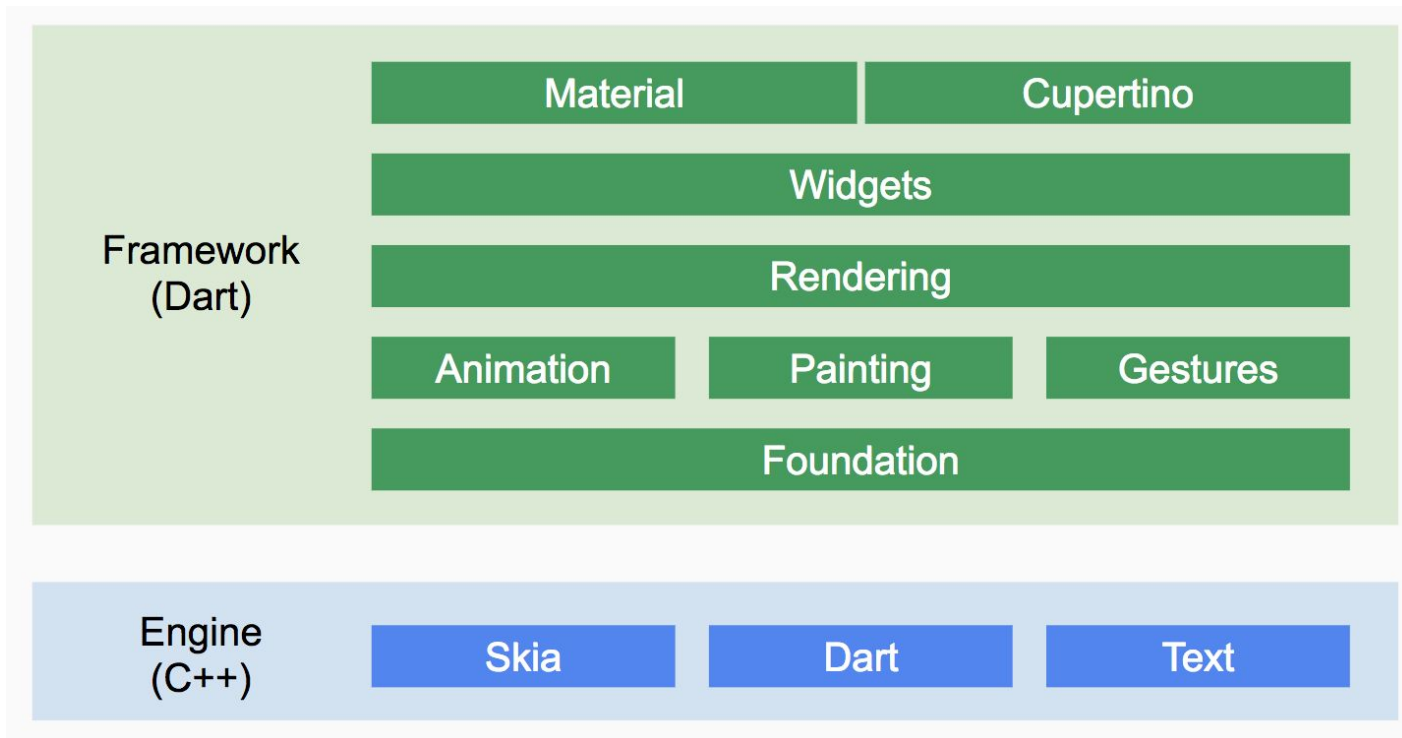
# And the Reactive views



# Enter Flutter



# Flutter architecture



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# But why Dart?

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



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# 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**



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# Dart's allocation and GC



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



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# 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



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# Layout

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



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# 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



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# Everything is a widget



Layouts

Margin

Padding

Themes

Application

Navigation

# are widgets

even scrolling is a widget!



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# Le Layout



## Oeschinen Lake Campground

Kandersteg, Switzerland



CALL



ROUTE



SHARE

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.



