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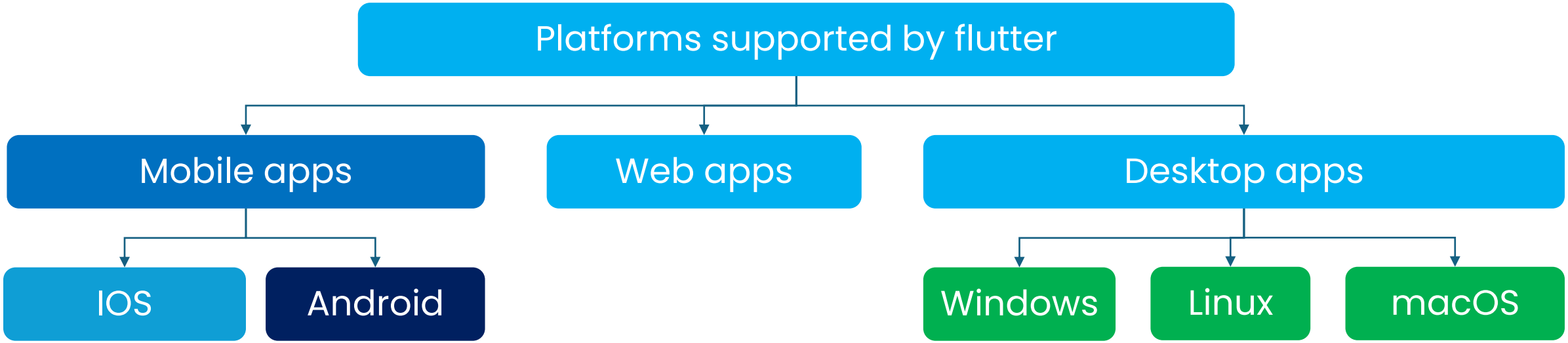
Introduction to Flutter

What is Flutter?

Flutter is an open-source framework created by Google. That allows developers to create apps that work on different platforms (like iOS, Android, and web) using a **single code-base**.

Target Platforms



Target Platforms

⚠️ We can only test , build and run IOS and macOS applications in macOS machines.

⚠️ We can test , build and run android applications in any operating system

.

android

Swift/Objective-C (iOS)

android ✅ ✅

Updates and Bug Fixing

Android code

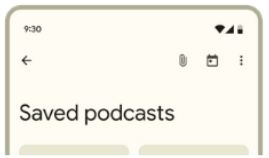
iOS code

Device Responsiveness ❌

Here comes Flutter!

- ✅ allows developers to create apps that work on different platforms (like iOS, Android, and web) using a **single code-base**.
- ✅ Flutter constructs a hierarchy of widgets, converts it into a **render tree**, and then uses that to **paint the user interface on the screen**.
- ✅ This allows for flexibility and high-performance UI rendering.

✅ Prebuild widgets

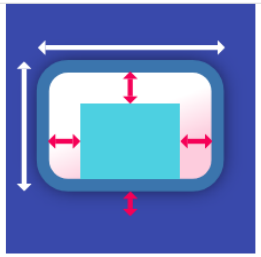


AppBar

Container that displays content and actions at the top of a screen.

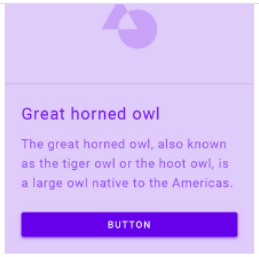
Column

Layout a list of child widgets in the vertical direction.



Container

A convenience widget that combines common painting, positioning, and sizing widgets.



ElevatedButton

A Material Design elevated button. A filled button whose material elevates when pressed.

FlutterLogo

The Flutter logo, in widget form. This widget respects the IconTheme.

Icon

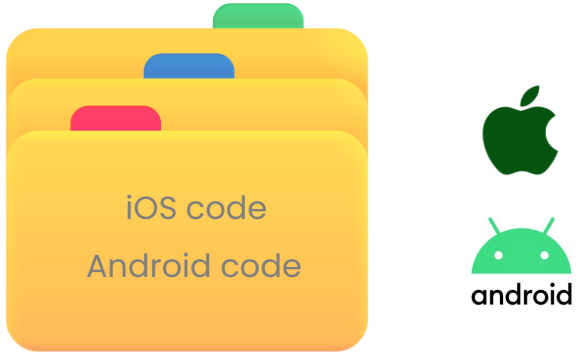
A Material Design icon.

