

User Manual for Breakout Game

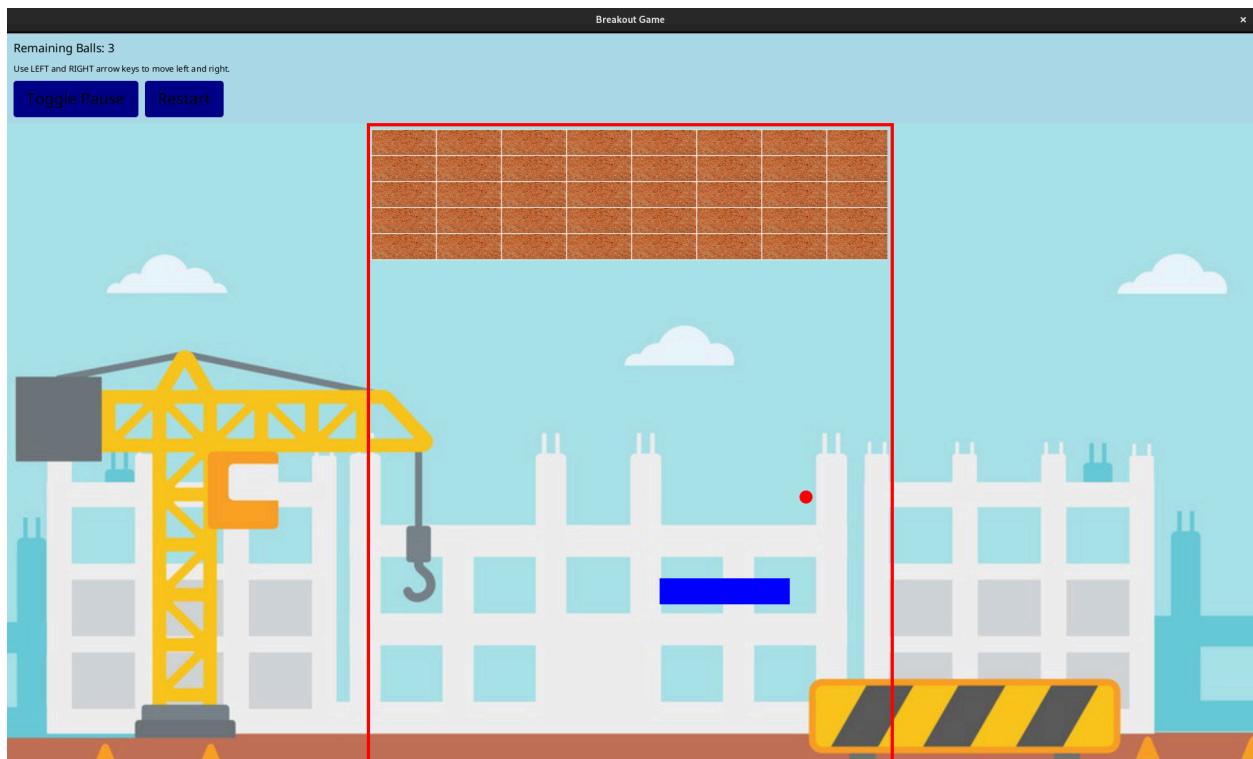


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Introduction

This is the user manual for the implementation of Breakout Game. The main goal of the manual is to provide a comprehensive guide on how the program works and how to use the program at different steps. It includes a detailed explanation of the features and common errors you may encounter.

Starting the Application

Prerequisites:

- Java Development Kit 21 (JDK) installed on your system.
- JavaFX SDK installed.

Running the Program:

Command Line Arguments - Helper Script

There are two sets of command line arguments available. The first set is for the script. Running `scripts\run.bat --help` or `bash scripts/run.sh --help` will list all the available options. Note, if using the argument `run`, the source code must already be compiled. This is done by calling the `build` argument,

Option	Description
javadoc	This will compile and build all the Javadocs into a static site. This can be viewed by opening <code>docs/site/index.html</code> in a web browser.
build	This will compile all of the Java source files into bytecode located in the target/ directory.
test	This will run all unit tests powered by JUnit 5. See the testing manual for more information.
run	This will run the compiled bytecode program in the current terminal.
all	This will run the options: <code>javadoc</code> , <code>build</code> , and <code>run</code> one after the other.
help	This will display the help message built into the script file.

