

## 543. Diameter of Binary Tree

Description

Hints

Submissions

Discuss

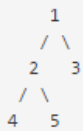
Solution

Pick One

Given a binary tree, you need to compute the length of the diameter of the tree. The diameter of a binary tree is the length of the **longest** path between any two nodes in a tree. This path may or may not pass through the root.

**Example:**

Given a binary tree



Return 3, which is the length of the path [4,2,1,3] or [5,2,1,3].

**Note:** The length of path between two nodes is represented by the number of edges between them.

- 二叉树的直径：二叉树中从一个结点到另一个节点**最长**的路径，叫做二叉树的直径
- 采用分治和递归的思想：根节点为root的二叉树的直径 = Max(左子树直径，右子树直径，左子树的最大深度（不包括根节点）+右子树的最大深度（不包括根节点）+1)

```

public class L543 {
    public class TreeNode {
        int val;
        TreeNode left;
        TreeNode right;
        TreeNode(int x) { val = x; }
    }

    int diameter = 0;
    public int diameterOfBinaryTree(TreeNode root) {
        getDepth(root);
        return diameter;
    }
    public int getDepth(TreeNode root){
        if (root == null)
            return -1;
        int left = getDepth(root.left);
        int right = getDepth(root.right);
        int temp = left + right + 2;
        if (temp > diameter)
            diameter = temp;
        return Math.max(left, right) + 1;
    }
    //只有一个根节点时，它的直径为0
    public static void main(String [] args) {
        TreeNode root = new L543().new TreeNode(0);
        root.left = null;
        root.right = null;
        System.out.println(new L543().diameterOfBinaryTree(root));
    }
}

```