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EX 8 : PERFORMING TREE TRAVERSAL TECHNIQUES

Tree traversal

#include <stdio.h>

#include <stdlib.h>

struct node

{

struct node \*left;

int element;

struct node \*right;

};

typedef struct node Node;

Node \*Insert(Node \*Tree, int e);

void Inorder(Node \*Tree);

void Preorder(Node \*Tree);

void Postorder(Node \*Tree);

int main()

{

Node \*Tree = NULL;

int n, i, e, ch;

printf("Enter number of nodes in the tree : ");

scanf("%d", &n);

printf("Enter the elements :\n");

for (i = 1; i <= n; i++)

{

scanf("%d", &e);

Tree = Insert(Tree, e);

}

do

{

printf("1. Inorder \n2. Preorder \n3. Postorder \n4. Exit\n");

printf("Enter your choice : ");

scanf("%d", &ch);

switch (ch)

{

case 1:

Inorder(Tree);

printf("\n");

break;

case 2:

Preorder(Tree);

printf("\n");

break;

case 3:

Postorder(Tree);

printf("\n");

break;

}

} while (ch <= 3);

return 0;

}

Node \*Insert(Node \*Tree, int e)

{

Node \*NewNode = malloc(sizeof(Node));

if (Tree == NULL)

{

NewNode->element = e;

NewNode->left = NULL;

NewNode->right = NULL;

Tree = NewNode;

}

else if (e < Tree->element)

{

Tree->left = Insert(Tree->left, e);

}

else if (e > Tree->element)

{

Tree->right = Insert(Tree->right, e);

}

return Tree;

}

void Inorder(Node \*Tree)

{

if (Tree != NULL)

{

Inorder(Tree->left);

printf("%d\t", Tree->element);

Inorder(Tree->right);

}

}

void Preorder(Node \*Tree)

{

if (Tree != NULL)

{

printf("%d\t", Tree->element);

Preorder(Tree->left);

Preorder(Tree->right);

}

}

void Postorder(Node \*Tree)

{

if (Tree != NULL)

{

Postorder(Tree->left);

Postorder(Tree->right);

printf("%d\t", Tree->element);

}

}