Darkcycle

Input File	Output File	Time Limit	Memory Limit
standard input	standard output	2 seconds	256 MiB

Your destiny awaits you on the neon streets of *Night City*. To get there, you must ride through the ever perilous *Badlands* highway.

The highway is D metres long. You begin at the left end of the highway and would like to get to the right end. You will make the journey on your trusty bike, the *Darkcycle*. The *stealth level* of your bike is an integer indicating how stealthy your bike is. The initial stealth level of your bike is 0.

There are T guard towers along the highway. The i-th tower is placed a_i metres from the left end of the road, and will spot you if your bike's stealth level is less than s_i. If you are spotted, you must pay a fine of f_i dollars.

There are also W workshops along the highway. The j-th workshop is placed b_j metres from the left end of the road. At the j-th workshop, you can upgrade your bike, setting its stealth level to u_j, costing c_j dollars. If your bike's stealth level is already u_j or more, then you cannot upgrade your bike at this workshop.

No towers/workshops share the same location on the highway. What is the minimum number of dollars you must spend in total on fines and upgrades to get to Night City?

Subtasks and Constraints

For all subtasks, you are guaranteed that:

- $2 \leq D \leq 1\,000\,000\,000$.
- $1 \leq T, W \leq 100\,000$.
- $1 \leq a_i, b_i \leq D$, for all i.
- $a_i < a_{i+1}$, for all i. That is, towers are given in increasing order of distance.
- $b_i < b_{i+1}$, for all i. That is, workshops are given in increasing order of distance.
- $a_i \neq b_j$, for all i and j. That is, no towers/workshops share the same location on the highway.
- $0 \leq s_i, f_i, c_i, u_i \leq 1\,000\,000\,000$, for all i.

Additional constraints for each subtask are given below.

Subtask	Points	Additional constraints
1	5	$c_i = 0$, for all i.
2	15	$u_i > u_{i+1}$, for all i.
3	27	$T, W, D \leq 1000$.
4	25	$T, W \leq 1000$.
5	25	$s_i, u_i \leq 10$, for all i.
6	7	No special constraints.

Input

- The first line of input contains the three integers, D, T and W.
- The next T lines describe the guard towers. The i-th line contains a_i, s_i and f_i.
- The next W lines describe the workshops. The i-th line contains b_i, u_i and c_i.

Output

Output a single integer, the minimum number of dollars you must spend to get to Night City.

Note: The answer can be quite large. Consider using 64-bit integers (a `long long` in C++).

Sample Input 1

```
10 4 3
1 6 30
3 2 50
5 6 100
8 30 1000
2 5 10
6 30 100
7 30 50
```

Sample Output 1

```
190
```

Sample Input 2

```
8 4 3
2 5 100
4 3 100
5 1 100
7 7 15
1 3 0
6 9 100
8 1 50
```

Sample Output 2

```
115
```

Explanation

In Sample Case 1, one optimal journey is as follows:

- At the 1st guard tower, you are spotted (it has $s_1 = 6$, and your bike has stealth level 0). You pay the $f_1 = 30$ dollar fine.
- At the 1st workshop, you upgrade your bike for $c_1 = 10$ dollars, setting it's stealth level to $u_1 = 5$.
- At the 2nd guard tower, you are not spotted (it has $s_2 = 2$, and your bike has stealth level 5).
- At the 3rd guard tower, you are spotted (it has $s_3 = 6$, and your bike has stealth level 5). You pay the $f_3 = 100$ dollar fine.
- At the 2nd workshop, you do nothing.
- At the 3rd workshop, you upgrade your bike for $c_3 = 50$ dollars, setting it's stealth level to $u_3 = 30$.
- At the 4th guard tower, you are not spotted (it has $s_4 = 30$, and your bike has stealth level 30).

You pay $30 + 10 + 100 + 50 = 190$ dollars in total.

In Sample Case 2, one optimal journey is as follows:

- At the 1st workshop, you upgrade your bike for $c_1 = 0$ dollars, setting it's stealth level to $u_1 = 3$.
- At the 1st guard tower, you are spotted. You pay the $f_1 = 100$ dollar fine.
- At the 2nd guard tower, you are not spotted.
- At the 3rd guard tower, you are not spotted.
- At the 2nd workshop, you do nothing.
- At the 4th guard tower, you are spotted. You pay the $f_4 = 15$ dollar fine.
- At the 3rd workshop, you do nothing.

You pay $0 + 100 + 15 = 115$ dollars in total.

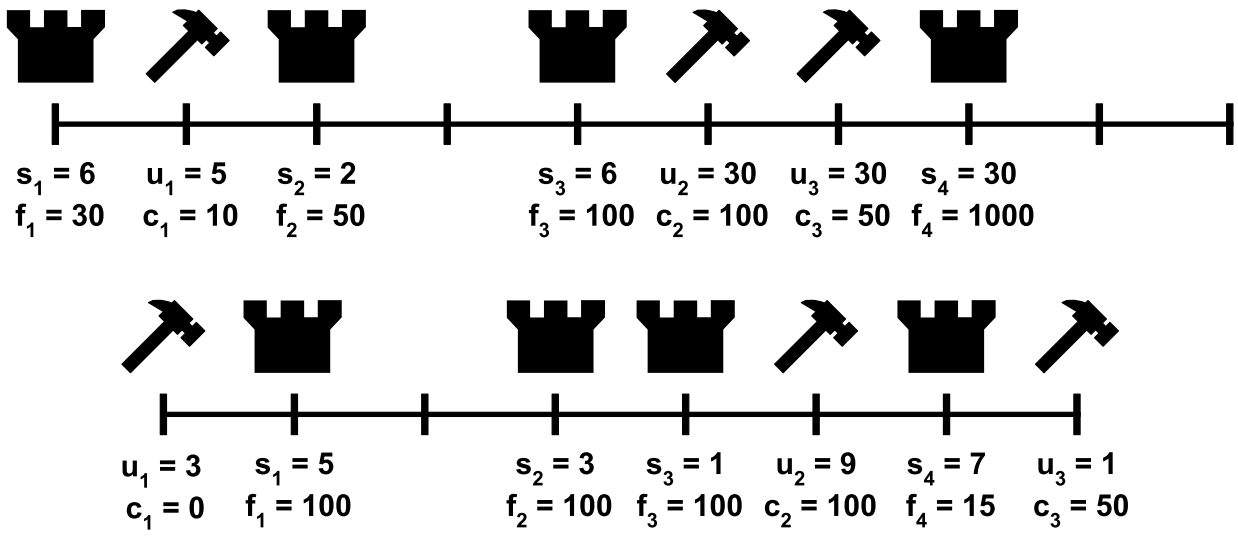

Figure 1: Sample cases 1 & 2