F. Superb Graphs

time limit per test: 2 seconds

memory limit per test: 256 megabytes

As we all know, Aryan is a funny guy. He decides to create fun graphs. For a graph G, he defines fun graph G' of G as follows:

- Every vertex v' of G' maps to a non-empty independent set* or clique† in G.
- The sets of vertices of G that the vertices of G' map to are pairwise disjoint and combined cover all the vertices of G, i.e., the sets of vertices of G mapped by vertices of G' form a partition of the vertex set of G.
- If an edge connects two vertices v_1' and v_2' in G', then there is an edge between every vertex of G in the set mapped to v_1' and every vertex of G in the set mapped to v_2'.
- If an edge does not connect two vertices v_1' and v_2' in G', then there is not an edge between any vertex of G in the set mapped to v_1' and any vertex of G in the set mapped to v_2'.

As we all know again, Harshith is a superb guy. He decides to use fun graphs to create his own superb graphs. For a graph G, a fun graph G'' is called a superb graph of G if G'' has the minimum number of vertices among all possible fun graphs of G.

Aryan gives Harshith k simple undirected graphs‡ $G_1, G_2, \ldots, G_k$, all on the same vertex set V. Harshith then wonders if there exist k other graphs $H_1, H_2, \ldots, H_k$, all on some other vertex set V' such that:

- G_i is a superb graph of H_i for all $i \in \{1, 2, \ldots, k\}$.
- If a vertex $v \in V$ maps to an independent set of size greater than 1 in one G_i, H_i ($1 \le i \le k$) pair, then there exists no pair G_j, H_j ($1 \le j \le k, j \ne i$) where v maps to a clique of size greater than 1.

Help Harshith solve his wonder.

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* For a graph G, a subset S of vertices is called an independent set if no two vertices of S are connected with an edge.

† For a graph G, a subset S of vertices is called a clique if every vertex of S is connected to every other vertex of S with an edge.

‡ A graph is a simple undirected graph if its edges are undirected and there are no self-loops or multiple edges between the same pair of vertices.

Input

Each test contains multiple test cases. The first line contains the number of test cases t ($1 \le t \le 100$). The description of the test cases follows.

The first line of each test case contains two integers n and k ($1 \le n \le 300, 1 \le k \le 10$).

Then, there are k graphs described. The first line of each graph description contains a single integer m ($0 \le m \le \frac{n\cdot(n-1)}{2}$).

Next m lines each contain two space-separated integers u and v ($1 \le u, v \le n, u \ne v$), denoting that an edge connects vertices u and v.

It is guaranteed that the sum of m over all graphs over all test cases does not exceed $2 \cdot 10^5$, and the sum of n over all test cases does not exceed 300.

Output

For each testcase, print "`Yes`" if there exists k graphs satisfying the conditions; otherwise, "`No`".

You can output the answer in any case (upper or lower). For example, the strings "yEs", "yes", "Yes", and "YES" will be recognized as positive responses.

Example

input Copy

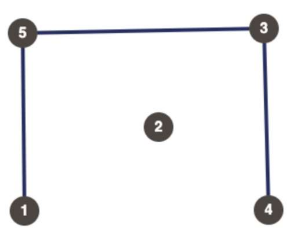
```
3
5 2
3
3 4
5 3
5 1
6
3 5
3 4
1 4
1 2
2 3
4 2
4 3
0
3
3 1
1 4
1 2
4
4 2
4 3
1 2
2 3
3 2
0
3
3 1
3 2
1 2
```

output Copy

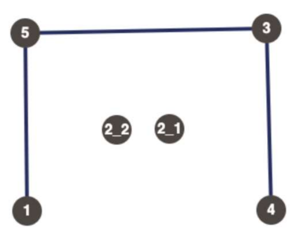
```
Yes
Yes
No
```

Note

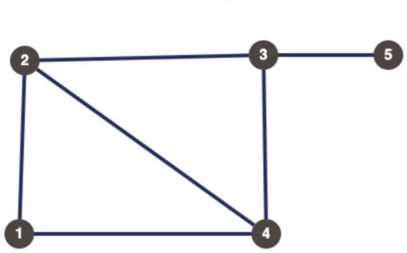
For the first test case, the following are the graphs of G_1, H_1 and G_2, H_2 such that G_1 is superb graph of H_1 and G_2 is superb graph of H_2.



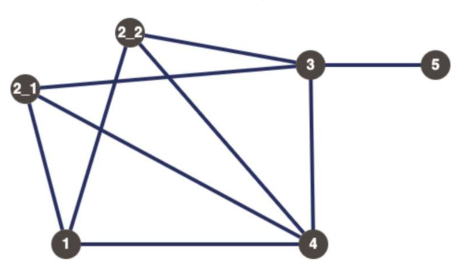
Graph G_1



Graph H_1



Graph G_2



Graph H_2

In each graph, vertex 2 of G_i corresonds to independent set $\{2\_1, 2\_2\}$ of corresponding H_i and remaining vertices $v \in \{1, 3, 4, 5\}$ of G_i correspond to independent set/clique $\{v\}$ in corresponding H_i(a single vertex set can be considered both an independent set and a clique).

In the third test case, it can be proven that the answer is "No".