See all

✅ Dart

Why Flutter?

✅ One Codebase to run , **debug and push updates**



Why Flutter?

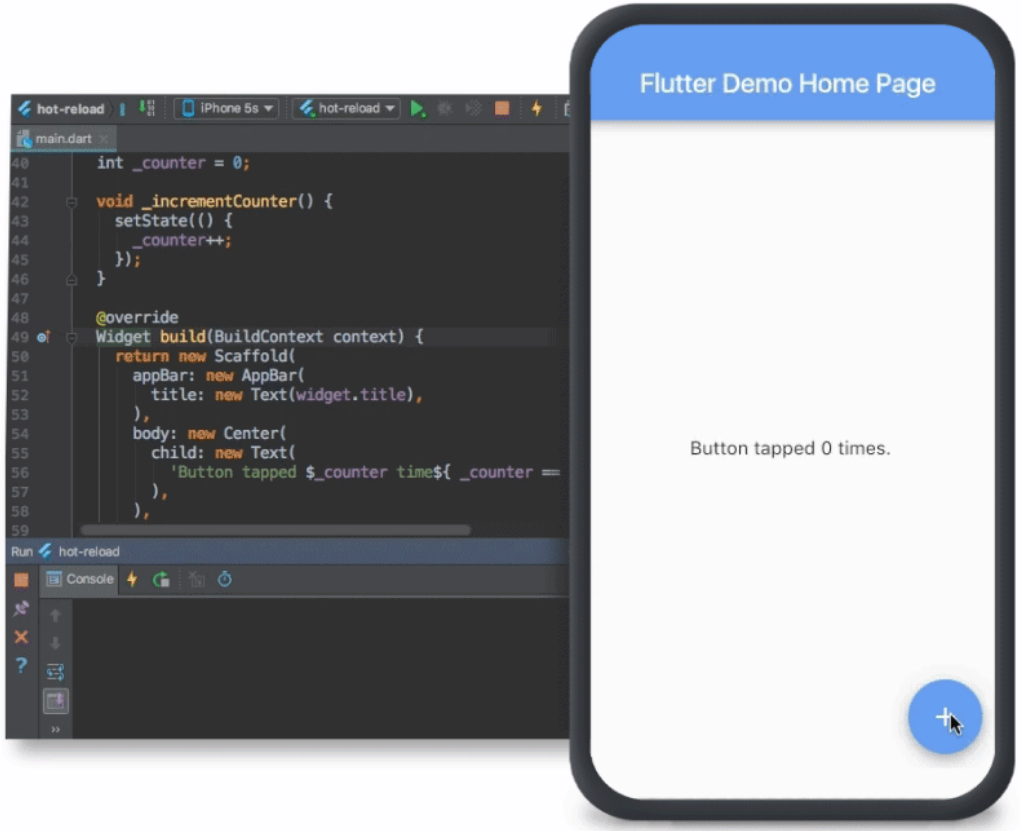
✅ Simple and more flexible layout rendering

- **Flexible Layout Widgets :** Flutter offers a variety of layout widgets that help you arrange and position your UI elements. Some of the most common ones include **Container**, **Row**, **Column**, **Stack**, and **ListView**. These widgets give you fine-grained control over how your content is organized on the screen.

- **Nesting** : you can put a **Column inside a Container, or a ListView inside a Card**. This nesting capability makes it easy to build sophisticated UIs.

