
LUT
University

User Interfaces and Usability: Building UIs with Flutter

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Introduction to Flutter

What is Flutter?

Native mobile and web app SDK

- Works on Dart programming language
- Native support for Material design widgets
- Cross-platform: iOS, Android, web, desktop (experimental)
- Consistent UIs across devices and manufacturers
- Excellent performance

There are of course many others (Xamarin, React Native…), but this one is perfect for learning basics and still powerful enough for professional work.

Why Flutter?

Some advantages

- Easy to get started with; good for prototyping
- Can be built online
- Good documentation and tutorials
- Relatively less code required to get started
- Advantages from concurrent courses
- Uses static reusable elements, rapid rebuilds, and declarative structure => learned basics can be translated to web frameworks such as React

What are we learning during this course?

Basics and then how to build layouts – interactivity not required to pass the course, but briefly overviewed

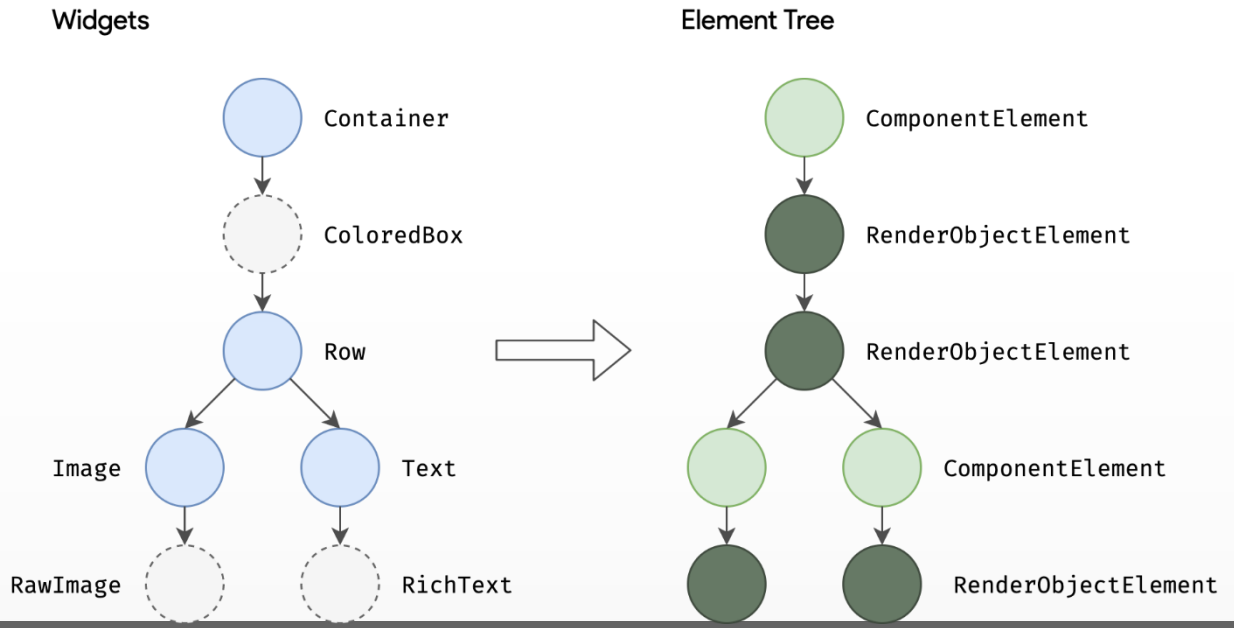
- Very basics of Dart
- Building widgets and layouts
- Overview of interaction and stateful elements

