CMPS 297N – Lecture 1

THE WORLD OF MOBILE DEVELOPMENT

Different Types of Mobile Apps

Common types of mobile apps

1. Educational apps (Duolingo)
2. Lifestyle apps (TripAdvisor)
3. Social media apps (Snapchat)
4. Productivity apps (Calculator)
5. Entertainment apps (Netflix, YouTube)
6. Game apps

Apps might overlap across a few different categories

Developing Mobile Apps

How to develop an app?

- Native Apps
- Cross-Platform Apps
- Hybrid Apps

Native Apps

Native App Development

A native app is a software application created in a specific programming language for a specific device platform, be it iOS or Android.

Native mobile app development means creating software solutions for a specific mobile device.

Integrate the gadget’s specific hardware or software and do not require third-party APIs.

This allows them to run faster and more scalable than hybrid or cross-platform application types.

Android Tech Stack

1. **Java**
2. **Kotlin**

Kotlin is fully interoperable with Java, which means that you can use both languages in tandem without any issues.

iOS Tech Stack

1. Swift
2. Objective C

Cross-Platform Apps

Cross-Platform App Development

Cross-platform app development allows to create apps that run on numerous mobile platforms.

React Native

React Native is a JavaScript framework built by Meta, Inc. for developing mobile apps with native visualization for iOS, Android and Web.

Allows responsive applications to interact with native APIs.

Xamarin

Xamarin is an open-source platform for building modern and productive apps for iOS, Android, and Windows using .NET.

Xamarin uses C# and the .NET framework to compile native code into various mobile binaries.

It allows using of device-specific APIs from C# code.

Flutter

Flutter is a Google-powered tool for Android, iOS, Linux, Mac, Windows, Google Fuchsia, and the web from a single codebase.

Flutter contains widget sets that implement Google and iOS designs and provide full native performance across platforms.

Hybrid Apps

Hybrid App Development

Hybrid apps are small websites running in a browser shell in an app that have access to the native platform layer.

Hybrid development uses HTML5, CSS, and JavaScript. The shared code is then packaged in a native container, which can be done with various tools, and shipped as a normal application.

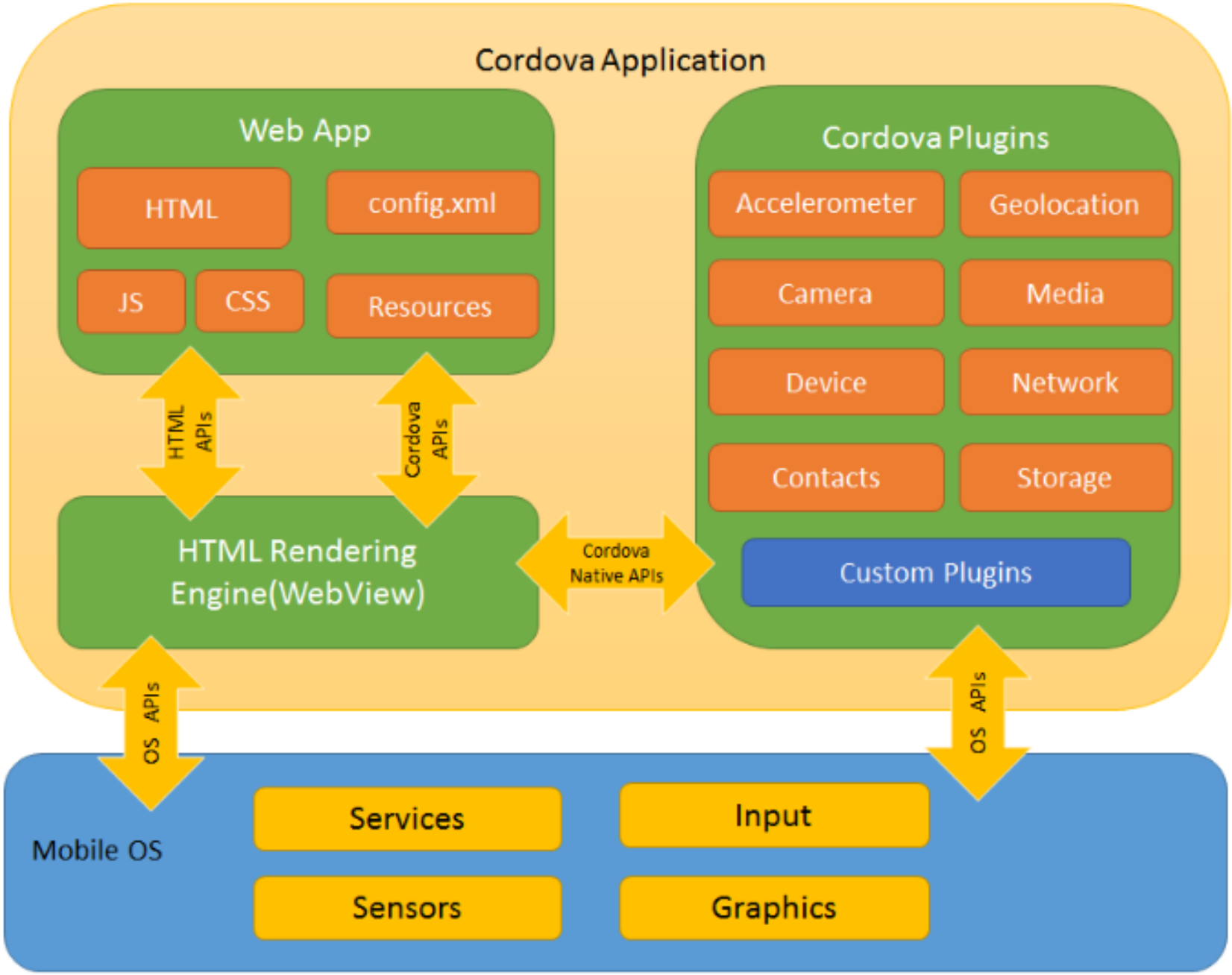
Such apps operate like sites, essentially somewhere between the application and the page displayed in the browser.

Cordova/PhoneGap

Apache Cordova is an open-source mobile development framework. It allows you to use standard web technologies - HTML5, CSS3, and JavaScript for cross-platform development.

Applications execute within wrappers targeted to each platform, and rely on standards-compliant API bindings to access each device's capabilities such as sensors, data, network status, etc.

High-level view of the Cordova application architecture.



Ionic

Ionic is an open source UI toolkit for building performant, high-quality mobile and desktop apps using web technologies — HTML, CSS, and JavaScript — with integrations for popular frameworks like Angular, React, and Vue.

Ionic uses Capacitor (or Cordova) to deploy natively, or runs in the browser as a Progressive Web App.