

Design and Analysis of Algorithms
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Practical Work 1

Ramón Hackerman is the HR manager of the QS (Quality Insurance) company. This year, QS is conducting a highly competitive selection process. In order to reduce the number of candidates to be interviewed, Ramón proposed the implementation of an elimination test as the first phase of the process. After collecting the scores obtained in this test, Ramón selects a maximum number of people to be interviewed. However, before announcing the results, Ramón wants to know the lowest score achieved among a certain number of people. In other words, if Ramón intends to select ten people, he wants to find out the tenth highest score obtained during this period.

However, the volume of data is very large, and Ramón needs help. The first phase was conducted with candidates for different positions. For each of these positions, Ramón wants to perform one or more queries as described above. Write a program that assists Ramón in this task.

Input:

The input contains a single test case. The first line indicates the integer N ($2 \leq N \leq 100$) representing the number of available positions. The next N lines contain the scores of the candidates and the query that should be performed, in the following format. The line starts with an integer K ($1 \leq K \leq 100$), indicating how many people will potentially be called for the second phase of that position. Next, an integer C ($10 \leq C \leq 106$) is presented, indicating the number of candidates who applied for the position. Finally, C real numbers R ($0.0 \leq R \leq 100.0$) are presented, indicating the score obtained by each candidate. In this problem, it is guaranteed that $K \leq C$ in all test cases.

Output:

At the end of the execution, your program should print a single real value for each position, indicating the K -th highest score obtained. The output should be a real number with two decimal places.

Input example:

3

3 10 75.2 45.3 23.4 35.9 77.7 52.7 66.6 98.3 88.9 12.3

5 8 11.1 22.2 33.3 44.4 55.5 66.6 77.7 88.8

1 5 25.8 97.3 99.9 95.4 89.7

Desired output:

77.70

44.40

99.9