

Native, Non-Native, and Cross-Platform Mobile Application Development: A Comparative Analysis

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Abstract—This paper conducts a thorough examination of mobile application development approaches, comparing and contrasting native, non-native, and cross-platform methodologies. The study explores the differences, advantages, and disadvantages inherent in each approach.

I. INTRODUCTION

The landscape of mobile application development is diverse, with developers having to choose between native, non-native, and cross-platform approaches. This paper aims to provide a comprehensive analysis of the differences, advantages, and disadvantages associated with each methodology.

II. NATIVE, NON-NATIVE, AND CROSS-PLATFORM DEVELOPMENT

A. Definitions and Distinctions

Define each approach, elucidating the fundamental differences in their development paradigms.

B. Advantages of Native Development

Explore the benefits of native application development, including optimized performance and access to platform-specific features.

C. Disadvantages of Native Development

Examine the drawbacks such as longer development times and increased costs associated with native development.

D. Advantages of Non-Native Development

Investigate the advantages of non-native development, emphasizing cost-effectiveness and faster development cycles.

E. Disadvantages of Non-Native Development

Discuss potential limitations, such as compromised performance and less access to platform-specific features.

F. Advantages and Challenges of Cross-Platform Development

Analyze the benefits of cross-platform development, including code reusability, and address challenges like potential performance issues and compatibility concerns.

III. CASE STUDIES AND COMPARATIVE ANALYSIS

A. Native Applications

Provide case studies illustrating successful native application development, highlighting the applications' performance and user experience.

B. Non-Native Applications

Present examples of non-native applications, showcasing their development efficiency and trade-offs in performance.

C. Cross-Platform Applications

Explore cross-platform application case studies, focusing on their ability to reach a broader audience and potential challenges.

IV. CONCLUSION

In conclusion, the choice between native, non-native, and cross-platform development depends on various factors, including project requirements, budget constraints, and performance expectations. This comparative analysis aims to assist developers in making informed decisions based on the specific needs of their projects.

V. REFERENCES

REFERENCES

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