K-th Smallest Element in a BST
difficulty: Medium

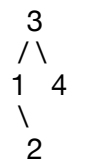
https://leetcode.com/problems/kth-smallest-element-in-a-bst/

Given a binary search tree, write a function k-thSmallest to find the k-th smallest element in it.

Note:
You may assume k is always valid, 1 ≤ k ≤ BST's total elements.

Example 1:

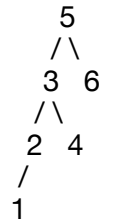
Input: root = [3,1,4,null,2], k = 1



Output: 1

Example 2:

Input: root = [5,3,6,2,4,null,null,1], k = 3



Output: 3

Follow up:
What if the BST is modified (insert/delete operations) often and you need to find the k-th smallest frequently? How would you optimize the k-thSmallest routine?

Constraints:

- The number of elements of the BST is between 1 to 10^4
- You may assume k is always valid, $1 \leq k \leq$ BST's total elements.