**// Program 07**: Write and execute a program to find a longest-common-subsequence of X and Y using

dynamic programming for given two sequences X = {x1 ,x2 . . . . . xm }; Y = {y1 y2 . . . . .yn }

#include<stdio.h>

#include<string.h>

max( int a, int b)

{

if(a>b)

return a;

else

return b;

}

void main()

{

char x[100],y[100],lc[10];

int m,n,len,i,j;

printf(" Enter the first string \n");

gets(x);

printf(" Enter the second string \n");

gets(y);

m=strlen(x);

n=strlen(y);

lcs(x,y,m,n);

}

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

lcs(char x[100], char y[100], int m,int n)

{

int len,i,j,L[100][100];

Enter the first string

a b c d

Enter the second string

b d

: THE LCS is b d

char lc[100];

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

{

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

if(i==0 || j==0)

L[i][j]=0;

else

if(x[i-1] == y[j-1])

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

else

Enter the first string

B D C A B A

Enter the second string

A B C B D A B

: THE LCS is C B A

L[i][j] = max(L[i-1][j],L[i][j-1]);

}

printf(" LCS length is %d \n", L[m][n]);

len =L[m][n];

lc[len]='\0';

i=m;

j=n;

Enter the first string

A B C B D A B

Enter the second string

B D C A B A

: THE LCS is B D A B

while( i > 0 && j>0)

{

if(x[i-1] == y[j-1])

{

lc[len-1] = x[i-1];

i--;

j--;

len--;

}

else

if(L[i-1][j] > L[i][j-1])

i--;

else

j--;

}

// printf(": THE LCS is %s \n",lc);

}

OR

#include <stdio.h>

#include <string.h>

// Max Function

int max(int a, int b) {

return (a > b) ? a : b;

}

// LCS Function

void lcs(char x[100], char y[100], int m, int n) {

int len, i, j, l[100][100];

char lc[100];

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

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

if(i == 0 || j == 0)

l[i][j] = 0;

else if(x[i - 1] == y[j - 1])

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

else

l[i][j] = max(l[i - 1][j], l[i][j - 1]);

}

}

printf("LCS length is %d\n", l[m][n]);

// Build the LCS string

len = l[m][n];

lc[len] = '\0';

i = m;

j = n;

while(i > 0 && j > 0) {

if(x[i - 1] == y[j - 1]) {

lc[len - 1] = x[i - 1];

i--;

j--;

len--;

} else if(l[i - 1][j] > l[i][j - 1]) {

i--;

} else {

j--;

}

}

printf("The LCS is %s\n", lc);

}

// Main Program

int main() {

char x[100], y[100];

int m, n;

printf("Enter the first string:\n");

fgets(x, sizeof(x), stdin);

x[strcspn(x, "\n")] = '\0'; // Remove newline character

printf("Enter the second string:\n");

fgets(y, sizeof(y), stdin);

y[strcspn(y, "\n")] = '\0';

m = strlen(x);

n = strlen(y);

lcs(x, y, m, n);

return 0;

}