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#include<iostream>
using namespace std;

const int MAX = 50;
class stack
{
    int top;
    char data[MAX];
public:
    stack()
    {
        top = -1;
    }
    bool isfull();
    bool isempty();
    void push(char ch);
    char pop();
    void display();
    void chkparenthesis();

};

bool stack::isfull()
{
    if (top==MAX-1)
    {
        return 1;
    }
    else return 0;
}

bool stack::isempty()
{
    if (top == -1)
    {
        return 1;
    }
    else return 0;
}

void stack :: push(char ch)
{
    if (!isfull())
    {
        top++;
        data[top]=ch;
    }

    else cout<<"\nStack is full !!!!\n";
}

char stack ::pop()
{
    if (!isempty())
    {
        char ch=data[top];

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        top--;
        return ch;
    }
    else cout<<"\nStack is empty !!!!\n";
}

void stack::display()
{
    if (!isempty())
        cout<<"\nThe stack is empty !!";

    else
    {
        cout<<"The stack is :- "<<endl;
        for (int i = 0; i <= top; i++)
        {
            cout<<"["<<data[i]<<"]"<<endl;
        }
    }
}

void stack ::chkparenthesis()
{
    cout<<"\n Please enter the delimiter at end !(#)";
    cout<<"\nEnter the expression :- ";
    cin.getline(data,MAX,'#');
    char ch;
    bool flag = 0;
    for (int i = 0; data[i] != '\0'; i++)
    {
        if (data[i]=='(' || data[i]=='{' || data[i]=='[')
        {
            push(data[i]);
        }
        if (data[i]==')' || data[i]=='}' || data[i]==']')
        {
            ch = pop();
            if ((data[i]==')' && (ch!='(')) || (data[i]=='}' && (ch!='{')) || (data[i]==']' && (ch!='[')))
            {
                flag =1;
                cout<<"\nParenthesis is unbalanced !!";
                break;
            }

            else
            {
                cout<<"\nParenthesis is balanced !!";
                break;
            }
        }
    }
}

int main()
{

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int choice;
do
{
    stack s;
    s.chkparenthesis();
    cout<<"\nDO u want to continue (1/0):- ";
    cin>>choice;
} while (choice!=0);

}

/*-----OUTPUT-----

    Please enter the delimiter at end !(#)
Enter the expression :- (a + b)#

Parenthesis is balanced !!
DO u want to continue (1/0):- 1

    Please enter the delimiter at end !(#)
Enter the expression :- {a + b)#

Parenthesis is unbalanced !!
DO u want to continue (1/0):- 0

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Process exited after 38.92 seconds with return value 0
Press any key to continue . . .
*/

```