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COMP.4270 - Computer Graphics I

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Project – Shape Editor

Issues Faced

I faced a variety of different issues with this project, but I honestly can't remember anything in particular that sticks out right now.

Lessons Learned

I learned **A LOT** of neat little JavaScript snippets while going through this project. My favorite was the potion of code that takes an int and transforms it into hex using built-in JavaScript functions:

```
hex = numberToChange.toString(16); // 16 is the base
```

This little snippet can also be used to convert to octal or binary which is going to be something I keep in mind for interviews for sure! I also learned some of the basics of using Google's Material Design for the frontend portion. A few of the algorithms I had to come up with for some of the simple operations were very fun to come up with (like selection). I also refactored this project five times, which is something I don't normally do, but I actually found that I really enjoy refactoring! It was cool to see how I did something and then try to think of how I could make it better and I feel like I have a better eye for making things better after an initial attempt now. (I had a blast doing this whole project which was a nice change of pace for these end of semester projects where we don't get to decide what we're making for ourselves).

Remaining Bugs

I noticed that after rotating a shape and then moving it or resizing it the shape's rotation is no longer maintained because of how I was handling the calculation for rotation. I realize now that I should have

included rotation as part of the object's constructor. The fix would be simple, but making sure everything else is still working properly would take far too long. My curve implementation is also fairly atrocious and I would have taken a completely different approach with that if I refactor this project (for the sixth time).

Additional Work

- I made the UI “pretty” 😊
 - With options for light mode or dark mode
- I added a grid to the background
- I added the ability to change the stroke and fill color via sliders
- I added the ability to change the size of a shape with text fields (on initial drawing of a shape only)
- I added a clear canvas button
- I added Undo and Redo
- I added the ability to save a canvas as a PNG file
- I also added a few keyboard shortcuts as well as instructions to use the program