Game Programming Project Report

Game Description

My 3D Game Demo is called Cataclysm IV: Destruction of Hell, it is a DOOM tribute developed in Monogame for the SimVis Game Programming course. Players must defeat hordes of demons by carefully placing grenades and get as many skulls as they can.

Testing Instructions

This game is optimized for a 1920 x 1080 resolution. When the application starts you will see a menu with the name of the game. Press A to get more information and see the controls, Escape to exit the game, or Enter to start playing. If you press Enter you will be in an enclosed 3D space where you can move around with the WASD keys. You can also rotate the camera with the left and right arrows. Your goal is to touch the rotating skulls to increase your score, while you avoid the enemies that follow you and spawn randomly around the play area. If you press the Space bar, you can place a grenade that damages enemies if they touch it. You will need 2 grenades to kill an enemy. The enemies increase their speed the longer they are alive, so make sure to kill the fastest ones first. If you get touched 3 times, you will die and you will get a Game Over screen which shows your score. You can press M to return to the Main Menu and try again, or Escape to quit the application.

Development Report

The main architectural elements of the scripts (the creation of a 3D space, game states, and collisions) were very easy and straightforward to develop due to the information and examples given to us during the classes and labs. However, I had issues when trying to add new elements to the game, such as sprite billboarding, 3D terrain, mouse input for the camera, etc., due to the lack of online resources. Another issue I faced had to do with the importing of textures and models. In many cases the content pipeline tool would not accept them and I'd have to look for alternatives, which had an impact on the time I had available for programming.

The initial idea for this demo was to make a Silent Hill-looking town using fog effects and have enemies follow players while they try to pick up a definite number of items. However, I decided to switch to a DOOM tribute so I could have a skybox on screen at all times (one of the requirements for this assignment), which I couldn't easily do with the fog effect. I also decided to make the game more "arcade-y" by introducing endless gameplay and randomized spawning of enemies and pickups.

Reflective Critical Report

I believe I have successfully met the requirements for a good grade in this assignment. While my implementation of classes may not be the best and the game does not have any unique elements, I have created a demo with enough gameplay to make it replayable and for players to test different strategies and develop their skills through time.

The demo makes extensive use of collision both through bounding spheres and boxes. While the enemies can go through walls this is merely a design choice to induce a heightened sense of tension in the gameplay. Knowledge of how to achieve collision between player, environment, and enemies is demonstrated by the enemy reaction to collisions with both grenades and players.

Third-party credits

Skybox taken from http://www.custommapmakers.org/skyboxes.php

3D models taken from free3d.com, used under a personal license

Wall texture created by my friend Daniel Kowalski

Floor texture taken from: https://www.textures.com/download/floorstreets0072/38225

The music is "Rip & Tear", from Mick Gordon's DOOM (2016) soundtrack.