## CS3000: Algorithms & Data — Summer 2025 — Laney Strange

APP 5 Due: May 29th, 2025 @ 11:30am via Gradescope

Name: Sample Solution

- APPs will be assigned towards the end of roughly two lectures each week. You'll put together a solution to a short problem that we'll all use in the following lecture. We'll have time set aside to do these in class, or you can work on your own.
- You may handwrite your solutions, or typeset them in LATEX or another system.
- APPs will be graded on completeness. They must be submitted by 11:30am (just before lecture) on the due date. They will not be accepted late, but we drop 3 of them (out of 8 total).
- Collaboration is strongly encouraged for APPs!

## Problem 1.

This problem refers to the DP algorithm we covered in class to find a Longest Common Subsequence. Draw the *c* table that would result from calling LCS-LENGTH on the sequences  $X = \langle N, E, N, T, H, O \rangle$ ,  $Y = \langle E, N, O, E, N, H \rangle$ . We've started the outline for you, below.

	$y_j$	E	N	0	E	N	H			
$x_i$	0	0	0	0	0	0	0			
N	0									
E	0									
N	0									
Т	0									
H	0									
0	0									
alution										

**Solution:** 

	$y_j$	E	N	0	E	N	H
$x_i$	0	0	0	0	0	0	0
N	0	0	1	1	1	1	1
E	0	1	1	1	2	2	2
N	0	1	2	2	2	3	3
T	0	1	2	2	2	3	3
H	0	1	2	2	2	3	4
0	0	1	2	3	3	3	4