

# Harry Potter and the Deathly Hallows

COP290 Assignment 2

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In these times of Covid,



These are dark times, there's no denying. Our world has faced no greater threat than it does today.      Rufus Scrimgeour, Minister of Magic

We turn to dumbledore,



# Overall Game

- There are 2 modes -
  - Single Player
  - Multi Player
- The game is based on Harry Potter and the Deathly Hallows
- The maze is randomly generated every time the game is run
- Multi Player Implementation is done using raw TCP Sockets
- A Drone Simulation is also added to the initial menu
- Sprite animations and sound effects are included

# Single Player

- Rules -
  - The objective is to collect the deathly hallows -
    - Elder Wand
    - Resurrection Stone (Inside the Snitch)
    - Invisibility Cloak
- Entities
  - 1 Player
  - 2 Dragons
  - Wand
  - Snitch
  - Invisibility Cloaks
  - Brooms

# Multi Player

- Two players compete against each other in collecting the deathly hallows
- A player wins if the opponent dies or she becomes the master of death
- Rest of the game is similar to the Single Player version

# The Player

- You can navigate through the maze using arrow keys
- Wand collection unlocks the ability to shoot spells to fend off dragons and kill them
- Beware that your own spell can bounce off walls and damage your health
- A spell is cast using spacebar
- The player initially has 1 life with 100 % Health
- If a Broom is collected, your speed increases and dragons cannot hurt you for some time (you hurt them)
- If an Invisibility Cloak is collected, dragons cannot follow you
- If the Resurrection Stone is Collected, you get 2 extra lives
- To collect the stone, you need to catch the snitch
- The game is over when all 3 hallows (Wand, Stone, Cloak) are collected, or you lose all your lives

# The Dragons

- There are 2 dragons
- Normally upon collision with player, their health increases and player health decreases. However if player is on the broom, then the reverse happens.
- They have the following modes of motion:
  - Mode 0: Chase the player(s)
  - Mode 1: Retreat to their original starting place
  - Mode 2: Move randomly
  - Mode 3: Scatter away from the player(s)
- Each dragon has a chasing probability  $p$
- Dragon switches between modes 0 and 2 depending on time elapsed, its distance from player(s) and its chasing probability.
- However, if a player is on the broom or if a spell is cast on the dragon then the dragon gets scared and switches between modes 1 and 3 until it is safe.



# The Brooms

- Brooms appear randomly at different places in the maze throughout the course of the game
- Unless caught, the broom disappears after some time.
- The broom blinks before it is about to disappear
- Collecting the broom gives the player a boost which enhances player abilities for some limited duration of time.
- A boost increases the player speed and scares the dragons away. It also gives the player the power to hurt them.

# The Snitch

- The snitch is deviously tricky to catch
- It moves randomly however if it senses a seeker close by, it scatters away from that player
- After some time the snitch disappears and then appears at some other location within the maze.
- The resurrection stone is inside the snitch.
- Upon catching the snitch the stone emerges. Player health increases to 100% and player gets two extra lives.
- Thus the resurrection stone helps the player resurrect but only twice

