Native and non-native applications

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***Abstract*—Native applications are developed specifically for a mobile operating system, which guarantees optimal performance and complete integration with the device's functions. However, their development involves high costs and requires expert teams in the programming language of each system, resulting in a long development time.**

On the other hand, non-native applications adapt to any platform through responsive design, which allows faster and less costly development by using a single code base. Although they offer advantages in terms of maintainability and code reuse, their performance may be lower, and they may have limitations in accessing native features, which affects the user experience and increases dependency on third-party frameworks and tools.

***Index Terms*—Application, Development, Performance.**

I. Introduction

In the world of mobile applications, the choice between developing a native or non-native application is crucial in determining the success and efficiency of the project. Native applications are designed specifically for a mobile operating system, offering superior performance and full integration with device features. On the other hand, non-native apps adapt to various platforms through responsive design, promising faster and more cost-effective development by using a single code base. However, each approach has its advantages and disadvantages that should be carefully considered before making a decision.

II. Native application

These are apps developed for a specific mobile operating system, in the programming language specified for each platform.

- Advantage:
  - They have the best performance: they are the fastest and have superior performance to other types of apps, as they have been optimized specifically for the device's hardware and operating system.
  - Full access and integration with the device's hardware features.
- Disadvantage:
  - High development costs: if we want to have our app available for both systems, we will need two different lines of development, since the code used for one system is not reusable for another.
  - Development complexity: we need expert teams in the specific language of each system.
  - Longer development time.

III. Non-native application

They adapt to any platform because they are developed with a responsive design pattern. That is, the web application is developed and adapts to any device, regardless of its size or resolution.

- Advantage:
  - Faster development: the use of standard web technologies and specific frameworks can speed up development by allowing code to be shared across platforms.
  - Less costly: it is more cost-effective to develop an application using a single code base. Unified tools and skills: developers can use the same skills and tools.
  - Easy maintenance: updating the application and troubleshooting can be easier, as changes are reflected on all platforms at the same time.
  - Code reuse: code reuse across platforms reduces duplication of effort and facilitates consistency in functionality.
- Disadvantage:
  - Inferior performance: they have inferior performance compared to native applications, especially in terms of speed and responsiveness.
  - Limitations in accessing native features: may be more difficult to access device-specific native features, as they rely on plugins and abstraction layer support.
  - Less smooth user experience: may experience performance issues and not offer the same smooth user experience.
  - Dependency on third-party frameworks and tools: their use may introduce additional dependencies and complicate the development process.

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