Problem H
Hacking

Time limit: 2 seconds
Memory limit: 512 megabytes

Problem Description

Recently, Hank starts to play a new game. Hank hacks the game and learns how its lottery system works. There are P pools numbered from 1 to P, and gamers can only draw super super rare (SSR) cards from one specific pool every day. Hank extracts the parameters $p_1, p_2, \ldots, p_N$ and $s_1, s_2, \ldots, s_N$ from the game server. He discovers that they are parameters for the lottery system in the next N days. On the i-th day, a gamer can only draw s_i SSR cards in total from pool p_i.

The parameters are very helpful for obtaining SSR cards. But another rule troubles Hank. Hank may change his pool before he start to draw cards on each day. He may change as many time as he wants, but he can only change his pool from pool i to pool j where $i < j$. That is, Hank can change his pool from pool 1 to pool 3, but he cannot change his pool from pool 3 to pool 2.

Assume that at the beginning, Hank's pool is pool 1. Hank wonders how many SSR cards can he draw from the pools in the next N days. Please write a program to compute the answer.

Input Format

The first line contains two positive integers P and N where P is the number of pools and Hank has parameters of the next N days. There are N lines following. The i-th of them contains two positive integers p_i and s_i. Hank can draw s_i SSR cards from pool p_i on day i.

Output Format

Print the maximum number of SSR cards drawn by Hank on one line.

Technical Specification

- $0 < P \leq 100$
- $0 < N \leq 100,000$
- $0 < p_i \leq P$ for $i \in [1, N]$.
- $0 < s_i \leq 10,000$ for $i \in [1, N]$.

Sample Input 1

```
5 10
5 1
1 2
3 3
2 4
4 1
5 1
4 2
3 1
2 3
1 4
```

Sample Output 1

```
9
```

Sample Input 2

```
5 5
5 100
4 4
3 3
2 2
1 1
```

Sample Output 2

```
100
```

Hint

The first sample test case has 5 pools and 10 days. On day 2, Hank draws 2 SSR cards from pool 1. On day 4, Hank changes his pool to pool 2 and draw 4 SSR cards. On day 9, Hank draws 3 SSR cards from pool 2.

The second sample test case has 5 pools and 5 days. On day 1, Hank changes his pool to pool 5 and then draw 100 SSR cards.