11. Container With Most Water

You are given an integer array height of length n. There are n vertical lines drawn such that the two endpoints of the ith line are (i, 0) and (i, height[i]).

Find two lines that together with the x-axis form a container, such that the container contains the most water.

Return the maximum amount of water a container can store.

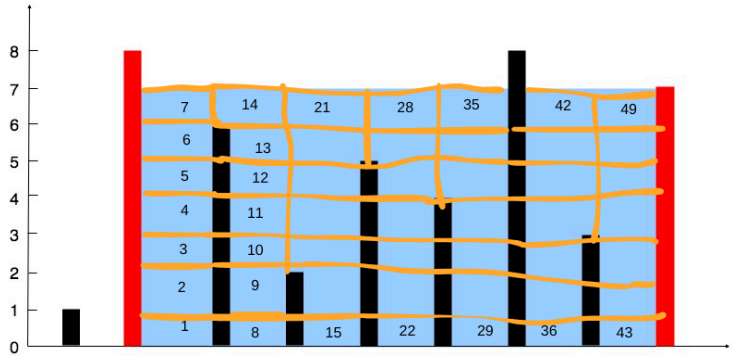
Notice that you may not slant the container.

Example 1:

Input: height = [1,8,6,2,5,4,8,3,7]

Output: 49

Explanation: The above vertical lines are represented by array [1,8,6,2,5,4,8,3,7]. In this case, the max area of water (blue section) the container can contain is 49.



Example 2:

Input: height = [1,1]

Output: 1

Constraints:

n == height.length

2 <= n <= 105

0 <= height[i] <= 104

Solution

https://leetcode.com/problems/container-with-most-water/solutions/5778065/java-solution

Logic

Water Capacity = bar height * (number of bars within the height limit - 1)

1. **Container 1**
    a. Bar height = 8
        i. Number of bars in height limit = 6 (Bar 2, 3, 4, 5, 6, 7)
            1. Total water capacity = 8 * (6 - 1)
                = 8 * 5 = 40

2. **Container 2**
    a. Bar height = 7
        i. Number of bars in height limit = 8 (Bar 2, 3, 4, 5, 6, 7, 8, 9)
            1. Total water capacity = 7 * (8 - 1)
                = 7 * 7 = 49

3. **Container 3**
    a. Bar height = 6
        i. Number of bars in height limit = 6 (Bar 2, 3, 4, 5, 6, 7)
            1. Total water capacity = 6 * (6 - 1)
                = 6 * 5 = 30

Most water capacity will be with bar height 7 which is 49