Problem F. Wormholes

Time limit   2000 ms
Mem limit   65536 kB

While exploring his many farms, Farmer John has discovered a number of amazing wormholes. A wormhole is very peculiar because it is a one-way path that delivers you to its destination at a time that is BEFORE you entered the wormhole! Each of FJ's farms comprises N (1 ≤ N ≤ 500) fields conveniently numbered 1..N, M (1 ≤ M ≤ 2500) paths, and W (1 ≤ W ≤ 200) wormholes.

As FJ is an avid time-traveling fan, he wants to do the following: start at some field, travel through some paths and wormholes, and return to the starting field a time before his initial departure. Perhaps he will be able to meet himself :) .

To help FJ find out whether this is possible or not, he will supply you with complete maps to F (1 ≤ F ≤ 5) of his farms. No paths will take longer than 10,000 seconds to travel and no wormhole can bring FJ back in time by more than 10,000 seconds.

Input
Line 1: A single integer, F. F farm descriptions follow.
Line 1 of each farm: Three space-separated integers respectively: N, M, and W
Lines 2..M+1 of each farm: Three space-separated numbers (S, E, T) that describe, respectively: a bidirectional path between S and E that requires T seconds to traverse. Two fields might be connected by more than one path.
Lines M+2..M+W+1 of each farm: Three space-separated numbers (S, E, T) that describe, respectively: A one way path from S to E that also moves the traveler back T seconds.

Output
Lines 1..F: For each farm, output "YES" if FJ can achieve his goal, otherwise output "NO" (do not include the quotes).

Sample

Input	Output
2 3 3 1 1 2 2 1 3 4 2 3 1 3 1 3 3 2 1 1 2 3 2 3 4 3 1 8	NO YES

Hint

For farm 1, FJ cannot travel back in time.

For farm 2, FJ could travel back in time by the cycle 1->2->3->1, arriving back at his starting location 1 second before he leaves. He could start from anywhere on the cycle to accomplish this.