GCC '16 P3 - Hang Gliding Fun

Time limit: 1.0s **Memory limit:** 256M
Java 8: 1.4s

Bob lives in a city with N skyscrapers arranged in a row running north to south. He likes to hang glide over the city. Bob can glide south to a shorter building if all of the passed buildings' heights are smaller than his current building's height.

Each of the N buildings has height h_i, view value v_i, and danger value d_i for $1 \leq i \leq N$. Bob has Q questions for you: Given that he starts at the B^{th} northmost building $(1 \leq B \leq N)$, what is the maximum possible sum of the view values of buildings which he lands on such that none of those buildings has danger value more than M $(1 \leq M \leq 10^6)$?

Input Specification

The first line contains two space-separated numbers N $(1 \leq N \leq 100\,000)$ and Q $(1 \leq Q \leq 100\,000)$, the number of buildings and queries respectively.
The next N lines each contain h_i $(1 \leq h_i \leq 10^6)$, v_i $(1 \leq v_i \leq 10^6)$, and d_i $(1 \leq d_i \leq 10^6)$, the height, view value, and danger value for the i^{th} northmost building.
The next Q lines each contain the query. Each line contains two space-separated numbers B $(1 \leq B \leq N)$ and M $(1 \leq M \leq 10^6)$. It is guaranteed that the danger value of the B^{th} northmost building is not more than M.

Output Specification

For each query, output the answer on a new line.

Sample Input 1

```
3 2
3 1 2
3 4 4
1 2 10
2 20
2 4
```

Sample Output 1

```
6
4
```

Explanation

For the first query, the path which maximizes the sum of view values is hang gliding to the third building, so the answer is $4 + 2$. For the second query, the path which maximizes the sum of view values is simply staying put at the second building, so the answer is 4.