1280 – Best Grade

Your exam is over and you are about to get your grade. You have got marks in **n** subjects and for each subject you are given two integers $\mathbf{p_i}$ and $\mathbf{m_i}$, $\mathbf{p_i}$ is the mark you obtained and $\mathbf{m_i}$ is the total mark in $\mathbf{i^{th}}$ subject. Now you teacher is about to remove **d** of the subjects, and after that he will calculate your average grade by the following rule. He first adds the total numbers that means the summation of all $\mathbf{m_i}$ of the remaining subjects, let this summation be **M**. And then he adds all the numbers you obtained in those subjects, let this summation be **P**. So, your grade is **(P/M) * 100**.

Now you asked your teacher to give you the permission to remove these **d** subjects by yourself. So, he gave you the opportunity to remove the subjects by your own. So, given all the marks, your task is to remove exactly **d** subjects such that your average grade becomes highest.

For example, there are three subjects and your marks are 5, 7 and 10 and the total marks in the subjects are 10, 20 and 15 respectively. And let **d** be 1. So, if you remove the second subject, it's better for you. Because then your grade becomes (15/25*100) which is 60%.

Input

Input starts with an integer **T (≤ 25)**, denoting the number of test cases.

Each case starts with a blank line. Next line contains two integers **n (2 ≤ n ≤ 20000)** and **d (1 ≤ d < n)**. Each of the next **n** lines contains two integers $\mathbf{p_i}$ and $\mathbf{m_i}$ **($1 \le m_i \le 1000$, $0 \le p_i \le m_i$)** where $\mathbf{p_i}$ is the mark you obtained and $\mathbf{m_i}$ is the total mark in $\mathbf{i^{th}}$ subject.

Output

For each case, print the case number and the best average grade you can have. Errors less than $\mathbf{10^{-6}}$ will be ignored.

Sample Input	Output for Sample Input
2 3 1 5 10 7 20 10 15 5 3 1 2 5 9 3 8 4 10 1 3	Case 1: 60 Case 2: 54.545454545

Note

Dataset is huge, use faster I/O methods.