1530. Number of Good Leaf Nodes Pairs

Updating distances while DFSing (array)

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/*
    Updating distances while DFSing (array)
    Time complexity: $O(n\times\frac{4^{h+1}-1}{3})$ where $h$ is the height of the tree,
  $h=\log_2(n+1)-1$
    Extra space complexity: O(n)
*/
class Solution {
    public:
        int ans;
    public:
        std::vector<int> dfs(TreeNode* node,int& dist){
            if(!node) return {};
            if(!node->left&&!node->right) return {1};

            std::vector<int> left=dfs(node->left,dist);
            std::vector<int> right=dfs(node->right,dist);

            for(auto& l: left){
                for(auto& r: right){
                    if(l+r<=dist) ans++;
                }
            }

            std::vector<int> parent;

            for(auto& l: left){
                if(l+1<=dist) parent.push_back(l+1);
            }

            for(auto& r: right){
                if(r+1<=dist) parent.push_back(r+1);
            }

            return parent;
        }
    int countPairs(TreeNode* root, int distance) {
        ans=0;
        dfs(root,distance);
        return ans;
    }
};
```