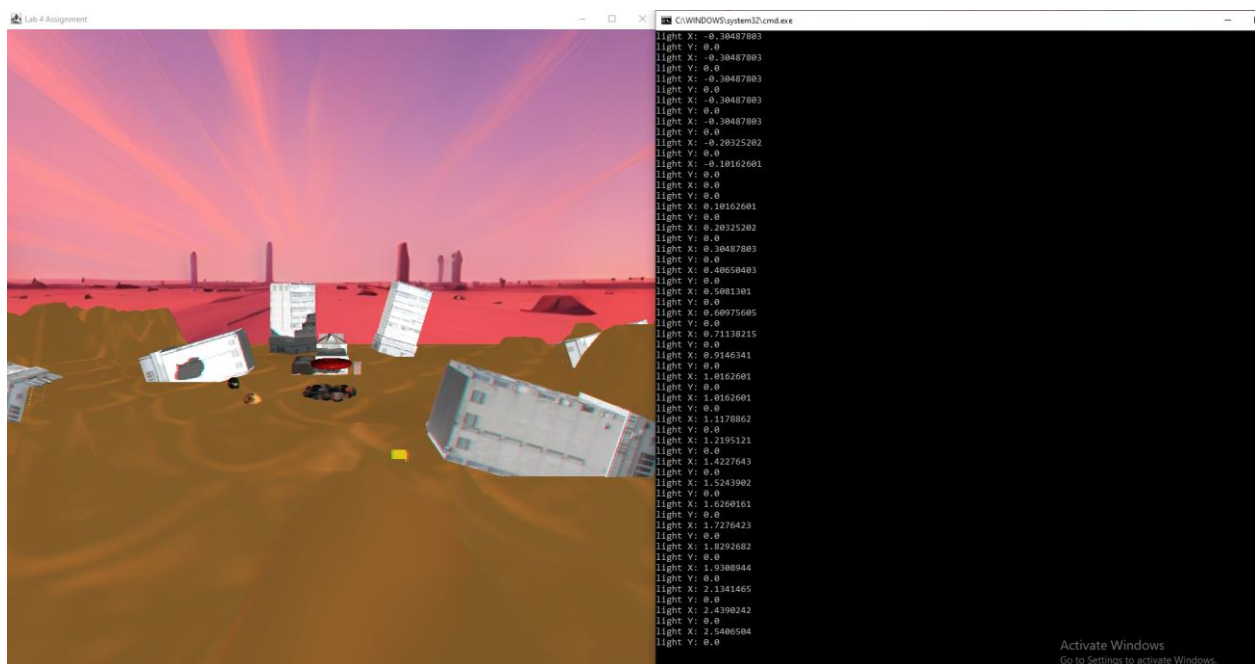Kareem Moustafa

Professor Scott Gordon

CSC 155 Sec 2

12 May 2023

Lab 4 Report

1.

2. My scene is losely based off of the Shin Megami Tensei games which feature dystopic

    landscapes and the ideas of demons and gods interacting with our world. My scene

    depicts two cats dancing around a camp fire with such a being (a transparent cat model

    textured using Perlin Noise floating above a torus modified by a geometry shader to

    symbolize an "eldrich being") while the land around them is covered with sand and

    buildings in various angles and locations.

3. All of the buildings (the café and the scattered buildings around the map), the two cats in the middle circling around the campfire, and the campfire itself all participated in shadow-mapping. That makes a total of 10 objects that actively participate in shadow mapping.

4. The five requirements I decided to implement are as follows:

    a. Geometry Shader (evident in the Torus)

    b. Stereoscopy with red/cyan glasses (evident in the entire program)

    c. Normal Mapping (done on my floor object)

    d. Height Mapping with Vertex Shader (done on my floor object; I spoke with the Professor he said this counts as 0.5 points) and Blending/Transparency (done on the cat object above the campfire) in order to get the full point.

    e. Perlin Noise (evident in the Cat Object above the campfire).

