Project 2: JOGL OpenGL Project

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CMSC 405: Computer Graphics

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Test Cases

Table 1

Test Cases for JOGL transformations

Key	Function	Expected Output	Actual Output	Pass/Fail
W/↑	Rotate on negative X-axis	Scene should rotate on negative X-axis	Scene rotated on negative X-axis	Pass
A/←	Rotate on negative Y-axis	Scene should rotate on negative Y-axis	Scene rotated on negative Y-axis	Pass
S/↓	Rotate on positive X-axis	Scene should rotate on positive X-axis	Scene rotated on positive X-axis	Pass
D/→	Rotate on positive Y-axis	Scene should rotate on positive Y-axis	Scene rotated on positive Y-axis	Pass
Q/Page Up	Rotate on positive Z-axis	Scene should rotate on positive Z-axis	Scene rotated on positive Z-axis	Pass
E/Page Down	Rotate on negative Z-axis	Scene should rotate on negative Z-axis	Scene rotated on negative Z-axis	Pass
I	Zoom In/Scale up	Scene should get larger (i.e. zoom in)	Scene got larger (i.e. zoomed in)	Pass
O	Zoom Out/Scale down	Scene should get smaller (i.e. zoom out)	Scene got smaller (i.e. zoomed out)	Pass

Note. The function in each row of this table is repeated, at least seemingly, continuously while the associated key is pressed.

Source Code

The source code for this project contains three Java classes: CMSC405P2, CMSC405P2Shape, and CMSC405P2Transformation. CMSC405P2 contains the main method of the program, extends GLJPanel, and implements GLEventListener and KeyListener: it drives the program and user interaction. CMSC405P2Shape is a class with only a private constructor that instantiates the three package-private final variables: vertices, faces, and faceColors. All shapes used in the program are defined in this class as public static final variables. This has a similar effect as an enum: Class.VARIABLE is like Enum.NAME. Finally, CMSC405P2Transformation is a bean that holds variables for the x-, y-, z- coordinates and scale for the images when drawn. I didn't want the methods to have too many parameters, so I wrapped up all parameters I wanted in a "transformation" class. This made it clearer what was happening in the code.

Screen Captures

Unlike the previous project, I did not need to create any breakpoints to pause due to no active animations being present. Instead, I took a screenshot of the default position of the elements as well as one for each of the controls' effects. For controls that have multiple keys assigned, I only captured one screenshot because it is not possible to show the different effects. The only exception is the one screenshot taken after pressing "Home" to reset the positions. In between all screenshots, however, I did use the "Home" button to reset the positions to better display the effect of the buttons. In addition, I pressed each control button four times to further this impression.

