

# MID/MIS Documentation

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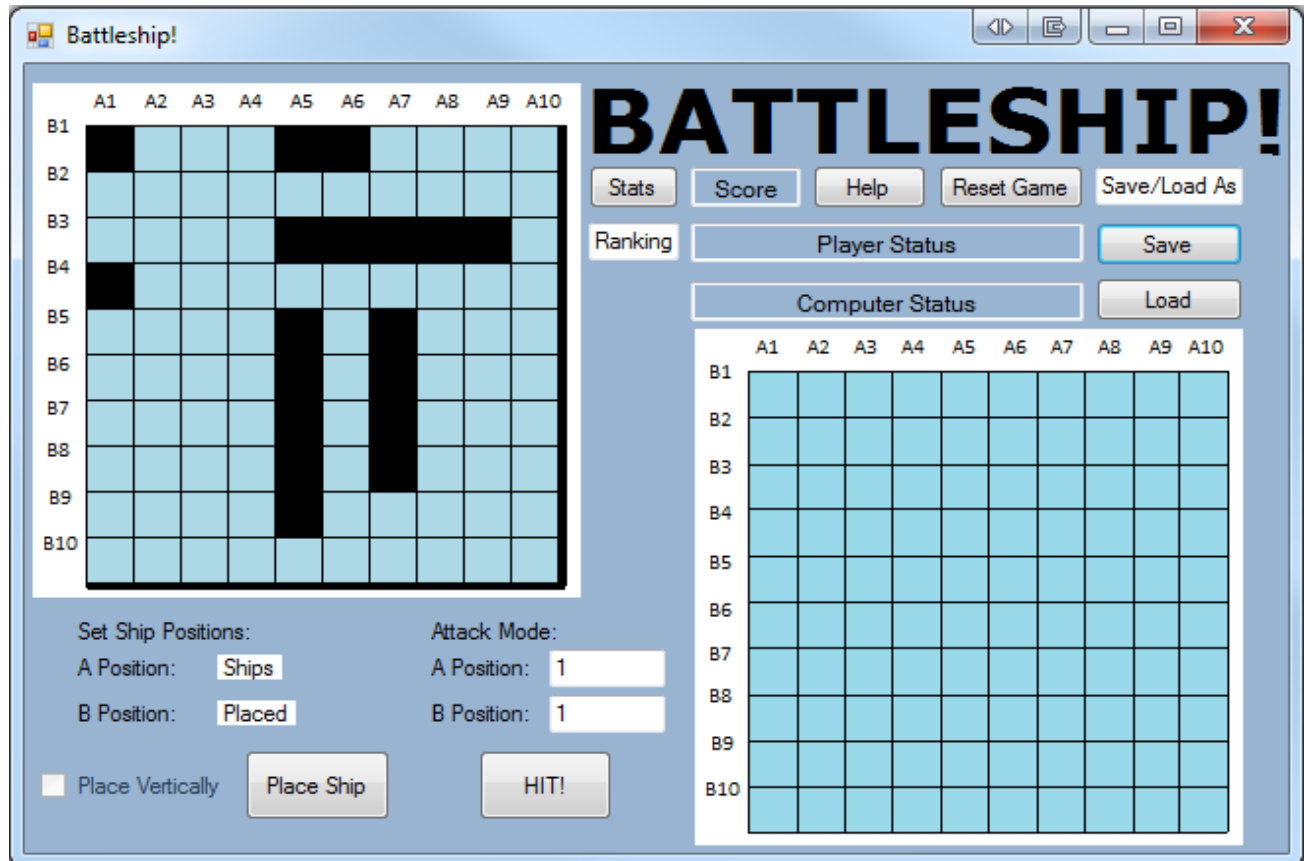
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## 1. Testing for successful structure

Each player positions their fleet of ships on the primary grid and keeps their location secret.

In this screenshot, the player and computer's ships have been placed. The player grid on the left shows the player's ship positions, while the computer grid on the right has its ships hidden. This requirement has been successfully completed.



