**Practical No:-10**

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Title:-

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Problem Statement:

In 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.

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INPUT:-

#include <iostream>

using namespace std;

#define size 10

class stackexp

{

int top;

char stk[size];

public:

stackexp()

{

top=-1;

}

void push(char);

char pop();

int isfull();

int isempty();

};

void stackexp::push(char x)

{

top=top+1;

stk[top]=x;

}

char stackexp::pop()

{

char s;

s=stk[top];

top=top-1;

return s;

}

int stackexp::isfull()

{

if(top==size)

return 1;

else

return 0;

}

int stackexp::isempty()

{

if(top==-1)

return 1;

else

return 0;

}

int main()

{

stackexp s1;

char exp[20],ch;

int i=0;

cout << "\n\t!!Well Formness of Parenthesis..!!!!" << endl; // prints !!!Hello World!!!

cout<<"\nEnter the expression to check whether it is in well form or not : ";

cin>>exp;

if((exp[0]==')')||(exp[0]==']')||(exp[0]=='}'))

{

cout<<"\n Invalid Expression.....\n";

return 0;

}

else

{

while(exp[i]!='\0')

{

ch=exp[i];

switch(ch)

{

case '(':s1.push(ch);break;

case '[':s1.push(ch);break;

case '{':s1.push(ch);break;

case ')':s1.pop();break;

case ']':s1.pop();break;

case '}':s1.pop();break;

}

i=i+1;

}

}

if(s1.isempty())

{

cout<<"\nExpression is well parenthesis...\n";

}

else

{

cout<<"\nSorry !!! Invalid Expression or not in well parenthesized....\n";

}

return 0;

}

OUTPUT:-

jaihind@jaihind-ThinkCentre-M60e:~$ g++ yash10.cpp

jaihind@jaihind-ThinkCentre-M60e:~$ ./a.out

!!Well Formness of Parenthesis..!!!!

Enter the expression to check whether it is in well form or not : (m<(n[8]+0))

Expression is well parenthesis...

!!Well Formness of Parenthesis..!!!!

Enter the expression to check whether it is in well form or not : )(m+n)\*(a-b)

Invalid Expression.....

!!Well Formness of Parenthesis..!!!!

Enter the expression to check whether it is in well form or not : (m+b(n[8)/2+3)

Sorry !!! Invalid Expression or not in well parenthesized....