Flutter principles: Everything is a widget

Composition and rapid re-renders

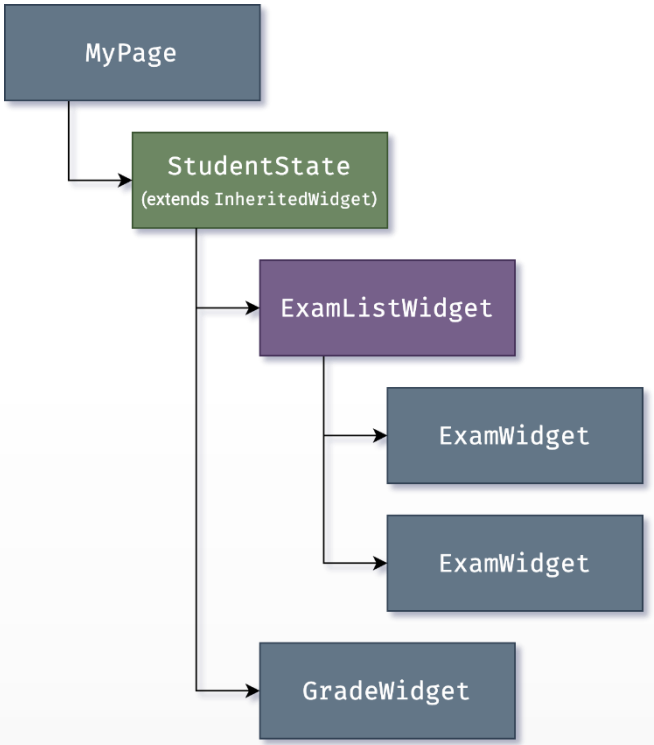
⇒ When a widget is updated, the part of the tree is updated

⇒ New widgets can be built from other widgets



Flutter principles: State management

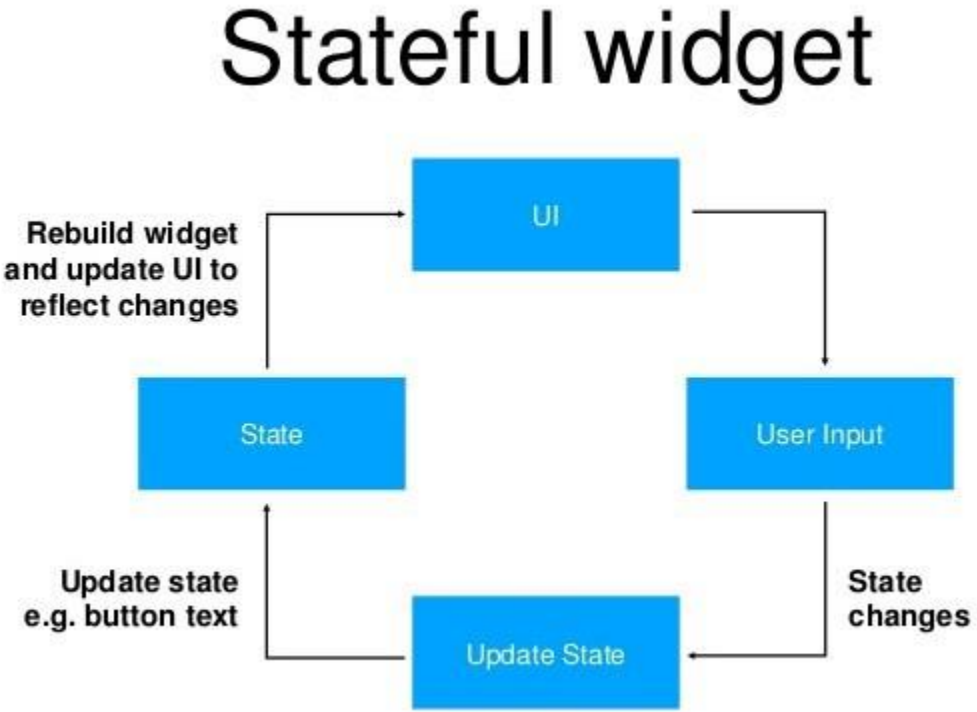
State (variables etc.) is contained within a separate object.



