

Problem I. Tri-color spanning tree

Input file: `stdin`
Output file: `stdout`
Time limit: 2 seconds
Memory limit: 512 megabytes

bobo has got an undirected graph G , whose edges are colored in red, green and blue.

He would like to count the number of spanning trees with at most g green edges and b blue edges modulo $(10^9 + 7)$.

Input

The first line contains 4 integers n, m, g, b . n and m denote the number of vertices and edges of G , respectively ($1 \leq n \leq 40, 0 \leq m \leq 10^5, 0 \leq g, b < n$).

The vertices are conveniently numbered by $1, 2, \dots, n$.

Each of the following m lines contains 3 integers a_i, b_i, c_i , which denotes an edge between vertices a_i and b_i ($1 \leq a_i, b_i \leq n, a_i \neq b_i, 1 \leq c_i \leq 3$). $c_i = 1, 2, 3$ denotes that the color of the i -th edge is red, green or blue, respectively.

Output

A single integer denotes the number of spanning trees.

Sample input and output

stdin	stdout
2 3 0 0 1 2 1 1 2 2 1 2 3	1
3 6 1 0 1 2 1 1 2 1 2 3 1 2 3 2 3 1 2 3 1 2	10