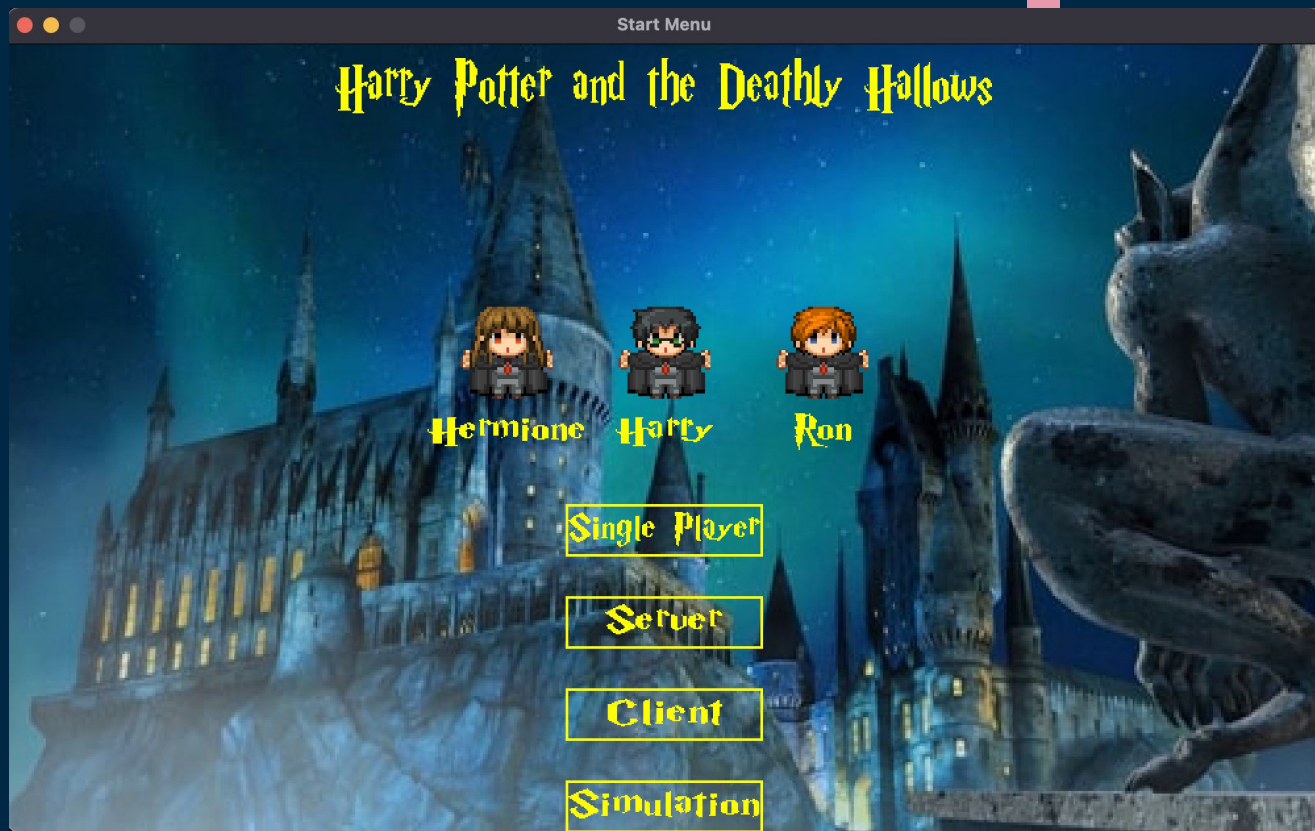
# The Invisibility Cloak

- A true cloak of invisibility renders the wearer completely invisible, and endures eternally
- Thus dragons cannot chase the player
- Further, in case of multiplayer game, the opponent cannot see the player

# The Wands

- Collecting the wand enables the player to cast spells
- In case of multiplayer game, initially there is only one wand in the maze, the elder wand
- After one of the players collects the elder wand, wands appear within the maze until from time to time until all players have a wand.
- However only the elder wand counts as a deathly hallow

