**COMSATS University Islamabad Attock Campus**



**Assignment # 01**

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**Question: -**

Explore the different frameworks/Tech Stacks available for cross platform mobile application development. Prepare a report that include following:

1. A comparison of Native and Cross Platform mobile app development.
2. Different scenarios where each native and cross platform mobile app development is preferred.
3. List of frameworks/Tech Stack for cross platform mobile Application development.

**Solution: -**

1. **Difference between Native Cross Platform mobile app development.**

**Native app development** is the process of creating a mobile app only for a specific platform or type of device, usually Android or iOS which are very fast and responsive. Native app is compiled using the platforms core programming language and APIs. As a result, the app is much more efficient. iOS apps require programming languages ​​such as Objective-C and Swift, whereas Android uses Java and Kotlin.

*While*

**Cross Platform mobile app development** is the creation of software that is compatible with many mobile operating systems. Using tools such as React Native, Xamarin, and Flutter, which make it possible to install these programs on Android and IOS. It’s had huge time Save and lower cost.

1. **Different scenarios where each native and cross platform mobile app development is preferred.**

**Cross-platform apps:**

The work on Cross-platform apps includes the creation of the code base in which the application is intended to be used on Android and iOS. Instead of having two teams of developers, you will only need one to create a cross-platform app. Therefore, you will save on the cost of development. It only takes one round of development to create an app that can be used on multiple platforms. while the app is created with a single layer tool, only one code base is created. It cannot be used by interactive users using special UX. Therefore, it is not possible to provide the UX experience that is common on the platform.

**Native platform apps:**

This is different from traditional app development where different teams work on a version of an app for any platform with different development processes. it's the same. A native language is easier to publish and is often ranked higher on the platform's marketplace because of better performance and speed. Programs built for native environments tend to be more user-friendly, thanks to flexibility in resource management and the many tools available. are available. Direct connections between the code and the underlying resources provide maximum performance. Also, custom apps tend to have a better UX in common with the platform.

1. **List of frameworks/Tech Stack for cross platform mobile Application development.**

* **Flutter:** A software development kit designed to help speed and develop Android. Flutter introduces the mobile GPU, which provides the power of the user interface, allowing it to run on the latest networks. Flutter offers easy and efficient programs to run on many platforms with consistency and power. Here are some of the outstanding features that make Flutter a cross-platform tool among developers.
* **Xamarin:** it is a streamlined framework used for developing apps for Android, Windows, and iOS with the help of C # and .Net, instead of JS libraries and HTML.
* **Ionic:** Ionic is one of the most remarkable and popular cross-platform app frameworks, based on AngularJS. It allows developers to use a combination of top programming languages ​​i.e., HTML5, JavaScript, and CSS and Cordova wrapper to access native platform controllers.
* **React Native:** It is a framework built on JavaScript and is used to write real code and give the native-like feel to mobile applications that work both on Android and iOS.
* **Appcelerator:** Appcelerator offers various tools for rapid application development. This indicates that a prototype can be created with much less time and effort to evaluate user interaction with UI. It is a great way to create cross-platform apps with just a single code base.
* **Node.js:** It is an incredible framework for developing cross-platform apps. It is an open-source environment that supports the development of server-side and networking apps. Node.js cross-platform apps are inherently highly efficient and responsive. It also comes loaded with a rich library of numerous JavaScript modules that help in simplifying the development of web applications.