Homework 4

Data Structures

**Assignment Topic**: Merge Processing files of struct

**Due date**: April 16, 2021, you can earn **2 bonus** points if submitted by April 14, 2021 Total **points**: 60

**10 Bonus points**: write 5 different functions to calculate and output a summary of

* **how many points did each team gain**?
* how many games did each team won,
* the name of the team that has the most points,
* and the name of the team with the fewest points.
* any other interesting statistics.

Write a C++ (or similar programming language code: c, java, c#, or python) code that includes following functionalities:

1. Store at least three different data sets of sport teams each in a separate external text file or similar (csv files- 1 more point and json files- 2 more points are accepted). Each file consists of 10-15 different rows. Where each row consists of at least 4 different values.

Example of file structure:

Team Name, Team Play Against, First Team Score, Second Team Score

**A sample entry in the file is:**

Cowboys, Tulsa, 16, 7

Example: <https://www.espn.com/college-football/team/_/id/197/oklahoma-state-cowboys>

<https://www.espn.com/college-football/team/_/id/194/ohio-state-buckeyes>

<https://www.espn.com/college-football/team/_/id/333/alabama-crimson-tide>

Don’t repeat more than 2 different entries about any team as the first team in different plays, nor repeating more than 2 different entries about the second team in plays. However, one team for example the cowboys can appear up to two times as the first team in different plays and up to other two times as the second team in other plays.

You can choose any teams, and any sport you want.

1. Read data from the three files into three different arrays of structure named such as list1, list2, list3 10 points
2. Merge sort the data into a single array of struct e.g., named list4. Perform the sorting based on the name of the first team. 20 points
3. Write the content of list4 or equivalent into an external file and the screen. 15 points
4. Modular design: specialized methods, and include a header file: 5 points
5. Proper screen shots: 5 points and output need to be properly labeled.
6. Overall code quality 5 points

**Deliverables:**

Submit to blackboard your code ready to run in an IDE, all four external files list1… list3 (Your input and output data files in their original format) and a screen shot of each of the input files, and output file.

File 1

|  |  |  |  |
| --- | --- | --- | --- |
| Team 1 Name | Team 2 Name | Team 1 Score | Team 2 Score |
| Cowboys |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

File 2

|  |  |  |  |
| --- | --- | --- | --- |
| Team 1 Name | Team 2 Name | Team 1 Score | Team 2 Score |
| Chicago Bears |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

File 3:

|  |  |  |  |
| --- | --- | --- | --- |
| Team 1 Name | Team 2 Name | Team 1 Score | Team 2 Score |
| Tulsa |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

Sorted Array

|  |  |  |  |
| --- | --- | --- | --- |
| Team 1 Name | Team 2 Name | Team 1 Score | Team 2 Score |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
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