**Final Assignment: GAME3033 – Rui C. Geng L. 101277255**

**Zombie Warfare**

**GDD Version:**

Current – v1.0 (Initial GDD and game design, may be subject to change for gameplay improvements)

**Concept:**

Ex-Circus performer, Ray Rattison found himself returning to a city where a zombie virus outbreak has turned everyone within into undead. Upon finding that his own family was also infected and are no longer their formal selves, Ray embarked on a raging killing spree. However, during his tireless journey to eliminate the zombies, Ray discovered that not all hope was lost for humanity. Remote settlements of the lucky survivors were attempting to contact each other in order to reunite the human race. Ray started to redirect his anger to clear multiple paths that ultimately lead to improved settlement communications and trades. Each time Ray reaches a new settlement, he will be able to unlock information and knowledge that will lead him to the next neighbor communities, along with having access to new and better weapons, health aids, and other helps for his journey. Before long, Ray became an independent hero who is hired by the remaining few to rebuild and restrengthen what’s left of the human world.

Initially, Ray has only prop weapons due to the nature of his previous job. However, as a member of the national gun club and also a firearm enthusiast, Ray will have more available weapon choices when he gets to his home and/or visit the nearby gun shop (both locations very close to his initial spawn point).

**Objective:**

The player must survive through each level, reach the target human settlement, and complete all mandatory objectives. He will also have the optional missions of retrieving certain items (after contacting the first settlement) that will provide more rewards (cash, weapons, and health aids).

**Core System**

Third Person Shooter:

* Character Controls
  + Movement: W, A, S, D, Space Bar (jump), Left Shit (pressed to run), Left Ctrl (pressed to crouch)
* Camera Controls
  + 3rd person, always facing the same direction as the player. Mouse movement will change where Ray is looking towards, as well as the weapon attack direction.
* Weapon Controls
  + Aim: Right Mouse Button
  + Attacks: Left Mouse Button
  + Change weapon: Mouse Wheel or Q, E, or num Keys 1-5.
  + Reload: R
  + Throw grenades/Molotov: T
* Enemies
  + Regular zombies (claw attacks and biting)
  + Optional: Intelligent Zombies (ranged attacks and spits)
  + Optional: Difficult zombies with larger physical appearance (higher health, faster running speed, and heavier attacks)
* Damage
  + Instant: damages made by the zombie attacks.
  + DOT: the player can also get infections that will decrease his health (similar to the mechanics of poison). Can only be cured by taking antidotes. The player can also decrease this type of damage/increase immune system by taking vaccines.

**Supporting System**

Inventory:

The inventory can be opened and closed by pressing the I key. Which will show the available/stored items as well as weapons for the player to use. There will be a limit to how many objects Ray can carry, as well as varied sizes from different types of backpacks. Blank inventory slots indicate the empty spaces where Ray can put his future pickup items.

Each backpack’s inventory system can also only carry a limited number of primary and secondary firearms, regardless of the total number of empty slots. (For example, a small backpack can only carry 1 secondary and no primary weapon, with 5 slots for other items. While a very large camping backpack can carry up to 3 primary and 4 secondary weapons with 20 slots for other items).

Separate from the inventory systems provided by backpacks, the player is also able to carry 1 primary and 1 secondary weapon, 1 throwable, as well as 2 other items.

* Weapon Pick Up: Upon contact with the new weapon, the player can pick it up by pressing P. Or equip it using G (will cause the original active weapon to drop on the ground instead of going into the inventory, even if there are available spaces). Alternatively, Ray can also equip an active weapon and edit the carry loadout through the inventory system. These are not stackable with the exception of throwables (grenades/Molotov).
* Item Pick Up: Similar mechanics to weapon pick up. Most consumable items will also be stackable.
* Weapon Swapping: By pressing Q or E or scrolling the middle mouse wheel, the player can swap between the equipped carry weapons and the active weapon in a sequential format. Note: swapping will not occur to the ones inside the inventory.
  + The player can also swap between the carrying items by pressing keys 1-5. (1 for primary, 2 for secondary, 3 for throwable, 4 and 5 for other equipped items).
* Item Consumption: Selecting an item as active and left-click, the player can consume items such as bandages and antidotes. The player can also consume them via the usage option in the inventory. Note: the throwables will only consume if the player presses T, while they are in slot 3 of the carry loadout (although not mandatory to have it as the active selection).
* Inventory UI: Fixed size, but that can change depending on the backpack the player is currently carrying, if any. Changing backpack is only available at a settlement, where the player is required to first move everything to a chest/storage, then equip the new backpack and then move the desired items back.
* Cash amount UI: displayed when inventory is open, and can be used for doing trades at the settlements

Note: depending on the mechanics and the gameplay experiences offered from the above inventory system, an alternative design of a single type of backpack with the ability to expand can be implemented instead.

UI (Visual):

* Player stats: player statistics such as health, ammo count, any possible effects (like infection) will be displayed on the top left corner of the screen
* Objectives: a list of objective(s) will be displayed below the player stats, with the main/current objective displayed on the top middle of the screen.
* Minimap: on the top right corner of the screen, a minimap will display the player’s current position. May or may not display the objective’s position depending on the stage of the game the player is currently in.
* Carry loadout: displays the items that the player is currently carrying (not the inventory) at the bottom center of the screen, and highlights the active slot.
* Other: the save icon will be displayed below the minimap, and will appear whenever the game progress is being saved (either automatically or manually).

UI (Sound):

* SFX for action feedbacks: shooting, player hurt, zombie hurt, zombie growling, etc.
* BG Music: default (ambient noise), relatively large zombie horde incoming (horror style music), arriving at settlements (possible cheerful music).

**Save System:**

This feature will most likely be done through a StreamReader/Writer to a txt file, but PlayerPrefs may also be used as an alternative.

The saving system will be done automatically in a format of checkpoints, either at certain time intervals or locations, as well as each time the player quits to the main menu or saves manually (with a button in the pause menu). This is to prevent the player from accidentally quitting the game without properly saving (for example force quitting the application or having a crash).

What will be saved:

* Current inventory
* Current actively equipped weapon/items and the carry loadout
* Current health
* Current effects (if any, for example, infected/sick, ability boost)
* Current zombie wave
* Player position
* Last objective the player is working on.
* Cash amount

If Ray dies, he will be loaded with the data from the last available checkpoint with a health penalty and no boost effects (but still can have infections).

**Mission/Objective System:**

There will be a series of missions/objectives that the player has to pursue, which is the basis of this game’s progression. The current initial mission concept is as follow:

* Initial Mission: Ray is close to his house, and needs to find actual weapons. This can be within his own gun safe and/or visit a gun shop 1 block away.
* Mission 2: Upon killing X number of zombies, a radio nearby will trigger an on-screen message, displaying other settlement’s calls for help.
  + Optional mission: get some bandages and health kits.
* Mission 3: Reach settlement 1, where Ray will receive more information about the ongoing situation as well as find out about a second settlement that needs help.
  + Optional: Obtain weapon upgrades and health aids.
* Mission 4: Reach settlement 2 and set up inter-settlement relationships.
* Possible other missions: return to a previously saved community to defend against a larger horde of zombies.

**Pick Up Items:**

Initial pickup item concept:

* Health aids:
  + Bandages, health kit: restores the player health
  + Antidotes: heals the player from infections
  + Vaccines: boost the player’s immunity to infections and the damages they do.
  + Stimulants: increases the player’s attack damages and movement speeds for a limited period of time
* Throwables: grenades, Molotov
* Weapons and ammo
* Backpacks
* Mission objects: communication tools, etc.