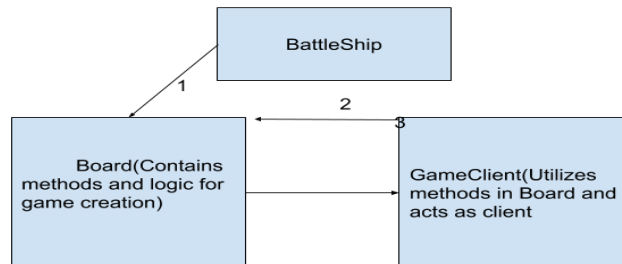


## Battleship Game:

### Design:



### BattleShip:

- This class creates the ship on the basis of its alignment , its length , has attributes like life,And methods which says if ship is still alive.
- It has a method blow , which reduces life of ship when it gets a hit
- It also stores the co-ordinates of the ship in a list of pair values

### Board:

- This class acts as the server and also creates the board and assigns them certain characters, it creates two boards( one for player and one for opponent)
- It has '-' character assigned for untouched spots, 'S' for spots which has a ship in position, 'M' for spots which were misshits, 'H' for spots which got a perfect hit
- The constructor first creates the board for player and opponent
- The method PlaceShip loads the ship , with the given co-ordinates and alignment
- The method validPlacementPoint checks, if the co-ordinates are valid
- The method MyMove responds with a co-ordinate by taking input from user
- The method enemyMove receives input from opponent and makes changes to the boards and checks for winning Condition ,if reached.
- The method WinningCondition checks whether a signal to play a move again was received, and if none, it checks whether, a co-ordinate input was received, if yes, it makes necessary changes to board and checks if winning condition is satisfied
- The method printBoards displays the player and opponent boards by iterating through their character arrays.

- The main method acts like the server waiting for connection to be established, then waits to receive name from client , displays it , sends its name, and waits for TCP handshake protocol to continue to move the game ahead according to rules.

**GameClient:**

This method acts as a client which creates an instance of Board Class, and then places its ships, sends its name to server, and establishes the handshake protocol and plays the game according to the rules.

**Learning And Difficulties:**

- It is tricky to design the different components of the game, think about their attributes
- Extremely difficult to manage the handshake, and make changes to the board, play the game according to rules, where you can send a signal to play the move again if you get a hit, or send a coordinate in case of a miss.
- Learned about the design difference of code blocks of Client and Server and the use of different Sockets for both.
- Server is always started first.
- Still struggling to make the game work.