# Screenshots



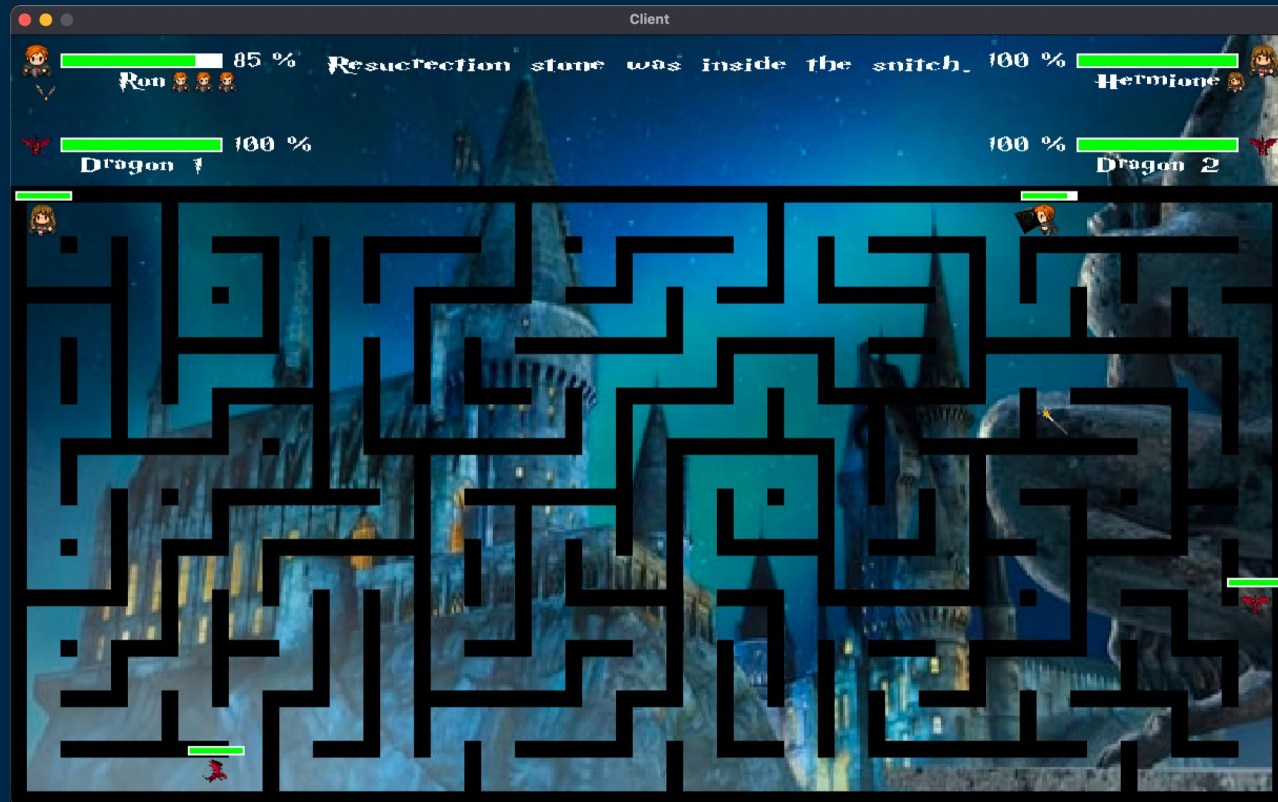
# Broom Apparation



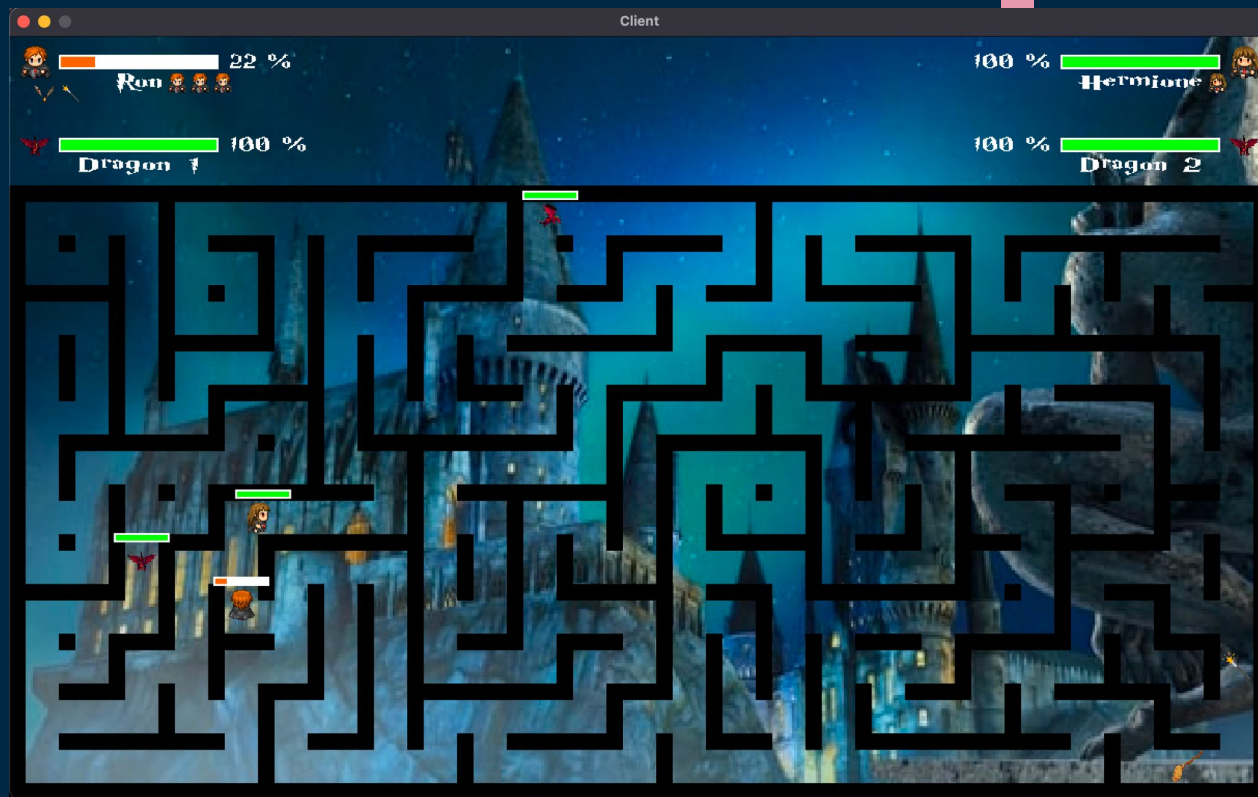




