

30 The hardest to understand in college

17 points

Introduction

Your elder sister has just started her first year of university, and during the beginning of the course welcome talks, she has been overwhelmed with the so called *compensable* subjects. She has always been a good student and has confidence in exceeding the subjects, but, as a good Engineer, just in case, she wants to have a backup plan. So, in order to understand this option she decided to ask your father for advice. He excused saying “when I was young, we just passed or failed a subject; what the #*\$# does it mean to compensate!?!” As she knows about your advanced skills in programming (or so she thinks), she asked you to write a program that based in her subjects grades, helps her to know if she has passed the course.

The program will read as input the list of ten subject grades (as in the list below showing the credits for each subject)

After computing the possible compensations (if any needed), the program must output the list of final scores after the compensation, and the Pass/Fail for the course. In case of Fail, no grades should be modified: the output final scores will be the same as input.

This is how compensation works:

5. Qualifications of the subjects.

Will be specified in regulations issued by the Governing Council of the University, that is, with a resolution of 0.1 points and the descriptive grade in accordance to the following table:

0.0 to 4.9: Fail

5.0 to 6.9: Pass

7.0 to 8.9: Remarkable

9.0 to 10: Outstanding

7. Criteria for automatic compensation.

The University can establish the criteria to overcome a curricular block, with a mechanism that may include passing failed subjects with numerical rating not smaller than 4.0. According to this regulation, it states:

7.1 Only subjects with grades between 4.0 and 4.9 can be changed from fail to pass 5.0 by the procedure of compensation.

7.2 The maximum total number of credits for the subjects that can change its qualification as compensation procedure are 12. To compensate these credits automatically, it is necessary that the average of the grades, weighted by the credits of curricular Initial Phase, is equal to or greater than 5.0.

8. Procedure to determinate the final grades of the subjects after the initial phase compensation procedure.

If, as a result of the curricular evaluation, some suspense subjects become pass, the procedure will keep constant the value for the average of the grades, weighted by the credits, whenever possible, and in no case will change the descriptive rating of a subject.

For this reason, the procedure consists in:

8.1 The increase in the grade of the subjects failed, that according to the compensation procedure change their rating to 5.0 Approved, will be done increasing the weighted by the credits grade in these subjects until the numerical mark becomes 5.0, and decreasing properly the weighted grade of the qualifications of the subjects already passed, giving priority to those in which the student has obtained the lowest grades.

8.2 In the event that all numerical grades of the subjects that should decrease are at the limits of descriptive rating (ie. pass 5.0, remarkable 7.0, outstanding 9.0) subjects can be overcome, but in no case there will be a decrease in the numerical grades of the subjects at the limits of the descriptive rating. (The average of the notes will change in these cases)

She is studying Aeronautics, and her first course credits are:

1A

Code	Subject	Credits
220001	Linear Algebra	6
220002	Calculus I	6
220003	Economics	6
220004	Physics I	6
220005	Computers	6
Sum of credits		30

1B



Code	Subject	Credits
220006	Chemistry	6
220007	Calculus II	6
220008	Aerial space, navigation and infrastructure	4.5
220009	Physics II	6
220010	Drawing	7.5
	Sum of credits	30

Input

The input will be the list of the 10 grades corresponding to the subjects.

```
4.5  
5  
5  
5  
5  
5  
5  
5  
5  
5.4
```

Output

In this case, the first subject has been *compensated* with +0.5, and the last one reduced -0.4 (do not forget to consider the different number of credits weight)

The weighted average has not changed in this case.

```
5  
5  
5  
5  
5  
5  
5  
5  
5  
5  
PASS
```

