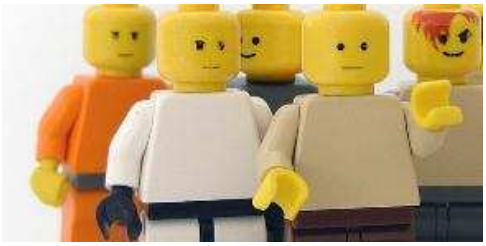
Problem F- Zurch Trees



In the population of the futuristic world of Zurch, everyone is very logical. City road networks are laid out as trees: every intersection is connected by a unique path of roadway. Crimes are also rare, but when they are committed, it is by a less logical member of society, a Zimeon.

To get away with it, Zimeons need to evade the Zurch Police, who are very adept at detecting and capturing a Zimeon, should they cross each other's path. The problem is that Zurch Police travel at a slow, logical pace.. almost infinitely slow compared to a Zimeon. Fortunately, the Zurch Police have a reputation of always catching their man, by using their famous Zurch Strategy, a methodically, logical approach to searching a city so that, no matter how fast, clever or lucky a Zimeon is, they will always be caught.

Input Specification:

The input will begin with an integer $N \leq 1000$, the number of test cases. Following that will be N cities, one city per test case. Each city is specified by a positive integer $n \leq 2000$, the number of intersections, followed by $n-1$ lines describing every connection between a pair of intersections, numbered 1 to n.

Output Specification:

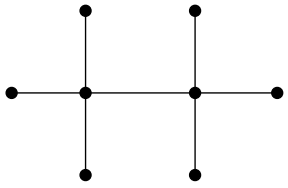
Output the minimum number of Zurch Police required to catch even the luckiest Zimeon.

Sample Input:

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

Map 1:

Map 2:



Sample Output:

```
1
2
```