Problem B. Arrays

Input:	stdin
Output:	stdout
Time Limit:	1 second
Memory Limit:	1024 MB

Given 2 integers n, k and m triplets (ℓ_j, r_j, x_j) $(1 \le j \le m)$, your task is to count the number of arrays a of length n such that:

- $1 \le a_i \le k$ $(1 \le i \le n)$;
- for the j^{th} triplet, $max(a_u) = x_j$ $(\ell_j \le u \le r_j)$.

Input

- The first line contains 3 integers n, m and k $(1 \le n, m \le 10^5, 1 \le k \le 10^9)$;
- The j^{th} line of the next m lines contains 3 integers ℓ_j, r_j, x_j $(1 \le \ell_j, r_j \le n, 1 \le x_j \le k)$.

Output

Since the result could be rather large, you should print the number of arrays modulo $10^9 + 7$.

Examples

stdin	stdout
5 3 5 1 3 2 1 2 1 1 5 5	9

Subtask 1 (9 points)

$1 \le n, k \le 50, 1 \le m \le 10$

Subtask 2 (16 points)

$1 \le n, m, k \le 500$

Subtask 3 (22 points)

all x_j are distinct

Subtask 4 (22 points)

all x_j are equal

Subtask 5 (31 points)

no additional constraints