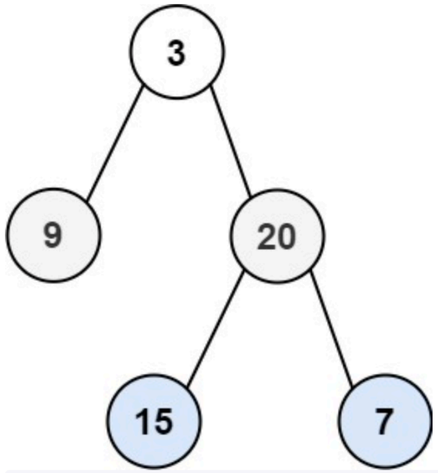
103. Binary Tree Zigzag Level Order Traversal

Given the `root` of a binary tree, return *the zigzag level order traversal of its nodes' values*. (i.e., from left to right, then right to left for the next level and alternate between).

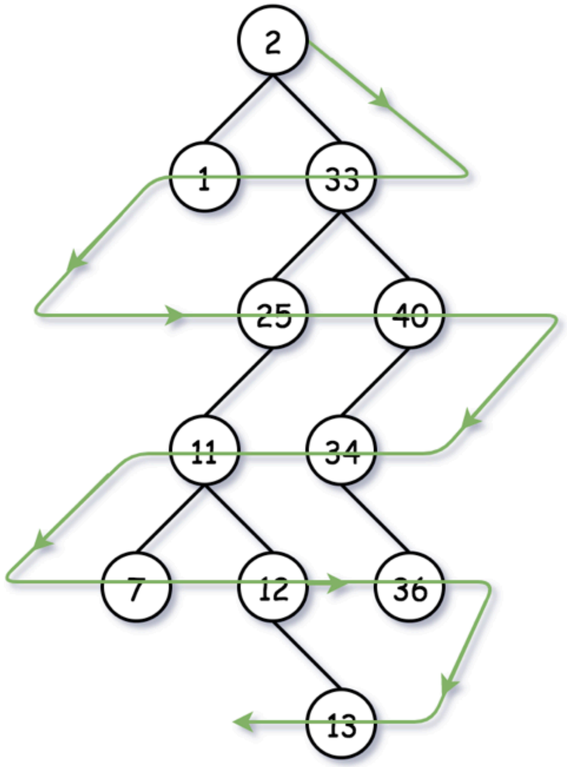
Example 1:




```
Input: root = [3,9,20,null,null,15,7]
Output: [[3],[20,9],[15,7]]
```

Example 2:

```
Input: root = [1]
Output: [[1]]
```



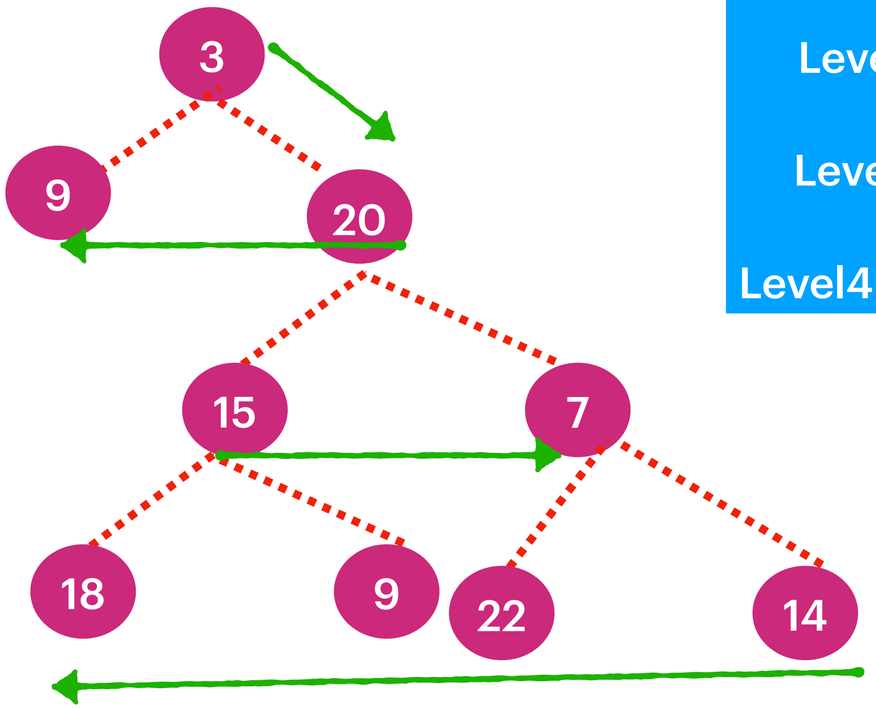
~~Leetcode Christmas Tree~~

Zigzag Level Order Traversal

[2, 33, 1, 25, 40, 34, 11, 7, 12, 36, 13]

