CENG453 - TERM PROJECT DOCUMENT

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1 Contributors

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2 Technologies

- Maven is used as a build tool for the project.
- Spring Boot is used to create the project.
- MariaDB is used as DBMS.
- Spring Security is used for encrypting passwords.
- Lombok is used in order to achieve a higher readibility in the code.
- For unit testing, we have used JUnit5 and Mockito.
- Swagger is used in order to document APIs.
- JavaFX is used for creating a desktop application.

3 Back-End

3.1 Database

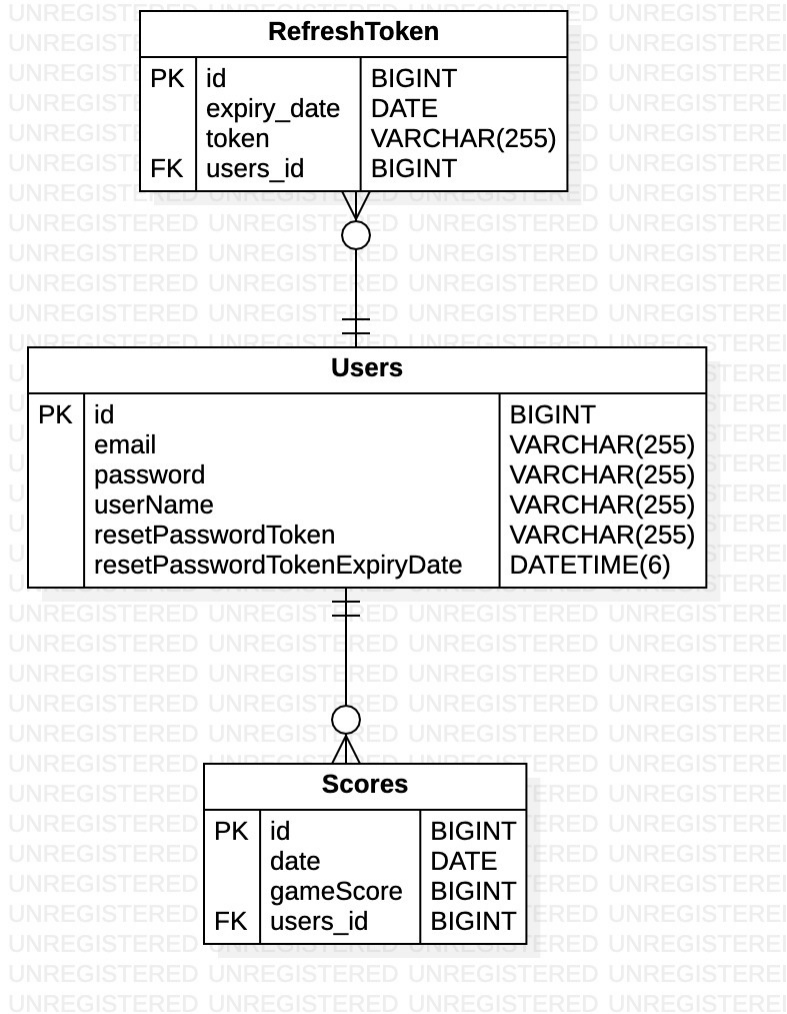

Figure 1: Database Diagram

3.1.1 API

- Leaderboard API is implemented and works as expected. Weekly, monthly and all time leaderboards are retrieved.
  GET /leaderboard
  GET /leaderboard/lastweek
  GET /leaderboard/lastmonth

- Reset Password API is implemented and works as expected. Password reset token is generated and passwords can be reset using token.

POST /resetPassword
POST /resetPassword/reset

- Score API is implemented and works as expected. Scores can be retrieved and added.
GET /scores
POST /scores

- User API is implemented and works as expected.
GET /users/userId
PUT /users/userId
DELETE /users/userId
GET /users
POST /users

- Authorization API is implemented. Can register and login users.
POST /api/register
POST /api/login

3.1.2   Testing

- Controller Tests:

  * Controllers are responsible for communication with the backend by creating a web client (get/post) request.
  * Used mocking while testing to isolate controller logic from external dependencies.
  * Verified that each API endpoint behaves as expected.
- Service Tests:

  * Implemented business rules or calls to repository methods.
  * Used mocking to simulate interactions with repositories.
- Repository Tests:

