

IOITC 2020 TST 2

Buildings

There are N buildings numbered $1, 2, \dots, N$. For each valid i , the height of the building numbered i is H_i . You are currently at building 1, and have an energy equal to 0 units. When you are at building i , you can gain any amount of energy at a cost of P_i per unit. From building i , you can jump to any building $j \neq i$ using energy $\max(0, H_j - H_i)$. Find the minimum cost of reaching the building N .

Input

- The first line contains T , the number of testcases.
- The first line of each testcase contains N , the number of buildings.
- The i -th of the next N lines contains two integers H_i and P_i .

Output

For each testcase, print the minimum cost of reaching building N on a new line.

Test Data

In all inputs,

- $N \geq 1$
- The sum of N over all testcases doesn't exceed 5×10^5
- For all valid i , $1 \leq H_i, P_i \leq 10^6$

Subtask 1 (23 Points): The sum of N over all testcases doesn't exceed 1000

Subtask 2 (77 Points): No additional constraints

Note: Please use fast IO methods.

Sample Input

```
1
5
10 50
1 100
20 30
5 20
30 100
```

Sample Output

```
500
```

Explanation

One optimal solution is:

1. Jump to building 4. This costs no energy as $H_1 > H_4$.
2. Gain 25 units of energy. This costs $25 \times 20 = 500$.
3. Jump to building 3. This costs $H_3 - H_4 = 15$ units of energy. You have 10 units of energy left now.
4. Jump to building 5. This costs $H_5 - H_3 = 10$ units of energy.

Limits

Time: 1 second

Memory: 512 MB