Project 1 – Programing in C

Due Monday, 11/07.

Specifications:

1. This is an individual assignment. You will work on this assignment by yourself.
2. Please use the programming language **C** to create a program to do the following:
    a. Open and read from the data file, "***COSC450_P1_Data.txt***", which contains some number of integer values (separated by white space character(s)) with the number of integers a multiple of 10. A sample "***COSC450_P1_Data.txt***" file will be given to you but your program should be able to process any "***COSC450_P1_Data.txt***" file with the above property.
    b. After read in the data file your program will process the integer values into two matrixes (stored in two dimension arrays): the first one with the dimension ***5 * X*** and the second one ***X * 5***, where ***X*** is some value determined by the number of integers in the input data file.
    c. Output the above two matrixes (in a formatted way) into an output file, "***COSC450_P1_Output.txt***", created by your program.
    d. Calculate a product matrix (a two-dimension array of ***long integers***) based on the first matrix multiplies the second matrix;
    e. Write the product matrix out to the same output file, "***COSC450_P1_Output.txt***", by appending it to the end;
    f. **Bonus points for undergraduates (10 points) and required for graduates**: sort the product matrix and append it to the end of the above output file, "***COSC450_P1_Output.txt***". Your sorting ***cannot*** be done by copy the values out from the matrix into a single dimension array then put it back but ***has to*** be done on the matrix directly by manipulating the subscripts correctly.
3. Please start work on this project earlier. It will take some time for you to get familiar with **C** to create the program.

Deliverables:

1. Submit your (**zipped but not rar, if multiple files**) **C** source code file(s) to the Blackboard before the due time.
2. Screen shot and paste the output in a word document, and submit it on blackboard.

Grading:

1. Total 100 points, excluding the 10 bonus points for undergraduates.