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# Le Layout

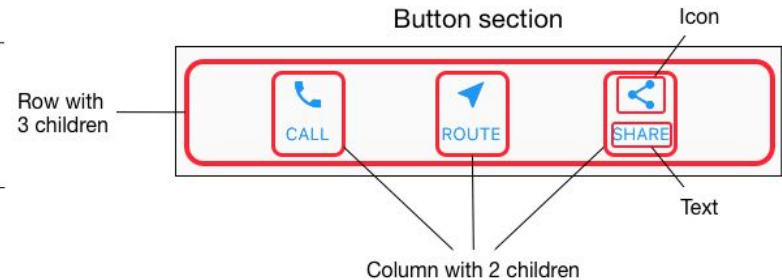


Column

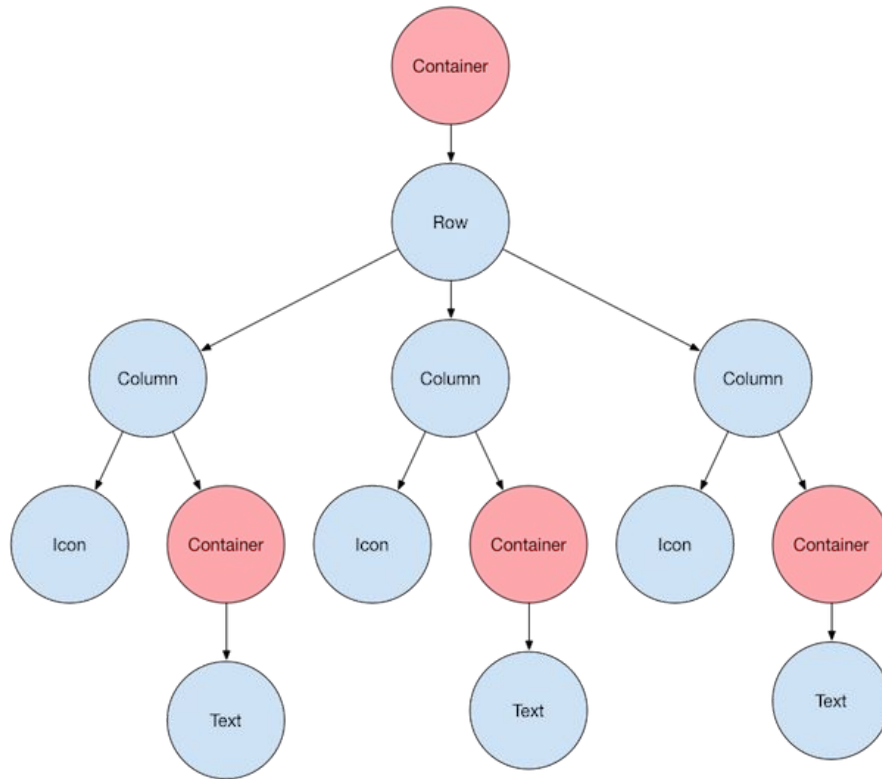
Oeschinen Lake Campground  
Kandersteg, Switzerland

CALL ROUTE SHARE

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.



