# **Assignment No. 1**



**Submitted To:**

**Sir. Muhammad Kamran**

**Submitted By:**

**Taib-ul-Wara**

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

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

**NATIVE APPS:**

Native apps are recognized to provide a great customer experience as they are usually high-performance. a personal experience is also preferable because the visuals are tailored to the UX platform. however, startups are concerned about the excessive fee for on-premises app upgrades because they want to run concurrent upgrades for both systems.

**The pros and cons of native are defined below:**

**PROS:**

* A native app is easier to publish and usually ranks higher in the platform's app store because it provides better performance and speed.
* Applications built for native environments also tend to be more scalable due to the flexibility of resource management and the range of tools available.
* Direct interaction between code and underlying resources results in high performance.
* Native apps also generally have a better user interface that is synonymous with the platform.

**CONS:**

* Building native apps can be expensive when you need to run them on both iOS and Android.
* Developing native apps is time-consuming because work done for one platform cannot be duplicated for another.

CROSS-PLATFORM:

Cross-platform development refers to the process of creating an application that works on multiple platforms. This is done using tools like React Native, Xamarin, and Flutter, where the created apps can be deployed on both Android and iOS.

Cross-platform advantages and disadvantages are defined below:

**PROS:**

* Instead of two teams of developers, you will only need one to create a cross-platform application. So, you save development costs.
* Only one development cycle is needed to create an application that runs on multiple platforms.
* Since the application is built using a single cross-platform development tool, only one code base is created.

**CONS:**

* The need for an additional layer of abstraction and rendering process makes a cross-platform application slower than its native counterpart.
* Developers may struggle to access smartphone features such as a microphone, camera, and geolocation in ways possible for a native app.
* Cross-platform apps are unable to use native UI components. Therefore, it cannot provide the same user experience that is used on the platform.

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

The decision to develop a native or cross-platform application is crucial. Different scenarios benefit native apps across platforms and vice versa.

To create a successful, stable, and well-received mobile app, you need to determine which operating system – or systems – you want your app to be compatible with. Although both native and cross-platform development methods can be used for Android and iOS operating systems, the tools, methods, advantages, and disadvantages that accompany each method must be considered when developing a mobile app.

Consider several areas when deciding which development method to use.

* **Time to market**
* This is a widespread problem for startups and new product lines. As compared to Native Apps, Cross-platform application development would be best suited for this scenario, as they are quick to build and iterate.
* **Security**
* In this case, cross-platform mobile development is ideal for getting the app to market faster, native apps provide superior security, stability, and scalability.
* **Performance**
* Mobile apps can have high computing requirements – especially for games. For applications that require accelerated performance, native mobile development is often best suited. Using cross-platform frameworks in this scenario would require additional effort and native application expertise. Optimizing performance for a specific operating system allows you to ensure that your application runs as efficiently and effectively as possible.
* **Development costs**
* For lower budgets, opt for cross-platform apps as you only need a small team. In addition, cross-platform development allows you to keep costs under control by reusing code and projects.

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

* Ionic
* Node.js
* Flutters
* React Native
* Xamarin
* Native Script
* Appcelerator Titanium
* PhoneGap