Online on Graph Algorithms (B1+B2) Time: 35 minutes

Problem Statement

Two brilliant hackers, Elliot and Darlene, are trying to hack into the impenetrable network of Fort Knox, to grab some highly confidential information. They have brainstormed some potential security loopholes (i.e. vulnerabilities) and established a cause and effect relationship among them. Specifically, they have modeled the potential loopholes and the relation among them as a directed graph whose nodes denote the potential vulnerabilities and the edges denote the dependencies of one vulnerability on another. Now, as they are being predictive, they have come up with thousands of such graphs. To proceed further, they need to analyze some information obtained by traversing each of these graphs. To facilitate the process, they have designed an automated graph traversal agent, which they call MonkeyBOT. The MonkeyBOT is extremely efficient in traversing some graphs, but there is a catch. Given an acyclic graph (i.e. tree), it can operate as expected but gets stuck otherwise. So, Elliot and Darlene have thought of passing the MonkeyBOT only those graphs that can be processed by it and dealing with the remaining ones differently. As they are occupied with finding more possible vulnerabilities, they have asked for your help. Now, can you help them by determining whether a graph can be passed to the MonkeyBOT or not?

Input format

The first line contains 2 integers, n and m where n denotes the number of potential security loopholes and m denotes the number of dependencies between two loopholes. Each of the next m lines contains two integers u, v (0 <= u, v < n) which indicates, vulnerability v is a direct consequence of vulnerability u.

Output format

Print “Yes” (without the quotes) if the input can be processed by the MonkeyBOT and “No” otherwise.

Sample I/O

Input	Output
4 5 0 1 1 2 0 2 1 3 3 2	Yes

3 3 0 1 1 2 2 0	No
3 2 0 1 2 1	Yes