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\* C++ Program to Check for balanced paranthesis by using Stacks

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#include <iostream>

#include <conio.h>

#include<stdio.h>

#include<string.h>

using namespace std;

struct node

{

char data;

node \*next;

}\*p = NULL, \*top = NULL, \*save = NULL,\*ptr;

void push(char x)

{

p = new node;

p->data = x;

p->next = NULL;

if (top == NULL)

{

top = p;

}

else

{

save = top;

top = p;

p->next = save;

}

}

char pop()

{

if (top == NULL)

{

cout<<"underflow!!";

}

else

{

ptr = top;

top = top->next;

return(ptr->data);

delete ptr;

}

}

int main()

{

int i;

char c[30], a, y, z;

cout<<"enter the expression:\n";

cin>>c;

for (i = 0; i < strlen(c); i++)

{

if ((c[i] == '(') || (c[i] == '{') || (c[i] == '['))

{

push(c[i]);

}

else

{

switch(c[i])

{

case ')':

a = pop();

if ((a == '{') || (a == '['))

{

cout<<"invalid expr!!";

getch();

}

break;

case '}':

y = pop();

if ((y == '[') || (y == '('))

{

cout<<"invalid expr!!";

getch();

}

break;

case ']':

z = pop();

if ((z == '{') || (z == '('))

{

cout<<"invalid expr!!";

getch();

}

break;

}

}

}

if (top == NULL)

{

cout<<"balanced expr!!";

}

else

{

cout<<"string is not valid.!!";

}

getch();

}