Figure 1

Screen Capture of the Default Configuration

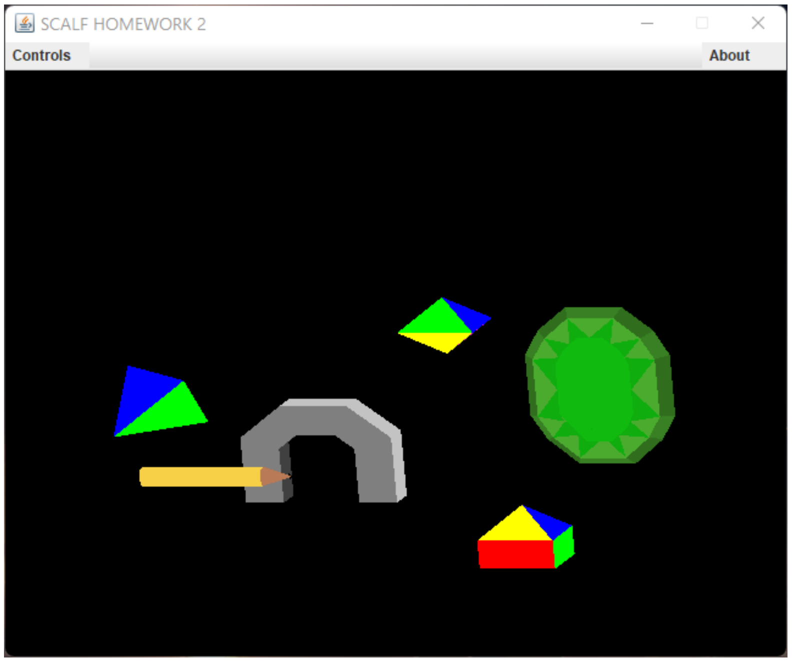


Figure 2

Screen Capture of W/↑: Negative Rotation on X-Axis

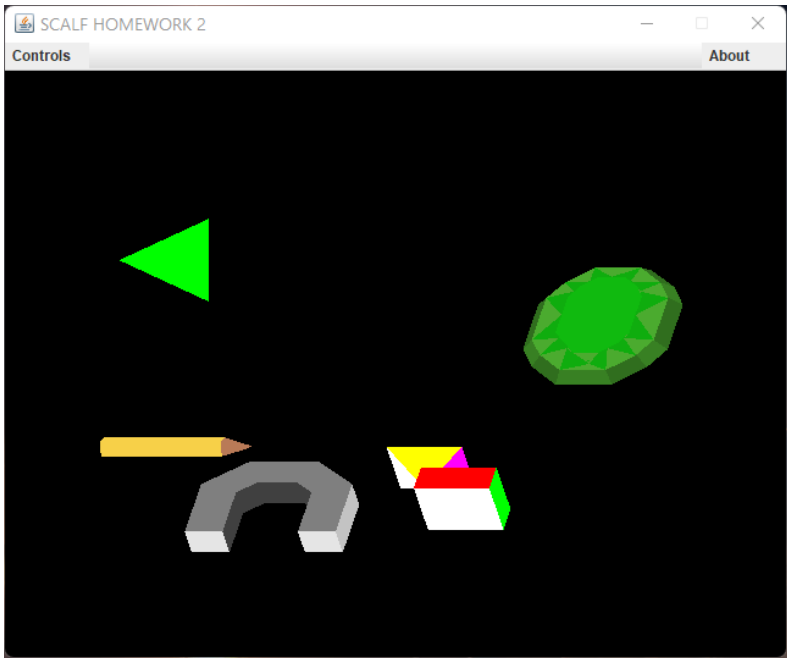


Figure 3

Screen Capture of A/←: Negative Rotation on Y-Axis

