Question:

Design a console-based application to play the game "Battleship".

Create a 2 player battleship game that stores and updates the grid for both players, showing the respective self and opponent grids to both players. This means that in the planning phase, player 1 should see only their grid and same for player 2. In the guessing phase of the game, Player 1 will see their own grid, along with where the opponent has guessed, and whether that was a hit or a miss. The second grid shown to player 1 during the guessing phase is the opponent's grid with all the positions blocked out, and wherever player 1 has guessed, marked with a * for a miss and H for a hit.

During the planning phase, you will need to ask where the player wishes to put each type of ship, and whether the orientation is going to be horizontal or vertical.

Rules of the game:

Game Objective

The object of Battleship is to try and sink all the other player's before they sink all your ships. All the other player's ships are somewhere on his/her board. You try and hit them by calling out the coordinates of one of the squares on the board. The other player also tries to hit your ships by calling out coordinates. Neither you nor the other player can see the other's board so you must try to guess where they are. Each board in the physical game has two grids: the lower (horizontal) section for the player's ships and the upper part (vertical during play) for recording the player's guesses.

Starting a New Game

Each player places the 5 ships somewhere on their board. The ships can only be placed vertically or horizontally. Diagonal placement is not allowed. Ships cannot hang off the board, nor can they be placed one over another.

Once the guessing begins, the players may not move the ships.

The 5 ships are: Aircraft carrier (occupies 5 spaces), Battleship (4 spaces), Destroyer (3 spaces), Corvette (2 spaces) and Frigate (1 space)

Playing the Game

Player's take turns guessing by calling out the coordinates. The opponent responds with "hit" or "miss" as appropriate. Both players should mark their board with pegs: H for hit, * for miss. For example, if you call out F6 and your opponent does not have any ship located at F6, your opponent will respond with "miss". You record the miss F6 by placing a *on the lower part of your board at F6.

When all the squares that one of your ships occupies have been hit, the ship will be sunk. You should announce "hit and sunk". In the physical game, a red peg is placed on the top edge of the vertical board to indicate a sunk ship.

As soon as all of one player's ships have been sunk, the game ends.

Your grid will look something like below:

	A	B	C	D	E	F	G	H	I	J
1	.	.	.	.	.	.	.	.	.	.
2	A	.	.	.	.	.	.	.	.	D
3	A	.	.	.	.	.	.	.	.	D
4	A	.	.	.	.	.	.	.	.	D
5	A	.	.	.	.	.	.	.	.	D
6	A	B	B	B	B	.	.	.	.	.
7	.	.	.	.	.	.	.	.	.	.
8	.	.	.	.	.	.	.	.	.	.
9	C	C	.	.	.	.	.	.	.	.
10	.	.	.	.	.	.	.	.	.	.