FACULTY
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TECHNOLOGY
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Assignment of master's thesis

Title:	Decentralized and Open Architecture of a Reservation System
Student:	Bc. David Straka
Supervisor:	doc. Ing. Tomáš Vitvar, Ph.D.
Study program:	Informatics
Branch / specialization:	Web Engineering
Department:	Department of Software Engineering
Validity:	until the end of summer semester 2023/2024

Instructions

Despite the increase of centralized solutions on the Internet today, there are many novel standards and technologies that go back to the original idea of the Internet and the Web in particular and use decentralized architectures. For example, Blockchain, Fediverse, and the most recent efforts around blockchain-less Web 3.0 are only a few examples of novel approaches whose main goal is to promote data privacy and security and enable users to have more control of their data. The goal of the thesis is to contribute to such efforts by developing a decentralized architecture for a reservation system. The thesis will fulfill the following tasks.

- Design an open and decentralized architecture for a general-purpose reservation system which should include a decentralized client-server communication protocol based on HTTP, and it should be possible to integrate the system with state-of-the-art cloud-native architectures.
- Develop a reference implementation of the architecture, including a client and a backend.
- Develop and implement a use case for a selected type of reservation business and discuss extensions of the architecture for the selected use case.
- Test and evaluate the reference implementation and the solution for the use case.

Electronically approved by Ing. Jaroslav Kuchař, Ph.D. on 9 February 2023 in Prague.