CSci 130 – Web Programming

Project – Battleship (Group project: Maximum 2 students)

The project is worth 35% of the CSci 130 course.

Introduction

Battleship is a strategy type guessing game for two players. It is played on ruled grids (paper or board) on which each player's fleet of ships (including battleships) are marked. The locations of the fleets are concealed from the other player. Players alternate turns calling "shots" at the other player's ships, and the objective of the game is to destroy the opposing player's fleet.

Battleship is known worldwide as a pencil and paper game which dates from World War I. It was published by various companies as a pad-and-pencil game in the 1930s, and was released as a plastic board game by Milton Bradley in 1967. The game has spawned various electronic versions, video games, smart device apps and a film.

The board contains 2 tables:

- A table representing the map on which the player has placed his/her ships and the position of the torpedo .
- A table representing your actions on the map of the

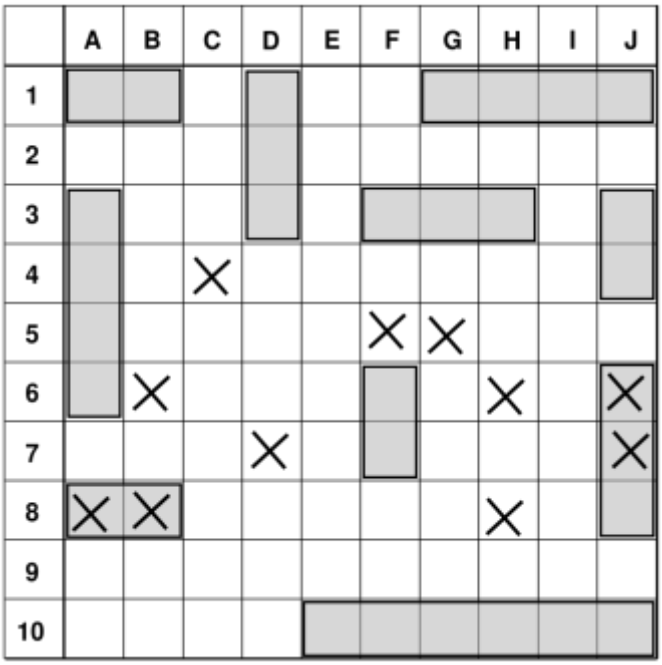

Figure 1. Example of the player's board with the position of different ships and torpedoes.

Rules

Before play begins, each player secretly arranges their ships on their primary grid.

Each ship occupies a number of consecutive squares on the grid, arranged either horizontally or vertically. The number of squares for each ship is determined by the type of the ship.

The ships cannot overlap (i.e., only one ship can occupy any given square in the grid).

The types and numbers of ships allowed are the same for each player.

1. Carrier (size=5)
2. Battleship (size=4)
3. Destroyer (size=3)
4. Submarine (size=3)
5. Patrol Boat (size=2)

We will consider the following super powers:

- Send 3 torpedoes in one turn. (torpedos at different locations)
- Send a big torpedo (a torpedo of size 5, with the shape of a + (middle, left, right, up, down)

Each player can use one of the 2 super powers only one time per game. They are enable only if the player has 2 ships left on the board.

Functionalities and requirements

Documents

- A readme file explaining how to install and use the web pages
- A file giving a detail of who has implemented what, what work was undertaken weekly

Main Pages

- Main page with a menu (index.html)
- Help page: to explain how to play the game (help.html)
- Contact page: short description of the authors of the game (the members of the project) (contact.html)
- Login age: To log in the system
- Sign up page: To create a new account
- The main game (game.html)
- Leaderboard page: To display the best players, to sort players by ascending/descending order of won games, time played, number of games played.

Main functionalities

- To use well organized HTML5 code
- To use appropriate CSS3 functionalities (external CSS file) for the presentation of the web pages using a Fresno State layout
    - http://brand.fresnostate.edu/visual-identity/university-brand-guidelines/color.html
    - Using appropriate Fresno State logo and images to decorate your site.
- To display the board on the screen
- To be able to place the different ships on the players table
- To be able to select the positions
- To enable or not the super powers
- Display
    - To display the time since the beginning of the game
    - To display the name of the 2 players
    - To display the current turn
    - To display the number of ships remaining in the game for both players
    - To display ships on the boards
    - To display torpedoes
        - Where they are thrown in the other player's board
        - Where they are damaged your ships
    - To determine if a player is ready to play
    - To determine if both players are ready to play

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- Ajax functions to update
    - The game turn
    - The game state
    - The game score
    - The player's records
- Game logic
    - Start the game
    - Function to determine:
        - The turn of the player (if player 1 or player 2 should throw a torpedo)
        - If the game can start
        - If all the ship are properly placed on the board
        - If a ship has been damaged by a torpedo
        - If a ship is sinking
        - If the game is finished

- Server side
    - A script to create the database and populate it with data
    - Create appropriate Tables in the RDBMS
    - Players functions
    - Game functions
    - Determine if a game can start
    - Return the information to be displayed on the

Submission

Submission will be done on Canvas by submitting a zip file containing all the files.

The project should work from any computer, i.e. no absolute paths in the folder.