User Manual

CSCI 205 Final Project Team 3

Introduction

The creative snake game project designed by our team deals with Java game programming. This will implement the Java MVC model design, which includes three parts: Model, View, and Controller. Following the object-oriented principles, we have implemented the snake game by identifying various kinds of objects in the game. This includes three major objects that we implemented: players (as snakes), items, and walls. All three major objects that we implemented are based on a larger class we made that inherited from the circle class in the JavaFX API. All the objects in the snake game that we made, in general, are made of circles.

In addition to the core snake game design mentioned above, we also implemented the multiplayer feature. This can allow two or more players to play together. We utilized the Java networking and socket API to achieve this. With the multiplayer option, the snake game will become more interesting as you can now play with friends, rather than your friends sitting beside you and just staring at you playing the boring single player snake game. So, you can now call your friends and play this brand new snake game together!

The use of JavaFX programming to make a creative snake game is a brand new challenge for us. Here, we would want to make a game that adds more creative game design that will add more fun compared to the original snake game.

Background

Everyone loves the classic snake game! The snake game is one of the most popular games back in the old days, where the player will control a snake. In the beginning, the snake has an initial body length. The player’s objective is to control the snake to eat more food to earn the highest score in the game. Getting the highest score requires the snake to survive as long as possible. If the snakehead collides with its body or the wall, the snake dies and the game is over. The difficulty of the game increases as the player eats more food, resulting in less space for the snake to move around, thus having a higher chance of colliding with the wall or snake body.

The score is increased when the snake eats food and its body grows. When more foods are eaten, the score increases. However, getting a higher score means more difficulties. Therefore it is a challenge for players to use their skills to get the highest score.

The snake game can be traced back to 1997, where the game was found on a NOKIA 6110, along with the game's distinctive logic and design. It was programmed by Taneli Armanto, a design engineer in Nokia. The concept of the snake game originated from the 1976 arcade game *"Blockade"*, developed and published by Gremlin. The snake game has resulted in big success, attracting many adults and children at that time. It brings fun and entertainment for those people who come back home from work or school.

After 20 years, the snake game has been re-created by lots of people around the world. Today, rather than playing on the old NOKIA phone, you can play on your computer, on your game console, and even on your smartphone! There are lots of snake game variations on the Internet, and there is even the game silther.io, a smash-hit for multiplayer experiences. The snake game is still popular today and is played by millions of people around the world.

Motivation

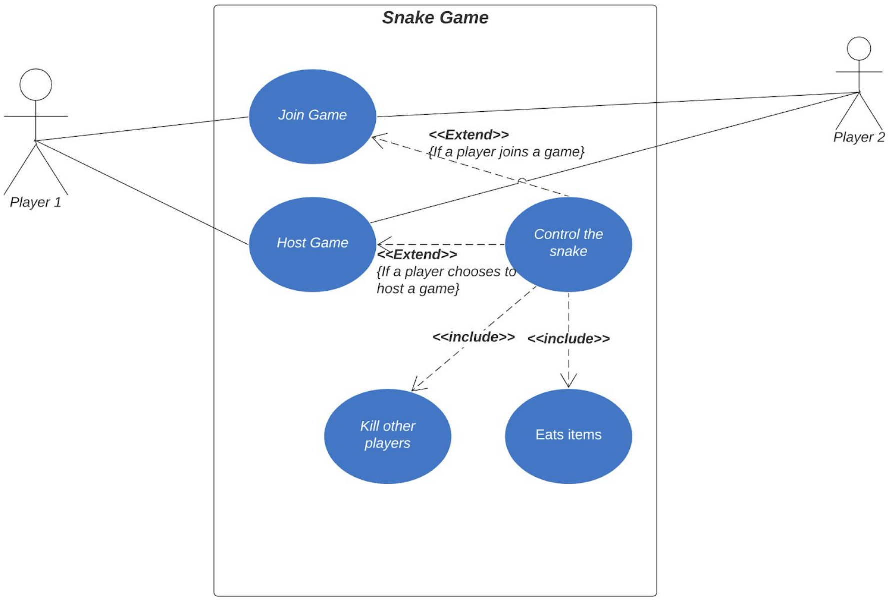
When we were small kids, we loved to play the snake game on the good old Nokia phones. The snake game was a system built-in games in the old Nokia phones. When I was in primary school where the school prohibits students to bring any console games, I got the Nokia phone from my parents and the snake game was the first game that I played in school. The childhood experience has motivated us to re-create the snake game via object-oriented principles. In addition, we want to implement more creative ideas in the snake game, which would enhance the gameplay of the snake game besides the traditional gameplay.