5. Camera and Miscellaneous Controls:

    a. w key: moves camera forward

    b. a key: strafes camera left

    c. s key: moves camera back

    d. d key: strafes camera right

    e. e key: moves camera down

    f. q key: moves camera up

    g. up arrow key: pitches camera up

    h. down arrow key: pitches camera down

    i. left arrow key: pans camera left

    j. right arrow key: pans camera right

    k. j key: rolls camera left

    l. k key: rolls camera right

    m. spacebar key: toggles axes

    n. t key: toggles positional lights

    o. ESC key: exits the program

6. I was able to get all my requirements fully working and implemented. The only issue I believe I have is with my shadow mapping as sometimes the shadows cast are not accurate to what the light is actually being casted on.

7. The only features I implemented that were beyond the requirements is within my key bindings where I added an esc key to quickly exit the program and rolling the camera.

8. I used five different objects from the web in my assignment. All objects were found on www.sketchfab.com. The cat1.obj and cat1.jpg files (https://sketchfab.com/3d-models/the-chonker-gwa-gwa-cat-8a22de5f69124818a2c268c20c5f91f7) were created by user bean(alwayshasbean) and its license is the Creative Commons Attribution 4.0 International (CC BY 4.0). The cat2.obj and cat2.jpg (https://sketchfab.com/3d-models/dingus-the-cat-2ca7f3c1957847d6a145fc35de9046b0) were also created by bean(alwayshasbean) and its license is the Creative Commons Attribution 4.0 International (CC BY 4.0). The campfire.obj and campfire.jpg (https://sketchfab.com/3d-models/camp-fire-b7967d9c16b64f2790b87e5ff8a80b52) were created by user JalenJacobson and its license is the Creative Commons Attribution 4.0 International (CC BY 4.0). The shopcafe.obj and roadsidecafe.jpg (https://sketchfab.com/3d-models/shop-cafe-43e6ea9ae2db43caaaa9fa8630d11ea9) were also created by bean(alwayshasbean)

and its license is the Creative Commons Attribution 4.0 International (CC BY 4.0). The

building3.obj and 9stbuildingtex.png (https://sketchfab.com/3d-models/9-storey-

residential-building-4407c6bd0d944a9c8ad0b9c08e65a1da) were also created by

bean(alwayshasbean) and its license is the Creative Commons Attribution 4.0

International (CC BY 4.0). The textures I used for these five objects were all provided by

the original authors of the models. The link to the appropriate license is as follows

https://creativecommons.org/licenses/by/4.0/. No changes or alterations were made to any

of the models besides importing the original model format into Blender and exporting

them as obj files. For the other three objects in my program, one of them I hardcoded and

the others were taken from the book (Torus.java and grid.obj which I renamed to

floor.obj). For the yellowCube object, It utilizes a cubetex.jpg that I created in

FireAlpaca64 that's just a simple yellow square. For the floor object, it utilizes the

grid.obj that can be found within the book and uses a "plane.jpg" texture that I also

created in FireAlpaca64. The floor object also uses a normal map texture that I found

from the book called "castleroofNORMAL.jpg" and a height map called "height.jpg"

which I personally created in FireAlpaca64. The torus is from the Torus.java file that can

be found from the programs, and is not textured by anything. For the skybox, I used a

website (https://skybox.blockadelabs.com/) in order to randomly generate a skybox using

a prompt and AI. The prompt I used was "dystopian world with an orange and red colored

sky". I then used another website (https://skybox-generator.vercel.app/) in order to break

the skybox image I received from blockadelabs.com/ into a cubeMap. The license for

blockadelabs.com is as folows https://huggingface.co/spaces/CompVis/stable-diffusion-

license. The license for using the skybox generator is as follows

https://github.com/jaxry/panorama-to-cubemap/blob/gh-pages/LICENSE.

9. I tested my program in the RVR-5029 lab and I tested it on the computer "Paperboy" and "XCOM".