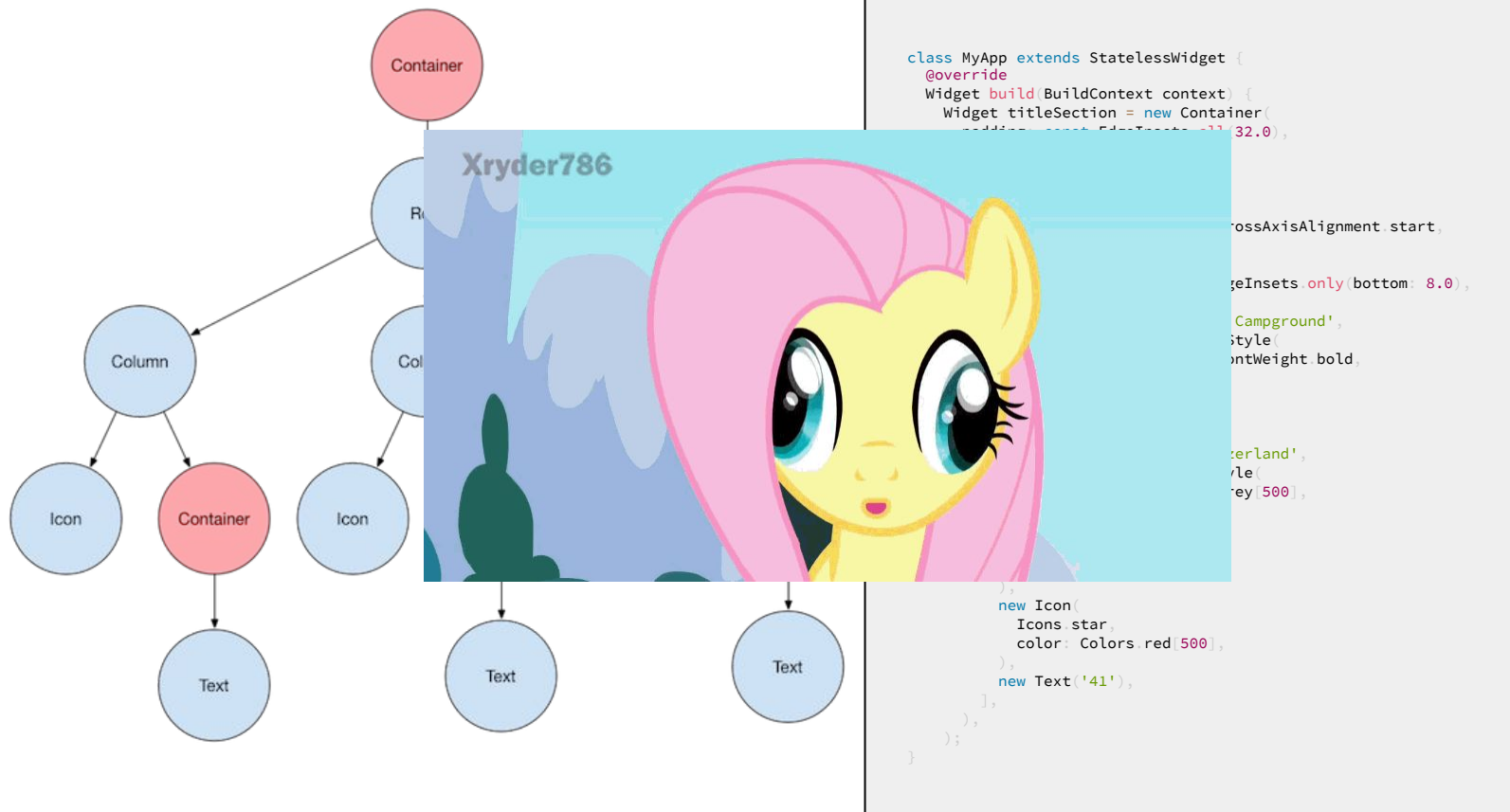
# Le Layout



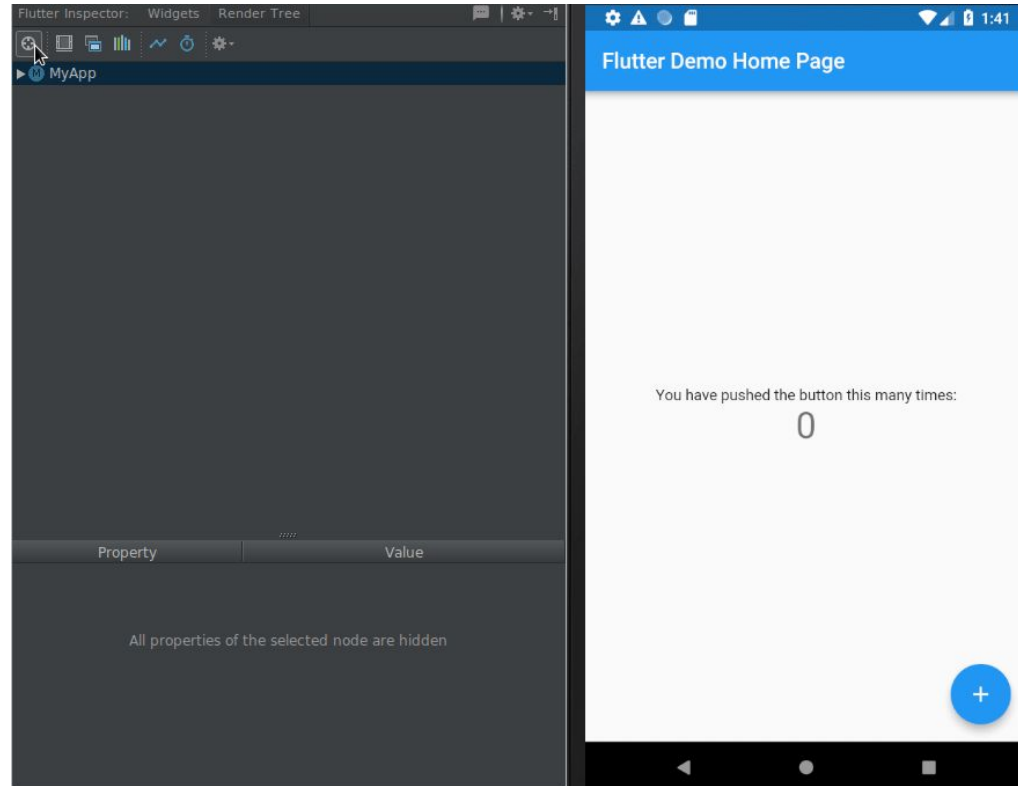
```
class MyApp extends StatelessWidget {  
  @override  
  Widget build(BuildContext context) {  
    Widget titleSection = new Container(  
      padding: const EdgeInsets.all(32.0),  
      child: new Row(  
        children: [  
          new Expanded(  
            child: new Column(  
              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



# Widget Inspector



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# Responsive ?



## MediaQuery

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



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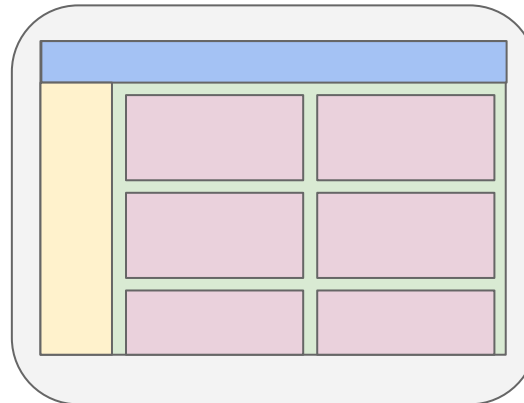
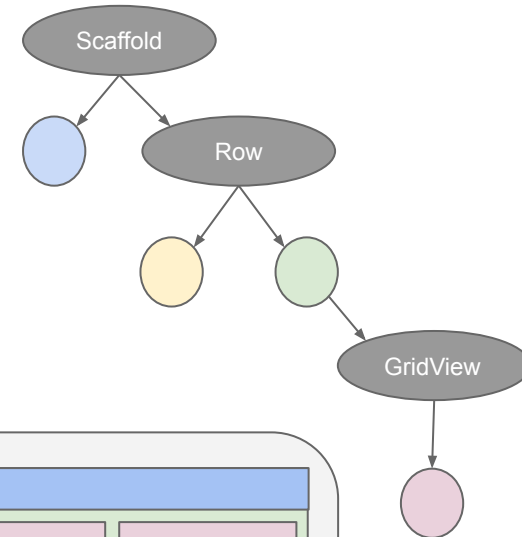
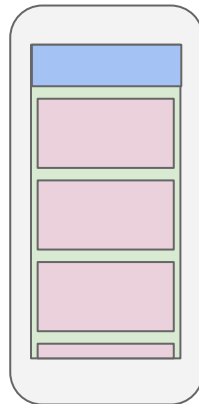
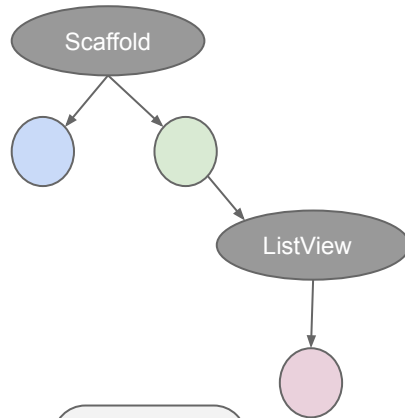


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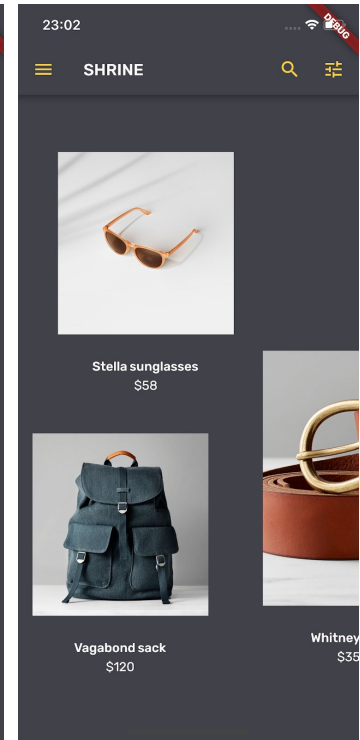
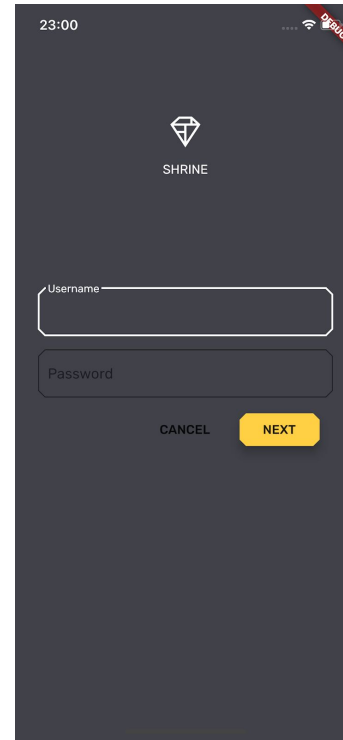
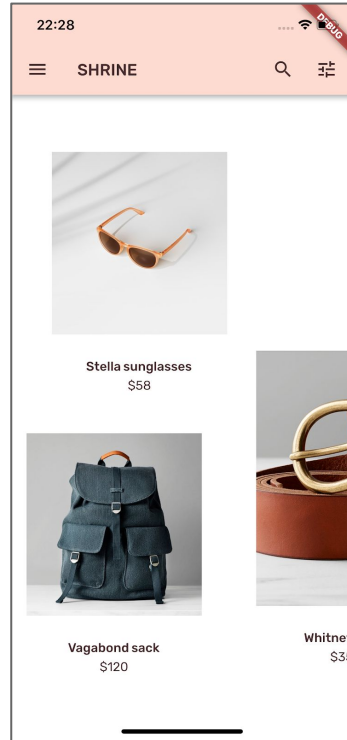
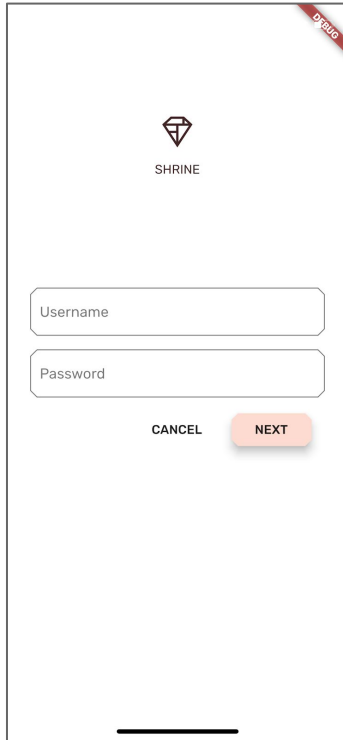