Here, we identified the problem as the following:

The snake game is boring.

Although the snake game has been here for over 20 years, the snake game only consisted of a single-player version, with only the snake and some food for the whole gameplay. The player may feel very lonely when playing the game or get bored when they can only watch their friends playing the game. Watching other people's gameplay is not fun enough here. Therefore, as the developer, we want to implement a multiplayer feature so that everybody can play together. In addition to that, we also want to add additional features to the game while preserving the original basic snake game design.

Even though there already exists some multiplayer snake games like silther.io mentioned above, we aimed to create a multiplayer game on a personal level. This means that the game can be played in a small area with only a couple of friends during a house party. With that in mind, we created this snake game with creative new features in addition to the classic snake game on a much smaller scale.



A UML use case diagram describing how two players can play the snake game. Here, we use a 2 player multiplayer gaming as an example, both players can join or host the game. One player hosts a game and the other player joins a game. Then, two players will control the snake in the server room. They will eat items and make their snake strong, and eventually one player will need to kill the other player by his own strategies.

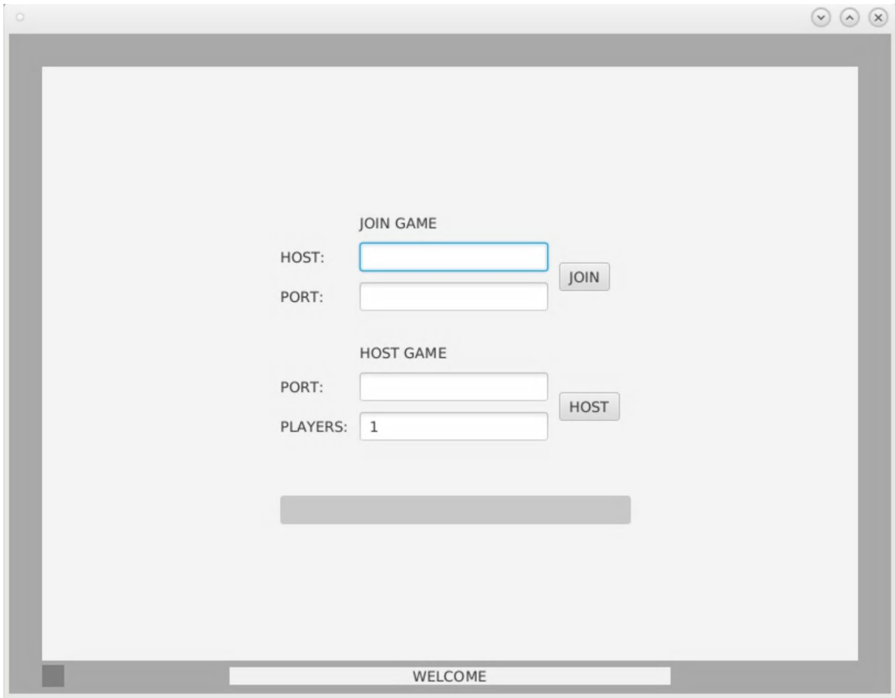
The above use case diagram has demonstrated some of the most important user stories that we completed for this project.

1. As the host, I want to be able to share room #, so that other players can join
2. As the client, I want to input room # to join the host
3. As a player, I expect playing with other players and cutting them off (Kill other players strategies)
4. I expect that eating food will increase my length (Eats items)

Here, we have achieved our most important user story: the multiplayer gaming with friends competing the snake.

