Assignment no: 11

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

```
#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!! Parenthesis Checker..!!!!" << 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 parenthesised...\n";
    }
    else
    {
        cout<<"\nSorry !!! Invalid Expression or not in well parenthesized....\n";
    }
    return 0;
}
```

--------------------------------OUTPUT------------------------------

```
 !! Parenthesis Checker..!!!!

Enter the expression to check whether it is in well form or not :  (Sanket_Jadhav@012)

Expression is well parenthesised...
```