|  |
| --- |
| A7D18627**COMSATS UNIVERSITY ISLAMABAD**  **ATTOCK CAMPUS** |

|  |  |
| --- | --- |
| Student Name | Afaq Ahmed |
| Registration Number | SP20-BSE-029 |
| Program | BS-(SE) |
| Semester | VI |

**MOBILE APPLICATION DEVELOPMENT**

**ASSIGNMENT# 01**

**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.**

|  |  |
| --- | --- |
| **Native Platform** | **Cross Platform** |
| The phrase "native app development" describes the process of creating a mobile application only for one platform. The app was created using tools and programming languages that are exclusive to one platform. | Building an application—typically a mobile app—that can run on many platforms from a single source code is known as cross-platform development. |
| The facilities and support offered by the OS simplify design in native development. | In a cross-platform setting, developers must explicitly incorporate specific functionality. |
| It implies that each platform's app source code must be written from scratch. | Time to market is shortened, and the code is extremely reusable. |

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

* Ionic is without a doubt among the best frameworks for hybrid apps since it combines the desired features: it is open-source, straightforward to maintain, scalable, and simple to read. Ionic provides a library of mobile-optimized HTML, CSS, and JS components to assist in the development of interactive apps.

Ionic comes with a wide range of features and tools, including out-of-the-box support for material design and mobile UI elements and layouts that look and feel native. It also provides its customers with regular upgrades and developer-community tools.

Native features, targeted motions, and customizable tools included in Ionic-built applications enhance user friendliness. They are dependent on wrappers like Cordova or Phone Gap to operate as native apps.

* Phone Gap is a version of the Cordova framework that is supported by Adobe. Because of its simplicity of use, this open-source mobile application development framework is frequently recognized as the best and most widely used tool for hybrid solutions.

The programmer enables the creation of apps in HTML5, CSS3, and JavaScript. Developers may add more features and access device functions, like the camera, microphone, accelerometer, compass, file system, and more, thanks to the native plugins and containers it offers for each mobile platform. Apps are created and then executed on the suitable platform in a Web View browser inside a native container.

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

**List of frameworks/Tech Stack for cross platform:**

* Flutter:
* Node.js
* Phone Gap
* React Native
* Ionic
* Native Script
* Xamarin
* Corona SDK
* Sencha Touch
* Appcelerator Titanium
* **Flutter:**

Flutter has a reactive architecture; therefore changing the UI elements doesn't need to be done manually. The only thing that Flutter app developers need to do is update the variables; the UI modifications will then be displayed.

* **Node.js:**

Node.js employs a single-threaded paradigm with event looping functionality to produce slick, flawlessly running applications. The server may respond without blocking thanks to this event system, which makes them scalable.

Applications using Node.JS reduce the amount of time it takes for slow queries to respond, and each developer can process all information requests simultaneously.

* **Phone Gap:**

Because it allows programmers to construct cross-platform apps using already-existing web technologies like HTML 5, CSS3, and JavaScript, PhoneGap is regarded as a flawless cross-platform framework.

Because of its plugin-friendly architecture, it may be possible to extend the access to native device APIs in a modular fashion.

* **React Native:**

One-time coding cuts the app's development time in half and keeps the expense of creating a React Native app to a minimum.

* **Ionic:**

One of the key advantages of cross-platform development tools is the ability to use built-in device functions like the camera, GPS, and audio recorder thanks to this framework's use of Cordova plugins.

* **Native Script:**

Without the use of Web Views, Native Script creates a stunning, usable, and platform-native user interface. Developers simply need to define once, and Native Script will automatically adapt to run anywhere. They can even alter the user interface to fit particular displays and devices.

Native Script may call local tactics from libraries and supports segments like Cocoapods and Android Arsenal.

* **Xamarin:**

Robust compile-time checking is provided by Xamarin. Developers see fewer run-time issues and receive well-functioning apps as a result of this facility.

* **Corona SDK:**

It offers more than a thousand APIs that enable programmers to work with data, native elements, audio, music, Box2D physics, object tweening, and sprite animations.

* **Sencha Touch:**

It comes with an effective agnostic backend data package for working with data sources.

Sencha Touch's support for Cordova integration for native API access and packaging is one of its most lauded features.

It allows for new and old code compatibility.

* **Appcelerator Titanium:**

It includes Arrow DB, a data store with no schema that enables developers to deploy data models with no further setup work.