

# Analysis Design of Algorithm

## Implement Longest Common Subsequence

Program:

```
import java.util.Scanner;

public class LongestCommonSubsequence
{
    int lcs( char[] X, char[] Y, int m, int n )
    {
        if (m == 0 || n == 0)
            return 0;
        if (X[m-1] == Y[n-1]) {
            return 1 + lcs(X, Y, m-1, n-1);
        }
        else{
            return max(lcs(X, Y, m, n-1), lcs(X, Y, m-1, n));
        }
    }

    int max(int a, int b)
```

```
{  
    return (a > b)? a : b;  
}  
  
public static void main(String[] args)  
{  
    LongestCommonSubsequence      Lcs      =      new  
LongestCommonSubsequence();  
    Scanner num = new Scanner(System.in);  
    System.out.println("\nGive the First string:\t");  
    String s1 = num.nextLine();  
    System.out.println("\nGive the Secound string:\t");  
    String s2 = num.nextLine();  
    char[] X=s1.toCharArray();  
    char[] Y=s2.toCharArray();  
    int m = X.length;  
    int n = Y.length;  
    System.out.println("\nLength of LCS is" + " "+  
        Lcs.lcs( X, Y, m, n ));  
}  
}
```

## Input/Output:

```
C:\WINDOWS\system32\cmd.exe

C:\Users\ARJUN VANKANI\clg\pr\java>javac LongestCommonSubsequence.java
C:\Users\ARJUN VANKANI\clg\pr\java>java LongestCommonSubsequence

Give the First string:
AEDFHR

Give the Secound string:
ABCDGH

Length of LCS is 3

C:\Users\ARJUN VANKANI\clg\pr\java>java LongestCommonSubsequence

Give the First string:
GTAB

Give the Secound string:
GTXAYB"

Length of LCS is 4

C:\Users\ARJUN VANKANI\clg\pr\java>java LongestCommonSubsequence

Give the First string:
abbdecf

Give the Secound string:
abdef

Length of LCS is 5

C:\Users\ARJUN VANKANI\clg\pr\java>
```