

Assigenment No.6

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ROLL NO: 43

SE IT

CODE:

```
#include<iostream>
using namespace std;

struct node
{
    int data,lf,rf;
    node *l,*r;
};

class tbt
{
    node *head,*root;
public:
    tbt()
    {
        root=NULL;
    }
    void create();
    void inorder();
    void preorder();
};

void tbt::create()
{
    int n,d;
    node *t,*p;
    cout<<"Enter no of nodes: ";
    cin>>n;
    head=new node;
    head->r=head->l=head;
    head->lf=head->rf=0;
    for (int i=0;i<n;i++)
    {
        t=new node;
        cout<<"Enter the data: ";
        cin>>t->data;
        t->l=t->r=t;
        t->lf=t->rf=0;
        if(root==NULL)
        {
            root=t;
            head->l=root;
            root->l=root->r=head;
        }
    }
}
```

```

        head->lf=1;
    }
    else
    {
        p=root;
        while(1)
        {
            if(t->data<p->data)
            {
                if(p->lf==1)
                {
                    p=p->l;
                }
                else
                {
                    t->l=p->l;
                    t->r=p;
                    p->l=t;
                    p->lf=1;
                    break;
                }
            }
            else{
                if(p->rf==1)
                {
                    p=p->r;
                }
                else{
                    t->r=p->r;
                    t->l=p;
                    p->r=t;
                    p->rf=1;
                    break;
                }
            }
        }
    }
}
}
}
}

```

```

void tbt::inorder()
{
    cout<<"Inorder"<<endl;
    node *p=root;
    do
    {
        while(p->lf==1)
        p=p->l;
        cout<<p->data<<endl;
        while(p->rf==0)
        {
            p=p->r;

```

```

if(p==head)
return;
cout<<p->data<<endl;
}
p=p->r;
}while(p!=head);
}

void tbt::preorder()
{
cout<<"Preorder"<<endl;
node *p=root;
do
{
while(p->l!=1)
{
cout<<p->data<<endl;
p=p->l;
}
cout<<p->data<<endl;
while(p->r!=0)
{
p=p->r;
if(p==head)
return;
}
p=p->r;
}while(p!=head);
}

int main()
{
tbt x;
x.create();
x.inorder();
x.preorder();
}

```

OUTPUT:

```

Enter no of nodes: 4
Enter the data: 20
Enter the data: 10
Enter the data: 30
Enter the data: 4
Inorder
4
10
20
30
Preorder
20

```

10
4
30