

Flutter

Aula 03

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- O que é Flutter?
- O que são widgets?
- Hot Reload
- Arquitetura do Flutter

INTRODUÇÃO



O que é Flutter?



- Framework open-source para desenvolvimento de aplicações criado pela **Google**.
- Construção de aplicações móveis **cross-plataforma** (Android e iOS), **web** e **Desktop**.

Made by Google

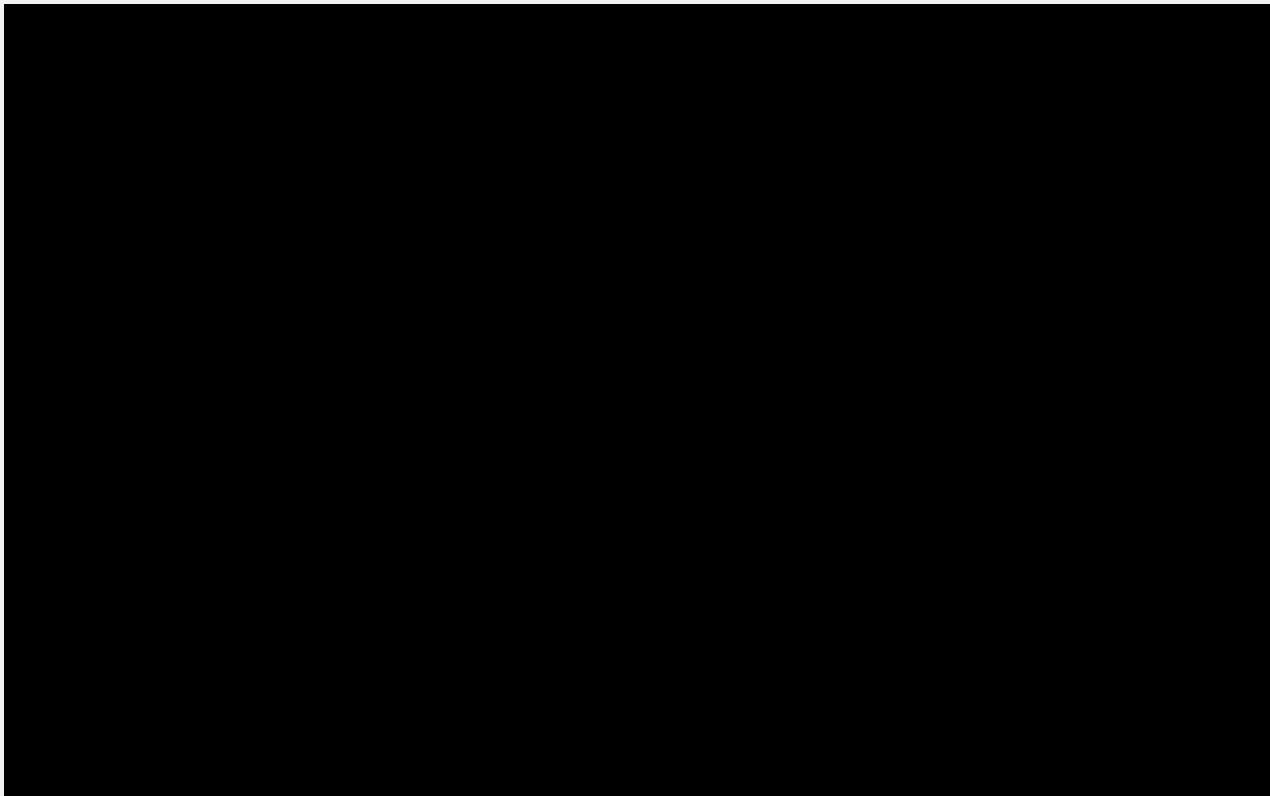
Flutter is Google's UI toolkit for building beautiful, natively compiled applications for **mobile**, **web**, and **desktop** from a single codebase.

<http://flutter.io>

O que são widgets?



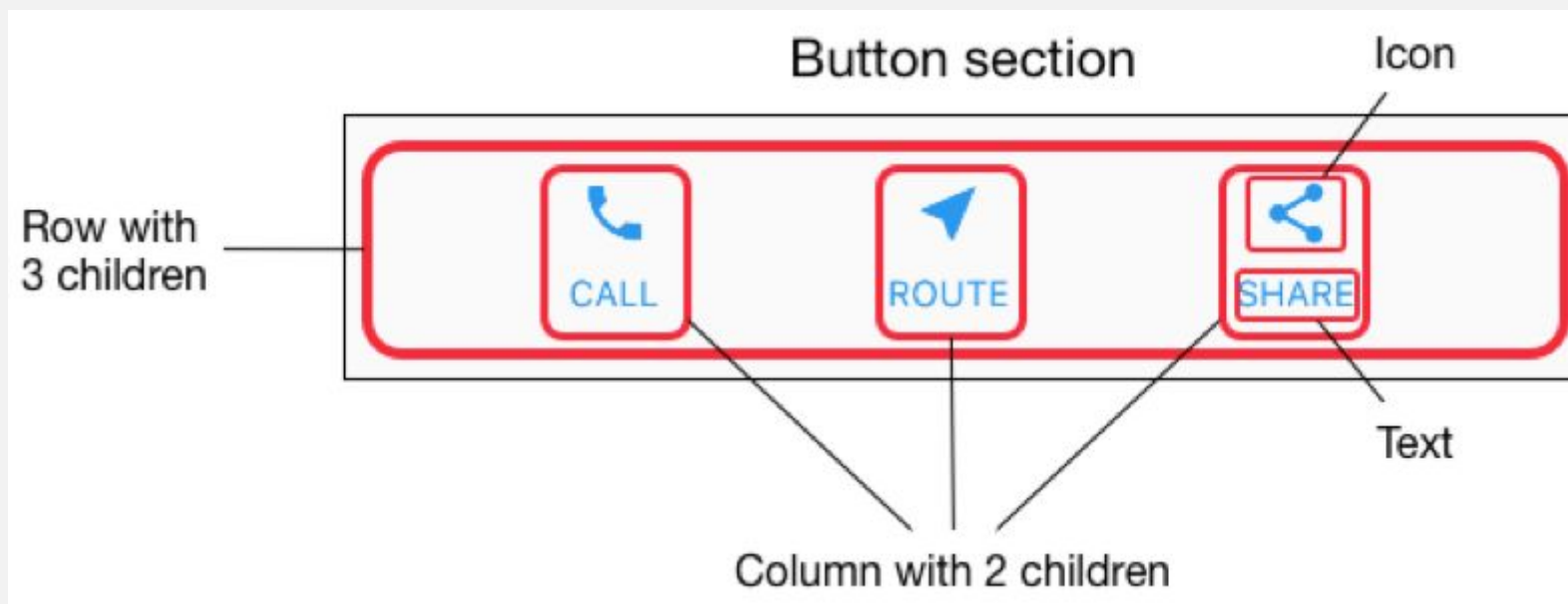
- Widgets ***são os componentes*** de uma aplicação que permitem ao utilizador interagir com as várias funcionalidades do App.



