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Design and Coding Process

I decided to work on the project given as an example and not do anything specific to my major. As I am only ending my freshman year and I had not decided on civil engineering until the start of this semester I did not feel that I knew enough about my major to create a project in MATLAB based on it. Before working on this project, I went back over class discussions about GUIs and lab 10 to have examples to help with the writing of the code.

I started with the code I already knew how to do by creating a global GUI for my code and I chose to name it graphs which is also what I named my function. Creating a figure to have all the information on was simple and I just adjusted the position based on the amount of information that would need to fit. Then I created the basic text boxes and the text that labeled it and adjusted the position so that it would all be lined up and added a plot. Then I created a function in the main one to plot on the graph. I went to office hours to get some help converting the strings into points on the graph which included must split it with a comma and then using str2num and then plotting that.

Then I had to make the radio buttons for the line type and color. This part was particularly tricky because I had not done them before and so I went to MathWorks for help, so I made a button group for each option. Then I created a callback and had that function outside the

main function. I created a new GUI in those separate functions to change the colors and line type. At this point, I tried and tried many different possibilities but for some reason could not get it to work. I was not able to get my color or line type to change when clicking the buttons. My mistake was not declaring the new GUIs in the graph plot function so after adding that it still did not work. Frustrated I turned to office hours to help and it was a simple fix. In my plot, I needed it to not be a string but the new GUIs in a bracket, “plot (x, y, [color line]). I also did not include HandleVisiblity and then had to include that as well. After those fixes, that was all it took, and then it worked.

Creating the reset button was the simplest thing in the project, to do with having the plot be zero and set the edit boxes to empty. One of the other things that needed to be done was to create the function to make sure that there are the same about of x and y values. This was also basic, and I used an if statement to compare the length of x and y. The part that gave me the most trouble was the setting of the limits. The limits would be the highest and lowest points of x and y that would show up on the graph. Creating the label text and edit box was the same as the others so that was easy to get done. The real trouble was taking the input and then turning it into the limits on the graph. After looking it up on MathWorks it was simple str2num which I had used earlier in the lab. However, I could not get it to work after seeking help I had just made a simple error of not including the string. That was the last part of the code I needed to get done so the project was complete.

Then I had to upload the file to GitHub and create a readme on how to properly use the code. I am not the best at GitHub in any way, so it took a few minutes to figure out how to edit the readme and not just add a comment but after a few minutes of playing around, I was able to do it. I hope that adding this file will be easy to upload because it is a word document and I have

never tried to upload one to GitHub before. Honestly, I am a little scared that it won't properly work and that I will upload something wrong and get a zero on the assignment.

In the future, I can use this exact GUI code for making any graph it was so easy to make graphs and label them. I remember Quinn mentioning at the beginning of the semester that MATLAB was so much easier to use than Excel and I thought "yeah right" but it is. It is so much easier to edit what I want than it is to in excel. In the future, I can use GUIs to make things like the vending machine, but I feel like it will be more useful with data inputs. With GUIs in civil engineering, I can use them for so many things. MATLAB can be used to rank information about infrastructure and do complex equations rather than doing them by hand and messing up.

This class has been a challenge to me especially because I have not had any real experience working with real programs and writing code before. This is complex and not my strong suit which often leads to me getting frustrated and then trying many different things before I inevitably need to ask for help. However, it is incredibly satisfying when my code runs correctly and does what it's supposed to do without any error messages.