Command Line Arguments - Farmers Market

The Farmers Market program itself has some command line arguments.

Option	Description
--help	Displays a help message of all the program arguments then exits.
-debug	Enables a verbose output to the terminal. Not recommended unless developing or debugging.

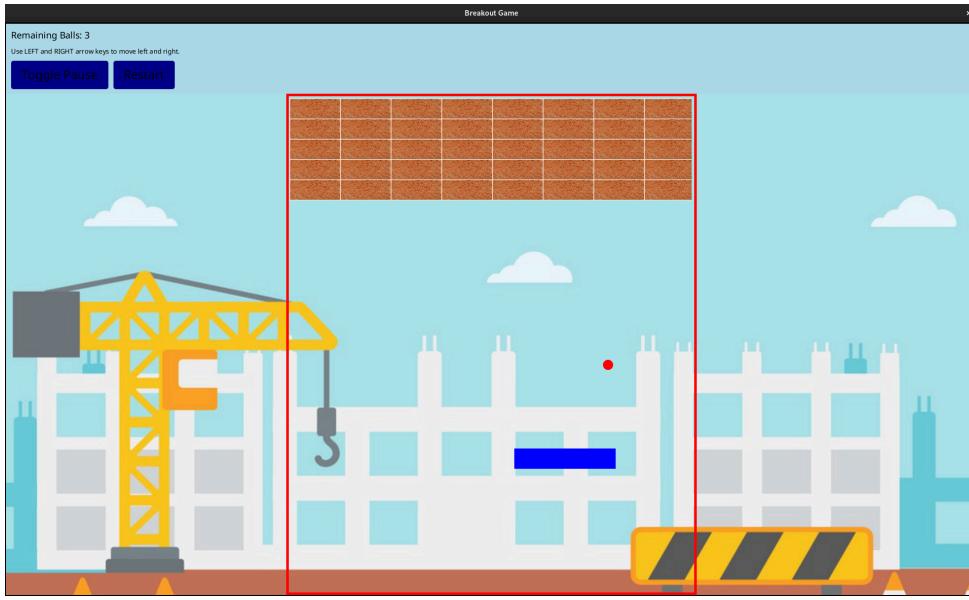
An example of using the program arguments is shown below.

```
> O:\java\project>scripts\run.bat run
> O:\java\project>scripts\run.bat run --debug
$ bash scripts/run.sh run
$ bash scripts/run.sh run --debug
```

Playing the Game:

Upon launch, the application should look like this:

Then, one can click the start game button to enter Singleplayer mode, upon which they will see this as the window:



Singleplayer Game Play

The game generates 8 rows containing 5 bricks.

The goal of the game is to knock down as many bricks as possible by rebounding the ball off the paddle.

To move use your LEFT and RIGHT arrow keys to move the paddle left and right.

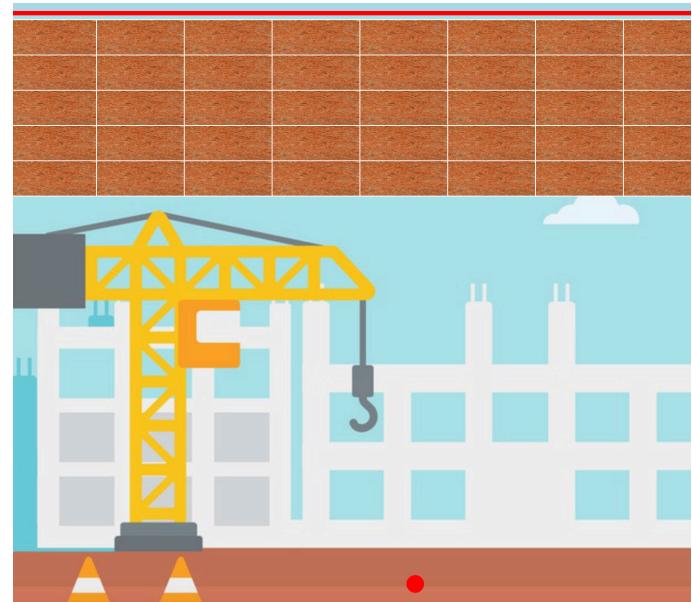
In the game there is a counter of how many remaining balls you have left and a counter of your score.