O que são widgets?



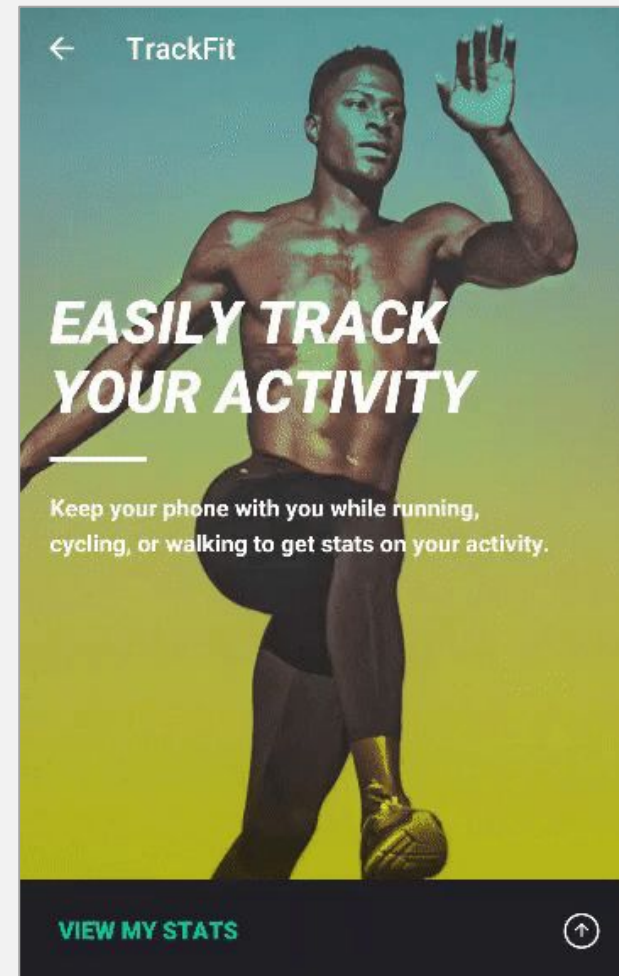
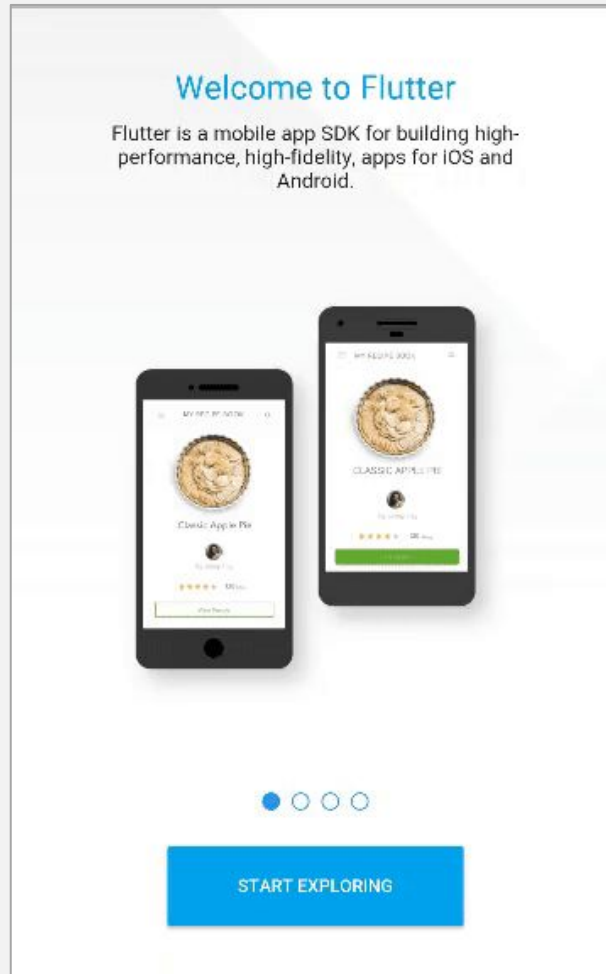
- Tudo no *Flutter* é criado com ***widgets***.
- O fluxo desenvolvimento é ***Orientado ao Design***



O que são widgets?