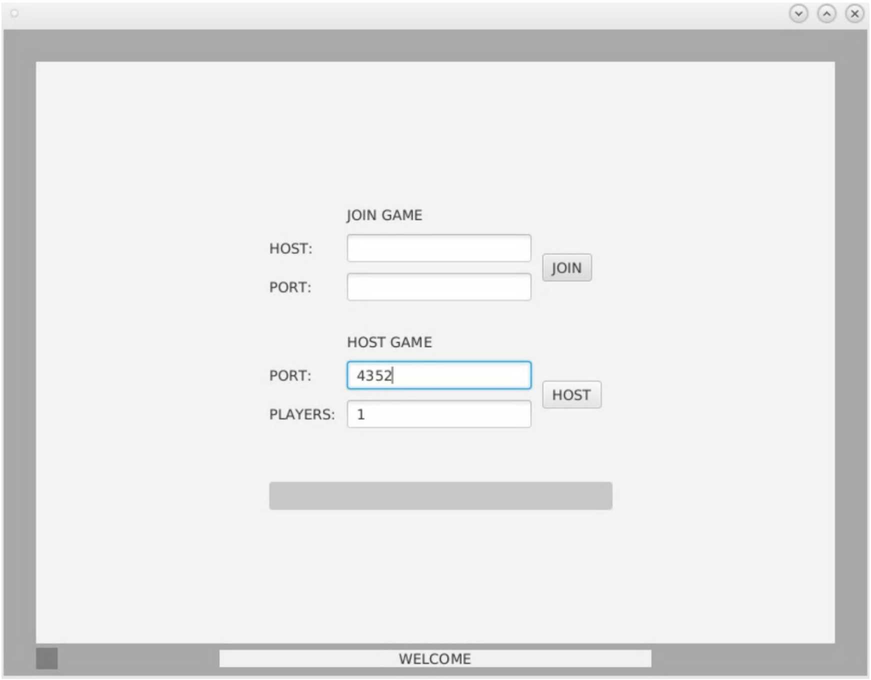
Instructions

Once the program has been run through the .jar file using the instructions that are provided in the readme file, a menu will popup.



PLAYERS: 1

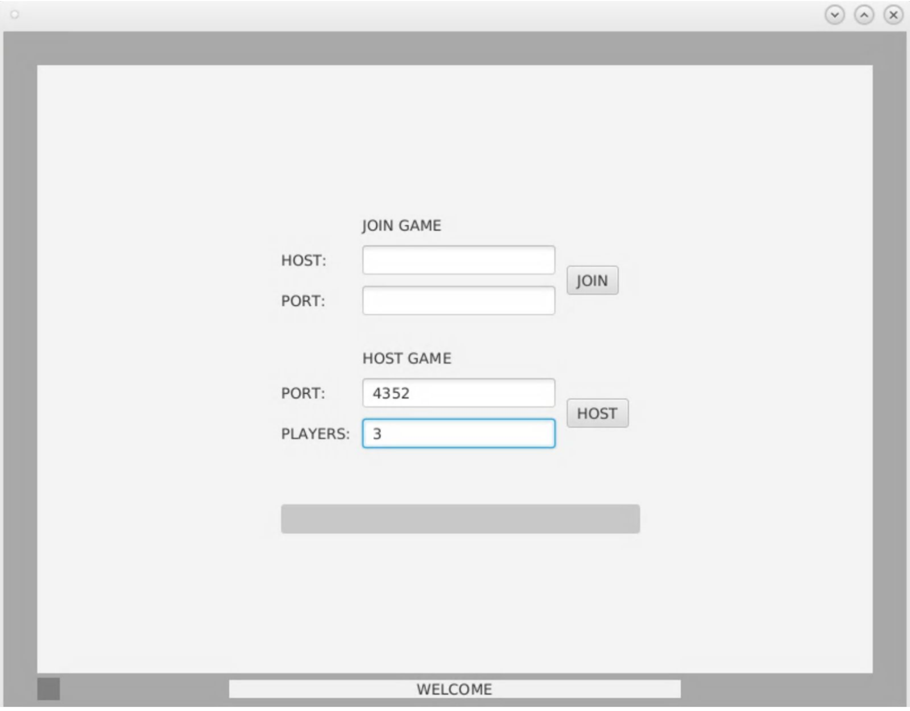
This menu greets the user and allows the single player or multiplayer option. For single player the user will create a port number under the HOST GAME section, and keep the PLAYERS input box as the number 1 (below is an example).



