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02/04/23

CS6003A

Module 03: Assignment 01 – Programming Project 03

Algorithm for Battleship Program

To begin, the first thing that I will do is import the random module so that I can generate 5 different random locations for the battleships.

Next, I will create a few global variables that will be used in the functions throughout the program (the grid size, number of ships, grid etc.)

I will then begin by first setting up the board. To do this, I will need a for loop to make everything on the board a “ . ” After this, I will need to enter the ships randomly and use “ S ” to represent them on the board.

After setting up the board, I will then work on drawing it and getting it to display in the terminal. First, I need to print the top row making sure all the numbers and dashes are spaced evenly. Below that, I will use a for loop to print the rest of the rows based on the myBoard array (0,1,2 so on).

Next, I will make sure that the program accounts for hits and misses and updates the board correctly. If the spot the user inputted has an “ S “, it will not only tell the user that it was a hit but also replace it with an “ X “. If the spot was an “ X “, it will say hit. Lastly, if there was no ship on the spot it will tell the user they missed then update the board with a “ O “.

Then, I will make sure there is a function that checks if the game is over. To do this, I need to check each row accordingly and make sure that the program accounts for the entire board. I will need a loop for this and make a list to hold all the Boolean values. Then, I need statements to check and see if there was a ship left after all the rows are checked.

Lastly, the main function will put everything together. I need to first make sure the setup of the board is all set and call that function, then I will draw the board for the user to see. While the game is not over (using the function for that) the user will continue to be asked to enter rows and columns. If they enter a wrong row/column number or even a letter/symbol, the program will let them know and they will be asked to enter a valid number. The program will also let them know if it is a hit or miss, and it will draw the board again with the updated squares. This will continue as long as the game is not over based on the prior function. It will then print out and let the user know that the game has ended.