Jacob Konecky

CSCE-155N

Final Project

For the final project I decided to go with the suggested example project, a program that allows for the easy creation of graphs through MATLAB. Although this example was given because it is not major specific, basic graphing is a prevalent and important part of Chemical Engineering. It is required for everything from titration to reactor constants so by creating a program capable of performing these tasks I have increased my understanding of a fundamental part of my field. As far as coding is concerned, this project did a lot to solidify what I learned throughout the semester. This class was my first real interaction with coding and being able to create a functioning graphing interface is a real testament to how far I’ve come. Despite the undeniably fantastic end product, the design and coding processes were not a cake walk and certainly had their own challenges.

I approached this project in two parts, the first part was setting up the GUI with everything that was needed to take in and out put data. This part of the process was relatively straight forward guessing and checking. Thanks to the in-class demonstrations, creating the GUI elements was not much of a struggle, and after work shopping how I wanted the interface to work I decided on group the text boxes so all the data the user had to enter was in one space, finishing up the design aspect of the project.

The second aspect of the project, coding functions to bring the GUI into working order, was certainly a challenge. I began with the simpler functions, the function which controlled the reset button and the two functions that established a value for the two different radio buttons. Once these functions were done, I tackled the most substantial piece of my code, the function which actually placed the user inputs on the graph. Almost immediately I ran into a problem. I found that no matter what changes I made to the code that placed the titles for the graph and axes I got the same error message. It took almost 10 minutes and a quick talk to a LA to realize I was calling a different copy of the code than what I was actually working. This bone headed move was not a great way to start off the largest part of the project but after the initial hiccup it went smoothly. I decided to use logical if statements to determine the color and symbols, not the shortest solution but one that’s easy to follow. After that, setting up the conditions for the limits required me to be acquainted with the str2double function. Once I understood how it worked, I was able to implement the limits as well as an error message if the lower limit was larger than the upper limit. The most daunting challenge was taking in the given x and y data and transferring it to the graph. After throwing my self at the problem with a rather convoluted str2double solution and chaotic loops I had to go to the LA’s for help. It as thanks to their suggestion of using a regex function in correlation with the split command that allowed me to clear that final hurdle and create a fully functional code.

Overall, my experience GUIs has been a positive one and I would enjoy working with them some more. One thing I particularly want to try to create is a chess game. Although this is certainly a trivial non major focused use of MATLAB, as an avid chess fan it would be fascinating to see what goes into programing a chess game. Beyond a recreational purpose, I am sure GUIs will have a use later in my chemical engineering career. The ability to display complicated functions and data in a comprehensible manner is necessary for interacting with customers and employers, a task that can certainly be assisted by GUIs. Overall this project was a fun way to apply what I learned, in a way that grew both my understanding of programing and chemical engineering.