

User Documentation

For CS372 Software Construction, Project 1

Group 5: *Cody Gaines, Joshua Guerrero*

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1.) Overview:

This document is meant to provide some clarity on the rules of Battleship and how this particular program functions. In order to successfully complete a game of Battleship, the player must know how to enter input and read output displayed on the terminal.

2.) Startup:

In order to start the game, the user must be able to compile the file *battleship.cpp* into an executable using the C++ 11 standard.

Before compilation, make sure that the following files are included in the same directory:

[battleship.cpp, battleship.h, board.h, player.h]

Once the program has been compiled, executing it will open up a terminal window. This is where all input shall be entered and where all output shall be displayed for the duration of the game.

3.) Rules of Battleship:

The basic rules of Battleship are simple. Two players are allowed to place ships on a board made of a 10x10 grid. The rows of this grid are labeled A-J and the columns are labeled 1-10. Each of the players take turns selecting coordinates on the enemy's board in an attempt to destroy their enemy's ships. No players may see their opponent's board but will be allowed to keep track of where they have previously fired. If a player hits an enemy ship, they are allowed to place a special marker on the board to indicate the coordinate where the hit occurred. The first player to hit every single spot on every one of the opponent's ships is declared the winner.

4.) Changes to the setup:

This program plays similarly to a regular game of Battleship but with some modifications. First, the user is playing against a computer programmed opponent that will take their turn automatically after the players is completed. Second, the columns are labeled 0-9 instead of 1-10. Finally, all ship placement is randomly generated for simplicity's sake.

5.) Game Process:

Once game has started, boards and ships will be automatically generated. After generation, the console window will output a board showing the player the placement of their own ships and the game begins.

The user is given the first move. In order to select a coordinate, the player must type a single letter and a single character into the terminal (e.g. E7) and hit *Enter*.

The program will then validate the coordinate it is given. If the coordinate is invalid or the coordinate was previously chosen, the user will be prompted to give a different, valid coordinate.

Once a valid coordinate is given, the player will be shown a board indicating which coordinates have been fired upon. All spaces marked with a '~' indicate that no hits have been attempted on that coordinate. If the player hits an opponent's ship, the coordinate will be marked with an 'O'. If the player misses and hits an empty space, the coordinate will be marked with an 'X'.

Once the coordinate is marked, the player's turn is over and the opponent is allowed to make a move. The opponent's turn works exactly as the players but their board is hidden from view. Once the opponent has chosen a coordinate, the player will be shown on a board all the spots their opponent has chosen to select and if they have made a hit on one of their ships. The opponent's turn is then over.

The player and computer opponent keep rotating turns until one has run out of ships. When either player loses all their ships, a message will appear indicating victory or defeat.

To exit out of the program, simply press *Enter* after the victory/defeat message or close the terminal window.