You can pause the game at any time, using the pause button or hitting the spacebar.

You can restart the game by clicking the restart button.

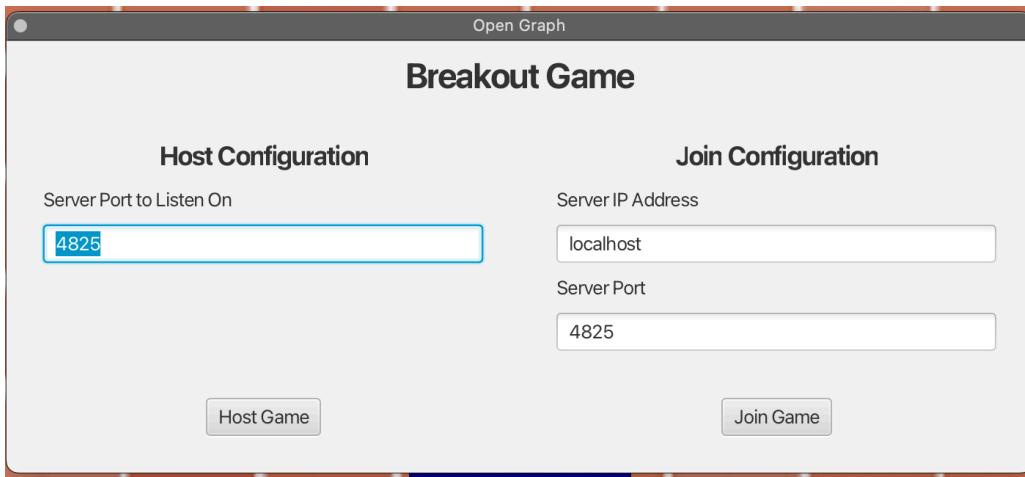
Powerups:

Upon breaking a brick, there is a chance for balls to spawn on the location of the brick broken that can break more bricks.



Multiplayer Game Play

After launching the game, if the user should choose to select Multiplayer button the following window should appear:



Multiplayer:

Users are able to host and join each other if both users are on the same network.

Hosting:

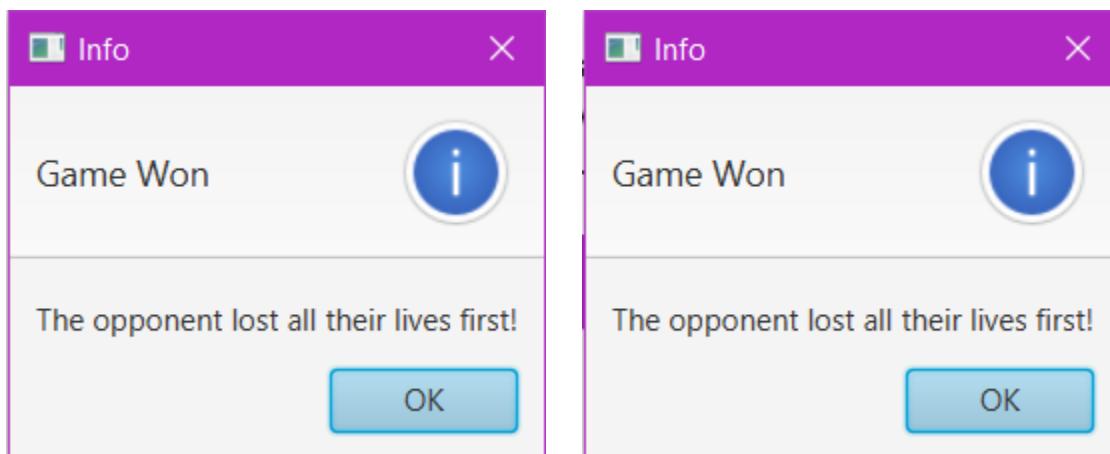
Input the server port you want to host the game on. Click Host Game.

Joining:

Enter the server ip address and the server port the host initialized with Click Join Game.

