Irrational Path

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	256 megabytes

You are given a directed graph G with N nodes and M edges, where each edge has an integer weight in $[0, 9]$. Check if there exists an infinitely long walk from node 1 where, if we view the weights as the digits of a decimal number, this number converges to an irrational number. (Formally, if the weight of the i^{th} edge is d_i, then the condition is that $0.\overline{d_1 d_2 d_3 \ldots}$ is irrational.)

The graph can have self loops, contain multiple edges between the same pair of nodes, and be disconnected.

Input

The first line contains an integer T ($1 \le T \le 2 \cdot 10^5$), the number of test cases.

The first line of each test case contains two integers N, M ($1 \le N, M \le 2 \cdot 10^5$), the number of nodes and edges in G, respectively.

The i^{th} of the next M lines of each test case contains three integers a_i, b_i, d_i ($1 \le a_i, b_i \le N$, $0 \le d_i \le 9$), indicating an edge from a_i to b_i with weight d_i.

It is guaranteed that the sum of N over all test cases and the sum of M over all test cases both do not exceed $2 \cdot 10^5$.

Output

Output T lines, each containing either `Yes` or `No` (case insensitive).

Scoring

- (35 points) The sum of N over all test cases and the sum of M over all test cases both do not exceed 3000.
- (65 points) No additional constraints.

Example

standard input	standard output
3 4 4 1 2 1 1 2 1 2 3 2 3 1 3 2 4 1 1 0 1 2 1 2 1 1 2 2 0 6 6 1 2 4 1 3 5 2 4 6 2 5 7 6 6 8 6 6 9	No Yes No

Note

In the first test case, all infinitely long walks from node 1 correspond to the number $0.\overline{123123\ldots} = \frac{41}{333}$, which is rational. Therefore, it's not possible to obtain an irrational number.

In the second test case, all numbers with digits 0 and 1 are obtainable.

In the third test case, there does not exist an infinitely long walk from node 1.