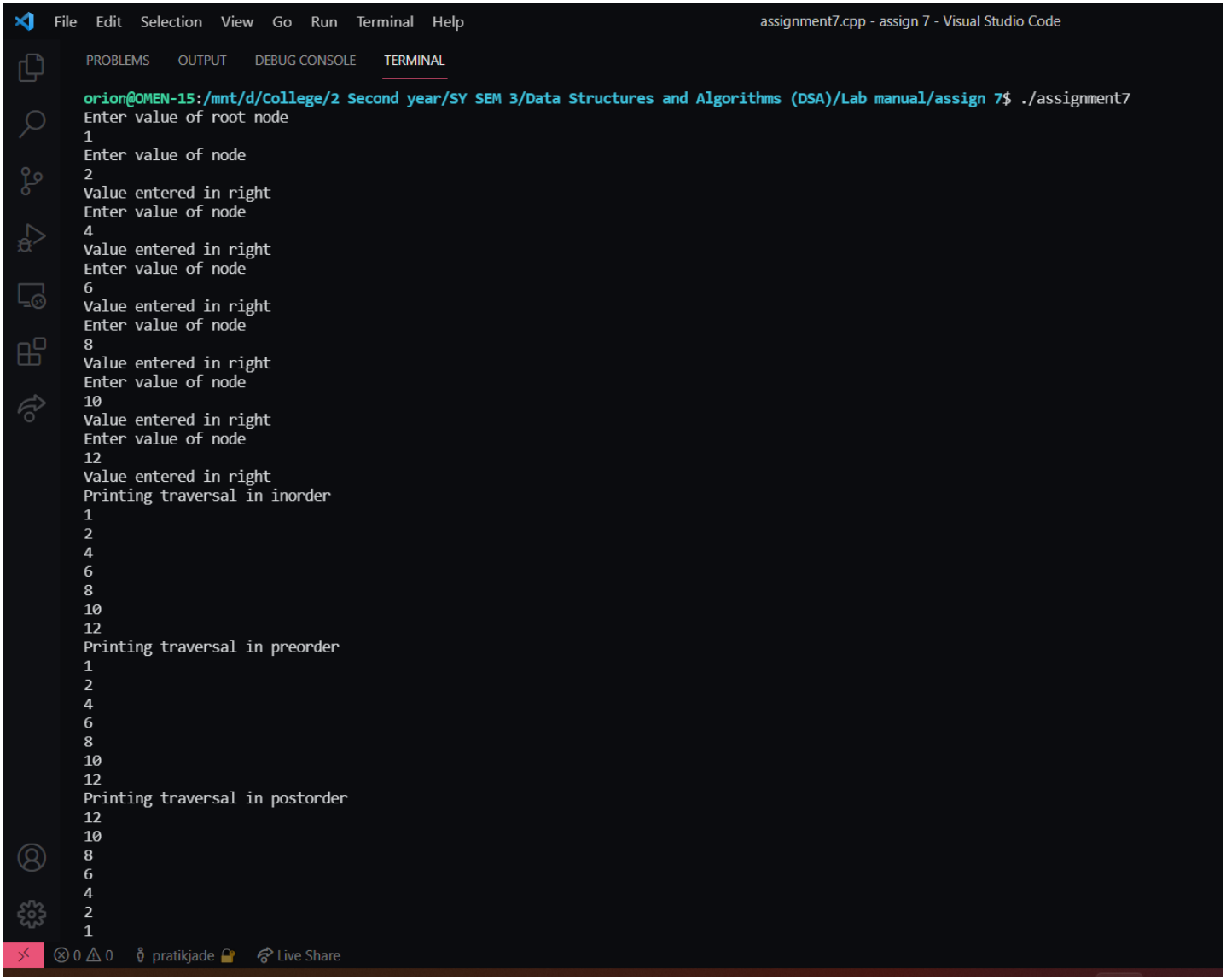
Program –

```
#include <iostream>
using namespace std;
struct tree
{
    tree *l, *r;
    int data;
} *root = NULL, *p = NULL, *np = NULL, *q;
void create()
{
    int value, c = 0;
    while (c < 7)
    {
        if (root == NULL)
        {
            root = new tree;
            cout << "Enter value of root node\n";
            cin >> root->data;
            root->r = NULL;
            root->l = NULL;
        }
        else
        {
            p = root;
            cout << "Enter value of node\n";
            cin >> value;
            while (true)
            {
                if (value < p->data)
                {
                    if (p->l == NULL)
                    {
                        p->l = new tree;
                        p = p->l;
                        p->data = value;
                        p->l = NULL;
                        p->r = NULL;
                        cout << "Value entered in left\n";
                        break;
                    }
                    else if (p->l != NULL)
                    {
                        p = p->l;
                    }
                }
                else if (value > p->data)
                {
                    if (p->r == NULL)
                    {
                        p->r = new tree;
                        p = p->r;
                        p->data = value;
                        p->l = NULL;
                        p->r = NULL;
```

```
                        cout << "Value entered in right\n";
                        break;
                    }
                    else if (p->r != NULL)
                    {
                        p = p->r;
                    }
                }
            }
        }
        c++;
    }
}
void inorder(tree *p)
{
    if (p != NULL)
    {
        inorder(p->l);
        cout << p->data << endl;
        inorder(p->r);
    }
}
void preorder(tree *p)
{
    if (p != NULL)
    {
        cout << p->data << endl;
        preorder(p->l);
        preorder(p->r);
    }
}
void postorder(tree *p)
{
    if (p != NULL)
    {
        postorder(p->l);
        postorder(p->r);
        cout << p->data << endl;
    }
}
int main()
{
    create();
    cout << "Printing traversal in inorder\n";
    inorder(root);
    cout << "Printing traversal in preorder\n";
    preorder(root);
    cout << "Printing traversal in postorder\n";
    postorder(root);
    return 0;
}
```

Output-


File Edit Selection View Go Run Terminal Help
assignment7.cpp - assign 7 - Visual Studio Code
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
orion@OMEN-15:/mnt/d/College/2 Second year/SY SEM 3/Data Structures and Algorithms (DSA)/Lab manual/assign 7$ ./assignment7
Enter value of root node
1
Enter value of node
2
Value entered in right
Enter value of node
4
Value entered in right
Enter value of node
6
Value entered in right
Enter value of node
8
Value entered in right
Enter value of node
10
Value entered in right
Enter value of node
12
Value entered in right
Printing traversal in inorder
1
2
4
6
8
10
12
Printing traversal in preorder
1
2
4
6
8
10
12
Printing traversal in postorder
12
10
8
6
4
2
1
0 0
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