
Problem A. Artful Paintings

Input file: **standard input**
Output file: **standard output**
Time limit: 1 second
Memory limit: 512 megabytes

Painting is really a romantic activity. Painting on cubes is even more romantic. And creating artful paintings on cubes is the most romantic thing to do.

N cubes are lined up in a row and they are indexed from 1 to N from left to right. The task for you is to choose some of the cubes and paint them. However, there are some rules that you must not violate, so that the painting will be artful. There are two types of rules, described below:

1. The number of painted cubes whose index belongs to the interval $[L_i, R_i]$ must not be strictly fewer than K_i ($1 \leq i \leq M_1$).
2. The number of painted cubes whose index does not belong to the interval $[L_i, R_i]$ must not be strictly fewer than K_i ($1 \leq i \leq M_2$).

Painting is also a tiring activity, so the number of cubes you paint should be as small as possible.

Input

The input contains multiple cases. The first line of the input contains a single integer T ($1 \leq T \leq 100$), the number of cases.

For each case, the first line of the input contains three integers N , M_1 and M_2 ($1 \leq N \leq 3000$, $0 \leq M_1, M_2 \leq 3000$), denoting the number of cubes, the number of rules of type 1, and the number of rules of type 2. The next M_1 lines each contains three integers L_i, R_i, K_i ($1 \leq i \leq M_1, 1 \leq L_i \leq R_i \leq N, 0 \leq K_i \leq R_i - L_i + 1$), describing a rule of type 1. The next M_2 lines each contains three integers L_i, R_i, K_i ($1 \leq i \leq M_2, 1 \leq L_i \leq R_i \leq N, 0 \leq K_i \leq N - (R_i - L_i + 1)$), describing a rule of type 2.

It is guaranteed that the sum of N over all cases doesn't exceed 3 000, the same is true for the sum of M_1 and the sum of M_2 .

Output

For each case, print a single integer in a single line, the smallest number of cubes you need to paint.

Example

standard input	standard output
1	1
3 1 1	
1 2 1	
2 2 1	