CSCI 4458 | CSCI 5558
HW 01 - Solution

Assigned: September, 02 2019
Due: September 13, 2019 @ 17:00h

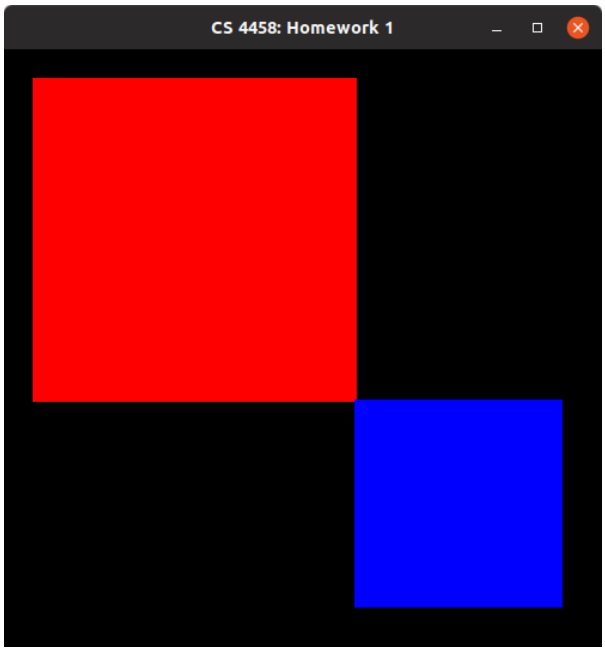
Purpose

- To ensure that you have OpenGL up and running on your system.
- To give you a brief taste of 3D programming.

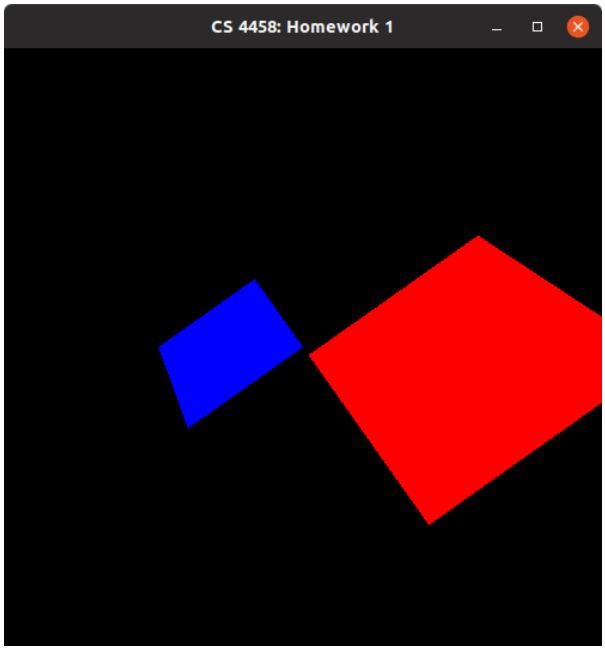
Instructions

1. (50% Level) Get OpenGL running on your computer. Implement any OpenGL program that displays something. There are many resources to help you with this. Students should also help each other, so if you have it running and compiling on your computer, whether it is Windows, Linux, or Mac, and are willing to help your coursemates, please let them know.

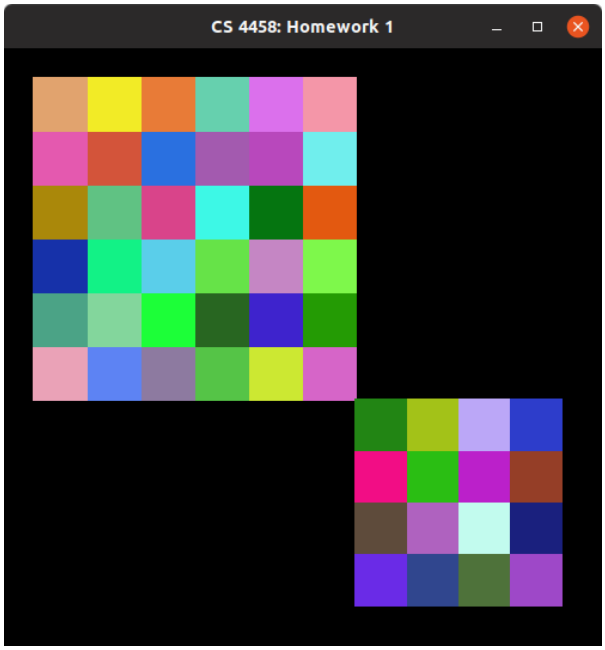
2. (70% Level) Use OpenGL to draw a red square and a blue square. The red square will have vertex coordinates (0, 0, 2), (0, 30, 2), (-30, 30, 2), and (-30, 0, 2). The blue square will have vertex coordinates (0, 0, 0), (0, -20, 0), (20, -20, 0), and (20, 0, 0). Make the center of the view (0, 0, 1), and so if you view down the Z-axis it will appear that the two squares touch at the origin. Both squares should be completely visible, so adjust the view distance and angle appropriately.



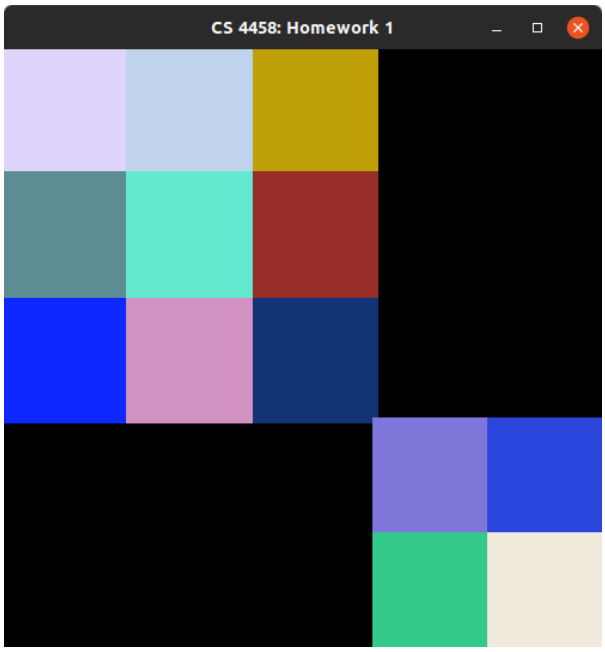
3 (80% Level) Change the position of the virtual camera so that it is not on the Z-axis so that you can see the gap between the two squares.



4 (90% Level) Break the two squares up into 5x5 small squares with different colors. So, for example, the red square will be a patchwork of 36 small colored squares. Do this with a nested loop, not by separately drawing 36 squares in your code.



5 (100% Level) Adjust things so that when you look down the direction of the Z-axis (presumably off to one side) the center of the top left of your display is at the exact center of the 30x30 square (-15,15) and the bottom right is at the exact center of the 20x20 square. Use your multi-colored squares for this.



Submission

Demo to me on or before Friday September 13th @ 1700h. Please note that demos can be conducted via Zoom or Google Hangouts if a face-to-face meeting cannot be established.