6907 Body Building

Bowo is fed up with his body shape. He has a tall posture, but he's very skinny. No matter how much he eats, he never gains any weight. Even though he is a computer geek (and he loves it), he wants a pretty and non-geek girlfriend. Unfortunately, most girls in his surrounding do not like skinny and unattractive guy. Therefore, Bowo has decided to gain some muscles in his body; he joined a fitness club and begun to do some body building exercises.

There are a lot of exercise equipments in a fitness club, and usually there should be weightlifting equipments such as barbell and dumbbell (barbell with shorter rod). Upon seeing a dumbbell, Bowo cannot help but imagining graphs which are similar to a dumbbell. A graph — which later referred as "connected component" — of N nodes is called a dumbbell if it fulfills all the following conditions:

(i) All nodes in the graph can be partitioned into two disjoint sets P and Q which have equal size, i.e. $N/2$ nodes each.

(ii) Both induced subgraph of P and Q are complete graphs.

(iii) P and Q are connected by exactly one edge.

Informally, a dumbbell is obtained by connecting two equal size complete graphs with an edge.

For example, consider graph A in Figure 1 with 10 nodes and 21 edges. There are two disjoint complete graphs of size 5 which are connected by an edge. Therefore, this graph is a dumbbell. Graph B and C are also dumbbells. Graph D, on the other hand, is not.

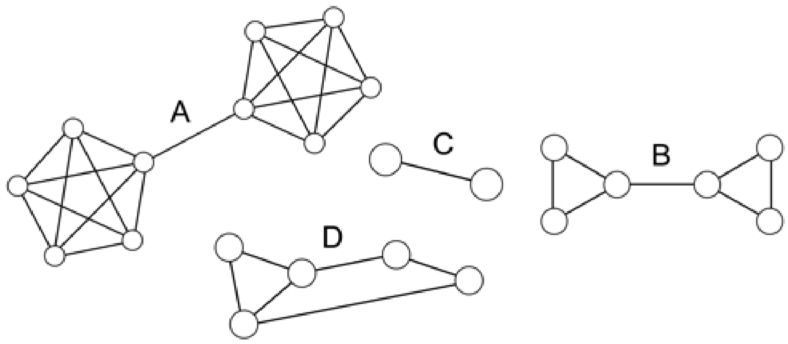

Figure 1.

Given a graph (which might be disconnected), determine how many connected components which are dumbbells. A connected component is a connected subgraph which no vertex can be added and still be connected.

Input

The first line of input contains an integer T ($T \le 50$) denoting the number of cases. Each case begins with two integers: N and M ($1 \le N \le 100$; $0 \le M \le 4,950$) denoting the number of nodes and edges in the graph respectively. The nodes are numbered from 1 to N. The following M lines each contains two integer: a and b ($1 \le a, b \le N$; $a \ne b$) representing an undirected edge connecting node a and node b. You are guaranteed that each pair of nodes has at most one edge in the graph.

Output

For each case, output '`Case #`X`:` Y', where X is the case number starts from 1 and Y is the number of connected components which are dumbbells for the respective case.

Explanation for 1st sample case:

There is only one node in the graph; a dumbbell requires at least two nodes.

Explanation for 2nd sample case:

Both connected components are dumbbells: {1, 2} and {3, 4}.

Explanation for 3rd sample case:

There are two connected components: {1, 2, 3, 4, 5, 6}, and {7, 8, 9, 10}, and both of them are dumbbells. The first one is dumbbell with complete graph of size 3, while the second one has size of 2.

Explanation for 4th sample case:

There are four connected components: {1, 2}, {3, 4}, {5, 6} and {7, 8, 9}. Only the first three are dumbbells.

Sample Input

```
4
1 0
4 2
1 2
3 4
10 10
1 2
1 3
2 3
3 4
4 5
5 6
4 6
7 8
8 9
9 10
9 5
1 2
3 4
5 6
7 8
8 9
```

Sample Output

```
Case #1: 0
Case #2: 2
Case #3: 2
Case #4: 3
```