ASSIGNMENT - 5

```
//Sahil Badve, PRN: B24CE1114, Batch - C, SY.B-TECH-2
/*Implement C++ program for  infix to postfix conversion using stack */

#include <iostream>
#include <cstring>
#include <string>
#define N 10
using namespace std;
class stack
{
        public:
 char arr[10];
 string ex;
 int top;
        stack()
        {
        top=-1;
        }
        void push(char c)
        {
        if(top==(N-1))
        {cout<<"stack overflow";}
        else{top+=1;
        arr[top]=c;}
        }
        char pop()
        {   char c= ' ';
        if(top==-1)
        {//cout<<"Stack underflow";
        }
        else
        {
        c=arr[top];
        top --;
```

```
        }
        return c;
        }
        int precedence(char opr){
        if (opr=='*' || opr=='/')
        return 2;
        if (opr=='+' || opr=='-')
        return 1;
        if(opr=='(')  return 0;
        }
        char associativity(char opr){
        if (opr=='*' || opr=='/'||opr=='+' || opr=='-')
        return 'L';
        else
        return 'R';
        }
        char peek(){return arr[top]; }
        string InfixToPostfixConversion(string ex);
};

string stack::InfixToPostfixConversion(string ex){
        int l=ex.length();
        int i=0,j=0;
        char op_exp[20];
        char ch,ch1;
        while(i<l){

        //cout<<ex[i];
        if(ex[i]=='+' ||ex[i]=='-'||ex[i]=='*' || ex[i]=='/'){

        if(top==-1) push(ex[i]);
        else{
                ch=peek();
                //if(ch== ' ')
                while(precedence(ex[i])<=precedence(ch)){
                ch1=pop();
                op_exp[j++]=ch1;
```

```
            ch=peek();
        }
        push(ex[i]);
        }
        }
        else if(ex[i]=='(')
        push(ex[i]);
        else if(ex[i]==')'){
        ch1=pop();
        while(ch1!='('){
        op_exp[j++]=ch1;
        ch1=pop();
        }
        }
        else  {
        op_exp[j++]=ex[i];
        // var++;
        }
        i++;

        }
        do{
        ch=pop();
        op_exp[j++]=ch;
        }while(ch!=' ');
        op_exp[j]='\0';
        return op_exp;

        }

int main() {
 stack s;
 string ex;
 cout<<"\n Enter an expression:";
 cin>>ex;
 string op_exp=s.InfixToPostfixConversion(ex);
 cout<<"\n Postfix Expression is: "<<op_exp;
```

```
 return 0;
 }
```

output:

```
Enter an expression:a+b*c/d
Postfix Expression is: abc*d/+
Enter an expression:a+b*(c-d-e)*(f+g*h)-i
Postfix Expression is: abcd-e-*fgh*+*+i-
```