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# Responsive !



# Gestion des thèmes



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# Material Design 2.0



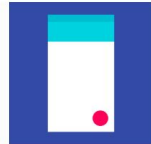
## Buttons



### 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](#)



### ButtonBar

A horizontal arrangement of buttons.

[Documentation](#)

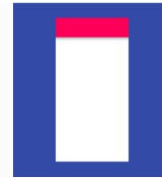
## App structure and navigation



### Scaffold

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

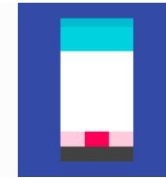
[Documentation](#), [Samples](#)



### 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...

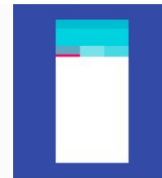
[Documentation](#)



### 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](#)



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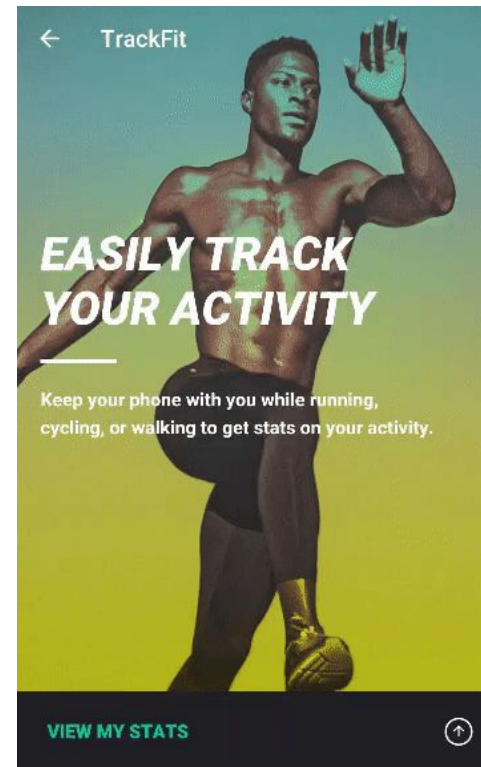
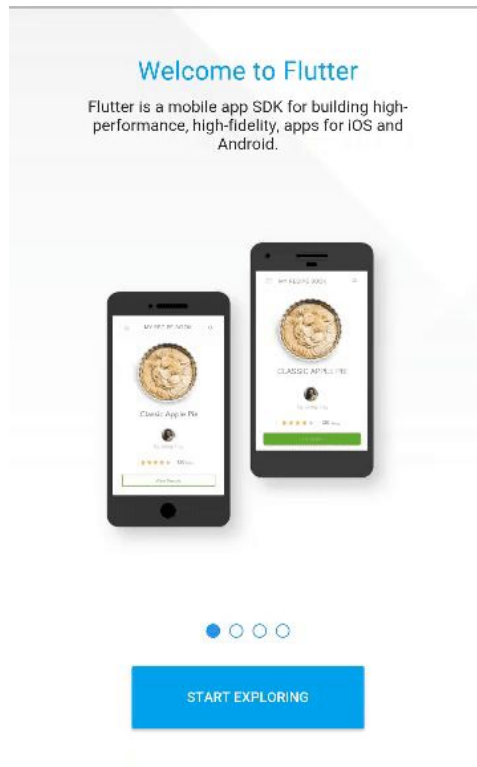


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# Blazing fast and flexible layouts



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# Why to choose Flutter?

