A. BFS

time limit per test: 10 s
memory limit per test: 256 MB

Given a graph consisting of n nodes and m edges, check if the graph has a cycle in it using BFS only.

$Bonus\ Problem$: if the graph has a cycle, print any cycle that goes through two or more other nodes, and finally returns to the starting node.

Input

The first input line has two integers n and m: the number of nodes and edges. The nodes are numbered $1,2,...,n$.

Then, there are m lines describing the edges. Each line has two integers a and b: there is an edge between those nodes.

Every edge is between two different nodes, and there is at most one edge between any two nodes.

Output

If the graph has a cycle, print YES otherwise print NO.

Note that the output is case $sensitive$.

Example

input Copy

```
5 6
1 3
1 2
5 3
1 5
2 4
4 5
```

output Copy

```
YES
```

Note

You can see below the representation of the graph.