

Manual

Battleship

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BATTLESHIP ONLINE

Intention

The purpose of the online Battleship game is to create a way for a person to play the game of Battleship by themselves or for two people who are unable to play in person (either due to not having the physical game or not being in the same physical location) to play a game of Battleship together via the Internet. The system is based on the board game Battleship.

Necessary Resources

It is expected that the user has basic computer function knowledge and skills as well as some experience using a simple application interface. It is assumed that two users that wish to play against each other will be able to communicate outside of this program in order to pass information to obtain Internet connection.

These are the basics needed to play Battleship online:

Hardware Resources

- Users are expected to have a mouse, keyboard, and monitor.

Software Resources

- Users should be running Windows 10 and must have Java 8 or higher installed.

Communications Resources

- User will need Internet access to play against another player.

RULES

Our software will be modeling the board game Battleship using the following set of rules:

Game Objective

The object of Battleship is to try and sink all the other players ships before they sink all your ships. All the other player's ships are somewhere on a 10 by 10 grid. You try and hit them by selecting a tile on the grid, similarly the other player tries to hit your ships by selecting a tile on their grid. Neither you nor the other player can see the other's board so you must try to guess where they are. Each board in the physical game has two grids: the lower (horizontal) section for the player's ships and the upper part (vertical during play) for recording the player's guesses.

Starting a New Game

Each player places the 5 ships somewhere on their board. The ships can only be placed vertically or horizontally. Diagonal placement is not allowed. No part of a ship may hang off the edge of the board. Ships may not overlap with each other.

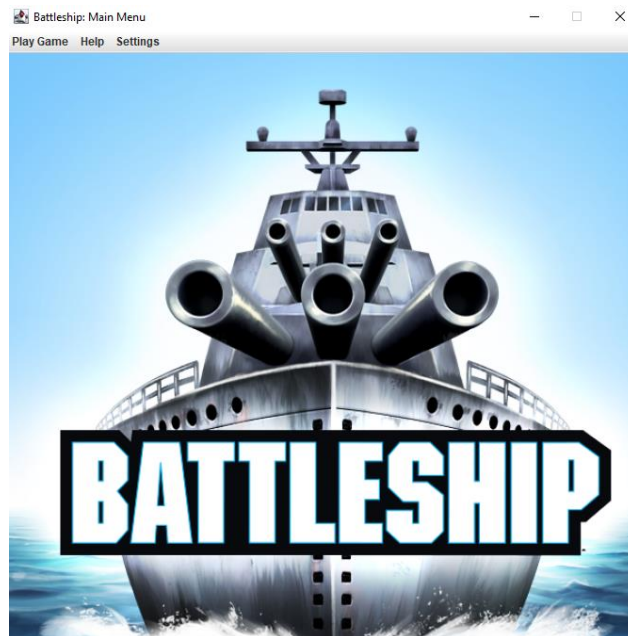
Once the guessing begins, the players may not move the ships.

The 5 ships are Carrier (occupies 5 spaces), Battleship (4), Cruiser (3), Submarine (3), and Destroyer (2).

HOW TO PLAY THE GAME

This section gives an overview of how all the aspects of the game work and how to use them.

Main Menu:

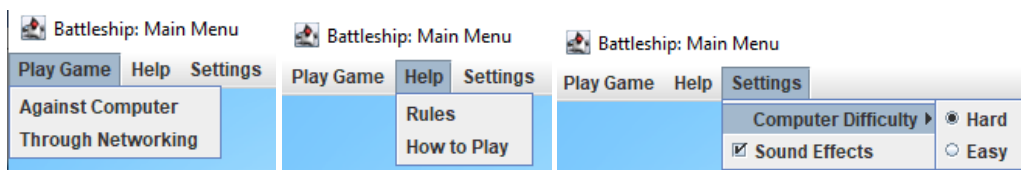


Game Screen

The game screen menu offers three tabs:

1. Play game:
 - Playing against the computer
 - Play through networking
2. Help:
 - Rules
 - How to play
3. Settings:
 - Computer Difficulty
 - Hard
 - Easy
 - Sound Effects

Note that the sound effects can only be changed during a game, and thus not in the main menu screen, while the computer difficulty can only be changed before a game in the main menu.

