Problem 205: Ship's Health Summary

Difficulty: Easy

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Problem Background

A warship requires constant maintenance to ensure that everything is functioning correctly, particularly since the lives of hundreds of sailors could depend on the ship's ability to perform both in and out of combat. With potentially hundreds of distinct systems onboard a ship, however, it can be very hard to keep track of everything and determine just how capable the ship actually is. A group of admirals has approached Lockheed Martin asking for a means of identifying a ship's overall "health" at a glance to help them determine deployment and maintenance schedules.

Problem Description

Your team has been tasked with developing a prototype of this system, to be deployed on a Littoral Combat Ship currently under construction. Each of the ship's systems will be given a priority level - one of LOW, MEDIUM, or HIGH - and a health score, ranging from 0 to 10 (where 0 means the system is completely destroyed and 10 means it's in perfect condition).

Priority	Weight
LOW	1
MEDIUM	2
HIGH	3

Your system must report an overall health score for the ship by calculating a weighted average of the health of all reported systems. A system's priority level determines its weighting in this calculation, as shown in the table at left. If you're not familiar with weighted averages, consider a ship with just two systems, with health scores of 3 and 7. Calculating the normal (unweighted) average of these scores yields (3 + 7) / 2 = 5. However, if the system with a score of 3 has a LOW priority and the one with a score of 7 has a MEDIUM priority, the weighted average becomes 5.67. The MEDIUM priority system counts twice, so the calculation for the total becomes (3 + 7 + 7). It's then divided by 3, the sum of the weights (1 and 2).

Once the weighted average is calculated, convert it to a scale of 0 to 100 by multiplying by 10 and rounding to the nearest integer. This number will represent the health score of the entire ship.

Sample Input

The first line of your program's input, **received from the standard input channel**, will contain a positive integer representing the number of test cases. Each test case will include:

- A line containing a positive integer, X, indicating the number of systems on the ship
- X lines showing the status of each system, each containing a priority level (one of LOW, MEDIUM, or HIGH), a space, and a health score: a positive integer between 0 and 10 inclusive.

```
3
2
LOW 3
MEDIUM 7
5
LOW 8
LOW 9
MEDIUM 2
HIGH 5
HIGH 4
3
LOW 10
MEDIUM 10
HIGH 2
```

Sample Output

For each test case, your program must print the ship's overall health score as a positive integer between 0 and 100 inclusive.

```
57
48
60
```