

User's Manual

BattleshipApp.java

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1.0 Application Features

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The Application Features section provides a general overview of Battleship and its implementation in BattleshipApp.java.

1.1 Concept Overview

Battleship is a board game with four boards. Each player has two: one board for their ships used to keep track of their opponent's shots, and one empty board to keep track of their own shots at their opponent's board.

The game is played in the following order:

- Set up
 - Players decide where to place their ships.
- Playing
 - Players shoot missiles at specific locations on their opponent's board and their opponent will tell them if it resulted in a hit, miss, or destruction.
- Conclusion
 - The first player to destroy all of their opponent's ships wins.

1.2 Program Overview

The program BattleshipApp.java is a version of Battleship implemented as a desktop application and played over a network.

2.0 How To Run BattleshipApp.java

2.0 How to Run GameOfLife.java

This section shows how to run BattleshipApp.java from the command line.

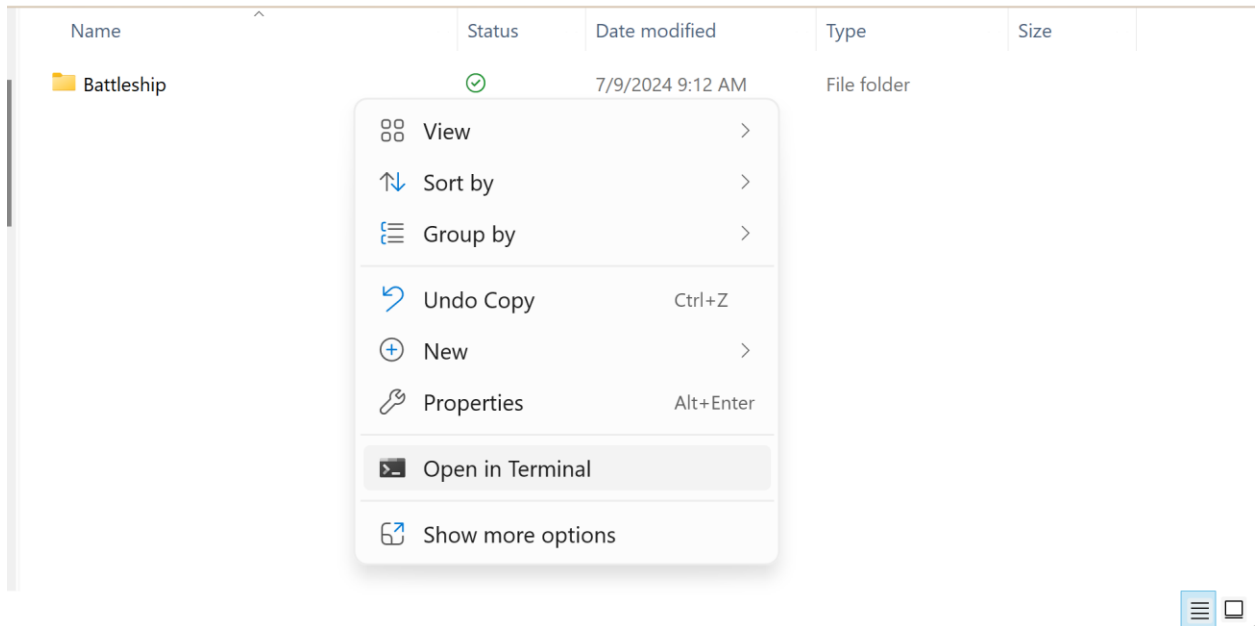
Prerequisites: **Battleship, Java Development Kit, JavaFX**

JDK: (<https://www.javatpoint.com/javafx-how-to-install-java>)

JavaFX: (<https://gluonhq.com/products/javafx/>)

