112. Path Sum

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• Depth-first Search + Tree

Description

Given a binary tree and a sum, determine if the tree has a root-to-leaf path such that adding up all the values along the path equals the given sum.

For example:

Given the below binary tree and sum = 22,

```
5
/\
4 8
//\
11 13 4
/\
7 2 1
```

1. Thought line

2. Depth-first Search + Tree

```
* Definition for a binary tree node.
* struct TreeNode {
     int val;
      TreeNode *left;
      TreeNode *right;
      TreeNode(int x) : val(x), left(NULL), right(NULL) {}
* };
*/
class Solution {
private:
   bool DFS_Sum(TreeNode* node, int tempSum, int sum){
      if (node == nullptr) return false;
       tempSum = tempSum + node->val;
       if (node != nullptr && node->left == nullptr && node->right == nullptr && tempSum == sum) return true;
       return DFS_Sum(node->left, tempSum, sum) || DFS_Sum(node->right, tempSum, sum);
public:
   bool hasPathSum(TreeNode* root, int sum) {
       int tempSum = 0;
       return DFS_Sum(root, tempSum, sum);
};
```