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

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	Project Preferences			Submission Status	Due Date		Action	
	Senior Design Student Project Preferences			Submitted	September 9th, 2022	E	DIT PREFERENCES	
N	My Senior Design Group							
	Project Name	Group ID	Group Mass Emai	in .	Project Website		Action	
	Butterfly Tracker App	sdmay23-45	sdmay23-45@ias	state.edu	https://sdmay23-45.sd.ece.iastate.edu		VIEW GROUP	
	Approved Projects List							
	Project Name		Project ID	Required Majors		Client/Company/Organization	Action	
	Senior Design Server/Client Project Matching [Phase 2]		sdmay23-proj01	Software Engineering		Software Corp.	VIEW PROJECT	
	Power Grid Simulator		sdmay23-proj01	Computer Engineering, Electric	cal Engineering, Software Engineering	Small Cars Company	VIEW PROJECT	
	Location Tracking Dog Collar		sdmay23-proj03	Cybersecurity Engineering, Sc	fware Engineering	the Government	VIEW PROJECT	
	Butterfly Tracker App		sdmay23-proj04	Electrical Engineering, Compu	ter Engineering	Microelectronics Ltd.	VIEW PROJECT	
	Student Program of Study Planner		sdmay23-proj05	Software Engineering		Organization Inc.	VIEW PROJECT	
					View All			
					HELP			

User Types

Requirements

- 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 lowa State professor



- 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

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enior Design Student Project Preferences Form	Not Submitted	September 9th, 2022	
List 5 Project Preferences			
Please make sure to select 5 separate projects. A full Project List can be found here here.	<u>e.</u>		
First Project Preference *			•
Second Project Preference *			•
Third Project Preference *			•
Fourth Project Preference *			•
Fifth Project Preference *			•
(Optional) List up to 4 Preferred Team Members			
Please coordinate with your potential team members both for entering your preferre	ed projects (previous section) and preffered team members.		
First Preferred Team Member *	▼ Second Preferred Team Memeber *		•
Third Preferred Team Member *	▼ Fourth Preferred Team Member *		*
	EXII		

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Total Points: 25								
Preferences Auction								
First Project Preference	+ -							
Whiterun	0							
Second Project Preference:	+ -							
Morthal	0							
Third Project Preference:	+ -							
Menevia	0							
Fourth Project Preference:	+ -							
Kozanset	0							
Fifth Project Preference:	+ -							
Lainlyn	0							
First Preferred Student:	Third Preferred Student:							
Yon Schuster + -	Jerry Howell + -							
0 Bid	0 Bid							

algorithm

- The project must have a backend and a frontend made wth 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

Boot

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