Solving for P

For my final project of the CSCE155N class I wanted to come up with a GUI to run the Ideal Gas Law, specifically, solving for the final pressure, if given one or two inputs. The reason that this is what I decided on wanting to do as a project was due to my major. I am currently enrolled as a Chemical Engineering major, and PV=nRT is something I use more often than I would like to admit, and I figured that this would be a good use of my time. The law is also commonly used in the field, in specific applications, such as estimating pressures, temperatures, etc. I have first hand experience working along side people using this at a Carbon Dioxide Production facility, so I am sure that I would be able to use it after I complete it.

For the initial design of the project, I wanted to have a slider to alter the temperature of the equation, a toggle box for the amount of Moles of the substance, and a few radio buttons to change between units of pressure after the equation had been ran, and a text edit box for the volume of the container. At the beginning I had quite large aspirations. The first thing I cut out was the text edit box, due to me not being able to get one to even appear in MATLAB, and when I finally was able to do so, I was unable to affix a variable to it, or anything else for that matter. Next up, I decided to tackle the slider. This part took me a remarkably small amount of time to actually make appear, but it still took me forever to accomplish the task of pulling numbers from it, and using those in the equation. Finally, I had the radiobuttons for the very end of the equation. The purpose of this was to change the unit of the final measurement, by either division or multiplication. Making the buttons themselves, and labeling them was quite easy, however I ran into the same issues as I did with the slider, when I actually tried to make them correlate to a mathematical function within the code.

This all ended up leading to probably the hardest part of the code for me. When you ran the code, you would get 3 different pop-up windows with the specific UI’s that I had decided I wanted, but I couldn’t get them to join forces, and hop onto the same window, thus making it easier to use. This part made me extremely frustrated due to my lack of knowledge on how to wrap everything together without breaking something in the process.

I am genuinely hopeful that I will be able to write some of my own GUIs in the future that I will be able to use in my day-to-day life, whether it be my job or as in hobbies. There are so many specific uses that you could use this style of code for is truly remarkable. You could code the entire operating order of a car’s engine, all the way to simple visualization. Another way I could use GUI’s is to make simple apps, either for computers or cellphones to help track certain grain levels in elevators, or power-factors across larger facilities. The possibilities truly are endless.

Hopefully I can get some more experience in this field because I really want to see what I can all do with the help of GUI’s and MATLAB, in both my academic future, my occupation, and my future hobbies. Lastly, Laurel Hilger approved my project.