Problem: Card Exchange

People are coming from all over the country for this year's Card Exchange Fest. Here, everyone gets the chance to obtain the card they most covet, for their favorite game.

The rules of this strictly exchange-based fair are simple. Everyone can bring in a single card, from any card game, and trade it with the card of any other participant, provided they find a participant willing to make the trade.

People keep coming to this card exchange year after year, but sometimes they feel that the trading should be improved. Usually, only pairs of participants interested in each other's cards succeed in trading them: if person A has brought a card that person B likes and vice-versa, then A and B exchange their cards.

In the end, many participants, unable to find a suitable trading partner, are left with the same card they walked-in with... But, if instead of looking for pairs, participants were able to look for triplets, they could find more valid exchanges! Imagine that participant A only likes participant B's card, while B only likes C's card and C likes A's card. These 3 people could trade their cards in a cycle and everyone would be happy!

But why stop at triplets? Cycles could be bigger and bigger! Could you help the participants find if it is possible for everyone to go out with a new card? Be careful, because participants will not give their card without receiving one they like in return.

Task

Given the participants of the exchange fest and the cards they like, can we find ways to trade the cards so that everyone receives a new card?

Input

The first line has two integers: N, the number of participants, and M, the total number of "declarations of interest". Each of the following M lines contains one declaration of interest, consisting of two space-separated integers, A and B, indicating that participant A likes the card brought by participant B ($0 \leq A, B < N$). Numbers A and B will never be the same (participants never like the card they brought).

Constraints

$2 \leq N \leq 2\,500$	Number of participants in the fest
$1 \leq M \leq 20\,000$ and $M \leq N^2 - N$	Number of declarations of interest

Output

The output should be a single line with `YES` if it is possible to find a new card for every participant, or `NO` if that is not possible.

Sample Input 1

```
9 9
0 1
1 2
2 0
3 4
4 3
5 6
6 7
7 8
8 5
```

Sample Output 1

```
YES
```

Sample Input 2

```
3 3
0 1
1 0
2 0
```

Sample Output

```
NO
```