**Assignment#01**

***Subject:***

***MAD***

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## Explore the different frameworks/Tech Stacks available for cross platform mobile application development:

**Answer:**

The frameworks for cross-platform development are:

**1. Ionic:**

onic is an open-source, cross-platform framework created in 2013 by Max Lynch, Ben Sperry, and Adam Bradley of Drifty Co. It allows changes in code structure. Apps developed on this framework are highly interactive and native-like. That makes Ionic perfect for developing [progressive web applications](https://inapp.com/services/custom-web-application-development-services/) (PWA). The latest version is 5.5.4, which was released on February 4, 2021. It uses front-end technologies such as CSS, HTML, JavaScript, and Angular for mobile app development. It’s used mostly for developing PWAs and native apps.

**2. Titanium:**

Titanium SDK, through the use of JavaScript, empowers developers to build cross-platform mobile applications that bridge native, hybrid, and web with a single code base. Firstly, as an open-source solution with thousands of API, Titanium is very instrumental in delivering rapt user experience faster if compared to the orthodox native platform..

**3. Xamarin :**

It is also an open source platform for hybrid development where you can develop the entire app in c#. Xamarin extends.NET so .NET developers get an edge over others. It is maintain by Microsoft .it provides better native performance when it compared to other hybrid development frameworks.

**4.Flutter :**

An open-source mobile app development platform, the Flutter web development framework was introduced by Google in 2017. The object-oriented language contributes to app development for platforms such as Mac, Windows, Android, iOS, Linux, and Google Fuchsia from a single codebase. Its latest version is 1.22.6, released on January 26, 2021.

It’s written in C, C++, and Dart.

It’s under the new BSD license.

## A comparison of Native and Cross Platform mobile app development.

Native apps are developed for a specific platform. These apps are developed in a language compatible with the platform. Apple, for instance, prefers Objective C and Swift for iOS while Google favors Java for Android. Using these acceptable languages, developers can make better use of the innate features of these platforms. A native app developed for Android will not function on iOS.

Cross-platform apps are compatible with multiple platforms. Due to the market share of Android and iOS, most cross-platform apps are limited to these two operating systems. These apps are developed in [HTML and CSS](https://www.zeolearn.com/magazine/how-to-easily-create-modern-material-design-cards-with-html-and-css?utm_source=blog) since these standard web technologies are platform independent. There are several cross-platform application development tools that allow developers to create these apps with little trouble.

## 2:Different scenarios where each native and cross platform mobile app development is preferred.

**Answer:**

**Scenarios 1:**

If you are building an app that is just displaying information fetched from the network, cross-platform development will be a good choice. However, if it involves heavy processing or requires access to low-level APIs like Bluetooth, you’ll want to go with native development.

**Scenarios 2:**

Native development produces apps with high performance, but it can be costly to build. If you have a limited budget to work on, cross-platform development is the best choice. You’ll save around 30%-40% as only a single codebase is created for an app that works on both Android and iOS.

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

**Answer:**

The list of frameworks/Tech stack for cross platform mobile application development are as follows:

1. React native
2. Flutter
3. Titanium
4. Xamarin