PORT: 4352

PLAYERS: 1

If the player wishes to host a multiplayer server, they will also enter a port number in the PORT box and enter the number of desired players in the PLAYERS box (below is an example)


JOIN GAME

HOST:

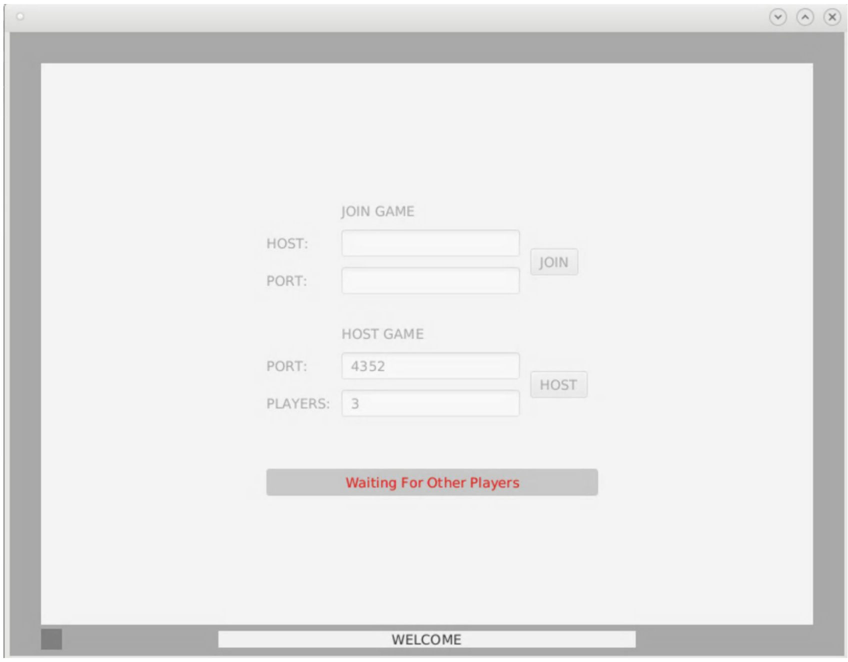
PORT:

HOST GAME

PORT: 4352

PLAYERS: 3

After clicking the host button for the multiplayer option, you will be prompted to wait until the desired number of players joins your hosted server.


JOIN GAME

HOST:

PORT:

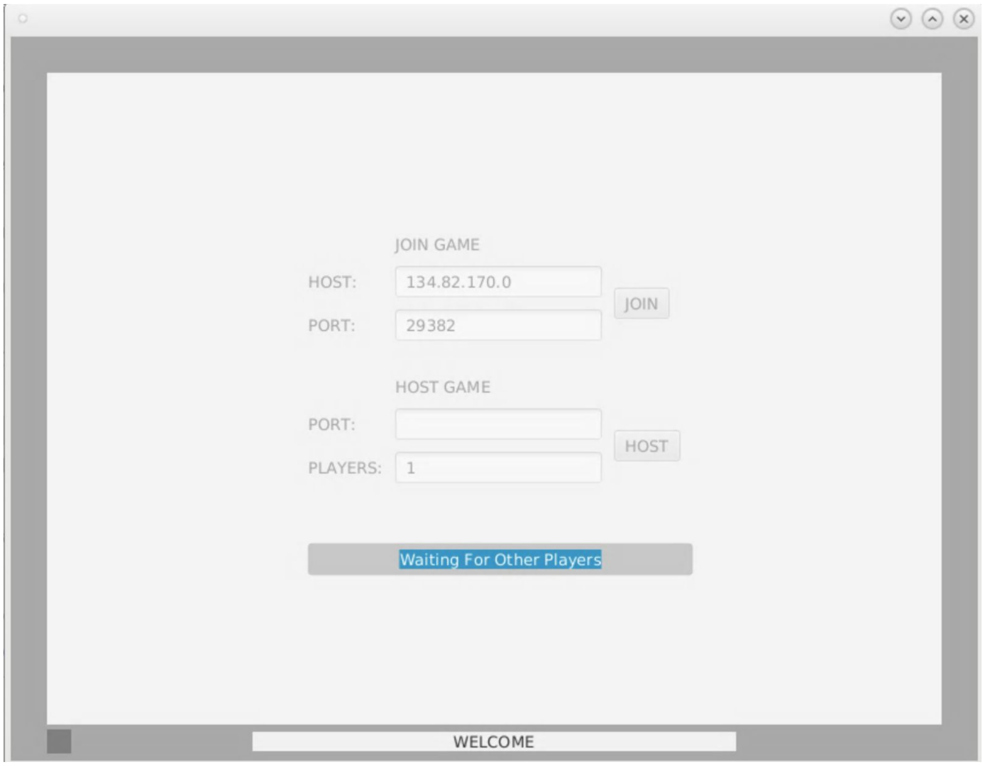
HOST GAME

PORT: 4352

PLAYERS: 3

Waiting For Other Players

To join a game you will need to know the port number of the game you wish to join and the host's IP address. The host's IP address will be entered into the box labeled HOST and their port number will be entered into the PORT box. After pressing the join button you will either be sent directly into the game, or be prompted to wait for other players.



JOIN GAME

HOST: 134.82.170.0

PORT: 29382

HOST GAME

PORT:

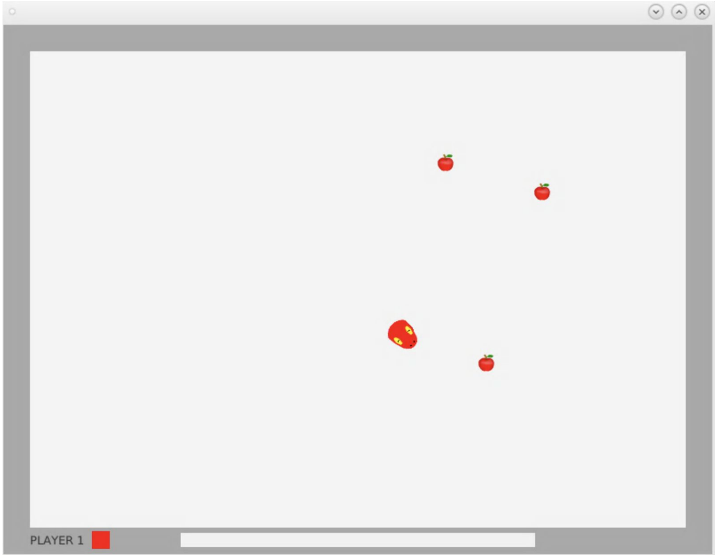
PLAYERS: 1

Waiting For Other Players

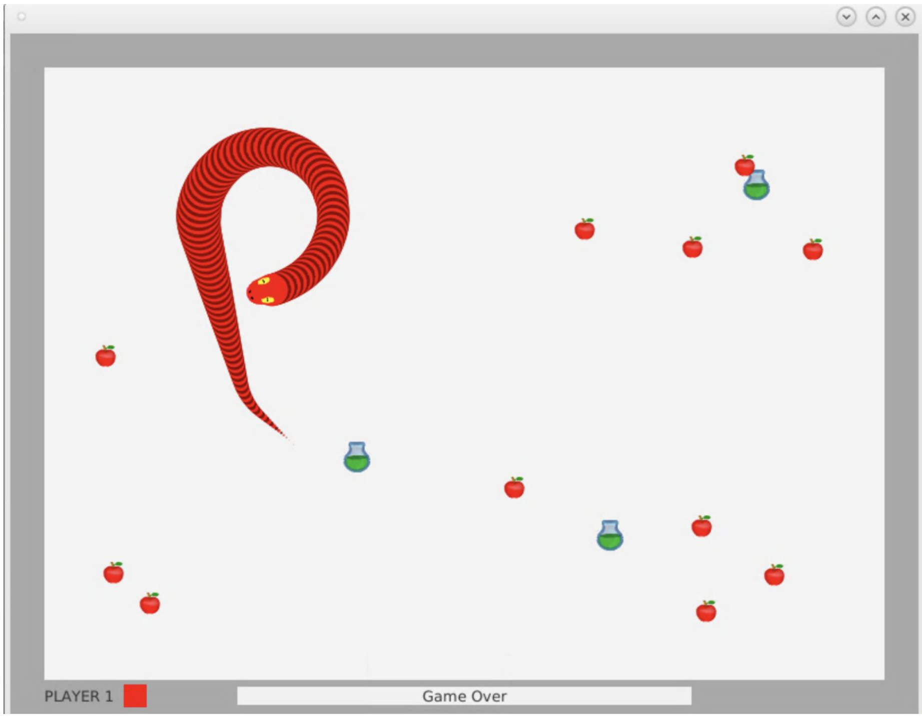
WELCOME

Gameplay

After hitting the host button for single player mode, the user will be sent to this screen.



