Julia Holz

Professor Quin Lanik

CSCE-155N

May 3, 2021

Final Project Report

For my project I just used the example project provided of a GUI with edit boxes to plot x and y coordinates, so no LA approval was needed for mine. When starting this project, my approach was: begin with things I absolutely know how to do. For most of my program I referred back to lab 10 quite often since it has pretty similar coding to this project. I began with creating all of the labels and text boxes, all without positions at first. And then I created the two callback functions “reset” and “plotPoints”. I first wrote out the code for reset since it is a fairly simple function of just making all of the text boxes blank and clearing the graph. After this, I chose to move on to figuring out the positions for all of my labels, text boxes, and graph. At this point I had not made the button group uicontrol since I had yet to watch the lecture video on how to properly use them. After I had figured out where I wanted each uicontrol to go and figuring out those positions (while still leaving room for the button group), I had successfully completed all of the easy (to me) parts of the code. Up to this point I had already done most of this with lab 10, which is why it was easy for me.

The next step for me was to write the code for my plotPoints function. I had a pretty good idea already of how I wanted to write this code. I knew I wanted to take the strings entered by the user into the textboxes and turn the strings of the x values, y values, x limits, and y limits into numbers instead of strings, and assign the text strings for the title, x axis label, and y axis label to their spots. I did all this fairly easily by using what we have learned in class. At the point I was choosing to not yet address the errors that could occur if bad data was entered. After I wrote the code for plotting the x and y values entered, I decided to tackle all of the problems if bad data was entered. The four problems I could think of were if no limits were entered, if only one number was entered for either one of the limits, if only one number was entered for either the x or y values, and if the length of the x values does not equal the length of the y values.

All of these were easy for me to solve with if statements except for if no limits are entered. This is the main and one of the only difficulties I ran into when writing this program. For some reason I had forgotten about the function “isempty” and I could not find a logic statement that would be true for when the strings of x or y limits were empty. I eventually got pretty frustrated, so I took some time away from my code, and when I returned to it, I did some research on what functions I could use and rediscovered isempty. The last thing I needed to do was watch the Example Project video and learn how to use the group button uicontrol. I did this, found a position for the buttons, added that aspect to my plot function, and then I was all done with my code.

In my future GUIs can be very helpful. One example of how I can use GUIs in the future is with a lot of my math classes. Formulas are easy to create with GUIs, and there are many possibilities having to do with math formulas, for example a quadratic formula calculator GUI would be helpful for determining the factors of a quadratic function. This program of plotting x and y values will be helpful too because it is very easy when given data to just copy and paste in the x and y values. This can be helpful with future jobs as well as classes. This semester I had a couple classes where a graph of the data would have been helpful in analyzing the numbers for a homework assignment or project. For future jobs, I know I will find myself needing to analyze data as well and being able to easily graph the data like this will absolutely be an advantage. The possibilities are pretty much if not endless with what a GUI could facilitate.