12424   Answering Queries on a Tree

You are given a tree with N nodes. The tree nodes are numbered from 1 to N and have colors C_1, C_2, ..., C_N initially. You have to handle M instructions on the tree of the following forms:

- `0  u  c`: Change the color of node u to c.

- `1  u  v`: Output the maximum number of times a color appeared on the unique path from node u to node v.

Input

The first line of input contains T $(1 \leq T \leq 10)$ which is the number of test cases. The first line of each test case contains two integers N and M $(1 \leq N, M \leq 10^5)$. Next line contains N space separated integers C_1, C_2, ..., C_N $(1 \leq C_i \leq 10)$ denoting the initial colors of the nodes. Each of the next $N-1$ lines contain two integers a and b $(1 \leq a, b \leq N$ and $a \neq b)$ meaning that there is an edge between node a and node b. Each of the next M lines contains an instruction of one of the two forms described above. For all the instructions: $1 \leq u, v \leq N$ and $1 \leq c \leq 10$.

Output

For each of the second type instruction output the answer in one line.

Sample Input

```
2
5 6
3 2 1 2 3
1 2
2 3
2 4
1 5
1 3 5
0 1 1
0 2 1
1 3 5
0 2 4
1 2 4
2 1
5 6
1 2
1 2 2
```

Sample Output

```
2
3
1
1
```