Initially the snake will start standing still. Once the user presses an arrow key (left or right) the snake will start to move. The indicator in the lower right corner tells the user the color of their snake (for differentiation in multiplayer mode). Also the white box in the middle of the bottom of the screen will inform the user of events such as collisions and the eventual game over text. The objects in the game are food (apples) to gain length, potions (gain much more length), and poison (loose length). The overall objective in single player is to see how long you can make your snake before dying.

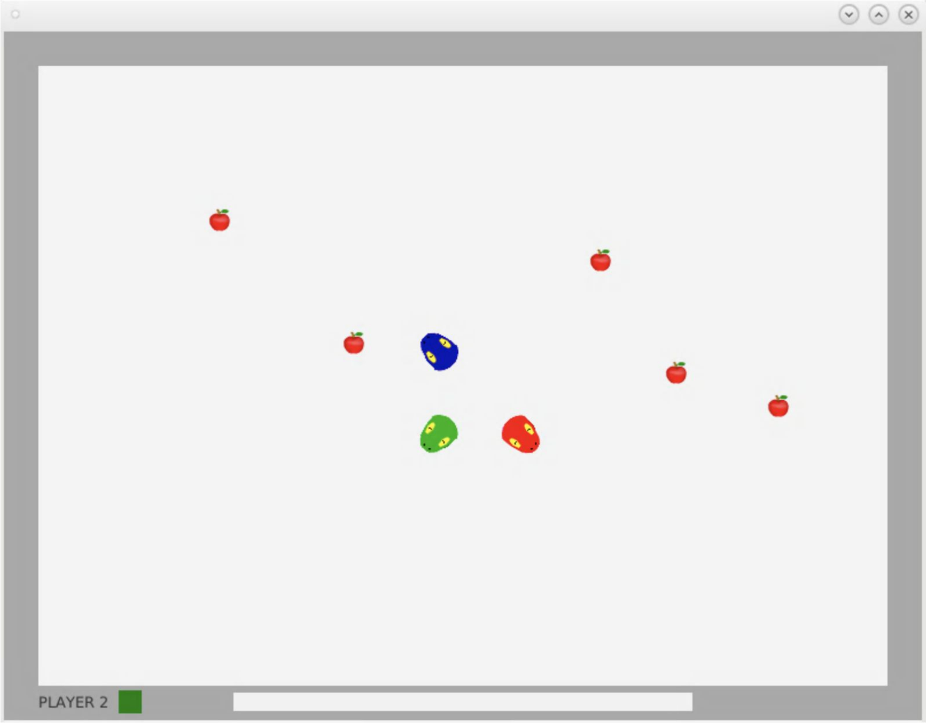


Game Over

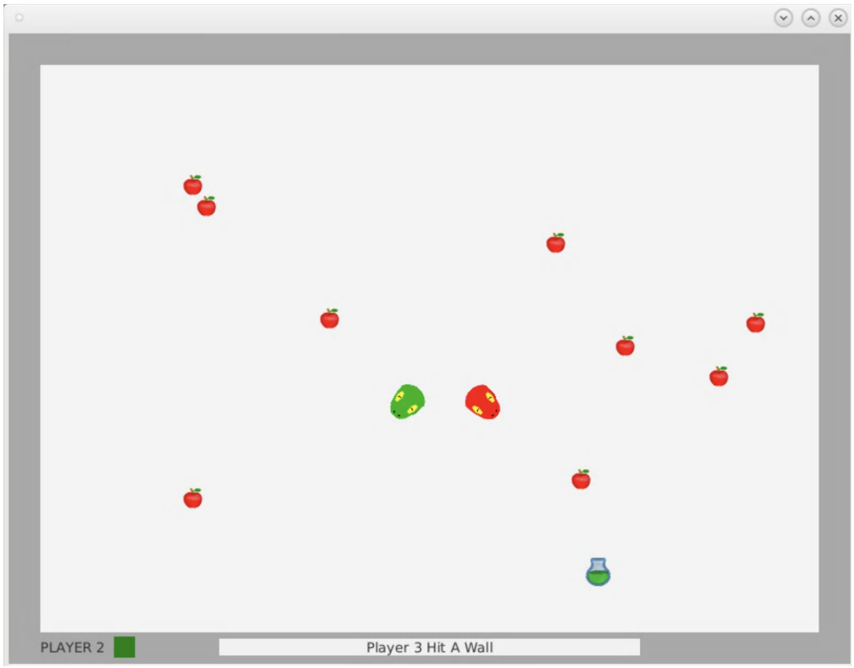
When the game ends the snake will freeze in place so that the user can see how it died, and the user will see the message “Game Over”. To play again, the user will have to close out the window and rerun the program.

