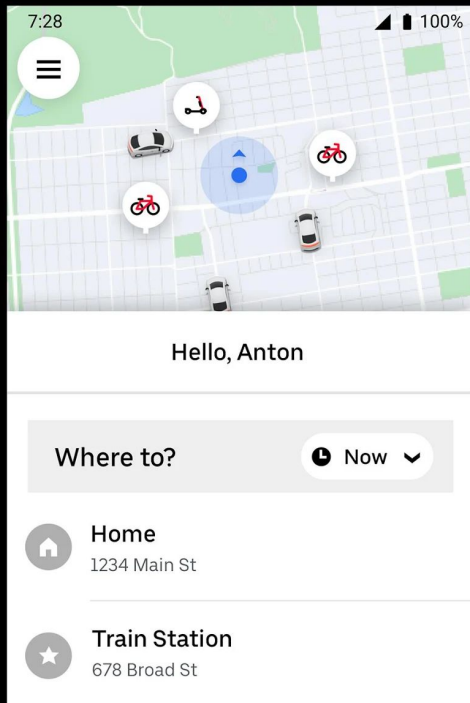


# Flutter intro / Layouting 1

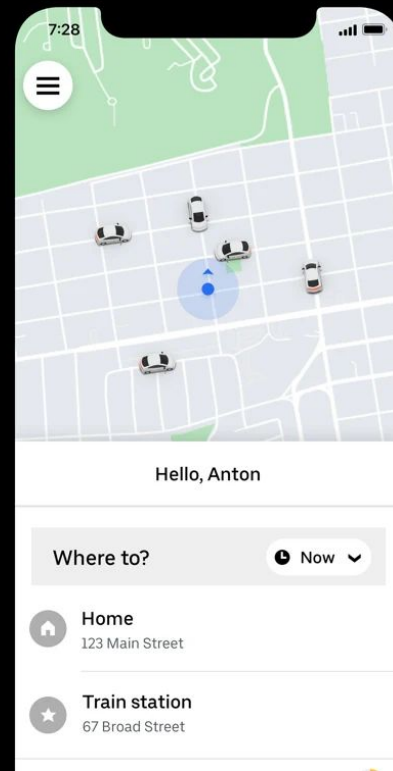


# Introduction

# Choose your destination

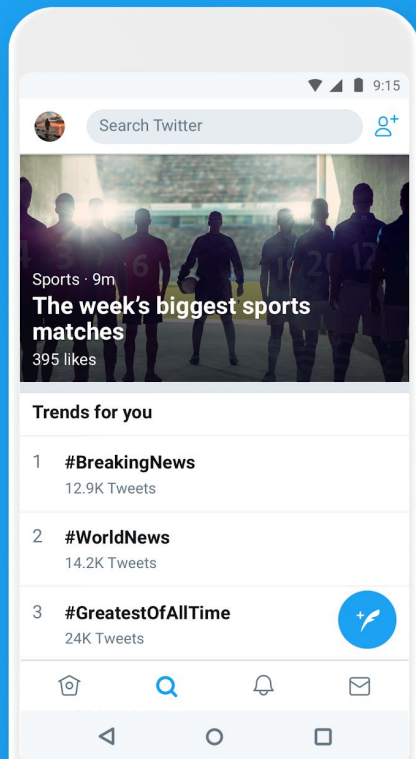


# Choose your destination

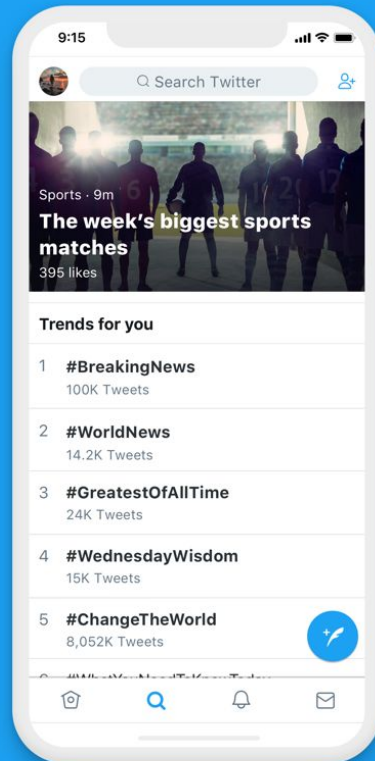





# See what's happening.



# See what's happening.





Design systems are  
platform-independent



# Two separate dev teams

...and separate bugs, release cycles, deployments



# It costs a lot

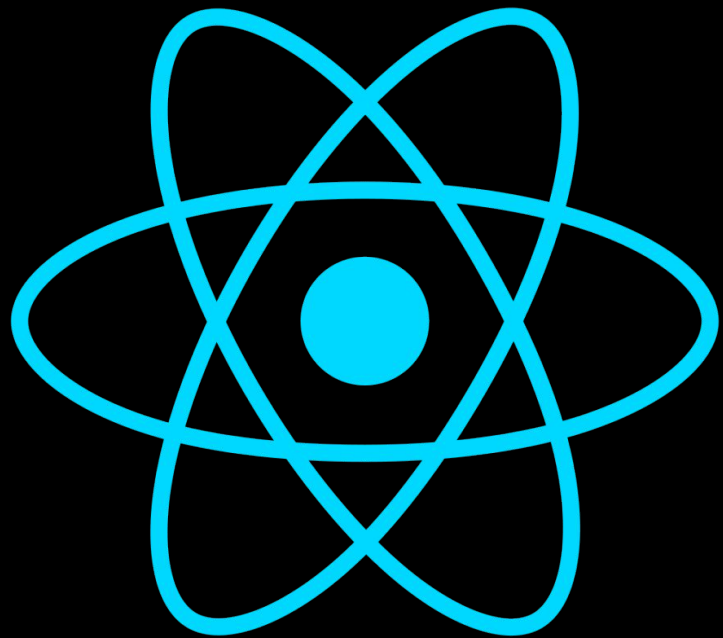


# Xamarin





APACHE  
**CORDOVA**™



React Native



# Flutter

Framework  
(Dart)

