



# Flutter

## CTE308- AS2025



Royal University of Bhutan

# Unit IV: Cross-Platform App Development (Flutter Fundamentals)

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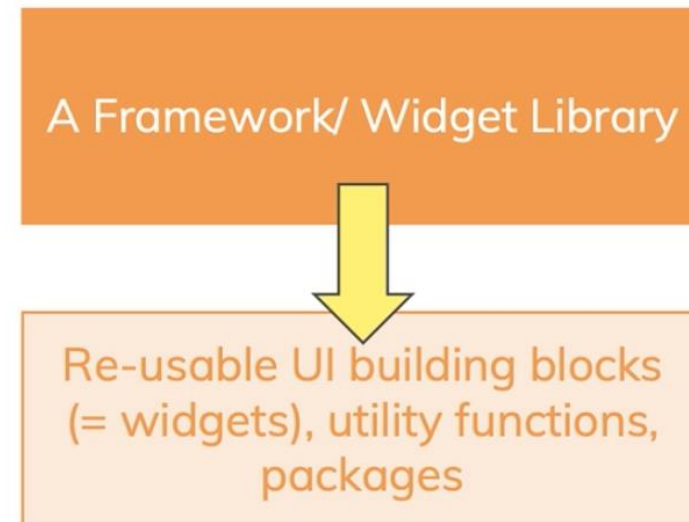
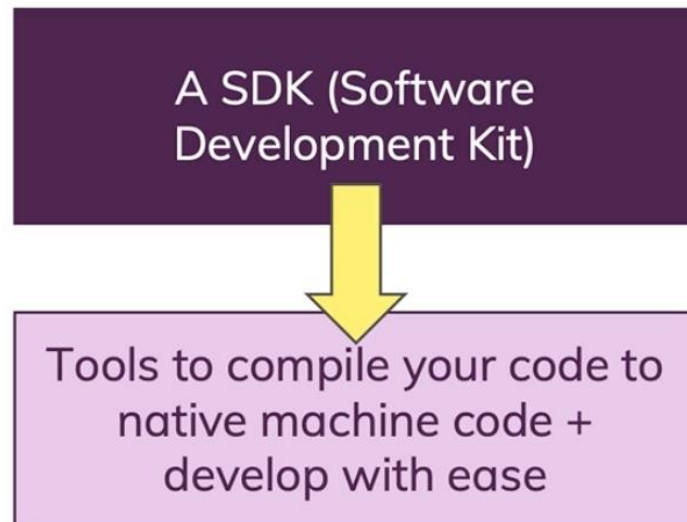
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## Outlines

- What is Flutter?
- What is Dart?
- Architecture

## What is Flutter?

- A "tool" that allow you to build native cross-platform (iOS, Android) apps with one programming language and codebase.