2.2. Why Flutter?

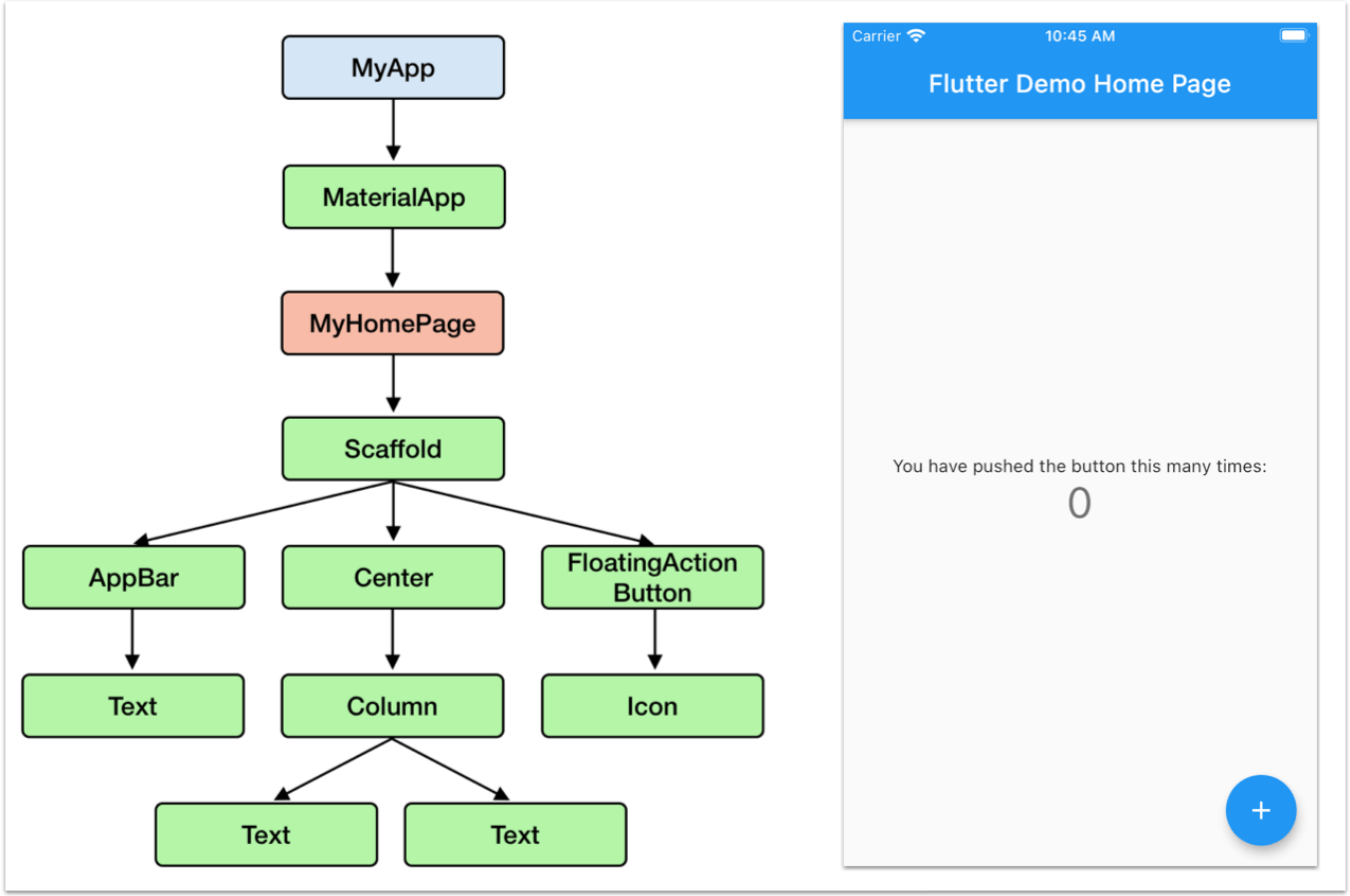
✅ Fast Hot reloading 🔥

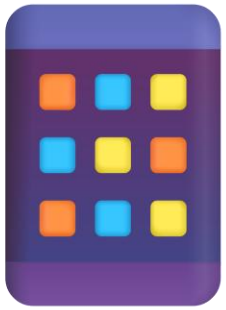


Advantages of using Flutter

- Single Codebase for Multiple Platforms
- Hot Reload
- Rich Set of Widgets
- High Performance
- Native-Like Look and Feel
- Strong Community and Ecosystem

2.4. Flutter Architecture and How Flutter Builds and Renders the Widget Tree ?





Create a simple application (To Do App)

Easy Flutter App

Here we will create a simple Flutter application and get a deep understanding of the process of building beautiful UI using Flutter.

we are covering here

- Text
- Center
- Icons
- Material app
- Scaffold
- App bar

What is a Widget in Flutter?

In Flutter, a widget is a fundamental building block of user interface elements, such as buttons, text fields, images, and layouts.
Everything you see on the screen in a Flutter app is a widget, including the app itself. Widgets are used to construct the user interface hierarchy in Flutter applications.