Material

Cupertino

Widgets

Rendering

Animation

Painting

Gestures

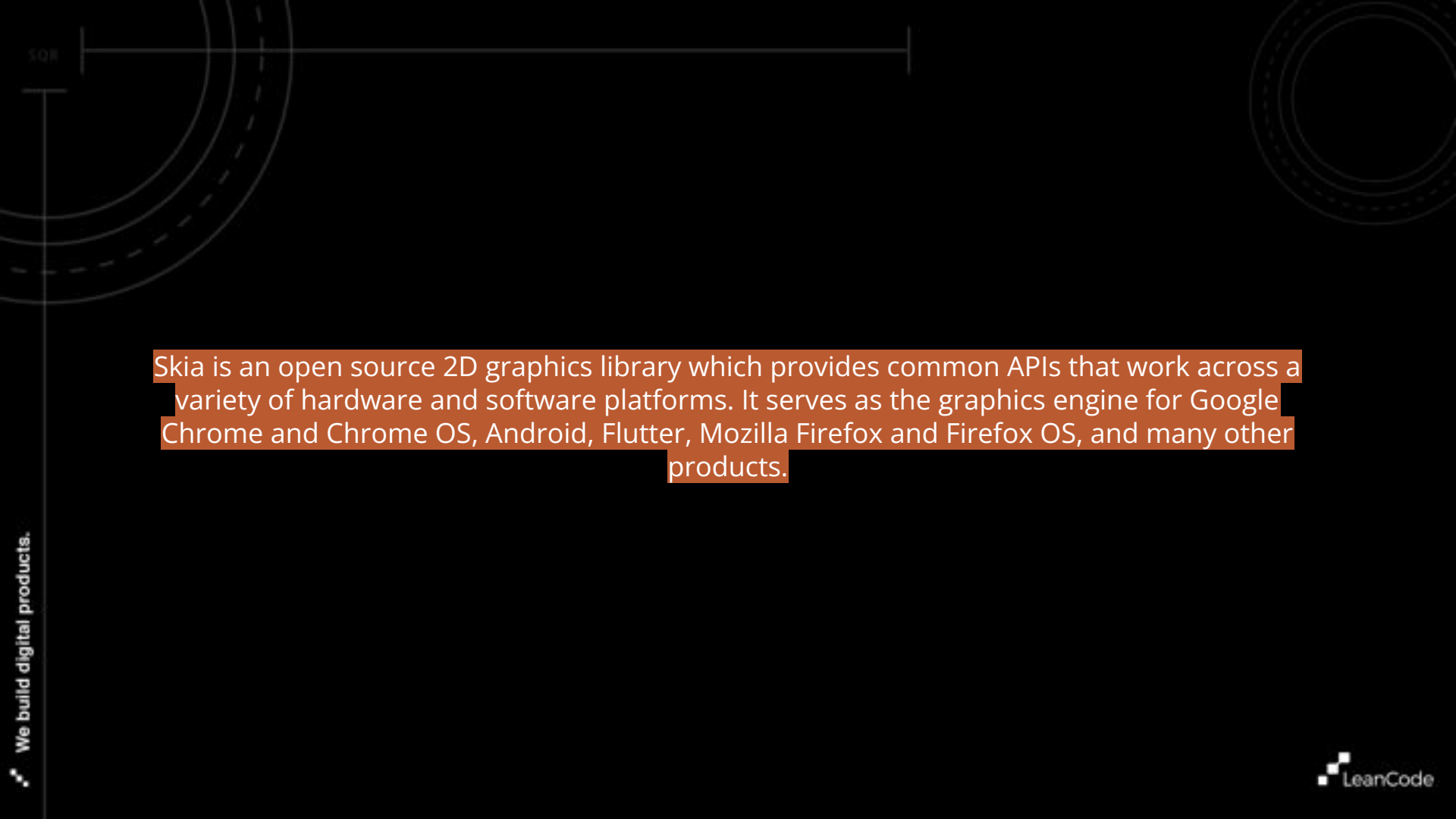
Foundation

Engine  
(C++)