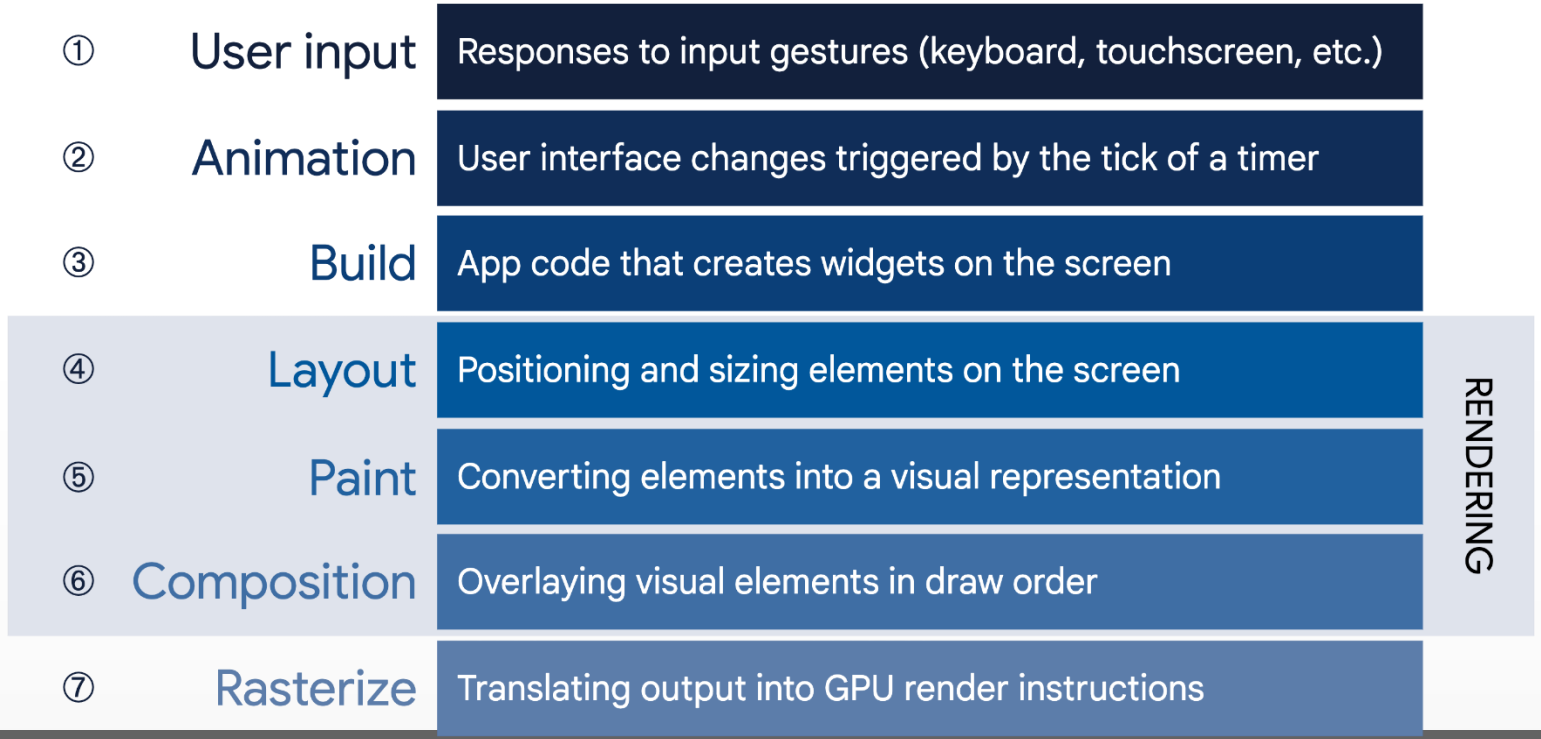
Flutter principles: Rebuilds

When state changes, Flutter rebuilds a relevant part of the tree

=> You update the data, Flutter updates the elements



Flutter principles: Render model



Course tools

Online and offline

- Course demos are run online, using https://dartpad.dev
- You can install and run Flutter on your own machine using the guidelines below: https://flutter.dev/docs/get-started/install and https://flutter.dev/docs/get-started/editor
- The lecturer uses both Windows & Linux machines, and primarily VSCode (https://code.visualstudio.com/) – VSCode also has good plugins for Dart & Flutter syntax and is easy to install

Dartpad.dev and and Codepen (https://codepen.io/pen/editor/flutter) are enough to passing the course, but local install makes things less painful.

Dartpad demo

VSCode demo