Widgets in Flutter are divided into two main categories

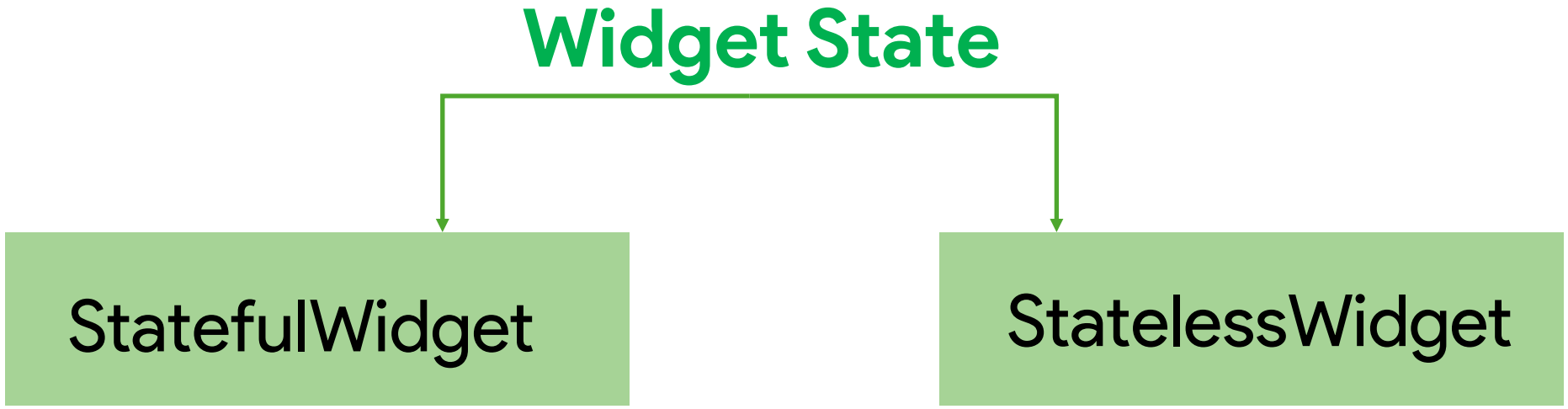
1. StatelessWidget
2. StatefullWidget

What is state?

In Flutter, "state" refers to the **data** that can change over time and affect the appearance or behavior of a widget.

Application State

This refers to the overall state of the application, including **data that needs to be shared among multiple widgets or screens.** Application state typically resides in a higher-level widget, such as the root widget of the application or a state management solution like Provider, River pod or Bloc.

