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Practice > Algorithms > Strings > Common Child   73.88 more points to get your next star!   0%

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Common Child 🔖

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

- $1 \le |a|, |b| \le 5000$
- All characters are upper cased and lie between ASCII values 65-90.

Output format

Print the length of the longest string s, such that s is a child of both a and b.

Sample Input 0

```
HARRY
SALLY
```

Sample Output 0

```
2
```

The longest possible string 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
```

The longest string that can be formed between $SHINCHAN$ and $NOHARAAA$ while maintaining the order is NHA.

Sample Input 3

```
ABCDEF
FBDAMN
```

Sample Output 3

```
2
```

BD is the longest child of the given strings.

Medium   Submitted 19369 times
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Current Buffer (saved locally, editable) ⑂ ⏱   Java 8   ⌄   ⤢ ⚙

```java
1 ▾ import java.io.*;
2   import java.util.*;
3   import java.text.*;
4   import java.math.*;
5   import java.util.regex.*;
6
7 ▾ public class Solution {
8
9 ▾     static int commonChild(String s1, String s2, int alreadyMatched){
10 ▾        if ((s1.length() == 0) || (s2.length() == 0)) { return alreadyMatched; }
11
12          char c1 = s1.charAt(s1.length() - 1);
13          char c2 = s2.charAt(s2.length() - 1);
14
15 ▾        if (c1 == c2) {
16              return (commonChild(s1.substring(0, s1.length() - 1), s2.substring(0, s2.length() - 1),
    alreadyMatched + 1));
17 ▾        } else {
18              int s1_lcs = commonChild(s1, s2.substring(0, s2.length() - 1), alreadyMatched);
19              int s2_lcs = commonChild(s1.substring(0, s1.length() - 1), s2, alreadyMatched);
20              return Math.max(s1_lcs, s2_lcs);
21          }
22      }
23
24 ▾     public static void main(String[] args) {
25          Scanner in = new Scanner(System.in);
26          String s1 = in.next();
27          String s2 = in.next();
28          int result = commonChild(s1, s2, 0);
29          System.out.println(result);
30      }
31  }
32
```

Line: 32 Col: 1

☐ Test against custom input   Run Code   Submit Code

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```
MCB
MAC
```

Terminated due to timeout

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✔ 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

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