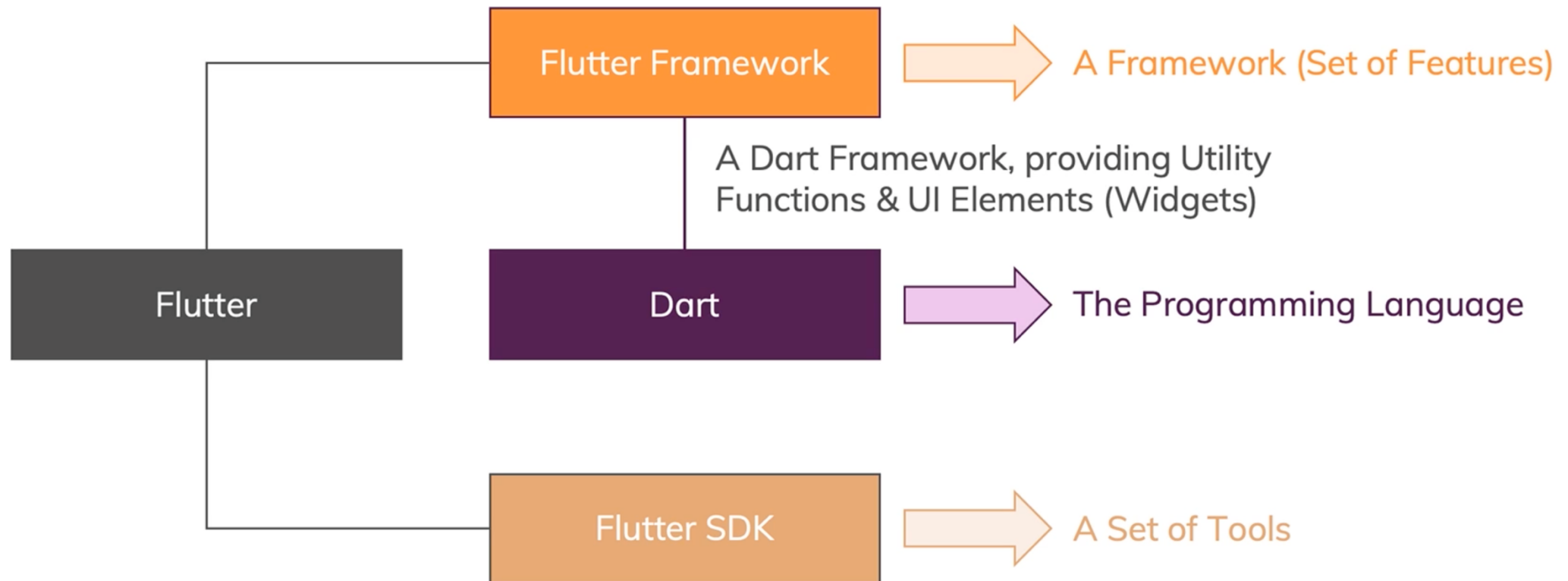


## What is Dart?

- Focused on Frontend (mobile apps, web) user interface (UI) development.
- Programming language developed by Google
- Dart is Object Oriented Programming
- Dart has mixture syntax of JavaScript, Java, C#



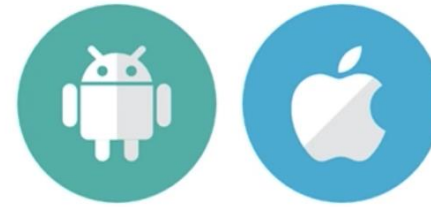
## Flutter vs Dart?



