Problem B

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.

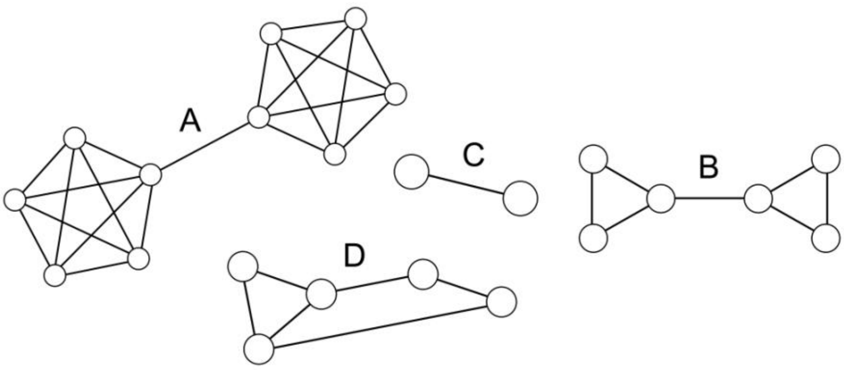

Figure 1.

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 ($T \leq 50$) denoting the number of cases. Each case begins with two integers: N and M ($1 \leq N \leq 100$; $0 \leq M \leq 4{,}950$) 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 ($1 \leq a, b \leq$ N; $a \neq b$) 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.

Sample Input	Output for 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	Case #1: 0 Case #2: 2 Case #3: 2 Case #4: 3

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.