Web Development – Mr. Turner

Project – Battleship

Project Overview

Battleship is a game of war on the high seas where you position a fleet of ships and try to torpedo your opponent's similar fleet before being destroyed. In this version, the user will control one fleet, while the computer controls the other.

Display

Your game should have a splash (title) page, which describes the game and allows the user to start playing. A link or button will take the user to the game page.

The game page consists of 2 grids placed side by side and a log.

- Each grid should be 11 X 11 and labeled 1 through 10 along the side and A through J along the top.
- The first grid will feature the user's fleet. The user will have the opportunity to place their ships on this grid during setup.
- The second grid will be used for finding the computer's fleet. The user will interact with this grid, clicking on boxes in order to fire torpedoes at the computer.

Functionality

The game begins with setup. The computer will setup its ships randomly while the player can put their ships onto the grid.

There are 5 ships in the fleet:

- The Aircraft Carrier, which takes up 5 spaces.
- The Battleship, which takes up 4 spaces.
- The Destroyer, which takes up 3 spaces.
- The Submarine, which takes up 3 spaces.
- The Patrol Boat, which takes up 2 spaces.

When the game page loads, the player's 5 ships should be at the top of the grid (The Aircraft Carrier on A1 - A5, the Battleship on B1 - B4, the Destroyer on C1 - C5, etc…).

During setup, the player can move the ships around the grid and/or rotate them. The interface for doing so is up to you, but follow these guidelines:

- The user should have a way of selecting the ship.
- The user should have a way moving it to a different space on the grid, facing the same direction.

- The user should have a way of rotating the ship.

Once setup is complete, the user should be able to click a start button and the game will begin.

During the user's turn, they will click on any spot on the opponent's grid to fire a torpedo. If the torpedo hits, the spot will turn red and the user will get another turn. Otherwise, it will turn white and the computer gets to go.

Whenever all of the spots covered by a ship are hit, the ship is sunk. The player should be made aware that they sunk a ship and which one.

When the computer goes, it will choose a spot at random *unless* it knows where a ship is. The computer knows where a ship is as soon as it scores a hit. At that point, it will start tracking the ship up and down the grid until it is sunk. In order to track the ship, it will choose a direction (up, down, right, or left) and continue firing in that direction until it misses or the ship is sunk. If it misses without sinking the ship, it will try the next direction on its next turn. It will continue this way until the ship is sunk.

Like the player, the computer gets to go again every time it scores a hit.

The game should log every move and every result and display it in the log box.

The game ends when either the player or the computer has lost all of their ships. Display a message in the log screen. The player can restart the game by hitting the reset button. Remove all of the hits and enter the setup phase again. There is no need to put all of the ships back on the starting location. The player can set them up from their current locations.

Enhancements

Program different variations of the game:

- Salvo
    - In this version, you get X shots per turn (X = the number of ships you have remaining). You don't get to go again when you hit.
- Give the player the ability to move a ship every time a ship is sunk.
    - Moving a ship would use the same interface as setup.
    - A ship that moves may not occupy any of the spaces that have already been called by the opponent.
    - A ship that moves repairs all of the hits on it.