

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 p_i and m_i , p_i is the mark you obtained and m_i is the total mark in i^{th} subject. Now your 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 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 ($2 \leq n \leq 20000$) and d ($1 \leq d < n$). Each of the next n lines contains two integers p_i and m_i ($1 \leq m_i \leq 1000$, $0 \leq p_i \leq m_i$) where p_i is the mark you obtained and m_i is the total mark in i^{th} subject.

Output

For each case, print the case number and the best average grade you can have. Errors less than 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.