Building a web application for student project allocation

Bachelor Project in Computer Science

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1 Subject

Every year in the spring semester at the University of Southern Denmark, students at the Department of Mathematics and Computer Science start the work on their bachelor project. A set of project topics are made available to the students, and the students submit a prioritized list of topics they wish to work on.
After a set deadline the topics and the preferences of the students are fed to a piece of software that allocates projects to students using the algorithm described on pages 10-11 in "Handling preferences in student-project allocation"[1].
Currently the allocation software lacks a convenient interface for submitting projects and the allocation process can only be started by a single person.
In this project, I will build a web interface to solve these problems and a way to visualize the results of the allocation process. I will also set up a pipeline for automatic deployment of updates to the web application, with minimal downtime.

2 Goals

My goals for this project are to:

- Set up a pipeline for automatic deployment of updates.
- Provide an interface where users can submit input data(e.g. project descriptions) in different forms.
- Allow authorized users to adjust parameters and start the allocation process.
- Visualize the results of the allocation process along with an explanation of this result.

3 Tasks

To achieve the goals of this project I will carry out the following tasks:

- Identify the appropriate tools needed to build and deploy the software.
- Gain knowledge about the allocation software and the algorithm described in "Handling preferences in student-project allocation"[1].
- Build a web interface for the allocation software.
- Securely host the application to allow access from the internet.
- Implement appropriate tests for the web application.
- Review the literature suggested by my advisor.
- Write a report describing the process and the work done.

4 Agreement

The software implemented within this project will be made publicly available via `https://git.imada.sdu.dk` under MIT license (`https://opensource.org/licenses/MIT`).

References

[1] Marco Chiarandini, Rolf Fagerberg, and Stefano Gualandi. Handling preferences in student-project allocation. *Annals of Operations Research*, 275(1):39–78, 2019.