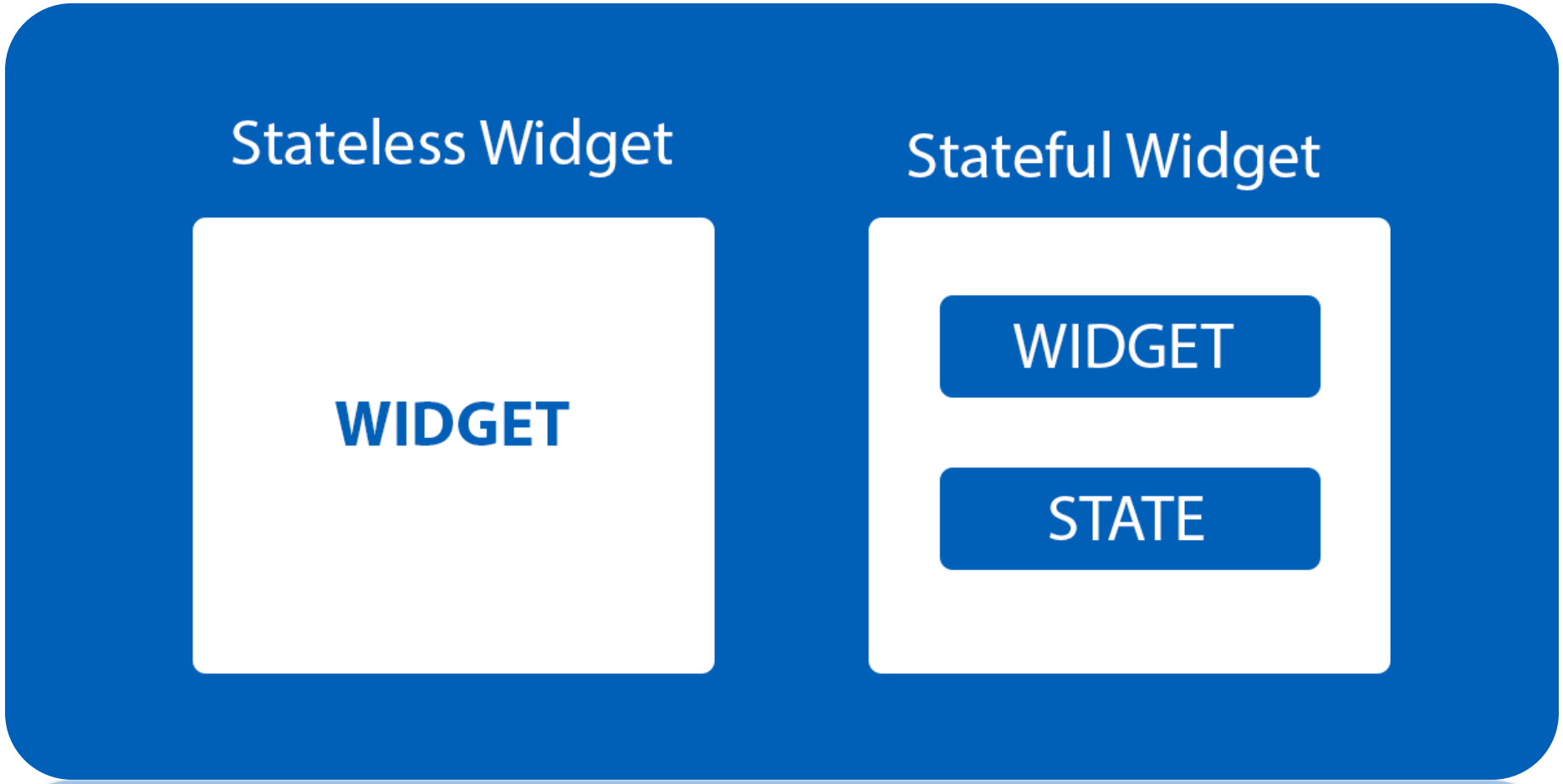

Widget State
StatefulWidget
StatelessWidget

StatelessWidget

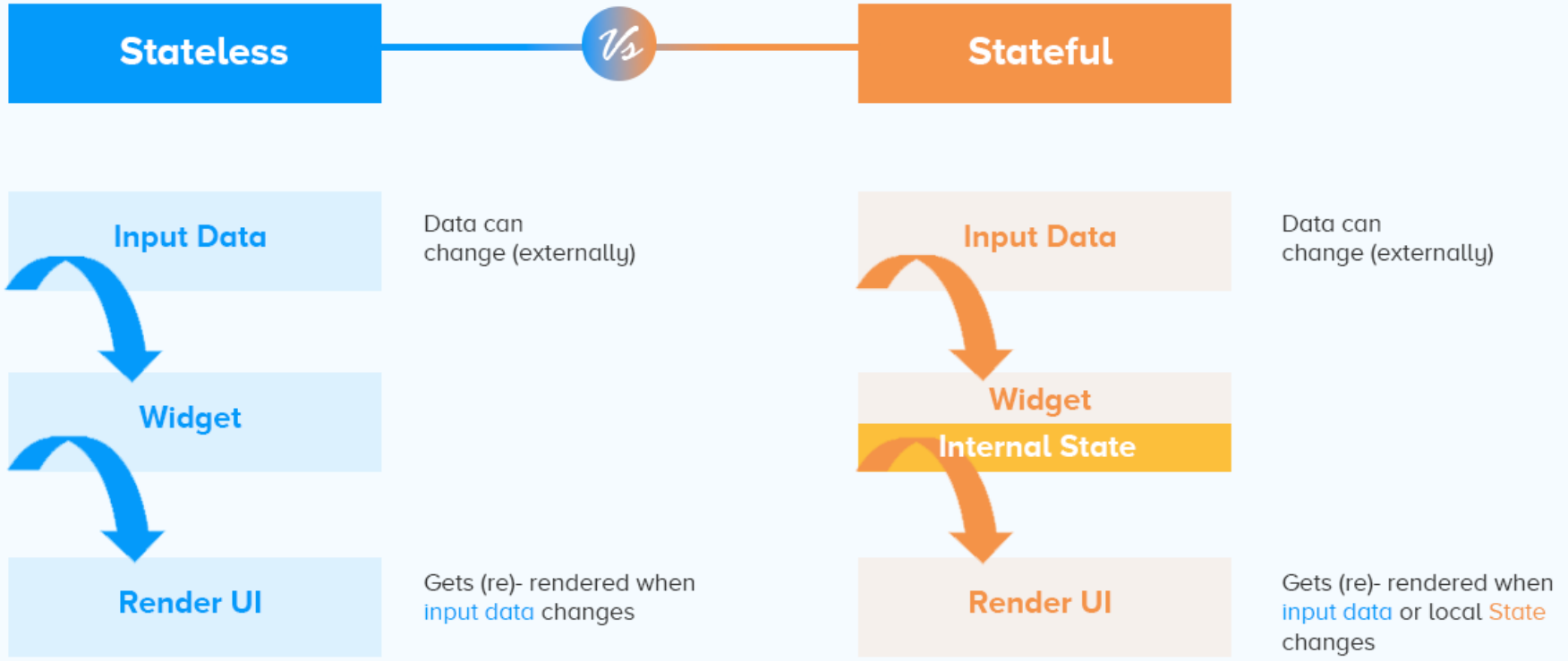
These are widgets that do not have any mutable state. Their properties, once set, remain constant throughout their lifetime.