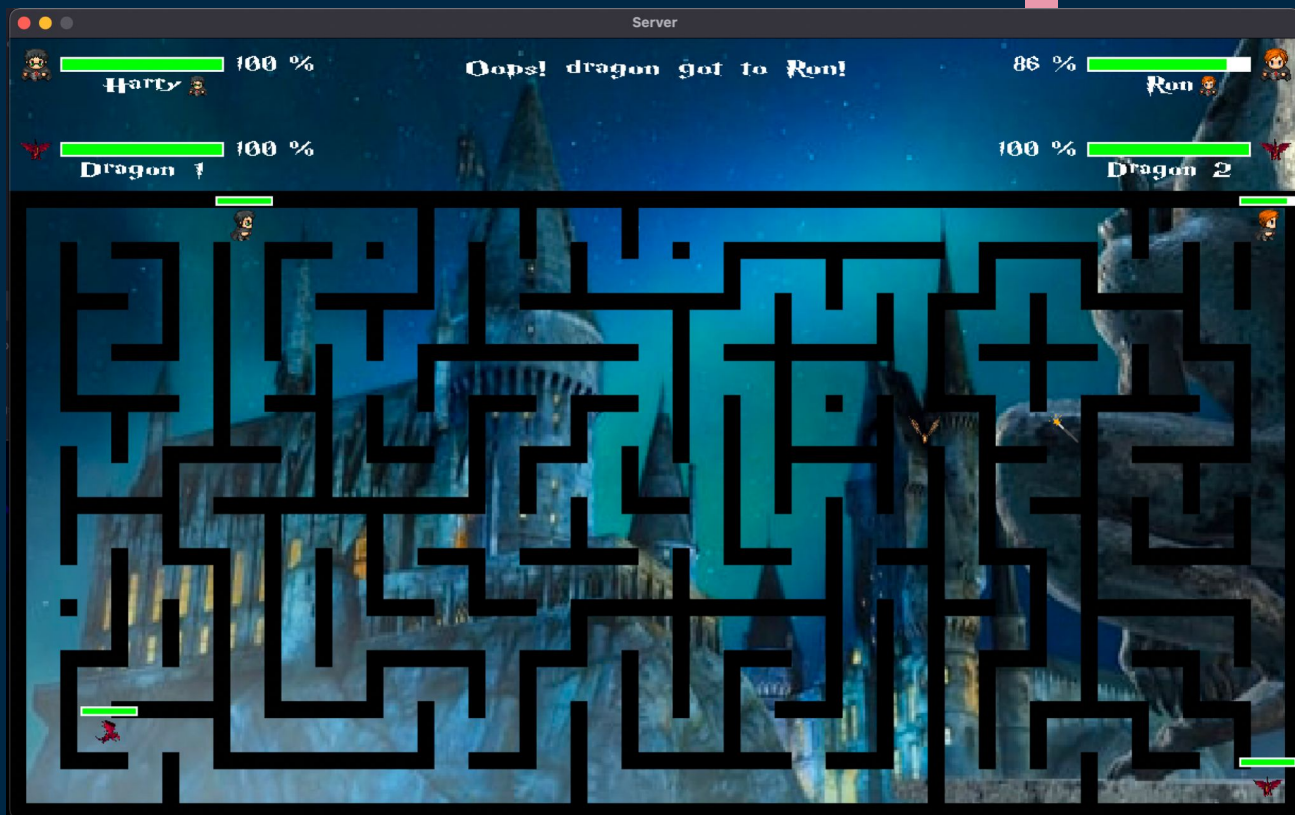
# Snitch is caught



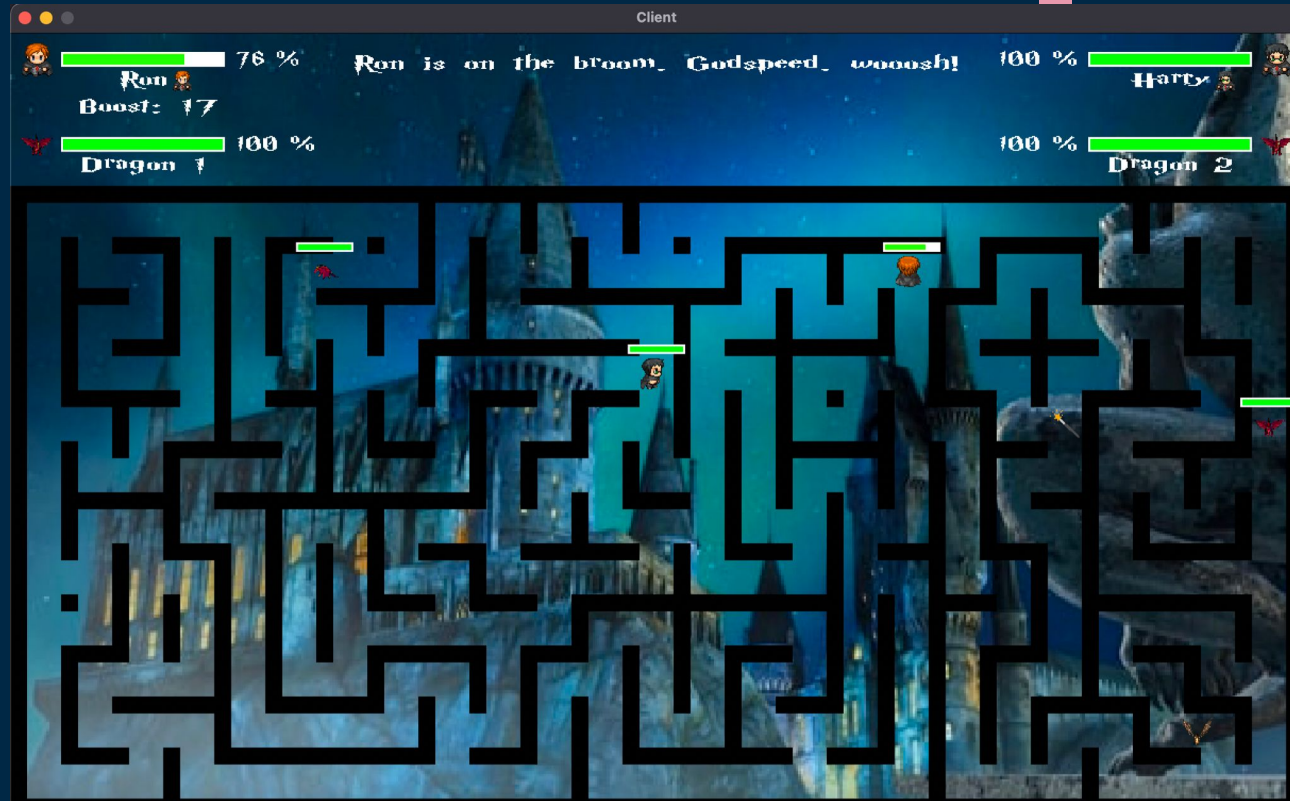




