

Location-based mobile system

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This thesis addresses the architectural planning and analysis of the implementation process of a location-based mobile system, using the WildWander iOS application as a case study. The project aims to design a platform that allows users to discover existing hiking trails, create new routes through an interactive map, store and share them, navigate through routes and save past activity on user profiles.

Architectural challenges identified for a typical modern mobile application include: frequent and continuous location updates, management of asynchronous processes, and strong interaction between map components and the user interface. To address these challenges, the frontend is planned to be developed using the MVVM architectural pattern, which supports clear separation of responsibilities and improved code structure.

In the context of backend development, modern software systems are developed in environments characterized by rapidly changing requirements and increasing functional complexity, which significantly complicates architectural stability and long-term maintenance. Traditional approaches often result in tight coupling between business logic and specific technologies or frameworks, limiting system flexibility and reducing testability. To mitigate these issues, the thesis explores the application of Clean Architecture principles, aiming to isolate business logic from infrastructure-related concerns. It is expected that this architectural approach will contribute to improved scalability, maintainability, and long-term evolution of the system in accordance with modern software engineering practices.