

Assignment 05: Library System – File IO

Performance Measures

1. Read simple text files to provide data for a program and write processed data out to a simple text file.

Description (Requirements)

Create a Java program that uses the GradeBook from program Assignment 04 with the additional functionality to read student data from a text file, creates the Student objects, and, upon completion of processing, writes the data from the Student objects to a text file.

Technical Requirements

- When the program begins, the user is asked to enter data either from a text file or interactively.
- If the user chooses to enter from a file, the user is asked for the name of the input file.
- Student data in the input file must have the format of one Student's data per line consisting of a name followed by an unspecified number of student scores. The delimiter between fields is a space. There are an unspecified number of Student data sets (again, one Student data set per line) in the file. See the sample data file format below.
- If the user chooses to enter from a file, after the file is read and the ArrayList of references to Student objects is populated, the user is given the option to enter additional students interactively.
- You must create Student objects and store them in an ArrayList. Student objects must have an ArrayList of scores.
- After the all students are added, the program writes a report to the screen and the same report to a text file with the name provided by the user. The report format is shown in the sample report below.
- Immediately prior to program termination, the student data is written to a text file with the name provided by the user. The format of this text file must exactly match that of the input data file (so that it can be used for future input).

Submit - Use the "Assignments Drop Box" in Blackboard - do NOT submit via email

Create a **zip file** containing all the required files *Name the file with your name, e.g. SueJones05.zip*

Submit ALL files in one zip file consisting of:

1. Your properly documented **source** code– **do not** submit the byte code files (i.e. .class files)
2. A completed run of the test cases YOU create (with execution results)
3. A sample of the output from running your program (Output05.txt)
4. The answers to the "Standard Questions" (StandardQuestions05.txt)

Standard Questions

- A. How much time did you spend on this assignment?
- B. What difficulties did you experience?
- C. What were the results of running your test cases/program? Run the program enough times to see that it works correctly – more about testing in subsequent assignments.

Sample Input File

```
Amy 99.9 88.8 78.8
Bob 67.9 88.9 100.0
Cherry 78.9 87.9 91.2
Darcy 78.3 45.9 67.8 88.9 71.4
Ellen 89.3 78.5 88.8 76.1
Fred 91.2 89.5 78.5 81.1
Georgia 77.2 89.9 67.9
Henry 78.9 83.2 80.0 92.4
Isabell 78.2 78.9 56.8 98.4 0.0
```

Sample Report

Grade Book Report

Number of Students: 9

Amy 99.9 88.8 78.8

Number of scores = 3

Highest = 99.9

Lowest = 78.8

Total Points = 267.5

Average of scores = 89.2

Bob 67.9 88.9 100.0

Number of scores = 3

Highest = 100.0

Lowest = 67.9

Total Points = 256.8

Average of scores = 85.6

Cherry 78.9 87.9 91.2

Number of scores = 3

Highest = 91.2

Lowest = 78.9

Total Points = 258.0

Average of scores = 86.0

Darcy 78.3 45.9 67.8 88.9 71.4

Number of scores = 5

Highest = 88.9

Lowest = 45.9

Total Points = 352.3

Average of scores = 70.5

Ellen 89.3 78.5 88.8 76.1

Number of scores = 4

Highest = 89.3

Lowest = 76.1

Total Points = 332.7

Average of scores = 83.2

Fred 91.2 89.5 78.5 81.1

Number of scores = 4

Highest = 91.2

Lowest = 78.5

Total Points = 340.3

Average of scores = 85.1

Georgia 77.2 89.9 67.9

Number of scores = 3

Highest = 89.9

Lowest = 67.9

Total Points = 235.0

Average of scores = 78.3

Henry 78.9 83.2 80.0 92.4

Number of scores = 4

Highest = 92.4

Lowest = 78.9

Total Points = 334.5

Average of scores = 83.6

Isabell 78.2 78.9 56.8 98.4 0.0

Number of scores = 5

Highest = 98.4

Lowest = 0.0

Total Points = 312.3

Average of scores = 62.5