Constraints:

- The number of nodes in the tree is in the range `[0, 2000]`.
- `-100 <= Node.val <= 100`



Natural Level Order :

level1 : [3]

Level2 : [9,20]

Level3 : [15, 7]

Level4 : [18, 9,22,14]

Zigzag Level Order :

level1 : [3] left-right :: each element we add to Last

Level2 : [20,9] right-left :: each element we add to First

Level3 : [15,7] left-right :: each element we add to Last

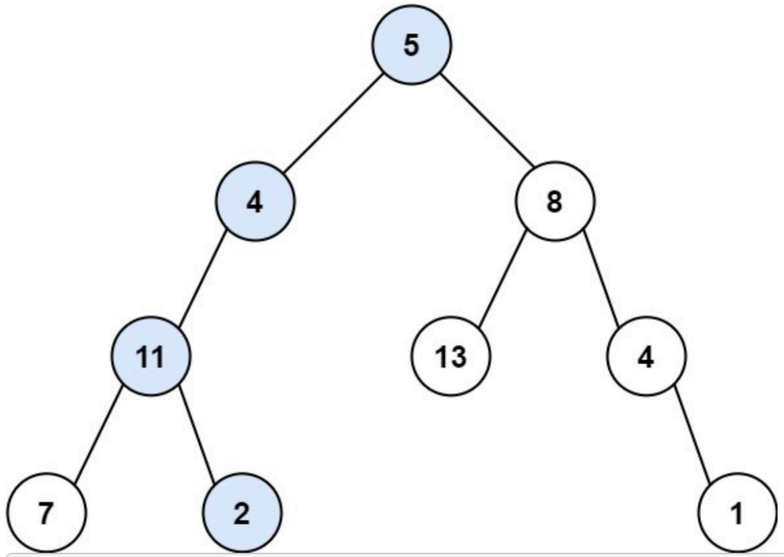
Level4: [14,22,9,18] right-left :: each element we add to First

112. Path Sum

Given the `root` of a binary tree and an integer `targetSum`, return `true` if the tree has a **root-to-leaf** path such that adding up all the values along the path equals `targetSum`.

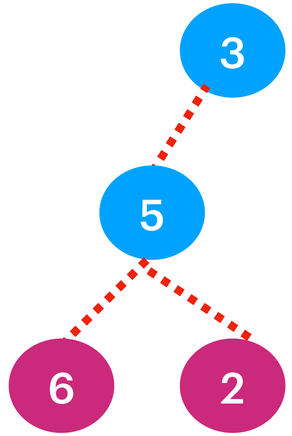
A **leaf** is a node with no children.

Example 1:

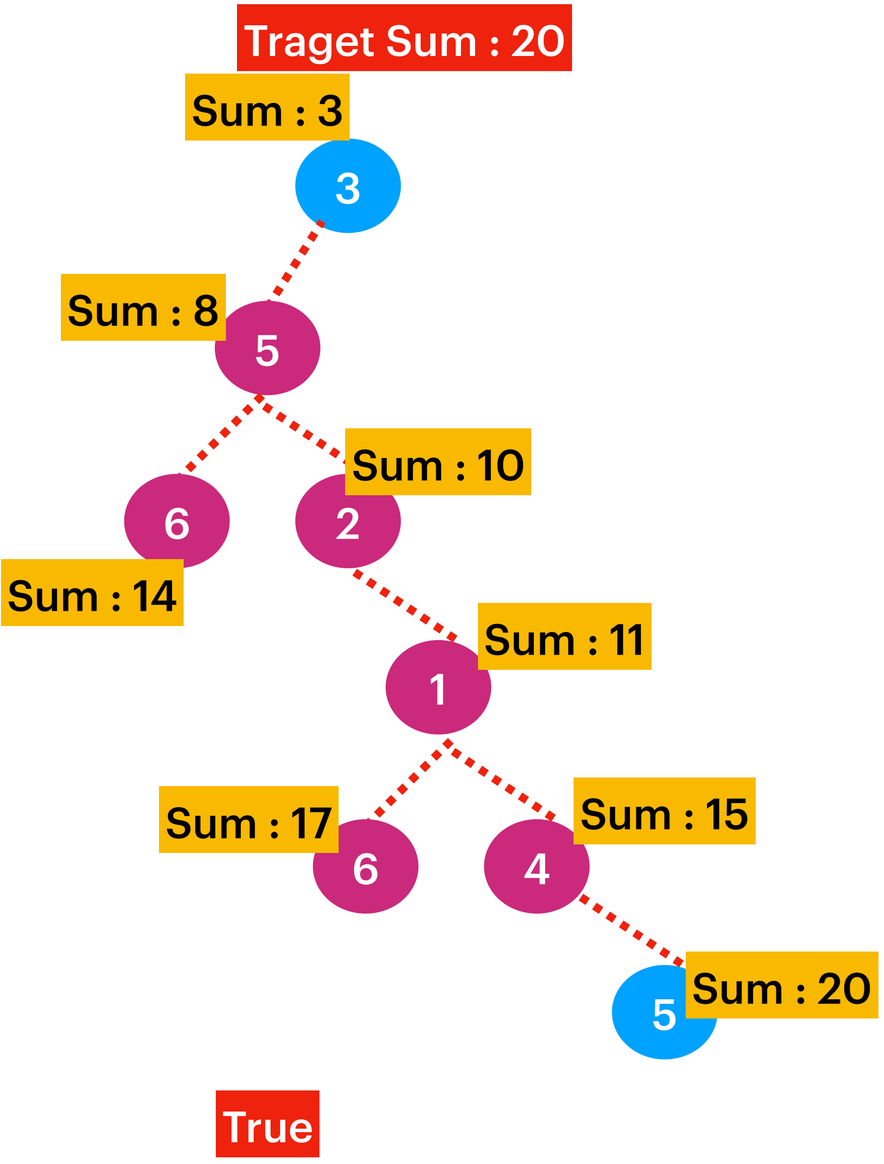


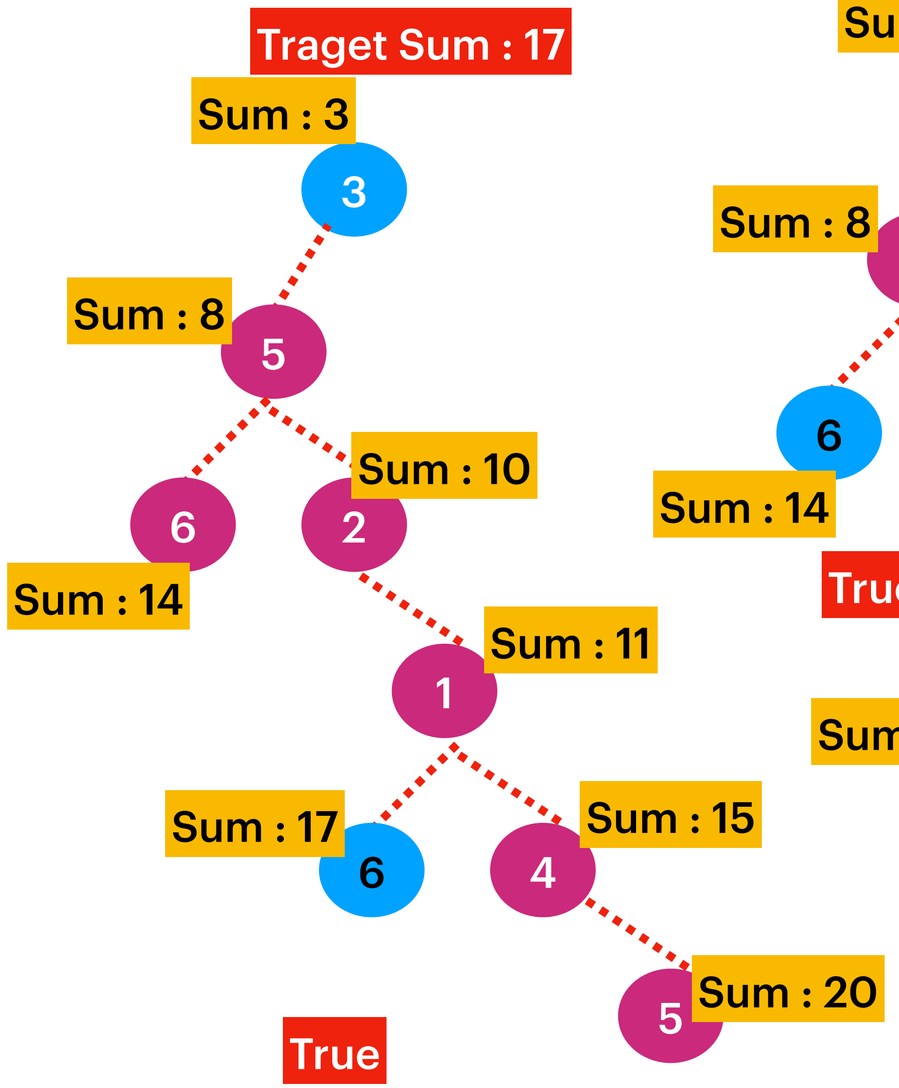

```
Input: root = [5,4,8,11,null,13,4,7,2,null,null,null,1], targetSum = 22
Output: true
Explanation: The root-to-leaf path with the target sum is shown.
```

