

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 $1, 2, \dots, n$.

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
<pre>5 6 1 3 1 2 5 3 1 5 2 4 4 5</pre>	
output	Copy
<pre>YES</pre>	

Note

You can see below the representation of the graph.

CP3 Lab LAU

Private

Manager



→ Group Contests

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Graphs Lab II

Finished

Practice

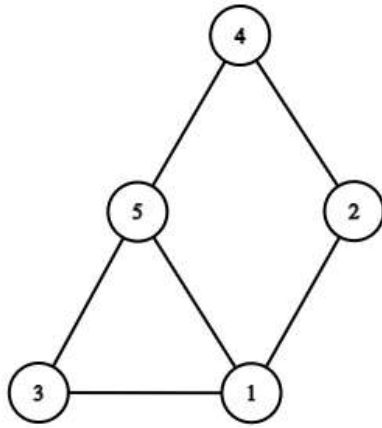


→ Languages

The following languages are only available languages for the problems from the contest

Graphs Lab II:

- GNU G++17 7.3.0
- GNU G++20 13.2 (64 bit, winlibs)
- GNU G++23 14.2 (64 bit, msys2)
- Java 21 64bit
- Java 8 32bit


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Language: GNU G++23 14.2 (64 bit, ms)

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