



Design and Implementation of a Web-Based Collaborative Editing Tool for Hardware-Based Lab Courses

Motivation

The *iLabs* offered by the *Chair of Network Architectures and Services* are hands-on practical courses in which students learn about selected topics from computer networks. Teaching material (individual teaching units are referred to as “lab”) is provided using the e-learning platform *labsystem* which is tailored to the requirements of these courses.

The *labsystem* is currently undergoing a complete rewrite for modernizing it in alignment with current standards. As part of the rewrite, the currently integrated editing component for teaching material is migrated to an external tool, which shall be designed and implemented in this IDP.

Technical requirements for this editing tool include:

- Versioning of contents using a `git`-based workflow
- Browser-based, collaborative editing of teaching material
- Access control
- Compatibility with the specified lab exchange format [1]

- Familiarize yourself with the frameworks used for the new *labsystem*
- Design and implemented the editing tool
- Implement suitable test cases
- Document the code
- Experience developing software in Python3
- Familiarity with the *ilab* teaching concept [2, 3]

Your Task

Requirements

Literature

References

- [1] L. Lehle. Implementation of an Interactive Import and Export Tool for Hardware-Based Lab Courses. IDP, Technical University of Munich, 2022.
- [2] M.-O. Pahl. The *ilab* concept: Making teaching better, at scale. *IEEE Communications Magazine*, 55(11):178–185, 2017. ISBN: 0163-6804 Publisher: IEEE.
- [3] M.-O. Pahl. Learning by Teaching: Professional Skills and New Technologies for University Education. *IEEE Communications Magazine*, 57(11):74–80, 2019. ISBN: 0163-6804 Publisher: IEEE.

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