**112 Term Project Design Proposal**
**Phi Henry Nguyen (hpnguyen)**

**TP3 Update:**

**New Features:**

-Powerups dropped by zombies when killed
    -Health up
    -Freeze (slows zombies for a short time)
    -Nuke (Kills all zombies on screen)
-Different types of zombies:
    -Normal: basic zombie
    -Mini zombie: less health, smaller, faster
    -Tank zombie: more health, bigger, slower
    -Bomb zombie: explodes when killed
-Friendly AI: Another "player" AI that follows the player and shoots zombies, runs away from zombies
-Procedurally Generated Rounds: The game keeps track of data on zombies (time on screen and damage done to the player) and uses this data to control the amount of each type of zombie spawned to make the game harder
-"Smart" zombies: zombies can guard powerups to keep the player from getting them
-Shop: A weapons shop, where the player can use points to buy new weapons (rifle, sniper, shotgun, submachine gun) and also upgrade them to do more damage. Can also buy health regeneration.
-Reloading: Each gun now has a limited magazine ammo, and the player has to reload
-Saving/Loading game states
-Player image changes with different guns
-Screen feedback: screen flashes associated with different game factors
    -Flashes red when hit or when health is low
    -Turns blue when zombies are "frozen"
    -Flashes yellow with nuke when all zombies killed

**TP2 Update:**
**No Changes**

**Project Description:**

*Surviv.io 0.5: Zombies*, a 2d shooter game modeled off the games *Surviv.io* and *Call of Duty: Zombies*. It will be a survival based game, where the player will be able to get more weapons and upgrades as they progress through procedurally-generated rounds.

**Competitive Analysis:**

In terms of past 112 projects, I was unable to find any that were very similar to this project. The most similar games would obviously be *Surviv.io* and *Call of Duty: Zombies*, since I am modeling mine after the two. It will combine the 2d graphics of *Surviv.io* and the gameplay of *Call of Duty: Zombies*.

**Structural Plan:**

In my final project, I plan to just have one file with all of my code, and a folder containing all of my images. Within the code file, I will break my code into several different sections. At the top is all of the starter code, including the imports, file/image loading functions, and SuperClasses for in-game objects. Next, will be the SubClasses of the in-game object SuperClass, including the player, enemies, bullets, and weapons. The next section of the file will be the actual game class, which initializes the game, draws the screen, and updates everything (essentially the pygame framework). This is also where all of the event functions will be defined.The very end of the file will be the run command, which runs the entire program.

**Algorithmic Plan:**

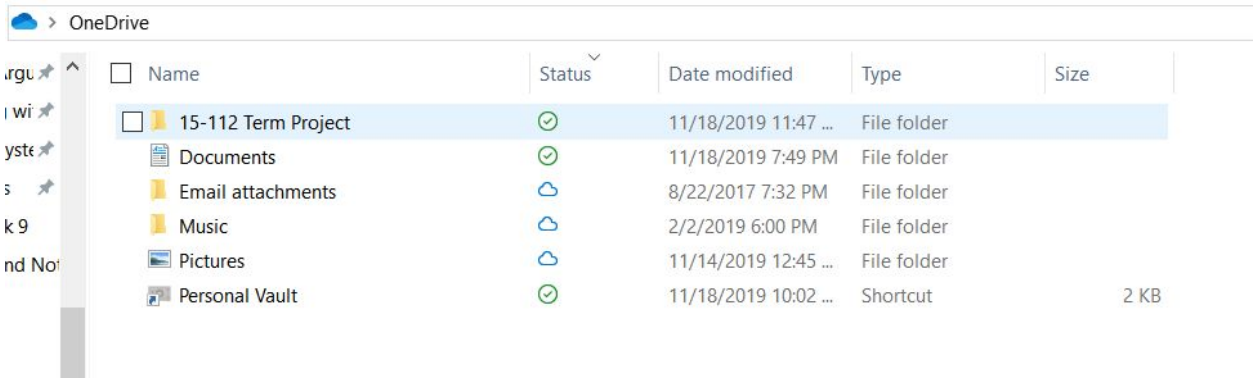
I believe the trickiest part of the project will be creating the map, and keeping track of map obstacles, along with all of the character and enemy movement. I will do this by implementing a pygame module called pyscroll. I will create a custom 2D map using Tiled, a software that allows you to create custom 2D maps. Using pyscroll and pygame, I will draw the map around the center of the character, and keep track of all objects (bullets, obstacles, enemies, etc) in pygrame sprite groups.

