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Final Paper

For my final project I decided to create a simple calculator using GUI. My topic was approved by Taryn Jordan. I decided to make a calculator because it is something that will always be useful. Being an engineer means many more years of math, and calculators are going to be essential to do well in some classes. The calculator I made is very simple, but it works well, and it is a fun project that can always be advanced. It would take some more time and thought but it would definitely be possible to create a scientific calculator from this. I thought it would be cool to make and it worked out well for me.

The process of creating the code was fairly simple but very repetitive. This made the code pretty easy to write but it took a while. Once I figured out the first line, it made the rest of the code go a little faster because I used it as a template. The first step was to create a figure with a specific size, and I chose to make the calculator blue. After I created the figure it came down to creating all of the push buttons. There was a total of 18 push buttons that went into creating the calculator. The buttons consisted of the numbers 0-9, “.”, +, -, \*, /, =, 🡨, and CE. All of these buttons were created using *uicontrol* with a callback at the end of each. These callbacks were then implemented into their own functions which gave the buttons value. I created a text box that provided a space for work to be shown. This is what I considered to be the answer window. When giving the buttons a value I made it so that the button pressed appears in the answer window. This will show the work for the problem and then when you hit the “=” button, will produce the answer.

Overall, this part didn’t take too much time but most of that time was trying to figure out the first function. Once I got the first function figured out, I was able to use it as a template and speed through the rest. I didn’t have too many issues while creating the code. The only thing I struggled with was implementing a *uicontrol* to be able to edit the answer window. I wanted to be able to type numbers from my keyboard into the answer window directly while being able to use the push buttons as well. I was able to type in the answer window but then the calculator wouldn’t work so I had to keep that part out of the function. This is something that I can continue to work on and try to fix. Otherwise, the code ran smoothly, and I didn’t have many issues while creating it. I used a lot of trial and error to figure it out, but it was helpful doing this before on Lab 10.

GUI’s are very useful, and they have been my favorite part of this class. I really like being interactive with the computer, so it is nice to be able to have the freedom to create a code that is interactive with the user. Like I said earlier, I can continue to build on this calculator to make it better and I will be able to use it for math and chemistry. There are so many different things to do with GUI in the future and I can’t really focus on one thing, but image processing seems like a really neat idea. I want to be a biomedical engineer so being able to process medical images with GUI seems interesting to me. This was my first experience with any sort of code, and It was hard to learn but really cool. It provides a different way of thinking that I am excited to build on now. I’m sure that during the rest of my undergraduate career there will be times when I feel like it would be useful to make a GUI. I look forward to the trial-and-error process of being able to write a code for myself that will be useful for me and others. That is the neat thing about GUI, is that there are so many possibilities and ways to do things. But once you create something you can always use it and add on to it.