* Focused on validating the correctness of database interactions
* Ensured proper CRUD operations and query executions.
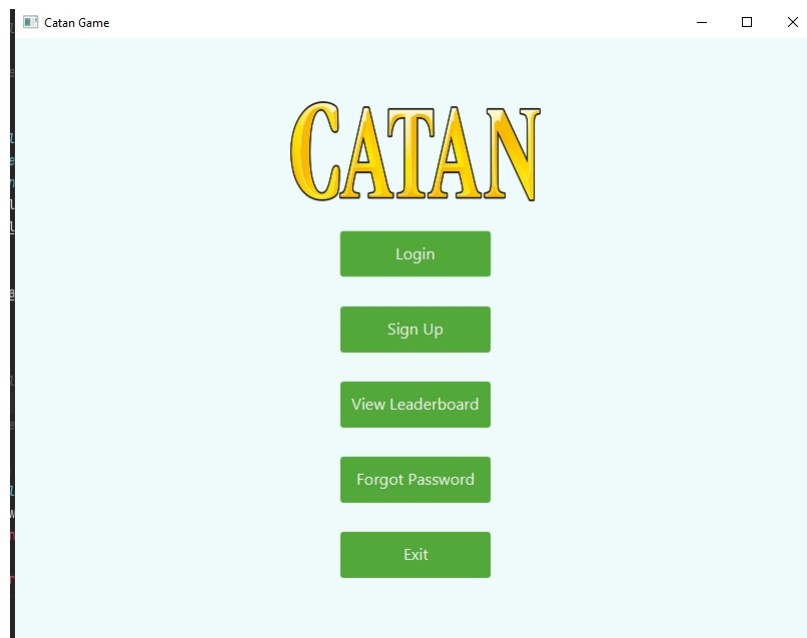
4 Front End

Figure 2: First Page of the app

Users can log in, sign-up if they are not signed up, view the leaderboards, reset their passwords and exit the game.

Figure 3: All time leaderboard

All-time, weekly and monthly leaderboards can be viewed.
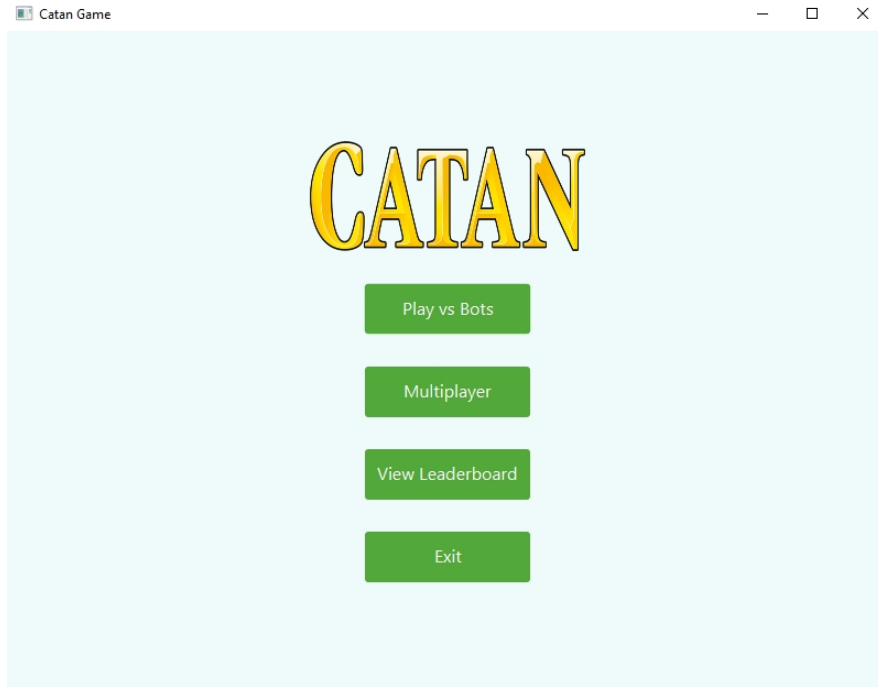

