

CS4530 Final Project: “Battleship”

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Our Feature: Battleship

In the current Covey.Town codebase, players are able to play Connect Four and Tic Tac Toe. While this can be an enjoyable game, players quickly got bored of only being able to play Connect Four and Tic Tac Toe, two very simple games. We wanted to give players more ways of socializing and having fun, helping them stay engaged with Covey.Town.

We have developed a fun and enjoyable way for players to interact with one another: Battleship. Battleship is just what it sounds like - it allows players to play a game of Battleship against one another within Covey.Town.

Players are able to perform all the actions you would expect from a normal Battleship game. They are able to place their ships, and then once their ships are placed, they take turns firing their cannons at one another in an attempt to sink all of their opponent’s ships. The first player to successfully sink all of their opponent’s ships wins!

Demo and Source

Our demo site and code repository are listed below:

Demo: <https://spring24-project-s24-group-409.onrender.com/>

Code: <https://github.com/neu-cs4530/spring24-project-s24-group-409>

Future Work

While working on the communication between the frontend and the backend, we realized we are communicating the entire game state to both player’s frontend. This means that with some digging, players could recover the board of their opponent and view all of their opponent’s ship locations. A future extension could create true privacy, and ensure that there is no way for players to receive information of their opponent’s board.

Future work could also consider extensions to the Battleship game. Improving the user interface to make it more “war”-like with cannons and animations of shots landing on the board. Additional modes and kinds of ships would also be fun for players and help spice up the experience.

Our Technology Stack & Design

We implemented the Battleship feature following the structure of the Connect Four game that was in the existing Covey.Town codebase. The new Battleship game is implemented as a new interactable area that users can walk up to and interact with. When players first interact with the area, they are shown a leaderboard of previous games, as well as the option to start a new game, creating a new BattleshipGame. This BattleshipGame lives on the backend and maintains the state between the players interacting with the game. The placement board required an additional NPM package, React-Draggable, to allow ships to snap-to-grid. Every move the players make will be transmitted to the backend which updates the game state, and socket updates gives this updated state to the players, which updates the local React state and triggers a re-render.

Our CI/CD pipeline uses an automated test suite to ensure that backend and frontend components are functioning as intended. The site is then deployed using Heroku for the backend server, and Netlify for the frontend.

