Dashboard / My courses / CS23331-DAA-2023-CSE / Dynamic Programming / 3-DP-Longest Common Subsequence

Started on	Tuesday, 29 October 2024, 2:05 PM
State	Finished
Completed on	Tuesday, 29 October 2024, 2:34 PM
Time taken	29 mins 55 secs
Marks	1.00/1.00
Grade	**10.00** out of 10.00 (**100**%)

Question **1**

Correct

Mark 1.00 out of 1.00

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

Solveing it using Dynamic Programming

For example:

Input	Result
aab azb	2

Answer: (penalty regime: 0 %)

```
#include <stdio.h>
#include <string.h>

int max(int a, int b) {
    return (a > b) ? a : b;
}

int lcs(char *S1, char *S2, int m, int n) {
    int dp[m + 1][n + 1];

    for (int i = 0; i <= m; i++) {
        for (int j = 0; j <= n; j++) {
            if (i == 0 || j == 0)
                dp[i][j] = 0;
            else if (S1[i - 1] == S2[j - 1])
                dp[i][j] = dp[i - 1][j - 1] + 1;
            else
                dp[i][j] = max(dp[i - 1][j], dp[i][j - 1]);
        }
    }

    return dp[m][n];
}

int main() {
    char S1[100], S2[100];

    scanf("%s", S1);

    scanf("%s", S2);

    int m = strlen(S1);
    int n = strlen(S2);

    printf("%d", lcs(S1, S2, m, n));

    return 0;
}
```

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

Passed all tests! ✓

Correct

Marks for this submission: 1.00/1.00.

◄ 2-DP-Playing with chessboard

Jump to...

4-DP-Longest non-decreasing Subsequence ►