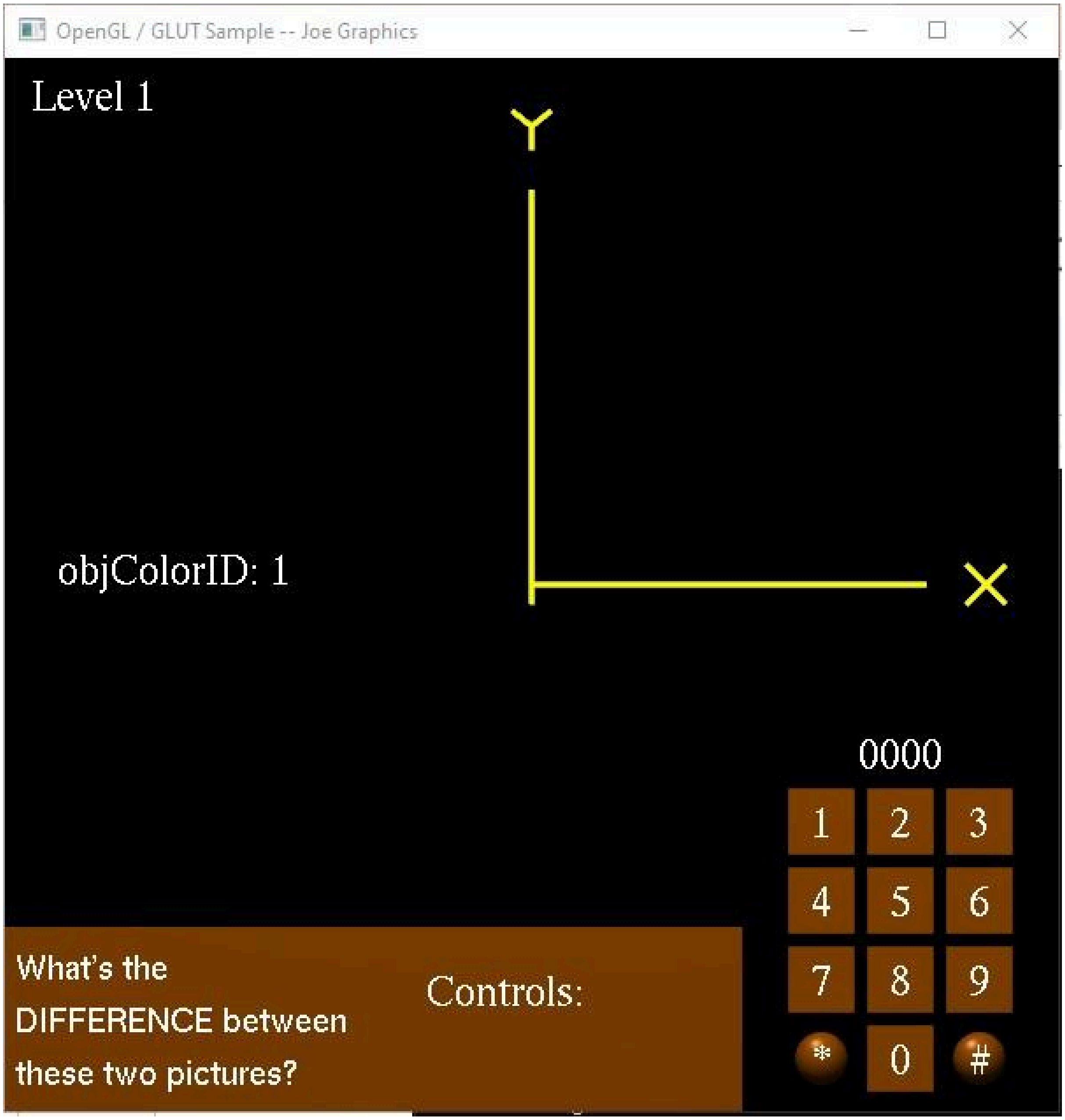
1. Benjamin Leonard
2. leonarbe@oregonstate.edu
3. Final Project
    a. Since I had only worked in glMan so far, I started by downloading the Shaders Starter ZIP file from the class website, then I created another GLSL Program titled PatternPicking modeled after the preexisting Pattern Program. This new program renders every separate object in the scene as a slightly different color and then reads the pixel color at mouse (x,y) to determine what the user is attempting to click on. The Display either renders the actual scene or the PatternPicking scene depending on if the user just let go of the left mouse input button. Using this technique I was able to successfully implement a keypad that progresses the user to the next level provided the correct 4-digit pin.
    b. After I finally got it working, I set up the levels and general topography of the Main Menu and first level before I had serious problems with the shaders. I spent a long time getting an Image Difference shader to work, due to a bug when saving a .bmp in MS Paint vs Photos it changes the file size, resulting in one of the images being diagonalized and mapped incorrectly. After fixing that I have an unresolved issue where there is a noticeable red tint to the shaders output in glMan, and after multiple hours I was unable to figure out why. Interestingly the non-square .bmp files would map incorrectly but would not have the red tinge. This issue carried over to both the ImageBlur and ImageBrightness shaders. Even worse, when I try to use them as shaders for displayList objects in the C++ program they all come out black. I set up a mix function in one of the shaders and mixed the output with white, resulting in a grey color, meaning that the gl_FragColor was being passed through, but there was an issue involving texture sampling or something else entirely. After 4+ hours of trying to solve this issue using class materials, lecture videos, and searching the internet, I gave up.
    c. I learned a lot about picking and selection, and not to assume that separate programs will enforce the same standards such as file type, resolution, or output size. Even though this method of picking is not suitable for most applications (due to the slower performance than other methods and noticeable flicker when clicking to select an object), I have a better understanding of the rendering/display process and how GLSL programs work. I am a little disappointed that I was unable to get this working, as I was genuinely interested in creating this game, even if it was fairly simple.

4. 

Level 1

objColorID: 1

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What's the DIFFERENCE between these two pictures?

Controls:

5. Video Link: https://media.oregonstate.edu/media/t/1_pjg3ru1y