ICE-3702: Advanced Game Development

Assignment 3: Gameplay Prototype

Name: Maximilian Clarke

User ID: 500581367

Description

In this assignment, I made a game where the player is spawned next to a lake in a valley surrounded by mountains. The player is free to explore the map and interact with their surroundings. They will also encounter wolves who are the enemies in the game.

Gameplay Mechanic(s)

The player can run, sprint, crouch and jump using the PlayerController component.

I also included the functionality allowing the player to swim in the lake using the jump key to float. I added a script that changed variables in the WorldVolume to enhance the underwater view, as well as a particle system that is active when the player is underwater.

I created a health bar UI for both the player and the wolves. These health bars can both be depleted and replenished through use of functions TakeDamage() and Heal(). When the health bar reaches zero for the player the game ends and the player is shown a "You Died" screen giving the options to restart or quit. For the wolves, if their health bar reaches zero, they have a method so that they 'die' – meaning their NavMesh.Agent component is disabled as well as any animation or sound pertaining to it.

I also created an enemy AI using Navmesh for the wolf entity, the wolves GameObjects are spawned on random parts of the Navmesh, the number of wolves that are spawned can be controlled in the inspector. The wolf AI is such that it will patrol the terrain using Navmesh when the player is outside the chase range, when the player enters the chase range, however, the wolves' speed increases so that it starts running towards the player.

When a wolf is within the attack range a method is executed so that the wolf inflicts damage towards the player, and therefore makes their health bar decrease.

I also added a RayCast hit method that allows the player to attack the wolf they are looking at, similarly the wolf's health bar will decrease.

I used a wolf asset which included several animations from the Unity Store to create my wolf AI entities. I scripted the animation events myself and added sound effects to different parts of the scene, including the wolves, for whatever action they are doing.

Custom Environment

The game environment is mostly an expanse in which the player is free to wander around, my aim was to make a survival/exploration game to some extent. The scene is contained within a mountain range, so the player must be in an area populated with wolves so there is always an element of danger.

Challenges

The main challenge for the player is to stay alive until the timer runs out, the difficulty can be adjusted by changing the values such as how many wolves can spawn or how long the timer is.
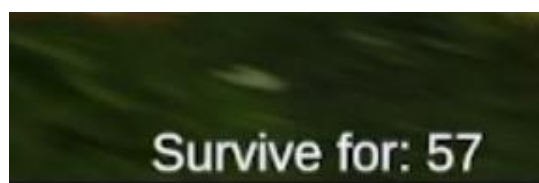
Another challenge the player can complete is to attack the wolves themselves, since they are able to get killed. However, the lack of healing functionality in this build of the game - meaning the player cannot replenish their health - may hinder player choice in engaging in combat with the wolves. Therefore, in future builds of the game, it may be beneficial to include a healing element as an incentive to use the built-in combat system, this aim could be enhanced by including suitable rewards for doing so.

A mechanic that may offer further challenge to the player would be to add a hunger and temperature UI akin to the health bars, they would behave similarly yet have different functions, such as when the player has a full hunger bar, this would invoke the HealingOverTime function, and the temperature bar would decrease when events such as being in water and then start damaging the player if too low for too long. This is a mechanic that I started testing with, however, it was not functional enough to include in this build.

References for assets used

https://assetstore.unity.com/packages/3d/characters/animals/wolf-animated-45505

https://assetstore.unity.com/packages/3d/characters/animals/birds/living-birds-15649

https://assetstore.unity.com/packages/2d/textures-materials/floors/outdoor-ground-textures-12555

https://assetstore.unity.com/packages/3d/environments/landscapes/terrain-sample-asset-pack-145808

https://assetstore.unity.com/packages/tools/terrain/vegetation-spawner-177192

https://assetstore.unity.com/packages/3d/environments/landscapes/rock-pack-210536

https://assetstore.unity.com/packages/3d/vehicles/sea/wood-boat-124043

https://assetstore.unity.com/packages/vfx/particles/environment/rain-maker-2d-and-3d-rain- particle-system-for-unity-34938

https://cubebrush.co/hyadis-mandra/products/bczf2g/rope-tileable-pbr-material