▪ *Aparência e Desempenho*



What do you see here?

Column



Oeschinen Lake Campground

Kandersteg, Switzerland

★ 41



CALL



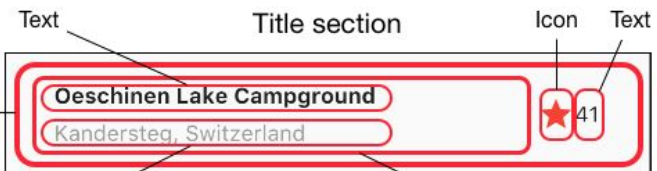
ROUTE



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.

Row with
3 children



Text

Title section

Icon

Text

Column of 2 children

Expanded to fill remaining space

Developer or Designer?

Column



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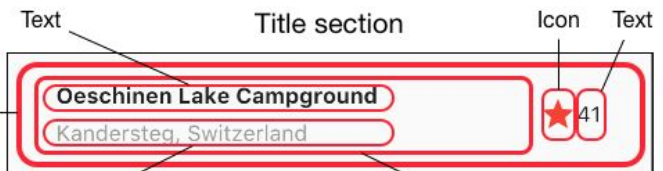
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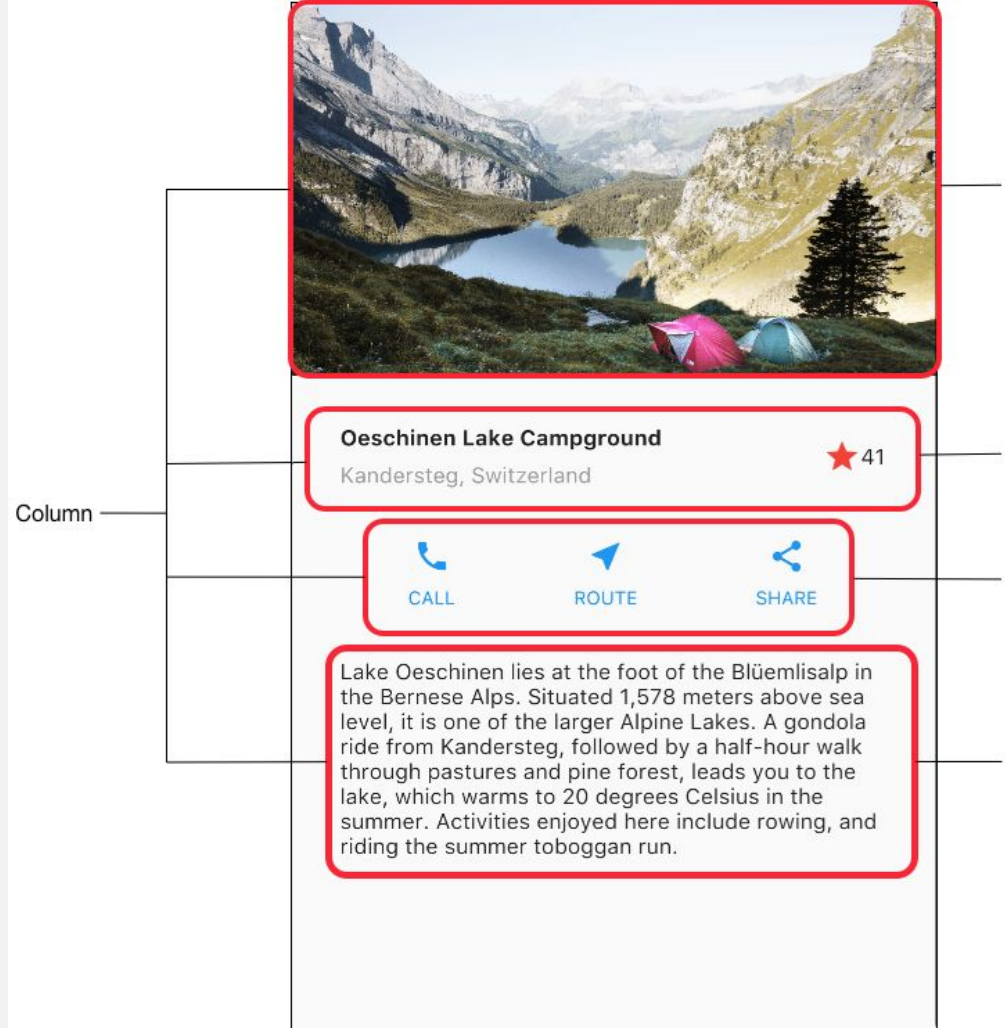
Text

Column of 2 children

Expanded to fill remaining space

Developer or Designer?

Você receberá **duas respostas diferentes**, levando a um entendimento diferente da mesma interface do usuário e efetivamente levando à confusão.



Developer or Designer?

Flutter tenta evitar isso trazendo designers e desenvolvedores desde o início e cooperando no mesmo idioma e no mesmo kit de ferramentas da UI.

