ITMC323

Flutter

Cross-Platform Mobile App Development

Faculty of Information Technology
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مواعيد المحاضرات
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Mark distribution

- Final examination 50%

- 1st Mid-term exam 15%
- 2nd Mid-term exam 15%
- Laboratory Group project   10%
- Cumulative mark for quizzes 5%
- Homework problem 5%

Mobile App Development Options

- **Native App**

  The term native app development refers to building a mobile app exclusively for a single platform. The app is built with programming languages and tools that are specific to a single platform. For example, you can develop a native Android app with **Java or Kotlin** and choose **Swift and Objective-C** for iOS apps.

- **Cross-Platform App**

  A cross-platform app is coded once and is compatible to run on multiple platforms. In other words, there is a single, unified code that works for both Android and iOS apps.

Flutter

Flutter Framework

- Flutter is Google's Framework for building mobile applications for iOS and Android (Cross-platform).

- Although it's relatively new, Flutter has experienced a great deal of experimentation and evolution over the years.

- It was called Sky, at its first appearance at the Dart Developer Summit 2015 presented by Eric Seidel.

- Presented as Flutter in 2016, and with its first alpha release in May 2017, it was already building for iOS and Android systems. Then it started to mature and community adoption began to grow. It evolved from community feedback to its first stable release on December 5, 2018, at an annual developers' event in London, Google announced the release of Flutter 1.0.

Cross-platform development categories

- **Progressive Web Apps**

- **Hybrid**

- **Compile to native**

Cross-platform development comes in three general flavours

	Some technologies	Cons	Pros
Progressive Web Apps (PWA)	HTML/CSS, React, Angular, Vue	Not a real app. Runs in a web browser. Not available in app stores. Hard to create a desktop shortcut. Cannot access many of the device's resources like accelerometer, compass, proximity sensor, Bluetooth, NFC, and more	Easy to write
Hybrid	PhoneGap, Cordova, Sencha, Ionic	Runs in a WebView so it can be slow. Nearly impossible to share code with the web app	Easier for web devs to learn because it uses HTML and JavaScript as its language and structure
Compile-to-native solutions	React Native, NativeScript, Flutter, Xamarin	Learning a framework may be difficult. Mastering the toolchain definitely is	Real apps that can be found in the stores and run fast

Compile-to-native cross-platform frameworks

	Xamarin	NativeScript	React Native	Flutter
Year introduced	2011	2014	2015	2018
Backed by	Microsoft	Telerik	Facebook	Google
Presentation language	XAML and/or xamarin.forms	Proprietary but looks like XML	Proprietary but looks like JSX	Dart
Procedural language	C#	JavaScript	JavaScript	Dart

Differences between existing frameworks

- There are a large number of high-quality and well-accepted frameworks and technologies.
- Some of them are as follows:
  - Xamarin, React Native, Ionic, Cordova

- So, you might think it's hard for a new framework to find its place on an already full field, but it's not. Flutter has benefits that make space for itself, not necessarily by overcoming the other frameworks, but by already being at least on the same level as native frameworks:

  1. **High performance**
  2. **Full control of the user interface**
  3. Dart language
  4. **Being backed by Google**
  5. Open source framework
  6. Developer resources and tooling