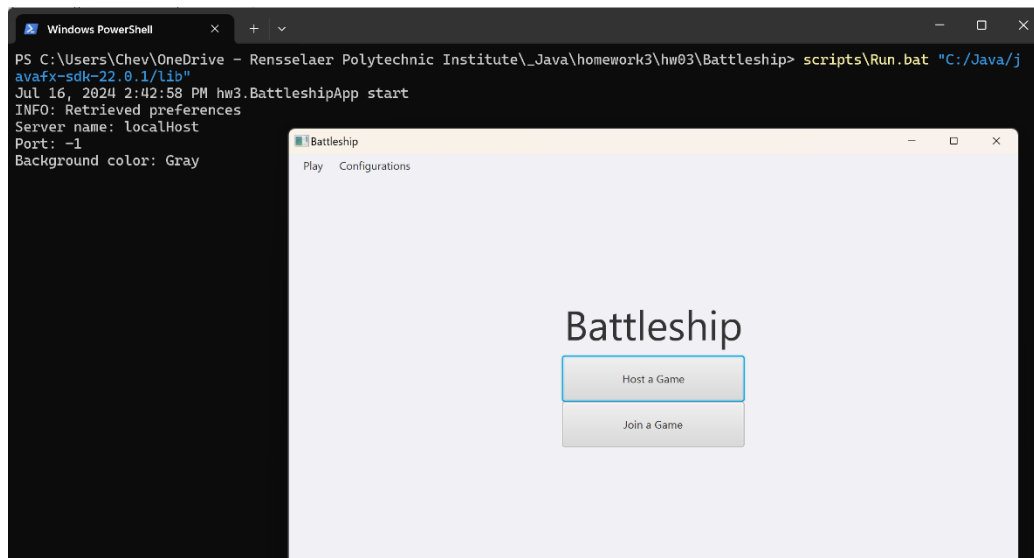
2.1 From the Command Line on Windows

- Step 0) Copy the path to your JavaFX\lib directory.
- Step 1) Open File Explorer.
- Step 2) Navigate to the Battleship folder.
- Step 3) Right click on Battleship and select “Open in Terminal”.



- Step 4) Type the following command into the terminal and then press the enter key:

```
scripts\Run.bat <PATH_TO_JAVAFX\lib>
```



2.2 From the Command Line on MacOS

- Step 0) Copy the path to your JavaFX\lib directory.
- Step 1) Click on Finder in the dock.
- Step 2) Navigate to the BattleshipApp folder.
- Step 3) Right click on BattleshipApp and select “New Terminal at Folder”.
- Step 4) Type the following commands into the terminal and then press the enter key:

```
bash scripts/Run.sh <PATH_TO_JAVAFX\lib>
```


3.0 Configurations

3.0 Configurations

This section describes the configurations and what they affect.

3.1 Server Address

The server address is only used if you are joining a game. It is typically the IPv4 address of the host computer but can also be set to “localhost” if the host is playing on the same computer.

The default value is localhost. If left blank, an error will be shown upon attempting to join a game (see section 5.1).

3.2 Port

The port is the port number used to connect to other programs over the network.

It must be set to a value in [-1, 65535] or an error will be shown upon attempting to host or join a game (see section 5.1).

To use the default port number, enter -1.

4.0 How to Play

4.0 How to Play

This section describes the actions available to the player while playing Battleship.

Board Colors

White: Selected

Light Blue: No ship (your board) or unknown (their board)

Green: Ship

Light Red: Hit

Dark Blue: Miss

Dark Red: Destroyed

4.1 Setting Up

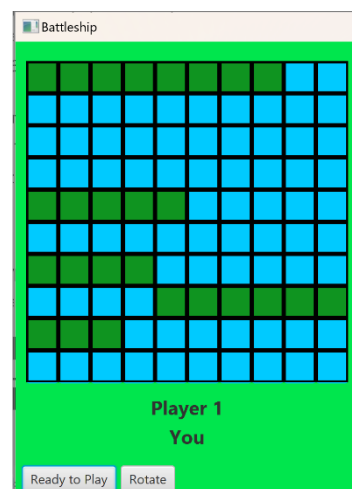
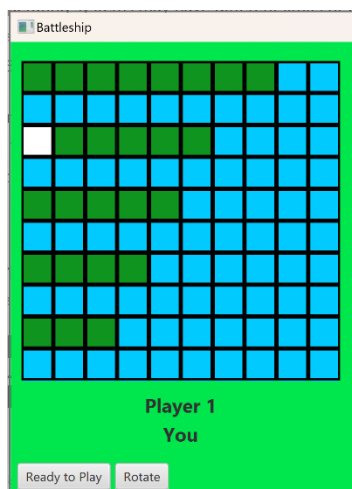
The setting up stage is indicated by the “Ready to Play” and “Rotate” buttons shown in the bottom left corner of the screen. During this stage players set up their board (the left one) by moving and rotating their ships.

When a player is done setting up, they can press the “Ready to Play” button to finalize their board and let the opponent know that they are ready.

4.1.1 Moving Ships

To move a ship:

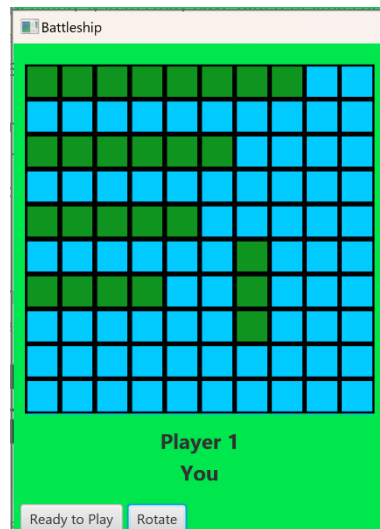
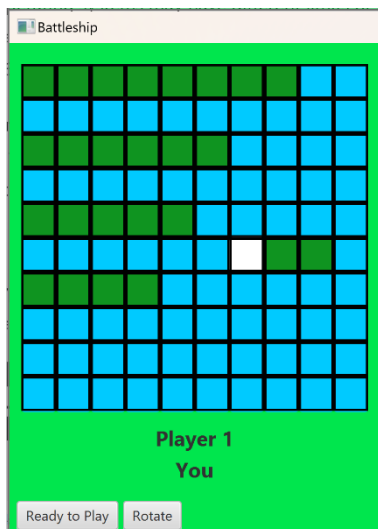
1. Click on a ship. It is now selected.
 - a. The left and top-most part of the ship will be highlighted in white.
2. Click on the square you want to move the while part of the ship to.
 - a. The ship will move there if possible.
 - b. If moving there will cause the ship to collide with the wall or other ships, it will not move and be unselected.



