

CS 150 – 01

Programming Assignment #6

Rain Fall, Part Two!

Date Assigned: Monday, November 10, 2008

Design Documents: Thursday, November 13, 2008, noon (5 points)

Date Due: Monday, November 17, 2008 1pm (35 points)

Total Points: 40 pts

For this project, you need to rewrite your Rainfall assignment to read data from a file and output data to the screen and to a file. The input file contains multiple sets of rainfall data. Each set of data contains a date, a location, and ten rainfall amounts. The rainfall amounts are again ≥ 0.0 and < 10.0 . The output shown below **must** be written to the file: **results.txt** . The input file name **must** be named **rainfall.txt**.

The city name will never contain a space. The file may contain any number of data sets. All digits should be displayed with exactly one numeral after the decimal point. Be sure to follow all the coding standards and remember that this program will be graded on efficiency.

It is vital that you name the input and output files correctly!

Submit an electronic copy of your design document

Before you start you need to think about the data in your program and the calculations you will need to perform. Answer the following questions in a GoogleDoc (named **06ProgramDesignPUNetID**) and share it with the instructor (ShereenKhoja@gmail.com). Be sure to answer the questions in complete sentences where appropriate. This design document is due on **Thursday at noon**.

Design Questions:

1. What *extra data* will you need to store for this program as compared to your last rainfall program, and what are their data types?
2. How many loops will you need for your program?
3. What data and conditions will your program use to stop the loop(s)?

To complete this assignment you must

1. Create a new C++ project in Visual Studio. Name your project **06Filesxxxxxxxx**, where xxxxxxxx should be replaced by your PUNetID. It is vital that you name your project correctly!
2. Type the solution (**fully documented/commented**) to the problem into your project.
3. Remember to enter in your name as the author of the program.
4. Make sure that your program compiles and runs correctly. If you get any errors, double check that you typed everything correctly. Be aware that C++ is case-sensitive.
5. Once you are sure that the program works correctly it is time to submit your program. You do this by logging on to Turing and placing your complete project folder in the **CS150-01 Drop** folder. Make sure that you copy your program folder and don't move it. If you move it, then you will not have your own copy!

Submitting this project:

To receive full credit for this assignment, your project must be in the drop box by **1pm** on the day that it is due. Anything received after that will be considered late. Further, you must bring a **hard copy** of your program to class and place it on the instructor's desk by 1pm. You must print out the program in color and **staple** it if necessary. You also must also submit the **design document by Thursday at noon**.

Sample input file (rainfall.txt)

```
January 1, 2008
Portland OR
1.0 0.0 1.0 0.1 0.5 2.3 3.1 1.0 1.0 1.1
March 1, 2008
Eugene OR
2.0 2.0 1.0 0.1 0.5 2.3 3.1 1.0 1.0 1.1
```

Sample file output (results.txt)

```
+++++
|Rainfall Analysis|
+++++

City : Portland
State: OR
Date : January 1, 2008
-----
Day | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
Rain | 1.0 | 0.0 | 1.0 | 0.1 | 0.5 | 2.3 | 3.1 | 1.0 | 1.0 | 1.1 |
-----
Average: 1.1
Total : 11.1
Maximum: 3.1 on day 7

City : Eugene
State: OR
Date : March 1, 2008
-----
Day | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
Rain | 2.0 | 2.0 | 1.0 | 0.1 | 0.5 | 2.3 | 3.1 | 1.0 | 1.0 | 1.1 |
-----
Average: 1.4
Total : 14.1
Maximum: 3.1 on day 7
```

Sample screen output

```
+++++
|Rainfall Analysis|
+++++
Processing Portland, OR....
Processing Eugene, OR....
Processing Complete.
```

Do not wait until the last minute to print your program!

Remember, this is an individual assignment.

Good luck! And remember, if you have any problems, come and see me straight away.

START EARLY!!

Good Luck! ☺