Native, non-native and cross-platform applications

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1ˢᵗ Arista Perez Graciela
Information Technology
Technological University of Tijuana
Tijuana, Mexico
gracielaarista0123@gmail.com

I. INTRODUCTION

Mobile applications, also know as mobile apps, are an integral part of contemporary digital experiences. These small software units, designed to operate on mobile devices such as smartphones or tables, offer users high-quality services and experiences. In this context,we will explore the types of mobile applications focusing on native and non-native applications, as well as on multi-platform applications development.

II. NATIVE APPLICATIONS

Native apps are developed for a specific mobile operating system(usually IOS or Android) using the platform's specific programming language. This means that a native app created for Android cannot be used on an IOS device and vice versa. It is the most well-know type of mobile application. To use it, we need to download it from app markets, such as the Apps Store or Google Play, and install it on our phone.

A. Advantages

1. Best performance: Native apps are the fastest and outperform other types of apps as they are optimized specifically for the hardware and operating system of the device.

2. Fulls access and integration with device hardware functions: Native apps make full use of mobile functionalities such as the camera, microphone, fingerprint bio-metric reader, sensors, and wireless networks (Wi-Fi, Bluetooth).

3. Can function without internet access (offline operation) if designed to do so.

B. Disadvantages

1. High development costs: If we want our app available for both systems, we will need two separate development lines, as the code used for one system is not reusable for the other.

2. Development complexity: Expert teams are required for the specific language of each system, such as Kotlin for Android and Swift for iOS.

III. NON-NATIVE APPLICATIONS

These can be web applications or croos-platform apps that run in browsers and are not directly installed on the device.

A. Advantages

1. Simple maintenance and updates.
2. Accessible from any device with a browser.

B. Disadvantages

1. Limitations in access to specific features.
2. Potentially lower perfbroe notormance.

IV. CROSS-PLATFORM

Cross-platform development involves creating applications that can be used on various operating systems. Examples include the use of technologies like React-Native, allowing functionality on both Android and iOS.

A. Advantages

1. Wide Reach: Cross-platform applications can reach a broader audience by functioning on different operating systems.

2. Cost Savings: Developing for multiple platforms can be expensive; cross-platform apps reduce costs by using a single codebase.

3. Consistent User Experience: They provide a consistent experience across different devices, benefiting brand identity.

B. Disadvantages

1. Limited Performance: Cross-platform apps may sometimes have inferior performance due to the additional abstraction layer required.

2. Limitations in Accessing Platform-Specific Features: They may not fully leverage all specific features of each platform.

3. Development and Maintenance Complexity: Despite aiming for simplification, managing different versions and compatibility issues can add complexity to the process.

REFERENCES

[1] L. Nunez. "Types of applications, characteristics, examples and comparison — EMMA." — EMMA. Accessed February 12, 2024. [Online]. Available: https://emma.io/blog/tipos-aplicaciones-caracteristicas-ejemplos/

[2] R. Walker. "The difference between native mobile applications and all the others — AppMaster". AppMaster - The No-Code platform for building web mobile apps. Accessed January 12, 2024. [Online]. Available: https://appmaster.io/es/blog/la-diférence-entre-las-aplicaciones-moviles-nativas-y-todas-las-demas