ABSTRACT

Flutter, as a software development framework, provides various state management methods, including Provider and Riverpod, which play a crucial role in efficient state handling within applications. This study aims to analyze and compare the performance of these two state management methods in terms of CPU and memory usage. The evaluation was conducted by developing two Flutter-based applications, each implementing one of the state management approaches to display earthquake data from the USGS API. Performance testing was performed using Android Profiler on an Android device, with data scenarios ranging from 100 to 20,000.

The test results indicate that an increase in data volume directly impacts CPU and memory consumption. Provider demonstrated lower memory usage and more stable CPU performance compared to Riverpod. Conversely, Riverpod exhibited higher resource consumption due to its dependency tracking mechanism, despite offering greater flexibility in state management. In cases involving larger datasets, Provider proved to be more resource-efficient, while Riverpod excelled in handling complex state dependencies. This study concludes that selecting a state management method should align with application requirements, balancing efficiency and flexibility.

Keywords*: Flutter, state management, Provider, Riverpod, performance, CPU, memory.*