4.1.2 Rotating Ships

To rotate a ship:

1. Click on a ship. It is now selected.
 - a. The left and top-most part of the ship will be highlighted in white.
2. Click on the “Rotate” button.
 - a. Using the selected (white) part of the ship as the axis, the ship will rotate clockwise 90 degrees, if possible.
 - b. If rotating will cause the ship to collide with the wall or other ships, it will not move and be unselected.



4.2 Playing

The playing stage of the game begins when both players have clicked, “Ready to Play”. This stage of the game is indicated by the “Ready to Play” and “Rotate” buttons disappearing.

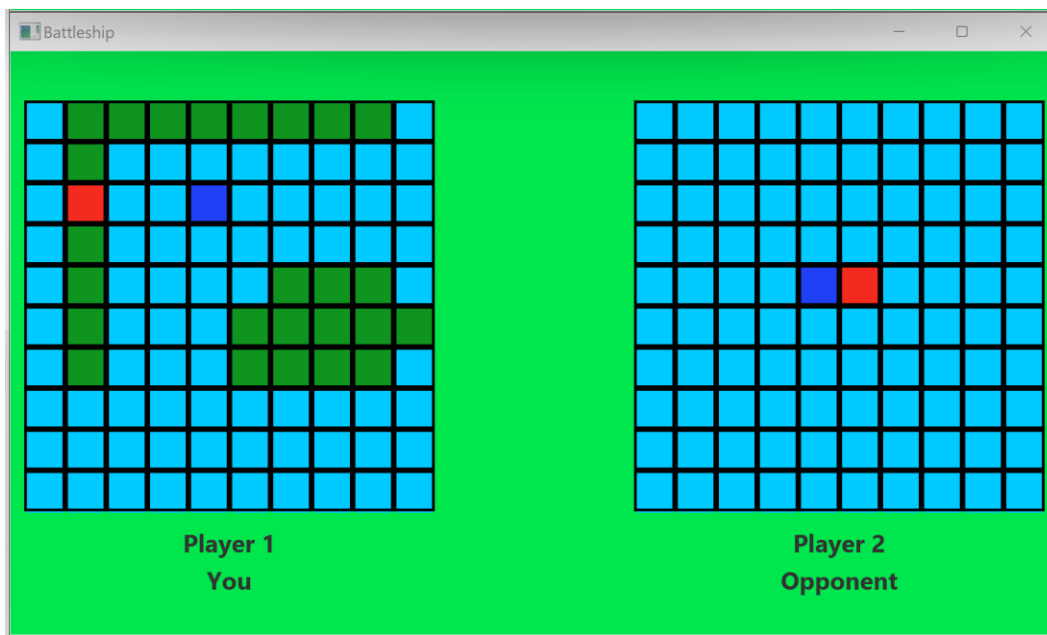
4.2.1 Objective

The objective of the game is to destroy all five of the opponent’s ships.

4.2.2 Launching Missiles

To launch a missile, click a tile on the opponent’s board. Both players have 30 seconds to decide.

- After making your move, you will wait for your opponent to do the same.
- When both players have chosen their targets, the results will be displayed on both of their boards.
- At this point, both players may choose another target.
- This repeats until one or both players win.
- After the game ends, the winner and score are displayed and both players may return to their home screens.



5.0 Error Messages

5.0 Error Messages

The Error Messages section lists all possible error messages in BattleshipApp.java and how to fix them.

5.1 List of Error Messages

`Server socket could not be created on port [port].` ---- See section 3.2: Port.

The port set in Configurations is out of range. Try another port.

`Could not find server on port [port].` ---- See section 3.2: Port.

The port set in Configurations is out of range. Try another port.

`Address already in use: bind` ---- See section 3.2: Port.

The port set in Configurations is already in use. Try another port.

`Connection refused: connect` ---- See section 3.2: Port.

The server at the server address is using a port different from the one set in Configurations. Try another port.

`Network is unreachable: connect` ---- See section 3.1: Server Address.

The server address is invalid. Try another address.

`Server (host) name cannot be empty. Open configurations and enter a valid IP address.` ---- See section 3.1: Server Address.

The server address cannot be left empty. Enter a valid server address.

5.2 Existing Bug

If a player fires a missile but the shot is not reflected on the board, both players should restart the game and try again. So far, if this bug appears it will appear within the first three moves of the game.