Assignment 7

100 points

Purpose

The purpose of this assignment is to give you some experience with STL `sets` and operator overloading.

Assignment

Write a program to order and print some tagged words.

Program

The program is invoked with a command line argument giving the name of a data file.

The format of the data file is a list of pieces of data. Each piece of data is an integer followed by a string containing a single word. The words have no spaces in them. You should write a class to contain a single piece of data. The data members should be an integer and a string and should be private. The class will have several public methods.

Constructors

The class should have a default constructor. The class should also have a constructor that takes an `int` and a `string` and does the proper initialization. If you wish to use default arguments, it is possible to implement one constructor that takes care of both of these requirements.

operator []

Overload the subscripting operator. The method should always provide access to the string data member. Nothing more. The subscripting index will be unused, which means that this design is somewhat broken, but that's OK. This method serves as an accessor method for the string data member. No other accessor methods should be created for the final version of the class.

operator <

Overload the less than operator to compare two instances of the class. This is critical for the functioning of the assignment. The class instances are compared by comparing their integer data members. The string data members are not used.

`operator <<`

Overload the output operator. This method should print the string data member of class to the output stream provided.

`main()`

The `main` function should be placed in the file `assign7.cc`. The `main()` function for this assignment should take a command line argument, the name of the data file containing the data records. This argument will be found in argv[1]. If the number of arguments is wrong, the program should print a brief error message and exit.

The `main()` function should contain a `set` of the class created for holding individual data items.

The filename given on the command line should be opened as a file stream for input. If the file can't be opened, the program should print an error message and exit.

The program should read records from the file into the `set`. The `set` should be filled until there is no more data in the file. After reading, the file stream should then be closed.

The elements of the set should then be printed. The elements should be printed with a space between them.

There is one data value that must be treated differently for printing. If the data value is equal to the string "\n", then a new line should be printed rather than the string "\n"

Input

No additional information is needed here.

Output

The output will not be given here. When you get it right, you'll see a nicely formatted quote.

Implementation Hints

`getline()` can be used to input the data if you wish, but in the instructor's opinion, that makes it harder than it needs to be.

Other Points

- Of course you should have a Makefile. Why are you still asking?
- The name of your executable should be `assign7`.
- The class should be implemented in its own source and header files.
- Submit your program using the electronic submission guidelines.