



Build beautiful native apps in record time with flutter

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Agenda

- Context about Apps
 - Native apps
 - Web apps
 - Hybrid apps
- What's flutter?
- Who's flutter for?
- What makes flutter awesome?
 - Widgets
 - Performance
 - Rendering
- Comments about flutter
- Demo!
- Thanks!



Context about Apps



Native apps (advantages)



- **Quality**
- Aspect Ratios
- **Speed**
- IDE
- **Standing on the shoulders of giants**
- **Advanced UI Interactions**
- Native Look and Feel
- Usability
- New Features

They are Android(Java), ios(Swift), Windows mobile(.net)

Web apps (advantages)



- **Reduced Development Costs**
- Ease of Integration
- Simplified Maintenance
- Easy installation
- Accessible anywhere
- **Easily customisable**
- Accessible for a range of devices
- **Easier to develop**

Use web technologies to build an “app”

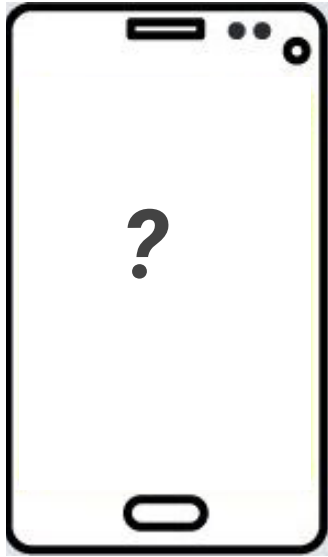
Hybrid apps (advantages)



- **Reduced Development Costs**
- **Improved UI/UX**
- **Ease of Integration**
- **Offline Support**
- **Simplified Maintenance**

Single code base that compiles natively

What do users(client, end user, dev, designer) want?

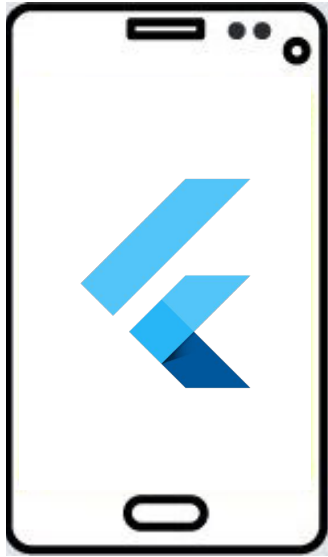


- **Reduced Development Costs**
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- **Ease of Integration**
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- **Quality**
- **Speed**
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Single code base that compiles natively



What If I told you that flutter has got!



- **Reduced Development Costs**
- **Improved UI/UX**
- **Ease of Integration**
- **Offline Support**
- **Simplified Maintenance**
- **Quality**
- **Speed**
- **Standing on the shoulders of giants**
- **Advanced UI Interactions**

Single code base that compiles natively



What is Flutter?

A **SDK** that makes building high-performing, modern and beautiful apps easy

Works for both Android and iOS

An open-source toolkit, developed by Google*

100+ contributions from the open source community



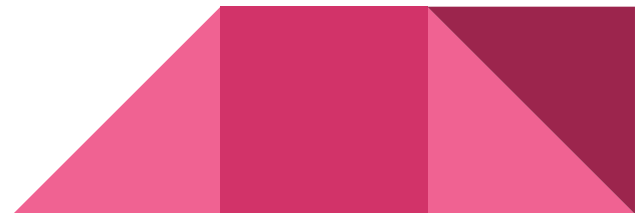
* Currently in Beta

Who is Flutter for?

Designers converge on a brand-driven experience on Android and iOS

Prototypers enjoy a high-fidelity and fast way to build working prototypes.

Developers benefit from fantastic developer tools, an easy-to-use language, a rich set of widgets and great IDE support. Flutter frees up valuable time for working on features and delightful experiences.



