

Senior Design Project Manager

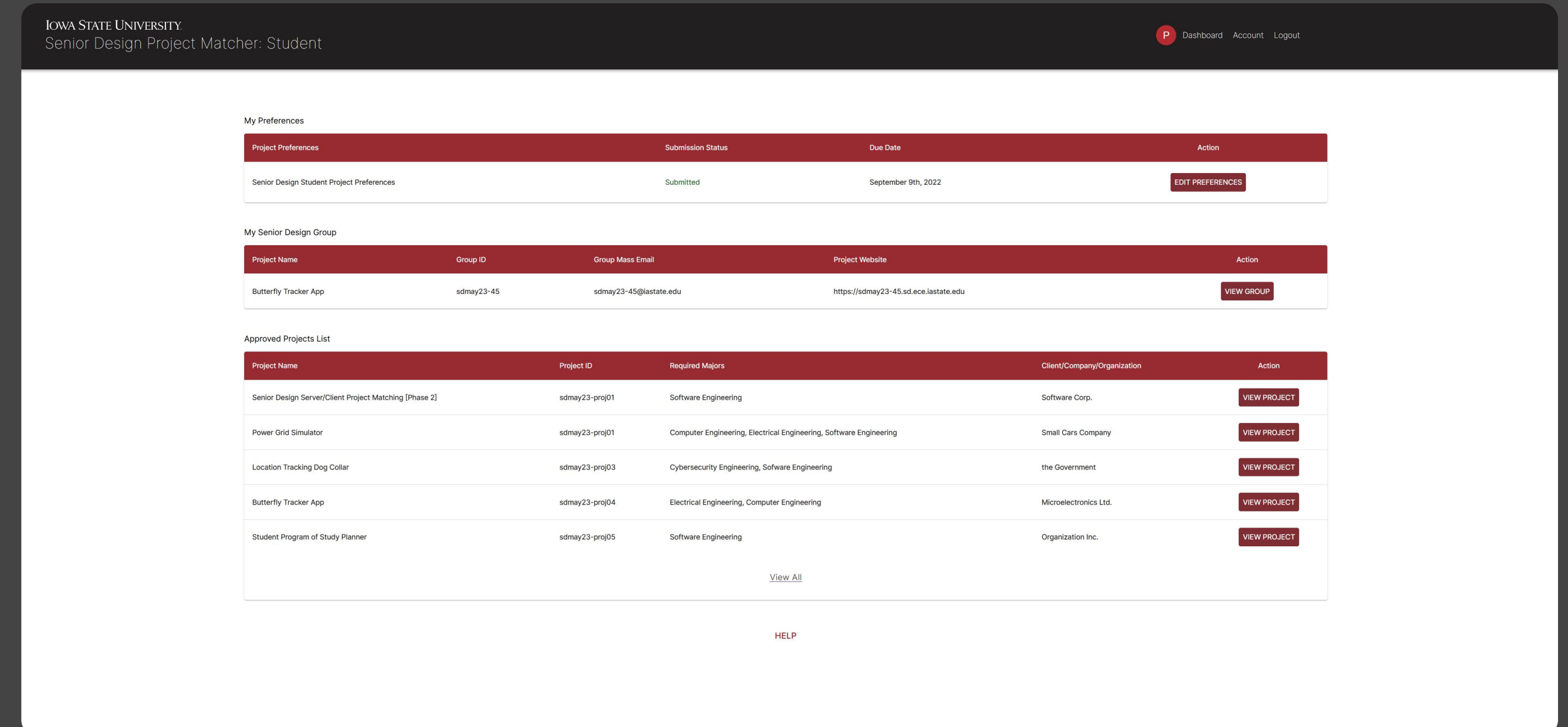
a web application for the Department of Electrical and Computer Engineering

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Introduction

The goal was to create a web application that could be used by the senior design faculty and students in order to better the way projects are managed and how students are assigned teams. We wanted to develop a system that would match a student with the best possible project while also taking into account their group mate preferences

