

## Extracting Microservices from Monolithic Legacy Systems

### **Background**

The microservice architectural style has emerged as a new alternative to the monolithic style for designing large software systems. Monolithic legacy applications in industry undergo a migration to microservice-oriented architectures. A key challenge in this context is the extraction of microservices from existing monolithic code bases. While informal migration patterns and techniques exist, there is a lack of formal models and automated support tools in that area.

### **Task**

The goal of this thesis is to propose and evaluate a systematic approach for recommendation of microservice candidates in a refactoring and migration scenario of monolithic legacy web applications. As a part of this thesis, a literature review should be performed to provide an overview of the state of the art in the formal microservice extraction approaches.

The evaluation part has to demonstrate that the presented approach provides enough accuracy, coverage, quality of microservices, or performance by extracting microservice candidates. Empirical surveys or benchmarking are expected for evaluation of the proposed approach.

The development of the solution idea can be supported by the supervisor.

A report of about 70-90 pages in English or German is mandatory, which contains the details of concepts, strategies, and results.

### **References**

[1] Mazlami, Genc, Jürgen Cito, and Philipp Leitner. "Extraction of Microservices from Monolithic Software Architectures." Web Services (ICWS), 2017 IEEE International Conference on. IEEE, 2017.

### **Organizational matters**

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**Reviewer:** Prof. Dr. Schneider

**Start:** immediately