Exposé

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Contents

1 Title

A Planning Tool for Room Booking Management

2 Work subject

Development of a planning tool for managing room occupancy.

3 Motivation

The effective use of rooms is crucial for events to run smoothly. In many cases, however, conflicts in room occupancy lead to frustration and dissatisfaction among event organizers and attendees. A scheduling tool could identify potential conflicts, improve management of room assignments, and reduce administrative workload. The planning tool refers to rooms in the 25.xx building is intended to facilitate the planning process and help use resources more effectively and ensure a seamless flow of events.

4 Determining the working position

The aim of this project is to develop a planning tool. Booking is done in three phases, with the first phase being the booking rooms 25.xx building. In the second phase, available rooms can be booked, and in the third phase, the dean's office can move existing bookings to another event.

The planning tool should be able to:

- Import data from XML into a data structure and allow multiple XML imports, updating only the changes to maximize efficiency.
- Identify conflicts and present the user with a visual representation of the conflicts. The user can then manually decide how to resolve conflicts.
- manage existing bookings and add new ones.
- Retain data created in the tool when importing a new XML.
- Manage bookings of semesters separately

The work includes detailed planning and implementation of the tool as well as its testing, optimization and documentation.

Possible extensions:

- Integration of additional information into the data structure for optimized collision search (externally configurable with .yaml or .edn). For example, which workgroup an event is assigned to.
- Additional display of collisions
- Data export (pdf, .csv, Exel)

5 Schedule and preliminary outline of the work

- **1-2 Week:**
  - Setup (database, backend, frontend, ppp architecture)
  - Analysis and implementation of data structure
  - Documentation
- **3-6 Week:**
  - Implementation of efficient import from an XML file
  - Implementation of search, insertion and modification of data in the database
  - Determination and implementation of API between frontend and backend
  - Testing and documentation
- **7-8 Week:**
  - Determination and implementation of API between frontend and user
  - Frontend for searching inserting and changing data
  - Testing und documentation

- **9-11 Week:**
  - Search for collisions in the database
  - Display of collisions in the frontend
  - Testing und documentation
- **12-13 Week:**
  - Debugging und refactoring
  - Finetuning und cleanup

6 Literatur

Developing a planning tool requires a thorough understanding of programming in Clojure and ClojureScript and the underlying technologies.

- **Clojure documentation:** `https://clojure.org/reference/reader`
- **ClojureScript documentation:** `https://clojurescript.org/reference/documentation`

For the development of backend libraries like "ring" and "compojure" can be used:

- **ring:** `https://github.com/ring-clojure/ring/wiki`
- **compojure:** `https://github.com/metosin/compojure-api/wiki`

Libraries such as "reagent", "re-frame" and "bidi" can be used for frontend development:

- **reagent:** `https://reagent-project.github.io`
- **re-frame:** `https://day8.github.io/re-frame/re-frame/`
- **bidi:** `https://github.com/juxt/bidi`
- **pushy** `https://github.com/clj-commons/pushy`

Data storage and management can be realized with databases like Datahike:

- **datahike documentation:** `https://cljdoc.org/d/io.replikativ/datahike/0.6.1539/doc/readme`