Skia

Dart

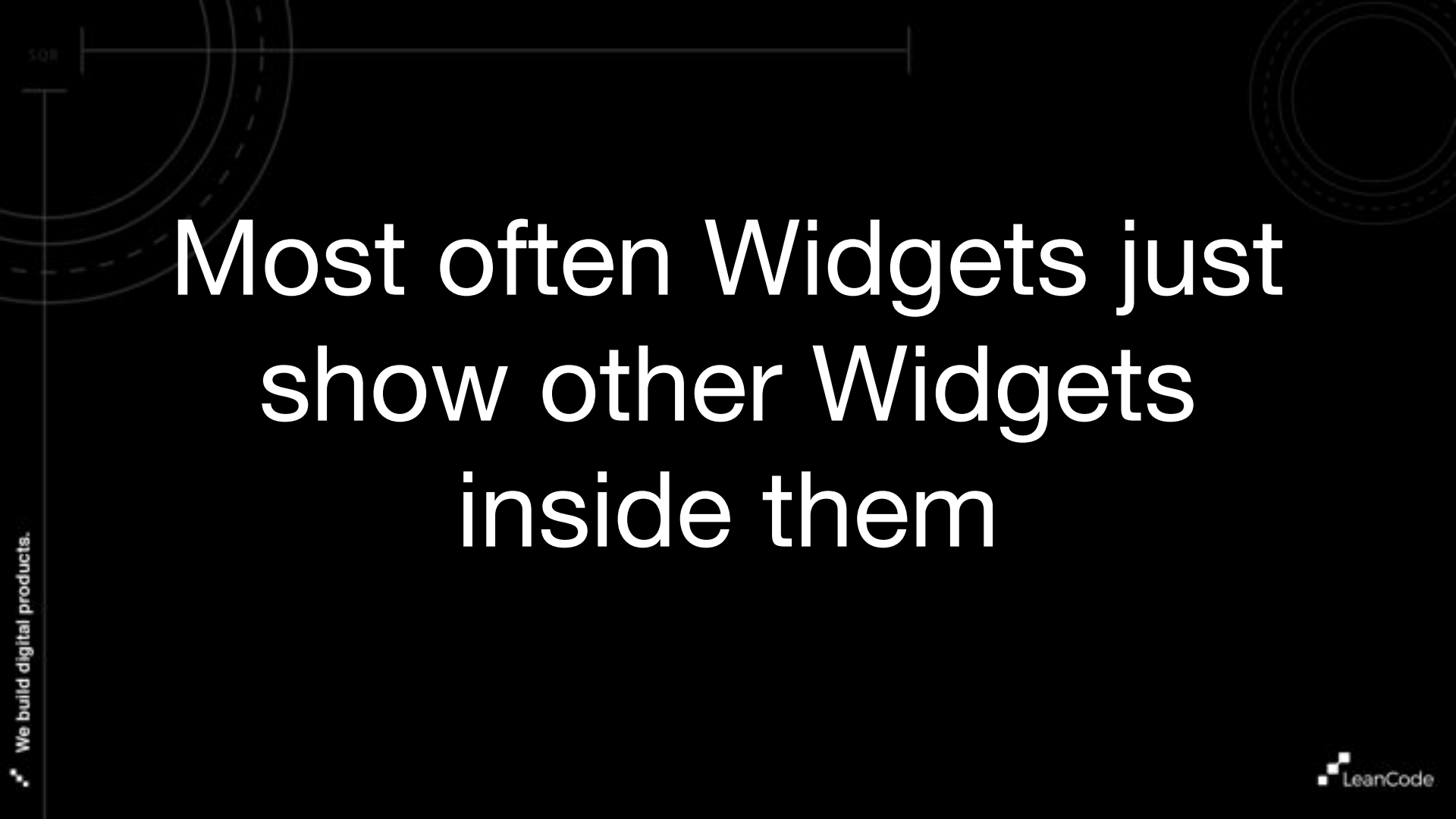
Text



Skia is an open source 2D graphics library which provides common APIs that work across a variety of hardware and software platforms. It serves as the graphics engine for Google Chrome and Chrome OS, Android, Flutter, Mozilla Firefox and Firefox OS, and many other products.



