

AlgoExpert

Quad Layout

Java

12px

Sublime

Monok

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Solution 1Solution 2Solution 3Solution 4

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2

3▼import java.util.*;

4

5▼class Program {

6// Average case: when the tree is balanced

7// O(n) time | O(h) space - where n is the number of nodes in

8// the Binary Tree and h is the height of the Binary Tree

9▼public static int allKindsOfNodeDepths(BinaryTree root) {

10return getTreeInfo(root).sumOfAllDepths;

11}

12

13▼public static TreeInfo getTreeInfo(BinaryTree tree) {

14▼if (tree == null) {

15return new TreeInfo(0, 0, 0);

16}

17

18TreeInfo leftTreeInfo = getTreeInfo(tree.left);

19TreeInfo rightTreeInfo = getTreeInfo(tree.right);

20

21int sumOfLeftDepths = leftTreeInfo.sumOfDepths + leftTreeInfo.numNodesInTree;

22int sumOfRightDepths =

23rightTreeInfo.sumOfDepths + rightTreeInfo.numNodesInTree;

24

25int numNodesInTree =

261 + leftTreeInfo.numNodesInTree + rightTreeInfo.numNodesInTree;

27int sumOfDepths = sumOfLeftDepths + sumOfRightDepths;

28int sumOfAllDepths =

29sumOfDepths + leftTreeInfo.sumOfAllDepths + rightTreeInfo.sumOfAllDepths;

30

31return new TreeInfo(numNodesInTree, sumOfDepths, sumOfAllDepths);

32}

33

34▼static class TreeInfo {

35public int numNodesInTree;

36public int sumOfDepths;

37public int sumOfAllDepths;

38

39▼public TreeInfo(int numNodesInTree, int sumOfDepths, int sumOfAllDepths) {

40this.numNodesInTree = numNodesInTree;

41this.sumOfDepths = sumOfDepths;

42this.sumOfAllDepths = sumOfAllDepths;

43}

44}

45

46▼static class BinaryTree {

47int value;

48BinaryTree left;

49BinaryTree right;

50

51▼public BinaryTree(int value) {

52this.value = value;

53left = null;

54right = null;

55}

56}

57}

58

