Problem F. Bots

Input file:	`standard input`
Output file:	`standard output`
Time limit:	2 seconds
Memory limit:	256 megabytes

NIXZ is a software that manages bots and their workflows and it is one of Eonics main products. A bot is a software application that runs automated tasks. It performs tasks that are both simple and structurally repetitive, at a much higher rate than would be possible for a human alone. A workflow in NIXZ is a series of sequential bots that need to be run by the servers in order to reach a certain goal.

Sander was one of NIXZ developers and loved creating bots. Bots help automate mundane tasks like creating invoices, sending emails or filling boring forms. When creating a workflow, Sander had to link different bots and to make sure everything worked fine. He had to ensure that there were no cycles in it. So he asked you to help him to avoid workflow cycles.

Valid Workflow   **Non valid workflow**
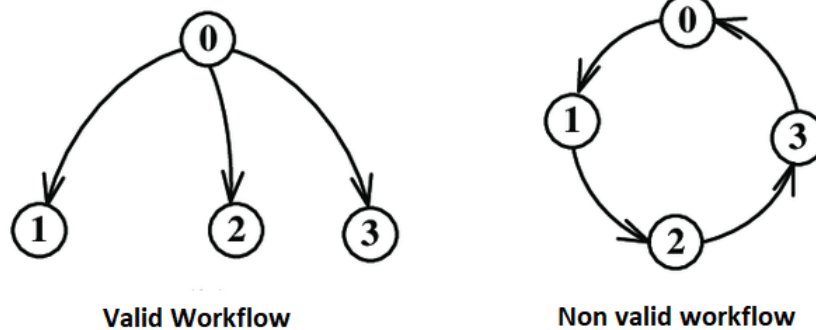
In order to solve that, the system was represented as a directed graph composed of connected nodes (bots) in order to create different workflows. Can you help him to detect cycles in the system workflows?

Input

The first line contains n $(2 \leq n \leq 10^5)$ the number of bots in the workflow, e $(0 \leq e \leq 2 * n)$ the number of edges linking bots nodes. The following e lines contain edges: edge i is given as a pair of vertices u_i, v_i $(1 \leq u_i, v_i \leq n, u_i \neq v_i)$ where the bot u_i trigger v_i to run after it.

Output

If the system has no cycles print "YES" (without the quotes) otherwise print "NO".

Examples

standard input	standard output
5 4 1 2 2 3 3 4 4 5	YES
2 2 1 2 2 1	NO