- 
- The top right corner of the slide features a decorative arrangement of overlapping geometric shapes. These include a light pink triangle pointing down and to the left, a darker pink triangle pointing up and to the left, and a dark pink square. The background of the slide is a solid, vibrant pink color.
1. Developer Experience
 2. Performance



Design-oriented Development Flow

What do you see here?



Oeschinen Lake Campground

Kandersteg, Switzerland

★ 41



CALL



ROUTE

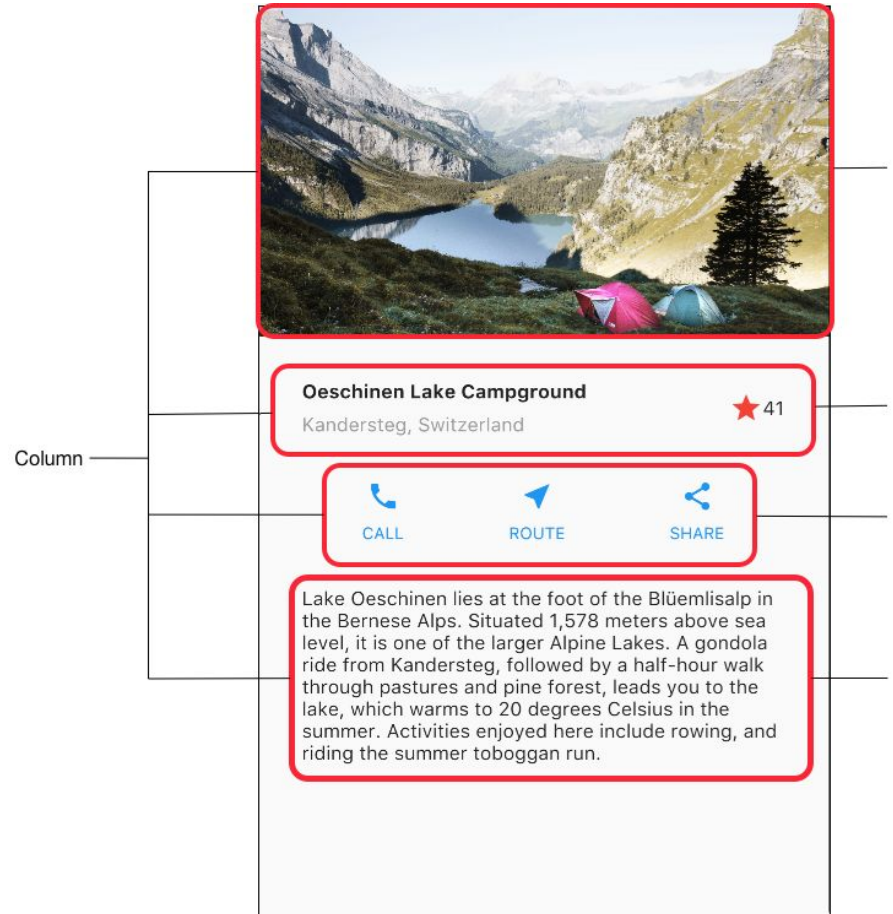


SHARE

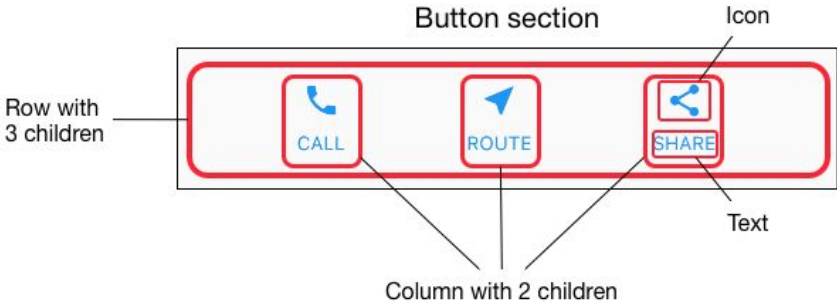
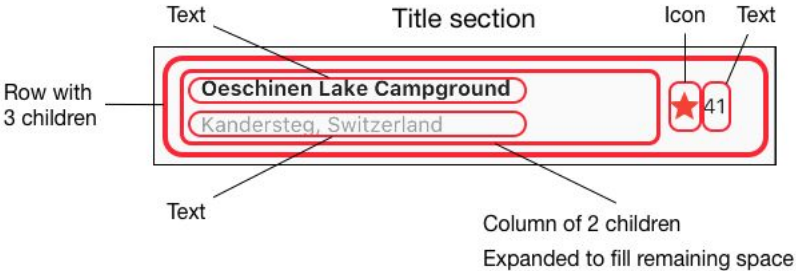
Lake Oeschinen lies at the foot of the Blüemlisalp in the Bernese Alps. Situated 1,578 meters above sea level, it is one of the larger Alpine Lakes. A gondola ride from Kandersteg, followed by a half-hour walk through pastures and pine forest, leads you to the lake, which warms to 20 degrees Celsius in the summer. Activities enjoyed here include rowing, and riding the summer toboggan run.

Diagram the Layout

- Look for rows and columns
- Is there a grid?
- Any overlapping elements?
- Do we need tabs?
- Padding, alignment or borders needed?



Designing bottom up



HTML/CSS Analogs in Flutter

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

```
.greybox {
  background-color: #e0e0e0; /* grey 300 */
  width: 320px;
  height: 240px;
  font: 900 24px Georgia;
}
```

```
var container = new Container( // grey box
  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],
);
```


Efficient Tooling

```
$ flutter doctor
```


Checks your environment and displays a report to the terminal window

```
$ flutter upgrade
```

Updates both the Flutter SDK and your packages

pubspec.yaml

```
name: flutter_project
description: An amazing Flutter project using Firebase Auth
dependencies:
  flutter:
    sdk: flutter
  firebase_auth: "^0.2.5"
```



pubspec.yaml

```
name: flutter_project
```

```
description: An amazing Flutter project using Firebase Auth
```

```
dependencies:
```

```
  flutter:
```

```
    sdk: flutter
```

```
  firebase_auth: ">=0.1.2 <0.2.6"
```



```
$ flutter packages get
```

Checks your environment and displays a report to the terminal window

```
$ flutter packages upgrade
```

Will retrieve the highest available version of the package



```
$ flutter format
```

Automatically formats your code according to the Flutter-style

```
$ flutter analyze
```