Figure 4: Login Page
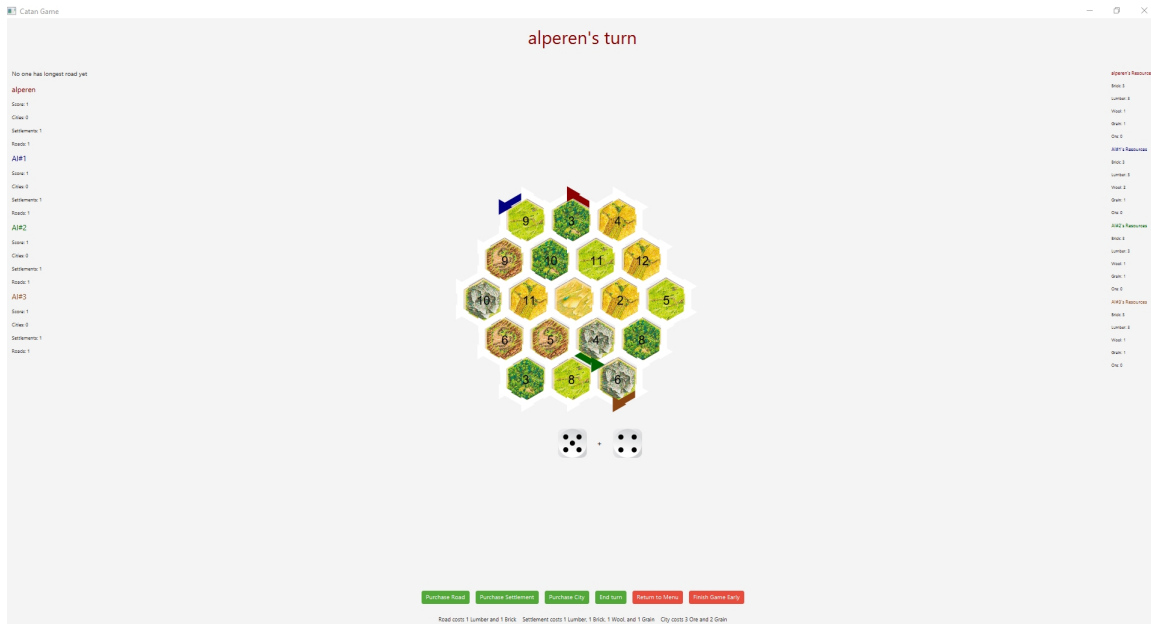
Figure 5: Game page when logged in

Figure 6: Gameplay

The game starts with the player's turn, the player can purchase roads, settlements, and cities using the buttons below and play the game. Scores and settlements are visible on the left and right sides of the board. The player can exit the game using the exit button.
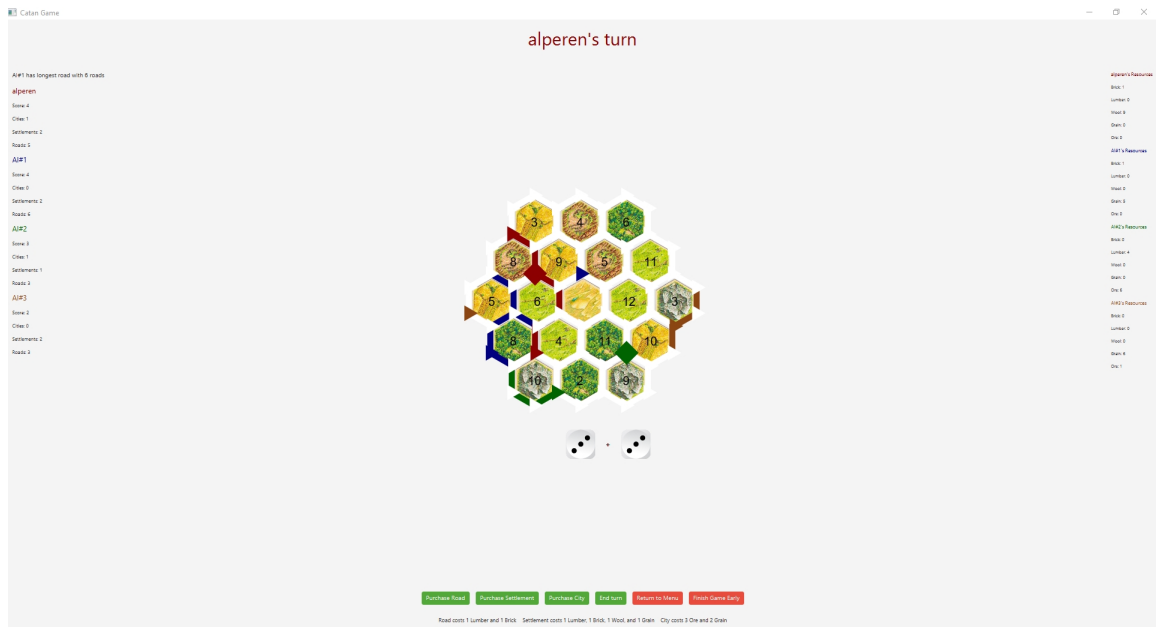
Figure 7: Mid Game

Mid game with some players having cities, roads and settlements.

4.0.1 Testing

The front end is tested manually by playing the game and using the buttons and features.