

ELEC 2120-005

Lab 1 – Basic Decimal MATLAB

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Introduction

This lab provided an introduction into the versatility and capabilities of MATLAB as a tool to improve life as an engineer. In particular, this lab focused on basic arithmetic, variable declaration, as well as using arrays and matrices.

1. The `clc` and `clear` commands are used at the beginning of a script to clear the command window and workspace. The command window is cleared to reduce clutter and to clarify what the executed script is doing. The workspace is cleared for the same reason with the additional incentive to prevent any predeclared variables from interfering with the script.
2. Programmers often use variables to represent numbers in a script opposed to directly writing in the number, which is called hard coding. Variables allow for programmers to change values much easier (only one line of code needs to be changed to alter a variables value opposed to several if hard coding is used). Also, if one value is manipulated several times throughout a script, a variable makes it much easier to see this pattern; whereas, looking at only numbers could quickly become confusing or even unreadable.
3. Good practice with variable names centers around naming that provides insight to what the variable is used for or represents. For example, if a variable represents the average income of people in a state, a name such as `avgIncome` or `meanIncomeAL` would be vastly easier to keep track of than `var3`. Another example could be using `hr` or `heartRate` as a variable name for heart rate opposed to `quantity4`.
4. Array indexing is a powerful tool because often, engineers want to analyze smaller subsets of a large data set, and array indexing provides a way to do this without having to manipulate the larger data set.
5. A user defined variable will almost always be more beneficial in writing a script opposed to the auto-generated `ans` variable. A user-defined variable has the advantage of being easily adjusted by the programmer and can be given a descriptive name; whereas the `ans` variable is determined by MATLAB and is very susceptible to being overwritten by any mathematical operation performed in the script (even if the operation was not the intended return value).

Conclusions

I enjoyed getting some review using MATLAB. It is a powerful tool I wish to become more skilled with. Overall, the lab went smoothly. The only issue I encountered was getting my MATLAB script to save in the right place which is a common issue I have since I use a Mac. No major comments on how to improve the lab for future classes.