INFR3110
Individual Assignment 1
Cody Jensen
100591285

The Team

Part 1 - My Role
For my GDW team, I'll be responsible for heading the programming side of the project, working with another member of the team to coordinate repository updates, establish game mechanics and functionality, develop tools to assist non-programming oriented members, as well as to ultimately set up multiplayer networking for the team.

Part 2 - Week 1
During the first week of labs, we began by establishing a Unity project. Though we did not successfully complete our first week of labs before class could finish, we did manage to import assets into the project as well as set up the initial process of detecting input using Unity's new input system. Because we did not finish the lab, I didn't fully understand how to use the new input system.

Part 3 - Week 2
During the second week of labs, we continued where we left off in the first week, finishing off the input controls, where I learned how to work with the new input system properly. Afterwards, we looked into using singletons, which I use for my Game Manager to handle storing of game states and game variables.

Part 4.1 - Base Project
In the base project (basing it off the content covered in the lab), we established basic horizontal and vertical movement. We also managed to get our character to shoot projectiles in the forward direction. Listed below are my additions to the base project.

Part 4.2 - My Additions

GameManager

The GameManager is a singleton formatted class that handles storing information on the state of the game, including the player's points, collectibles and kills. It also stores a reference to the player, allowing other classes, such as the spawner or enemy class to easily access information needed from the player (such as detecting if they are alive or not).

UI

In addition to the GameManager, I've also created a UI singleton class that handles updating the interface of the player to display information about their health, number of kills, and coins collected.

Collectibles

I believe in class we may or may not have completed the collection of coins within the labs. Regardless, I've added in my own version of the coin to act as a currency for the player. Coins are dropped by enemies with a 30% chance upon dying, which can be collected by the player through contact. Coins will be accumulated and in the future can be used to purchase upgrades or new weapons.

Enemies

I've created one core enemy for the player to interact with in this build. It uses the most basic of tracking in order to pursue the player by looking towards them and moving forward. I've added in attack range behavior to detect if the player is in range to perform an attack, as well as raycasting to try to deliver damage to the player's health. As mentioned earlier, enemies also have a 30% chance to drop coins on death.

Health Script

The health script serves as a simple modular class that can be attached to any object I want to be destructible or killable. I've attached it to both the player and the enemy within the game and have established methods for both to damage and kill each other. In the future, I would like to add it to environmental objects, such as boxes, doors, or blockades which can be destroyed by attacking them.

Updated Controls

Player controls have been updated to feature new motion controls and camera controls. The player can now rotate their camera, which rotates the entire body of the player, using the horizontal mouse axis. Jumping has been implemented, along with restrictions preventing the player from shooting while mid-air (to keep it more in-line with the animations provided). Shooting has also been updated, with projectiles being able to detect collisions with enemies, resulting in damage being dealt to them.

Animator

Lastly, I've updated the player animator with more animations, including jumping, landing, falling, being hit, and dying. I've also created a new animation controller for the enemy, which includes animations for idle, movement, attacking, being hit, dying, and dancing.