## 2. Testing for successful structure

Once play starts, each player has a turn to fire at enemy ships, this is done by specifying coordinates

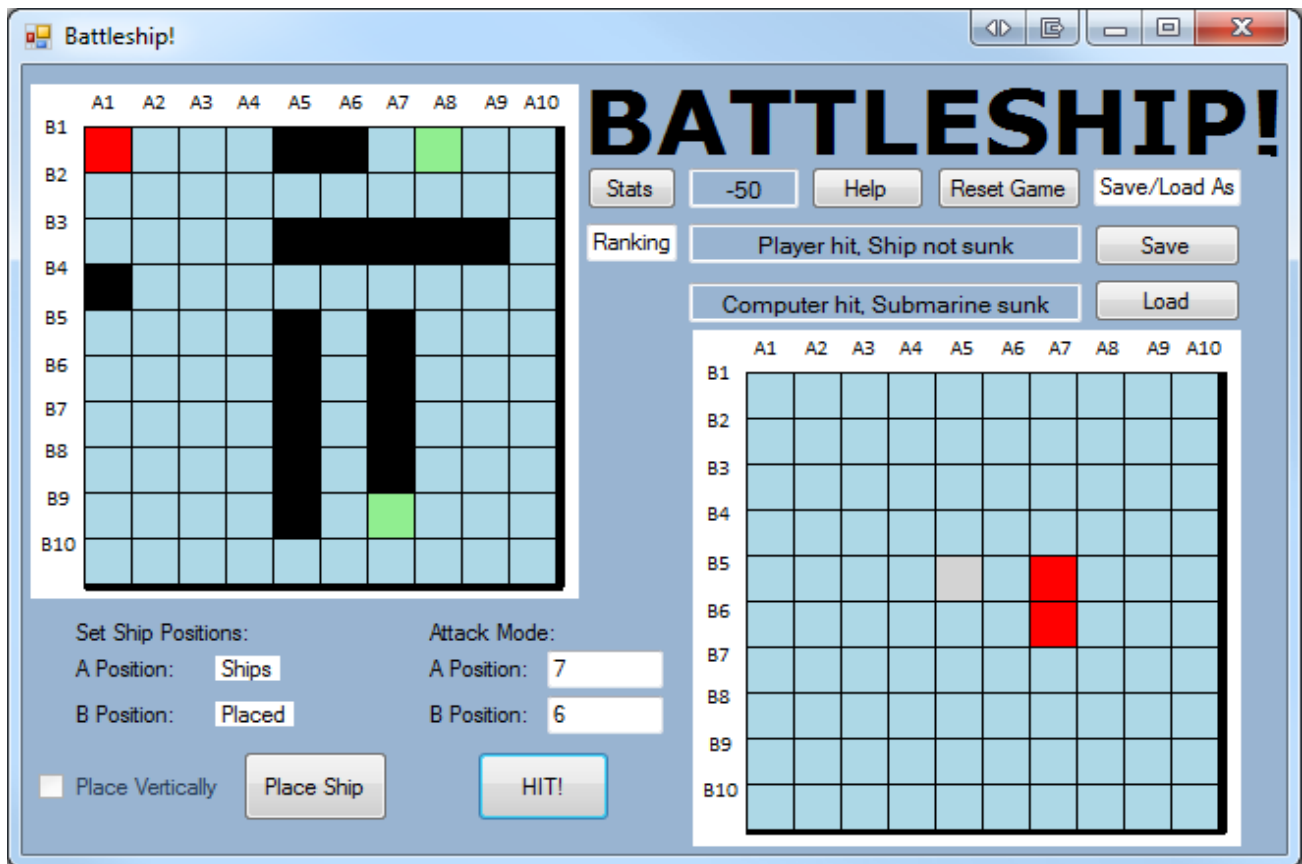
As seen in the following screenshot, 3 turns have been taken by each player since the game began. This requirement has been satisfied

If a ship is located at that location, the owner of the ship indicates a “hit”. Otherwise, he indicates a miss.

Beside the “load” button, it shows the what the player achieved last round, which was hitting, but not sinking, a ship. Not shown in the screenshot is the “miss” status which was also completed.

