TITLE 30

Create a binary tree and output the data with 3 tree traversals

OBJECTIVE:

Implementation of the binary tree.

PROBLEM STATEMENT:

In this problem we create a binary tree and the output of the data with three tree traversals is given.

ALGORITHM:

START

INPUT: Read from the users

COMPUTATION: Compute the binary tree

DISPLAY: The data with 3 tree traversals is displayed as the output

STOP

PROGRAM:

#include <stdio.h>

#include <stdlib.h>

struct node

{

     int data;

     struct node\* left;

     struct node\* right;

};

struct node\* newNode(int data)

{

     struct node\* node = (struct node\*)

                                  malloc(sizeof(struct node));

     node->data = data;

     node->left = NULL;

     node->right = NULL;

     return(node);

}

void printPostorder(struct node\* node)

{

     if (node == NULL)

        return;

     printPostorder(node->left);

     printPostorder(node->right);

     printf("%d ", node->data);

}

 void printInorder(struct node\* node)

{

     if (node == NULL)

          return;

     printInorder(node->left);

     printf("%d ", node->data);

     printInorder(node->right);

}

void printPreorder(struct node\* node)

{

     if (node == NULL)

          return;

     printf("%d ", node->data);

     printPreorder(node->left);

     printPreorder(node->right);

}

int main()

{

     struct node \*root  = newNode(32);

     root->left             = newNode(42);

     root->right           = newNode(13);

     root->left->left     = newNode(44);

     root->left->right   = newNode(65);

     printf("\nPreorder traversal of binary tree is \n");

     printPreorder(root);

     printf("\nInorder traversal of binary tree is \n");

     printInorder(root);

     printf("\nPostorder traversal of binary tree is \n");

     printPostorder(root);

     getchar();

     return 0;

}

CONCLUSION:

This program helps to understand th concept of the tree.

OUTPUT:

Preorder traversal of binary tree is 1 3 4 5 -2

Inorder traversal of binary tree is 3 4 1 -2 3 5

Postorder traversal of binary tree is 4 3 -2 3 5 1