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IPC Trainers

Problem Code: IPCTRAIN

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During the Indian Programming Camp (IPC), there are N trainers. The camp runs for D days. Each day, there can be at most one lecture. The i-th trainer arrives on day \mathbf{D}_i and then stays till the end of the camp. He also wants to teach exactly Ti lectures. For each lecture that a trainer was not able to teach, he will feel sad and his sadness level will be increased by Si.

You are the main organizer of the contest. You want to find minimum total sadness of the trainers.

Input

The first line of the input contains an integer **T**, denoting the number of testcases.

For each test case, the first line contains two space separated integers, N, D.

The i-th of the next N lines will contain three space separated integers: D_i , T_i , S_i respectively.

Output

For each test case, output a single integer corresponding to the minimum total sadness of the trainers achievable.

Constraints

- 1 ≤ **T** ≤ 10
- $1 \le N, D \le 10^5$
- 1 ≤ **D**_i, **T**_i ≤ D
- $1 \le S_i \le 10^5$

Subtasks

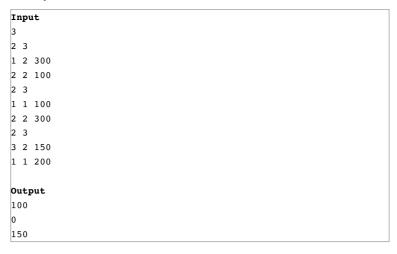
Subtask #1 (40 points)

- 1 ≤ **T** ≤ 10
- $1 \le N$. $D \le 10^3$
- 1 ≤ D_j, T_j ≤ D
- $1 \le S_i \le 10^3$

Subtask #2 (60 points)

· Original constraints

Example



Explanation

Example case 1. Both the first and second trainer want to take exactly two lectures. The first trainer arrives on the 1st day and the second trainer arrives on the 2nd day. Consider a schedule where the first trainer takes the first two lectures, and the second trainer takes the last lecture on the day 3. This way the second trainer will take only one lecture but wanted to take two. Thus, his sadness will be 100. The first trainer took all the lectures that he wanted to take (ie. two lectures). Thus the total sadness is 100 + 0 = 100. You can check that no other way of assigning trainers to the days will give a better answer than this.

Example case 2. In this case, the trainers can all take all their ideal number of lectures.

Example case 3. In this case, the first trainer arrives on day 3 and wants to take two lectures. This is not possible as he can take at most one lecture on day 3 and the camp ends on day 3. The second trainer wants to take only one lecture which he can take on any one of the 1st or 2nd days. You can see that in one of the first or second days, no lecture will be held.

Author: admin2 (/users/admin2)

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CodeChef was created as a platform to help programmers make it big in the world of algorithms, **computer programming** and **programming contests**. At CodeChef we work hard to revive the geek in you by hosting a **programming contest** at the start of the month and another smaller programming challenge in the middle of the month. We also aim to have training sessions and discussions related to **algorithms**, **binary search**, technicalities like **array size** and the likes. Apart from providing a platform for **programming competitions**, CodeChef also has various algorithm tutorials and forum discussions to help those who are new to the world of **computer programming**.

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