**Timeline Plan:**

- Finish player movement, map collision, and shooting by Thursday
- Create enemies, procedural generated rounds, and different modes by Sunday
- Enhance gameplay through a point system and different guns/upgrades by Tuesday

**Version Control Plan:**

- I will keep everything related to my 112 Term Project uploaded on my OneDrive, which constantly syncs and can be accessed anywhere using my Microsoft account.

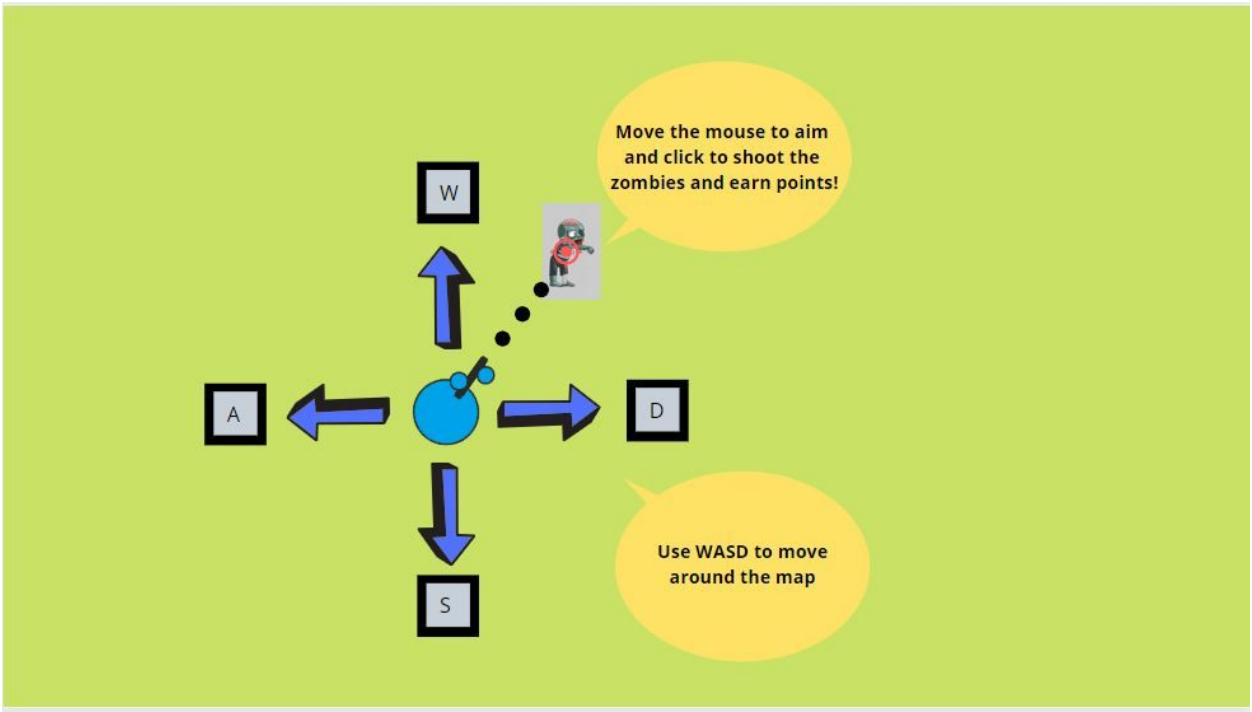


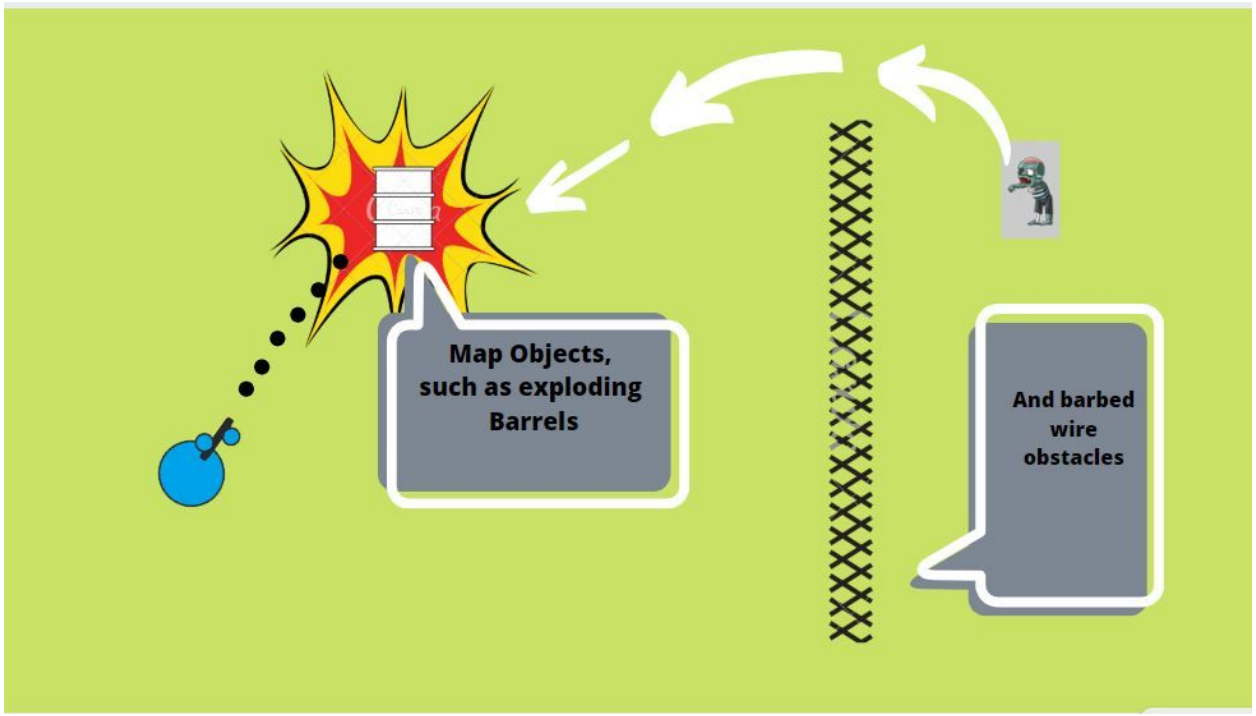

**Module List:**

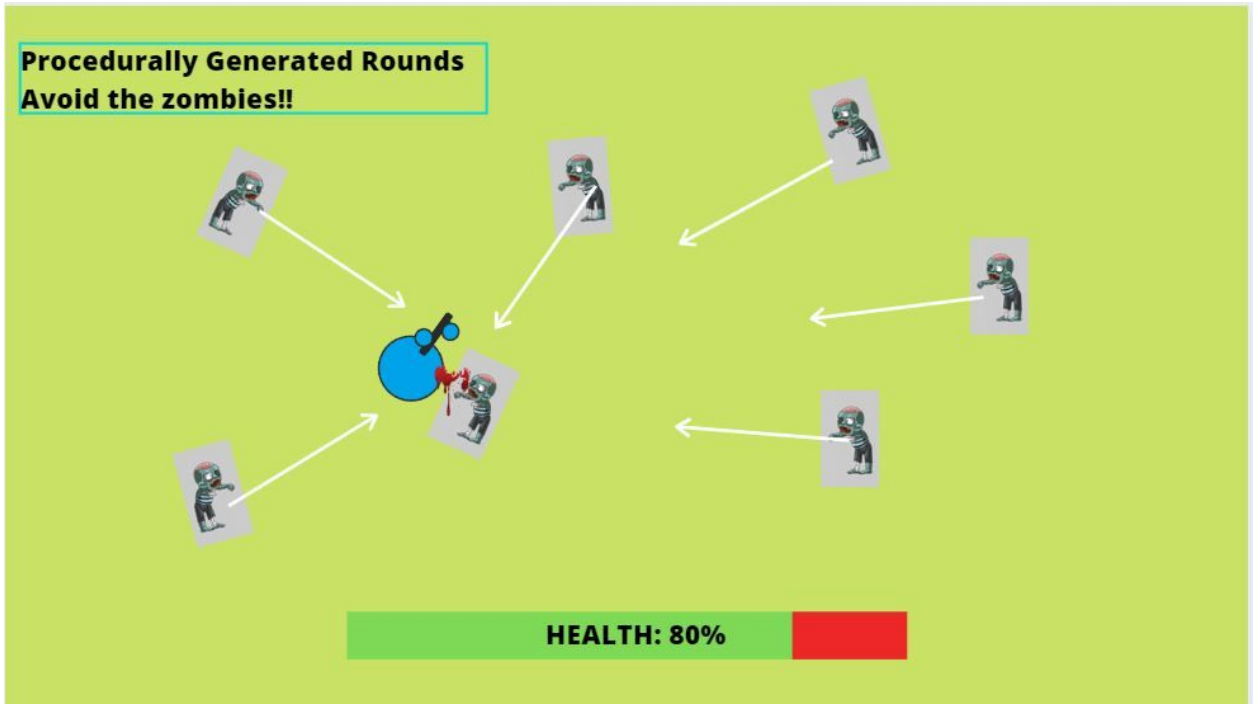
