ENGR 15100: SOFTWARE TOOLS FOR ENGINEERS
SPRING 2015

COMPUTER ASSIGNMENT #1

Assigned: Tuesday, January 20, 2015
Due: Tuesday, January 27, 2015, 9am CST

Departments of Engineering
School of Engineering, Mathematics, & Sciences
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1. OBJECTIVE

Become familiar with the MATLAB user interface and perform elementary operations.

2. PROCEDURE

Task #1: Elementary Operations

Utilize what you have learned thus far to perform the following elementary operations.

1. **[5 points]** Create a MATLAB script file having the name **LASTNAME_LAB1.m**.

2. **[95 points]** Carry out the following sequence of steps in the script file **LASTNAME_LAB1.m**.

    (a) **[3 points]** Clear the contents of the MATALB command window.
    (b) **[3 points]** Clear all currently defined variables from the MATLAB workspace.
    (c) **[8 points]** Activate a *diary* of your current MATLAB interactive session in a file named **LASTNAME_LAB1_DIARY.txt**.
    (d) **[6 points]** Display your full name with the **disp()** function.
    (e) **[5 points]** Create a *scalar variable* named **a** and assign to it the value 10. Suppress MATLAB's output.
    (f) **[5 points]** Create another *scalar variable* named **t** and assign to it the value $\frac{\pi}{4}$. Suppress MATLAB's output.
    (g) **[25 points]** Create a third *scalar variable* named **c** and assign to it the result obtained from evaluating the equation shown below. Consider computing the equation in steps. Suppress MATLAB's output.

$$c = 20\left(\frac{\sqrt{10} + a^2}{log_{10}(20) + 9.3}\right) + 7\,sin(a + t) - \frac{a(e^{1.5})}{\sqrt[3]{2.3^4}}$$

    (h) **[6 points]** Display the value stored in variable **c** using the **disp()** function. A sample output after executing only this step is given below:

```
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The value of scalar variable c is:
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   173.0192
```

    (i) **[5 points]** Show all currently defined variables in the MATLAB workspace along with their size and type information.
    (j) **[8 points]** Save the variables **t** and **c** to a file named **my_variables.mat**.
    (k) **[5 points]** Clear all currently defined variables from the MATLAB workspace.
    (l) **[8 points]** Reload into the MATLAB workspace all variables stored in **my_variables.mat**.

(m) **[5 points]** Show all currently defined variables in the MATLAB workspace, this time without any size or type information.

(n) **[3 points]** Stop the diary of your current interactive MATLAB session.

Task #2: Computer Assignment Submission

1. Upload the following files onto Blackboard Learn.

   (a) MATLAB script file `LASTNAME_LAB1.m`.

   (b) MATLAB diary text file `LASTNAME_LAB1_DIARY.txt`.