Diameter of Binary Tree

Try to solve the Diameter of Binary Tree problem.

We'll cover the following

Statement

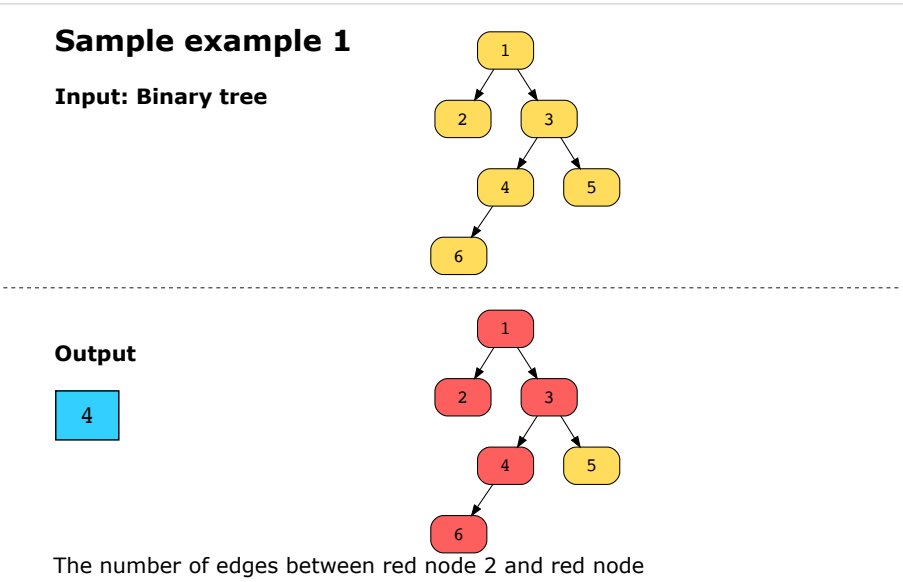
Given a binary tree, you need to compute the length of the tree's diameter. The diameter of a binary tree is the length of the longest path between any two nodes in a tree. This path may or may not pass through the root.

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

Constraints:

- The number of nodes in the tree is in the range $[1, 10^4]$.
- $-100 \leq$ `Node.value` ≤ 100

Examples



Understand the problem

Let’s take a moment to make sure you’ve correctly understood the problem. The quiz below helps you check if you’re solving the correct problem:

Diameter of Binary Tree

1 What is the diameter of the following binary tree?

A) 2

B) 3

C) 4

D) 5

Submit Answer

Question 1 of 4
0 attempted

Reset Quiz

Figure it out!

We have a game for you to play. Rearrange the logical building blocks to develop a clearer understanding of how to solve this problem.

Drag and drop the cards to rearrange them in the correct sequence.

Start traversing the tree from the root node.

For each node, calculate the height of the left and right subtree.

For each node, update the diameter using the following

formula: max(diameter, left height + right height).

After traversing the whole tree, return the diameter value since it is the length of the tree's diameter.

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Try it yourself

Implement your solution in `main.java` in the following coding playground.

Java

usercode > main.java

```
import java.util.*;
import ds_v1.BinaryTree.TreeNode;

// Definiton of a binary tree node class
// class TreeNode<T> {
//     T data;
//     TreeNode<T> left;
//     TreeNode<T> right;
//     TreeNode(T data) {
//         this.data = data;
//         this.left = null;
//         this.right = null;
//     }
// }

public class Main{
    public static int diameterOfBinaryTree(TreeNode<Integer> root) {
    // Write your code here

    return -1;
  }
}
```

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Test Cases | Results

Case 1 | Case 2 | Case 3

Input #1

[1,2,3,4,5,6]

Diameter of Binary Tree

Mark as Completed