

Programming Assignment #5

Compute Summer Temperature Statistics

CS 1428.006 and 007, Fall 2017

Instructor: Jill Seaman

Due: in class Tuesday, 10/31/2017 (upload electronic copy by 9:00am)

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 2017 data for New Braunfels has been downloaded from wunderground.com, and placed in a file named "tempdata17.txt", available on the class website.

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:

```
6/1/17 90
```

The 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:

Your program should ask the user for the name of the file, and then open that file for input. The remainder of the input data will come from that file. You may assume that the data in the file will follow the format described above, and your program should compute correct statistics for any data file that follows that format.

Processing: Compute the statistics requested above.

Output: Display the statistics, labeled, and with the average temperature formatted to 1 decimal place. Sample output (continued onto page 2):

```
Please enter the name of the temperature data file: tempdata17.txt
```

```
High temperature statistics for the summer:
```

```
Average daily high temperature: 96.7
```

```
Number of days that reached 100 degrees: 26
```

Maximum temperature for June: 102 occurred on June 23
Maximum temperature for July: 107 occurred on July 30
Maximum temperature for August: 101 occurred on August 4

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. Hint: use getline with a string variable.
- You also need to skip the dates. Hint: use a string variable to input the date but don't do anything with it (do not store it in an array or output it).
- There will probably be many loops in your program.
- Your program **must compile** and run, otherwise you will receive a 0.

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: assign4_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 .cpp file at the beginning of class on the day the assignment is due. Please print your name on the front page.

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