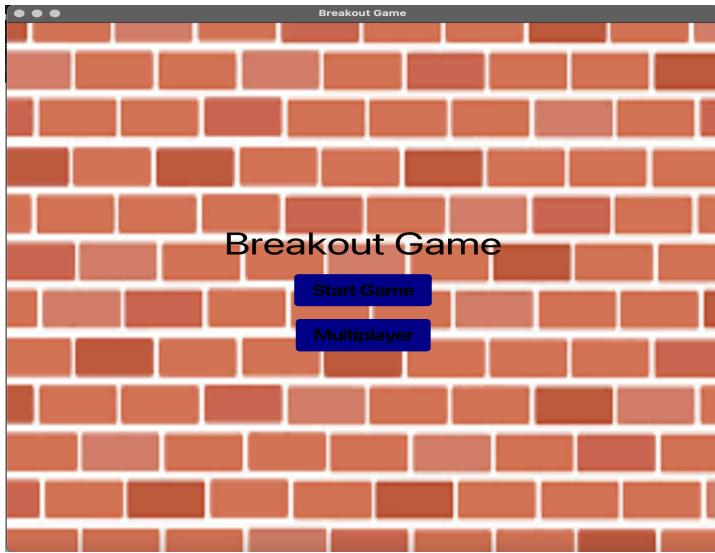
Multiplayer Gameplay:

Multiplayer gameplay is the same as singleplayer. However, when one user wins, the other user receives a popup saying they have lost. Likewise, if one user loses, the other user receives a popup saying they have won.

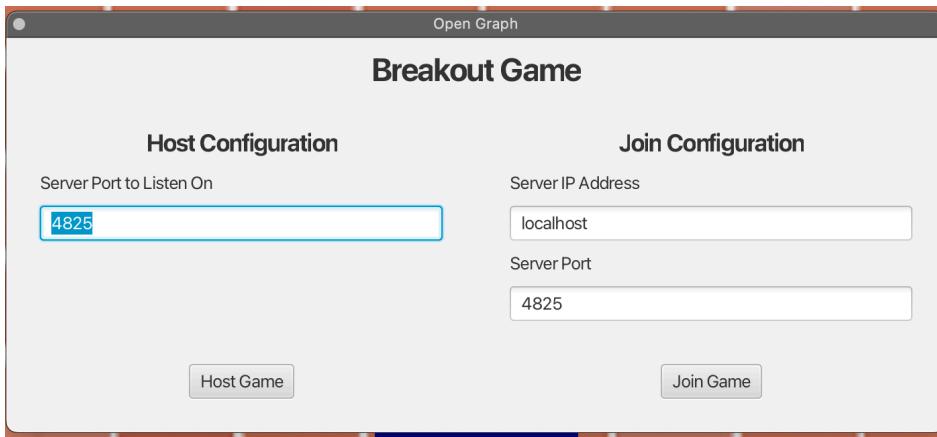


UI Features:

Main Menu - here the user can select to start game or multiplayer:



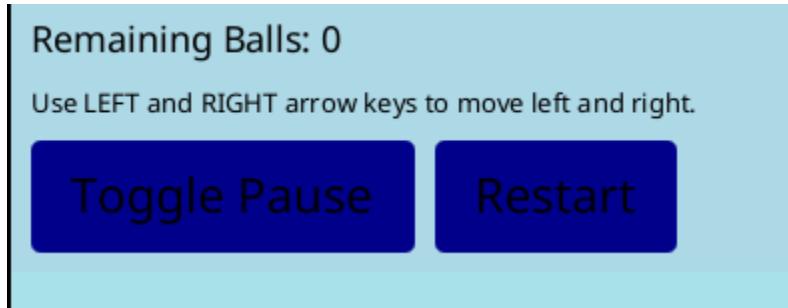
Multiplayer Lobby Creator - here the user can set parameters for multiplayer:



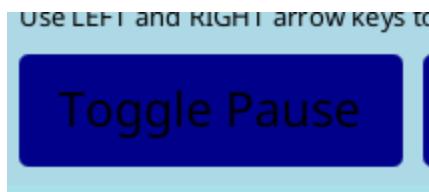
Game Screen - here the user can play the breakout game:



Useful Information and Toolbar - located on top right of the game screen, here the user can see balls remaining until loss, controls, and toggle pause or restart.



