Michel and the championship

Michel is participating in a championship where each participant have p_i (0<=i<=N-1) points. He knows for some pairs of participants an inequality between the points of each one, in the form $p_A - p_B >= C$. Now he wants to know if his data is correct, i.e., if its possible to assign points for each participant and satisfy all the inequalities.

Input

The input consists of several test cases (at most 150). The first line of each test case consists of two integers N and M (1<=N<=500, 0<=M<=5000). Then follow M lines of three integers A, B and C, indicating that $p_A - p_B >= C$ (0<=A,B<=N-1, |C|<=20000).

Output

Print a single line for each test case with 'y' if the data is valid or 'n' if its not.

Example

Input

```
2 2
0 1 2
1 0 2
4 4
0 1 1
1 2 1
2 3 -2
3 0 1
4 4
0 1 1
1 2 1
2 3 -3
3 0 1
```

Output

```
n
n
y
```