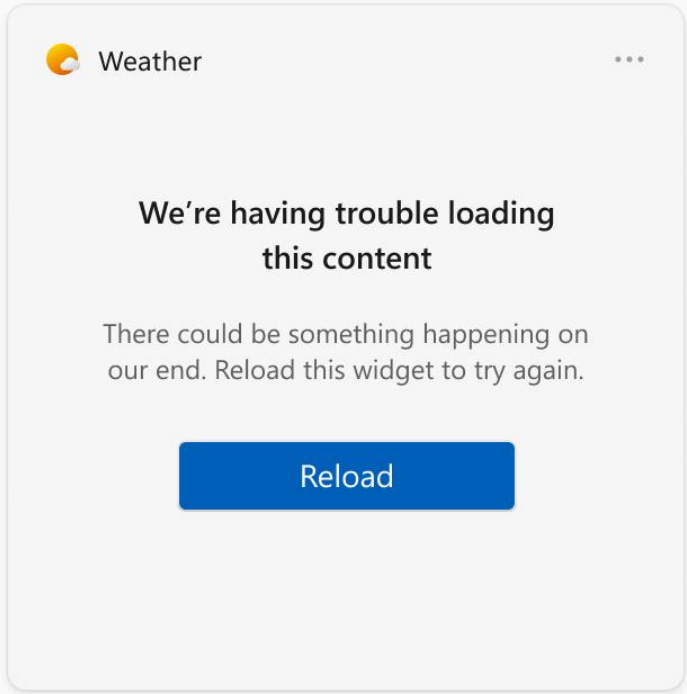
StatefulWidget

These are widgets that have mutable state. Their properties can change over time, leading to changes in the appearance or behavior of the widget.


Stateless Widget
WIDGET
Stateful Widget
WIDGET
STATE

Stateless vs Stateful



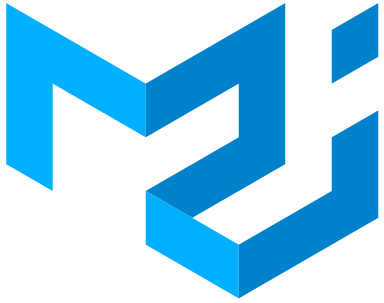

Weather
We're having trouble loading this content
There could be something happening on our end. Reload this widget to try again.
Reload

Seattle, WA
72 °F °C
Strong UV today
0%
Today
112°
92°
Fri
81°
68°
Sat
90°
70°
Sun
85°
69°
See full forecast

MaterialApp

MaterialApp is a fundamental widget in the Flutter framework that provides a convenient wrapper for creating applications based on **Google's Material Design guidelines**. It sets up essential configurations and features required for a Material Design-compliant app, such as **navigation, theming, and accessibility.**

Read more...



