Problem G. Permutation

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

You are given a permutation $p_1, p_2, \ldots, p_n$ of $1, 2, \ldots, n$. You are also given m constraints of the form $p_{a_i} < p_{b_i}$. Find out the number of different permutations satisfying all the constraints.

It is guaranteed that there is at least one such permutation.

Input

The first line of the input contains n and m ($1 \le n \le 40, 0 \le m \le 20$). Each of the following m lines contains two integers a_i and b_i ($1 \le a_i, b_i \le n$).

Output

Print a single integer denoting the number of permutations modulo $10^9 + 7$.

Examples

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