## OPTIMIZATION OF MOBILE-BASED PERSONAL FINANCE RECORDING APPLICATION WITH DESIGN PATTERN MODEL VIEW VIEW MODEL

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## ABSTRACT

This study examines the implementation of the Model-View-ViewModel (MVVM) architecture in an Android-based Financial Tracker application, which includes fundamental Create, Read, Update, and Delete (CRUD) functionalities. The objective of this research is to apply the MVVM architecture in application development, assess performance enhancements following its implementation, and analyze its impact on code readability, modularity, and maintainability. The methodologies employed in this study involve designing an application with a well-organized directory structure based on MVVM principles, implementing CRUD features, and evaluating performance using the Android Profiler in Android Studio. The results indicate that the adoption of MVVM significantly enhances processing efficiency, demonstrating a performance increase of 74.8% on the RenderThread and 27.8% on the MainThread. Furthermore, the MVVM architecture offers advantages in terms of improved code readability, apparent modularity, and greater ease of maintenance and future development of the application. Based on the results of the study, it can be concluded that the implementation of MVVM in the Financial Tracker application not only improves application performance but also has a positive impact on code quality and system scalability. Therefore, the use of MVVM architecture is recommended for developers who want to build efficient and easy-to-maintain Android applications.

Keywords: MVVM, Android, Financial Tracker, CRUD, application performance, code readability