Toggle Pause Button - located on the toolbar, allows the user to pause the game



Restart Button - located on toolbar, allows the user to restart the game:



Common Error Cases:

Helper Script Errors:

```
> scripts\run.bat all  
The system cannot find the path specified.
```

Check your Command Prompt's directory is set to the root directory of the program. Use the command `dir` to check for the folders like `bin`, `data`, `docs`, `manuals`, `scripts`, and `src`. Alternatively, alter the call to the batch script to reach the batch file.

```
$ bash scripts/run.sh all  
bash: scripts/run.sh: No such file or directory
```

Check your terminal directory is set to the root directory of the program. Use `ls` to check for the folders like `bin`, `data`, `docs`, `manuals`, `scripts`, and `src`. Alternatively, alter the call to the batch script to reach the batch file.

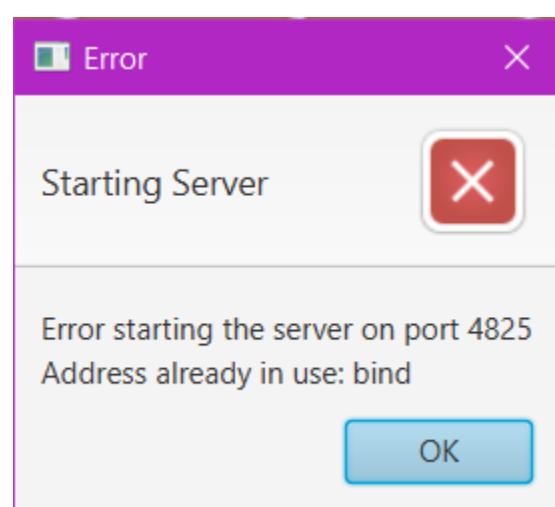
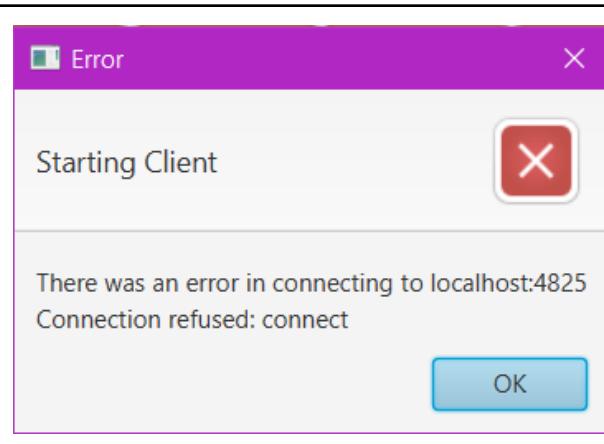
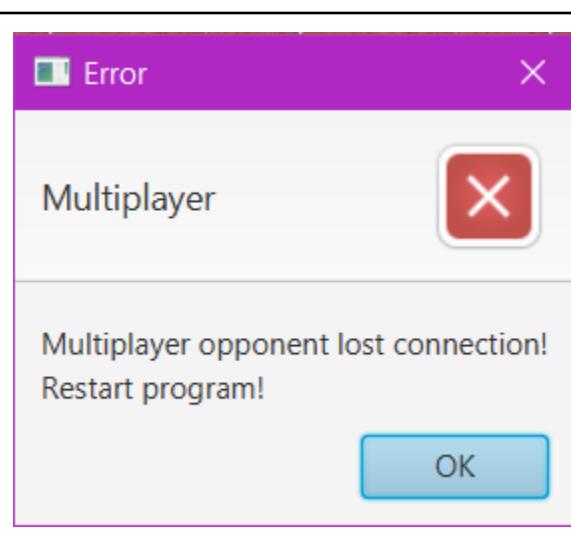
```
The help message keeps showing up.
```

Ensure the script option being selected is properly spelled. See [Section 2.4](#) for more info.

```
bash: command not found
```

The bash shell is not installed on your system. Install bash with your package manager.

Program Errors

	The server could not start on the port specified because it's being used by another instance or program.
	Could not connect to the server. Make sure the server address and port are correct.
	The opponent has disconnected from the game.

Conclusion

This is a comprehensive guide on the usage of the Breakout Game Program.