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Assignment 1

Math needed

I did not run into too much additional math needed for this. OpenGL/freeglut handled most of the math. The one exclusion would be finding out that the Y-coordinate seemed to need to be mirrored for accurate polygon representation. So, all Y-values from the mouse were subtracted from the window height to produce the correct Y-value. This is what the function `normalize_mouse` does.

Challenges faced

I did not find this too challenging once I created proper data structures to manage the polygons (Polygon, Point, Color). There were a few items I needed to look up in the API documentation, such as the correct function to call to get an early exit (for the Q key), which I also had to import the freeglut header file for. I also ran into some issues where objects did not show correctly, but this was mostly due to not calling `glutPostRedisplay`.

Additional features

It did not appear that the “working polygon” needed to be drawn, but I added it to be drawn in gray for better visuals. I did also implement the “D” key to drop the working polygon down 10 points with each press.