144 二叉树的前序遍历

> Label：二叉树
> 给你二叉树的根节点 root ，返回它节点值的 前序 遍历。

- 递归

```java
class Solution {
    List<Integer> list = new ArrayList<>();
    public List<Integer> preorderTraversal(TreeNode root) {
        traversal(root);
        return list;
    }

    private void traversal(TreeNode root) {
        if (root == null) {
            return;
        }
        list.add(root.val);
        traversal(root.left);
        traversal(root.right);
    }
}
```

- 迭代

```java
class Solution {
    public List<Integer> preorderTraversal(TreeNode root) {
        List<Integer> res = new ArrayList<Integer>();
        if (root == null) {
            return res;
        }

        Deque<TreeNode> stack = new LinkedList<TreeNode>();
        TreeNode node = root;
        while (!stack.isEmpty() || node != null) {
            while (node != null) {
                res.add(node.val);
                stack.push(node);
                node = node.left;
            }
            node = stack.pop();
            node = node.right;
        }
        return res;
    }
}
```