#include<stdio.h>

#include<stdlib.h>

typedef struct treeNode

{

int data;

struct treeNode \*left;

struct treeNode \*right;

}treeNode;

treeNode\* FindMin(treeNode \*node)

{

if(node==NULL)

{

return NULL;

}

if(node->left)

return FindMin(node->left);

else

return node;

}

treeNode\* FindMax(treeNode \*node)

{

if(node==NULL)

{

return NULL;

}

if(node->right)

FindMax(node->right);

else

return node;

}

treeNode \* Insert(treeNode \*node,int data)

{

if(node==NULL)

{

treeNode \*temp;

temp = (treeNode \*)malloc(sizeof(treeNode));

temp -> data = data;

temp -> left = temp -> right = NULL;

return temp;

}

if(data >(node->data))

{

node->right = Insert(node->right,data);

}

else if(data < (node->data))

{

node->left = Insert(node->left,data);

}

return node;

}

treeNode \* Delete(treeNode \*node, int data)

{

treeNode \*temp;

if(node==NULL)

{

printf("Element Not Found");

}

else if(data < node->data)

{

node->left = Delete(node->left, data);

}

else if(data > node->data)

{

node->right = Delete(node->right, data);

}

else

{

if(node->right && node->left)

{

temp = FindMin(node->right);

node -> data = temp->data;

node -> right = Delete(node->right,temp->data);

}

else

{

temp = node;

if(node->left == NULL)

node = node->right;

else if(node->right == NULL)

node = node->left;

free(temp);

}

}

return node;

}

treeNode \* Find(treeNode \*node, int data)

{

if(node==NULL)

{

return NULL;

}

if(data > node->data)

{

return Find(node->right,data);

}

else if(data < node->data)

{

return Find(node->left,data);

}

else

{

return node;

}

}

void PrintInorder(treeNode \*node)

{

if(node==NULL)

{

return;

}

PrintInorder(node->left);

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

PrintInorder(node->right);

}

void PrintPreorder(treeNode \*node)

{

if(node==NULL)

{

return;

}

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

PrintPreorder(node->left);

PrintPreorder(node->right);

}

void PrintPostorder(treeNode \*node)

{

if(node==NULL)

{

return;

}

PrintPostorder(node->left);

PrintPostorder(node->right);

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

}

int main()

{

treeNode \*root = NULL;

root = Insert(root, 5);

root = Insert(root, -1);

root = Insert(root, 3);

root = Insert(root, -14);

root = Insert(root, 8);

root = Insert(root, 10);

root = Insert(root, 9);

root = Insert(root, 6);

PrintInorder(root);

printf("\n");

root = Delete(root,5);

root = Delete(root,-1);

PrintInorder(root);

printf("\n");

treeNode \* temp;

temp = FindMin(root);

printf("Minimum element is %d\n",temp->data);

temp = FindMax(root);

printf("Maximum element is %d\n",temp->data);

temp = Find(root,8);

if(temp==NULL)

{ printf("Element 8 not found\n"); }

else

{ printf("Element 8 Found\n"); }

temp = Find(root,2);

if(temp==NULL)

{ printf("Element 2 not found\n"); }

else

{ printf("Element 6 Found\n"); }

}