# Collision with Dragon



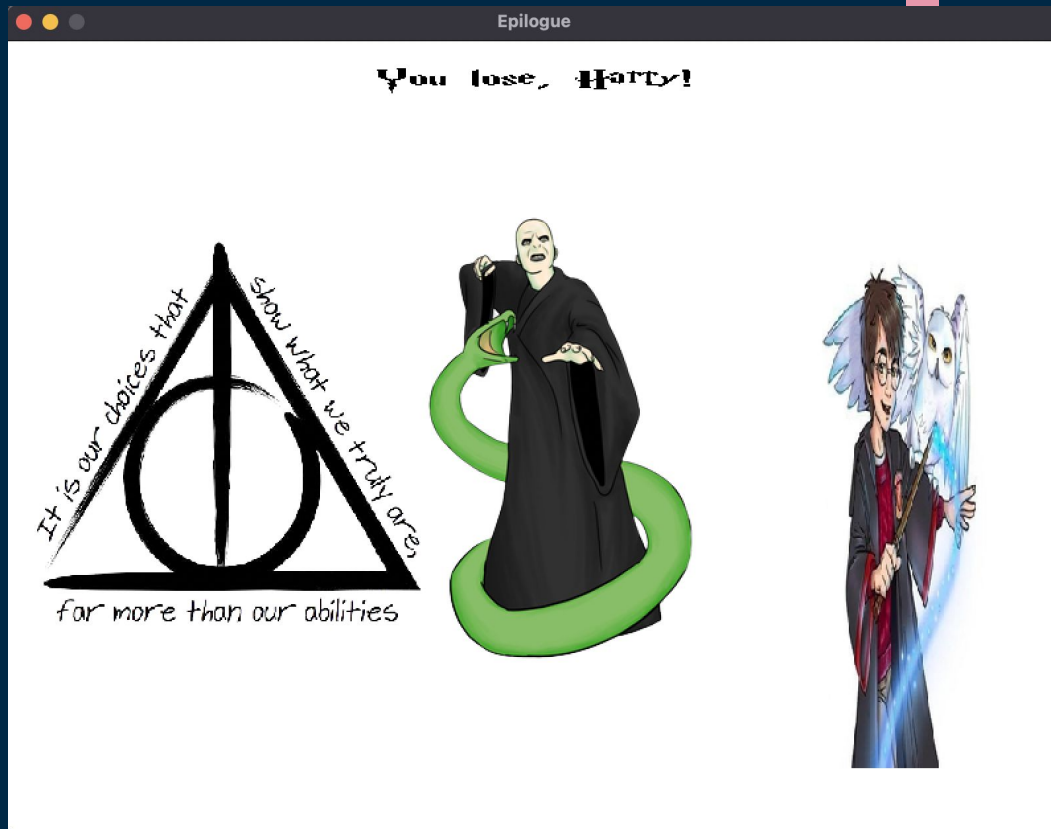
# Broom is collected



# Game Over



# You Lose!





# You win!



# Bonus - Simulation

- A drone's objective is to collect all the stones and reach the end of the maze.

