CS411 - AS1 - Report - 2019.9.10

We were given the bulk of the code, I spent a few minutes play around with it and then if I remember correctly I changed it back and began on the actual assignment.

Draw Line Segment:
- I first encapsulated the code to color pixels into a nested `fill()` function
    - I recognized the code works by modifying the image buffer and then re-applying it
- I then implemented bresenham's algorithm.
    - I decided to put it in a self calling function in case I need it later
- I also added code to cast the given coordinates to integers
    - I found this to be an issue while working on the drawTriangle() function

Draw Triangle:
- I assumed the "toggle fill" button was intended to toggle the two different fill modes (solid color vs random color) as discussed in the assignment
- To handle the random color case I made a random 24bit color generator (randRgb)
- I made functions to handle the two different types of triangles we discussed in class (flat bottom and flat top)
    - These functions operate by vertically scanning and using the drawLineSegment() function written earlier to apply the changes
- To implement the logic behind drawTriangle()
    - I first sorted the points by y coordinates in ascending order
    - I then handled the trivial flat bottom and flat top triangles with if statements
    - And if not a trivial case, I split the triangle in two new triangles that can be drawn with the flat bottom/top functions I implemented previously

I'm used to using modern ECMAScript constructs like arrow functions and destructuring assignments. If there is any issue with browser compatibility please let me know and I'll do my best to make things work in internet explorer.