Column



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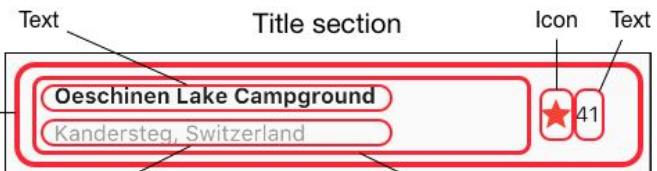
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Row with 3 children



Text

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Expanded to fill remaining space

Designing Bottom-Up



HTML/CSS Analogs in Flutter

```
<div class="greybox">
  Lorem ipsum
</div>
```

```
.greybox {
  background-color: #e0e0e0;
  width: 320px;
  height: 240px;
  font: 900 24px Georgia;
}
```

```
var container = new Container(
  child: new Text(
    "Lorem ipsum",
    style: new TextStyle(
      fontSize: 24.0
      fontWeight: FontWeight.w900,
      fontFamily: "Georgia",
    ),
  ),
  width: 320.0,
  height: 240.0,
  color: Colors.grey[300],
);
```



Dart



- Injetando código-fonte atualizados em uma Dart VM em execução.
- O estado do aplicativo é mantido após uma recarga.
- Faça uma iteração rápida em uma tela profundamente aninhada no seu aplicativo

Hot Reload



The image shows a development environment with an IDE on the left and a mobile emulator on the right.

IDE (Left): The editor displays a Dart file named `main.dart` with the following code:

```
40 int _counter = 0;
41
42 void _incrementCounter() {
43   setState(() {
44     _counter++;
45   });
46 }
47
48 @override
49 Widget build(BuildContext context) {
50   return new Scaffold(
51     appBar: new AppBar(
52       title: new Text(widget.title),
53     ),
54     body: new Center(
55       child: new Text(
56         'Button tapped $_counter time${_counter == 1 ? '' : 's'}',
57       ),
58     ),
59   );
60 }
```

The IDE interface includes a toolbar at the top with icons for hot-reload, console, and other development tools. A 'Run' button is visible at the bottom left of the IDE window.

Emulator (Right): The emulator shows an iPhone 5s running iOS 10.3. The app's title bar is blue and reads "Flutter Demo Home Page". The main content area is white and displays the text "Button tapped 0 times." A blue circular button with a white plus sign is located at the bottom right of the screen.

ARQUITETURA DO FLUTTER



Arquitetura do Flutter



Framework
(Dart)

Material

Cupertino

Widgets

Rendering

Animation

Painting

Gestures

Foundation

Engine (C++)