**Each salvo fired is recorded on the grid as a “hit” or a “miss”**

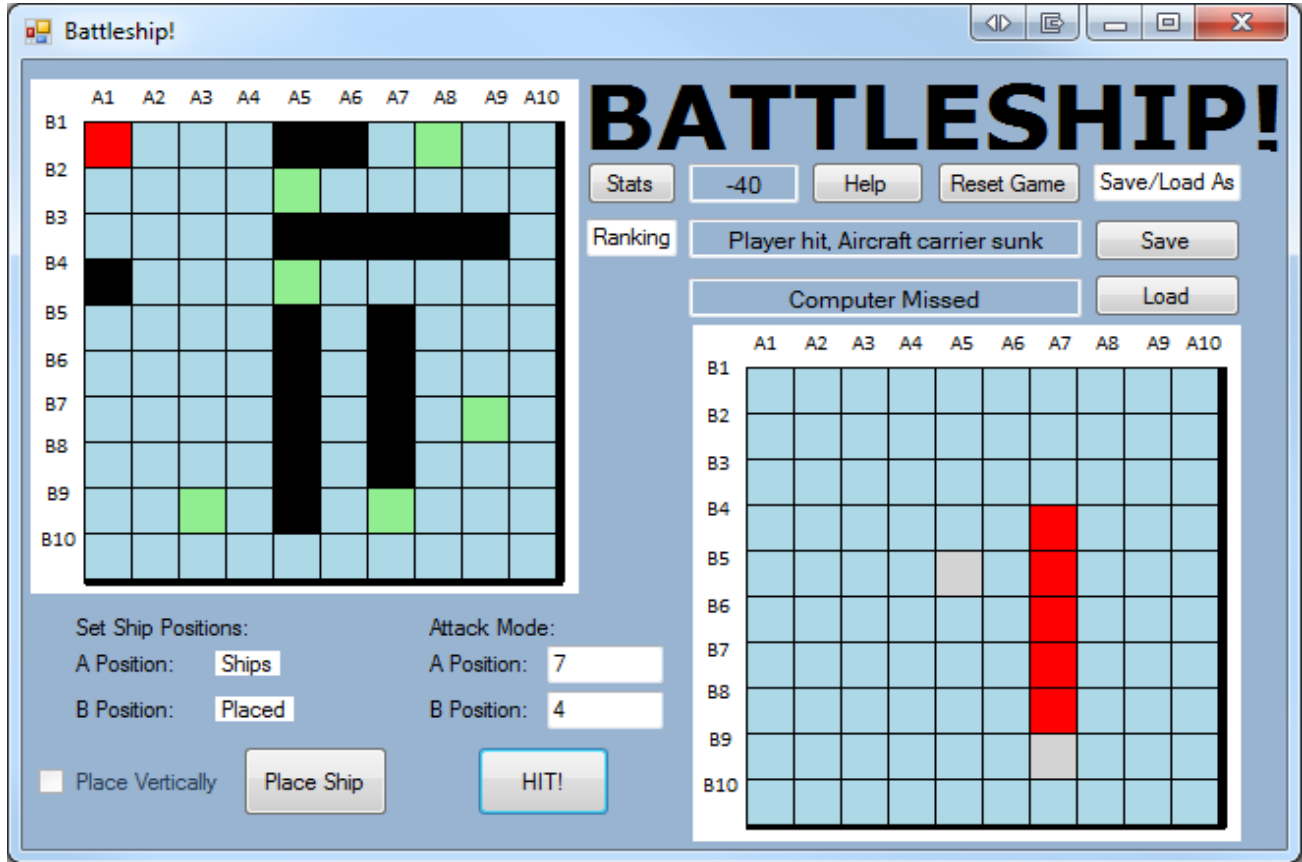
The records are represented in the grids, on the player grid(left) misses are shown as green, on the computer grid(right) the misses are shown as gray. All hits are shown as red.



### 3. Testing for successful structure

If all squares on a ship have been hit, the owner indicates that the ship has been sunk.