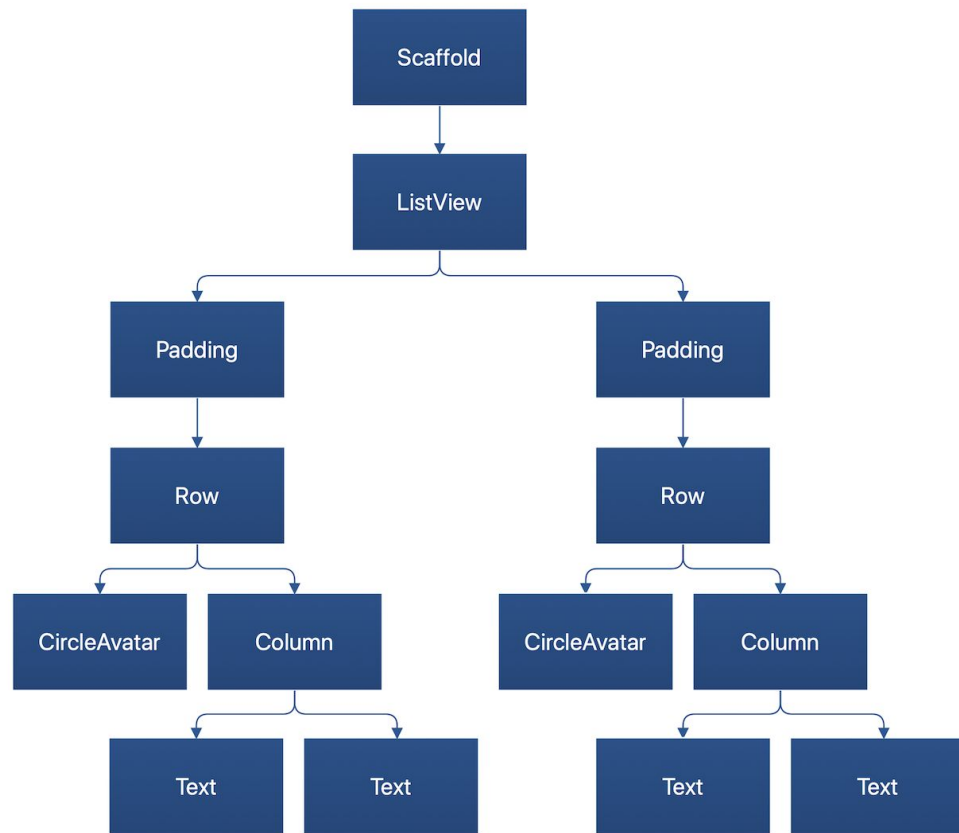
(Almost) everything is a  
widget