Skia

Dart

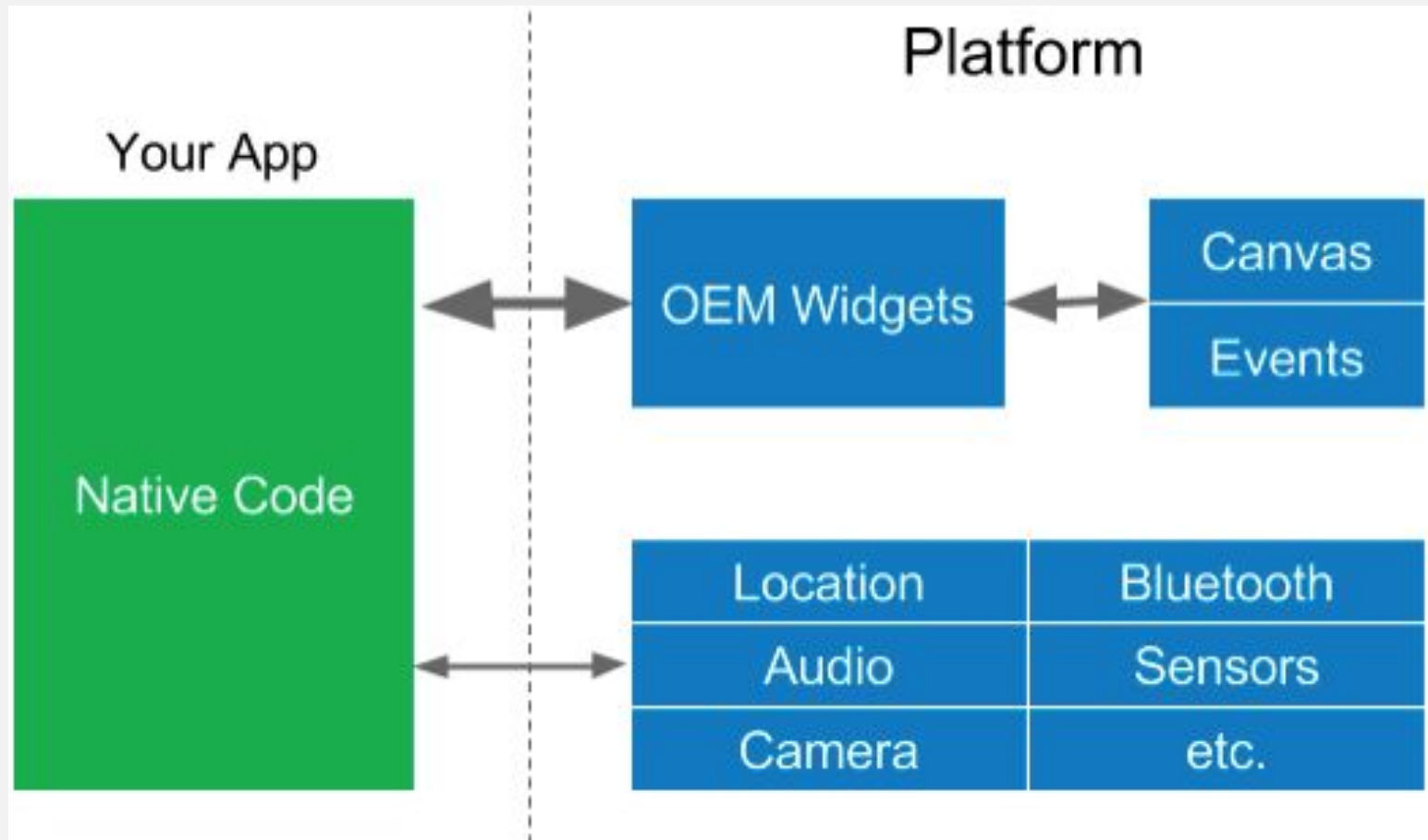
Text

Fonte: <https://medium.com/@nhancv/why-i-move-to-flutter-34c4005b96ef>



■ *Native Apps*

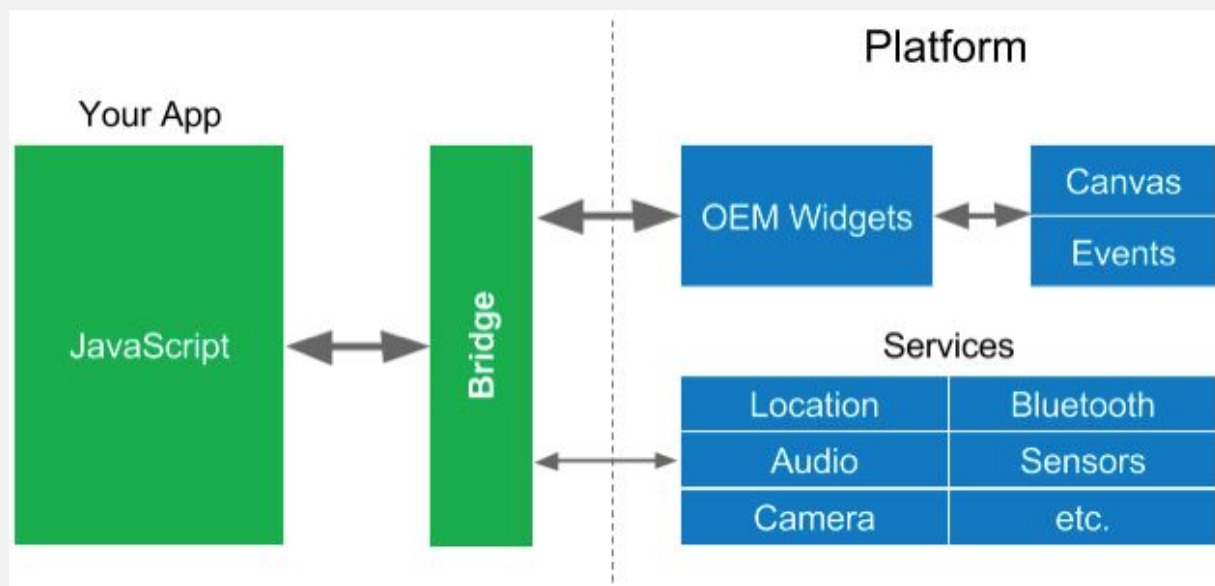
- Arquiteturas sólidas e estáveis para desenvolvimento de Apps para Android e iOS





■ *Cross-Platform Apps*

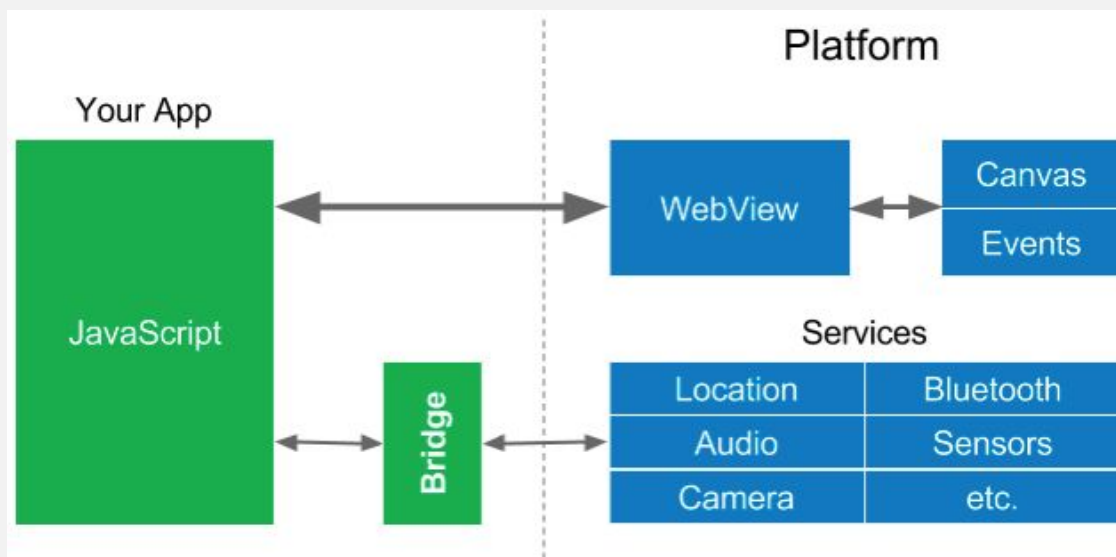
- Desenvolvidas utilizando linguagens intermediárias que não são nativas do sistema operacional, por exemplo, C# e JavaScript.
- Parte do código pode ser compartilhando entre as plataformas.
- Tecnologias
 - Xamarin
 - Appcelerator
 - React Native
 - NativeScript





■ *Hybrid Apps (ou Web Apps)*

- São aplicativos cross-plataform em que a interface é renderizada utilizando um navegador web incorporado no dispositivo.
- App é desenvolvida utilizando HTML, CSS e JavaScript.
- Tecnologias
 - Cordova
 - Trigger.IO
 - Ionic Framework
 - Telerik Plataform

