
Toppo and his chatting app

Input file: **standard input**
Output file: **standard output**
Time limit: 1.5 seconds
Memory limit: 256 megabytes

CSE-222 Analysis and Design of Algorithms

Plagiarism: All submitted codes are expected to be the result of your individual effort. You should never misrepresent someone else's work as your own. In case any plagiarism case is detected you will get one grade reduction in final examination. Cite the resource wherever using other's code.

Instructions:-

- 1) You must complete this in the lab timing only and allowed programming language are Java/C/C++. If have doubt about the libraries and function to use ask the TA about it.
- 2) You must submit your working solution on Foobar on the foobar portal page from where you have downloaded this lab instructions sheet.
- 3) No extensions on deadline. If you fail to submit within will not be evaluated.
- 4) Mention your enrollment no. and name at starting of the file along with a brief.

Problem:

Anu Toppo examines a chatting app. Like all other chatting apps two members can be friends and can chat with each other. Users can't make any group like other apps.

There are n boys using this app, numbered through 1 to n . m pairs of boys are friends. Of course a person can't chat with himself.

Let $X-Y$ denote that X and Y are friends. Toppo thinks a chatting app is practicable if and only if there is a transitive relationship between its users means for every three distinct users (X, Y, Z) , if $X-Y$ and $Y-Z$ then also $X-Z$. For example: if David and Ally are friends, and Ally and James are friends, then David and James should be friends as well.

Can you help Toppo and check if the app is practicable? Print "YES" or "NO" accordingly, without the quotes.

Input

The first line of the input contains two integers n and m ($3 \leq n \leq 15000, 0 \leq m \leq \min(15000, n(n-1)/2)$) – the number of users and the number of pairs of users that are friends.

The i -th of the next m lines contains two distinct integers a_i and b_i ($1 \leq a_i, b_i \leq n, a_i$ not equal b_i). Users a_i and b_i are friends with each other. No pair of users will appear more than once in the input.

Output

If the given app is practicable, print "YES" in a single line (without the quotes). Otherwise, print "NO" in a single line (without the quotes).

Examples

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