Kth Smallest Element in a BST

Try to solve the Kth Smallest Element in a BST problem.

We'll cover the following

Statement

Given the root node of a binary search tree and an integer value `k`, return the kth smallest value from all the nodes of the tree.

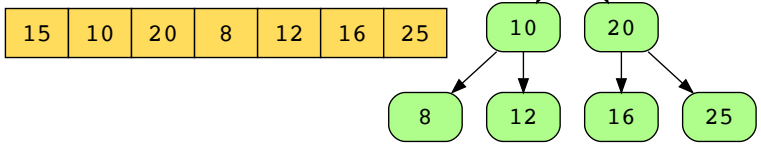
Constraints:

- The number of nodes in the tree is n.
- $1 \leq k \leq n \leq 10^4$
- $0 \leq$ `Node.value` $\leq 10^4$

Examples

Sample example 1

Input: Level order
k = 4



Output

The 4th smallest element in the BST is 15.

1 of 2

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:

Kth Smallest Element in a BST

1 What is the k^{th} smallest element when we have the following input?

k = 4

root = [3, 1, 4, null , 2]

A) 4

B) 1

C) 3

D) 2

Submit Answer

Question 1 of 2
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.

> **Note:** As an additional challenge, we have intentionally hidden the solution to this puzzle.

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

Once the entire tree has been traversed, fetch the $k-1^{th}$ element from the list.

Traverse the BST in the inorder fashion.

At each node, save its value in an array, building up a list of

values in a tree, sorted in ascending order.

Reset Submit

Try it yourself

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

> **Note:** We have left the solution to this challenge as an exercise for you. You may try to translate the logic of the solved puzzle into a coded solution.

Java

usercode > main.java

```
// 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;
//     }
// }

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

public class Main{
    public static int kthSmallestElement(TreeNode<Integer> root, int k) {
    // Write your code here
    return 0;
  }
}
```

Powered by AI Submit

Test Cases Results

Case 1 Case 2 Case 3

Input #1

[2,1,3]

Input #2

2

Kth Smallest Element in a BST

Mark as Completed