Multiplayer

After the game starts (whether the host or joining the server) the user will start in the position indicated below.

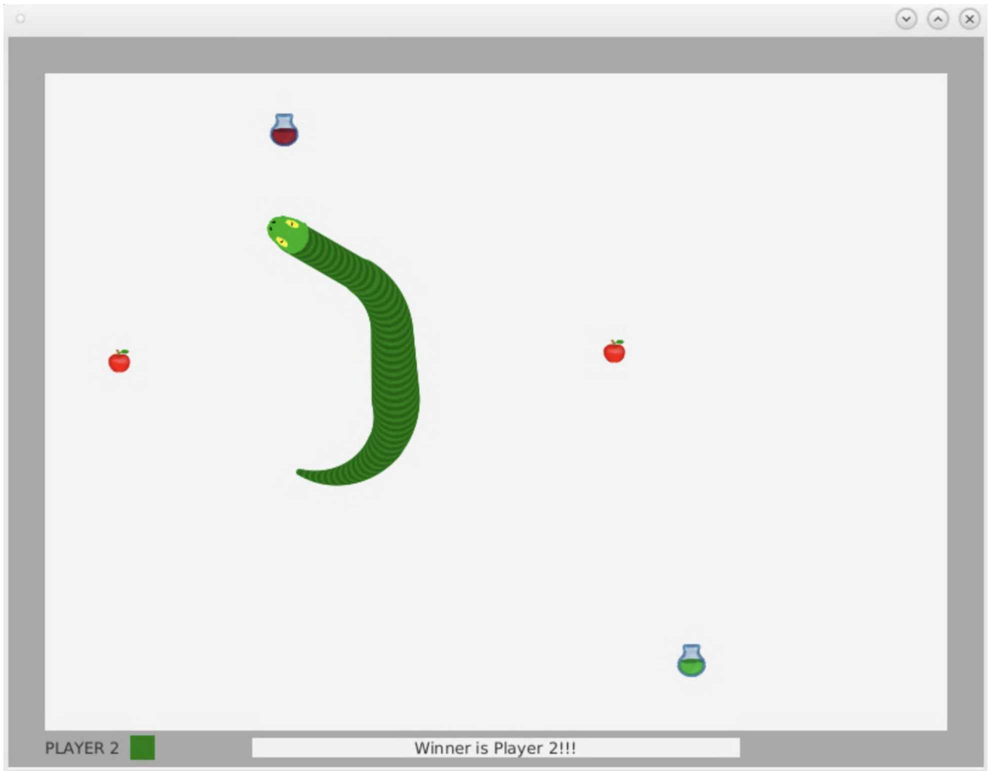


As explained previously the color indicator is extremely helpful to differentiate which snake you are. Also the white box at the bottom will update the user of any collisions, and which player is the overall winner. Below is an example of a collision of player 3 (the blue snake).



Player 3 Hit A Wall

Below is the final screen at the end of the game.



This is the overall goal of the game, which is to be the last remaining player!

References

The Home of Nokia phones. (2017, February 27). Retrieved from https://www.hmdglobal.com/press/2017-02-27-snake/

Snake (video game genre). (2020, March 30). Retrieved May 03, 2020, from https://en.wikipedia.org/wiki/Snake_(video_game_genre)