- Pygame
- Pyscroll

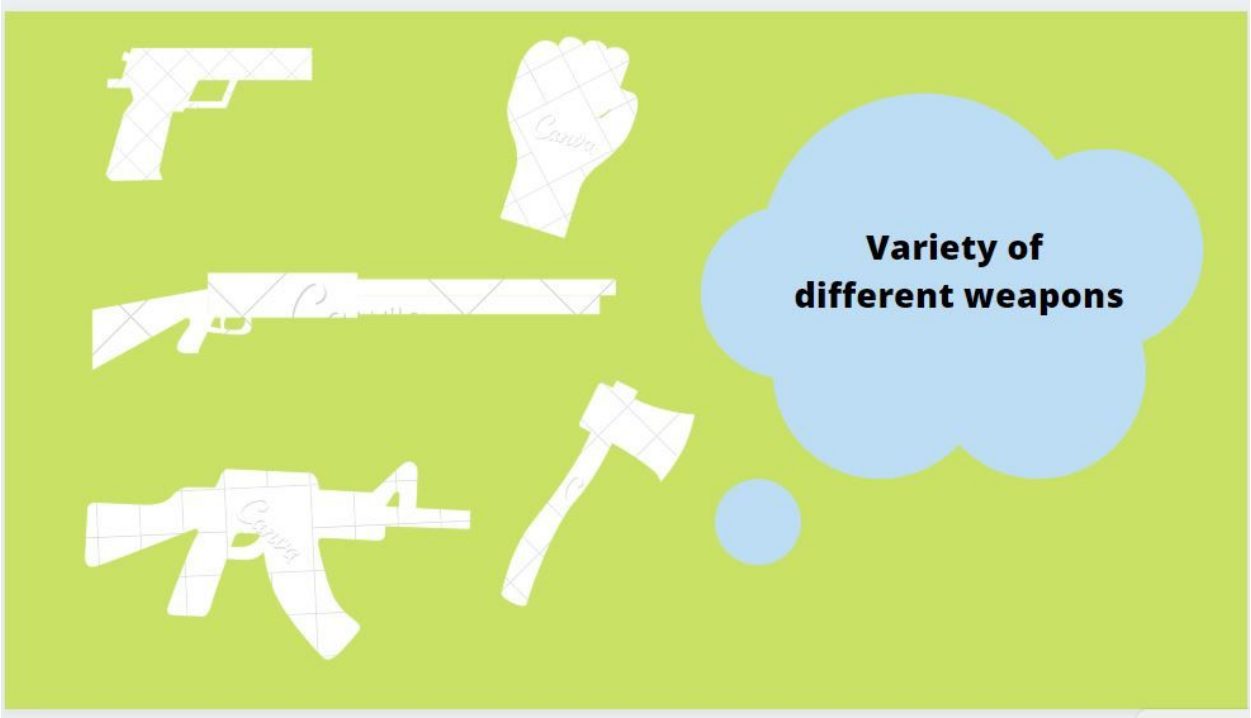
**Storyboard:**

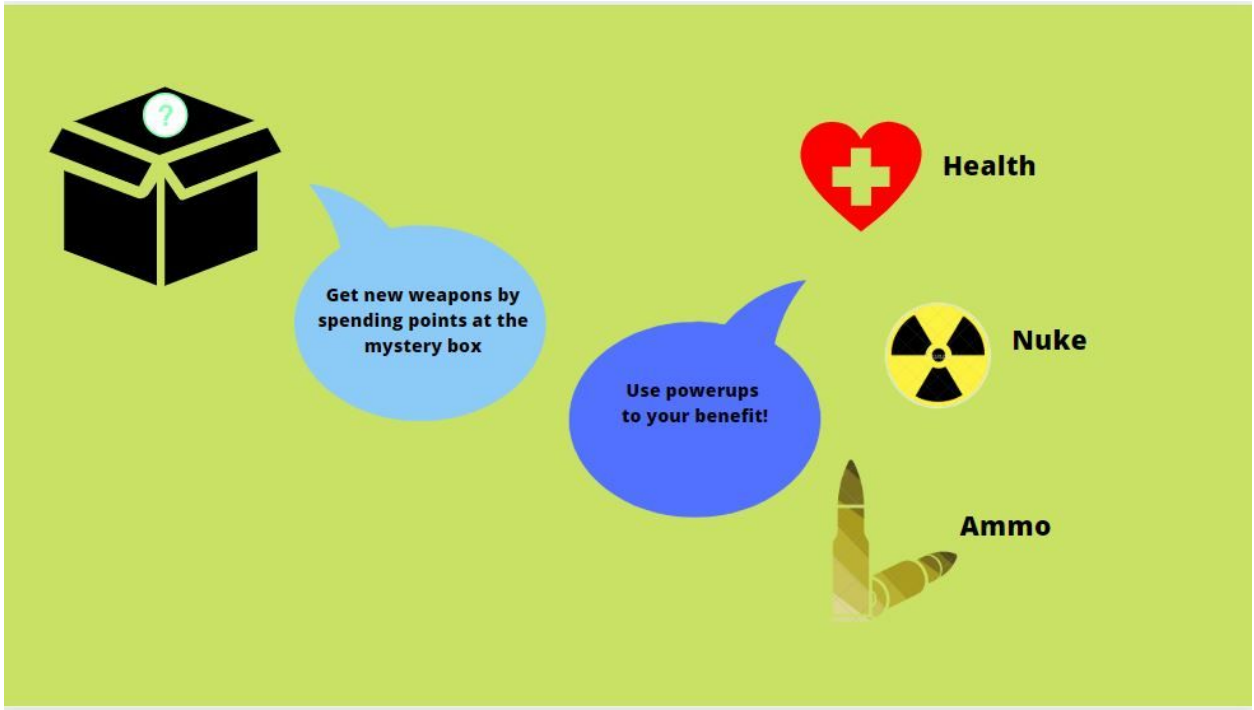

Surviv.io 0.5
Zombies
Start
Options
How to Play


Move the mouse to aim and click to shoot the zombies and earn points!
W
A
D
S
Use WASD to move around the map


Map Objects, such as exploding Barrels
And barbed wire obstacles


Procedurally Generated Rounds
Avoid the zombies!!
HEALTH: 80%


Variety of
different weapons


Get new weapons by
spending points at the
mystery box
Use powerups
to your benefit!
Health
Nuke
Ammo