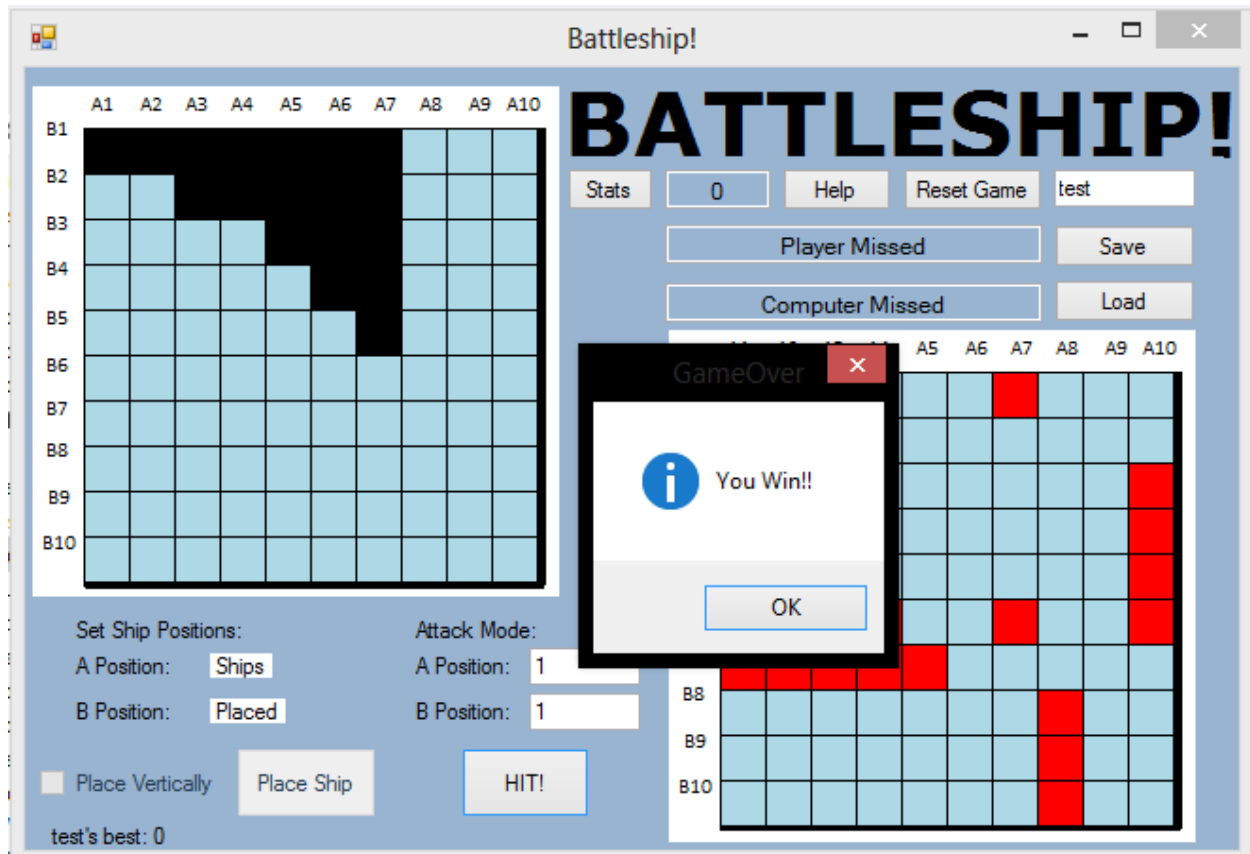
As seen here, beside the “save” button, it indicates that the player has hit the aircraft carrier, and sunk it.



**4. The first player to sink all of the other player's ships wins the game.**

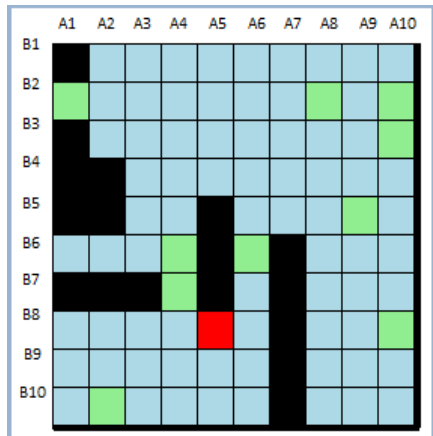
As shown in the screenshot, once all the ships are sunk, a "win" screen pops up.

When the player loses, a "lose" screen also pops up.

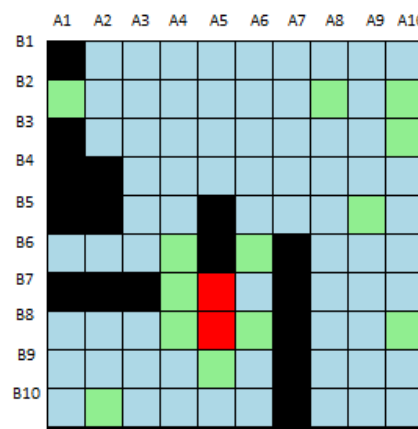


5. No specifications were given as pertaining to the AI. The logic for the AI works such that it randomizes shots until it hits a boat, at which point, it shoots around and figures out the next logical steps in order to take it down.

