16/11/2017 HackerRank

















Points: 25 Rank: 183198



Dashboard > Data Structures > Trees > Jenny's Subtrees

Jenny's Subtrees **■**



Problem

Submissions

Leaderboard

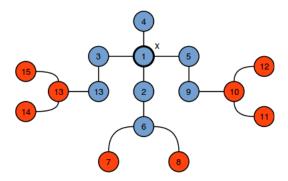
Discussions

Editorial 🖴

Jenny loves experimenting with trees. Her favorite tree has n nodes connected by n-1 edges, and each edge is n unit in length. She wants to cut a subtree (i.e., a connected part of the original tree) of radius n from this tree by performing the following two steps:

- 1. Choose a node, \boldsymbol{x} , from the tree.
- 2. Cut a subtree consisting of *all* nodes which are *not further* than $m{r}$ units from node $m{x}$.

For example, the blue nodes in the diagram below depict a subtree centered at x=1 that has radius r=2:



Given n, r, and the definition of Jenny's tree, find and print the number of *different* subtrees she can cut out. Two subtrees are considered to be different if they are not isomorphic.

Input Format

The first line contains two space-separated integers denoting the respective values of $m{n}$ and $m{r}$.

Each of the next n-1 subsequent lines contains two space-separated integers, \boldsymbol{x} and \boldsymbol{y} , describing a bidirectional edge in Jenny's tree having length 1

Constraints

- $1 \le n \le 3000$
- $0 \le r \le 3000$
- $1 \leq x, y \leq n$

Subtasks

For 50% of the max score:

- $1 \le n \le 500$
- $0 \le r \le 500$

Output Format

Print the total number of different possible subtrees.

Sample Input 0

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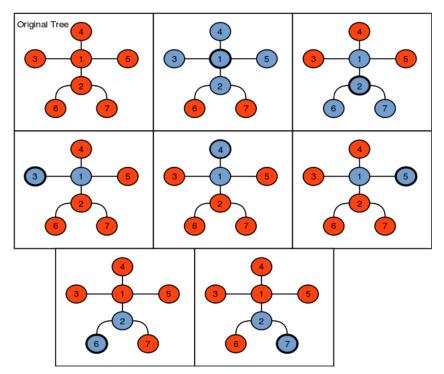
- 7 1 1 2 1 3 1 4 1 5 2 6 2 7

Sample Output 0

3

Explanation 0

In the diagram below, blue nodes denote the possible subtrees:



The last 5 subtrees are considered to be the same (i.e., they all consist of two nodes connected by one edge), so we print 3 as our answer.

Sample Input 1

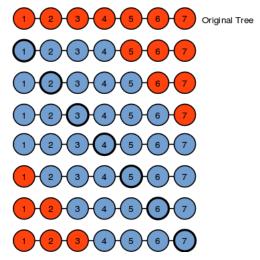
- 7 3 1 2 2 3 3 4
- 5 6 6 7

Sample Output 1

Explanation 1

In the diagram below, blue nodes denote the possible subtrees:

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Here, we have four possible different subtrees.

f in
Submissions:115
Max Score:70
Difficulty: Hard
Rate This Challenge:
☆☆☆☆☆
More

```
Current Buffer (saved locally, editable) & 🗸 🖸
                                                                                        C++
                                                                                                                        \Diamond
 1 ▼ #include <map>
 2 #include <set>
 3 #include <list>
 4 #include <cmath>
 5 #include <ctime>
 6 #include <deque>
 7
   #include <queue>
 8 #include <stack>
   #include <string>
 9
10
   #include <bitset>
#include <cstdio>
12 #include <limits>
13 #include <vector>
14 #include <climits>
15 #include <cstring>
16 #include <cstdlib>
17 #include <fstream>
18 #include <numeric>
   #include <sstream>
19
20
   #include <iostream>
21 #include <algorithm>
22
   #include <unordered_map>
23
24
   using namespace std;
25
26
27 ▼ int main(){
        int n;
28
29
        int r;
30
        cin >> n >> r;
        for(int a0 = 0; a0 < n-1; a0++){
31 ▼
32
            int x;
            int y;
33
34
            cin >> x >> y;
35
            // your code goes here
36
```

38 } 39			
			Line: 1 Col: 1
<u>♣</u> <u>Upload Code a</u>	as File Test against custom input	Run Code	Submit Code

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