
Problem A. City United

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

In ICPCCamp there are n cities which are conveniently labeled with $1, 2, \dots, n$. There are also m bidirectional roads: the i -th road connects cities a_i and b_i .

Bobo chooses a non-empty subset of cities to form a union. For each two cities a and b in the union, there must exist a path from a to b passing through no cities outside the union. In other words, the union must be connected.

Bobo would like to know how many ways there are to choose such a subset, but he is afraid of large numbers. Therefore, he just wants to find this number modulo 2.

Input

The first line contains two integers n and m ($1 \leq n \leq 50$, $0 \leq m \leq \frac{n(n-1)}{2}$).

The i -th of the following m lines contains two integers a_i and b_i ($1 \leq a_i, b_i \leq n$, $0 < |a_i - b_i| \leq 13$).

Output

Output an integer which denotes the number of possible subsets modulo 2.

Examples

standard input	standard output
3 2 1 2 2 3	0
3 3 1 2 2 3 3 1	1