Advanced games tech milestone 1 report

My original game concept idea was some sort of flight simulator with some shooting combat against other flying enemies and some stationary on the ground ones. However, I struggled too much with making it in its first iteration. Initially I wanted the camera to move forward constantly in the direction of where ever the mouse was but I was unsuccessful in my attempts. My new idea was to make a 1st or 3rd person flying shooter game where you move forward at constant speed and are able to manoeuvre your ship to avoid obstacles and shoot enemies all around you.

Game level intro screen

For this task I decided to create a Boolean to check whether or not the start screen was true. When the start screen was on I decided to switch to the orthographic/2D camera this is where the intro text was rendered on the screen I included the title of the game and the controls for the game that have been implemented so far. I also rendered some trees for some art for the intro screen. Once the player hits the Enter key the camera switches to the perspective camera/3D camera and begins the game.

Inclusion of at least on primitive-based game object

For this task I decided to use the primitive to be the main repeatable enemy of the game because I think OpenGL primitives just look quite cool for video games. It also fits the theme I was going for as a sort of Alien spaceship that's futuristic but is simplistic (as technology advances it also looks and becomes simplistic). For my shape I created some form of a 3D three sided triangle that's fairly elongated at the point where all sides meet. The back of the primitive also points outwards look more aerodynamic. My idea for this primitive is that they will be flying around shooting at the player as well as rotating and turning to evade some of the players attacks. For the texture I decided to use a base texture for a different model since it looked very futuristic but also sort of psychedelic which is an art style I'm fond of so I decided to use textures that would replicate that sort of art. I used a for loop to create many instances of this object and also rotated each one differently so you're able to see the object at different angles. I also included some commented lines if you would like to see it rotate in a different angle or different combination of angles.

Change the skybox and terrain textures

The skybox was fairly straightforward since it was a space/alien game I decided to just use a galaxy for my skybox but many of the ones I found weren't seamless until I stumbled upon a website that had auto generated galaxy skyboxes with randomised seeds as well as options to remove some parts. The terrain was a little more complicated as all of the textures I found didn't really fit the theme I was going for until I found a snow based terrain texture. In this texture there were many different images used to make the texture and I decided to use the base pink one as I felt it fitted well into my game for aesthetics as well thematic. The colour differentiated it from the enemy ship very significantly so I felt it matches my game to use bright textures with a fairly dark skybox.

Camera motion technique

I tried to use the mouse.x and mouse.y of the template code inside of the camera header to move the camera towards the mouse constantly but was just not working. After this I just decided to keep it moving straight with some constrains on mobility but allowing some more speed within those constrains for mobility. So my camera technique is swapping between 2d and 3d camera for intro and the game. 2d camera is a stationary camera and 3d camera moves on rails but cannot exceed the boundaries I have set for them. I have also allowed for the mouse to turn the camera since I wanted to move it in direction of mouse initially. But I decided to keep this odd feature because I feel like there could be some interesting gameplay with something like this. One idea I had was for a boss battle where the screen would instruct you to turn around and you're being followed by something so you have to fly backwards and shoot just for a more interesting gameplay.

Inclusion of at least one mesh based object

I decided to implement some kind of turret that would follow the player using the transformation of the cow this would kind of work but not in the way I intended it to. This turret would remain stationary in movement but would rotate towards the player as it flies by and shoot at the player. The player will also be able to shoot back.

Final game

My final game will be an on constrained rails, 1st or 3rd person flying shooter game with many obstacles that the player will have to manoeuvre around and many enemies that the player will need to destroy by shooting at them. These enemies will also be shooting at the player. There will be a mixture of flying and stationary enemies and a boss battle that will occur behind the player and they will have to fly backwards during the battle. A mini-map would be very useful in this game so the player has some idea of where enemies are. The type of obstacles I was thinking of using were trees, rocks, terrain and the sphere which would be thrown on the path of the player by an enemy on the side.

Assets

Skybox - https://wwwtyro.github.io/space-3d/ - random seed- x637rdnuxr4

Terrain- (I used only one of the jpg files in this download not the one displayed but one in the download)- https://texturehaven.com/tex/?c=terrain&t=forrest_ground_01

Turret- https://free3d.com/3d-model/star-wars-imperial-turret-58616.html

Enemy- (I used only one of the jpg files in this download not the one displayed but one in the download)- https://3dtextures.me/2020/10/07/sci-fi-wall-007/