CPSC 410

Project 1

Motivation: Topics covered by this project;

- Vectors (C++ container for holding data)
- Vector sorting
- Structs
- File I/O and streams
- cpp and h files
- code organization
- A little on pointers

Overview

You are given a file that has an unknown number of rows, and 3 columns of integers. Assume there are no malformed rows (ie != 3 columns). Looks like the following.

```
1,10,51
2,5,4
3,3,55
4,100,53
5,15,21
6,0,41
7,7,11
8, 1,  19
9,1,61
```

This file can have any name, but I will call it testdata.txt for the purposes of this document. The first column is process_number, second is start_time and third is cpu_time.

I have provided a header file which describes the API that you are to code to

Requirements

1. Please create and complete utilities.cpp.
2. Please create and complete main.cpp. It should have your main() function. Its purpose is to verify all the functions from utilities.cpp.
3. Use utilities.h to link main.cpp and utilities.cpp.
4. Please remove superfluous imports.

In the interest of a minimal API make sure you expose only what needs to be exposed in utilities.h.   That means if clients using utilities.h do not need to see what kind of datastructure is holding your structures, then don't declare it in utilities.h. Or if a function does not need to be called outside of utilities,cpp then don't expose it in utilities.h.

Also remember that header files should have enough includes so that any file that includes them will compile cleanly with no errors. Other necessary includes should go in the cpp file.

Documentation and Testing

Make sure you comment each function and the program as a whole. Test your program extensively (this means writing test code for your utilities.cpp implementation). I will use my own version of TestData.txt and Main.cpp to test your project.

To Turn In

Utilities.cpp only, I will use my own utilities.h, test file and main.cpp

Grading

40% File input working, including tokenizing lines
60% Your .cpp file

APIs that may help

std::string
std::vector
stringstream
std::getline
ifstream and ofstream
std::sort