Week 4: Individual Progress Report

URL to an existing puzzle

- https://leetcode.com/problems/container-with-most-water/description/
- The existing online puzzle does provide solutions to users.

Approach to produce the solution

- Brute-force approach: calculate the area created by all wall pairs.
- Two-pointer approach:
  - Start with two pointers, one at the beginning of the array and the other at the end.
  - Calculate the area formed by the current two pointers.
  - Move the pointer with the shorter height inward, as the area is limited by the shorter height. This is because increasing the distance between the two lines can only increase the area if the height of the shorter line increases.

Optimization and Time Complexity

- Brute-force approach: $O(n^2)$.
- Two-pointer approach: $O(n)$.

➡ Two-pointer approach is optimal because we only examine each wall in the wall list once. No backtracking or nested loop needed