

## Leetcode 109:

Given the head of a singly linked list where elements are sorted in ascending order, convert it to a height-balanced binary search tree.

**Example 1:**

```
Input: head = [-10,-3,0,5,9]
Output: [0,-3,9,-10,null,5]
Explanation: One possible answer is [0,-3,9,-10,null,5], which represents the shown height balanced BST.
```

**Example 2:**

```
Input: head = []
Output: []
```

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## Solution:

```
/*
 * Definition for singly-linked list.
 */
struct ListNode {
    int val;
    struct ListNode *next;
};

/*
 * Definition for a binary tree node.
 */
struct TreeNode {
    int val;
    struct TreeNode *left;
    struct TreeNode *right;
};

struct TreeNode* sortedListToBST(struct ListNode* head) {
    if (head == NULL)
        return NULL;

    if (head->next == NULL) {
        struct TreeNode* node = (struct TreeNode*)malloc(sizeof(struct TreeNode));
        node->val = head->val;
        node->left = NULL;
        node->right = NULL;
        return node;
    }

    struct ListNode *slow = head, *fast = head, *prev = NULL;

    while (fast && fast->next) {
        prev = slow;
        slow = slow->next;
        fast = fast->next->next;
    }

    prev->next = NULL;

    struct TreeNode* root = (struct TreeNode*)malloc(sizeof(struct TreeNode));
    root->val = slow->val;

    root->left = sortedListToBST(head);
    root->right = sortedListToBST(slow->next);

    return root;
}
```

## Test Case:

The screenshot shows a dark-themed user interface for a test result. At the top, there's a navigation bar with 'Testcase' and 'Test Result'. Below it, a green 'Accepted' status is displayed along with a runtime of '0 ms'. There are two checked test cases: 'Case 1' and 'Case 2'. The 'Input' section contains the variable 'head' with the value `[ -10, -3, 0, 5, 9 ]`. The 'Output' section shows the result of the execution. The 'Expected' section also shows the same result. At the bottom right, there's a button labeled 'Contribute a testcase' with a heart icon.

```
Accepted Runtime: 0 ms
Case 1 Case 2
Input
head =
[-10,-3,0,5,9]
Output
[0,-3,9,-10,null,5]
Expected
[0,-3,9,-10,null,5]
Heart Contribute a testcase
```