
ECE 351 Lab 01

Intro to Python and LaTeX

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January 23, 2023

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1 Introduction

Being familiar with ones tools is very important to work be efficient with time spent using tools and to produce high quality projects using them. The two main tools for this course are Python and LaTeX which are tools commonly used in a professional setting.

2 Part 1 Summary

Spyder is a scientific IDE for Python. This means the code can be run in the same environment which is useful for work efficiency and debugging. Since the console and code are in the same environment, variable values can be seen through Spyder as well as veiwing plots from the Python program. Spyder also has many keyboard shortcuts to help navigate through the program.

3 Part 2 Summary

Many types of data structures that are commonly used to calculate or display data are supported in Python. In order to manipulate and display data, it has to be stored somewhere which is where variables come in. A variable in Python can store any data type and the value can be displayed using a `print()` statement. Many math operators can be done to a variable and math operations can be done inside statements. A variable with multiple values is a list. Depending on how the list values are grouped by brackets, a different data structure is formed. Row and column vectors as well as matrices can be used with the correct list formation. Extra libraries for Python can be imported to use additional function in Python. Numpy and plotting libraries are some examples that will be used in this course. the `#` symbol is used in Python to start a comment. Good code has comments that answer the questions likely to be asked.

4 Part 3 Summary

Code can be difficult to read if it is formatted incorrectly. Pep8 is a coding practice for Python for correct spacing when writing functions and conditional statements. 4 spaces are used for indentations, no tabs are used except for if/else statements. Comments before each function are used to describe what the function does and lines that extend past 79 characters should be wrapped to the next line to make the code fit in a window better. spaces should be used after commas and around operators, but brackets should not have space between them and other character. Pep8 also has naming conventions for variables and functions that make them easier to read since spaces cannot be used in a definition.

5 Part 4 Summary

LaTeX is a tool to create PDF documents. It is very versatile and is commonly used to make scientific documents since it has native support for writing math equations and many different options to configure. External libraries can also be imported to give the user freedom to create any type of document.

6 Questions

1. Which course are you most excited for in your degree? Which course have you enjoyed the most so far?

The class I am most excited for is ECE 340 because I am interested in working with microcontrollers and learning how the processor in the chip works with other components. So far, Digital Logic has been the most interesting course to me because I learned how different computer components work at a logic level which helped me understand how memory and operations in a processor are done.

2. Leave any feedback on the clarity of the expectations, instructions, and deliverables.

The lab instructor made it clear what should be turned in for each week and Canvas also will not accept any files that are not necessary which helped a lot with finding out what was needed to turn in for labs 0 and 1.