Programming Assignment #1 : DP

Problem

Find the longest common subsequence (LCS) of two sequence $A_1 = (a_1, a_2, a_3, \ldots, a_m)$ and $B_1 = (b_1, b_2, b_3, \ldots, b_n)$ and output the answer $C_1 = (c_1, c_2, c_3, \ldots, c_k)$

Methods

Implement the programs according to **top-down** and **bottom-up** methods, respectively, report the number of times to check up look-up table

Input example

A_1 = <A, T, C, G, C, T, A, G>
B_1 = <G, T, A, G, C, T, A, C>

Executable command

LCS -t -b -f <input_filename> -o <output_filename>

◆   -t for top-down method
◆   -b for bottom-up method
◆   -f for file name
◆   -o for file name <input_filename.to or input_filename.bo for output filename in top-down or bottom-up method>

Output format

Run time: ?? s
Common sequence: <G, C, T, A>
Check up times: ?? s

Evaluation Score

The released four benchmarks and two hidden benchmarks will be used to evaluate score