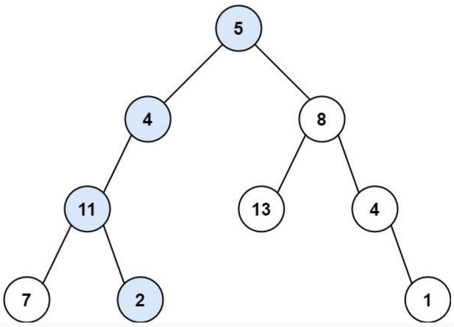
PATH SUM

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:

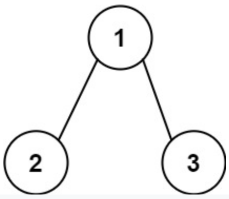



```
Input: root = [5,4,8,11,null,13,4,7,2,null,null,null,1], targetSum = 22

Output: true

Explanation: The root-to-leaf path with the target sum is shown.
```

Example 2:




```
Input: root = [1,2,3], targetSum = 5

Output: false

Explanation: There two root-to-leaf paths in the tree:

(1 --> 2): The sum is 3.

(1 --> 3): The sum is 4.

There is no root-to-leaf path with sum = 5.
```

Example 3:

```
Input: root = [], targetSum = 0

Output: false

Explanation: Since the tree is empty, there are no root-to-leaf paths.
```

Constraints:

- The number of nodes in the tree is in the range `[0, 5000]`.
- `-1000 <= Node.val <= 1000`
- `-1000 <= targetSum <= 1000`

```csharp
/**
 * Definition for a binary tree node.
 * public class TreeNode {
 *     public int val;
 *     public TreeNode left;
 *     public TreeNode right;
 *     public TreeNode(int val=0, TreeNode left=null, TreeNode right=null) {
 *         this.val = val;
 *         this.left = left;
 *         this.right = right;
 *     }
 * }
 */
public class Solution {
    int sumVal = 0;
    public bool HasPathSum(TreeNode root, int targetSum)
    {
        sumVal = targetSum;
        return Traverse(root, 0);
    }

    bool Traverse(TreeNode root, int sum)
    {
        if(root == null)
        {
            return false;
        }

        sum += root.val;

        if(sum == sumVal && (root.left == null && root.right == null))
        {
            return true;
        }
        else
        {
            return (Traverse(root.left, sum) || Traverse(root.right, sum));
        }
    }
}
```