Computer Science 2510 - Lab 4

Readings

- Class Notes 8
- Textbook: Chapters 10 and 11

Objectives

- To become familiar with input and output streams.

Notes

- The exercises in this lab are based on the "Drill" and "Exercises" sections of Chapters 10 and 11 of the textbook (Bjarne Stroustrup, *Programming Principles and Practice Using C++*).
- You should refer to the text and your class notes if you are unclear on any of the ideas covered in today's lab.

Lab Exercises

1. **Save Those Points!**

   1.1. Code the data type `Point`, which has two coordinate members `x` and `y`. A `struct` will suffice for this.

   1.2. Write code which prompts the user to input seven (*x*,*y*) pairs. As the data is entered, store it in a `vector` of `Points` called `original_points`. **Note:** implement the input operator `>>` for `Point`.

   1.3. Print the data to console in `original_points` to see what it looks like.

   1.4. Open an `ofstream` and output each point to a file named `mydata.txt`.

   1.5. Close the `ofstream` and then open an `ifstream` for `mydata.txt`. Read the data from `mydata.txt` and store it in a new `vector` called `processed_points`.

1.6. Print the data elements from both `vector`s.

1.7. Compare the two `vector`s and print `Something's wrong!` if the number of elements or the values of elements differ.

2. Parse Integers from an Existing File

Write a program that produces the sum of all the whitespace-separated integers in a text file. For example, `bears: 17 elephants 9 end` should output `26`.

3. Find All Instances of a Word

Write a program that, given a file name and a word, outputs each line that contains that word together with the line number. **Hint:** `getline()`.

4. I/O operator review

4.1. Review *"Line-oriented input"* in the **Class Notes 8 : Input and Output Streams**. Make sure that you understand how the given input operator works.

4.2. Code the `MonthTemp` example at the end of the class notes. *(Begin this exercise during the lab only if you have time. Consider completing this in your own time as extra practice.)*

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