

## Problem J

# Multicolored Cycles

**Time Limit: 2 seconds**

**Memory Limit: 512 megabytes**

You are given an undirected graph with  $n$  vertices and  $m$  edges. The graph may contain self-loops (edges connect one vertex to itself) or parallel edges (edges that connect the same pair of vertices). A customer wants you to color all edges in this graph with either **blue** or **red**. Because the customer is a very weird person, he wants every cycle of the graph to have edges of both colors, i.e. there cannot be a cycle with edges only in red or blue. Your task is to find out if you can accomplish the problem.

### Input

The first line contains two integers  $n$  and  $m$  ( $1 \leq n \leq 2000, 1 \leq m \leq 4000$ ). Each of the next  $m$  lines contains two integers  $u$  and  $v$  denoting an edge connecting the  $u^{th}$  vertex to the  $v^{th}$  vertex ( $1 \leq u, v \leq n$ ).

### Output

Output “Yes” if it is possible to color the edges satisfying the customer’s condition, or “No” if it is impossible to do so.

#### Sample Input

#### Sample Output

2 2 1 2 1 2	Yes
2 3 1 2 1 2 1 2	No
5 4 1 2 2 3 1 5 2 4	Yes
5 8 1 2 2 3 3 1 1 4 4 5 5 1 2 4 3 5	Yes