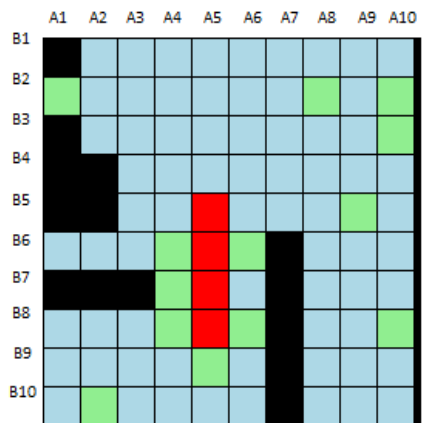
First hit:



After 3 more turns, the AI has made another hit



The AI has now calculated the orientation of the ship, and will fire upwards until the ship is sunk:

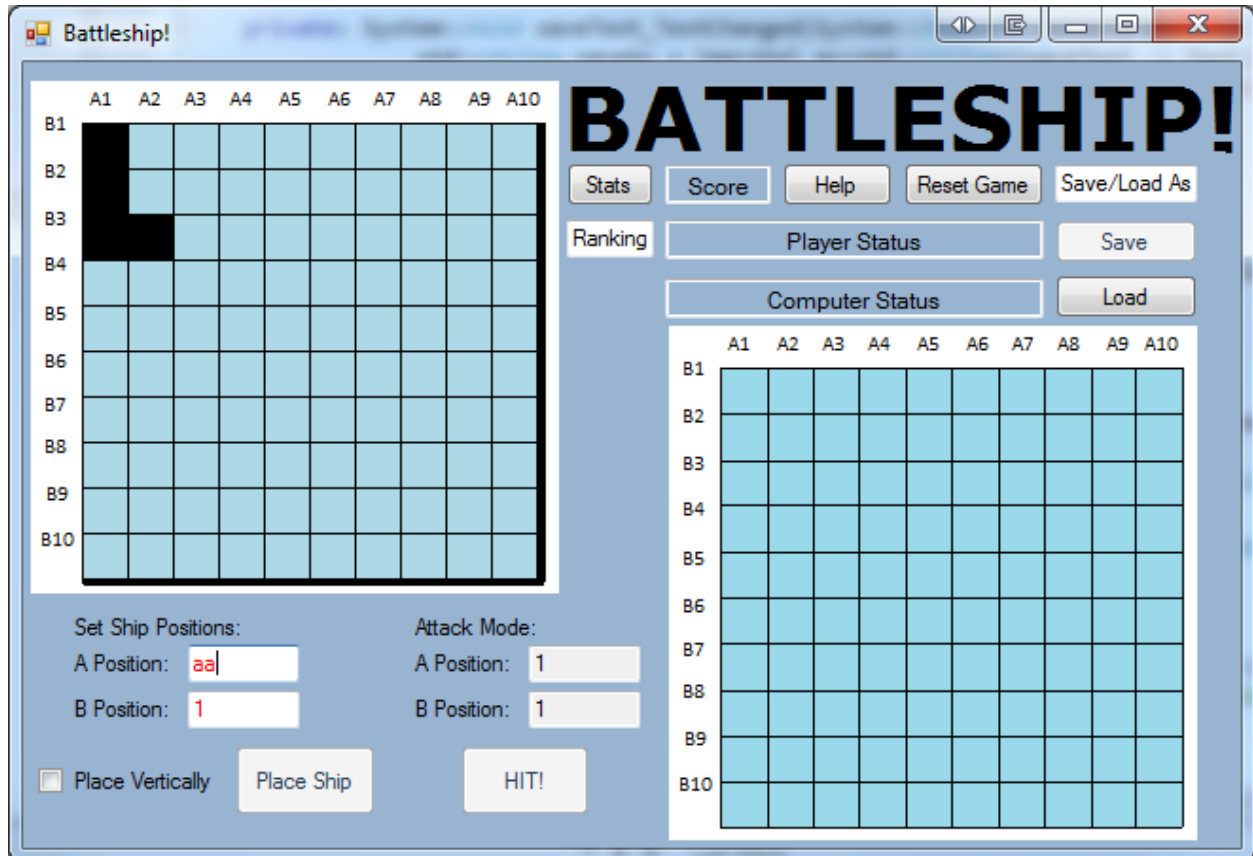


Since the ship has been sunk, no more shots will be made above this last block. Instead, the AI will once again randomize its shots in hopes of finding another ship.

