D. Two Options

Limits: 2 sec., 512 MiB

You are given two integers n and m, and m triplets of integers (i, j, x), where $1 \leq i < j \leq n, 1 \leq x \leq n$.

Permutation $p = (p_1, p_2, \ldots, p_n)$ of integers $1, 2, \ldots, n$ is *good* if for **all** m given triplets (i, j, x), it holds that either $p_i = x$ or $p_j = x$.

Calculate the number of good permutations, and print the answer modulo $10^9 + 7$.

Input

The first line contains two integers n and m – the size of the permutation p and the number of triplets.

The next m lines contain three integers i, j, and x, describing the triplets.

Output

Print a single number – the number of good permutations modulo $10^9 + 7$.

Constraints

$2 \leq n \leq 10^6$,
$1 \leq m \leq 10^6$,
$1 \leq i < j \leq n$,
$1 \leq x \leq n$,
all the triplets are pairwise distinct.

Samples

Input (*stdin*)	Output (*stdout*)
4 4 1 2 1 1 3 1 2 3 2 2 3 3	2
4 7 1 2 1 1 3 1 1 4 1 1 2 2 2 3 2 2 4 2 3 4 4	2

Notes

In the first sample, $n = 4, m = 4$. Good permutations must satisfy all of the following conditions.

- $p_1 = 1$ or $p_2 = 1$.

- $p_1 = 1$ or $p_3 = 1$.
- $p_2 = 2$ or $p_3 = 2$.
- $p_2 = 3$ or $p_3 = 3$.

There are two good permutations: $(1, 2, 3)$ and $(1, 3, 2)$.
In the second sample, the good permutations are $(1, 2, 3, 4)$ and $(1, 2, 4, 3)$.