Wormholes

Time Limit: 2000MS **Memory Limit:** 65536K
Total Submissions: 72861 **Accepted:** 27084

Description

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 ($1 \le N \le 500$) fields conveniently numbered 1..N, M ($1 \le M \le 2500$) paths, and W ($1 \le W \le 200$) 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 ($1 \le F \le 5$) 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

```
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
```

Sample Output

```
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.

Source

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