**Roll No- 82**

**Assignment No:-**

**Assignment Name:- Write a Program to find longest Common Subsequence.**

#include<iostream.h>

#include<conio.h>

#include<stdlib.h>

#include<string.h>

class STRING

{

private:

char stk[10],str1[50],str2[50],B[20][20];

int top,m, n,C[20][20];

//int n,A[10][10];

public:

STRING();

void READ\_STRING();

void SHOW\_STRING();

void LCS\_LENGTH();

void LCS\_PRINT();

};

STRING::STRING()

{

top=0;

}

void STRING::READ\_STRING()

{

cout<<"\nEnter first string : ";

cin>>str1;

m=strlen(str1)-1;

cout<<"\nEnter 2nd string : ";

cin>>str2;

n=strlen(str2)-1;

}

void STRING::SHOW\_STRING()

{

cout<<endl;

cout<<str1;

cout<<endl;

cout<<str2;

}

void STRING::LCS\_LENGTH()

{

for(int i=0;i<=n;i++)

C[0][i]=0;

for(i=0;i<=m;i++)

C[i][0]=0;

//----------------------

for(i=1;i<=m;i++)

{

cout<<endl;

for(int j=1;j<=n;j++)

{

if(str1[i]==str2[j])

{

C[i][j] = C[i-1][j-1] + 1;

B[i][j] = '\\';

}

else

if(C[i-1][j] >= C[i][j-1])

{

C[i][j]=C[i-1][j];

B[i][j] = '|';

}

else

{

C[i][j]=C[i][j-1];

B[i][j] = '-';

}

cout<<B[i][j]<<" ";

}

}

}

void STRING::LCS\_PRINT()

{

for(int i=m;i>=1;i--) //rows

for(int j=n;j>=1;j--)//column

{

if(B[i][j]=='\\')

{

top=top+1;

stk[top]=str1[i];

i=i-1;

}

else

if(B[i][j]=='|')

i=i-1;

}

for(i=top;i>=1;i--)

cout<<stk[i]<<" ";

}

void main()

{

clrscr();

STRING obj;

obj.READ\_STRING();

obj.SHOW\_STRING();

obj.LCS\_LENGTH();

obj.LCS\_PRINT();

getch();

}