

FALL 2004: **CGS 2423 C FOR ENGINEERS**
[PROGRAMMING ASSIGNMENT 2; DUE SEPTEMBER 27 IN CLASS.]

Problem Description

The speed of winds in Hurricane Ivan were 125 mph and gusted up to 140 mph. What are these speeds in kilometers per hour (kph)? Write a program that will do this conversion. The program will read two speeds (wind speeds and wind gust speed) in mph. Your program should convert these numbers to kph.

Details

You will need to create your own input data file. You may name the file as you wish, for example `Data2.txt`. The data file should contain two lines of information as shown below:

```
GN
125 139
```

The first line should contain your initials (first and last initials) and the second line should contain two integers. The program should read in all four pieces of information into appropriately named variables. Multiplying the mph value by 1.6 gives the speed in kph. Finally, the program should output a message in a neat format. A sample output may look something like the following:

```
Hi GN. Here is a summary report on the wind speeds of Hurrican Ivan.
Average wind speed =      125 mph   OR   200.0 kph
Gust wind speeds    =      139 mph   OR   222.4 kph
```

The above output should be sent to an output file called `Data2.out`. Note that the value of mph read in is an integer, while the computed value in kph is a real number. Also, the multiplicative factor of 1.6 should be a user-defined constant in your program. Make sure you include a Header for your program. As mentioned on your course website, every file and program you submit must have a header; an example is available from URL: <http://www.cs.fiu.edu/~giri/2423/f04/Header.txt>

What to Submit

Submit a print out of your program, the input data file, and the output file `Data2.out`. Also submit a disk with the following files:

```
Program2.c (source code of the program)
Program2 OR a.out OR Program2.exe (an executable version of your program)
Data2.txt (input data file)
Data2.out (output file)
```

If you are using Visual C, you may also include the project and workspace files from your directory.

Academic Misconduct

The previous programming assignment was an easy one. This time I will be checking for “Academic Misconduct”. Make sure you understand the rules we are operating under. Here is a recap of some of the general rules for all your assignments:

You may talk to your friends about your homework. But the programming effort has to be your own. For every programming assignment, print out a statement at the top of the program stating the following: “I hereby certify that this work is my own and none of it is the work of any other person.”. Also, sign the above statement. If you have questions about what constitutes academic dishonesty, you may contact me, or else please consult the FIU web site at URL: <http://www.fiu.edu/provost/polman/sec2/sec2web2-44.htm>

Suggestions for the bored

Read about the debugging tools in Visual C. What does it mean to **step** through the program while it is executing?

Extra Credit Modify the program so that it first asks a question from the user about whether he/she wants to convert mph to kph or from kph to mph. Modify your program to take care of both cases.