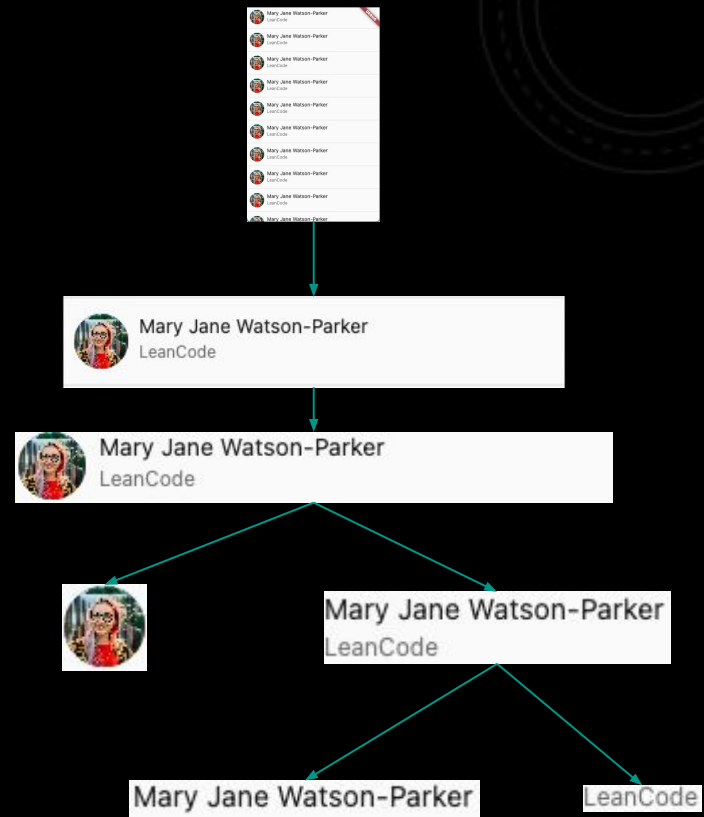
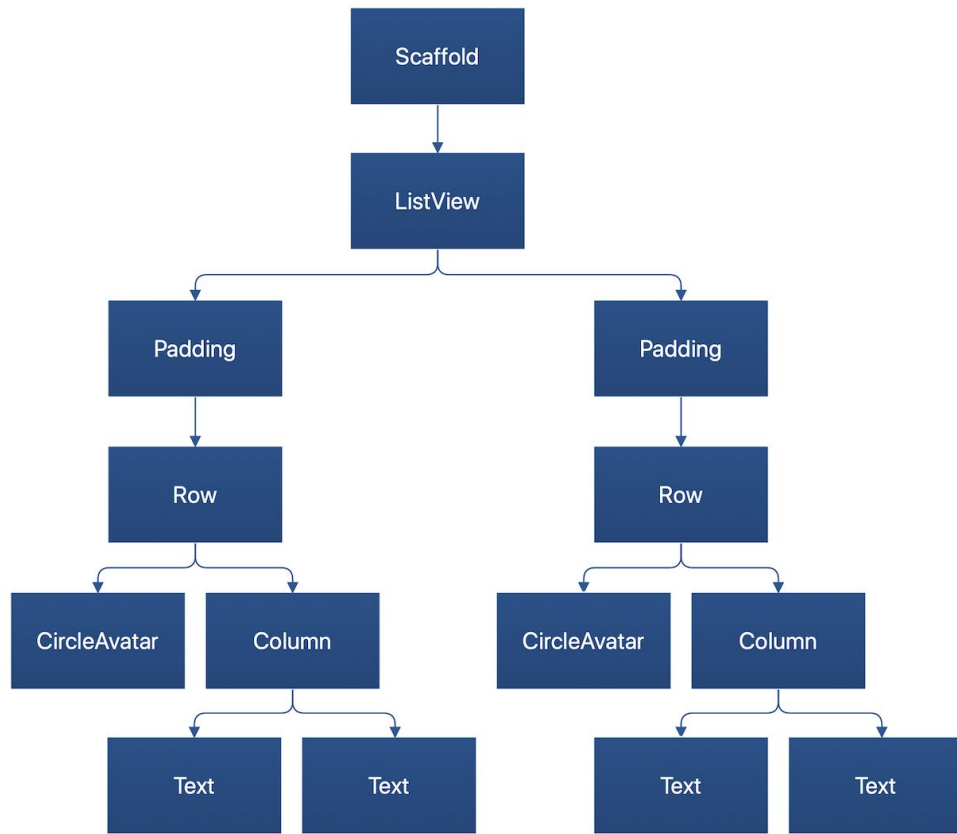