Analyzes your code and help you find possible mistakes

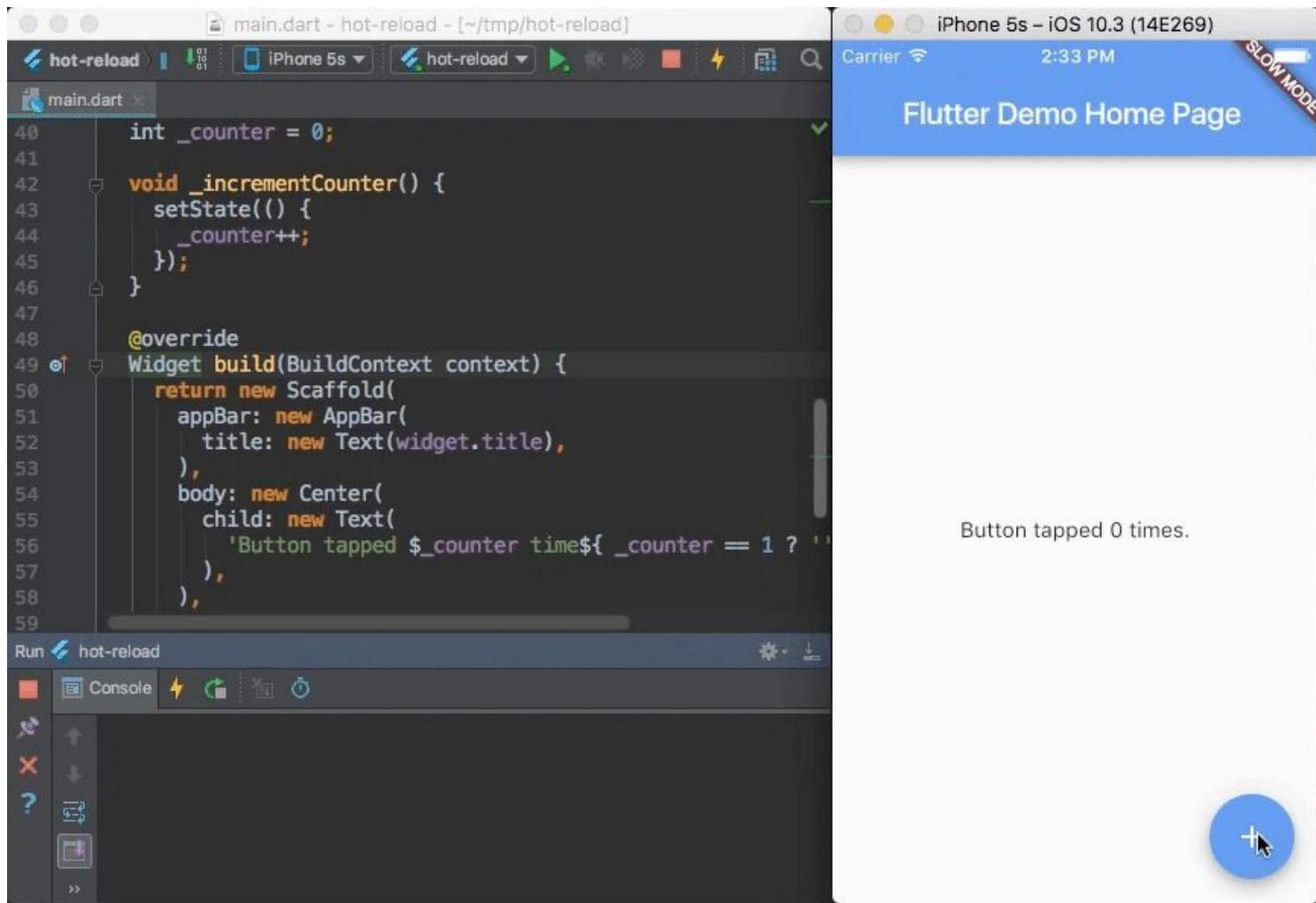
Hot Reload

Injecting updated source code files into the running Dart VM

Stateful: App state is retained after a reload.

