

Assignment #4 (100 pts)

Objective: Write an AWK script to calculate class grade averages.

Sample input data file (download the grad file from class website)

<i>Name</i>	<i>Type</i>	<i>Score</i>	<i>Type</i>	<i>Score</i>	<i>Type</i>	<i>Score</i>	<i>Type</i>	<i>Score</i>
Jones	Q	90	H	100	M	74	F	75
Bob	Q	80	h	95	M	82	F	93
John	q	70	H	99	m	87	f	98
Xiang	q	90	H	80	M	83	F	70
Frank	q	80	H	85	m	86	F	83

Grade Types:

- Q(q): quiz, weighted 10%;
- H(h): homework, weighted 40%
- M(m): Midterm, weighted 20%
- F(f): Final, weighted 30%

***Note: The grades are not necessarily in the same order; it is possible that homework comes before the quiz.

Expected Output (not from the sample input file)

Student Name	Average	Letter Grade
Bloomberg	99	A+
Sanders	85	B
Trump	65	D
Biden	76	C
Yang	89	B+

Total number of students in class:	5	
Class average of quiz:	82	B-
Class average of homework:	91	A-
Class average of midterm:	82.4	B-
Class average of final exam:		
Class average grade:		

All grades need have both “score” and “letter” grades.

The letter grade should be computed as follows:

A+ 97-100; A 94-96; A- 90-93; B+ 87-89; B 84-86; B- 80-83; C+ 77-79; C 74-76; C- 70-73; D 60-69; F < 60

Error handling (download the badfile from class website)

Your AWK script needs to be able to detect and report at least three (3) types of possible errors in the input data file.

1. Unknown grade types (not Q, q, , M, m, , H, h, F, or f)
2. Out of range grade values (negative score or score over 100)
3. Missing grade (when the field after the type is not a number)
4. Missing type (when the field after the number is still a number)

When one of the above errors occurs, the program should produce a report like the following:

Name	Average	Letter Grade
Jones	*****Unknown grade type found (display the unrecognized type) *****	
Bob	85	B
John	65	D
Xiang	*****the type and grade which is greater than 100 *****	
Frank	*****Missing grade for type Q/H/E/F*****	
Number of students: 5		

CLASS AVERAGE IS NOT COMPUTED BECAUSE OF ERRORS

You need to compute the average grade for the students whose records are correct, and print out reason of errors for those no average grade. There will be no class average due to errors of some of the students.

Submission

- Create hw4 under your CS390 repository
- Have the awk script (grade.awk), your input files under hw4
- Execute your awk script with the correct and erroneous input files; redirect the standard output to files: report.txt and reportErr.txt
- Add the awk script and other files if desired to git and push to gitlab on the due datetime