CS 1400 Fundamentals of Programming

Programming Project 10: A Better Bowling Team Scores Program

Objective:

At the completion of this project, you will have created an application that

- gets input from the user and stores it in an array,
- does computations on the array data, and sorts the array.
- uses arithmetic expressions, assignment, and control structures,
- uses the Split method of the string class to parse user input
- sorts an array, and
- formats output and displays it.

Project:

your friends loved the previous program that you wrote to keep track of their bowling scores, but they would like you to make a few additions. In particular, they would like the program to display the list of bowling scores, printed from highest to lowest. Each person's name should be displayed next to their score. This new improved program should work as follows:

- At the end of each game, the program asks you to record the scores for each team member. You type in their first name and that person's score for the game on a single line.
- Your program uses the Split method to parse the input into an array. The name is then stored in an array of strings and the score is stored in an array of integers.
- When there are no more players to input, just enter an empty line.
- The program will now sort the bowling scores from highest to lowest. As you sort the scores, you must also sort the names array in exactly the same order as the scores array. **Note:** You must write your own sorting algorithm -- do not use any of the built in sorting algorithms in the .net library.
- The bowling scores are now printed, in order from highest to lowest, as shown in the sample output below. If anyone bowls a perfect game(score of 300), mark that line with an asterisk.
- Display the team average.

Programming Considerations

As in the previous project, all of the business logic for your bowling team should be encapsulated into a class of your own design.

Your program should work for any number of players on a team, up to 10.

You may choose to do this assignment as a Console program or as a GUI program. The class that you design for your bowling team should work the same in either style of program. If you choose to create a GUI program, you will need to display your output in a multi-line format. I chose to use a TextBox with its MultiLine Property set to true. If you do this, you will have to build the Text for the TextBox using code like this:

```
string outputLine = "";
outputLine += first line of data + Environment.NewLine;
outputLine += second line of data + Environment.NewLine;
etc.
theTextBox.Text = outputline;
```

Format and document your code in accordance with the course style guidelines. Include a file prologue identifying you as the author. Submit your project using the instructions outlined in the Course Syllabus, Programming Projects section.

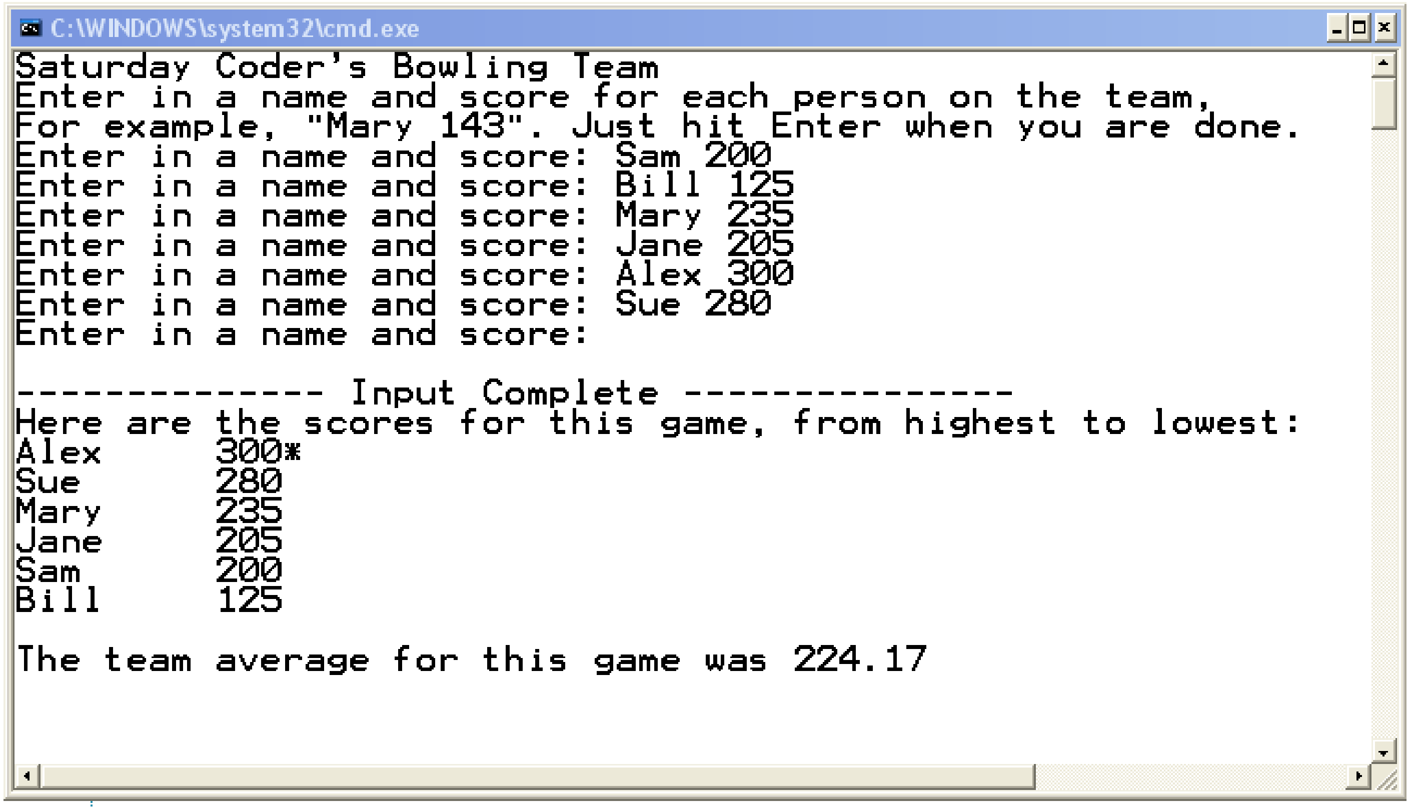
File(s) to Submit:

Place your complete project folder into a zip file and name the zip file proj_10_your-initials_V1.0.zip. For example, I would name my file proj_10_RKD_V1.0.zip. Submit this assignment as Project #10 on Canvas.

Grading Criteria

Description	**Points possible**	**Your points**
Project meets grading guidelines: o Source code files contain a declaration that you did not copy any code o Project has been submitted to Blackboard/Canvas o Code meets style guidelines o Code is properly documented	5	
Program reads in a name and bowling score on one line.	5	
The Split method is used to split this line up. The scores are stored in an array of integers. The name is displayed in an array of strings. Input continues until an empty line is entered. The program only needs to handle up to ten names and scores.	5	
The program displays the names and scores, sorted from highest to lowest, as shown in the sample output. A perfect score is marked with an asterisk.	15	
Program displays the average score	5	
Early Bonus (+5 pts) or late penalty (-20% per day)		
Total	35	

Sample Output:



```
Saturday Coder's Bowling Team
Enter in a name and score for each person on the team,
For example, "Mary 143". Just hit Enter when you are done.
Enter in a name and score: Sam 200
Enter in a name and score: Bill 125
Enter in a name and score: Mary 235
Enter in a name and score: Jane 205
Enter in a name and score: Alex 300
Enter in a name and score: Sue 280
Enter in a name and score:

-------------- Input Complete ---------------
Here are the scores for this game, from highest to lowest:
Alex     300*
Sue      280
Mary     235
Jane     205
Sam      200
Bill     125

The team average for this game was 224.17
```

You can get a console executable that runs correctly here!

You can get a gui executable that runs correctly here!