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Exam seat no:

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**ASSIGNMENT NO : 10**

Any language program mostly syntax error occurs due to unbalancing delimiter such as (),{},[].

Write C++ program using stack to check whether given expression is well parenthesized or not.

**PROGRAM:**

#include <iostream>

#include<cstdio>

#include<cstdlib> using

namespace std;

class Stack

{

char s[MAX];

int top;

public:

Stack()

{

top=-1;

}

void push(char ch);

char pop();

bool isEmpty();

bool isFull();

bool checkParenthesis(char expr[]);

};

bool Stack::isEmpty()

{ if(top==-

1)

return 1;

else

return 0;

}

bool Stack::isFull()

{

if(top==MAX-1)

return 1;

else

return 0;

}

void Stack::push(char ch)

{

if(!isFull())

{ top++;

s[top]=ch;

}

}

char Stack::pop()

{

if(!isEmpty())

{

char ch=s[top];

top--;

return ch;

}

else

return '\0';

}

bool Stack::checkParenthesis(char expr[])

{ char

x;

for (int i=0; expr[i]!='\0'; i++)

{

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

{

push(expr[i]);

continue;

}

if (isEmpty())

return false;

switch (expr[i])

{ case

')':

x = pop();

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

return false;

break;

case '}':

= pop();

if (x=='(' || x=='[')

return false;

break;

case ']':

x = pop();

if (x =='(' || x == '{')

return false;

break;

}

}

(isEmpty());

}

int main()

{

char expr[50];

int i=0,k=0;

Stack st;

cout<<"\nEnter Expression: ";

cin>>expr;

if (st.checkParenthesis(expr))

cout << "Balanced";

else

cout << "Not Balanced";

return 0;

}

**OUTPUT:**

Enter Expression: {[)]}

Not Balanced

Enter Expression: {[()]}

Balanced