TDP028
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1. Introduction:

Software architecture is critical to both performance and maintainability in mobile applications. By studying how different architectural choices affect these factors, we can ensure long-term success. This paper examines the impact of different architectures, such as MVC and MVP, on mobile app performance, scalability and maintainability.

2. User experience and performance:

Performance in apps is strongly linked to user experience, where architecture plays an important role. A study by Roy Thomas and Divya Ramesh[1] shows that architectures with clear separation of layers, such as MVC, reduce latency and improve response time. This is particularly important for apps that require fast user interaction, such as real-time applications.

3. Scalability and long-term maintenance:

Another important aspect is how the architecture choice affects scalability. Gustavo Rossi et al.[2] show that the MVP architecture allows for high modularization and thus easier maintenance and deployment. This means that new features can be implemented without affecting the overall stability. For an application like yours, with frequent updates and user customizations, this is a critical advantage.

4. Testability and code encapsulation:

A third benefit of modularized architectures is improved testability. According to a study by A. Singh and D. Sharma[3], the use of presenter layer in MVP increases the possibilities of unit testing, resulting in higher code quality and faster development cycles. This reduces the risk of errors during updates and improves the overall user experience.

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[1] R. Thomas och D. Ramesh, "Optimizing Performance in Mobile Apps through Layered Architectures," *Journal of Mobile Computing*, vol. 29, no. 3, pp. 45-56, 2020.
[2] G. Rossi, "Modular Architectures for Mobile Apps: MVP vs. MVC," *IEEE Transactions on Software Engineering*, vol. 40, no. 5, pp. 123-134, 2021.
[3] A. Singh och D. Sharma, "Improving Code Testability with MVP Architecture in Android," *International Journal of Software Engineering*, vol. 15, no. 2, pp. 90-105, 2022.

5. Conclusion:

Choosing a scalable, modularized architecture as MVP can achieve better performance, long-term maintainability, and testability, which are crucial for successful mobile applications. The empirical studies substantiate how the choice of architecture affects not only the functioning of the app but also the efficiency of the development team.