Scaffold

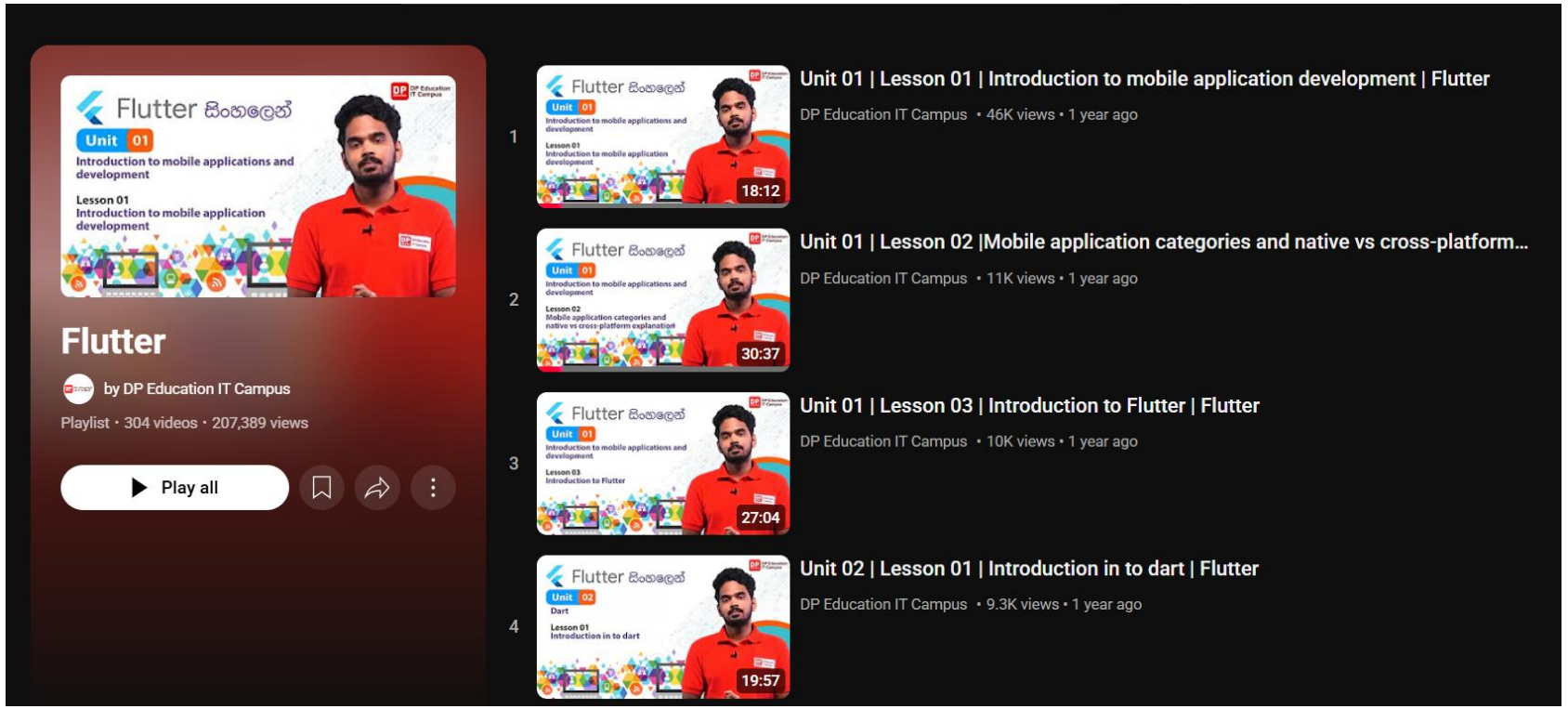
The Scaffold widget in Flutter is a fundamental building block for implementing Material **Design layouts in your app**. It provides a layout structure for the top-level areas of your app's UI, including,

- AppBar
- Body
- Floating Action Bar
- Bottom Navigation Bar
- Persistent Footer Buttons

When used together, these individual elements can be powerful for building and crafting functional yet aesthetically pleasing UI.

Read more...

Wanna Learn More ?



https://youtube.com/playlist?list=PLWOPiU7tDzap4WdZn4ZbdUj9dfqgDLxKW&si=F6zMvYD0Iwzckyq3

https://www.youtube.com/@adomicarts

THANK YOU..