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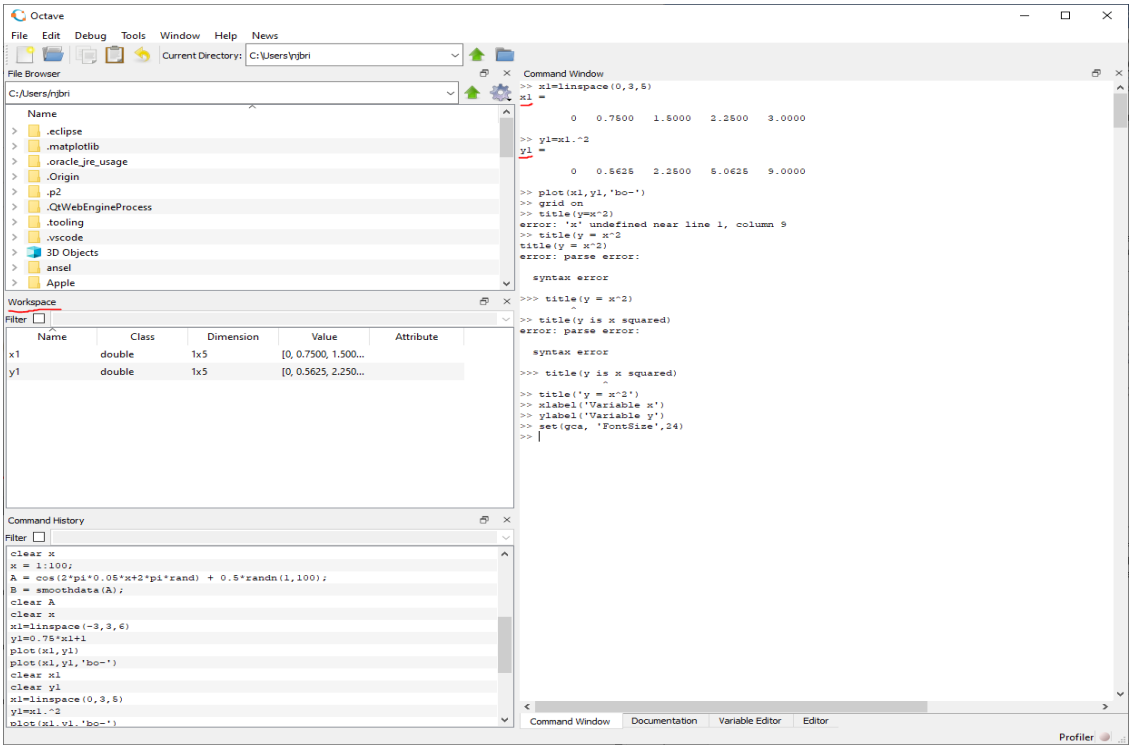
Piece 3 (Octave)

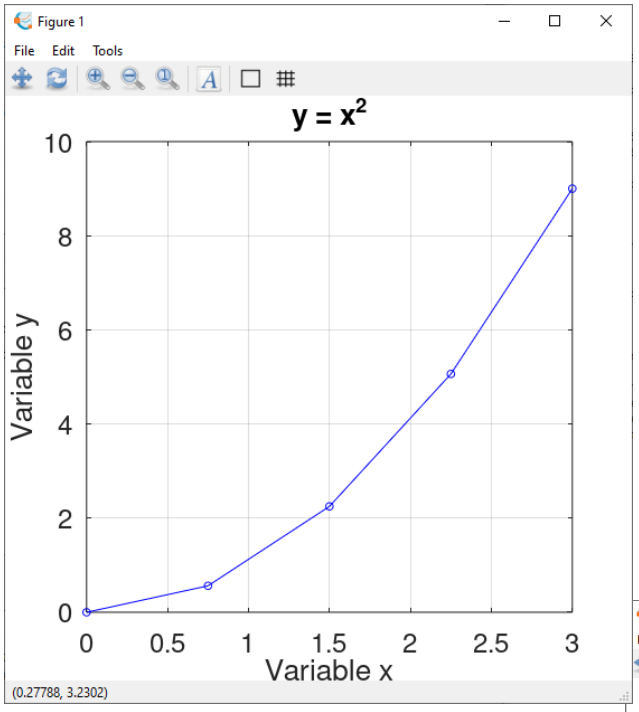
I watched a tutorial on Youtube at https://www.youtube.com/watch?v=TqwSlEsbObg. I noticed Octave is a pretty intuitive, non-syntax heavy language. It is primarily used for solving algebraic and differential equations. It has numerous built-in functions and various plotting capabilities. It also allows for developing user-defined functions. There is both a command prompt and GUI version. The tutorial takes you through most of all the basics of Octave. I learned how arithmetic operators work and how to create variables first. This is important since making a function and subsequently graph will require those tools. It's interesting because if you don't use a semicolon when writing a line of code and you press enter it will immediately output what you just did. Here's an example.

```
>> 2-3
ans = -1
>> 2*3
ans =  6
```

It's also nice that there is a workspace section in the bottom left of the program. It is here where you can keep track of what variables you have declared, what values are assigned to the variable, and what its dimension is.



I then essentially skip to the line plot section of the tutorial as that is what's relevant to our assignment. The way it worked here was you would declare the "space" of the line so ranging from what values and how many points within that space you wanted. In my example it was x1=linspace(0,3,5). x1 is the



variable that will go into the plot method. The 0 and 3 indicate the range of my graph and I have 5 points in the range distributed evenly. Then y1 is my actual function. In my case I went with y = x^2. I also include some more code to make the graph readable. Then, when I plot everything it looks like this:

As you can see there are "kinks" in the line. This is because there aren't enough data points currently. After I change the vector size to 30 via simply changing the 5 to a 30 in x1 and replotted the graph this is what it looked like. Here, we have essentially salted and smoothed our original function y = x^2 in Octave to make it more understandable.