***Longest Common Subsequence (LCS):***

#include<stdio.h>

#include<string.h>

void lcs();

void print(int i,int j);

char str1[100],str2[100],strC[100][100];

int i,j,len1,len2,c[100][100],countLCS=0;

int main()

{

while(true)

{

printf("Enter 1st String : ");

gets(str1);

printf("Enter 2nd String : ");

gets(str2);

printf("\nThe Longest Common Subsequence is : ");

lcs();

print(len1,len2);

printf("\nThe Length of the Subsequence is : %d",countLCS);

printf("\n\n\n");

}

return 0;

}

void lcs()

{

len1=strlen(str1);

len2=strlen(str2);

for(i=0; i<=len1; i++)

{

c[i][0]=0;

}

for(j=0; j<=len2; j++)

{

c[0][j]=0;

}

for(i=1; i<=len1; i++)

{

for(j=1; j<=len2; j++)

{

if(str1[i-1]==str2[j-1])

{

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

strC[i][j]='c';

}

else if(c[i-1][j]>=c[i][j-1])

{

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

strC[i][j]='u';

}

else

{

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

strC[i][j]='l';

}

}

}

}

void print(int i,int j)

{

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

{

return;

}

if(strC[i][j]=='c')

{

print(i-1,j-1);

printf("%c",str1[i-1]);

countLCS++;

}

else if(strC[i][j]=='u')

{

print(i-1,j);

}

else

{

print(i,j-1);

}

}