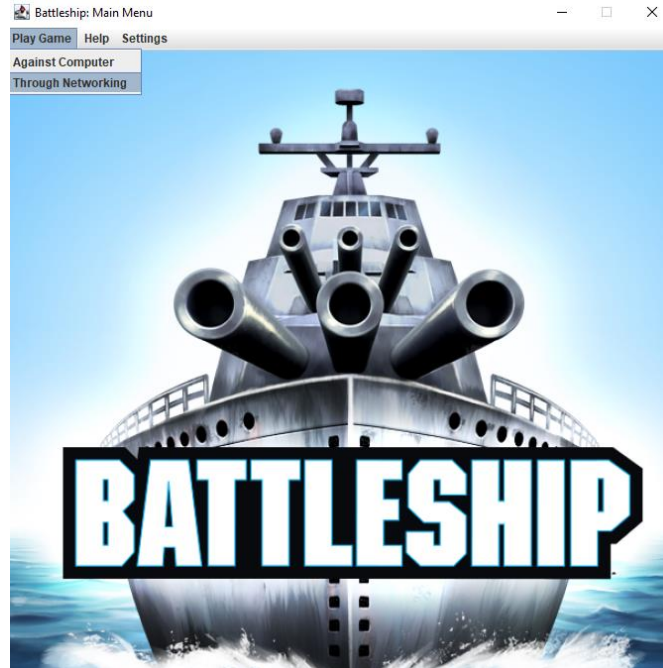


Game Screen Menu Tabs

Choose Your Foe:

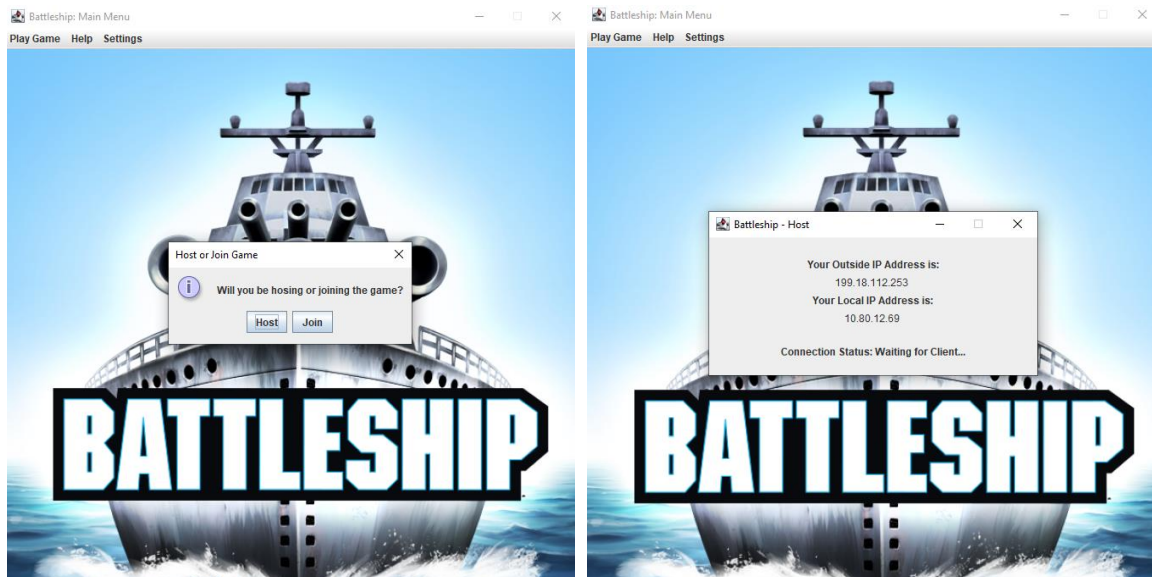
Play through networking:

This option allows for two players to connect over the Internet and play against each other. Both users will select “Through Networking” option to start the game. One user must be the host while the other will join.