## Flutter Architecture



UI as Code: Build a  
Widget Tree

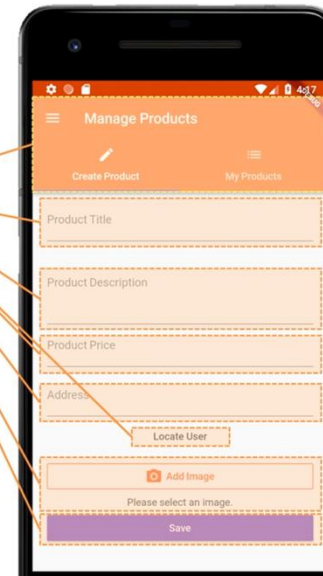


Embrace Platform Differences



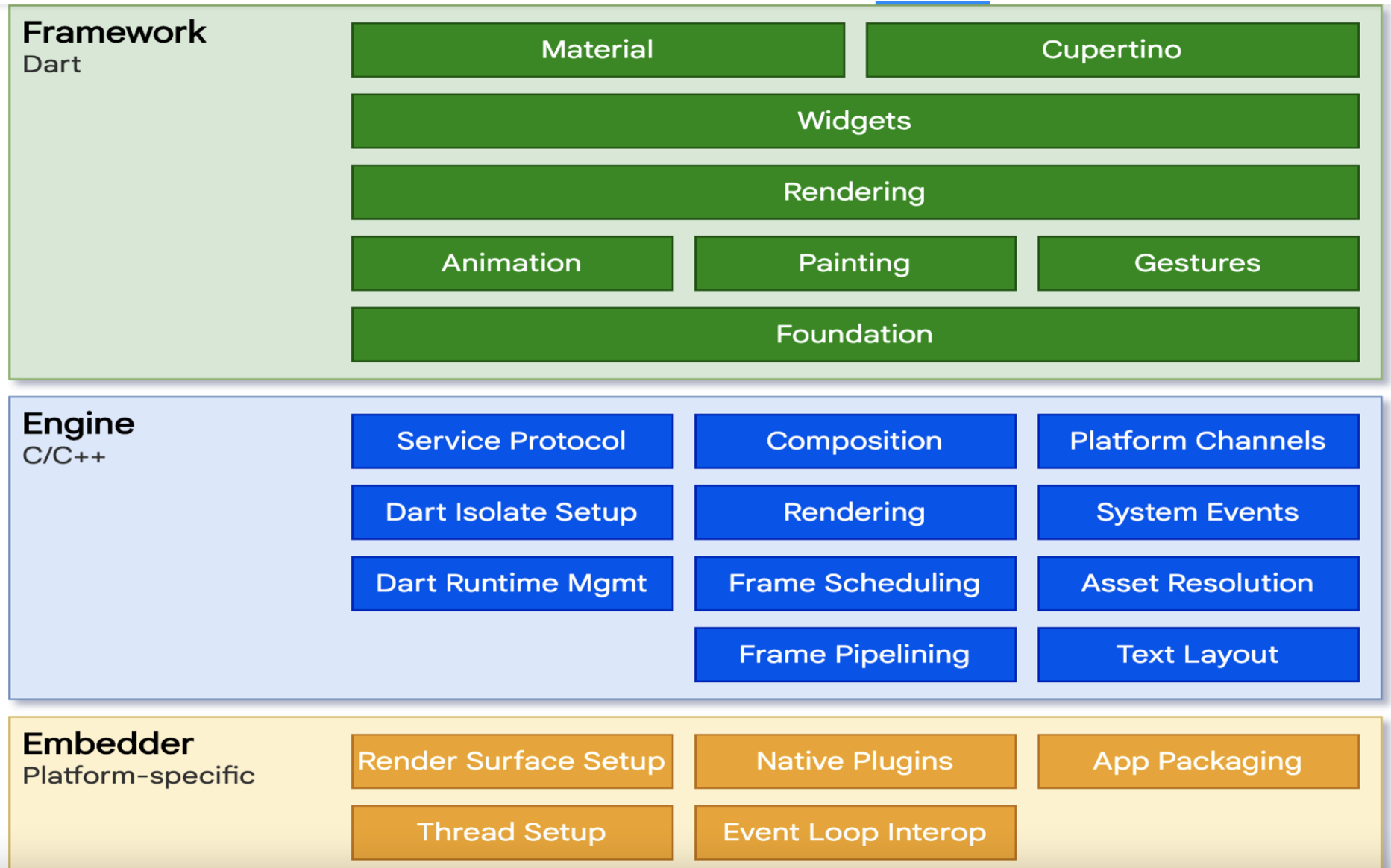
One Codebase

Widgets!



Actually, the  
whole page is a  
Widget!

## Flutter Architecture



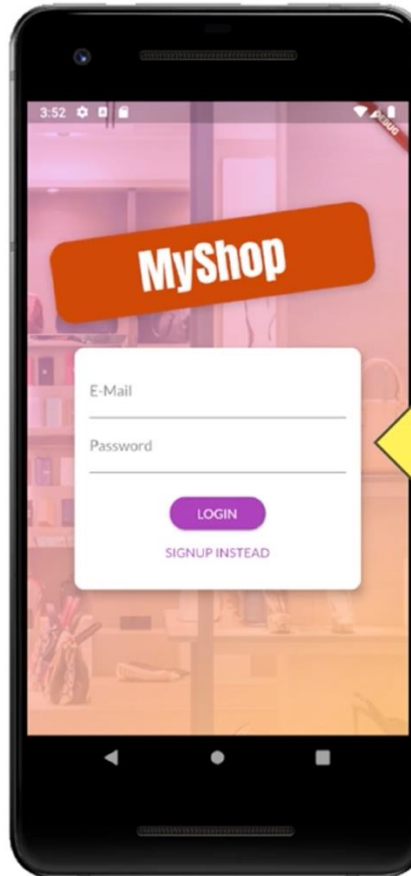
## “UI as Code”

