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‹ Strings Challenges

Common Child 🔖

H by naonaonao

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Given two strings a and b of equal length, what's the longest string (S) that can be constructed such that it is a child of both?

A string x is said to be a child of a string y if x can be formed by deleting 0 or more characters from y.

For example, `ABCD` and `ABDC` has two children with maximum length 3, `ABC` and `ABD`. Note that we will not consider `ABCD` as a common child because `C` doesn't occur before `D` in the second string.

Input format

Two strings, a and b, with a newline separating them.

Constraints

All characters are upper cased and lie between ASCII values 65-90. The maximum length of the strings is 5000.

Output format

Length of string S.

Sample Input #0

```
HARRY
SALLY
```

Sample Output #0

```
2
```

The longest possible subset of characters that is possible by deleting zero or more characters from *HARRY* and *SALLY* is *AY*, whose length is 2.

Sample Input #1

```
AA
BB
```

Sample Output #1

```
0
```

AA and BB has no characters in common and hence the output is 0.

Sample Input #2

```
SHINCHAN
NOHARAAA
```

Sample Output #2

    3   **Loading...**

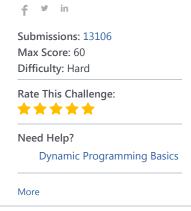The largest set of characters, in order, between *SHINCHAN* and *NOHARAAA* is *NHA*.

Sample Input #3

    ABCDEF
    FBDAMN

Sample Output #3

    2

BD is the longest child of these strings.

    f   ⅴ   in

Submissions: 13106
Max Score: 60
Difficulty: Hard

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★★★★★

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    Dynamic Programming Basics

More

Current Buffer (saved locally, editable) ⅄ ⟲   C#   ⤢   ⚙

```csharp
 1  using System;
 2  using System.Collections.Generic;
 3  using System.IO;
 4  class Solution {
 5      /* Returns length of LCS for X[0..m-1], Y[0..n-1] */
 6          static int lcs(string X, string Y, int m, int n)
 7          {
 8              int[,] L = new int[m + 1, n + 1];
 9              int i, j;
10
11              /* Following steps build L[m+1][n+1] in bottom up fashion. Note
12                 that L[i][j] contains length of LCS of X[0..i-1] and Y[0..j-1] */
13              for (i = 0; i <= m; i++)
14              {
15                  for (j = 0; j <= n; j++)
16                  {
17                      if (i == 0 || j == 0)
18                          L[i, j] = 0;
19
20                      else if (X[i - 1] == Y[j - 1])
21                          L[i, j] = L[i - 1, j - 1] + 1;
22
23                      else
24                          L[i, j] = Math.Max(L[i - 1, j], L[i, j - 1]);
25                  }
26              }
27
28              /* L[m][n] contains length of LCS for X[0..n-1] and Y[0..m-1] */
29              return L[m, n];
30          }
31
```

```
32          static void Main()
33          {
34              //string a = "SHINCHAN";
35              //string b = "NOHARAAA";
36                                              Loading...
37              string a = Console.ReadLine();
38              string b = Console.ReadLine();
39
40              Console.WriteLine(lcs(a, b, a.Length, b.Length));
41
42              Console.ReadLine();
43          }
44      }
```

Line: 43 Col: 10

⬆ Upload Code as File   ☐ Test against custom input   Run Code   Submit Code

Congrats, you solved this challenge!

✔ Test Case #0   ✔ Test Case #1   ✔ Test Case #2
✔ Test Case #3   ✔ Test Case #4   ✔ Test Case #5
✔ Test Case #6   ✔ Test Case #7   ✔ Test Case #8
✔ Test Case #9   ✔ Test Case #10   ✔ Test Case #11
✔ Test Case #12   ✔ Test Case #13

Next Challenge

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