Experiment 1.5

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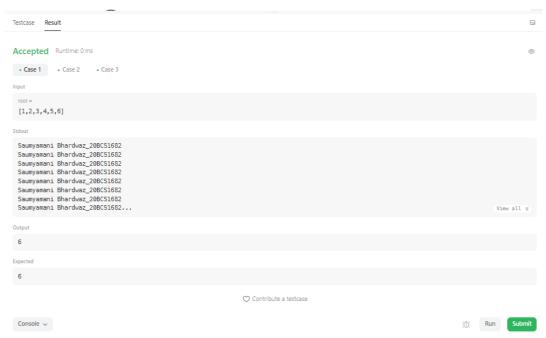
Aim: To demonstrate the concept of Trees

1. Count Complete Tree Nodes

```
class Solution
{
  int count=0;
  public int countNodes(TreeNode root) {
  System.out.println("Saumyamani Bhardwaz_20BCS1682");
  if(root==null)
  return 0;
     count++;
     countNodes(root.left);
     countNodes(root.right);

     return count;
   }
}
```

Output:

2. Same Tree

```cpp
class Solution {
  public:
  bool isSameTree(TreeNode* p, TreeNode* q) {
  cout<<"Saumyamani Bhardwaz_20BCS1682"<<endl;
  if(!p && !q)
       return true;
     if(!p || !q)
       return false;
     return (p->val == q->val && isSameTree(p->right, q->right) && isSameTree(p->left, q->left));
  }
};
```

Output:

Testcase   Result   6

Accepted Runtime: 3 ms   👁

• Case 1   • Case 2   • Case 3

Input

p =
[1,2,3]

q =
[1,2,3]

Stdout

```
Saumyamani Bhardwaz_20BCS1682
Saumyamani Bhardwaz_20BCS1682
Saumyamani Bhardwaz_20BCS1682
Saumyamani Bhardwaz_20BCS1682
Saumyamani Bhardwaz_20BCS1682
Saumyamani Bhardwaz_20BCS1682
Saumyamani Bhardwaz_20BCS1682
```

Output

true

Expected

true

3. Path Sum

```cpp
class Solution {
public:
  bool hasPathSum(TreeNode *root, int sum) {
     cout<<"Saumyamani Bhardwaz_20BCS1682"<<endl;
     if (root == NULL) return false;
     if (root->val == sum && root->left ==  NULL && root->right == NULL) return true;
     return hasPathSum(root->left, sum-root->val) || hasPathSum(root->right, sum-root->val);
  }
};
```

Output:

Testcase   Result

Accepted Runtime: 0 ms

• Case 1   • Case 2   • Case 3

Input

```
root =
[5,4,8,11,null,13,4,7,2,null,null,null,1]
```

```
targetSum =
22
```

Stdout

```
Saumyamani Bhardwaz_20BCS1682
Saumyamani Bhardwaz_20BCS1682
Saumyamani Bhardwaz_20BCS1682
Saumyamani Bhardwaz_20BCS1682
Saumyamani Bhardwaz_20BCS1682
Saumyamani Bhardwaz_20BCS1682
Saumyamani Bhardwaz_20BCS1682
```

Output

```
true
```

Expected

```
true
```

Console ⌄   Run   Submit