P2_ Battleship

1/29/25

understanding the problem

- 10 x 10 board represents 2D list
- five ships (S) rand. placed
- player guesses a coordinate (row & column)
- if guess hits (S) replace w/ (X)
- if guess misses replace w/ (O)
- game continues until all ships are hit
- board updates & is displayed after each guess.

Break down function

1. drawBoard(board)
   takes 10x10 board (2d list)
   Displays board w/
   (.) - empty, unguessed spots
   (S) ships
   (X) hits
   (O) misses
- top & left edges show #0-9 for easy ref

2. setupBoard()
   - Creates empty 10x10 board filled with (.)
   - place 5 ships (S) randomly
   - uses python random module to pick row/column parts

3. isGameOver(board)
   - Checks if all ships (S) have been hit (X)
   - returns true if all ships are sunk otherwise false

4. checkHitOrMiss(board, row, col)
   - checks if row, col is hit or miss
   - if hit then S updates to X - return "HIT"
   - if already X, return HIT
   - if miss (.) update to O, return "MISS"

main()
- sets up board
- loops until all ships are hit (if GameOver(board) : is true)
- prompts user for input & validates it
- calls checkHitOrMiss() to process the guess
- updates & redraws the board after each turn
- Ends when all ships are hit.

Algo

* initialize the game:
  - call setupBoard() to create
  - Draw board using drawBoard(board)

* Game Loop (while the game isn't over)
  - Ask user to enter a column (validate input)
  - Ask user to enter a row (")
  - call checkHitOrMiss(board, row, col), print "Hit" or "Miss"
  - redraw board
  - check isGameOver(board) if True print "Game over!"

Exit