### “Testing for Failures”

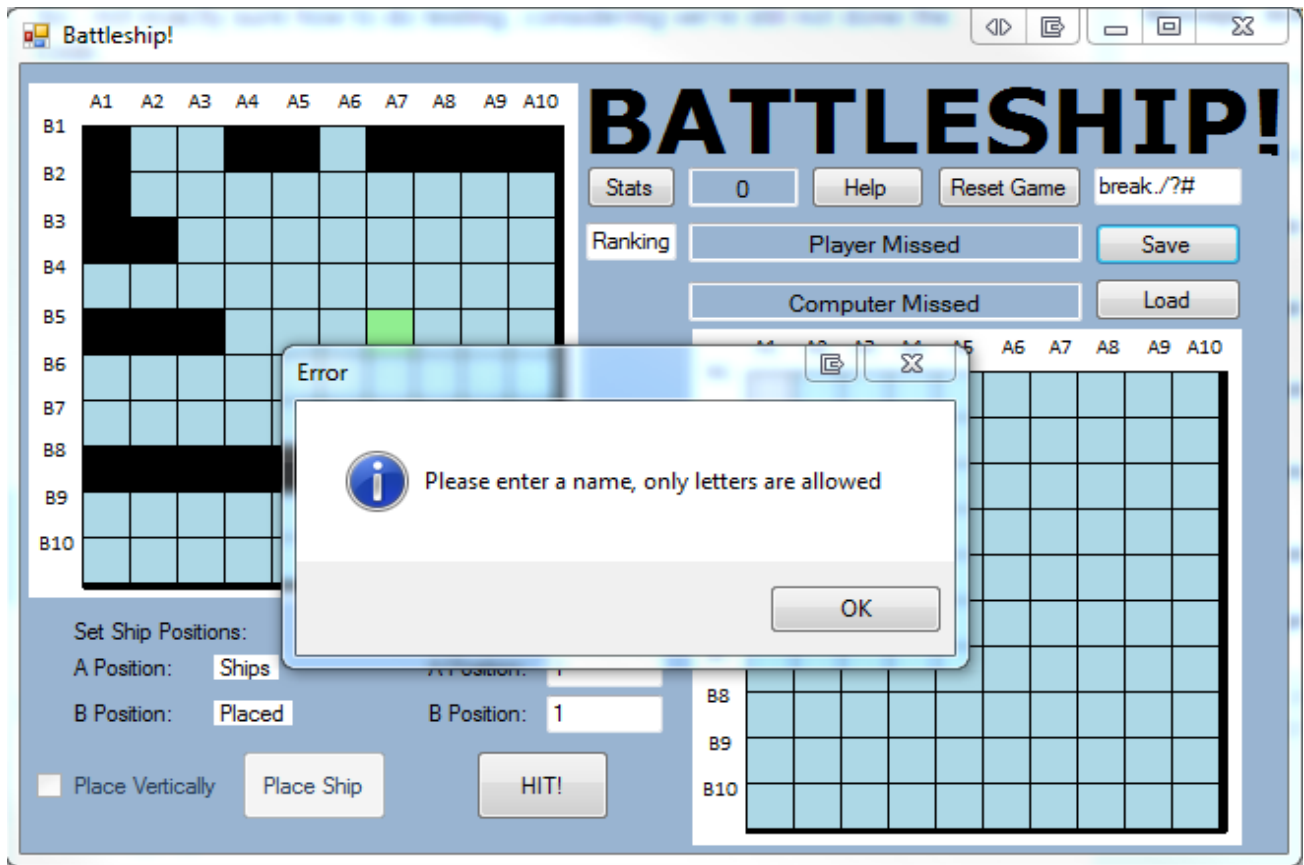
Trying to break the code in likely places is how we can positively test if the game works or not.

- 1) Attempting to place a ship on top of another ship will result in nothing happening.
- 2) Any input other than a number greater than 0, and less than 11, in the ship positions box will result in the “place ship” button being disabled. The same applies to the “Attack” textboxes.



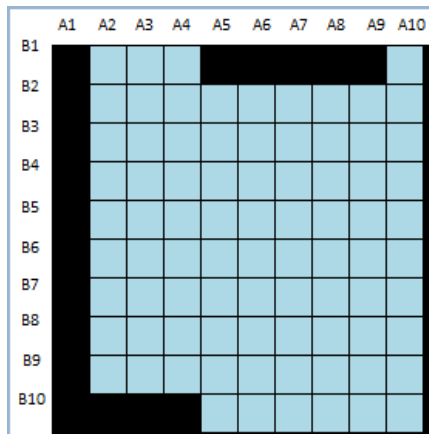
- 3) Attempting to shoot at a previously shot location will result in nothing happening, allowing the player to take another shot.

4) Saving and loading only take alphabets, notice the invalid symbols in the save/load dialogue at the top right





5) Placing ships only on edges, in hopes of the AI going out of the bounds of the grid vectors



After many turns, the AI has sunk almost all the ships with no error.

