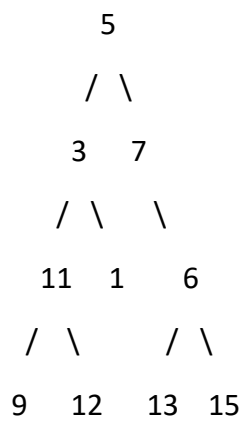
Sum Of Left Leaves LeetCode

Given the root of a binary tree, return *the sum of all left leaves.*

A **leaf** is a node with no children. A **left leaf** is a leaf that is the left child of another node.

Example:



Output: The Sum of Left Leaves: 22

Approach 1: Recursive function to calculate the sum of left leaves in a binary tree

- In the **sumOfLeftLeavesHelper** function, you recursively calculate the sum of left leaves in the binary tree.
- For each node, you check if its left child is a leaf node (has no left or right children).
- If the left child is a leaf node, you add its value to the **sum** variable.
- You then recursively process the left and right subtrees.
- The final sum of left leaves is returned.

Time Complexity: O(N), where N is the number of nodes in the binary tree. You visit each node once.

Space Complexity: O(H), where H is the height of the binary tree due to the function call stack.

Approach 2: Iterative function to calculate the sum of left leaves in a binary tree

- In the **sumOfLeftLeavesIteratively** function, you calculate the sum of left leaves in the binary tree using an iterative approach with a stack.
- You start from the root and push nodes onto the stack while checking for left leaves.
- If a node has a left child that is a leaf node, you add its value to the **sum** variable.

- Otherwise, you continue processing the left and right children.
- The final sum of left leaves is returned.

Time Complexity: O(N), where N is the number of nodes in the binary tree. You visit each node once.

Space Complexity: O(W), where W is the maximum width of the binary tree at any level.