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Bachelor's Thesis

A Tool for Creating Personalized Semester Schedules

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Students usually plan the courses they want to complete in a semester by hand. They search for the desired courses using *Kusss* or *myJKU* and enter them manually in a weekly calendar. This often leads to time conflicts, especially if students are not studying according to the recommended course of study (e.g., due to work commitments). This then requires rescheduling, which is tedious and error-prone.

The goal of this master's thesis is to develop a prototypical tool that can be used in a similar way as *myJKU* (on the web and on a mobile phone) and facilitates semester planning. The process and the functionality should be as follows:

- Students log in with their student ID and their password. This will bring up a list of all courses of their degree program, which are offered in the relevant semester and which they have not yet completed.
- Students select one or more courses from this list, which are then placed on a weekly schedule. If there are several groups for a course (e.g. for a lab), all groups are placed. Selected block courses are displayed outside the weekly schedule with their date and time. It should also be possible to remove each placed course from the weekly schedule.
- It should also be possible to place courses that do not appear in the list (e.g. courses from other degree programs) manually.
- If there are overlapping dates, students can select one of them and click away the others. It should also be possible to select additional courses at any time and place them in the weekly schedule.
- A warning should be displayed if a lecture has been selected without the corresponding lab (or vice versa).
- It should be possible to use a filter with which students can specify on which days of the week and in which period of a weekday they can attend courses. The list of available courses should then only show those for which at least one of the groups falls within this period. It should be possible to change the filter at any time, for example to list all courses that fall within a certain period of a weekday that is still free. However, courses that have already been placed should not be removed from the weekly schedule.
- It should be possible to save the schedule locally so that the planning can be continued later.
- It should be possible to print out the schedule.

The front end of the tool should be implemented with *Angular* so that it is possible to integrate it into *myJKU* later. The backend is to be implemented in Java using *Spring Boot*.

As the tool accesses data in the IM's Oracle database and should be similar to *myJKU*, cooperation with the JKU's Information Management (IM) department is essential. If a *Rest* API already exists for certain requirements, this can be used. In addition to the supervisor of the master's thesis at the Institute for System Software, there will also be contact persons at the IM with whom the progress of the thesis should be regularly discussed.

The work's progress should be discussed with the advisor at least every 2 weeks. Please follow the guidelines of the Institute for System Software when preparing the written thesis. The deadline for submitting the written thesis is 30.09.2024.