

CS23331-Design and Analysis of Algorithms-2023 Batch-CSE

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Started on	Wednesday, 20 November 2024, 2:57 AM
State	Finished
Completed on	Wednesday, 20 November 2024, 3:07 AM
Time taken	9 mins 58 secs
Marks	1.00/1.00
Grade	10.00 out of 10.00 (100%)

Question 1

Correct

Mark 1.00 out of 1.00

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Given two strings find the length of the common longest subsequence(need not be contiguous) between the two.

Example:

s1: ggtabe

s2: tgatasb

s1: a g g t a b

s2: g x t x a y b

The length is 4

Solving it using Dynamic Programming

For example:

Input	Result
aab	2
azb	

Answer: (penalty regime: 0 %)

```
1 #include <stdio.h>
2 #include <string.h>
3
4 int maxVal(int a, int b) {
5     return (a > b) ? a : b;
6 }
7
8 int longestCommonSubsequence(char *s1, char *s2) {
9     int m = strlen(s1);
10    int n = strlen(s2);
11    int dp[m + 1][n + 1];
12    for (int i = 0; i <= m; i++) {
13        for (int j = 0; j <= n; j++) {
14            if (i == 0 || j == 0) {
15                dp[i][j] = 0;
16            } else if (s1[i - 1] == s2[j - 1]) {
17                dp[i][j] = dp[i - 1][j - 1] + 1;
18            } else {
19                dp[i][j] = maxVal(dp[i - 1][j], dp[i][j - 1]);
20            }
21        }
22    }
23    return dp[m][n];
24 }
25
26 int main() {
27     char s1[100], s2[100];
28     scanf("%s", s1);
29     scanf("%s", s2);
30     int result = longestCommonSubsequence(s1, s2);
31     printf("%d\n", result);
32 }
33
34 return 0;
35 }
36
```

	Input	Expected	Got	
✓	aab	2	2	✓
	azb			
✓	ABCD	4	4	✓
	ABCD			

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

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→ 2-DP-Playing with chessboard

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4-DP-Longest non-decreasing Subsequence →