ENGR 102 - Lab #9

Activity #1: File read and write

In a previous week's lab, your team designed and constructed a program for performing interpolation calculations. As a team, you should now work to build essentially the same program, extended somewhat (as described below) but in two different parts, one to write and store data in a file, and another to read data from the file and answer queries.

You may begin with the code you used last time, if you wish, or you may construct the new programs from scratch.

a) First, determine as a team how you will store the data in the file. You want to make sure you have agreement on how entries in the data file will be stored.
b) Create a program that will read in data and store it in a file. Your program should prompt the user for the name of the file to use, ask what is being interpolated (the independent and dependent variables, how many data entries there are, and then request values be entered (similar to the way the previous program worked) until the user is done. This data should be written to the specified file in the format your team chose.
    a. As an example, you might first ask for a file name,
    b. Then you might ask what the independent variable (i.e. the "x" value) is. The user might enter "time".
    c. Then, you might ask what the dependent variable (i.e. the "y" value) is. The user might enter "price".
    d. Then you would repeatedly ask the user to enter information (time and price) until done.

    All of that should be saved to the file in the format you describe.
c) Next, create a program that will prompt the user for a data file to read, and then will read in the data file, in the format given above. You should prompt the user for the file name. Then, repeatedly ask for values that the user wants to interpolate. You should print out each of the interpolated values.
    a. For example, following the example above, you would ask the user for a time, and then you would give the price at that time (interpolated or extrapolated from the data you read in from the file).

Submit your two programs, clearly indicating by their names which one is to collect data, and which is to interpolate data.

Activity #2: File read and write

Write a program that will read the Declaration of Independence file (doi.txt) and write two files, 'he.txt' and 'for.txt' , that are based on the first word of each line in the Declaration. If the first word of a line starts with 'He' the line should be written to the 'he.txt' file. Similarly, if the first word starts with 'For' the line should be written to the 'for.txt' file.