Feasts in METU

Time Limit: 1.0s   **Memory Limit:** 256M

It's the end of the midterms in the Middle Earth Technical University and *blurbian warriors* are celebrating with giving feasts. However, there are only a 2 days of time before the hunting exams start and since *blurbians* don't want to get too full for their hunting exams, they will only attend to a single feast in a day. So, they can attend a maximum of 2 feasts in those 2 days. *Blurbians* also do not want to hang out with the same *blurbians* over and over again, so no 2 *blurbians* go to the same feasts twice.

Sinanto, as the smartest *blurbian*, wanted to keep his fitness for the exams and haven't attended any of those feasts. He wanted to learn which of his N friends encountered each other in the feasts and started creating a list. However, he noticed that some of the *blurbians* were so into eating that they might mix up who they had eaten with. After learning this Sinanto can't be sure that the list he has is a valid list of encounters. A valid list means that every encounter is possible with the 2 days of feasting with no missing encounters in the list.

For example let's think that *sino*, *auo*, and *fako* say that they have encountered each other, and *auo* says that she also encountered eco. It's possible with *auo*, *sino*, and *fako* having a feast together on the first day, and *eco* and *auo* having another feast on the second day. However, if *sino* says that he also encountered *eco*, it's no possible since he cannot be in the same feast with *auo* on the second day.

Can you help Sinanto, and determine that the information he gathered is valid or not?

- There is no limit to the number of attendants in a feast.
- There is no limit to the number of simultaneous feasts.

Input

The first line will contain 2 integers, N and M.

In the following M lines, there will be 2 names, denoting the *blurbians* who remember eating together.

- $1 \leq \mathbf{N} \leq 300$
- $1 \leq \mathbf{M} \leq 1000$
- $1 \leq \mathbf{len(A_i)} \leq 5$

Output

Only 1 character should be printed. "1" if the information is consistent, "0" otherwise.

Examples

Input:

```
3 3
uco bico
bico dero
uco dero
```

Output:

```
1
```

Input:

```
4 5
sino fako
sino auo
fako auo
auo eco
sino eco
```

Output:

```
0
```

Explanation

1st Input

There are 3 *blurbians* whose names are uco, bico, and dero. Every pair of those *blurbians* think that they have encountered during the 2 days of feasts.

The information is possible, hence consistent. One possible way of encounters is that 3 of them join the same feast on the first day and don't attend a feast on the first day.

2nd Input

There is no possible way of the listed *blurbians* encountering in the 2 days of feasts. So, the information Sinanto gathered isn't consistent.