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SE-C Comp, Viit, Pune

Title-Implement an infix to postfix expression conversion code.

CODE:

The Code is divided into 3 file-

- 1) *Stack.cpp,*
 - 2) *queue.cpp,*
 - 3) *sdl_ass6_postfix.cpp-UI File*
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UI File-

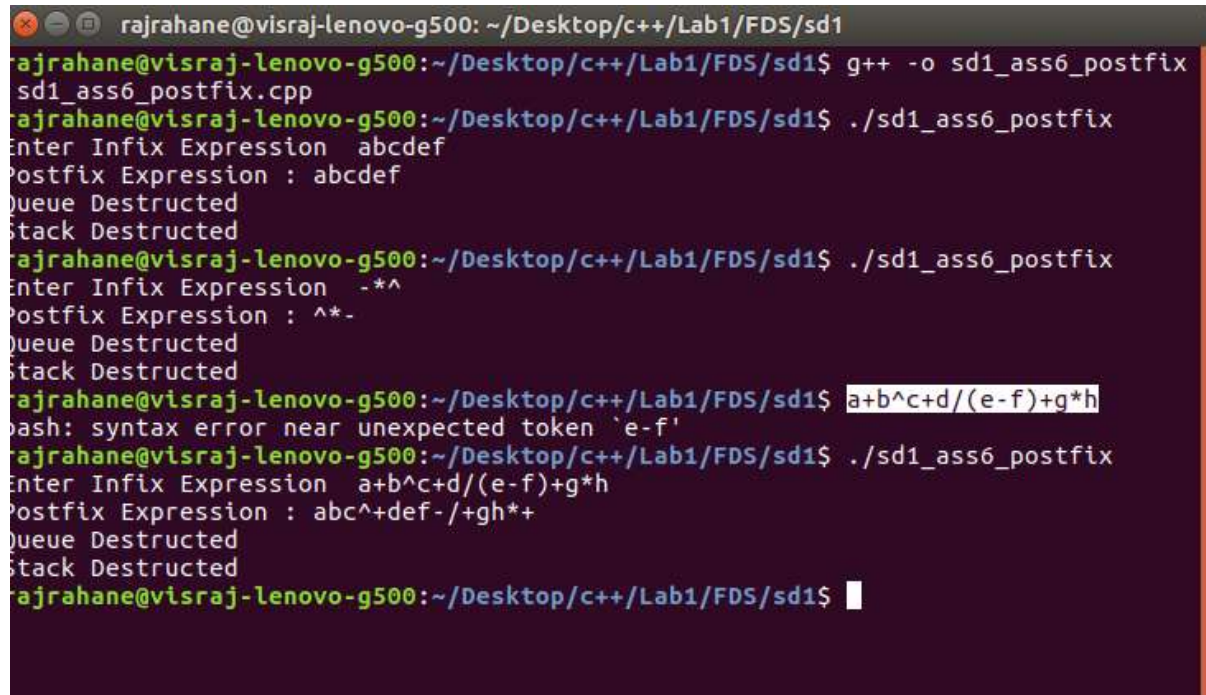
```
/*
 * @RajvaibhavRahane
 */
/*
 * Program to convert Expression from Infix to Postfix
 * Application of classes Stack and Queue
 */
#include <iostream>
#include "queue.cpp"
#include "stack.cpp"
using namespace std;
int priorityOfOperator(char op){
    switch(op)
    {
        case '#': return 0;
        case '(': return 1;
        case ')': return 1;
        case '+': return 2;
        case '-': return 2;
        case '*':
            case '%':
        case '/': return 3;
        case '^': return 4;
    }
}
int main(){
    string infixExpression;
    char inFixI;
    cout << "Enter Infix Expression\t"; cin >> infixExpression;
    Stack<char> operatorsStack(infixExpression.length());
    Queue<char> postfixExpression(infixExpression.length());
    //operatorsStack.push('#');
    for(int i=0; infixExpression[i]!='\0'; i++){
        inFixI=infixExpression[i];
        if(isalnum(inFixI)){
            postfixExpression.enqueue(inFixI);
        } else if(inFixI=='('){
            operatorsStack.push(inFixI);
        } else if(inFixI==')'){
            while(operatorsStack.peek()!='('){
                postfixExpression.enqueue(operatorsStack.pop());
            }
            inFixI=operatorsStack.pop(); //pop '(' in inFixI
        } else{
            while(!operatorsStack.isEmpty() &&
                priorityOfOperator(inFixI) <= priorityOfOperator(operatorsStack.peek())){
                postfixExpression.enqueue(operatorsStack.pop());
            }
            operatorsStack.push(inFixI);
        }
    }
}
```

```

while(!operatorsStack.isEmpty()){
    postfixExpression.enqueue(operatorsStack.pop());
}
string separator="";
cout<<"Postfix Expression : ";postfixExpression.printQueue(separator);
return 0;
}

```

Output:



```

rajrahane@visraj-lenovo-g500: ~/Desktop/c++/Lab1/FDS/sd1
rajrahane@visraj-lenovo-g500:~/Desktop/c++/Lab1/FDS/sd1$ g++ -o sd1_ass6_postfix sd1_ass6_postfix.cpp
rajrahane@visraj-lenovo-g500:~/Desktop/c++/Lab1/FDS/sd1$ ./sd1_ass6_postfix
Enter Infix Expression abcdef
Postfix Expression : abcdef
Queue Destructed
Stack Destructed
rajrahane@visraj-lenovo-g500:~/Desktop/c++/Lab1/FDS/sd1$ ./sd1_ass6_postfix
Enter Infix Expression -*^
Postfix Expression : ^*-
Queue Destructed
Stack Destructed
rajrahane@visraj-lenovo-g500:~/Desktop/c++/Lab1/FDS/sd1$ a+b^c+d/(e-f)+g*h
bash: syntax error near unexpected token `e-f'
rajrahane@visraj-lenovo-g500:~/Desktop/c++/Lab1/FDS/sd1$ ./sd1_ass6_postfix
Enter Infix Expression a+b^c+d/(e-f)+g*h
Postfix Expression : abc^+def-/ +gh*+
Queue Destructed
Stack Destructed
rajrahane@visraj-lenovo-g500:~/Desktop/c++/Lab1/FDS/sd1$ 

```