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Plot, Salt, Smooth (MatLab) Essay

I began by completing an introductory tutorial provided by MATLAB. This tutorial aimed to familiarize new users with the MATLAB language and its basic functionalities. Throughout the tutorial, I learned how to perform simple arithmetic operations, and assign variables. The tutorial started with a simple task, multiplying two numbers (3 and 5), which resulted in 15. Next, I assigned the result to a variable named 'm.' After that, I incremented 'm' by 1, and then I calculated another variable, 'y,' as half the value of 'm.' Following this, I subtracted two from eight, assigning the result to a new variable named 'k.' Then, I updated 'm' by multiplying three with 'k.' Finally, I revisited the 'y' variable to observe whether it was updated after modifying 'm' in the previous step. The tutorial was helpful, it kind of showed off how simple some of the syntax in MATLAB can be. I think I was overcomplicating it going into it. Though I should say, more than that tutorial was necessary in learning the more complicated components of my next project in MATLAB which involved google and looking through some of the documentation that MATLAB has on their sites.

After the tutorial I wrote a MATLAB script to plot, salt, and smooth a line using the equation Y = m \* X + b. The script aimed to demonstrate the effects of adding salt to the data and subsequently smoothing the data using a window. I began by defining the variables 'm,' 'b,' and 'x,' and calculating the values of 'y' using the equation Y = m \* X + b. Next, I added random noise to the 'y' values within a specified salt range, resulting in a new dataset called 'salted\_y.' This step demonstrated the impact of introducing noise to an otherwise clean dataset. Subsequently, I used a specified window size to smooth the salted data, generating a new dataset called 'smoothed\_y.' The smoothing process aimed to remove noise and reveal the underlying trend in the data. Finally, I plotted the initial data, the salted data, and the smoothed data on the same graph, using different colors to distinguish between them. The plot effectively illustrated the effects of adding noise to a dataset and the benefits of applying a smoothing algorithm to reveal underlying trends.