

Program: Longest Common Subsequence

Code:

```
#include<stdio.h>

#include<string.h>

void print_lcs(char b[20][20],char X[],int i,int j)
{
    if (i==0 || j==0)
        return;

    if(b[i][j]=='D')
    {
        print_lcs(b,X,i-1,j-1);
        printf("%c",X[i-1]);
    }
    else if(b[i][j]=='U')
        print_lcs(b,X,i-1,j);
    else
        print_lcs(b,X,i,j-1);
}

int main()
{
    char s1[10],s2[10];
    int m,n,i,j;
    printf("Niyati's Code For LCS \n");
    printf("Input size of string 1: ");
    scanf("%d",&m);
    printf("Enter elements of string 1: ");
    scanf("%s",s1);

    printf("Input size of string 2: ");
```

```

scanf("%d",&n);

printf("Enter elements of string 2: ");

scanf("%s",s2);


char b[20][20];
int c[20][20];


for(j=0;j<n+1;j++)
{
    c[0][j]=0;
    b[0][j]='X';
}
for(i=0;i<m+1;i++)
{
    c[i][0]=0;
    b[i][0]='X';
}


for(i=1;i<=m;i++)
{
    for(j=1;j<=n;j++)
    {
        if (s1[i-1]==s2[j-1])
        {
            c[i][j]=c[i-1][j-1]+1;
            b[i][j]='D';
        }
        else
        {
            if (c[i-1][j] >= c[i][j-1])
            {

```

```

        c[i][j]=c[i-1][j];
        b[i][j]='U';
    }
    else
    {
        c[i][j]=c[i][j-1];
        b[i][j]='L';
    }
}
}

```

```

for(i=0;i<=m;i++)
{
    for(j=0;j<=n;j++)
    {
        printf("%d \t",c[i][j]);
    }
    printf("\n");
}

```

```

printf("FOR DIRECTION \n");
for(i=0;i<=m;i++)
{
    for(j=0;j<=n;j++)
    {
        printf("%c \t",b[i][j]);
    }
    printf("\n");
}
printf("The substring is: \n");

```

```
print_lcs(b,s1,m,n);  
return 0;  
}
```

OUTPUT:

Niyati's Code For LCS

Input size of string 1: 5

Enter elements of string 1: BACDB

Input size of string 2: 4

Enter elements of string 2: BDCB

0	0	0	0	0
---	---	---	---	---

0	1	1	1	1
---	---	---	---	---

0	1	1	1	1
---	---	---	---	---

0	1	1	2	2
---	---	---	---	---

0	1	2	2	2
---	---	---	---	---

0	1	2	2	3
---	---	---	---	---

FOR DIRECTION

X	X	X	X	X
---	---	---	---	---

X	D	L	L	D
---	---	---	---	---

X	U	U	U	U
---	---	---	---	---

X	U	U	D	L
---	---	---	---	---

X	U	D	U	U
---	---	---	---	---

X	D	U	U	D
---	---	---	---	---

The substring is:

BCB