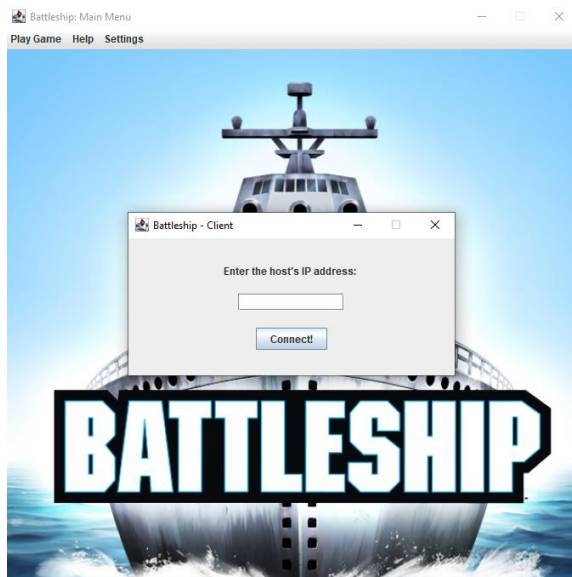
Player against player: Confirm host or client

The user opting to be the host will select “Host” at which point the game will show the host’s Outside IP address and Local IP address. The Local IP address is for if both users are on the same WIFI connection, while the Outside IP address is for if the users are not on the same WIFI connection. The host must communicate the appropriate IP address to the other player.



Play against Player: Host selects to host, game illustrates IP address, wait for client to join

The user that selected to join will receive a prompt to enter the host’s IP address and connect. Once you have received the IP address from the host, enter it and select “Connect”. Once connection is made the ship placement screen will appear for each player.



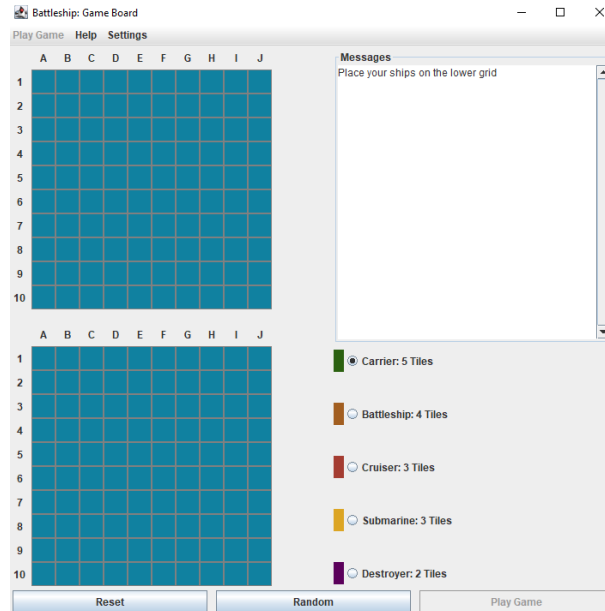
Play against player: Client screen to enter Host's IP (Image of client connection made)

Play against computer:

Selecting “Against Computer” will start a game against a computer opponent and take the user to the ship placement screen.

