After getting approval from Emme Campbell, I went with the idea to create a GUI for my final project based on plants and their planting season, which is also informational, though it happened to become more of a what you need to buy list sort of GUI. Some of the struggles that came about this, was creating an order of actions that need to occur, while also understanding what needs to happen in each step. Since I have a large array of strings for the variable months, I needed to find a way to make it so you can easily select which month you want to plant. To do this, I used the listdlg operation, because it makes it easy for the user to select what month they want to look into. I also created an error function that displays if a user selects all of the months instead of one, to notify them that only one month can be used. For that I used the errordlg, because it would pop up a window the user can see, instead of just seeing it in the command window which may be a struggle. There it has instructions to start over and close out, because the month window has to be reloaded.

I used if and elseif functions in order to create a pop up menu, based on the month chosen. I tried to use global variables, but with this function, it doesn’t seem it would work well, so I went a more roundabout way. I also think it is more efficient somewhat. Therefore, if a certain month is selected, a certain set of plants will show up in the pop up menu.

The biggest struggle I had, was working with callback functions. Every time I used them, they didn’t function. Many various methods and trials were went through, but in the end, they weren’t successful, so instead I cut my losses by making sure the code at least functioned without them. Looking back at my idea, it probably wasn’t the best one in terms of being able to create callbacks. Therefore, when looking at the choice of plants after selecting a month, I created a pop up menu, so you can select the plant you decide on, to fix the issue. The plants that are displayed, are the ones that are possible to plant that month or are in season.

Some of the ways I might use GUIs in the future, is by creating or plotting code about large datasets related to the field I am studying, biological systems engineering. I might also use it to create graphical user interfaces that others can use and easily read data on, or use it to find some recommendations on things, like this project. Graphical user interfaces can be used to make simple guides to aid people. Overall, they are very useful for displaying information and data in a way that is very use to see and manipulate in some cases.

The three uicontrols I used were the popupmenu, text, and checkbox. Since I couldn’t get the displays I wanted, I decided to create more of a order list type of GUI. The text uicontrol were mostly for the labels, whilst the popupmenu is for the plant chosen, and the checkbox is for the supplies needed. The user can check the supplies they need, and also select the proper plant to but for the season.

I also created a figure function in order to be able to title the graphical user interface in order to label it, so you know which window you are on in order to find it. I didn’t create a name for the window that pops up with the months at the beginning, because the text stating to choose a month was straightforward enough. Overall, the functions chosen were proper for this task.

In biological systems, some more specific examples I could use GUIs for, is to create a GUI that represents the different flows in water, or the different carbon emissions per year, and be able to slide through them to compare. It can also be used for budgeting and calculating certain costs for projects also.

In conclusion, GUIs are very useful in processing data and other information and can make user interfaces that are easier to read than just code. They also are somewhat enjoyable to work with, and if there was more time, a lot could be done to create and aesthetically pleasing and proper working product, but this was a good learning experience and introduction to GUIs and their uses. In the future, I hope to be able to use them in my career and to create things that can be useful.