Candyland

Candyland is a country in the shape of a rooted tree with **N** nodes having its root at node 1. Each node in the tree corresponds to a city in Candyland. Each city in candyland has a candy it primarily produces. Each candy has a sweetness level which is an integer. Two candies with same sweetness level are indistinguishable. A city's most profitable candy is the candy that appears maximum number of times in its subtree. Your task is to find the most profitable candy for each city of Candyland. In case of a tie choose the candy with higher sweetness.
Notice that the most profitable candy and the primarily produced candy are not necessarily same for any city.

Input Format:

First line contains a single integer **N**.
Second line contains **N** integers - the sweetness of candy produced at the respective nodes.
Next **N** - 1 lines contain two integers - **U** and **V** - denoting that there is an edge between **U** and **V**.

Output Format:

Print **N** integers on a single line - the answer for each node.

Constraints:

1 <= **N** <= 100000
1 <= sweetness of candy <= 1000000000
1 <= **U**, **V** <= **N**

Sample Input:

Candyland

5
4 4 3 2 2
1 2
2 3
3 4
4 5

Sample Output:

4 2 2 2 2