Practical – 8

Aim: Write a program to implement LZ77 algorithm.

```cpp
#include<iostream>
using namespace std;
int main(){
        int w=0,sb=0,lab=0,x=0,o=0,i=0,j=0,y=0,q=0;
        cout<<"Enter the size of window: ";
        cin>>w;
        cout<<endl<<"Enter the size of search buffer: ";
        cin>>sb;
        lab=w-sb;
        cout<<endl<<"Enter the total char in sequence: ";
        cin>>x;
        char ch[x+1],W[w+1]="";
        cout<<"Enter the char in sequence:\n";
        for(i=1;i<=x;i++)
                cin>>ch[i];
        for(i=sb+1,j=1;i<=w;i++,j++)
                W[i]=ch[j];
        int con=0,len=0,pos=0;
        char *p;
        for(i=1;i<=x;i++){
                con=0,len=0,pos=0;
                for(o=sb;o>0;o--){
                        if(W[o]==W[sb+1]){
                                p=&W[sb+1];
                        con=1;
                        p++;
                        for( y=o+1;y<=w;y++){
                                if(W[y]==*p){
                                        con++;
                                        p++;
                                }
                                else
                                        break;
                        }
                        if(len<con){
                                len=con;
                                pos=o;
                        }
                }
        }
        if(con==0){
                cout<<"<0,0,c("<<W[sb+1]<<")>\n";
```

```
                for( q=1;q<w;q++){
                        W[q]=W[q+1] ;
                }
                W[q]=ch[j];
                j++;
        }
        else{
                for(int q=1;q<=w;q++){
                        if(q+len+1<=x){
                                W[q]=ch[q+len+1];
                        }
                        else{
                                W[q]='\0';
                        }
                }
                cout<<"<"<<pos<<","<<len<<","<<"c("<<W[sb]<<")>\n";
        }
        if(W[sb+1]=='\0'){
                break;
        }
    }
    return 0;
}
```

Output:

```
Enter the size of search buffer: 3

Enter the total char in sequence: 9
Enter the char in sequence:
a
b
c
r
a
b
r
c
c
<0,0,c(a)>
<0,0,c(b)>
<0,0,c(c)>
<0,0,c(r)>
<0,0,c(a)>
<0,0,c(b)>
<1,1,c(a)>
<0,0,c(b)>
<1,1,c(a)>

Process returned 0 (0x0)    execution time : 31.560 s
Press any key to continue.
```