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# COT2 - Count on a tree II

#tree (/problems/tag/tree)

You are given a tree with **N** nodes. The tree nodes are numbered from **1** to **N**. Each node has an integer weight.

We will ask you to perform the following operation:

• **u v**: ask for how many different integers that represent the weight of nodes there are on the path from **u** to **v**.

### Input

In the first line there are two integers **N** and **M**. (**N** <= 40000, **M** <= 100000)

In the second line there are  $\mathbf{N}$  integers. The i-th integer denotes the weight of the i-th node.

In the next **N-1** lines, each line contains two integers **u v**, which describes an edge (**u**, **v**).

In the next  $\mathbf{M}$  lines, each line contains two integers  $\mathbf{u}$   $\mathbf{v}$ , which means an operation asking for how many different integers that represent the weight of nodes there are on the path from  $\mathbf{u}$  to  $\mathbf{v}$ .

## Output

For each operation, print its result.

## Example

```
Input:
8 2
105 2 9 3 8 5 7 7
1 2
1 3
1 4
3 5
3 6
3 7
4 8
2 5
7 8
```

#### Output:

4

4

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shahayush457 (/users/shahayush457): 2020-05-05 23:25:29The only part missing in the problem statement is the range of the weight which is  $1 \le w \le 2^31 - 1$ .

Coordinate compression is needed.

- zorov2 (/users/zorov2): 2020-04-22 09:19:35

  Anybody solved this problem in Java? I tried implementating Mo's algo in Java but getting TLE, tried all kinds of optimizations.
- prmondal (/users/prmondal): 2020-04-18 08:05:36
  @hacker\_sk: You saved my life. Thanks. Admin should update the range of N.
- bhavyarustgi10 (/users/bhavyarustgi10): 2020-04-14 15:55:05
  Constraints are as it is given in the problem itself.
  Expected Time Complexity is O(max(NlogN,M\*sqrt(N)))
- hacker\_sk (/users/hacker\_sk): 2020-04-06 22:51:21

  NOTE: N <= 100000 (not 40000, got seg fault and wa because of this) and weight <= 2^31 1.
- sangmai (/users/sangmai): 2020-03-25 04:49:02
  Thanks @bekh compression overcomes TLE
- aryan12 (/users/aryan12): 2020-03-20 19:31:16
  Input has multiple test cases. Read until end of file...
- abhimanyu\_1998 (/users/abhimanyu\_1998): 2020-02-11 07:25:31 if using mos algo then use block size 500
- zhangzhongyu (/users/zhangzhongyu): 2019-09-26 05:02:40

#### Last edit: 2019-09-26 05:44:22

bekh (/users/bekh): 2019-07-06 18:34:06

Range of the weight is big and using map will get timelimit. Use compression.

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- 2. Please be careful, leave short comments only. Don't spam here.
- 3. For more discussion (hints, ideas, solutions) please visit our forum (/forum).
- 4. Authors of the problems are allowed to delete the post and use html code here (e.g. to provide some useful links).

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Added by: Fotile (/users/fotile)

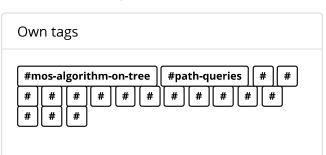
Date: 2012-02-17

Time limit: 1.207s Source limit: 50000B Memory limit: 1536MB

Cluster: Cube (Intel G860) (/clusters/)

Languages: All except: ASM64

Resource: Just for fun...



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