Problem 30: Who's the Valedictorian?

Difficulty: Easy

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Problem Background

Being named valedictorian of the graduating class is a great honor. While different schools may use slightly different methods of determining the valedictorian, grade point average (GPA) is often the primary measure.

Problem Description

You have been entrusted to identify the valedictorian of each high school graduating class, based on GPA, using the following guidelines:

1. The valedictorian shall be the student with the highest GPA.
2. Possible grades and their grade values are:
    a. A = 4 points
    b. B = 3 points
    c. C = 2 points
    d. D = 1 point
3. Credit hours for a class can range from 1 to 4 hours.
4. Grade points for a single course = the grade value multiplied by its credit hours.
5. GPA = total grade points divided by total credit hours.
6. If 2 or more students have identical GPAs, the student with the highest total credit hours is the winner. This is the only tiebreaker you need; there will not be a case where two or more students have identical highest GPAs as well as the same number of credit hours.

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 the name of the school
- A line containing a positive integer, N, representing the number of students in the class
- N lines containing information about each student's courses, in the following format:
    - The name of the student, which will contain only upper- and lowercase letters
    - A colon (:)
    - Course records separated by commas. Each course record consists of a letter grade (A, B, C or D) followed by a number (1, 2, 3, or 4) representing the number of credit hours for

that course. Each student will have a positive number of course records, and the number may vary from student to student within a class.

```
3
East High School
2
Jared:A4,B3,C1,A2,C4,A2,B4
Lauren:B4,A4,A3,A1,C4,C2,A3,A4
North High School
4
John:D1,A2,A4,A3,A4,C2,A4,C2
Paul:B4,B3,B4,A4,A2,A4,C1
George:A3,A4,C1,C2,B4,A1
Ringo:A4,B4,A3,B3,A2,B2
West High School
3
Emma:A3,B4,B4,A4,A4,A3,C1,A3,A1
Matt:C4,A4,A4,A3,A2,A2,A1
Katie:A1,A3,A3,B4,A4,A3,C2,A4
```

Sample Output

For each test case, your program should print a single line containing the name of the school, a space, an equals sign (=), and another space, followed by the name of the valedictorian. Both names should be printed as they appeared in the input.

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East High School = Lauren
North High School = John
West High School = Katie
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