Similar Pair

by idlecool

A pair of nodes, (a, b), is a *similar pair* if both of the following conditions are true:

1. Node a is the ancestor of node b
2. $abs(a - b) \leq k$

Given a tree where each node is labeled from 1 to n, can you find the number of similar pairs in the tree?

Input Format

The first line contains two space-separated integers, n (the number of nodes) and k (the similar pair qualifier), respectively.
Each line i of the $n - 1$ subsequent lines contains two space-separated integers defining an edge connecting nodes p_i and c_i, where node p_i is a parent to node c_i.

Constraints

- $1 \leq n \leq 10^5$
- $0 \leq k \leq n$
- $1 \leq p_i, c_i \leq n$

Output Format

Print a single integer denoting the number of similar pairs in the tree.

Sample Input

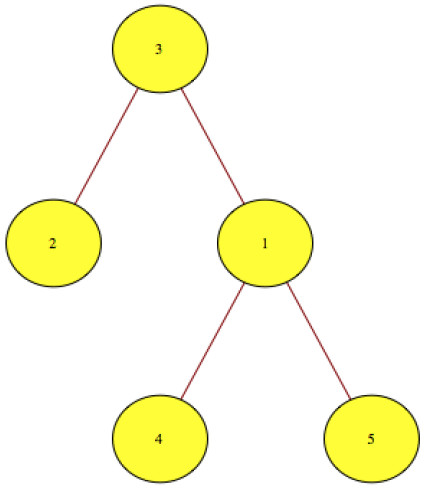
```
5 2
3 2
3 1
1 4
1 5
```

Sample Output

```
4
```

Explanation

The similar pairs are $(3, 2)$, $(3, 1)$, $(3, 4)$, and $(3, 5)$, so we print 4 as our answer. Observe that $(1, 4)$ and $(1, 5)$ are *not* similar pairs because they do not satisfy $abs(a - b) \leq k$.



Submissions:3061

Max Score:70

Difficulty: Advanced

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Depth First Search

Binary Indexed Tree

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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

Upload Code as File Test against custom input Run Code Submit Code