Quickly iterate on a screen deeply nested in your app





Dart Observatory

Statement-level single-stepping debugger and profiler

Automatically running when you start your app using `flutter run`

See which lines of code have executed

Check out memory allocations

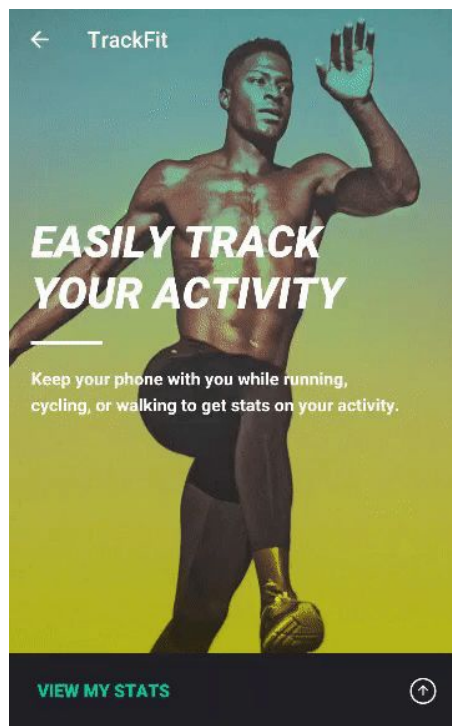
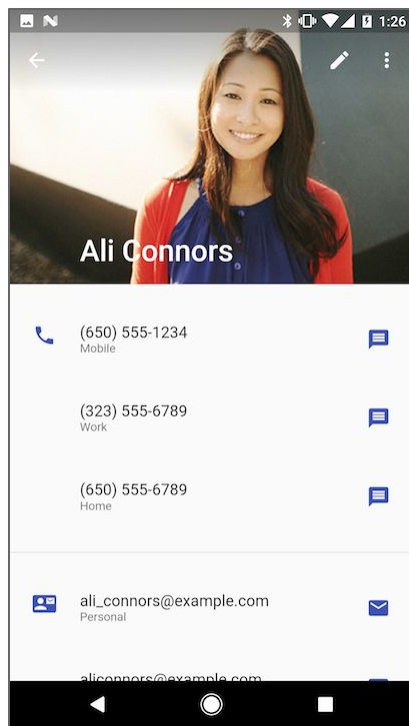
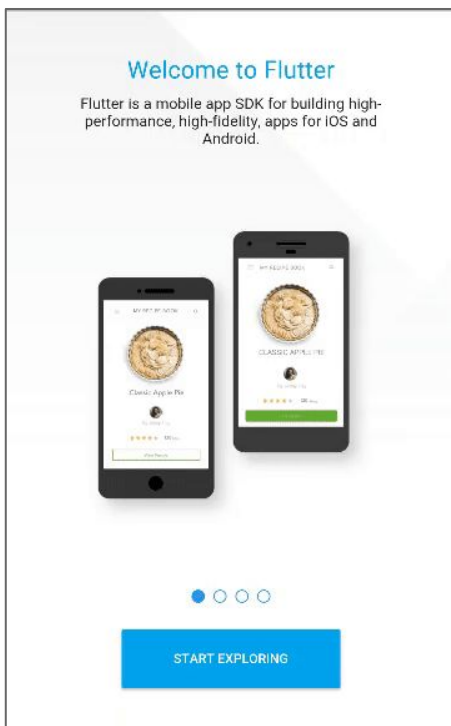
Debug memory leaks & fragmentation