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



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# Why choose Flutter?



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# Beautiful



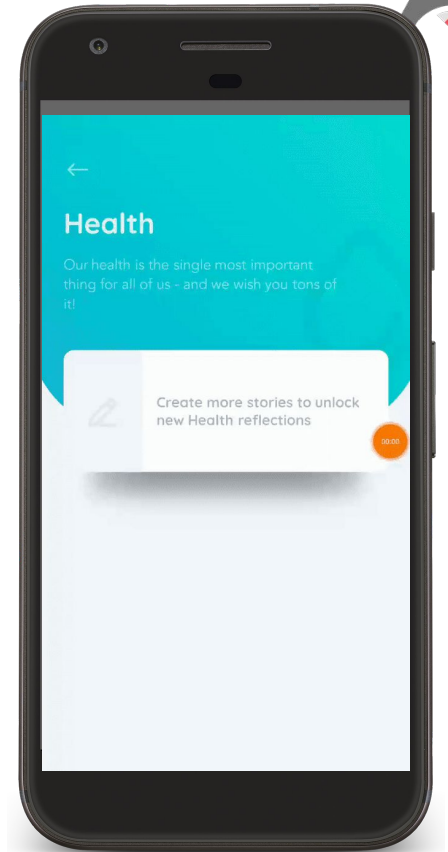
Control every pixel on the screen

Make your brand come to life

Never say "no" to your designer

Stand out in the marketplace

Win awards with beautiful UI



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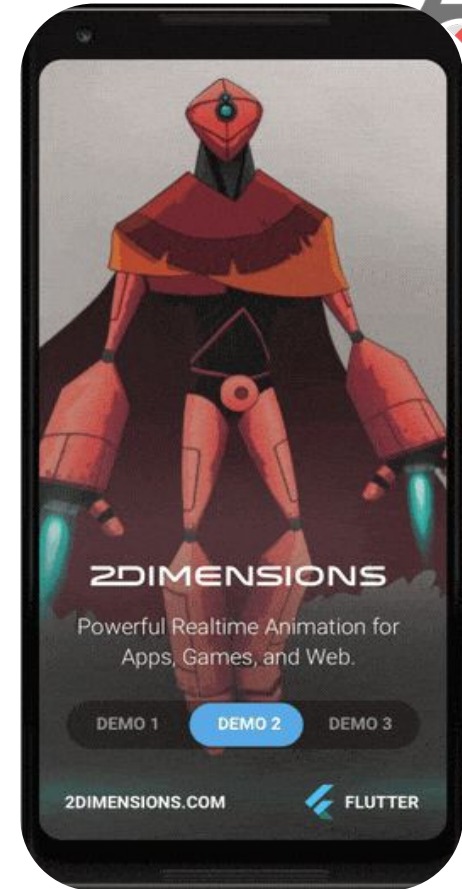
# Fast



Brings the power of a games engine to user experience development

60fps, GPU accelerated

Compiled to native machine code



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# Productive



Sub-second reload times

Paint your app to life

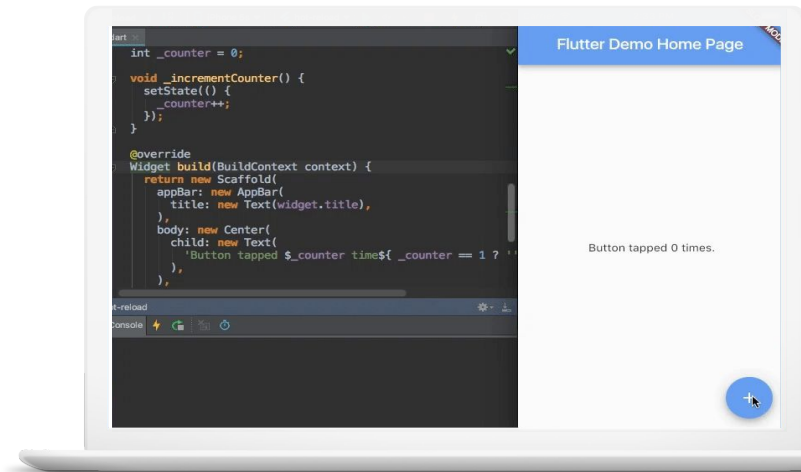
Iterate rapidly on features

Test hypotheses quicker than ever

More time to experiment & test features

Single-codebase for faster collab

3X Productivity Gains



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# 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.)