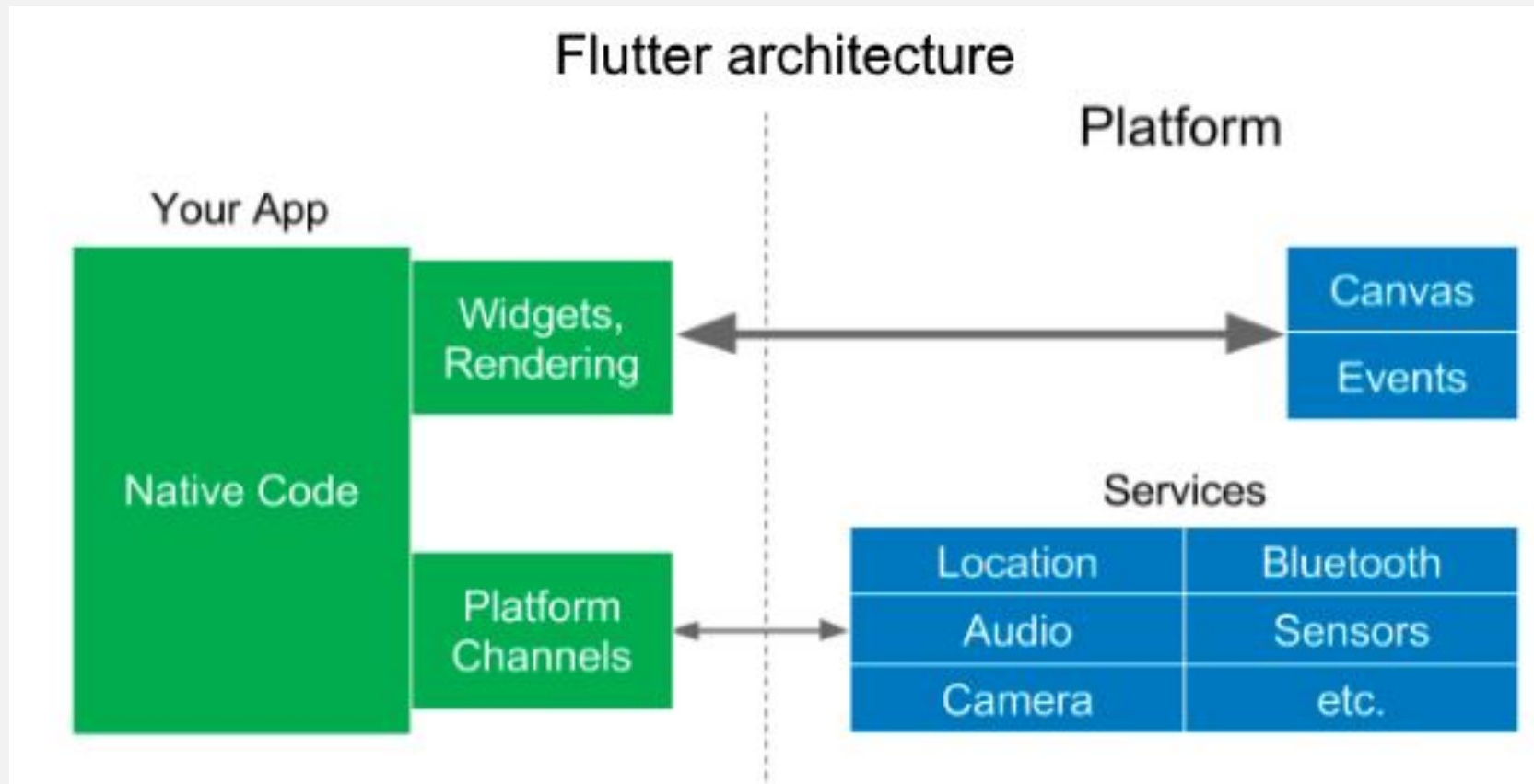




■ *Flutter Apps*

- Desempenho superior em relação a outras soluções.
- Compilação **AOT** (*Ahead of Time*) ao invés de **JIT** (*Just in Time*).
- Código é compilado de uma só vez antes da execução.
- Não necessita de **bridges** e é independente da plataforma.