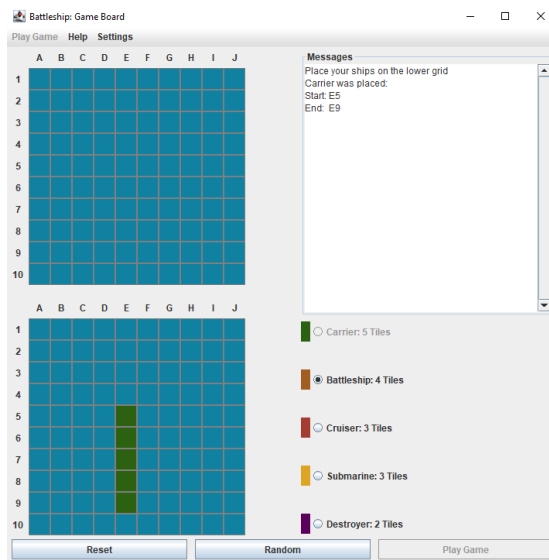
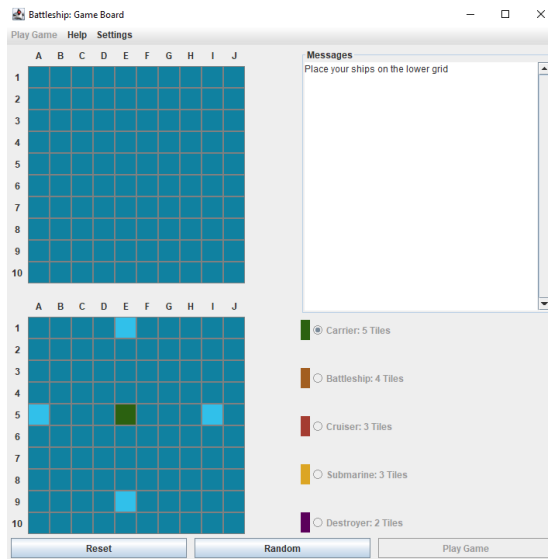
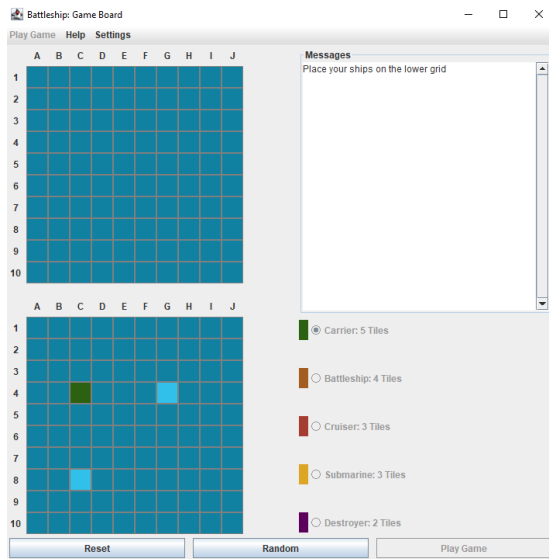
Prepare the Battlefield:

On the ship placement screen, the user will see two grids, a message log box in the top right of the screen and a key of the ships in the lower right corner of the screen.



Ship placement screen

A user places ships by clicking on a ship and then clicking on any tile in the lower grid. Once a tile has been selected one to four light blue colored tiles will appear indicating a legal place to place your ship. The user may select any of these tiles and their ship will be placed accordingly and the log area will update to show the placement of the ship.



Ship placed.

Reset:

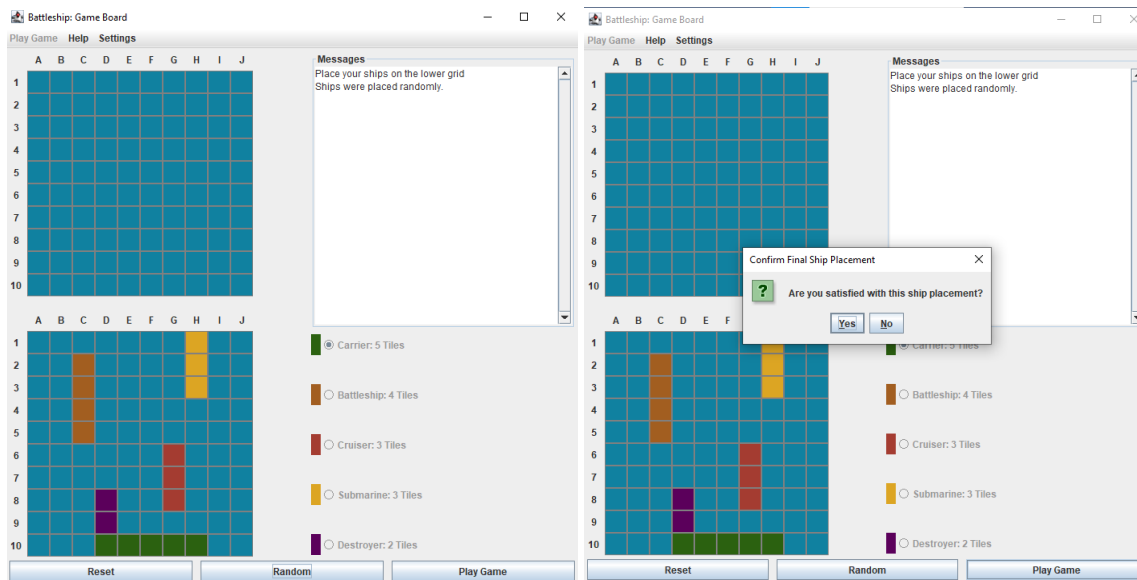
Clicking the “Reset” button will clear all the ship that are currently placed and start the ship placement process again.

