Swe573 Software Development Practice, Spring 2025
Project Final Deliverables
Buğra Dursun
18.05.2025

HONOR CODE

Related to the submission of all the project deliverables for the Swe573 Spring 2025 semester project reported in this report,
I declare that: - I am a student in the Software Engineering MS program at Bogazici University and am registered for Swe573 course during the Spring 2025 semester.
- All the material that I am submitting related to my project (including but not limited to the project repository, the final project report, and supplementary documents) have been exclusively prepared by myself.
-I have prepared this material individually without the assistance of anyone else with the exception of permitted peer assistance which I have explicitly disclosed in this report.

Link to Github Repository
https://github.com/bugradursun/SWE573-Project

Link to Git Tag Version Url
https://github.com/bugradursun/SWE573-Project/releases/tag/v0.1

Link to Deployment
http://3.67.171.28:3000

Link to Demo Video
https://drive.google.com/file/d/1ysPTvtjmRMAN5mdqaiuK9LzcXWqNGyk0/view?usp=drive_link

-Usernames in the deployed system:
- username : bugra
- password : bugra123

Second user:
-username: ahmet
-password: ahmet123

-Also you can sign up with any username/email combination and start using this project

1. Overview

This project is a collaborative knowledge management system that allows users to create, connect, and visualize knowledge nodes in the form of interactive boards. Users can sign in, register, create boards, add nodes, connect nodes with edges, and view details about each node and its collaborators. The project is built using Spring Boot for the backend, React for the frontend, and PostgreSQL as the database. It is fully dockerized for easy deployment and scaling.

Key Features:

- User registration and authentication (sign in / sign up)
- Board creation with entities fetched from Wikidata
- Node creation, editing, and deletion
- Edge creation with customizable titles
- Node and edge visualization
- Board and node collaboration management
- Full CRUD operations for nodes and boards
- Dockerized deployment for backend, frontend, and database

2. Software Requirements Specification

Backend:

- Spring Boot
- JPA (Java Persistence API)
- PostgreSQL
- Docker
- REST APIs

Frontend:

- React
- TypeScript
- HTML/CSS
- Docker

Database:

- PostgreSQL

3. Design Documents

- **Backend Architecture:** Spring Boot, REST APIs for CRUD operations, and JPA for database interactions.
- **Frontend Architecture:** Component-based design in React with hooks and state management for UI interactions.
- **Database Schema:** PostgreSQL with relational tables for users, boards, nodes, and edges.

4. Status of the Project

Feature	Status
User Registration and Authentication	Completed
Board Creation	Completed
Wikidata layer in Board Creation	Completed
Node Creation	Completed
Node Connection (Edges)	Completed

Node Details and Collaboration	Completed
Node Editing and Deletion	Completed
Board and Node Visualization	Completed
Dockerized Backend, Frontend, and DB	Completed
Unit Tests	Not Completed
Wikidata in Node layer	Not Completed

5. Status of Deployment

- **URL:** Currently hosted on AWS ec2 instance. http://3.67.171.28:3000
- **Dockerized:** Yes, both frontend and backend are dockerized with PostgreSQL as the database.

6. Full Installation Instructions

1. Clone the repository:

```
git clone https://github.com/bugradursun/SWE573-Project.git
```

2. Navigate to the backend directory and run:

```
git checkout backend
cd backend
./mvnw clean install
```

3. Navigate to the frontend directory and run:

```
git checkout frontend
cd ../frontend
npm install
```

4. Build and run Docker containers:

```
docker-compose up --build
```

7. User Manual

Signing Up and Logging In:

- Visit the main URL and click on the register button to create a new account.
- Use the login form to access your account after registration.

Creating a Board:

- Click on the "Create Board" button to start a new board.
- Choose entities from Wikidata to populate the board.

Creating and Connecting Nodes:

- Click on an empty space to create a node.
- Click on a node to connect it to other nodes with labeled edges.

Editing and Deleting Nodes:

- Click on an existing node to edit or delete it.

Viewing Node Details:

- Click on an edge to view its information.

Viewing Board Details:

- Click on a board to view its nodes, edges, and collaboration details.

8. Test Results

Unit Tests:

- Not completed

User Tests:

- Functional testing performed for user registration, board creation, node management, and edge creation.