

Flutter

By: Brian Hubert



What is Flutter?

Flutter is a plugin UI feature created by Google to create universal applications

Can create applications to web, mobile devices, desktop, and embedded system

Completely open source

Does not have its own IDE

Can use Visual Studio Code, Android Studio, IntelliJ, etc.

Why use Flutter?

Pros:

- Has a native rendering engine
- Ease of use
- Free
- Produces to wide array of devices
- “Hot Reload” during testing

Cons:

- Uses the language Dart
- Large app sizes
- Limited third-party ecosystem
- Not good for complex applications

Dart

UI centric design

Dart is similar in nature to java and C languages.

Everything needs to be imported, even if it's in the same package, referred to by file location

Dart (cont.)

Everything is an object but cannot be null unless specified

Allows for static and dynamic variables using var or dynamic types

Simple syntax for easy conversion to multiple platforms

Dart (cont.)

Optional parameters in functions need to be specified and there are two ways to do that

```
// positional optional parameters
void foo(string arg1, [int arg2 = 0, int arg3 = 0]) {...}

// call site for positional optional parameters
foo('alice'); // legal
foo('alice', 12); // legal
foo('alice', 12, 13); // legal

// named optional parameters
void bar(string arg1, {int arg2 = 0, int arg3 = 0}) {...}
bar('alice'); // legal
bar('alice', arg3: 12); // legal
bar('alice', arg3: 12, arg2: 13); // legal; sequence can vary and names are required
```

Dart (cont.)

Easy asynchronous performance

```
Future<String> fetchData() async {  
  await Future.delayed(Duration(seconds: 2));  
  return 'Data loaded';  
}
```

Flutter Architecture

Everything built in Flutter is a form of widget

Comprised of either Stateful or Stateless widget

Built in rendering engine creates pixel images

Using Flutter in Visual Studio

Download Visual Studio

Go to extensions and download Flutter and Dart (restart app after install)

Go to search bar and enter “show and run commands”

Enter Flutter: New Project

Target platform can be easily changed by selecting device

Flutter's Future

Flutter is consistently adding support for new devices and platforms

Integrates Google's Firebase system

Community is growing quickly and supported by Google

Conclusion

Easy to produce for multiple platforms

Ideal for everything except gaming or other high intensity applications

After a learning curve, expedites production and reduces cost