

Max M Hanson (u0985911)

Professor Ladislav Kavan

CS 4600

23 September 2019

Assignment 2 Writeup

To complete this assignment, I used only my lecture notes from the class lectures, [this webpage](https://www.cs.helsinki.fi/group/goa/mallinnus/lines/bresenh.html) (<https://www.cs.helsinki.fi/group/goa/mallinnus/lines/bresenh.html>), and [this webpage](https://iq.opengenus.org/bresenhams-circle-drawing-algorithm/) (<https://iq.opengenus.org/bresenhams-circle-drawing-algorithm/>) for reference.

For the line rasterization, first I coded the basic version of Bresenham's Algorithm, for small positive slopes. Then, I moved on to generalizing it. I did this with by referring to the webpage and by what Professor Kavan said in class. The webpage explains how to make Bresenham's work for small negative slopes and for large positive and negative slopes. I coded these versions up and then coded some functionality to swap coordinates like we discussed in class. After that I moved all these versions in to helper methods and included extra methods for vertical and horizontal lines.

For the circle rasterization, I just did it all at once since there isn't any generalization like the line rasterization part. There were some bugs, but I was able to iron them out with just the debugger.

For the interactive drawing, I did this part just on my own with no reference. I don't think my solution will win any software engineering awards, but it seems to work fine.