D. Wormholes

Time Limit: 1.0 Seconds Memory Limit: 65536K Multiple test files

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
```

Input Details

Two farm maps. The first has three paths and one wormhole, and the second has two paths and one wormhole.

Output Details

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: USACO 2006 December Competition

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