

# Longest Common Subsequence

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Problem Code	hw04a_lcs
Running Time Limit	1 sec
Memory Limit	16 mb

## Objective

- Be able to solve a problem using dynamic programming approach or better

## Introduction

Given a string  $S = "s_1s_2s_3, \dots, s_n"$ , a subsequence of  $S$  is a string derived from  $S$  by deleting some elements without changing the order of the element. For example, " $s_2s_4s_n$ " is a subsequence while " $s_3s_1s_2$ " is not. A longest common subsequence of two strings  $S$  and  $T$  is a longest string that is a subsequence of both  $S$  and  $T$ .

## Task

Your task is to identify the length of the longest common subsequence of two given strings.

## Input

The first line contains the string  $S$  while the second line contains the string  $T$ . Both  $S$  and  $T$  do not have any white space in them and are no longer than 500 characters.

## Output

The output must contain exactly one line giving the length of the longest common subsequence of  $S$  and  $T$ .

## Example

### Ex1

Input	Output
ACBDEGCEDBG BEGCFEUBK	6

The longest common subsequence is "BEGCEB"