The screenshot shows the Flutter website homepage. At the top, there is a navigation bar with links for Docs, Showcase, GitHub, Packages, and Support, along with a search box. Below the navigation bar, a blue banner highlights the latest release: Flutter Release Preview 1. The main content area features a large heading: "Build beautiful native apps in record time". Below this heading is a paragraph describing Flutter as Google's mobile app SDK for crafting high-quality native interfaces on iOS and Android in record time. A blue "GET STARTED" button is prominently displayed. At the bottom, there are three columns of text highlighting key features: "Fast Development", "Expressive and Flexible UI", and "Native Performance".

Flutter

Docs Showcase GitHub Packages Support Search

Latest release: [Flutter Release Preview 1](#)

## Build beautiful native apps in record time

Flutter is Google's mobile app SDK for crafting high-quality native interfaces on iOS and Android in record time. Flutter works with existing code, is used by developers and organizations around the world, and is free and open source.

[GET STARTED](#)

**Fast Development**  
Hot Reload in milliseconds to paint your app to life. Use a rich set of fully-customizable widgets to build native interfaces in minutes.

**Expressive and Flexible UI**  
Quickly ship features with a focus on native end-user experiences. Layered architecture allows full customization, which results in incredibly fast rendering and expressive and flexible designs.

**Native Performance**  
Flutter's widgets incorporate all critical platform differences such as scrolling, navigation, icons and fonts to provide full native performance on both iOS and Android.



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# A wonderful time to begin with Flutter

---



**Flutter is getting momentum!**



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# Flutter is on the starting blocks



Version 1.0 released last December



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# Getting momentum



