



Assignment of master's thesis

Title: Object-relational mapping for database access in JavaScript
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Study program: Informatics
Branch / specialization: Web Engineering
Department: Department of Software Engineering
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Instructions

Object-relational mapping (ORM) libraries enable to naturally connect objects written in a given programming language with their representation stored in a database. There are lots of such libraries for JavaScript (JS) and TypeScript (TS), but each comes with its own set of compromises. Explore and describe available open-source frameworks, provide example implementations of application showcasing their advantages and downsides. In the benchmark application test primarily feature richness of framework, efficiency, type support for TypeScript and ability for relational data fetching. Discuss good and best practices for use with each library and what project they fit in.

Guidelines:

- 1) Research existing JS and TS libraries and explore their problems and benefits by gathering users' experiences.
- 2) Design a benchmark database and example application, implement the application in each framework.
- 3) Describe and test the frameworks with a focus on their functionality, efficiency of database usage, speed and usability.
- 4) Provide outcomes of the tests, analyze their results. Describe which framework has an advantage in each situation.
- 5) Recall on gathered experience, discuss findings, propose improvements and continuations.