CSCE 155N

Van Nguyen

Approved by Laurel Hilger

Final Project Report

In this project, the GUI will take in the data from user from a .csv file. The data contains the steps the user walked each hour for the last 7 days. Then the program will plot the distance versus time on a graph. The user also can convert the steps into feet and meters with the UI control buttons. There are 7 graphs correspond to the 7 days of the week. The user can navigate between the graphs by the scroll bar. There is also an animate button that will plot the data and automatically change between the graphs with 1 second pause on each graph. The main part of the program is the graph. It will take most of the space of the figure. The unit changing buttons will be on the left of the graph. The animate button will be at the left corner of the figure. And lastly the scroll bar will be below the graph.

For the coding process, first the main function will be created. The UI controls will be inside this main function. The callback functions will be outside of the main function. The first call back function is the animate button. This button will plot the data on the graph with the chosen unit and then automatically go through 7 graphs with 1 second pause in between. The next function is the scroll bar. The scroll bar will give the user the ability to go back and forth between each day of the week. Each click on the scroll bar will change the graph by one day. The next function is the unit changing buttons. There are 3 options for the units, the steps, feet, and meters. When the user clicks on the unit, the graph will automatically change to corresponding unit on the y-axis of the graph. The last function of the program is the plot function. In this function, the program will read the data from the .csv file and then plot the data of the corresponding day on the graph. In this function, the calculations of changing between units are also included.

The first difficulty I had when I started this project was how to organize the functions. I wanted them to be easy to follow and easy to debug. So, I started with the main function, then I determined what the callback functions are and how to include them in the most efficient way. The plot function could also be separated so the main function would not contain too many codes. The next difficulty I had was how to incorporate the scroll bar function properly into the program. At first, I got a lot of errors from clicking the scroll bar. For example, when I clicked on the scroll bar, an error message would pop up and the program crashed, or the scroll bar would not change to the next day graph properly. I had to go through some of the previous lectures and examples in class, and since my functions were organized, the debugging process did not take a lot of time. The final difficulty I had was setting up the layout of the graphs, the buttons, and the scroll bar. It took lots of trial and error but eventually it came out like what I wanted.

Since I am major in mechanical engineering and some of my classes require doing projects and labs. GUIs can be a great tool for me to write my report efficiently since the data collected from experiments can sometime be long and hard to be completed by hand or other software. Once I create a program that can achieve a specific task, I can also apply that program to other similar projects.