Week 14

Topic: Sorting

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347. Top K Frequent Elements

- Difficulty: Medium
- Problem URL: https://leetcode.com/problems/top-k-frequent-elements/
- Description:
  給定一個整數陣列 nums 和一個整數 k，請找出出現頻率最高的前 k 個元素。不需要對結果排序，但演算法的時間複雜度必須優於 O(n log n)。

Example1:

Input: nums = [1,1,1,2,2,3], k = 2
Output: [1,2]

Example2:

Input: nums = [1], k = 1
Output: [1]

詳細說明與約束條件請參考 Leetcode 網站。

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220. Contains Duplicate III

- Difficulty: Hard
- Problem URL: https://leetcode.com/problems/contains-duplicate-iii/
- Description:
  找出在一個整數陣列 nums 中，是否存在一對索引 (i, j)，滿足以下三個條件: (1) i != j，即兩個位置不同 (2) 兩個索引的距離不能超過 indexDiff (3) 兩個值的差不能超過 valueDiff。若滿足上述三個條件，回傳 true，否則回傳 false。

Example1:

Input: nums = [1,2,3,1], indexDiff = 3, valueDiff = 0
Output: true
Explanation:
We can choose (i, j) = (0, 3).
We satisfy the three conditions:
i != j --> 0 != 3
abs(i - j) <= indexDiff --> abs(0 - 3) <= 3
abs(nums[i] - nums[j]) <= valueDiff --> abs(1 - 1) <= 0

Example2:

Input: nums = [1,5,9,1,5,9], indexDiff = 2, valueDiff = 3
Output: false
Explanation:
After trying all the possible pairs (i, j), we cannot satisfy the three conditions, so we return false.

詳細說明與約束條件請參考 Leetcode 網站。

2071. Maximum Number of Tasks You Can Assign

- Difficulty: Hard
- Problem URL: https://leetcode.com/problems/maximum-number-of-tasks-you-can-assign/
- Description:
  給定有一批任務 「tasks」與一批工人「workers」每個任務需要一定的「strength」才能完成，而每位工人也各自有一個固定的「strength」。此外，還有一些藥丸「pills」，每顆藥丸可以提升一位工人的「strength」值，但每位工人最多只能吃一顆藥丸。每位工人最多只能執行一個任務，並只能執行其「strength」值大於或等於需求的任務。在給定的工人、任務、藥丸數量與藥效強度下，請找出最多可以分配的任務數量。

Example1:

Input: tasks = [3,2,1], workers = [0,3,3], pills = 1, strength = 1
Output: 3
Explanation:
We can assign the magical pill and tasks as follows:
- Give the magical pill to worker 0.
- Assign worker 0 to task 2 (0 + 1 >= 1)
- Assign worker 1 to task 1 (3 >= 2)
- Assign worker 2 to task 0 (3 >= 3)

Example2:

Input: tasks = [5,4], workers = [0,0,0], pills = 1, strength = 5
Output: 1
Explanation:
We can assign the magical pill and tasks as follows:
- Give the magical pill to worker 0.
- Assign worker 0 to task 0 (0 + 5 >= 5)

詳細說明與約束條件請參考 Leetcode 網站。