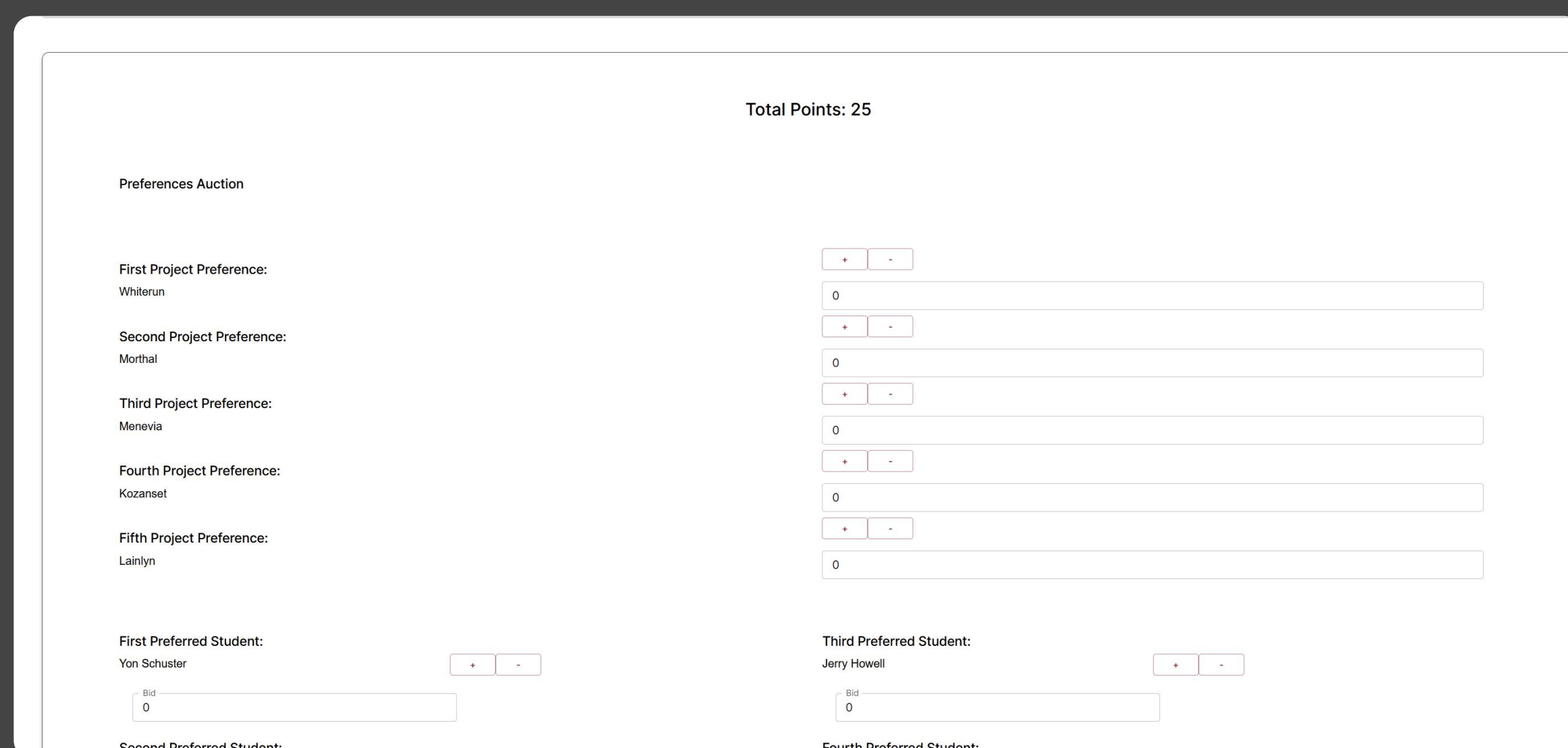
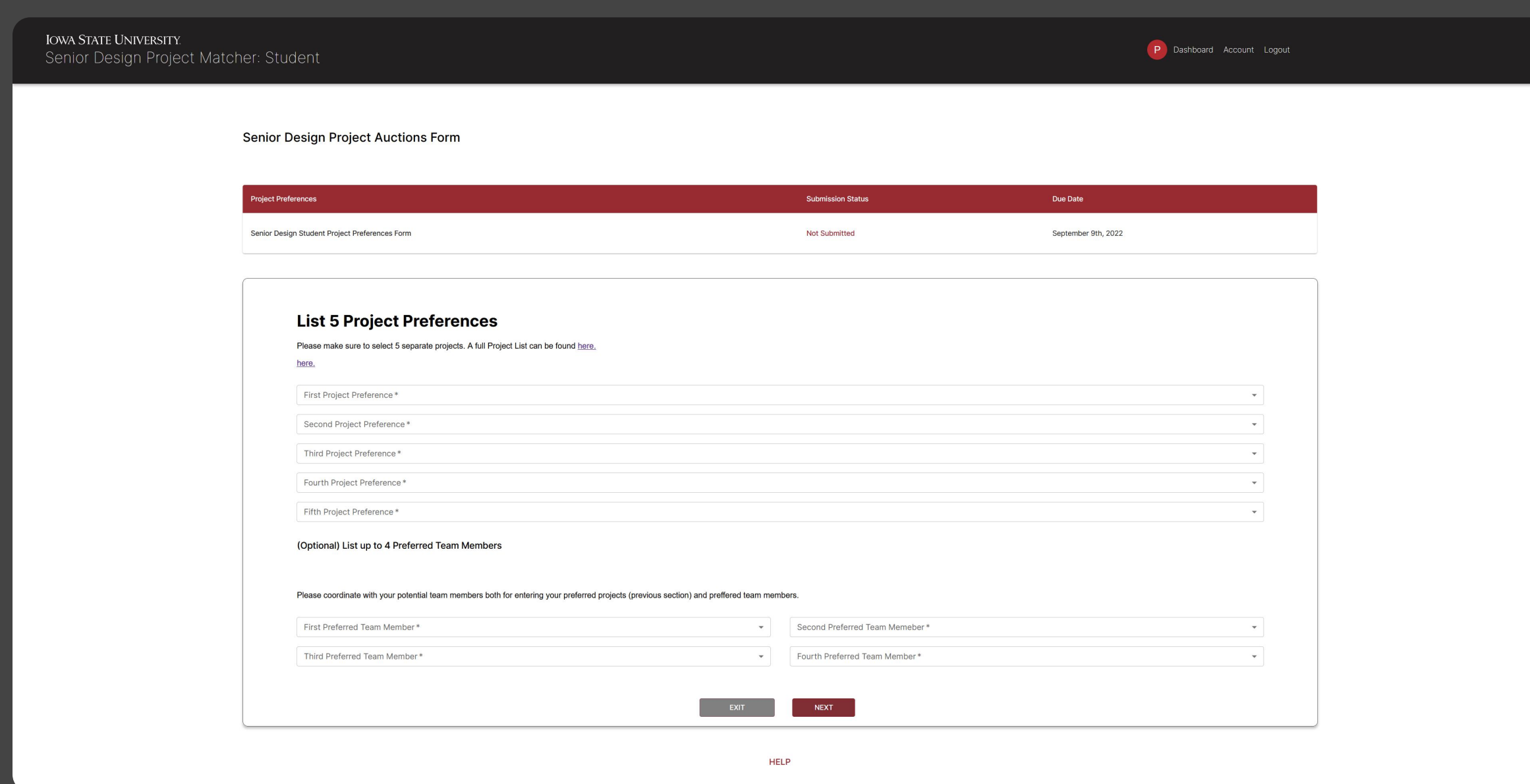


