

Programming Assignment #5

Compute Summer Temperature Statistics

CS 1428.003 and 004, Fall 2015

Instructor: Jill Seaman

Due: in class Monday, 10/26/2015 (upload electronic copy by 10:00am)

Problem:

You will write a program to compute some statistics based on daily high temperatures recorded throughout the three summer months (June, July, and August). The 2015 data for San Marcos has been downloaded from wunderground.com, and placed in a file named "tempdata.txt".

This file has the following format: the first line describes the file contents. The remaining lines each contain a date followed by the high temperature for that day:

```
6/1/15 87
```

The high temperatures are in order, so that the first one is for June 1, the second is for June 2, and so on through July and August. To keep things simple, I have deleted the rows for 7/31 and 8/31, so we can assume each month has exactly 30 days.

The statistics you should compute in your program are:

- The average daily high temperature for the entire summer
- The number of days that reached at least 100 degrees for the entire summer
- The maximum temperature for each month **and on what day it occurred**.

Input:

All of the input will come from the file "tempdata.txt". You may assume that there will be 90 dates and temperatures in the file, and that they will be in order from June 1 to Aug 30 (excluding July 31). I will place a sample file for you to use for testing on the web page.

Processing: Compute the statistics requested above.

Output: Display the statistics, labelled, and with the average temperature formatted to 1 decimal place.

Sample output is shown on the next page.

High temperature statistics for the summer:

Average daily high temperature: 93.3

Number of days that reached 100 degrees: 7

Maximum temperature for June: 93 occurred on June 9

Maximum temperature for July: 98 occurred on July 23

Maximum temperature for August: 104 occurred on August 12

Additional Requirements:

- I recommend using **three arrays** to store the temperatures, one for June, one for July, and one for August.
- Your program should test for file open errors.
- I recommend temporarily echoing the input from the file to the screen (using cout) to be sure you are reading the input correctly into your array(s).
- Don't forget to skip the first line in the file.
- There will probably be many loops in your program.
- **Grading Threshold:** Your program **must compile** and run, and **pass** the following test case. Otherwise you will receive a score of 50 or less, and will receive no credit for the other grading categories (correctness/constraints/style):
 - ➔ Your program must input the data from the file tempdata.txt posted on the class website, and output **the correct average daily high temperature (93.3)**. It must store the temperatures in one or more arrays and compute the sum/average by iterating over the arrays.

Style:

See the Style Guidelines document on the course website. The grader will deduct points if your program violates the style guidelines. Make sure it is indented neatly.

Logistics:

Name your file **assign5_XXXXX.cpp** where XXXXX is your TX State NetID (your txstate.edu email id). The file name should look something like this: assign5_js236.cpp

There are two steps to the turn-in process:

1. Submit an electronic copy using the Assignments tool on the TRACS website for this class (tracs.txstate.edu). Submit the .cpp file, (NOT a .cbp file!).
2. Submit a printout of the source file at the beginning of class on the day the assignment is due. Please print your name on the front page, and staple if there is more than one page.

See the assignment turn-in policy on the course website (cs.txstate.edu/~js236/cs1428) for more details.