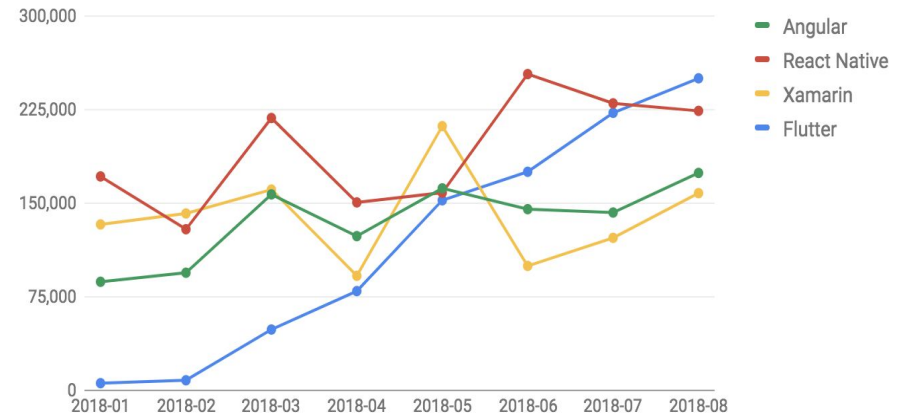
## Top Active Software Repos on GitHub

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	<b>flutter/flutter</b>	<b>37,099</b>
46	trekhleb/javascript-algorithms	36,776
47	django/django	36,369
48	jekyll/jekyll	35,402
49	ReactiveX/RxJava	35,356
50	ionic-team/ionic	35,309

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



## StackOverflow Question Views



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# Integration with popular tools



Android Studio



Xcode



VS Code



Firebase



3rd-party  
Android  
SDKs



Android APIs



iOS APIs



Material  
Design



Redux



3rd-party  
iOS SDKs





# And now, let's code!

---

**TL;DR: We have spoken too much,  
now it's your turn**



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# Let's go !



Wifi : LeBeffroi or 4G

Codelab :

<https://ptibulle.github.io/#0>

Sources :

[https://github.com/ptibulle/flutter\\_breizh](https://github.com/ptibulle/flutter_breizh)



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