

# Problem 144: Binary Tree Preorder Traversal

## Problem Information

**Difficulty:** Easy

**Acceptance Rate:** 74.55%

**Paid Only:** No

**Tags:** Stack, Tree, Depth-First Search, Binary Tree

## Problem Description

Given the `root` of a binary tree, return \_the preorder traversal of its nodes ' values\_.

**Example 1:**

**Input:** root = [1,null,2,3]

**Output:** [1,2,3]

**Explanation:**



**Example 2:**

**Input:** root = [1,2,3,4,5,null,8,null,null,6,7,9]

**Output:** [1,2,4,5,6,7,3,8,9]

**Explanation:**



**Example 3:**

**Input:** root = []

**\*\*Output:\*\*** []

**\*\*Example 4:\*\***

**\*\*Input:\*\*** root = [1]

**\*\*Output:\*\*** [1]

**\*\*Constraints:\*\***

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

**\*\*Follow up:\*\*** Recursive solution is trivial, could you do it iteratively?

## Code Snippets

**C++:**

```
/*
 * Definition for a binary tree node.
 * struct TreeNode {
 *     int val;
 *     TreeNode *left;
 *     TreeNode *right;
 *     TreeNode() : val(0), left(nullptr), right(nullptr) {}
 *     TreeNode(int x) : val(x), left(nullptr), right(nullptr) {}
 *     TreeNode(int x, TreeNode *left, TreeNode *right) : val(x), left(left),
 * right(right) {}
 * };
 */
class Solution {
public:
    vector<int> preorderTraversal(TreeNode* root) {
        }
};
```

**Java:**

```

/**
 * Definition for a binary tree node.
 * public class TreeNode {
 *     int val;
 *     TreeNode left;
 *     TreeNode right;
 *     TreeNode() {}
 *     TreeNode(int val) { this.val = val; }
 *     TreeNode(int val, TreeNode left, TreeNode right) {
 *         this.val = val;
 *         this.left = left;
 *         this.right = right;
 *     }
 * }
 */
class Solution {
    public List<Integer> preorderTraversal(TreeNode root) {
        ...
    }
}

```

### Python3:

```

# Definition for a binary tree node.
# class TreeNode:
#     def __init__(self, val=0, left=None, right=None):
#         self.val = val
#         self.left = left
#         self.right = right
class Solution:
    def preorderTraversal(self, root: Optional[TreeNode]) -> List[int]:
        ...

```