Common Confusion 06
‘fprintf’ vs. ‘sprintf’
Matthew Woodring

In this class, the ‘fprintf’ function is used most often, but we do occasionally use the ‘sprintf’ function. For this reason, it is important to know both of them well.

The ‘fprintf’ function, in our class, is used to print numeric values and text to the screen. For example, if you had a variable ‘snowDepth’ with a value of ‘20’, you could print this to the screen using the following line:

‘fprintf(‘The snow depth is: %d feet.\n’, snowDepth)’

This line will print the text ‘The snow depth is: ‘, then print the value of ‘snowDepth’, then print the text ‘feet.’, and finally will print a new line. The ‘\n’ is called an escape, or special, character, and is used to print text that does not have a key on the keyboard or is normally incompatible with the ‘fprintf’ function. The most common escape characters are:

‘\n’, which prints a new line
‘\\’, which prints a backslash
‘\t’, which prints a tab
‘%%’, which prints a percent sign

There are more escape characters than this found on the MATLAB website, but these are the ones most commonly used in this class.

When formatting the ‘fprintf’ function, you have to specify identifiers for each variable you are printing. The most common identifiers are:

‘%d’, which is a base 10 signed integer identifier
‘%f’, which is a fixed-point notation floating-point number identifier
‘%s’, which is a character vector or string identifier
‘%c’, which is a single character identifier

There are more identifiers than this found on the MATLAB website, but these are the ones most commonly used in this class.

Lastly, since I am frequently asked this, ‘fprintf’ stands for ‘File Print Formatted’, since you can print data to files using the ‘fprintf’ function.

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The ‘sprintf’ function is lessed used in this class than the ‘fprintf’ function, but we do occasionally use it. Typically, it is used to format the title of a plot or the label of an axis on a plot.

Imagine that you have two measurements for a plot of land, ‘length’ and ‘width’. Now, imagine you had data for the past twenty years showing the amount of cattle grazing that plot of land. If you wanted the title of your plot of data to have the dimensions of the land, then you would use the following line:

‘titleString = sprintf(‘The Amount of Cattle on a %d x %d Plot of Land’, length, width)’

This line of code creates a string, using your variables, that you can then use for your plot’s title. Just like with the ‘fprintf’ function, you need to identify the data type of each variable used in the ‘sprintf’ function. In the above example, the ‘%d’ identifier was used since we were dealing with integer values. The commonly used identifiers are the same as the ‘fprintf’ function.

Lastly, since I am frequently asked this, ‘sprintf’ stands for ‘String Print Formatted’, since you can create formatted strings using the ‘sprintf’ function.

In general, if you need to print something to the screen, use the ‘fprintf’ function. If you need to create a string using variables, then use the ‘sprintf’ function. Unless we are dealing with plots, you will almost always use the ‘fprintf’ function in this class.