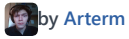




# Tree Splitting



by Arterm

Problem

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Given a tree with vertices numbered from  $1$  to  $n$ , perform  $m$  queries. Each query is in the form of a vertex number. For each query,  $v$ :

1. Print the size of the connected component containing  $v$ .
2. Remove vertex  $v$  and all edges connected to  $v$ .

## Input Format

The first line contains a single integer,  $n$ , denoting the number of vertices in the tree.

Each line  $i$  of the  $n - 1$  subsequent lines (where  $0 \leq i < n$ ) contains  $2$  space-separated integers describing the respective nodes,  $u_i$  and  $v_i$ , connected by edge  $i$ .

The next line contains a single integer,  $m$ , denoting the number of queries.

Each line  $j$  of the  $m$  subsequent lines contains a single integer, vertex number  $m_j$ .

**Queries are encoded in the following way.** Let  $ans_0 = 0$  and  $ans_j$  be the answer for the  $j^{th}$  query. Then  $v_j = ans_{j-1} \oplus m_j$ . We assure that  $v_j$  is between  $1$  and  $n$ , and hasn't removed before.

**Note:**  $\oplus$  is the bitwise XOR operator.

## Constraints

- $1 \leq n, m \leq 2 \cdot 10^5$ .

## Output Format

For each query, print the size of the corresponding connected component on a new line.

## Sample Input 0

```
3
1 2
1 3
3
1
1
2
```

## Sample Output 0

```
3
1
1
```

## Sample Input 1

```
4
1 2
1 3
1 4
```

4  
3  
6  
2  
6

### Sample Output 1

4  
3  
2  
1

### Explanation

Sample Case 0:

Queries are **1, 2, 3**, in order.

Sample Case 1:

Queries are **3, 2, 1, 4**, in order.

[f](#) [t](#) [in](#)

Submissions: [126](#)


Max Score: 100

Difficulty: Advanced

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Current Buffer (saved locally, editable)  

Java 7



```
1 import java.io.*;
2 import java.util.*;
3 import java.text.*;
4 import java.math.*;
5 import java.util.regex.*;
6
7 public class Solution {
8
9     public static void main(String[] args) {
10         /* Enter your code here. Read input from STDIN. Print output to STDOUT. Your class should be named Solution. */
11     }
12 }
```

Line: 1 Col: 1

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