CIS 26B
Advanced C
Programming Assignments

Homework 0

10 Points – Extra Credit

Arrays, Strings, Structures, Sorting, and Pointers

Project: Performers

Read, understand, and finish writing, debugging, and testing **26B_Hw_0.c,** a C program to determine the winners at a particular talent competition.

There are five judges, each of whom awards a score between 0 and 100 to each performer, a whole number. A performer's final score is determined by dropping the highest and the lowest score received then adding the three remaining scores.

The program does the following:

1. Reads names and scores from an input file into an array of structures. The first number in the input file represents the number of performers. Assume there are only one-word names. Here is an example:

```
2
John 70 78 71 79 75
David 83 29 98 92 97
```

2. Calculates the final score for each performer.
3. Sorts the array in descending order by the final score using the insertion sort algorithm.
4. Writes the sorted array to a file, in a table format with a header of your choice and data nicely aligned (strings to the left, numbers to the right). The output file's name is created by adding "**out**" to the input file's name. For instance, if the input file's name is **performers.txt**, the output file's name will be **performersout.txt**
5. Displays highest score, the winner's names and scores. If two or more performers have the same highest score, all are considered winners. Display the output in a readable format of your choice.

The **Performer** structure has three fields:
name, a string of 31characters;
scores, an array of five scores, and
final, the final score.

Detailed instructions are given as comments in the source file.

Upload: Run the program once and save the output at the end of the source file as a comment. Compress the source file, input and output files and upload the compressed file: 26B_LastName_FirstName_H0.zip

Input: Read data from an input file. Assume the input files have been validated. First create the input files: copy and paste the following data into new text files or use the existing text files.

performers.txt

```
8
John 70 78 71 79 75
David 83 29 98 92 97
Mary 83 80 89 79 85
Andy 91 89 90 87 91
Ann 90 88 91 97 93
Lucy 82 84 89 93 85
Dan 90 56 89 99 73
Sue 79 82 76 81 80
```

contestants.txt

```
11
Linda 93 96 99 99 90
Steve 83 29 98 92 97
Mary 83 80 89 79 85
Tom 91 89 90 87 91
Dana 90 88 91 97 93
James 99 96 99 90 93
Marie 96 90 99 99 93
Bob 82 84 89 93 85
Kevin 83 92 98 29 97
Tina 90 96 99 99 93
Jonathan 99 96 90 99 93
```

test.txt

```
7
John 83 75 89 99 86
David 83 89 99 86 75
Mary 83 75 89 86 99
Andy 75 83 89 99 86
John 99 83 75 89 86
Ann 83 89 99 75 86
Dan 83 99 75 89 86
```