//Assignment no 5

#include <iostream>

using namespace std;

class node

{

public:

int data;

node\* left;

node\* right;

int lbit, rbit;

};

class TBT

{

node\* root;

public:

node\* head;

TBT()

{

root = NULL;

}

node \* getroot()

{

return(root);

}

void createtree();

void inorder(node\* root);

};

void TBT :: createtree()

{

char ans;

node\* new1, \*curr;

head = new node;

head->data = -999;

head->right = head;

do

{

new1 = new node;

new1->lbit = 0;

new1->rbit = 0;

cout << "\nEnter your data: ";

cin >> new1->data;

if(root == NULL)

{

root = new1;

head->left = root;

head->lbit = 1;

root->left = head;

root->right = head;

}

else

{

curr = root;

int flag = 0;

if(new1->data < curr->data)

{

while(flag == 0)

{

if(curr->lbit == 0)

{

new1->left = curr->left;

curr->left = new1;

curr->lbit = 1;

new1->right = curr;

flag = 1;

}

else

{

curr = curr->left;

}

}

}

else if(new1->data > curr->data)

{

while(flag == 0)

{

if(curr->rbit == 0)

{

new1->right = curr->right;

curr->right = new1;

curr->rbit = 1;

new1->left = curr;

flag = 1;

}

else

{

curr = curr->right;

}

}

}

else

{

cout << "\nData already exists!";

}

}

cout << "\nDo you want to add more node?(y/n)";

cin >> ans;

}while(ans == 'Y' || ans == 'y');

}

void TBT :: inorder(node \*root)

{

node \*temp;

temp = root;

int flag =0;

if(root == NULL)

{

cout<<"\nTree is empty";

}

else

{

while(temp != head)

{

if(temp->lbit==1 && flag ==0)

{

temp = temp ->left;

}

else

{

cout<<" "<<temp ->data;

if(temp ->rbit == 1)

{

temp = temp ->right;

flag=0;

}

else

{

temp = temp->right;

flag =1;

}

}

}

}

}

int main()

{

TBT t;

int ch;

do

{

cout << "\n-------MENU-------";

cout << "\n1. Insert";

cout << "\n2. Display";

cout << "\n3. Exit";

cout << "\nEnter your choice: ";

cin >> ch;

switch(ch)

{

case 1:

t.createtree();

break;

case 2:

t.inorder(t.getroot());

break;

case 3:

exit(0);

break;

default:

cout << "\nInvalid Choice Entered!";

}

}while(ch != 3);

return 0;

}

output:

gescoe@gescoe-OptiPlex-3010:~/Desktop/SE-A-55$ g++ thread.cpp

gescoe@gescoe-OptiPlex-3010:~/Desktop/SE-A-55$ ./a.out

-------MENU-------

1. Insert
2. Display
3. Exit

Enter your choice: 1

Enter your data: 5

Do you want to add more node?(y/n)y

Enter your data: 1

Do you want to add more node?(y/n)y

Enter your data: 10

Do you want to add more node?(y/n)n

-------MENU-------

1. Insert
2. Display
3. Exit

Enter your choice: 2

1. 5 10

-------MENU-------

1. Insert
2. Display
3. Exit

Enter your choice: 3

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