E. Permanent

Little X has solved the #P-complete problem in polynomial time recently. So he gives this task to you.

There is a special $n \times n$ matrix A, you should calculate its permanent modulo 1000000007 ($10^9 + 7$). The special property of matrix A is almost all its elements equal to 1. Only k elements have specified value.

You can find the definition of permanent at the link: $\texttt{https://en.wikipedia.org/wiki/Permanent}$

Input

The first line contains two space-separated integers n, k ($1 \le n \le 10^5$; $1 \le k \le 50$).

The next k lines contain the description of the matrix. The i-th line contains three space-separated integers x_i, y_i, w_i ($1 \le x_i$, $y_i \le n$; $0 \le w_i \le 10^9$). These numbers denote that $A_{x_i, y_i} = w_i$. All the elements of the matrix except of the given elements are equal to 1.

It's guaranteed that all the positions (x_i, y_i) are distinct.

Output

Print the permanent of the matrix modulo 1000000007 ($10^9 + 7$).

Examples

input

```
3 1
1 1 2
```

output

```
8
```

input

```
10 10
3 3 367056794
6 2 124561273
1 3 46718146
6 9 415916869
10 5 985968336
3 1 526792265
1 4 386357058
10 4 349304187
2 7 102032499
3 6 502679075
```

output

```
233333333
```