

D. Almost Acyclic Graph

time limit per test: 1 second

memory limit per test: 256 megabytes

input: standard input

output: standard output

You are given a **directed graph** consisting of n vertices and m edges (each edge is directed, so it can be traversed in only one direction). You are allowed to remove at most one edge from it.

Can you make this graph **acyclic** by removing at most one edge from it? A directed graph is called acyclic iff it doesn't contain any cycle (a non-empty path that starts and ends in the same vertex).

Input

The first line contains two integers n and m ($2 \leq n \leq 500$, $1 \leq m \leq \min(n(n-1), 100000)$) — the number of vertices and the number of edges, respectively.

Then m lines follow. Each line contains two integers u and v denoting a directed edge going from vertex u to vertex v ($1 \leq u, v \leq n$, $u \neq v$). Each ordered pair (u, v) is listed at most once (there is at most one directed edge from u to v).

Output

If it is possible to make this graph acyclic by removing at most one edge, print YES. Otherwise, print NO.

Examples

input
3 4 1 2 2 3 3 2 3 1
output
YES

input
5 6 1 2 2 3 3 2 3 1 2 1 4 5
output
NO

Note

In the first example you can remove edge $2 \rightarrow 3$, and the graph becomes acyclic.

In the second example you have to remove at least two edges (for example, $2 \rightarrow 1$ and $2 \rightarrow 3$) in order to make the graph acyclic.