

## 1367 – Pizza and Inner Peace

Valley of Peace is not only famous for Inner Peace but also well known for the delicious pizzas of Mr. Ping, the goose father of legendary Kung Fu Panda Po.

The delicious pizza of Mr. Ping has become so much famous that the demand of it has increased in a great extent. Mr. Ping wants to deliver his pizzas to Gongmen City which is ruled by Evil Lord Shen. Wolf bandits are guarding the Gongmen City and everywhere else. So, there are some fixed allowable amounts of pizza  $C_k$  that can be carried through  $k^{\text{th}}$  road. For some reason, the roads are one way only. Assume that there are  $N$  cities, Valley of Peace is the  $1^{\text{st}}$  city and Gongmen City is the  $N^{\text{th}}$  city.



Mr. Ping along with Master Fox has calculated the demands for each city and a **least** amount of pizzas  $L_k (\leq C_k)$  for  $k^{\text{th}}$  road that must be sent to satisfy the demands. Mr. Ping always wanted Po to become a great chef like him but Panda Po was busy practicing Kung Fu. So, now Mr. Ping has given him the job to deliver pizzas to Gongmen City fulfilling the requirements stated above.

Po along with his team cannot carry more or not even less than allowable amount assigned for each road, otherwise Stealth Mode will be broken and they will get caught. If the amount of pizzas going through the road from  $i^{\text{th}}$  city to  $j^{\text{th}}$  ( $1 < i, j < N$ ) city is  $F_{ij}$  then for each  $i$ , the following condition must hold:

$$\sum_{i=1}^N F_{ij} = \sum_{i=1}^N F_{ji}$$

Panda is very excited to complete this awesome task along with Thundering Rhino and all helping hands possible. As you are a good friend of Panda; he wanted your help to know if it is possible to get this job done.

### Input

Input starts with an integer  $T (\leq 20)$ , denoting the number of test cases.

Each case starts with a blank line. Next line contains two integers  $N (2 \leq N \leq 200)$  and  $M$  where  $N$  denotes the number of cities and  $M$  denotes the number of unidirectional roads. The  $k^{\text{th}}$  line of the next  $M$  lines contains four integers  $u_k v_k L_k C_k (1 \leq u_k < N \text{ and } 1 < v_k \leq N, u_k \neq v_k, 0 \leq L_k \leq C_k \leq 10^5)$  meaning that there is a road from city  $u_k$  to  $v_k$ , and at least  $L_k$  units of pizza must be sent through this road but not exceeding  $C_k$  units. There can be at most one road from a city  $u$  to  $v$  and from any city  $u$ , it's impossible to return to  $u$  visiting other cities.

## Output

For each case, print the case number and **"yes"** if it's possible to deliver the pizzas maintaining the restrictions, or **"no"** otherwise. If it's possible to do so, print extra **M** lines, where the **k<sup>th</sup>** line should contain the amount of pizza that should be send through the **k<sup>th</sup>** road. There can be multiple solutions, report any valid one.

Sample Input	Output for Sample Input
5	Case 1: yes
2 1	5
1 2 5 10	Case 2: no
	Case 3: yes
4 5	4
1 2 3 4	4
1 3 2 3	2
3 2 2 5	2
3 4 2 3	6
2 4 4 10	Case 4: yes
	5
4 5	5
1 2 3 5	5
1 3 2 10	5
3 2 2 5	Case 5: yes
3 4 2 3	5
2 4 6 10	5
	5
5 4	0
1 4 5 5	
4 2 3 5	
2 3 3 5	
3 5 0 10	
5 5	
1 4 5 5	
4 2 3 5	
2 3 3 5	
3 5 0 10	
1 5 0 10	

## Notes

1. Dataset is huge, use faster I/O methods.
2. This is a special judge problem; wrong output format may cause 'Wrong Answer'.