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CS 4800
Project 1 Calculator

Time Estimate:

I'd reckon this project will take about 4 hours to make.

Time Log:

2/4/24

Research time! Finding tutorials as well as different approaches to make the best calculator I can. (Requirements Analysis & Design). Took around an hour to find a 40 minute [tutorial!](#) Took around 20 minutes to skim the video to make sure it has everything I need.

Then around 60 minutes to actually follow along with the tutorial. (Development)

During development, I took 30 minutes or so to figure out a bug in the code. (Testing)

2/5/24

After having made the calculator, today was the big debugging day. Took around another hour to test for bugs (Testing)

Total Time: about 200 Minutes, or 3.85 Hours!

Bug Log:

Most of the bugs that came up were during development of the application. One particular bug that was plaguing me was the buttons just wouldn't work. No matter what I was pressing or how many times I was pressing, nothing would happen. I kept looking over my code to see what was wrong, but I couldn't see it. I rewatched the tutorial and I just didn't get it. Until I saw it. I had defined my buttons and event listeners before I defined my calculator class, so of course it wasn't working. The issue was that when writing the code, I was defining the buttons first and foremost. After that, I then started to define the calculator function. I was supposed to bring the button definitions below the calculator definition. I totally forgot to do that. Afterwards it was smooth sailing. Once the program was finished, I brute forced some test cases and it works pretty good! It does have some limitations in regards to its upper and lower bounds. For example, it could only calculate up to 10^{28} before going to scientific notation, and giving an incorrect number (by a very small margin). For example, it produced the number 9.9999999 E29 when it should have just been 10 E29. A similar bug happens towards the lower bounds. You could only divide up to 10^{-7} .

Time Comparison:

My initial estimate actually wasn't too far off! I figured once I got a good basis, things would go by easily. The only real caveat would be debugging, I wasn't sure exactly how to approach it or how long that would take. Also as I expected, researching did take a pretty sizeable chunk of

the time invested. Thankfully the tutorial I found was incredibl easy to follow, so that helped speed me back up.