Problem Y: Binary Equations

Problem Description

You are given n Boolean variables $x_1, \ldots, x_n$ (each is either 0 or 1) and m constraints.

Each constraint is either an equality of the form

`i = j` meaning $x_i = x_j$,

or an inequality of the form

`i != j` meaning $x_i \neq x_j$,

for indices $1 \leq i, j \leq n$.

Determine whether there exists an assignment of 0/1 values to all variables that satisfies all constraints.

Input

The first line contains two integers n and m ($1 \leq n \leq 2 \cdot 10^5$, $0 \leq m \leq 2 \cdot 10^5$). Each of the next m lines contains either `i = j` or `i != j` with $1 \leq i, j \leq n$. The tokens are separated by single spaces; the operator is exactly either `=` or `!=`.

Output

Print a single line: `satisfiable` if there exists a satisfying assignment, or `not satisfiable` otherwise.

Sample

Sample Input 1

```
4 4
1 = 2
2 != 3
3 = 4
1 != 4
```

Sample Output 1

```
satisfiable
```

Sample Input 2

```
3 3
1 = 2
2 = 3
1 != 3
```

Sample Output 2

```
not satisfiable
```