

Assg 03: Process a File of Scientific Series of Data

CSci 515 Spring 2015

2015-01-30

Dates:

Due: Tuesday February 10, by Midnight

Objectives

- Be able to open a serial text file for reading and writing.
- Process more complex data items from a file of delimiter separated values.
- More practice with I/O stream formatting manipulators.
- Gain more practice using C control structures for implementing algorithms.
- Implement formula calculations into a typical data processing task written in C.

Description

In this assignment, we will be writing a filter, that will filter a file of delimiter separated values of data gathered from an experiment, perform some simple data analysis on the data, and save the results to a new file.

The input file you will be given has the following format:

```
STRANGE
trial      x          y          z          class
00001      4.23169      4.68996      -8.86438      STRANGE
00002      5.43040      -3.59577      -4.71896      UP
```

| | | | | |
|-------|----------|----------|----------|---------|
| 00003 | 0.37792 | 3.34626 | -0.22265 | CHARM |
| 00004 | 5.35208 | 3.96738 | 1.77813 | UP |
| 00005 | 0.90207 | -0.38525 | 4.66088 | CHARM |
| 00006 | -4.67474 | -4.18064 | 1.65754 | UP |
| 00007 | 4.27666 | 4.56251 | -8.56897 | STRANGE |
| ... | | | | |

The first line represents a filter class upon which the data is to be filtered. More on this below.

The next line after the filter is a header for the columns/features of the data. After the header are the actual data trials in the experiment. Column 1 is simply the trial number for the row of data. Columns 2, 3 and 4 represent x, y and z measured positions of a physical component in some experiment. Column 5 represents a feature category, and will be a string.

Assignment Submission

An eCollege dropbox has been created for this assignment. You should upload your version of the out of class assignment by the end of Tuesday 2/3 (midnight) to the dropbox named **Assg 03 Scientific Data File**. Late submissions will not be graded.

Requirements

Your programs must conform to the style and formatting guidelines given for this course. The following is a list of the guidelines that are required for the assignment to be submitted this week.

- The file header and function header for your main function must be present, and filled out correctly.
- You must indent your code correctly and have no embedded tabs in your source code. (Don't forget about the Visual Studio Format Selection command).
- You must not have any statements that are hacks in order to keep your terminal from closing when your program exits.
- You must have a single space before and after each binary operator.

- You must have a single blank line after the end of your declaration of variables at the top of a function, before the first code statement.

Failure to conform to any of these formatting and programming practice guidelines for this assignment will result in a grade of 0 for the assignment, and your program being returned with an indication of which of these items your program violates. Failure to follow other class/textbook programming guidelines may result in a loss of points, especially for those good programming practices given in chapters 1-5 of our textbook which you should have read by now.