Perfect Matching

Input file:	`standard input`
Output file:	`standard output`
Time limit:	2 seconds
Memory limit:	512 megabytes

Given an undirected graph $G = (V, E)$ with n vertices and m edges, count the number of perfect matchings modulo $(10^9 + 7)$.

A perfect matching is a **permutation** $\phi : V \to V$ where $(v, \phi(v)) \in E$ and $\phi(\phi(v)) = v$.

Input

The first line contains 2 integers n and m $(1 \le n \le 30, 0 \le m \le \frac{n(n-1)}{2})$.

The i-th of the following m lines contains 2 integers a_i and b_i, which denotes an edge between the a_i-th and b_i-th vertices $(1 \le a_i, b_i \le n)$.

It is guaranteed that the graph contains no loops or multiple edges.

Output

An integer denotes the number of perfect matchings modulo $(10^9 + 7)$.

Examples

standard input	standard output
4 4 1 3 1 4 2 3 2 4	2
4 6 1 2 1 3 1 4 2 3 2 4 3 4	3