Problem E. Expose The Werewolf

Input file:	*standard input*
Output file:	*standard output*
Time limit:	2 seconds
Memory limit:	1024 mebibytes

You are playing the Werewolf game with your friends. In this game, there are a total of n participants numbered from 1 to n, your number is 1. All participants are divided into two teams — players of one team are werewolves, and players of another team are villagers. The villagers do not know who the werewolves are, and their goal is to determine it.

You are a villager and you have a special role: the journalist. You can ask about any two players (except yourself) and you will know whether they are both from the same team (werewolves or villagers), but you won't know their team.

You know that there are a total of m werewolves, and you want to determine them. During the game, you have already asked k questions. In the i-th question, you have asked about players a_i and b_i, and you know whether they are in the same team. You can ask at most 2 questions before the game finishes for you; can you determine who is in the werewolves team?

Input

The first line of the input contains an integer t ($1 \le t \le 1000$) — the number of testcases.

The first line of each testcase contains three integers n, m, and k ($1 \le m < n \le 5 \cdot 10^5$, $0 \le k \le 5 \cdot 10^5$) — the number of players, the number of players in the werewolves team, and the number of questions you have asked.

Each of the next k lines of the testcase contains three integers a_i, b_i and c_i ($2 \le a_i, b_i \le n$, $0 \le c_i \le 1$). If players a and b are from the same team, then $c_i = 1$; otherwise, $c_i = 0$.

You may assume that:

- all answers are correct and there exists a werewolves team of m members;
- the sum of n in all testcases does not exceed $5 \cdot 10^5$;
- the sum of k in all testcases does not exceed $5 \cdot 10^5$.

Output

For each testcase, print "`Yes`" if it is possible to determine all players in the werewolves after asking no more than two queries; otherwise, print "`No`".

Example

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