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Project 1 – Java 2D Graphics

CMSC 405 6380

Overview

This project consists of three personally created images that move around the screen. There is an exclamation mark, the letter i, and a trapezoid; which I organized to look like a smiley face when the 2D graphics are loaded up on the first frame (Figure 1.). The three images will go through 6 motions to include moving left, up, rotating, and being re-scaled.

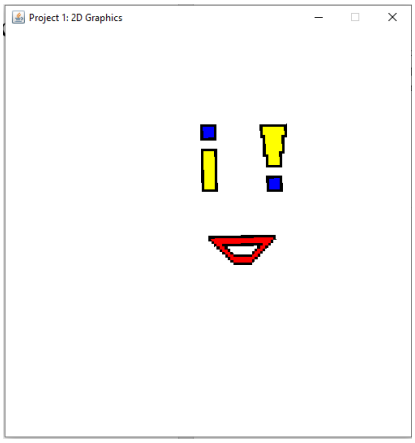

Figure 1

Users Guide

To run this project, it will be easier to utilize a Java Integrated Development Environment (IDE) like Eclipse. There are two classes in the package P1; Main2D and Images. Run Main2D class and you will be prompted with a new GUI window “Project 1 – 2D Graphics” (Figure 1.). Now you just watch the window as the three images move 7 times and then loops back to the first frame.

Features

This program features the use of three custom made images that transform around a GUI. The implementation was made possible by the template given to us. I was able to modify the original code to produce my final product. In the code, I reference where I got specific sections. Each transformation is displayed in sequence from the last transformation.

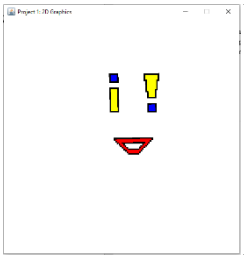

Figure 2

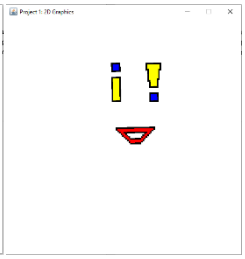

Figure 3

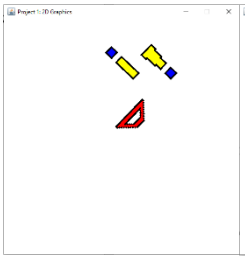

Figure 4

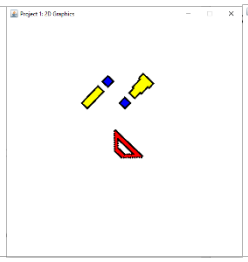

Figure 5

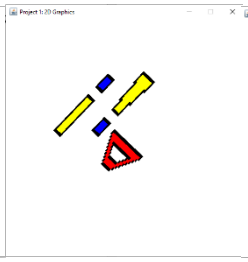

Figure 6

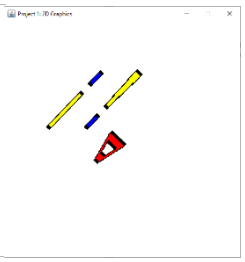

Figure 7

The subtle difference between figures 1-3 are hard to distinguish. However, figure 2 each image is moved -5 on the x-axis(left) and figure 3 each image is moved 7 on the y-axis(up). With figure 4 each image rotates counterclockwise 45 degrees. Then in figure 5, each image is rotated clockwise 90 degrees. In figure 6 each image is scaled 2 times for the x component. Lastly, figure 7 each image is scaled 0.5 times for the y component. Then the program loops back to figure 1 and repeats the cycle all over again.

Test Case

Test Case	Input	Expected Output	Actual Output	Pass/Fail	Figure
1	Translate -5 in x axis (second frame)	Images moves -5 on x axis	Images moves -5 on x axis	Pass	2
2	Translate +7 in y axis (third frame)	Image moves +7 on y axis	Image moves +7 on y axis	Pass	3
3	Rotates the image 45 degrees counterclockwise (fourth frame)	Image rotates 45 degrees counterclockwise	Image rotates 45 degrees counterclockwise	Pass	4
4	Rotates the image 90 degrees clockwise (fifth frame)	Image rotates 90 degrees clockwise	Image rotates 90 degrees clockwise	Pass	5
5	Scales image two times for the x component (sixth frame)	Image scales 2.0 times	Image scales 2.0 times	Pass	6
6	Scales the image 0.5 times for the y component (seventh frame)	Image scales 0.5 times	Image scales 0.5 times	Pass	7

Lessons Learned

I learned how to create a bit image and populate them on a GUI. If that wasn't mind-blowing enough, I was able to transform them around the screen. I look forward to the next project and what else is out there that a Java program can do. I dove into the readings and found out about the different types of graphics and options. I enjoyed having the templates for this

project because it alleviated some of the stress and hairpulling, I was able to focus on the lesson and learn more about the implementation of 2D images. One thing I don’t understand is the rotation format. For example, I put 45 to go counterclockwise because if I put -45 the image would rotate clockwise.

References

Draw Pixel Art Online. (n.d.). Retrieved from https://www.pixilart.com/draw

Project1Templates (2017, June 1) Retrieved from https://www.umgc.edu

BImage (2017, March 14) Retrieved from https://www.umgc.edu

Java2D (2017, March 14) Retrieved from https://www.umgc.edu