CPE 325: Embedded Systems Laboratory
Laboratory Assignment #1

1. Assignment [50pts]

1. Write a program that calculates the value of an integer raised to a power without using recursion (use a for loop instead) and prints the result. You may hard-code the integer and power values as part of your program. How many clock cycles does the demo code with recursion take to complete? How many clock cycles does your implementation take? Explain the difference. Your program's output should be like the following:

```
4 raised to the power 2 is 16
```

2. Write a C program to count the number of digits, lower case alphabetic characters, and upper case alphabetic characters in a given string. If the given string is "Hello CPE325!", the output should be like the following: (You can hard code the input string)

```
Hello CPE325! Contains: 3 digits
                        4 uppercase characters
                        4 lowercase characters
```

2. Topics for Theory

3. Discuss the following tools/features from Code Composer Studio
    a. Memory window
    b. Console window
    c. Variable window
    d. Breakpoints
4. What commands in Code Composer Studio can you use to run through your program?

5. Deliverables

1. Lab report which includes:
    a. Brief theory discussion
    b. A neat flowchart for each of the programs
    c. Output screenshots for both of the programs
    d. Source code (.c files) in appendix, included in lab report

a. Note:

1. You must create an organized directory, subdirectory, workspace, and project for each demo code and each solution.
2. During demonstration, you should be able to inspect variables, set watchpoints, set and monitor breakpoints, monitor registers and memory, and show the output.
3. While comparing the results for part 1 make sure you test different input sets.
4. The report (PDF) should be a single submission with the source code pasted at the end of it.