Battleship Game

User Manual

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Overview

The battleship game is a two-player game where each player takes turns guessing where the other player battleships are. Both players start with the same number of ships and whoever loses all their ship first loses the game. The Battleship board is a 10x10 board, and battleships can be placed anywhere on the board. This specific application is a slightly modified version of the traditional battleship game, to increase the difficulty. First, any ship may appear directly next to another, unlike traditional battleship. This also means that revealing a full ship does not necessarily eliminate all surrounding tiles from containing a ship. This application features a network-based battleship game. Once two players connect, the game can be broken down into three stages – configuration, gameplay, and endgame stages. Each stage, as well as how to connect over the internet, will be discussed in future sections.

Starting The Application

To start the application, navigate to the scripts folder and run the script for your OS, either `run.cmd` for Windows users, or `run.sh` for Linux/MacOS users. Once the script is run, a prompt will appear asking whether the user would like to host a game or connect to a client. To host a game, simply specify the port number to host on. The host will then wait for another player to connect. Connect to a hosted game, the user must know the remote address of the host, and the port number they used. Simply type in the information with the following format `<address>:<port>.` Remember that to connect to a game, someone must first host a game. Once both players connect, the game will start.

Configuration Stage

Once two players connect to each other, the game window will open. Each player will start in the configuration stage. In this stage, the user may set their board using the `randomize` button. The `randomize` button will scramble the ships and put them in new positions. Once the user is happy with their board, click the `ready` button. Do not click `ready` until you are certain you want to continue, as you cannot go back or change the board after clicking the button. Once both players click the `ready` button, the players move to the game stage.

Game Stage

Fire

The game stage is the main stage of the application, which includes the two players taking turns to guess where the other's ships are. When it is your turn, click the `fire` button to enter your coordinates. The game board is formatted such that the rows are labeled with letters from A-J and the columns are labeled with numbers from 0-9.
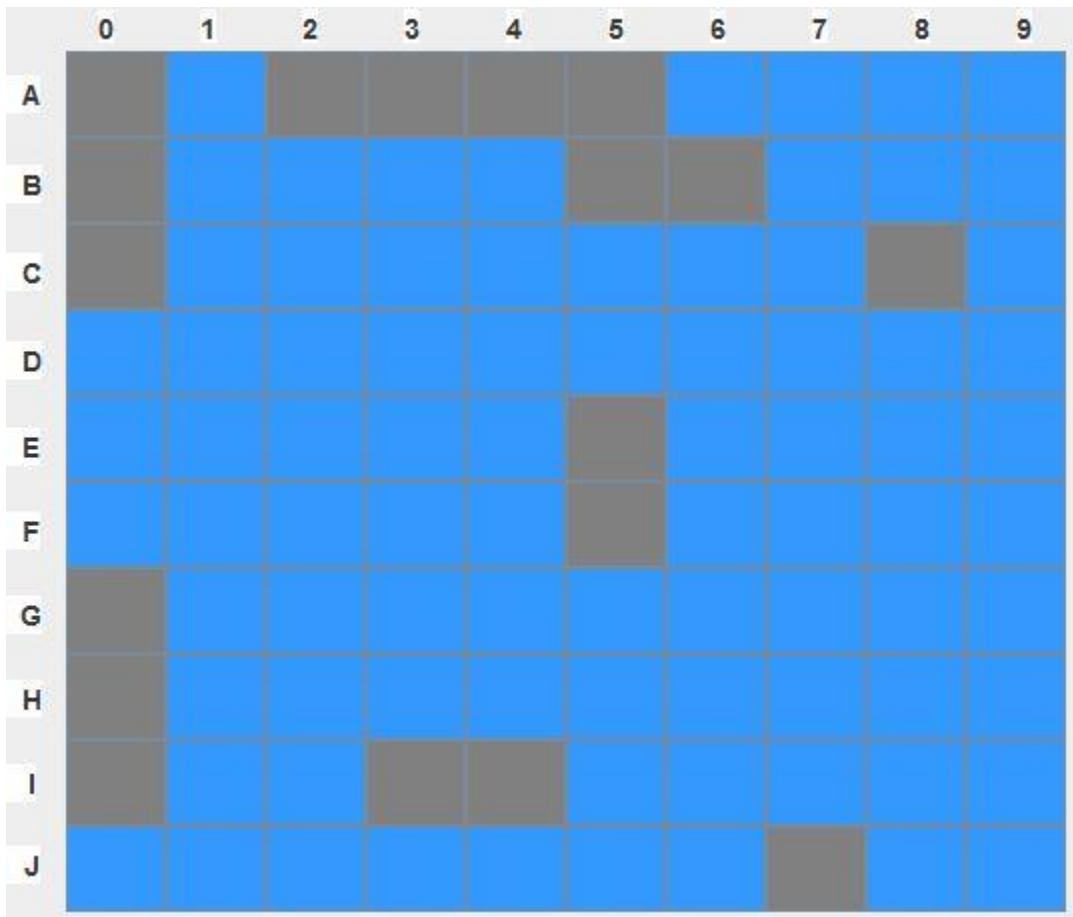
When entering your coordinate, you must format it like `<row><column>`. For example, if a player wishes to shoot at the top left corner, they must enter A0 as their coordinate.

