# Two Spanning Trees

| | |
|---|---|
| Input file: | *standard input* |
| Output file: | *standard output* |
| Time limit: | 1 second |
| Memory limit: | 1024 mebibytes |

Alice and Bob are participating in a competition. The competition consists of several independent rounds. The rounds go as follows. Each player is given a simple (without loops and parallel edges) connected undirected graph with $n$ vertices and $m$ edges. The values $n$ and $m$ are the same for both players, but the graphs might be different. The first player to find a spanning tree of their graph is declared to be the winner. In case both players have found spanning trees relatively fast, the round is declared to be tied. For simplicity, the edges are numbered from 1 to $m$, and the players are required to present just the indices of the edges in the spanning tree they have found.

Alice has recently learned many algorithms for finding a spanning tree, and she is sure the game will be easy. On his side, Bob doesn't know any algorithms for finding a spanning tree, but he has his own strategy. He hopes that the organizers are too lazy to prepare two different graphs, so he will just copy Alice's answer and present it to the jury. In the past, it worked decently well. However, Alice has recently begun to suspect Bob of cheating, so she is now trying to expose Bob's dirty strategy.

There still remain $t$ rounds till the end of the competition, and Alice tries to win as much as possible. To achieve that, each round she will search for such a spanning tree in her graph that the corresponding edges in Bob's graph do not form a spanning tree. It turns out that this is a bit difficult, so now Alice wonders if there even exists a suitable spanning tree.

## Input

The first line contains an integer $t$ ($1 \le t \le 2500$), the number of remaining rounds.

Each round description starts with a line containing two integers $n$ and $m$ ($2 \le n \le 5000$, $n - 1 \le m \le \min\left(5000, \frac{n(n-1)}{2}\right)$): the number of vertices and edges in the graphs. Then follow $m$ lines denoting the edges. The $i$-th of these lines contains four integers: $u_A$, $v_A$, $u_B$, and $v_B$ ($1 \le u_A, u_B, v_A, v_B \le n$, $u_A \ne v_A$, $u_B \ne v_B$). They mean that the $i$-th edge in Alice's graph connects vertices $u_A$ and $v_A$, while the $i$-th edge in Bob's graph connects vertices $u_B$ and $v_B$. Both graphs are simple and connected.

Both the sum of all $n$ and the sum of all $m$ across all rounds do not exceed 5000.

## Output

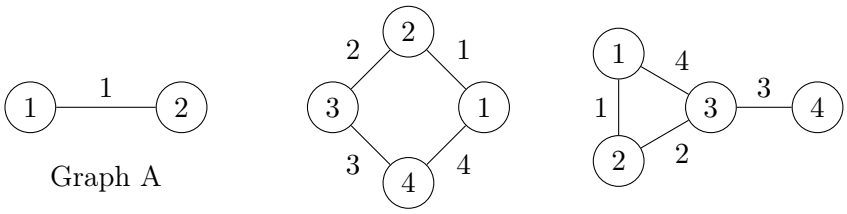
For each round, determine if there exists a spanning tree in Alice's graph such that the corresponding edges in Bob's graph do not form a spanning tree.

If that's the case, print a single line containing "`YES`", otherwise, print "`NO`".

## Example

| *standard input* | *standard output* |
|---|---|
| 3<br>2 1<br>1 2 2 1<br>4 4<br>1 2 1 2<br>2 3 2 3<br>3 4 3 4<br>1 4 1 3<br>4 4<br>1 2 1 2<br>2 3 2 3<br>3 4 3 4<br>1 3 1 4 | NO<br>YES<br>NO |

## Note




In the example, in the first round, both players are given graph A.

In the second round, Alice is given graph B and Bob is given graph C. In that case, Alice can present $[1, 2, 4]$ as an answer: these edges form a spanning tree in graph B, but not in graph C.

In the third round, Alice is given graph C and Bob is given graph B.