User Types

- Students - Students are the main users of the website. This would be people who are enrolled in senior design
- Advisors - These are the people that are assigned to a group with the goal of assisting and advising the students during their design process
- Instructors - These are the users that are in charge of the senior design course, typically this person is an Iowa State professor

Requirements

- Instructors must be able to manage teams and projects
- Instructors must be able to approve a project
- Project submitter must be able to submit projects
- Students must be able to view projects and the descriptions
- Students must be able to select their project and team member preferences
- Students team and project must be selected via an algorithm
- The project must have a backend and a frontend made with modern frameworks
- The project needs to be able to store data in a database



Design Approach

Due to us being the third group to take on this project we ended up inheriting code from the previous two groups. Due to this there was a lot of tech debt and no functioning backend. We approached this by starting out on the frontend and fixing the mistakes of the previous group and removed a lot of hard coded information that was being displayed and worked on implementing data flow throughout the website

Tech details and Testing

For the backend we made use of Springboot 3 and built it with java 17. The main dependencies and tools we used were Hibernate, Lombok, H2, and Faker. For testing we used H2 to create an in-memory database and then filled it with randomly generated user data using Faker. Validation was done by using postman.

For the database we used JPA which comes from Hibernate. This tool allowed us to simplify schema creation as it handles a lot of the complexity for us and is easy to makes changes to

For the frontend we used React as our library. From here we were able to set up our routing using React router DOM and create our web pages for each according route, we tested endpoint calls by using a mock server with predefined json returns