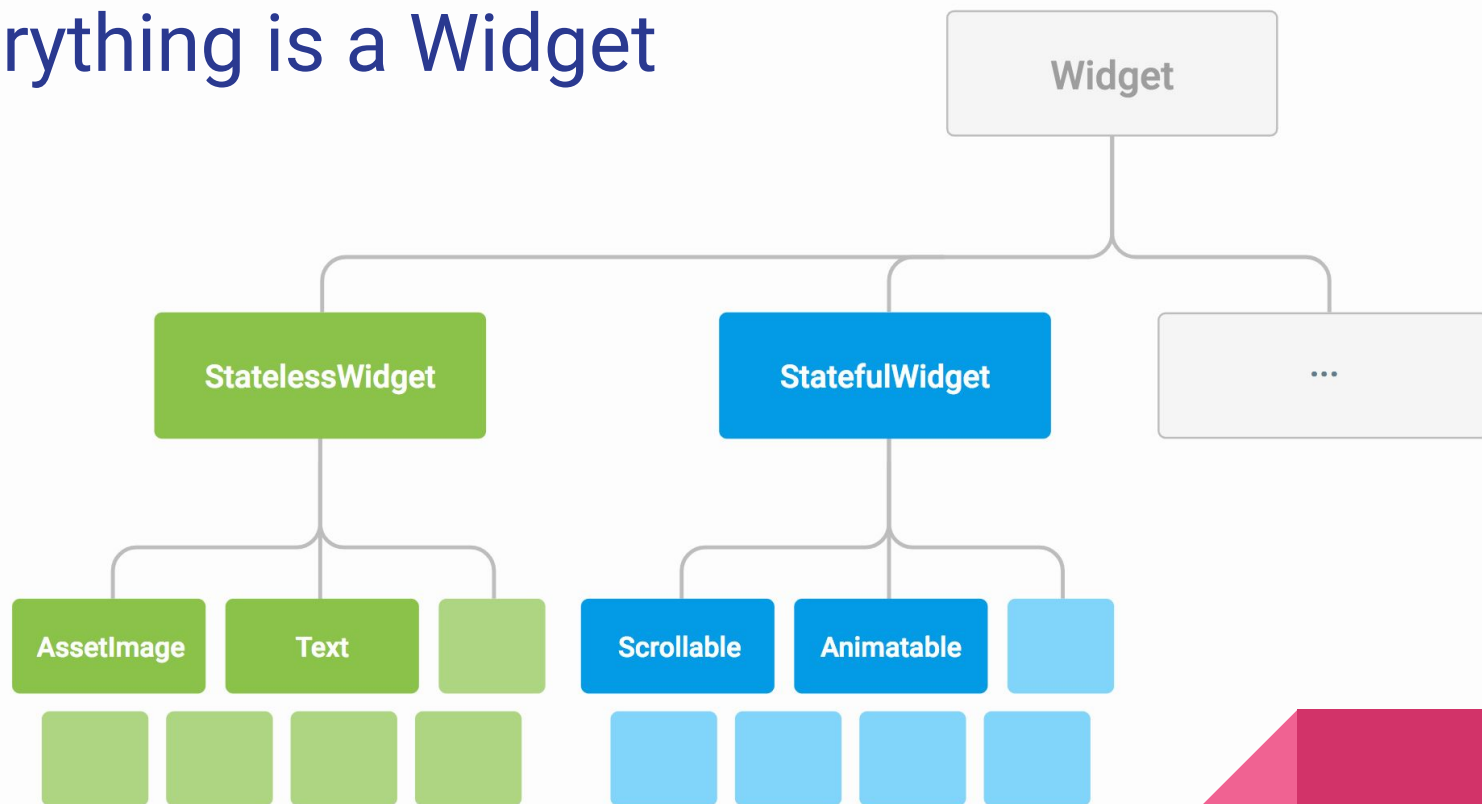


The Power of Widgets

Great looking and fast Widgets



Everything is a Widget



Goodbye, global layout system

```
new Center(  
  child: new Text('Centered Text', style: textStyle),  
)
```

Local layouts: Every Widget defines its **own** layout. No need to tell the parent that its children are supposed to be centered.





