

Lab 08 Student Grades: For Loop and Text Files

On disk is a file named scores.txt. The first part of it might look like the following:

```
Alexander Graham Bell
92 94 84 80 93 83
Carl Linnaeus
76 62 46 93 81 41
Mary Anning
90 95 89 90 98 86
Ada Lovelace
78 63 80 88 76 91
```

In the input file the lines are in pairs, with the first containing a student's name and the second containing a list of scores. You may assume the data file contains no errors or invalid characters. Each score is a whole number and it ranges between 0 and 100 inclusive (you do not need to validate the input). Each name has the maximum length of 25 characters. Every student is guaranteed to have 6 subject scores. The file at minimum will have at least two lines (student name, followed by 6 subject scores). However, there is no way to know, in advance, the number of total lines the file may contain.

Your assignment is to create a program to open and read the text file. For each student, you are to locate or calculate:

- the sum of the score (use an accumulator variable)
- the average score
- the letter grade, based on a 90-80-70-60 scale. Therefore, 90 or more average score means the student has received grade A. If the average score is between 80 and 89 then the grade would be B and so forth.

Your program must create a report in a text file named grade_report.txt; The format of the file is shown in the following (in tabular form with averages displayed with two decimal points):

Student Name	Total	Avg	Grade
Alexander Graham Bell	526	87.67	B
Carl Linnaeus	399	66.50	D
Mary Anning	548	91.33	A
Ada Lovelace	476	79.33	C

A sample data file has been attached that you can use for testing, but you are encouraged to add other values to make sure all cases are tested (a student who has all zeros, a student who has all 100s, etc.).

You are VERY STRONGLY encouraged to write this program incrementally, stopping and testing each piece of functionality as you develop it. For example, in your first attempt you should open the file in read mode, print the contents of the file on to the screen. In the next attempt, calculate the total, average of a student and display those on the console screen. Subsequently, you should read all the student's information in a loop and calculate the total and average for each student and display them on the console screen, etc. By using if-else you can use the average and calculate the grades for each student. Lastly, instead of using cout use the output file variable to write the output to the file.

When you are satisfied with your program, by the due date of 5 pm Monday, 23 March, submit it on the Blackboard website. Thank you.