No Drag & Drop

No Visual Editor

Code only

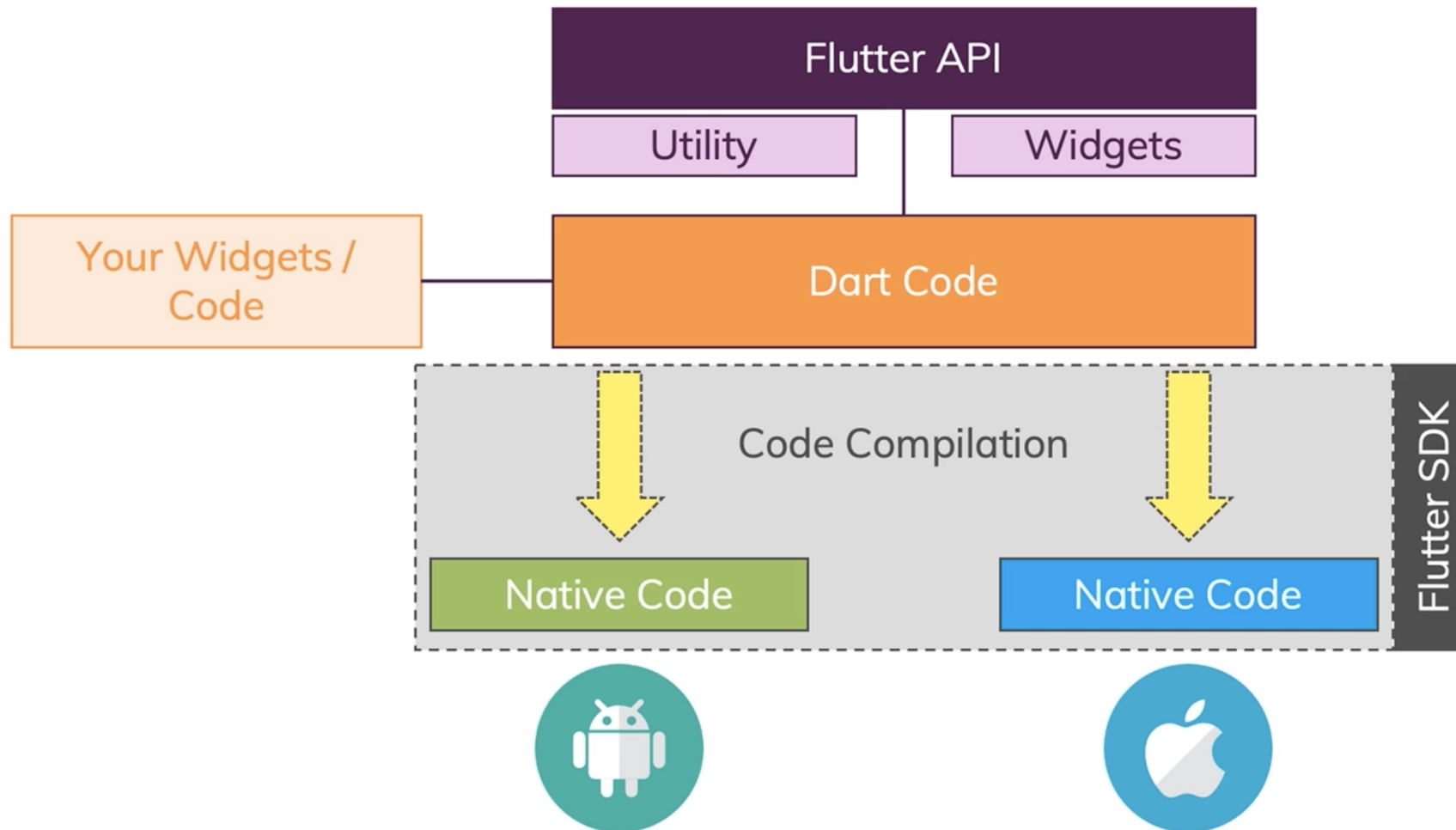
But extremely  
straightforward



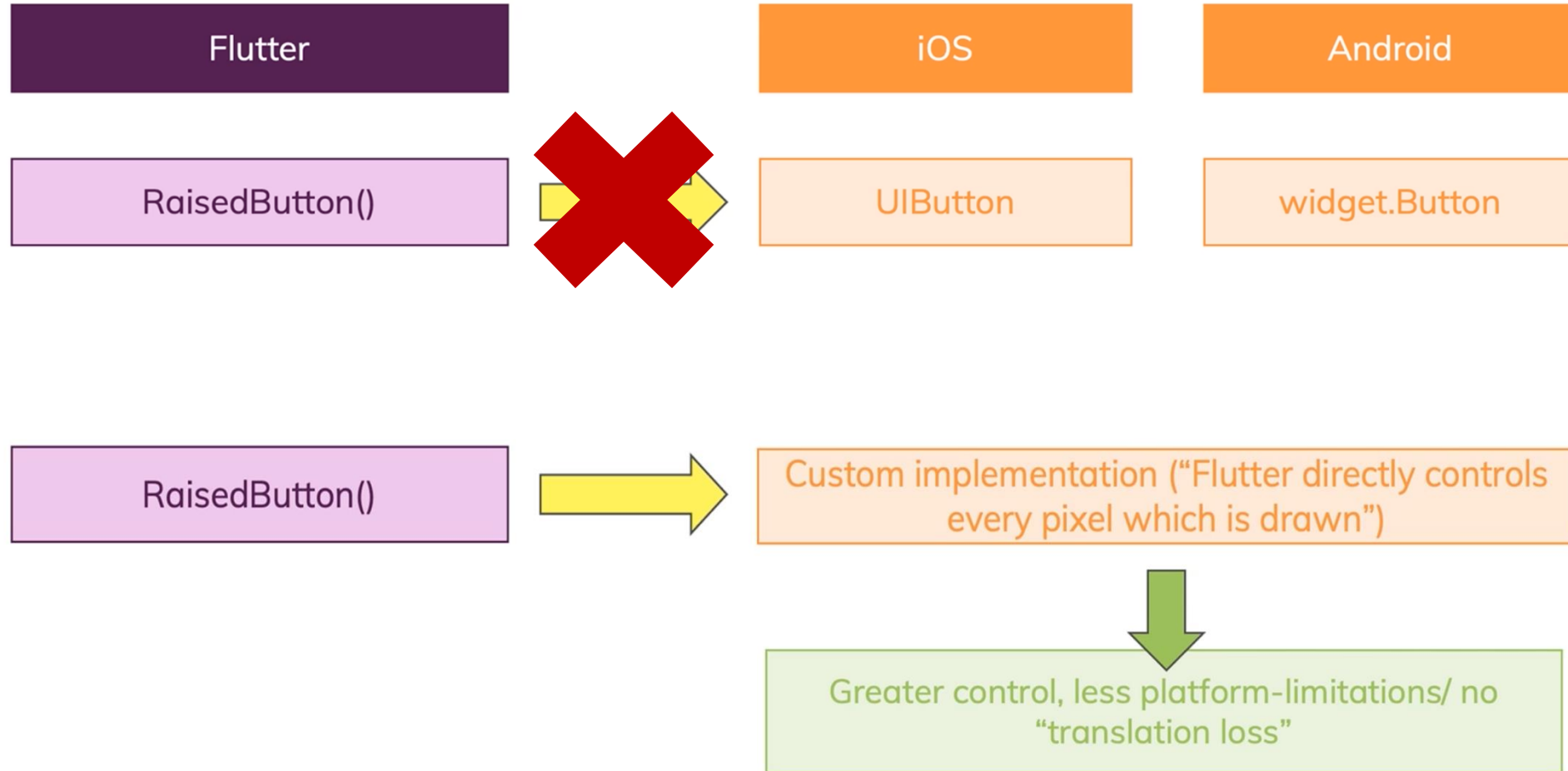
```
body: Stack(
  children: <Widget>[
    Container(
      decoration: BoxDecoration(
        image: DecorationImage(
          image: AssetImage('assets/images/store.jpg'),
          fit: BoxFit.cover,
          alignment: Alignment.center,
        ), // DecorationImage
      ), // BoxDecoration
    ), // Container
    Container(
      // width: double.infinity,
      // height: double.infinity,
      decoration: BoxDecoration(
        gradient: LinearGradient(
          colors: [
            Color.fromRGBO(215, 117, 255, 1).withOpacity(0.5),
            Color.fromRGBO(255, 188, 117, 1).withOpacity(0.9),
          ],
          begin: Alignment.topLeft,
          end: Alignment.bottomRight,
          stops: [0, 1],
        ), // LinearGradient
      ), // BoxDecoration
    ), // Container
    SingleChildScrollView(
```



## How Flutter/Dart is Transformed to Native App?



## Flutter Does Not Use Platform Primitives



## Installation Demo

- **Flutter Installation Demo:**

<https://flutter.dev/docs/get-started/install>

- ✓ **Flutter SDK**
- ✓ **Update the Flutter Path in the System**
- ✓ **Platform Setup (iOS / Android Setup)**

## Reference

- <https://flutter.dev>
- <https://www.youtube.com/watch?v=x0uinJvhNxI>
- <https://dit.udemy.com/course/learn-flutter-dart-to-build-ios-android-apps/>

**Thank you!**