6642 D Tree

There is a skyscraping tree standing on the playground of Nanjing University of Science and Technology. On each branch of the tree is an integer (The tree can be treated as a connected graph with N vertices, while each branch can be treated as a vertex). Today the students under the tree are considering a problem: Can we find such a chain on the tree so that the multiplication of all integers on the chain $(\mathrm{mod}\,(10^6+3))$ equals to K?

Can you help them in solving this problem?

Input

There are several test cases, please process till EOF.

Each test case starts with a line containing two integers N $(1 \le N \le 10^5)$ and K $(0 \le K \le 10^6+3)$. The following line contains n numbers v_i $(1 \le v_i \le 10^6+3)$, where v_i indicates the integer on vertex i. Then follows $N-1$ lines. Each line contains two integers x and y, representing an undirected edge between vertex x and vertex y.

Output

For each test case, print a single line containing two integers a and b (where $a < b$), representing the two endpoints of the chain. If multiply solutions exist, please print the lexicographically smallest one. In case no solution exists, print '`No solution`' (without quotes) instead. For more information, please refer to the Sample Output below.

Sample Input

```
5 60
2 5 2 3 3
1 2
1 3
2 4
2 5
5 2
2 5 2 3 3
1 2
1 3
2 4
2 5
```

Sample Output

```
3 4
No solution
```