The 10x10 board of tiles are color coded based on what the tile represents. To see the breakdown of the tiles and their possible colors, simply press the Key button.


The SHIP tile is one that contains an unhit ship. The HIT tile is one that contains a hit ship. A MISS tile is one that was fired at but contains no ship. The UNTOUCHED tile is one that contains no ship and has not been fired at.

Endgame Stage

Once a player has hit all of their opponent's ships, that player wins. A message will be displayed at the top of the screen, and the player will earn one point. Once the game ends, each player will be prompted to play again.

Simply type "y" to play again, or "n" to stop playing. If a player types "n", the game window will close. If a player types "y", they will wait for the other player to give their answer. If the other player also answers "y", the game will restart from the configuration stage. If the other player enters, "n", that means they have left, so the game will end.
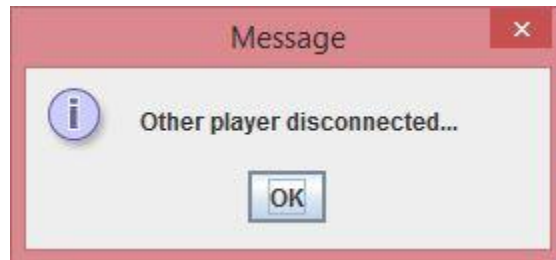

Menu Bar Features

This application features a menu bar, which will allow the player some extra configuration regarding the look and feel of the User Interface.

View Menu

The View drop down menu allows the user to change the look of the UI.

Set Background Color – If this option is chosen, a pop up appears, with various ways to choose a Color to be the background color for the simulation. By default, the background is white, but this can be changes to almost any color. Note that the other information, like text will never change, so be sure to choose a color which allows the information to be visible.
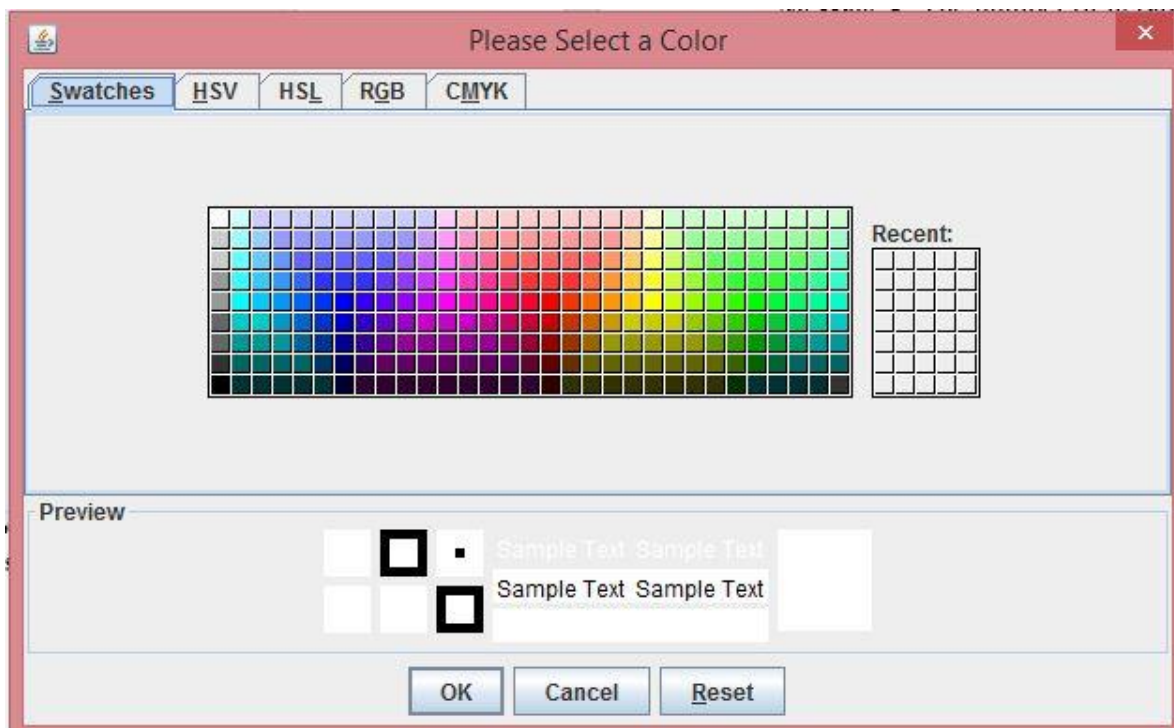
Tool Bar Commands

