

# PROJECT SHOOTER

## Overview

Project shooter has you take control of a survivor in a zombie apocalypse fighting for their life. They must fend off waves of zombies who wish to feast on your flesh. Ammo and reloading is not a concern, but the waves will become increasingly more difficult. You must fight the horde until help arrives.

Gameplay takes place in a top-down perspective of a zombie apocalypse with you, the survivor, in the middle of it all. The combat is a bullet-hell shooter that has you fending off waves of zombies with a gun you're given at the start of the game. After killing enough zombies, you will complete a wave. The wave intermission will give you some time to prepare and think of new strategies before the next wave begins, with more zombies rushing at you than the last wave. Completing 10 waves in classic mode will buy you enough time for help to arrive and make your escape.

## Requirements

### Environment/World

- 2D top-down perspective of an abandoned building with multiple rooms and walls to cover behind or potentially trap the player and cor.
  - 1 Walkable Terrain Type in total:
    - 1 Building
- 2D shapes to represent the player and infected. The player's circle will be gray, while the zombies will be green.

### UI/Items

- 2D sprites to show the player's health so they know how many more hits they can take before death.
  - Items:
    - None.

### Player Control

- Movement on the map will be performed with the WASD keys, that will move the

Player quick enough to resemble sprinting.

- Using the mouse movement, the player can shift their aim to anywhere they point their cursor on the screen.
- Clicking the left mouse button will allow the player to shoot. Holding down the left mouse button will allow the player to shoot rapidly. The player can shoot anywhere they click, so long as there are no barricades blocking the path from the bullet to the cursor..

## **Enemy AI**

- The enemies will spawn with each wave. They will start at a small amount, then progressively increase in numbers with each wave.
- Enemies will be locked on to the player and will try to get to the player by any means necessary.
- If an enemy is in physical contact with the player, the player will lose a heart of health (with a few frames of invincibility in between), and will kill the player if all hearts are lost.
- The enemies will die if shot once.

## **Interactions**

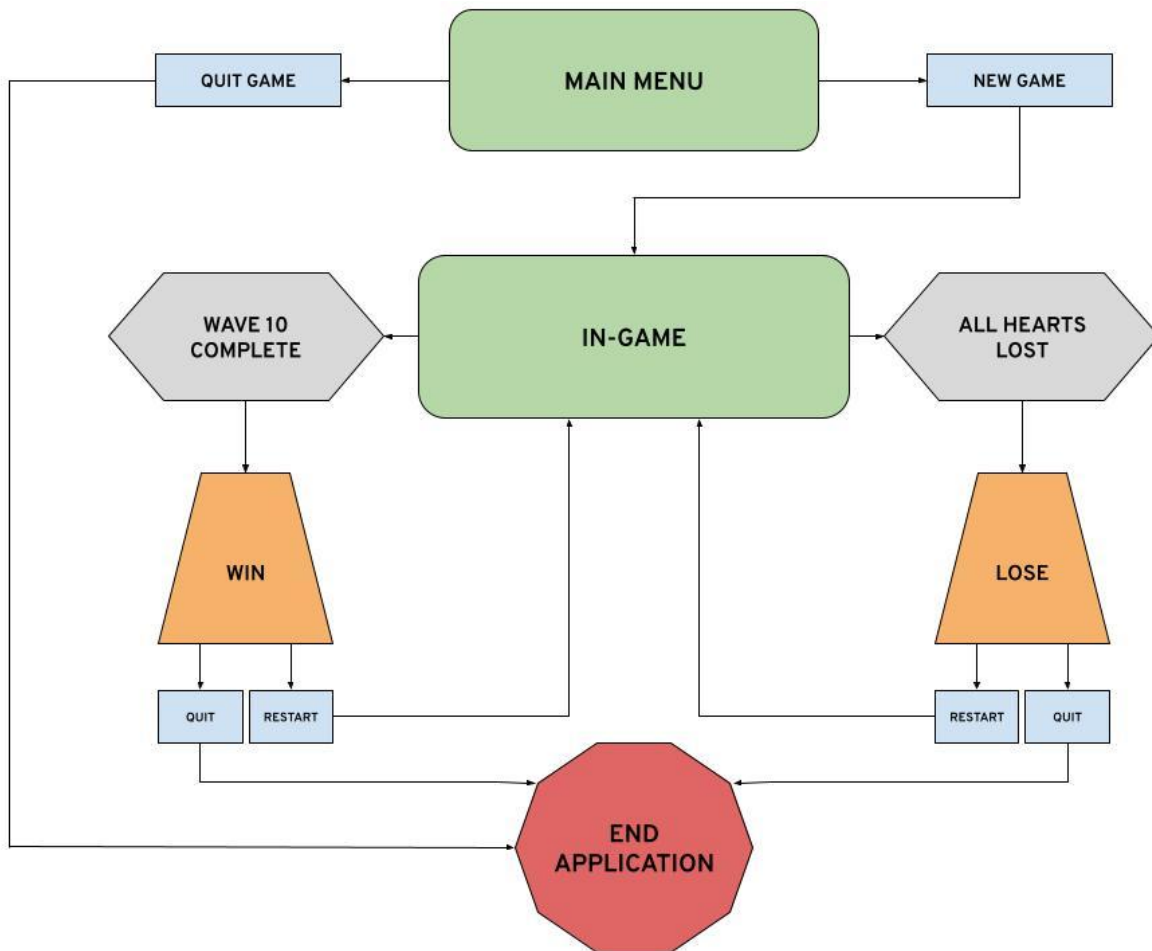
- At the start of the game, the player will be given a notice that help is on its way, and they must fend off 10 waves of zombies before it arrives.
- After the final wave, the player will be congratulated on beating the game.

