Fiscal Emergency

If it wasn't notorious for its subpar living conditions, the Waste Republic – an isolated country oppressed by a regime of outrageous incompetence – would soon be forgotten by the rest of the world. The Waste Republic's so-called leaders are indulging themselves while their hard-working people lives in dire straits. Fiscal discipline is a foreign notion to the inhumane regime, while nepotism and corruption are held up as virtues. Is it any wonder that the Waste Republic is in a constant state of fiscal emergency?

Even behind the walls of their gilded palaces the oppressors are starting to notice the effects of the economic decay. In order to obtain valuable foreign currency, they are planning to attract more tourists to the capital of the Waste Republic.

However, there is a problem: The capital's subway network is as rotten as the entire country. Furthermore, the broke regime cannot afford to sustain the network at its current size. As a first measure, officials removed all redundant links between subway stations. But this did not fully solve the problem. As a next step, they are planning to shut down as many subway stations as possible. In order to make the impact of the shutdowns as little noticable as possible, there should be no direct link between two closed stations.

Disregarding any ethical concerns you might have, can you help the regime implement this second measure?

Input

The first line of the input contains an integer t. t test cases follow.

Each test case starts with a line containing a positive integer n, the number of subway stations. Then $(n-1)$ lines of the form $x\,y$ follow, denoting a direct bi-directional link between subway station x and y where $x \neq y$ and x, y are in the range $[1, \ldots, n]$. There is at most one direct link between every pair of stations and all stations are mutually reachable in the network.

Output

For each test case, print a line containing "Case #i: m" where i is its number, starting at 1, and m is the maximum number of stations that can be closed in the given network, subject to the constraint that there is no direct link between any pair of closed stations.

Constraints

- $1 \leq t \leq 20$
- $2 \leq n \leq 2000$
- $1 \leq x, y \leq n$

Sample Input 1

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

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

Sample Output 1

```
Case #1: 6
Case #2: 5
```

Sample Input 2

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

3
2 3
3 1

2
1 2

7
6 3
6 2
3 4
4 7
6 5
4 1

2
2 1
```

Sample Output 2

```
Case #1: 6
Case #2: 2
Case #3: 1
Case #4: 5
Case #5: 1
```