The Tool Bar towards the bottom of the screen offers the user easy access to common commands related to the Battleship game.
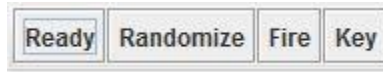
Ready

Click this button during the configuration stage, when you are satisfied with your board. Be careful, since once this button is clicked, you cannot go back.

Randomize

Click this button during the configuration stage if you want to get a new board. The randomize button will shuffle the position of all the ships, but it will not change the number of ships.

Fire

Click this button during the game stage to enter the coordinates to fire at. If you need help on formatting the coordinates, refer to the section on `Game Stage`. This button will only work when it is your turn.

Key

This button can be clicked at any time. It opens a separate window detailing the color coding of each tile. See the section on `Game Stage` for more information.

Errors

There are possible errors regarding user input and network problems that may cause problems in the application, if not careful.

Invalid Input

There are various places where faulty user input will cause the application to give an error, in many cases the fix is simple and easy

Error on Start

"`Invalid Input!`" – This message will appear on the terminal when the application prompts the user to either host or connect, and the user does not type the correct input. Simply rerun the script and make sure to enter "c" or "h" depending on what you wish to do.

"`error connecting to server!`" – This message or the message shown in the image above will appear on the terminal if the user enters faulty network information. This problem arises from a faulty address and/or port number. Make sure the port number is an integer value between 0 and 65535. The address is the IP of the host. Check "Starting the Application" to see the format or check the "References" section to see more about how to obtain the IP address.

The following errors can appear if faulty coordinates are given to the program.

Error

☒ Input not the correct length!

OK

Error

☒ Vertical Coordinate must be a letter [A-J]!

OK

Error

☒ Horizontal coordinate must be a number!

OK

To get past this error, simply re-click the `Fire` button and enter the coordinated properly. Please refer to the section on the Game stage to review the formatting of the board, and the coordinate input.

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References

This section contains useful links to read if you are confused about the game, or how to connect over the network.

Battleship Game

Link:

https://en.wikipedia.org/wiki/Battleship_(game)

How to view IP on Windows

Link:

https://www.med.unc.edu/it/guide/operating-systems/how-do-i-find-the-host-name-ip-address-or-physical-address-of-my-machine/#:~:text=First%2C%20click%20on%20your%20Start,will%20be%20the%20IPv4%20address

or

https://support.microsoft.com/en-us/windows/find-your-ip-address-in-windows-f21a9bbc-c582-55cd-35e0-73431160a1b9

How to view IP on MacOS

Link:

https://apple.stackexchange.com/questions/20547/how-do-i-find-my-ip-address-from-the-command-line

How to view IP on Linux

Link:

https://opensource.com/article/18/5/how-find-ip-address-linux