Problem K.
Monochrome Land

Time limit: 1 second

Welcome to Monochrome Land! Here, chameleons would change their colors between black and white to hide themselves from predators. Their predators are two kinds of birds, namely the whites and the blacks, where the whites only eat white chameleons while the blacks only eat black chameleons. So, when a chameleon senses a bird of the same color is around, it will change its color immediately to the opposite one. Moreover, a chameleon will change its color when a neighboring chameleon of the same color does so. Mike, a naughty student, has prepared two fake birds, one for each color, where he would use them to turn all chameleons into the same color. What he would do is to show a fake bird to some chameleon, force it to change color, and wait until no more chameleon changes color. Then, he would repeat the above procedure again and again, until all chameleons are in the same color. Mike wants to know the minimum number of times he needs to show the fake bird. Can you help him?

Precisely, we can describe the problem as follows. The input is a simple undirected graph such that each node v represents a chameleon C_v, and each edge $\{u, v\}$ indicates that chameleons C_u and C_v corresponding to the endpoints are neighboring. Each node is colored black or white to represent the color of the corresponding chameleon at the moment. When a fake bird is shown to a chameleon, the corresponding node will change its color to the opposite one; moreover, for any node v, if a neighboring node of the same color changes color, v will change its color. A fake bird can be shown to an arbitrary node at a time, and force that node to switch color, which may then force some other neighboring nodes to switch color, and recursively force more nodes to switch color. Our target is to find out how many times a fake bird is shown so that all nodes are turned into the same color.

For simplicity, in this problem, the input graph is always connected.

Take Figure 1 as an example input. If Mike shows the white chameleon C_3 with a fake white bird, then chameleons C_3 and C_4 will switch their colors into black, leading to the situation shown in Figure 2. Now, if Mike further

shows any of the black chameleons (i.e., C_2, C_3, C_4 or C_5) a fake black bird, then all the chameleons will become white afterwards.

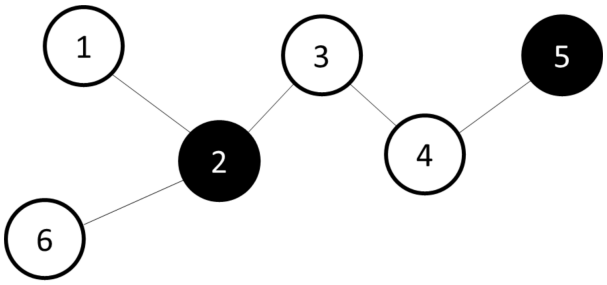


Figure 1: There are four white chameleons labeled as C_1, C_3, C_4, and C_6, while the black chameleons are labeled as C_2 and C_5 .

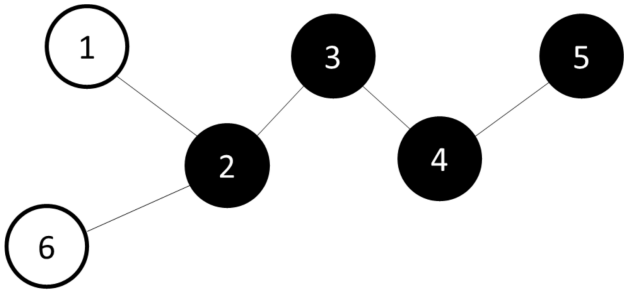


Figure 2: After showing chameleon C_3 in Figure 1 with a fake white bird.

Input

The first line of the input file contains an integer T indicating the number of test cases, each of them is described below. For each test case, The first line contains two space-separated integers N and E, which are the number of chameleons in the current graph and the number of neighboring relationship. The next line contains N characters separated by a space, which represent the color of chameleons in the order of $C_1, C_2, \ldots, C_N$. And then it is followed by E lines, each contains two integers u and v to represent the neighboring relationship between chameleons C_u and C_v.

- $1 \leq T \leq 10$
- $1 \leq N \leq 200$

Output

For each test case, please output the minimum times Mike needs to use a fake bird to turn all chameleons into the same color.

Sample Input	Sample Output
3 6 5 W B W W B W 1 2 2 3 2 6 3 4 4 5 6 6 W B W B W B 1 2 2 3 3 4 4 5 5 6 6 1 2 1 B B 1 2	2 3 0