Arquitetura do Flutter

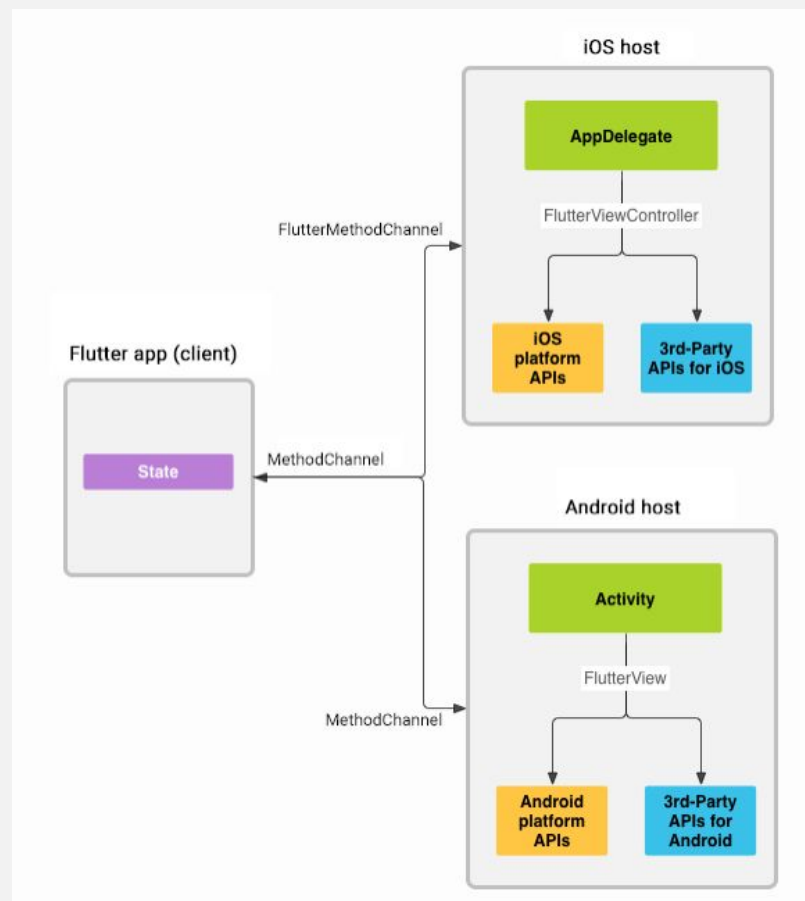


□ **Platform channels:** permite chamar API nativas para acessar funções nativas: telefone, câmeras, etc.



■ *Platform Channel*

- Chamada de APIs da plataforma, disponíveis no em Java ou Kotlin no Android, ou no em ObjectiveC ou Swift no iOS.
- Mensagens e respostas são transmitidas de forma assíncrona, para garantir que a *interface do usuário permaneça responsiva*.



