B. Traffic light

Description

Lanran has built lots of traffic lights on Lanrand! Lanrand can be regarded as a graph with n vertexes and m directed edges, where Lanran stays at vertex 1 initially and wants to go to vertex n.

There are a traffic light on every vertex. For the ith vertex, the traffic light will be red for a_i seconds, and become green for b_i seconds periodically. In other words, the traffic light will be red for second $[0,\ a_i)$, and green for second $[a_i,\ a_i + b_i)$, and red again. Lanran can not enter one vertex if the traffic light is red, but he can stay in that vertex or leave it.

Please tell Lanran at least how many seconds will he spend to go to vertex n.

Input format

The first line contains three integers n, m, which is described before.

Following m lines contain u, v, w for each line, indicates there is a directed edge between u and v, and Lanran should spend w seconds to pass through.

Then following n lines containing a_i, b_i for each vertex, which is described before. a_1 is always 0.a_i and b_i will not be 0 at the same time.

Output format

Output one integer, indicating the answer.

Sample input

```
4 5
1 3 10
3 4 10
1 2 3
2 4 2
1 4 6
0 1
2 1
1 1
0 1
```

Sample output

```
6
```

Limitations & Hints

Limit

1 second for each test case. The memory limit is 256MB.

For 30% of the test cases, $n \leq 500, m \leq 1000, w \leq 100000, a_i = 0$.

For 50% of the test cases, $n \leq 500, m \leq 1000, w \leq 100000, 0 \leq a_i, b_i \leq 100000$.

For 100% of the test cases, $n \leq 10000, m \leq 100000, w \leq 100000, 0 \leq a_i, b_i \leq 100000$.

Hint

If Lanran go through vertex 1-2-4, Lanran will arrive at v2 at second 3, but v2 is red at that time. So Lanran has to wait until second 5, enter that vertex and go out immediately, costing 2 more seconds to arrive at vertex 4, thus costing 7 seconds in total.