



DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

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Experiment-5

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Subject Name: Competitive Coding II

Subject Code: 20CSP-351

Aim: To demonstrate the concept of Trees.

Problem1: Same Tree

Given the roots of two binary trees p and q, write a function to check if they are the same or not. Two binary trees are considered the same if they are structurally identical, and the nodes have the same value.

Code:-

```
class Solution {
public:
bool b=true;
bool isSameTree(TreeNode* p, TreeNode* q) {
if(p==NULL&&q!=NULL)
{
b=false;
return false;
}
if(p!=NULL&&q==NULL)
{
b=false;
return false;
}

if(p==NULL&&q==NULL)
{
return true;
}
if((p->val)!= (q->val))
```



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```
{  
b=false;  
return false;  
}  
isSameTree(p->left,q->left);  
isSameTree(p->right,q->right);  
  
return b;  
}  
};
```

Output:-

A screenshot of a code execution environment with a dark background. At the top left, the word 'Accepted' is written in green, followed by 'Runtime: 0 ms' in white. Below this, there are three tabs labeled 'Case 1', 'Case 2', and 'Case 3', each with a small green dot. Under the 'Case 1' tab, the 'Input' section shows two lines: 'p =' followed by '[1,2,3]' and 'q =' followed by '[1,2,3]'. The 'Output' section shows the word 'true'. The 'Expected' section also shows the word 'true'.

Accepted Runtime: 0 ms

• Case 1 • Case 2 • Case 3

Input

p =
[1,2,3]

q =
[1,2,3]

Output

true

Expected

true



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Problem2: Symmetric Tree

Code:-

```
class Solution {
public:
    map<int,vector<pair<int,int>>>m;
    void dfs(TreeNode* root,int x,int d)
    {

        if(root==NULL)
        {
            return;
        }
        m[d].push_back({x,root->val});
        dfs(root->left,x-1,d+1);
        dfs(root->right,x+1,d+1);
    }
    bool isSymmetric(TreeNode* root) {

        dfs(root,0,0);
        int c=0;
        for(auto i:m)
        {
            if(c==0)
            {
                c++;
                continue;
            }
            int f=0,l=i.second.size()-1;
            if(i.second.size()%2!=0)
            {

                return false;
            }
            while(f<=l)
            {

                if((i.second[f].first*-1)!=i.second[l].first)
```



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```
{  
  
return false;  
}  
if((i.second[f].second)!=i.second[l].second)  
{  
  
return false;  
}  
f++,l--;  
}  
  
}  
return true;  
}  
  
};
```

Output:-

A screenshot of a code execution environment with a dark background. At the top left, the word 'Accepted' is written in green, followed by 'Runtime: 0 ms' in white. Below this, there are two tabs: 'Case 1' and 'Case 2', both with a small white dot to their left. Under the 'Input' section, there is a text box containing 'root =' followed by a new line and '[1,2,2,3,4,4,3]'. Under the 'Output' section, there is a text box containing 'true'. Under the 'Expected' section, there is a text box containing 'true'.