

**DATA STRUCTURES LAB**

**WEEK-5**

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**PROBLEM STATEMENT**:

Write a C program to create and traverse the binary search tree in

a)inorder b)preorder c)postorder

**CODE:**

**BINARY SEARCH TREE:**

//c program to create and display the contents of binary search tree

#include <stdio.h>

#include<stdlib.h>

#define size 5

struct node

{

int data;

struct node \*left;

struct node \*right;

}\*n,\*temp,\*root=NULL;

void create();

void inorder(struct node \*temp);

void preorder(struct node \*temp);

void postorder(struct node \*temp);

int ch;

int main()

{

printf("1.Create\n2.Inorder\n3.preorder\n4.postorder\n");

do

{

printf("\nEnter choice\n");

scanf("%d",&ch);

switch(ch)

{

case 1: create();break;

case 2: inorder(root);break;

case 3: preorder(root);break;

case 4: postorder(root);break;

}

}while(ch<=4);

return 0;

}

void create()

{

n=(struct node \*)malloc(sizeof(struct node));

printf("Enter data\n");

scanf("%d",&n->data);

n->left=NULL;

n->right=NULL;

if(root==NULL)

{

root=n;

}

else

{

temp=root;

while(temp!=NULL)

{

if(n->data<temp->data)

{

if(temp->left==NULL)

{

temp->left=n;

return;

}

else

temp=temp->left;

}

else

{

if(temp->right==NULL)

{

temp->right=n;

return;

}

else

temp=temp->right;

}

}

}

}

void inorder(struct node \*temp)

{

if(temp!=NULL)

{

inorder(temp->left);

printf("%d ",temp->data);

inorder(temp->right);

}

}

void preorder(struct node \*temp)

{

if(temp!=NULL)

{

printf("%d ",temp->data);

preorder(temp->left);

preorder(temp->right);

}

}

void postorder(struct node \*temp)

{

if(temp!=NULL)

{

postorder(temp->left);

postorder(temp->right);

printf("%d ",temp->data);

}

}

**Output:**

