

PBL: Grade Book Part 8: class GradeBook

This assignment continues the project to create software for a school grade book that will hold the scores that students received for their assignments.

This part of the assignment will implement class `GradeBook`, the class that will bring all the other classes together. The following code contains the main program of the final application. As mentioned previously, this simple application is really a limited demonstration of the functionality provided by the class structure that we have implemented.

```
public class Main {
    static GradeBook gradeBook =
        new GradeBook("AP Computer Science A");
    public static void main(String[] args) {
        gradeBook.loadStudents("apcsc_students.txt");
        System.out.println();
        gradeBook.printStudentList();
        System.out.println("\nLoading Assignments:");
        gradeBook.loadAssignmentScores("Scores_a1.txt");
        gradeBook.loadAssignmentScores("Scores_a2.txt");
        gradeBook.loadAssignmentScores("Scores_a3.txt");
        System.out.println("\nAssignment List:");
        gradeBook.printAssignmentList();
        System.out.println("\nPrinting scores for single student:");
        gradeBook.printStudentScores(1234);
        System.out.println("\nPrinting all student scores:");
        gradeBook.printStudentScores();
    }
}
```

On the following pages are the text files used with the above code, and the output that should result.

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These are the files loaded by the above Main program.

apcsc_students.txt

```
1234,Wong,Cynthia
2345,Huang,James J.
3456,Long,Chen
4567,Zhuge,Liang
5678,Ali,Mohammad
```

Scores_a1.txt

```
A1 - Primitive Types 1
10
1234,10,Wong,Cynthia
2345,5,Huang,James J.
3456,10,Long,Chen
4567,10,Zhuge,Liang
```

Scores_a2.txt

```
A2 - Primitive Types 2
15
1234,12,Wong,Cynthia
2345,0,Huang,James J.
3456,15,Long,Chen
4567,15,Zhuge,Liang
```

Scores_a2.txt

```
A3 - ArrayList
12
1234,9,Wong,Cynthia
3456,11,Long,Chen
4567,12,Zhuge,Liang
```

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This is the output produced when the main program is provided with the files as shown.

```
Successfully loaded 5 students from file: apcsc_students.txt
Student list for grade book: AP Computer Science A
1234 Wong, Cynthia
2345 Huang, James J.
3456 Long, Chen
4567 Zhuge, Liang
5678 Ali, Mohammad

Loading Assignments:
Assignment loaded: A1 - Primitive Types 1
Assignment loaded: A2 - Primitive Types 2
Assignment loaded: A3 - ArrayList

Assignment List:
Number of assignments: 3
  A1 - Primitive Types 1
  A2 - Primitive Types 2
  A3 - ArrayList

Printing scores for single student:
1234 Wong, Cynthia
  A1 - Primitive Types 1: 100.0%
  A2 - Primitive Types 2: 80.0%
  A3 - ArrayList: 75.0%
  AVERAGE: 85.0%

Printing all student scores:
1234 Wong, Cynthia
  A1 - Primitive Types 1: 100.0%
  A2 - Primitive Types 2: 80.0%
  A3 - ArrayList: 75.0%
  AVERAGE: 85.0%
2345 Huang, James J.
  A1 - Primitive Types 1: 50.0%
  A2 - Primitive Types 2: 0.0%
  AVERAGE: 25.0%
3456 Long, Chen
  A1 - Primitive Types 1: 100.0%
  A2 - Primitive Types 2: 100.0%
  A3 - ArrayList: 91.7%
  AVERAGE: 97.2%
4567 Zhuge, Liang
  A1 - Primitive Types 1: 100.0%
  A2 - Primitive Types 2: 100.0%
  A3 - ArrayList: 100.0%
  AVERAGE: 100.0%
5678 Ali, Mohammad
  Student has no scores
  AVERAGE: 0.0%
```