

## E. New Year Tree

time limit per test: 3 seconds

memory limit per test: 256 megabytes

input: standard input

output: standard output

The New Year holidays are over, but Resha doesn't want to throw away the New Year tree. He invited his best friends Kerim and Gural to help him to redecorate the New Year tree.

The New Year tree is an undirected tree with  $n$  vertices and root in the vertex 1.

You should process the queries of the two types:

1. Change the colours of all vertices in the subtree of the vertex  $v$  to the colour  $c$ .
2. Find the number of different colours in the subtree of the vertex  $v$ .

### Input

The first line contains two integers  $n, m$  ( $1 \leq n, m \leq 4 \cdot 10^5$ ) — the number of vertices in the tree and the number of the queries.

The second line contains  $n$  integers  $c_i$  ( $1 \leq c_i \leq 60$ ) — the colour of the  $i$ -th vertex.

Each of the next  $n - 1$  lines contains two integers  $x_j, y_j$  ( $1 \leq x_j, y_j \leq n$ ) — the vertices of the  $j$ -th edge. It is guaranteed that you are given correct undirected tree.

The last  $m$  lines contains the description of the queries. Each description starts with the integer  $t_k$  ( $1 \leq t_k \leq 2$ ) — the type of the  $k$ -th query. For the queries of the first type then follows two integers  $v_k, c_k$  ( $1 \leq v_k \leq n, 1 \leq c_k \leq 60$ ) — the number of the vertex whose subtree will be recoloured with the colour  $c_k$ . For the queries of the second type then follows integer  $v_k$  ( $1 \leq v_k \leq n$ ) — the number of the vertex for which subtree you should find the number of different colours.

### Output

For each query of the second type print the integer  $a$  — the number of different colours in the subtree of the vertex given in the query.

Each of the numbers should be printed on a separate line in order of query appearing in the input.

### Examples

#### input

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

#### output

2  
3  
4  
5  
1  
2

input

23 30  
1 2 2 6 5 3 2 1 1 1 2 4 5 3 4 4 3 3 3 3 3 4 6  
1 2  
1 3  
1 4  
2 5  
2 6  
3 7  
3 8  
4 9  
4 10  
4 11  
6 12  
6 13  
7 14  
7 15  
7 16  
8 17  
8 18  
10 19  
10 20  
10 21  
11 22  
11 23  
2 1  
2 5  
2 6  
2 7  
2 8  
2 9  
2 10  
2 11  
2 4  
1 12 1  
1 13 1  
1 14 1  
1 15 1  
1 16 1  
1 17 1  
1 18 1  
1 19 1  
1 20 1  
1 21 1  
1 22 1  
1 23 1  
2 1  
2 5  
2 6  
2 7  
2 8  
2 9  
2 10  
2 11  
2 4

output

6  
1  
3  
3

2  
1  
2  
3  
5  
5  
1  
2  
2  
1  
1  
1  
2  
3