Miracle Corporations has a number of system services running in a distributed computer system which is a prime target for hackers. The system is basically a set of N computer nodes with each of them running a set of N services. Note that, the set of services running on every node is same everywhere in the network. A hacker can destroy a service by running a specialized exploit for that service in all the nodes.

One day, a smart hacker collects necessary exploits for all these N services and launches an attack on the system. He finds a security hole that gives him just enough time to run a single exploit in each computer. These exploits have the characteristic that, its successfully infects the computer where it was originally run and all the neighbor computers of that node.

Given a network description, find the maximum number of services that the hacker can damage.

Input

There will be multiple test cases in the input file. A test case begins with an integer N ($1 \leq N \leq 16$), the number of nodes in the network. The nodes are denoted by 0 to $N-1$. Each of the following N lines describes the neighbors of a node. Line i ($0 \leq i < N$) represents the description of node i. The description for node i starts with an integer m (Number of neighbors for node i), followed by m integers in the range of 0 to $N-1$, each denoting a neighboring node of node i.

The end of input will be denoted by a case with $N = 0$. This case should not be processed.

Output

For each test case, print a line in the format, '`Case` X`:` Y', where X is the case number & Y is the maximum possible number of services that can be damaged.

Sample Input

```
3
2 1 2
2 0 2
2 0 1
4
1 1
1 0
1 3
1 2
0
```

Sample Output

```
Case 1: 3
Case 2: 2
```