# **Screens**

## **Scenes**

- Main Menu
  - Start Game Button
  - Quit Game Button
- Game Over Panel
  - Restart Button
  - Quit Game Button
- Win Panel
  - Restart Button
  - Quit Game Button

# Game Flow Diagram



## Non-Goals

Given the limited time to complete this game, and my limited experience in scripting, I will have to leave out these features that I would have liked to add to the game:

- Audio (sound effects/music)
- Extra visual effects (screen shake, particle systems etc... )
- Gun upgrades such as a Pistol to SMG, SMG to Semi-Auto, Semi-Auto to Full-Auto, etc.
- Gun abilities such as explosive bullets or dual-wielded guns.
- Health kits to recover lost health.
- Boss waves with stronger, unique enemies.

## Tools

## **Unity 2019.2.9**

I will use Unity 2020.2.1f1 with C# to construct this prototype, since it is the engine I am most familiar with.

## **Visual Studio 2019**

Visual Studio 2019 will be the chosen scripting API for this project as it already comes integrated with Unity 2019, and is once again the program I am most familiar with. It also comes with various preset scripts that can be efficiently used to create the project.

## **DOTween**

etc.

# **Systems Of Note**

## **The Combat System**

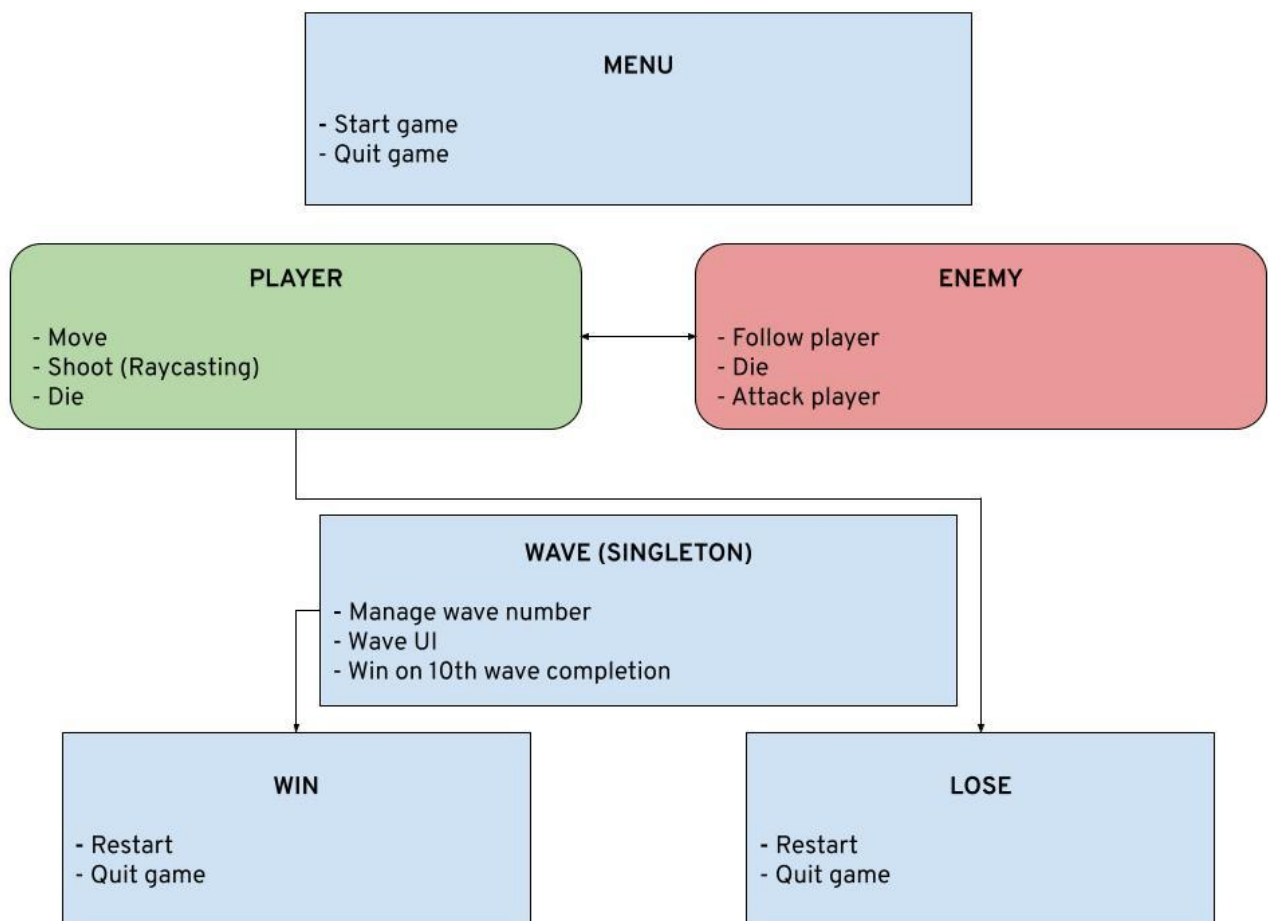
Combat throughout the game will be pretty much the same. The player must shoot the zombies rushing toward them and not get attacked. Getting attacked will cause the player to lose a heart, and the player will lose if all hearts are lost. The player must be on their toes at all times, moving and dodging zombies while shooting at them at the same time. Since I'm uncertain on how I plan to execute this, my theory that I am about to present on my method is subject to change. I believe I can create a variable that is preset to spawn in a specific amount of enemies on the first wave, then with each subsequent wave, it will add a set amount of enemies on top of the already set amount to have more enemies spawn each wave. The enemies will use DOTween to set their color to green and for their path management, and the waves will use a singleton pattern. The player's weapon and bullets will use raycasting so that the bullets have a set path to follow and will stop once colliding with either an enemy or barrier.

## **The Wave System**

In order to win, the player must survive 10 waves. At the start of the game, the player is given a few seconds to familiarize themselves with their surroundings, then

given the objective to fight through 10 waves of zombies until help arrives. The first wave begins with a specific amount of zombies the player must kill in order to finish the wave. With each wave finished, there is a short intermission for the player to get their bearings and/or strategize for the next wave, then the next wave will commence. With each wave, it will take the value of enemies from the last wave and add a few more, so the player may go from facing 20 zombies in the first wave to 80 zombies in the 5th, for example. After 10 waves have been completed, the player is rescued and the game is over, which will cue the winning screen.

## System Design Diagram



## Open Issues

N/A

I haven't started development yet.