Programming Assignment #5

Compute Summer Temperature Statistics

CS 1428.003 and 004, Fall 2014
Instructor: Jill Seaman

Due: in class Monday, 10/27/2014 (upload electronic copy by 10:00am)

Problem:

A local amateur meteorologist has been recording daily high temperatures throughout the three summer months (June, July, and August). He would like you to write a program to compute some statistics based on the data he has collected.

He has placed each daily high temperature on a separate line in a file named "summer.dat". 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, we will assume each month has exactly 30 days (so there are 90 values in the file).

The statistics that the meteorologist would like for you to compute in your program are:

- The average daily high temperature for the entire summer
- The number of days over 100 for each month.
- The number of days over 100 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 "summer.dat". You may assume that there will be 90 values in the file, and that they will each be greater than 0. They may have fractional parts, like 99.87. I will place a sample file for you to use for testing on the web page. Your program should test for file open errors.

Processing: Compute the statistics requested above.

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

Sample output is shown on the next page.

```
High temperature statistics for the summer:

Average daily high temperature: 98.9

Number of days over 100 in June: 13
Number of days over 100 in July: 15
Number of days over 100 in August: 14
Total number of days over 100 for the summer: 42

Maximum temperature for June: 109.0 occurred on June 29
Maximum temperature for July: 108.2 occurred on July 23
Maximum temperature for August: 112.1 occurred on August 5
```

Additional Requirements:

- Your program **must compile** and run, otherwise you will receive a score of 0. (You should compile and test it yourself in CodeBlocks or another IDE before submitting it).
- I recommend using **three arrays** to store the temperatures, one for June, one for July, and one for August.
- There will probably be many loops in your program.

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 properly.

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.