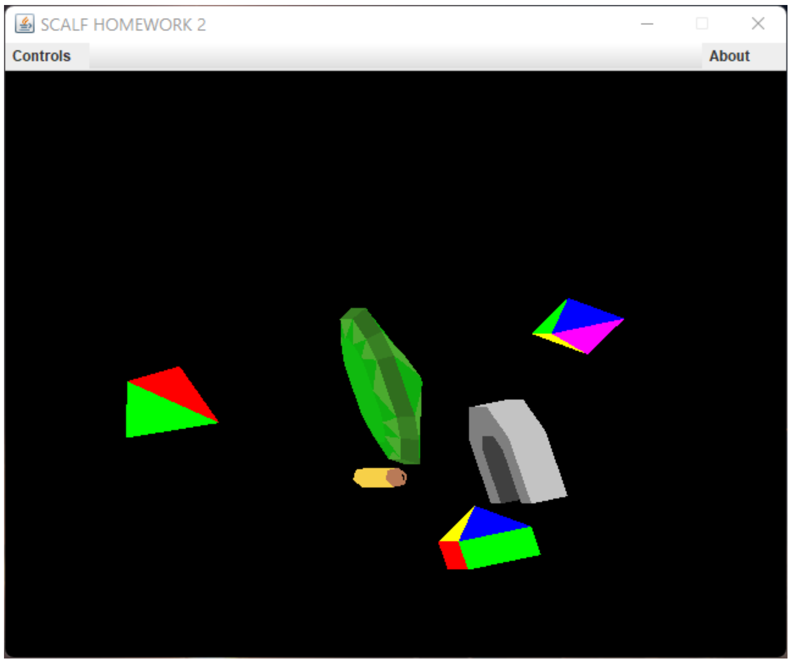


Figure 4

Screen Capture of S/↓: Positive Rotation on X-Axis

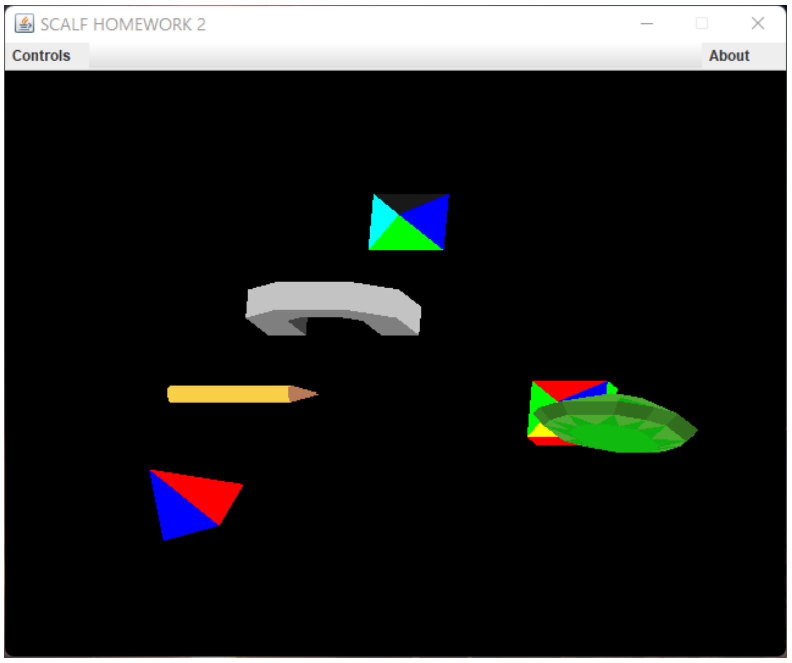


Figure 5

Screen Capture of D/→: Positive Rotation on Y-Axis

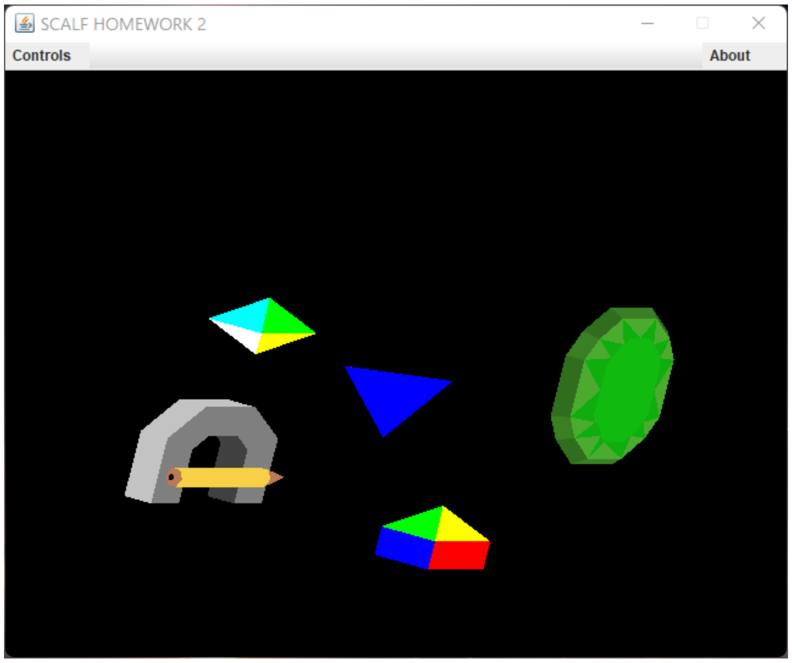


Figure 6

Screen Capture of Q/Page Up: Positive Rotation on Z-Axis

