

DMOPC '18 Contest 6 P3 - Wish Upon a Star

Time limit: 1.0s **Memory limit:** 256M

Java: 2.5s

Python: 2.5s

Ainz is a master player of the DMMORPG Yggdrasil. Currently, he is preparing to class up!

The classes in Yggdrasil form a forest: that is, there exists at most 1 path between each pair nodes. However, Ainz finds that someone has used a world item to add some number of extra edges!

Ainz can use the skill «Wish Upon a Star» to remove at most a single edge. He then asks you: is it possible to restore the graph to a forest?

Constraints

Subtask 1 [20%]

$$1 \leq N, M \leq 5\,000$$

Subtask 2 [80%]

$$1 \leq N, M \leq 200\,000$$

Input Specification

The first line of input will contain two space separated integers, N and M , the number of nodes and edges, respectively. The next M lines will each contain two space separated integers, a_i and b_i , indicating there exists a bidirectional edge from a_i to b_i .

Output Specification

Output YES if the graph can be restored to a forest by removing at most one edge, and NO otherwise.

Sample Input 1

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

Sample Output 1

YES

Explanation for Sample Output 1

Removing the edge $2 \rightarrow 3$ makes the graph a forest.

Sample Input 2

```
4 2
1 2
3 4
```

Sample Output 2

YES

Explanation for Sample Output 2

The graph is already a forest.