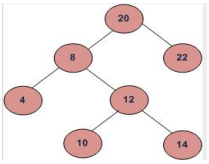
9.

Given the root of a binary search tree and K as input, find Kth smallest element in BST.

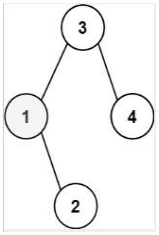
For example, in the following BST,



if k = 3, then the output should be 10, and

if k = 5, then the output should be 14.

Sample:



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

Output: 1

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

Output: 3

CODE :

```
#include <stdio.h>
#include <stdlib.h>

struct Node {
    int data;
    struct Node *left, *right;
};

struct Node* createNode(int value) {
```

```
    struct Node* newNode = (struct Node*)malloc(sizeof(struct Node));
    newNode->data = value;
    newNode->left = newNode->right = NULL;
    return newNode;
}

void kthSmallestUtil(struct Node* root, int k, int* count, int* result) {
    if (root == NULL || *count >= k)
        return;

    kthSmallestUtil(root->left, k, count, result);

    (*count)++;
    if (*count == k) {
        *result = root->data;
        return;
    }

    kthSmallestUtil(root->right, k, count, result);
}

int kthSmallest(struct Node* root, int k) {
    int count = 0;
    int result = -1;
    kthSmallestUtil(root, k, &count, &result);
    return result;
}
```

```
int main() {
    struct Node* root = createNode(3);
    root->left = createNode(1);
    root->right = createNode(4);
    root->left->right = createNode(2);

    int k = 1;
    printf("Kth smallest element for k = %d is: %d\n", k, kthSmallest(root, k));

    return 0;
}
```

OUTPUT:

```
Kth smallest element for k = 1 is: 1
```