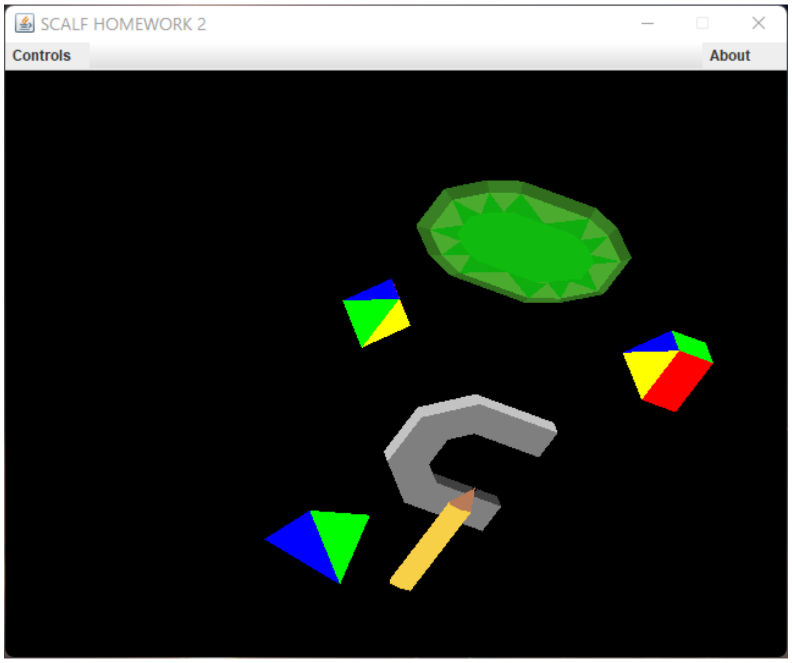


Figure 7

Screen Capture of E/Page Down: Negative Rotation on Z-Axis

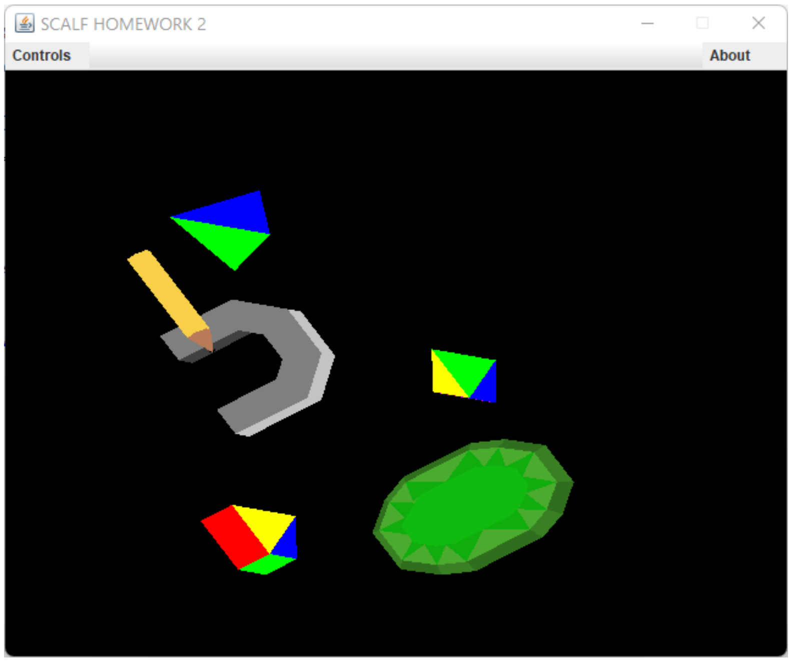


Figure 8

Screen Capture of I: Zoom In or Scale Up

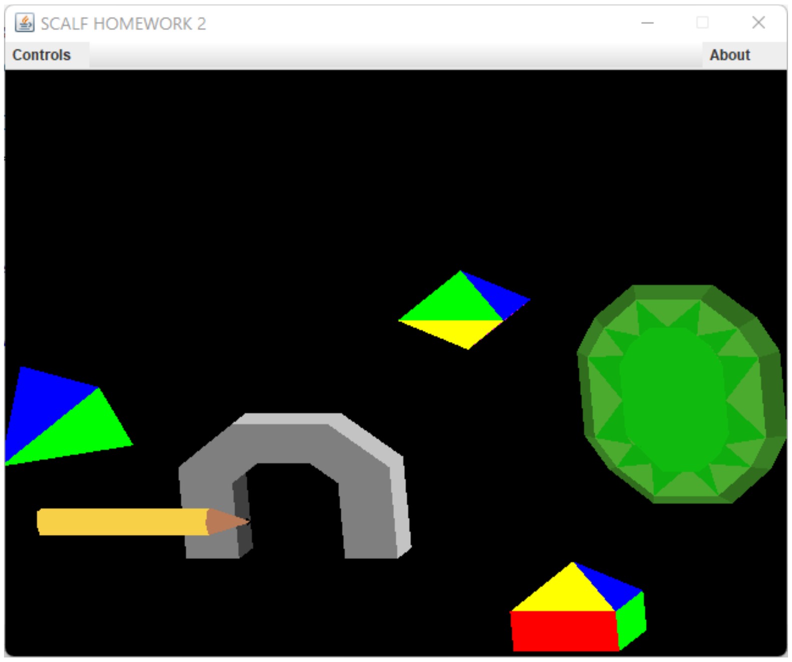


Figure 9

