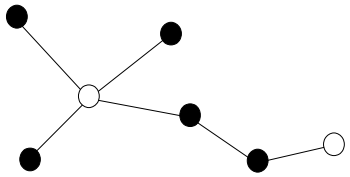
Internet Cafe

The city of IC is very well planned. There are *N* intersections and *N* - 1 roads. Each road directly joins two intersections at its ends. Also, it is possible to travel from any intersection to another intersection using these roads.

Intersections are good locations for Internet cafe. The city plans to build as many Internet Cafe's at these intersections, however, too many of them located very closely will make the competition too fierce. Therefore, there is a regulation that each Internet cafe can not *directly* connected to more than one other Internet cafe through any road.

Below is a map of an example city. There are 7 intersections, all shown as circles. Roads are shown as lines connecting these intersections. In this case the maximum number of Internet cafe's that can be opened is 5 (shown as black circles).



Your task is to write a program that given the map of the city and determines the maximum number of Internet cafe's that can be opened in this city.

Input

The first line of the input contains an integer *C* ($1 \leq C \leq 7$) denoting the number of data sets. The first line for each data set contains an integer *N* ($1 \leq N \leq 1{,}000$) the number of intersections. The intersections are numbered from 1 to *N*. The next *N*-1 lines specify how roads connect these intersections. Each of these lines contains two integer *A* and *B* that says that there is a road directly joining intersections *A* and *B*.

Output

Each of *C* lines contains an integer which is the maximum number of Internet cafe that can be opened for each data set.

Sample input	**Sample output**
2 7 1 2 2 3 4 2 2 5 5 6 6 7 4 1 2 2 4 4 3	5 3