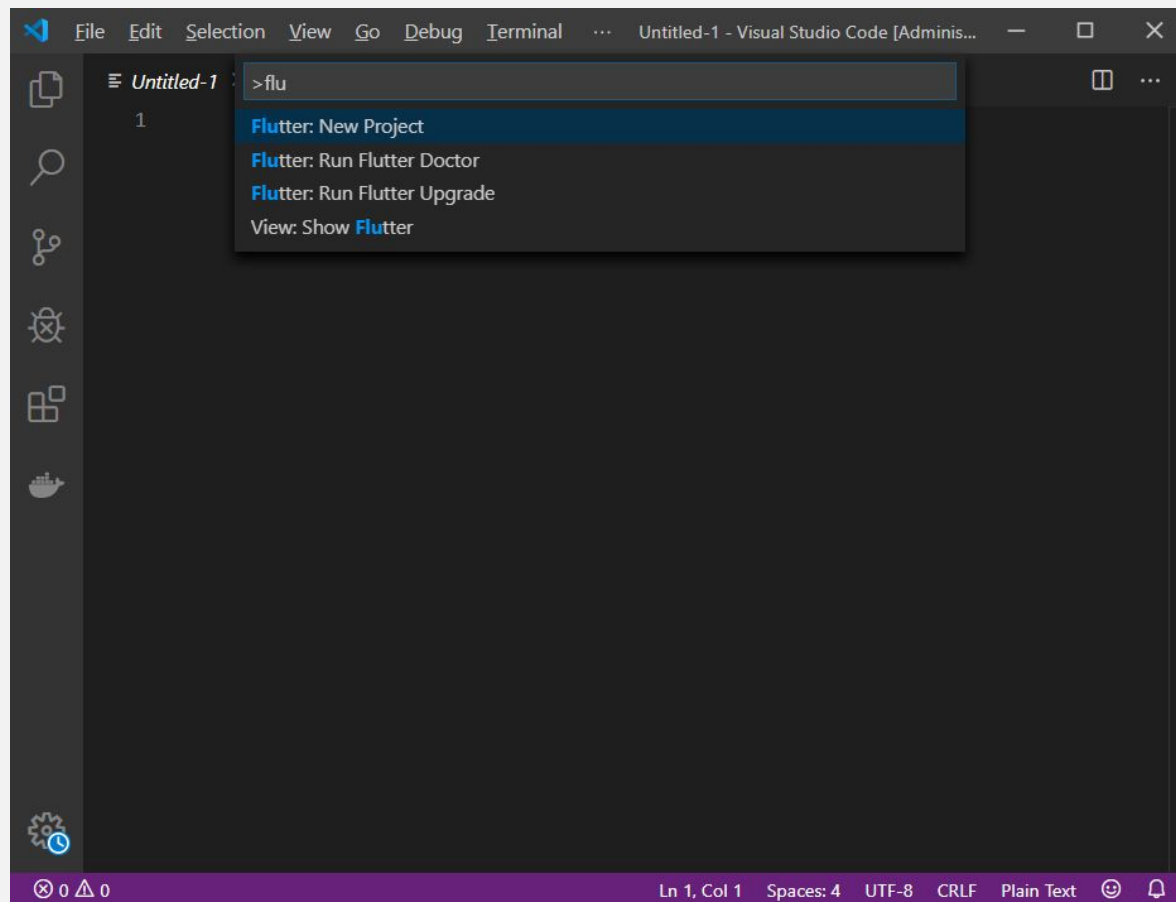
CRIANDO UM NOVO PROJETO

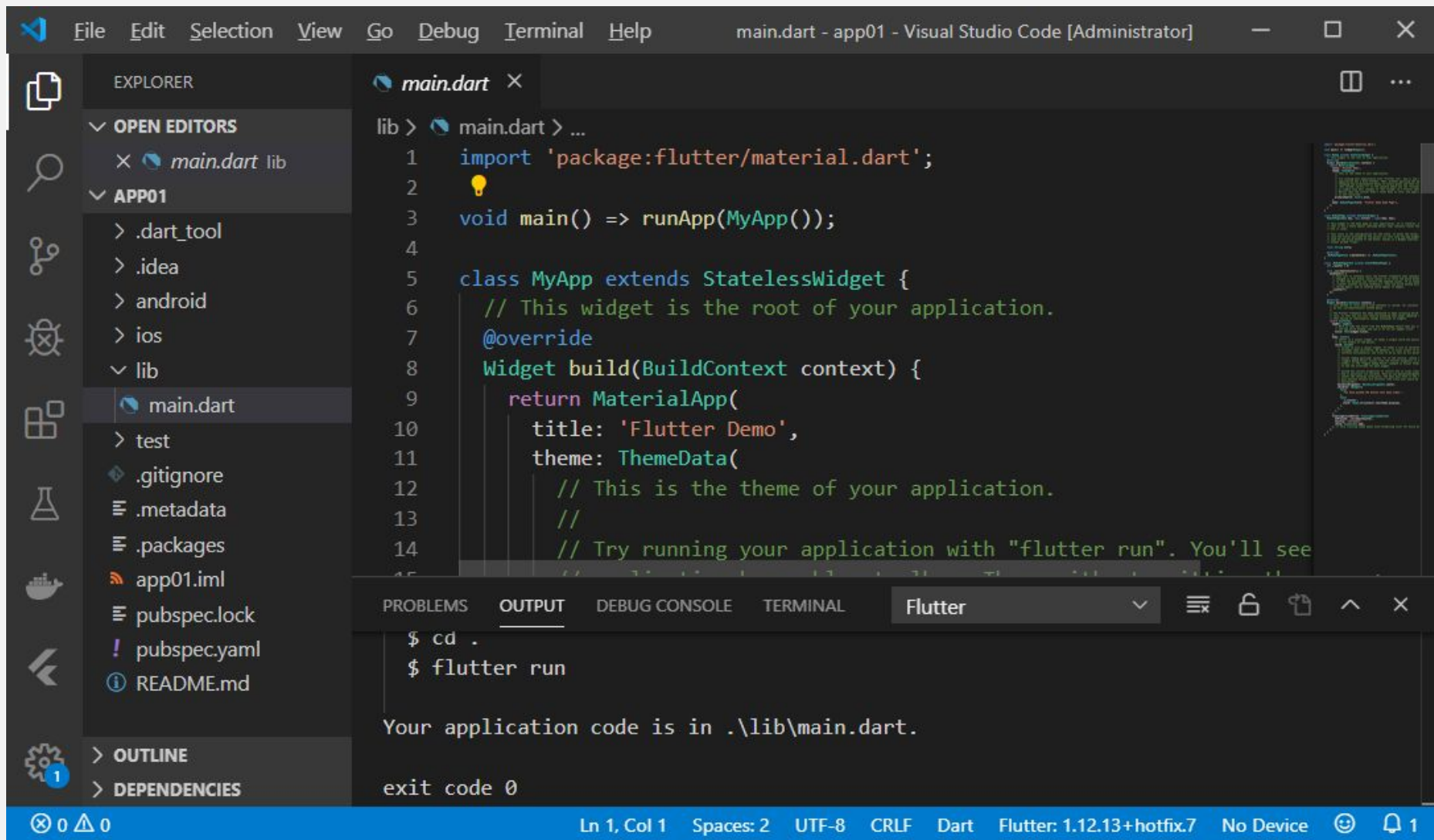


Criando um novo Projeto



- ***Visual Studio Code***
 - ***Ctrl+Shift+P***





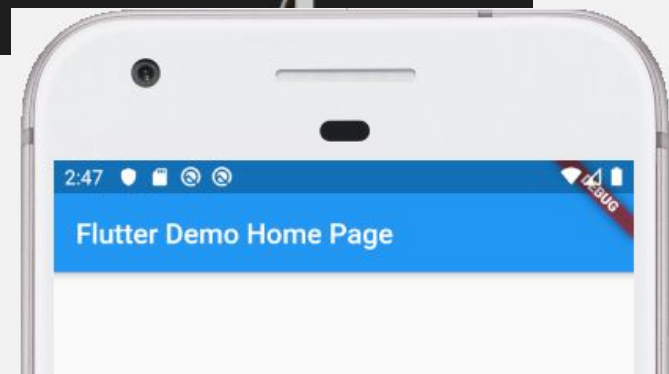
Executar o App no Emulador

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  1: cmd  +  
  
D:\flutter_src\app01>flutter emulators  
1 available emulator:  
  
Pixel_API_29 • Pixel API 29 • Google • android  
  
To run an emulator, run 'flutter emulators --launch <emulator id>'.  
To create a new emulator, run 'flutter emulators --create [--name xyz]'.
```

```
D:\flutter_src\app01>flutter emulators --launch Pixel_API_29  
  
D:\flutter_src\app01>flutter run  
Using hardware rendering with device Android SDK built for x86. If you get graphics  
artifacts, consider enabling software rendering with "--enable-software-rendering".  
Launching lib\main.dart on Android SDK built for x86 in debug mode...  
Running Gradle task 'assembleDebug'...
```



Take it easy...





- ***Hot reload***
 - *Pressione a tecla r*
- ***Hot restart***
 - *Pressione a tecla Shift+R*



Execução no modo Web

`flutter run -d chrome`

Execução no modo Web + Release

`flutter run --release -d chrome`

Listar dispositivos (devices)

`flutter devices`

Limpar o projeto

`flutter clean`

FIM