Exclusive OR

Time Limit: 1 Second
Memory Limit: 256 MB

Exclusive OR $\oplus$ is a logical operator that checks if two boolean variables are the same. For two boolean variables a and b, $a \oplus b = 1$ if and only if a and b have different values.

You really love solving puzzles, so Mattox decided to give you a puzzle instead of a coding problem as the homework for today. The puzzle consists of m equations that involve n boolean variables. Each equation is in the form

$$a \oplus b = k$$

where a and b are variables, and k is either 0 or 1. Your task is to assign a value to each boolean variable so that all equations hold. However, Mattox told you that he might have made a mistake in the puzzle, so he asks you to figure out if the puzzle is solvable first.

Input

The first line of input contains two integers n and m ($1 \leq n, m \leq 10^5$) - number of boolean variables and number of equations.

The next m lines describe the equations. Each line is in the following format:

`x`a `xor x`b `=` k

where $1 \leq a, b \leq n, k \in \{0, 1\}$.

Output

Output `YES` if the puzzle can be solved, and `NO` otherwise.

Sample Inputs

```
4 4
x1 xor x2 = 0
x1 xor x3 = 1
x2 xor x4 = 1
x1 xor x4 = 0
```

Sample Outputs

```
NO
```