1079 – Just another Robbery

As Harry Potter series is over, Harry has no job. Since he wants to make quick money, (he wants everything quick!) so he decided to rob banks. He wants to make a calculated risk, and grab as much money as possible. But his friends - Hermione and Ron have decided upon a tolerable probability **P** of getting caught. They feel that he is safe enough if the banks he robs together give a probability less than **P**.

Input

Input starts with an integer **T (≤ 100)**, denoting the number of test cases.

Each case contains a real number **P**, the probability Harry needs to be below, and an integer **N (0 < N ≤ 100)**, the number of banks he has plans for. Then follow **N** lines, where line **j** gives an integer $\mathbf{M_j}$ **(0 < M_j ≤ 100)** and a real number $\mathbf{P_j}$. Bank **j** contains $\mathbf{M_j}$ millions, and the probability of getting caught from robbing it is $\mathbf{P_j}$. A bank goes bankrupt if it is robbed, and you may assume that all probabilities are independent as the police have very low funds.

Output

For each case, print the case number and the maximum number of millions he can expect to get while the probability of getting caught is less than **P**.

Sample Input	Output for Sample Input
3 0.04 3 1 0.02 2 0.03 3 0.05 0.06 3 2 0.03 2 0.03 3 0.05 0.10 3 1 0.03 2 0.02 3 0.05	Case 1: 2 Case 2: 4 Case 3: 6

Note

For the first case, if he wants to rob bank 1 and 2, then the probability of getting caught is **0.02 + (1 - 0.02) * .03 = 0.0494** which is greater than the given probability **(0.04)**. That's why he has only option, just to rob rank 2.