



Assignment of master's thesis

Title: Analysis and Comparison of Application Architecture: Monolith, Microservices and Modular Approach
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Study program: Informatics
Branch / specialization: Web Engineering
Department: Department of Software Engineering
Validity: until the end of summer semester 2024/2025

Instructions

Microservices architecture is widely today used to design and develop applications. However, developers do not always use this architecture correctly which may lead to performance or management issues, or issues with application sustainability. The goal of this work is to compare application design practices using the classic monolithic architecture and microservices architecture and further explore hybrid design approaches.

The work will include the following parts:

- Analysis of monolithic, microservices, and modular architecture design approaches and their comparison along the lines of performance, maintainability, sustainability, and testability.
- Design of a methodology to design and develop applications for new projects.
- Verification and evaluation of the proposed methodology in a sample project (Proof of Concept, PoC) which will include the implementation of a sample application.