Tree Mirroring

Let T be a rooted tree (a connected undirected acylic graph), and let S be a perfect copy of T. Construct a new graph by taking the union of T and S, and merging the corresponding leaf nodes (but never the root). We call such a graph a *tree-mirrored graph*.

Write a program that determines if an arbitrary undirected connected graph is a tree-mirrored graph.

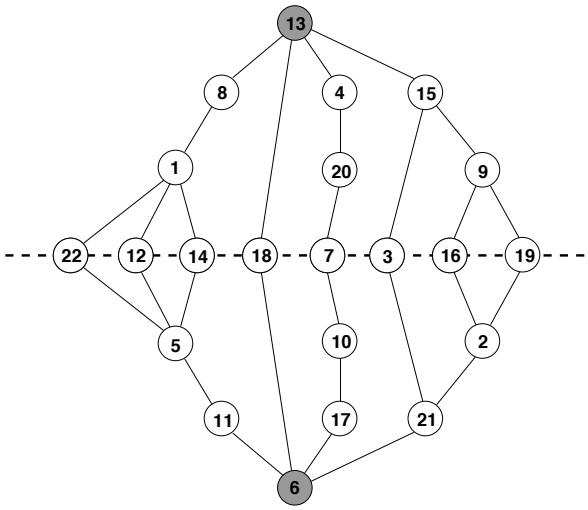

Figure 1: An example of a tree-mirrored graph. The figure corresponds to the third example test case.

Input

The first line of input contains two integers N and M, the number of vertices and edges of a graph G. The vertices in G are labeled from 1 to N. The following M lines describe the edges. Each such line contains two integers x and y ($x \neq y; 1 \leq x, y \leq N$), describing one edge. There will be at most one edge between any pair of vertices.

Output

The first and only line of output should contain the string `YES` if the graph G is a tree-mirrored graph, and `NO` otherwise.

Constraints

$3 \leq N, M \leq 100\,000$
In test cases worth 60 points, $3 \leq N, M \leq 3\,500$. In test cases worth 30 points, $3 \leq N, M \leq 300$.

Examples

Input	Output
7 7 1 2 2 3 3 4 4 5 5 6 6 7 7 1	NO
6 6 1 2 2 3 2 4 3 5 4 5 5 6	YES
22 28 13 8 8 1 1 22 1 12 1 14 13 18 13 4 4 20 20 7 13 15 15 3 15 9 9 16 9 19 22 5 12 5 14 5 5 11 11 6 18 6 7 10 10 17 17 6 3 21 21 6 16 2 19 2 2 21	YES

The last example input corresponds to the graph in the figure.