3510 Homework 2.
Due: Friday, August 30 before 4pm EST via Gradescope.
Practice problems (don’t turn in):

1. [DPV] Problem 6.1 – Max sum of substring (we did it in class)
Problem 1  [DPV] 6.2 – Hotel stops with minimum penalty.

Only need to output the minimum penalty, not the hotel stops.

(a) Define the entries of your table in words. E.g., $T(i)$ or $T(i, j)$ is ....

(b) State recurrence for entries of table in terms of smaller subproblems, and briefly explain in words why it is correct.
(c) Write pseudocode for your algorithm to solve this problem.

(d) Analyze the running time of your algorithm.
Problem 2  [DPV] 6.3 – Yuckdonald’s

(a) Define the entries of your table in words. E.g., \( T(i) \) or \( T(i, j) \) is ....

(b) State recurrence for entries of table in terms of smaller subproblems, and briefly explain in words why it is correct.
(c) Write pseudocode for your algorithm to solve this problem.

(d) Analyze the running time of your algorithm.
Problem 3  [DPV] 6.4 part (a) – Reconstruct string of words

(a) Define the entries of your table in words. E.g., $T(i)$ or $T(i, j)$ is ....

(b) State recurrence for entries of table in terms of smaller subproblems, and briefly explain in words why it is correct.
(c) Write pseudocode for your algorithm to solve this problem.

(d) Analyze the running time of your algorithm.
(e) Part (b) of [DPV] 6.4.
If the string is valid give an algorithm that outputs a sequence of words that the string can be broken into. You can include the prev() array in your pseudocode in part (c) and then give here the additional pseudocode to output the solution.
Problem 4  [DPV] 6.26 – Sequence Alignment

Only need to output the highest score, not the actual alignment.

(a) Define the entries of your table in words. E.g., $T(i)$ or $T(i, j)$ is ....

(b) State recurrence for entries of table in terms of smaller subproblems, and briefly explain in words why it is correct.
(c) Write pseudocode for your algorithm to solve this problem.

(d) Analyze the running time of your algorithm.