CS 135
Exercise #13
Point value: 50
Date due:
email source file (using mail utility) to your lab instructor by 11:59pm Mon, Dec 4

New Skills Practiced (Learning Goals)

- Problem solving and debugging.
- Filestreams.
- Records (structs) and array of records (structs).
- Sorting.

Design a program that

- declares a struct type, ballplayer, to store the following information about a group of basketball players
  - first name (string)
  - uniform number (int)
  - average points per game (double)
- assume the maximum number of players allowed in the group is 25
- declare an array of ballplayers
- open an output file (using an ofstream variable)
  - the file should be named - yourlogin.exercise13)
  - write your name, lecture and lab section #s,. and exercise # to the output file
- interactively prompt the user for the name of an input file and read the file name
- open the file (using an ifstream type variable to represent the file)
- read the content of the file, storing the data in the array and counting the number of players
  - the file will contain information for a maximum of 25 players
  - it will be in the form: name, uniform number, average points per game
  - you may assume that the names will be properly formatted, uniform numbers and averages will be present, of the proper type, and valid
- close the input file
- use bubblesort to sort the group of players into descending order based on average points per game (modify bubblesort as needed)
- write a nicely formatted report that displays the names, uniform numbers, and average points per game (after sorting) to the output file
  - label columns
  - left justify names
  - right justify uniform numbers and average points
  - display average points with 2 digits to the right of the decimal
- close the output file

REQUIREMENTS

- Program must read input from a file using a filestream (no redirection).
- The input file can only be read 1 time.
- All header files referenced must be included.
- No global variables may be used.
- Report must be written to a file called yourlogin.exercise13 (example: my login is lee, so my output file is called lee.exercise13)

ASSUMPTIONS

- The input file will contain a maximum of 25 data sets.
- Each value will be separated by blanks or linefeeds.
- The maximum length of a name is 10 characters, maximum uniform number is 99, maximum average points per game is 99.99.

NOTES:

- If you use library functions, make sure you include the appropriate header files.
- Bubblesort must be implemented as a function.
- Reading input and writing report may be implemented in main or as separate functions.
- It is a good idea to send a carbon copy to yourself (-c option) of all emails sent to your lab or course instructor when using the mail utility.
- Documentation (comments) for exercise programs is optional.

Sample terminal session:

```
[lee@bobby keys]$ more data4thirteen
Mary 15 10.5
Joseph 32 6.2
Jack 72 8.1
Vince 83 4.2
Elizabeth 41 7.5
[lee@bobby keys]$ g++ ex13.cpp
[lee@bobby keys]$ ./a.out
Please enter name of input file
data4thirteen
[lee@bobby keys]$ more lee.exercise13
Lee Misch Lec#10__ Lab#10__ Exercise#13

NAME             UNIFORM#    AVEPPG
Mary                   15     10.50
Jack                   72      8.10
Elizabeth              41      7.50
Joseph                 32      6.20
Vince                  83      4.20
```

Make sure you test your program adequately.
Use the mail utility to send your program file to your lab instructor.

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