

Statement problem Funny Graph

Bugland is a country with N cities. Being a newly founded country, the N cities are not connected by any roads, thus the government decided to initiate a project which will last exactly M days and whose purpose is to create a network of roads between the cities.

In each day of the project, the workers build two new weighted unidirectional roads, one from city x to city y whose weight is z and one from city y to city x whose weight is $-z$.

After each day the inhabitants of Bugland ask themselves a question: is there a way of to label the cities with numbers such that if there is an edge from city x to city y , the weight of the edge is $C_x - C_y$, where C_i is the label of the i^{th} city?

Input

From *stdin* you will read on the first line the number of cities N and the number of days of the project M .

The next M lines each contain three numbers x , y , z describing the roads built in each day.

Output

In *stdout* you will write M lines, on the i^{th} line *YEP* :) if there is a way to number the cities, or *NOPE* :/ if there is none.

Restrictions

- $1 \leq N \leq 5 \cdot 10^4$
- $1 \leq M \leq 10^5$
- $-10^9 \leq z_i \leq 10^9 \ \forall \ 1 \leq i \leq M$
- $0 \leq x_i, y_i \leq N - 1 \ \forall \ 1 \leq i \leq M$
- For tests worth 30 points:
 $1 \leq N \leq 10^3$ and $1 \leq M \leq 10^4$
- Bugland can have multiple roads between two cities or roads from one city to itself.

Example

stdin	stdout
4 5	YEP :)
0 1 1	YEP :)
1 3 -1	YEP :)
3 0 0	YEP :)
3 2 4	NOPE :/
2 0 3	