**Program No.:-4**

**AIM: Write a program to find the longest common subsequence amongst given 2 sequences.**

**Source Code:**

#include<stdio.h>

#include<conio.h>

#include<string.h>

char x[20],y[20],b[10][10];

int c[10][10],m,n;

void lcs\_length()

{

int i=0,j=0;

m=strlen(x);

printf("lenth of first string :");

printf("%d\n",m);

n=strlen(y);

printf("length of second string:");

printf("%d\n",n);

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

c[i][-1]=0;

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

c[-1][j]=0;

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

{

for(j=0;j<n;j++)

{

if(x[i]==y[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]='-';

}

}

}

}

printf("\nthe C table for lcs is given as:\n");

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

{

for(j=0;j<n;j++)

printf("%d\t",c[i][j]);

printf("\n");

}

printf("\nthe B table for lcs is given as:\n");

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

{

for(j=0;j<n;j++)

printf("%c\t",b[i][j]);

printf("\n");

}

}

int print\_lcs(int i,int j)

{

if(i==-1 || j==-1)

return 0;

if(b[i][j]=='/')

{

print\_lcs(i-1,j-1);

printf("%c",x[i]);

}

else

{

if(b[i][j]=='+')

print\_lcs(i-1,j);

else

print\_lcs(i,j-1);

}

}

int main()

{

int i,j;

clrscr();

printf("enter first string");

gets(x);

printf("enter second string");

gets(y);

lcs\_length();

printf("\n the longest common subsequence from above two string is given as:");

print\_lcs(m-1,n-1);

getch();

}

**Output:** 