

Week 2

Topic: Greedy algorithm

45. Jump Game II

- Difficulty: Medium
- Problem URL: <https://leetcode.com/problems/jump-game-ii>
- Description:
取得一個 array 數組 `nums`，每個元素 `nums[i]` 代表你最多可以往後跳的步數。一開始從 `nums[0]` 出發，目標是用最少的跳躍次數到達最後一個元素 `nums[n-1]`。保證一定能到達終點，請找出最少需要幾步才能抵達。

Example:

Input: `nums = [2,3,1,1,4]`

Output: 2

Explanation: The minimum number of jumps to reach the last index is 2. Jump 1 step from index 0 to 1, then 3 steps to the last index.

詳細說明與約束條件請參考 *Leetcode* 網站。

2366. Minimum Replacements to Sort the Array

- Difficulty: Hard
- Problem URL: <https://leetcode.com/problems/minimum-replacements-to-sort-the-array>
- Description:
取得一個 array 數組 `nums`，每次操作可以將一個元素拆分成兩個和相等的數。目標是讓數組變成非遞減順序，請求出最少需要幾次操作才能達成。

Example

Input: `nums = [3,9,3]`

Output: 2

Explanation:

Here are the steps to sort the array in non-decreasing order:

From `[3,9,3]`, replace the 9 with 3 and 6 so the array becomes `[3,3,6,3]`

From `[3,3,6,3]`, replace the 6 with 3 and 3 so the array becomes `[3,3,3,3,3]`

There are 2 steps to sort the array in non-decreasing order. Therefore, we return 2.

詳細說明與約束條件請參考 *Leetcode* 網站。

765. Couples Holding Hands

- Difficulty: Hard
- Problem URL: <https://leetcode.com/problems/couples-holding-hands>
- Description:

有 n 對情侶坐在 $2n$ 個座位上，座位按一排排列， $row[i]$ 代表坐在第 i 個座位上的人的編號。每對情侶的編號是 $(0,1), (2,3), (4,5) \dots$ 為一組，但座位上的順序是混亂的。

目標是讓所有情侶都坐在一起，每次操作可以交換任意兩個人的座位，請計算最少需要多少次交換才能達成目標。

Example1:

Input: row = [0,2,1,3]

Output: 1

Explanation: We only need to swap the second (row[1]) and third (row[2]) person.

Example2:

Input: row = [3,2,0,1]

Output: 0

Explanation: All couples are already seated side by side.

詳細說明與約束條件請參考 *Leetcode* 網站。