Random:

Clicking the “Random” button provides a random computer-generated placement of ships.

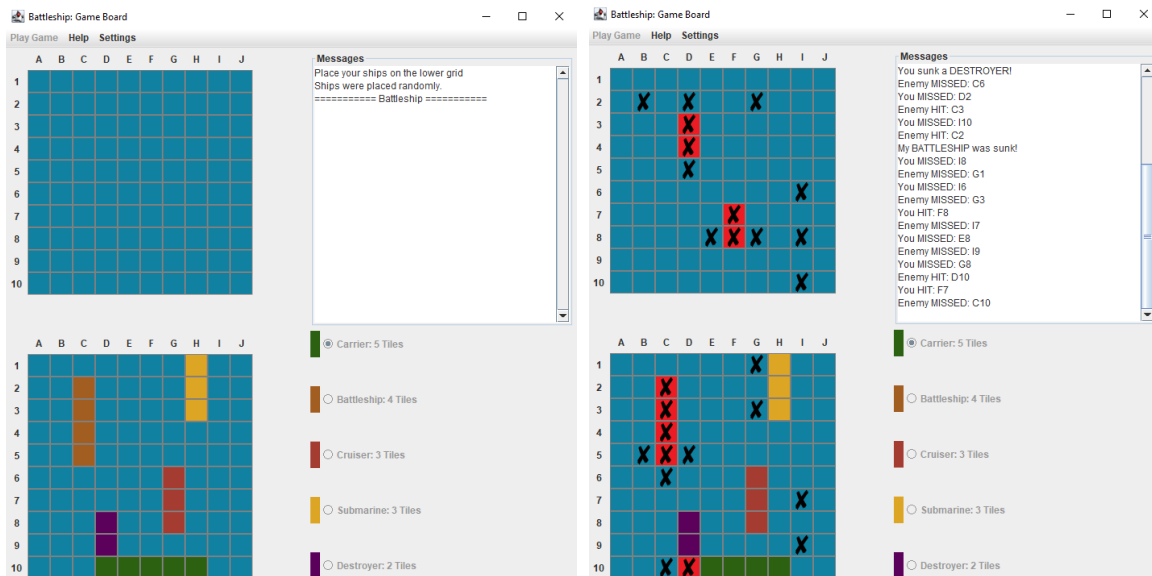
Play Game:

Once all ships are placed click the “Play Game” button. The user will be prompted to confirm they are happy with current ship placement. Once the user clicks “Yes” a log message appears, symbolizing the start of the game.



Launch Your Attacks:

The user must now make their first guess by selecting a tile in the top grid which represents the opponent's battlefield. Users are not permitted to guess a tile if it is not their turn or if their opponent has not finished preparing their battlefield. An "X" in a blue tile indicates a miss, while an "X" in a red tile indicates a hit. This is also indicated in the message log box above the ship key. The opponent's guess will update on the lower grid.



To Win or Not to Win:

That is the question: In a computer game, a message will appear telling the user whether they won or lost and ask them if they want to play again or quit. A networking game is similar, displaying a win message to the winner of the game and lose message to the loser, the messages ask both users if they want to play again or quit. Answering "Play Again", the user will be taken back to the ship placement screen and "Quit" will bring the user back to the main menu. However, in a networking game, if one user clicks "Play Again" and the other clicks "Quit", the user that chose to play again will be displayed a message that says, "Connection Ended" and return them to the menu screen.



Resources:

How to setup your WIFI to play with someone on another network:

<https://www.noip.com/support/knowledgebase/general-port-forwarding-guide/>

How to turn on/off your firewall to use this application:

<https://support.microsoft.com/en-us/windows/turn-microsoft-defender-firewall-on-or-off-ec0844f7-aebd-0583-67fe-601ecf5d774f>

Potential Future Improvements:

Overall, there are various features that could improve the overall appearance of the game, including but not limited to:

- More realistic icons of the ships
- Bind the settings on game screen and main menu screen to allow for settings changes at any point in the game
- Persist the settings from game to game