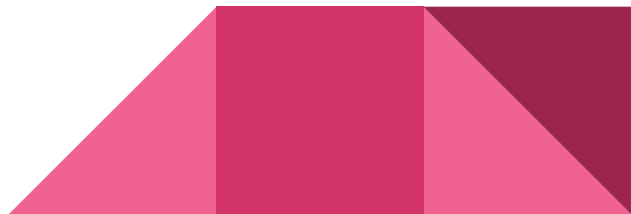
StatefulWidget
vs.
StatelessWidget

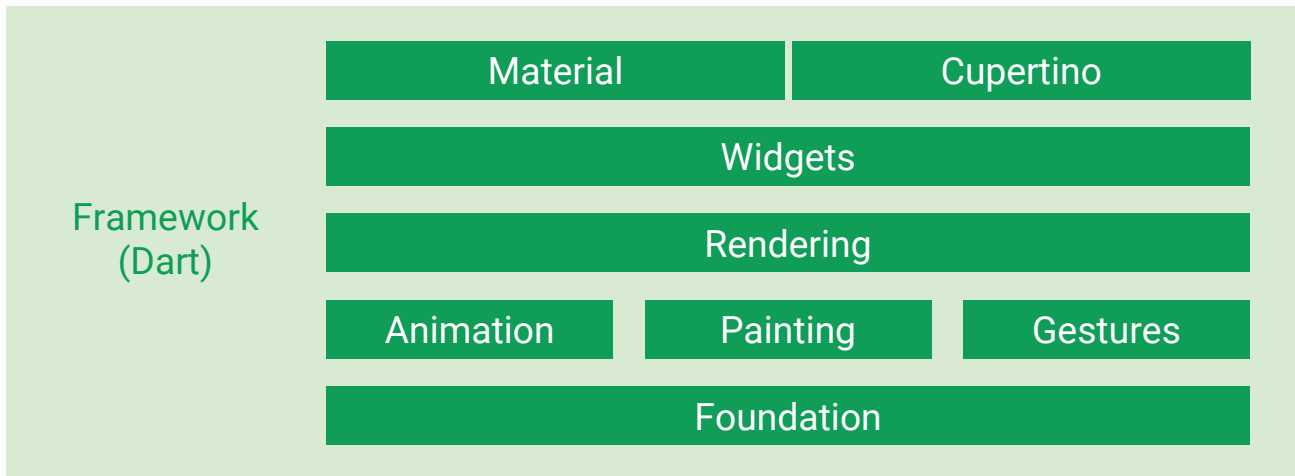
Customizing and extending Widgets

Flutter's Widget system was designed to be easily customizable

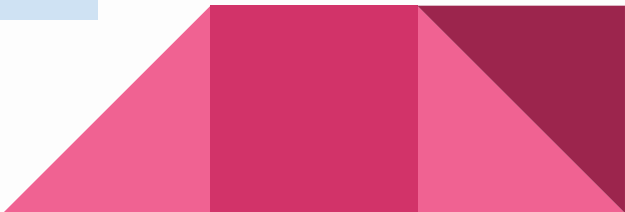
Composition: Widgets are built out of smaller widgets that you can reuse and combine in novel ways to make custom widgets

```
class RaisedButton extends StatelessWidget {  
  ...  
}
```





Each layer builds upon the previous layer





Optimized for Performance

- Compiles to Native Code
- No reliance on OEM widgets
- No bridge needed
- Structural Repainting



Superpowered by Dart

- Sound type system
- Tree Shaking
- Rich core libraries
- Multi-gen, lockless GC


- Single codebase for Android and iOS
- Rapid development cycles
- Great tooling

“Running at 60 fps, user interfaces created with Flutter perform far better than those created with other cross-platform development frameworks.”

code.tutsplus.com/tutorials/developing-an-android-app-with-flutter--cms-28270

“Coding with Dart and Flutter rekindled the joy I had when I started with mobile dev way back when ... No B.S.”

traversoft.com/blog/2017/08/08/conference-app-flutter

The top right corner of the slide features a decorative arrangement of overlapping triangles in various shades of blue, ranging from dark navy to light sky blue.

"The UI is butter smooth (when building a release version), I have never seen such a smooth
Android app"

Pascal Welsch, Speaker at Droidcon Berlin

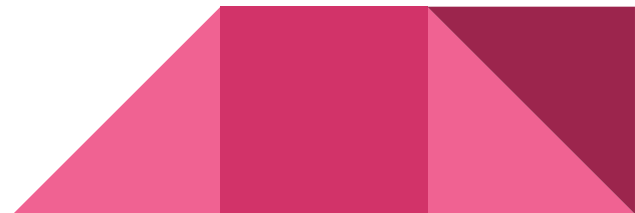
Additional resources

Blog: What's Revolutionary about Flutter by Wm Leler: goo.gl/bZcFR9

Video: Flutter's Rendering Pipeline by Adam Barth: youtu.be/UUfXWzp0-DU

Video: The Mahogany Staircase by Ian Hickson: youtu.be/dkyY9WCGMi0

And of course: github.com/flutter & flutter.io



Thank you!

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