

Lab 8

Dynamic Arrays/Files

PROGRAM SPECIFICATIONS

Meteorologists love to keep statistics on the weather. They often tell us the maximum temperature for some date, or the minimum value for some date, or even how long it has been since Spokane experienced a 60-degree day. Your task is to use dynamic arrays provide some of the same statistics that a meteorologist does.

Your task:

- Your data will come from a file named temps.txt – My code prompts the user for the filename.
- The first line in the file will contain the number of days
- The file will then contain that number of entries for the number of days, one per line.
- Create an array of the exact size needed
- Fill the array with the values from the file.
- Repeatedly display the menu that has the following choices
 - 1) Find and display the max temperature
 - 2) Find and display the min temperature
 - 3) Find and display the mean (average) temperature for the month
 - 4) Find and display the median temperature for the month
 - 6) Allow the user to load a new file
 - 7) Quit

You must range check menu entries

I have provided cscd240Lab8.c – As always you can't change my main
I have provided stubbed out methods in lab8.c and fileutils.c. You will need to add your own code to other methods.

TO TURN IN

A **zip** file that contains:

- All your code required to compile and execute your program
- A valgrind run to show you don't leak memory named **cscd240lab8val.txt**
- An output run of your program named **cscd240lab8out.txt**
 - At least 2 runs over your program and make sure you test everything

SAMPLE RUN / SAMPLE FILE

28
12
14
12
10
-2
-5
12
14
16
18
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27
28

Welcome to the Weather Program

I have read that there are 28 temperatures.

Please choose from the following:

- 1) Display the max temperature
 - 2) Display the min temperature
 - 3) Display the mean temperature for the month
 - 4) Display the median temperature for the month
 - 5) Display the mode temperature for the month
 - 6) Load a new file
 - 7) Quit
- Choice --> -2

Invalid selection please try again

Please choose from the following:

- 1) Display the max temperature
- 2) Display the min temperature
- 3) Display the mean temperature for the month
- 4) Display the median temperature for the month
- 5) Display the mode temperature for the month
- 6) Load a new file
- 7) Quit

Choice --> 1

The maximum temperature was: 28

Please choose from the following:

- 1) Display the max temperature
- 2) Display the min temperature
- 3) Display the mean temperature for the month
- 4) Display the median temperature for the month
- 5) Display the mode temperature for the month
- 6) Load a new file
- 7) Quit

Choice --> 2

The minimum temperature was: -5

Please choose from the following:

- 1) Display the max temperature
- 2) Display the min temperature
- 3) Display the mean temperature for the month
- 4) Display the median temperature for the month
- 5) Display the mode temperature for the month
- 6) Load a new file
- 7) Quit

Choice --> 4

I have read that the temperatures are for March and there are 31 temperatures.

Please choose from the following:

- 1) Display the max temperature
- 2) Display the min temperature
- 3) Display the mean temperature for the month
- 4) Display the median temperature for the month
- 5) Display the mode temperature for the month
- 6) Load a new file
- 7) Quit

Choice --> 3

The average temperature was: 25.6 degrees