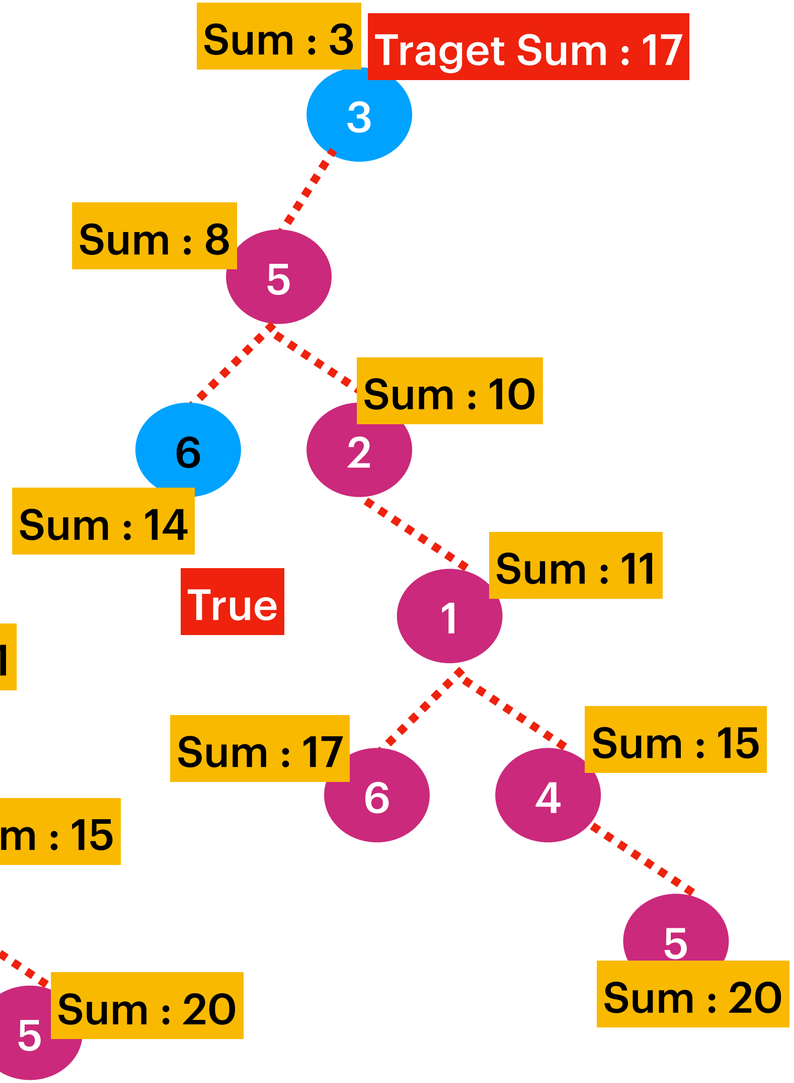
Example 2: TargetSum = 8

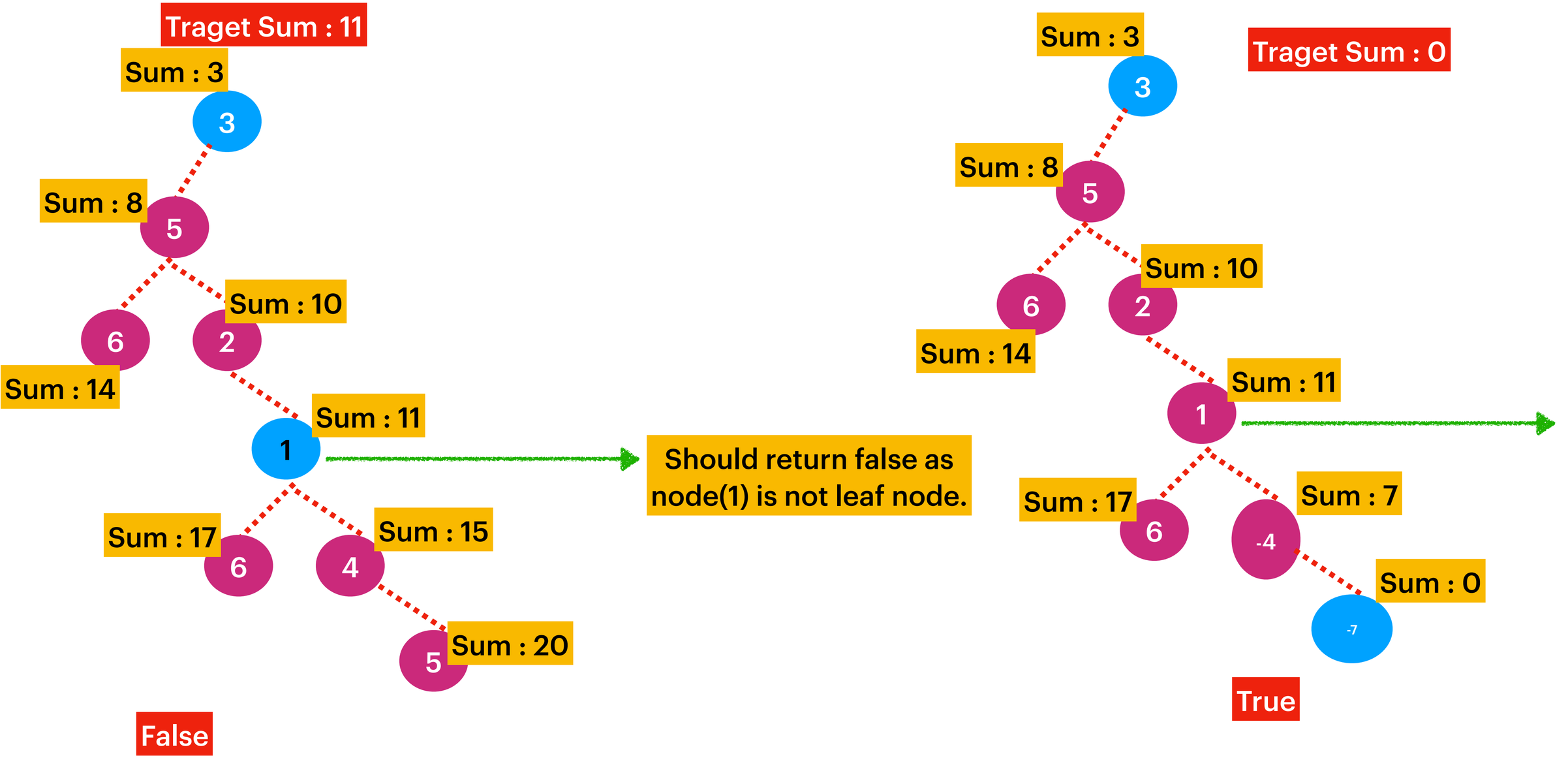


Output : False , we found the Sum but its not root - leaf.


Traget Sum : 20
Sum : 3
3
Sum : 8
5
6
Sum : 10
2
Sum : 14
Sum : 11
1
Sum : 17
6
Sum : 15
4
5
Sum : 20
True


Traget Sum : 17
Sum : 3
3
Sum : 8
5
6
Sum : 10
2
Sum : 14
Sum : 11
1
Sum : 17
6
Sum : 15
4
5
Sum : 20
True


Sum : 3
Traget Sum : 17
3
Sum : 8
5
6
Sum : 10
2
Sum : 14
True
Sum : 11
1
Sum : 17
6
Sum : 15
4
5
Sum : 20


Traget Sum : 11
Sum : 3
3
Sum : 8
5
Sum : 10
6
2
Sum : 14
Sum : 11
1
Sum : 17
6
Sum : 15
4
5
Sum : 20
False
Should return false as node(1) is not leaf node.
Sum : 3
3
Traget Sum : 0
Sum : 8
5
6
Sum : 10
2
Sum : 14
Sum : 11
1
Sum : 17
6
-4
Sum : 7
Sum : 0
-7
True