Screen Capture of O: Zoom Out or Scale Down

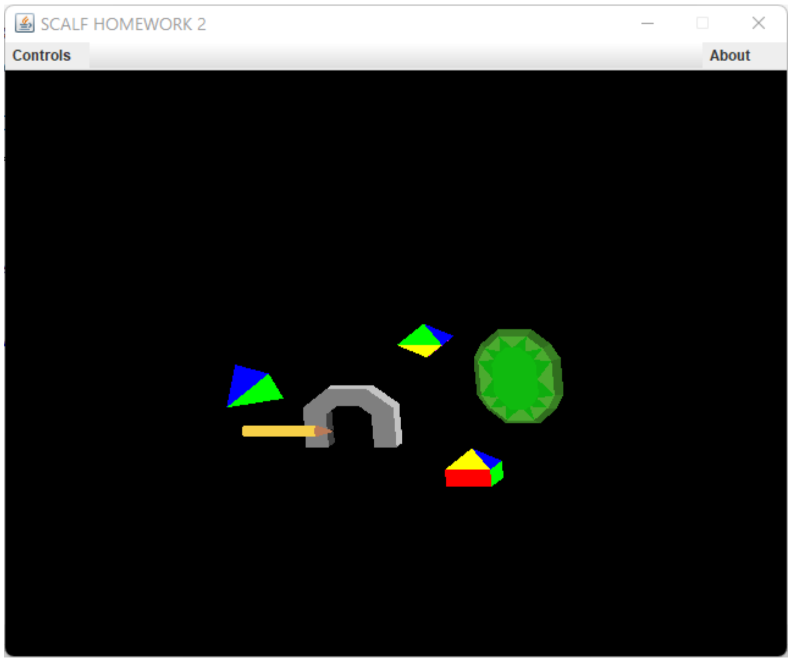


Figure 10

Screen Capture of Home: Reset to Default

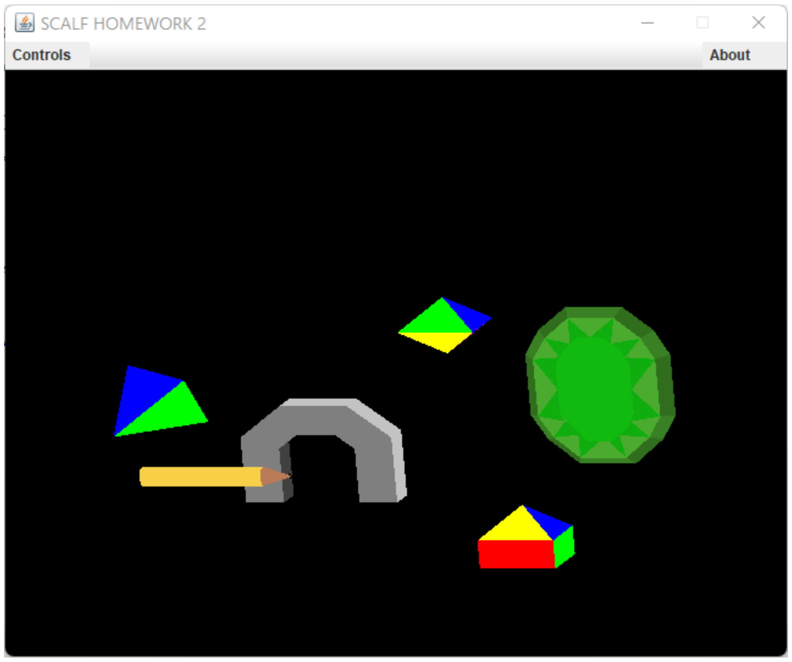
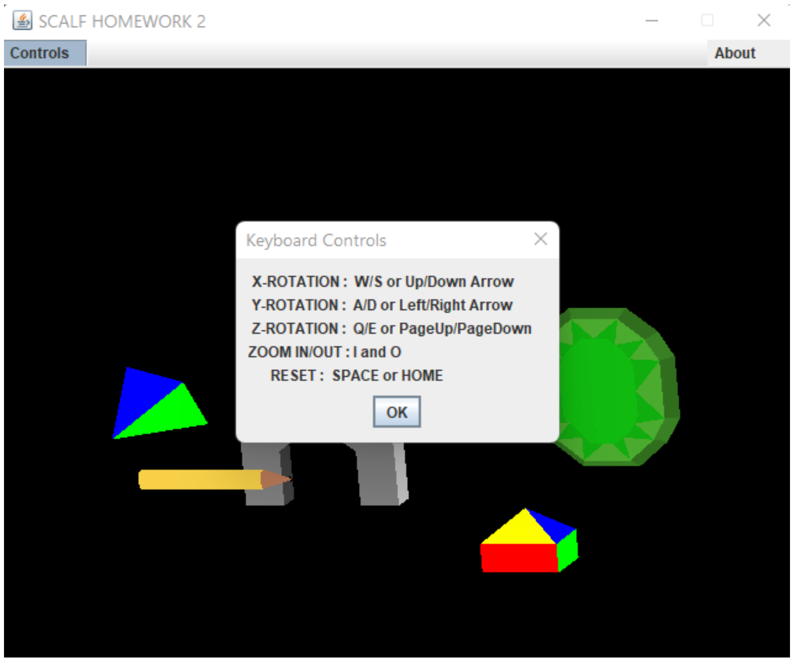


Figure 11

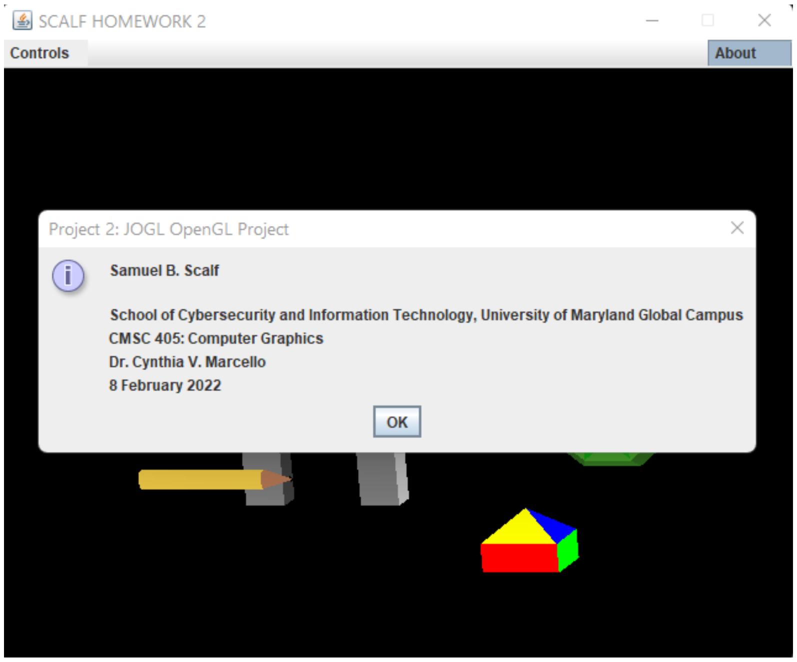
Screen Capture of Controls Window



X-ROTATION : W/S or Up/Down Arrow
Y-ROTATION : A/D or Left/Right Arrow
Z-ROTATION : Q/E or PageUp/PageDown
ZOOM IN/OUT : I and O
RESET : SPACE or HOME

Figure 12

Screen Capture of About Window



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