Most often Widgets just  
show other Widgets  
inside them









# Flutter Desktop

macOS + Windows + Linux

# Flutter Web

# Flutter Embedded



# Let's code!

# Imperative UI

Windows Forms / Android / iOS /  
GTK

Add callback which on change  
does:

- Set color
- Remove child
- Add child
- Set position

# Declarative UI

React / Flutter / Jetpack  
Compose / SwiftUI

For this state return a View with red background color and children consisting of a text message and a button.





```
final title = Text();
title.data = 'Please tap the button to finish';

final button = Button();
button.text = 'Finish';
button.onPressed = () {
  print('Button pressed!');
};

view.backgroundColor = Colors.white;
view.children = [];
view.children.add(title);
view.children.add(button);
```



```
return View(
  children: [
    Text('Please tap the button to finish'),
    Button(
      text: 'Finish',
      onPressed: () {
        print('Button pressed!');
      }
    ),
  ],
);
```



# Let's make some Hello World!



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

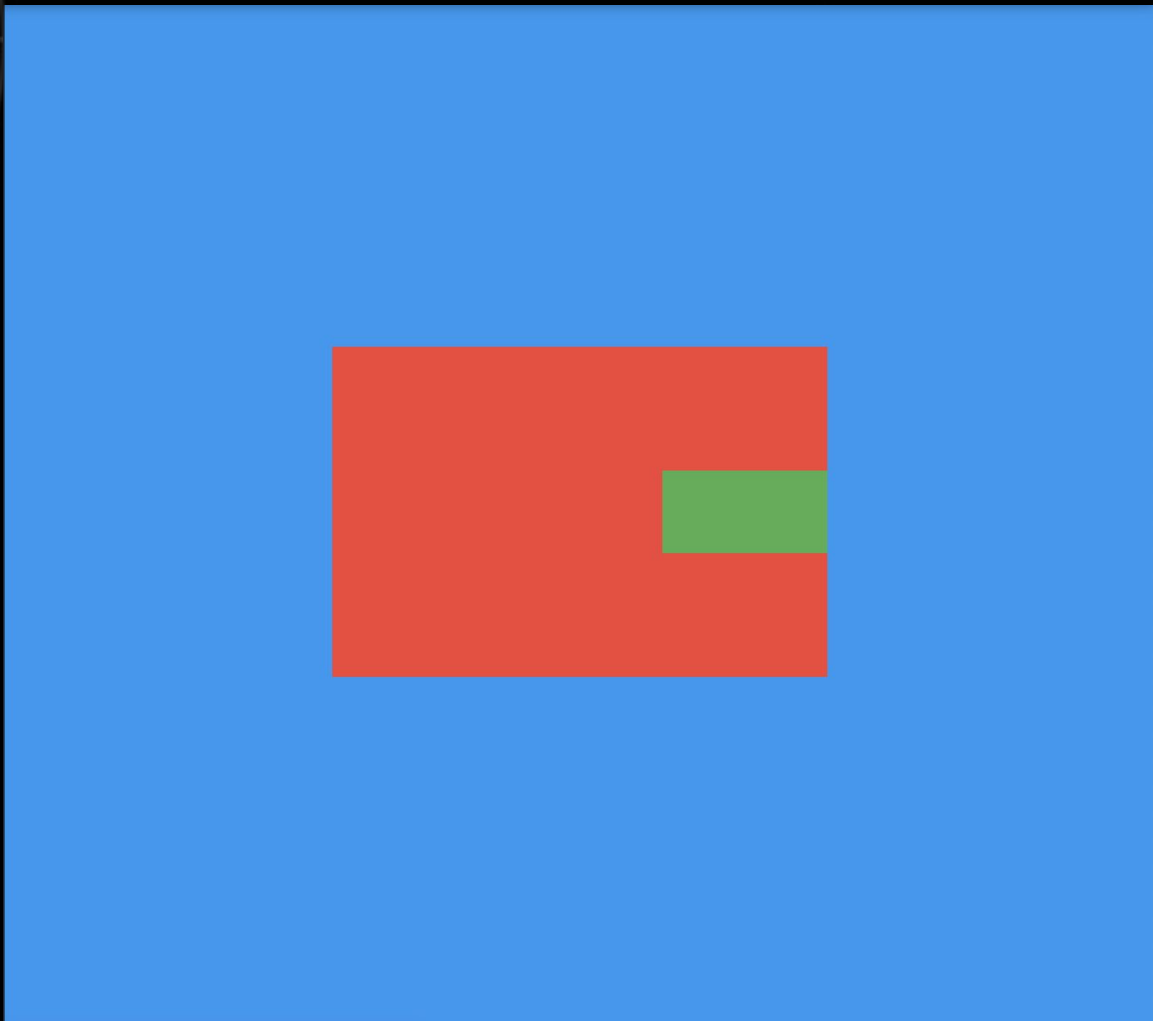
void main() {
  runApp(
    const Center(
      child: Text(
        'Hello world!',
        textDirection: TextDirection.ltr,
      ),
    ),
  );
}
```

Constraints go down. Sizes go up.  
Parent sets position.

**BoxConstraints**({double minWidth, double maxWidth, double minHeight, double maxHeight})

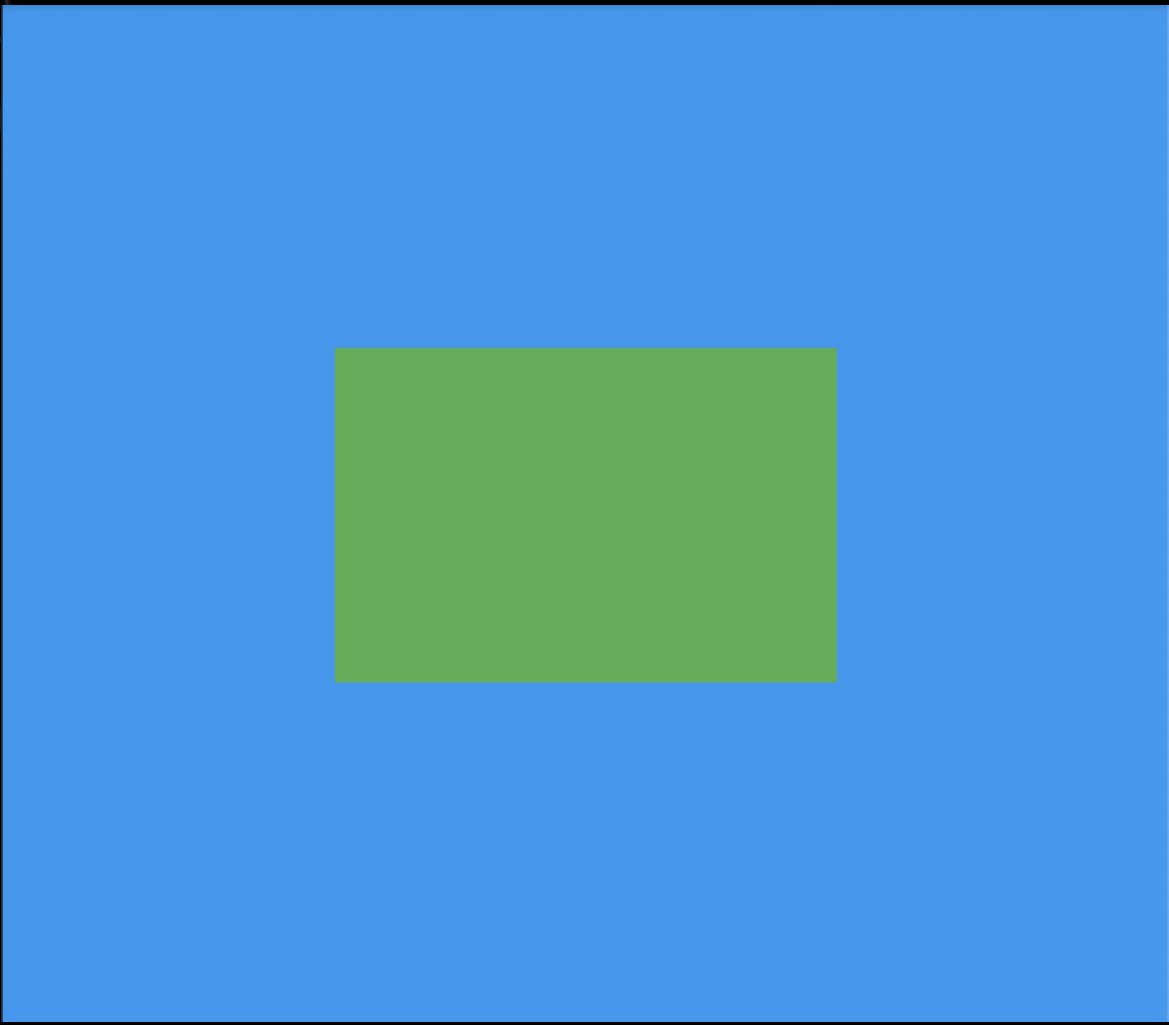
Creates box constraints with the given constraints.

*const*





```
Widget build(BuildContext context) {
  return Scaffold(
    body: Container(
      constraints: const BoxConstraints(minWidth: 400, minHeight: 400),
      color: Colors.blue,
      child: Center(
        child: Container(
          constraints: BoxConstraints.tight(const Size(300, 200)),
          color: Colors.red,
          child: Align(
            alignment: const Alignment(1,0),
            child: Container(
              width: 100,
              height: 50,
              color: Colors.green,
            ),
          ),
        ),
      ),
    ),
  );
}
```







```
child: Container(  
  constraints: BoxConstraints.tight(const Size(300, 200)),  
  color: Colors.red,  
  child: Align(  
    alignment: const Alignment(1,0),  
    child: Container(  
      width: 350,  
      height: double.infinity,  
      color: Colors.green,  
    ),  
  ),  
)
```





```
child: Container(  
  constraints: BoxConstraints.tight(const Size(300, 200)),  
  color: Colors.red,  
  child: Align(  
    alignment: const Alignment(1,0),  
    child: Container(  
      width: 350,  
      height: 50,  
      color: Colors.green,  
    ),  
  ),  
)
```



# Let's go to the lab

source: flutter.dev



# Thanks!