

# 2023-05-21 - Handout – Two Pointers

## Q1. Index of Maximum Length Sequence of Continuous Ones

Link: <https://www.techiedelight.com/find-index-0-replaced-get-maximum-length-sequence-of-continuous-ones/>

Given a binary array, find the index of 0 to be replaced with 1 to get the maximum length sequence of continuous ones. The solution should return the index of first occurrence of 0, when multiple continuous sequence of maximum length is possible.

Input: [0, 0, 1, 0, 1, 1, 1, 0, 1, 1]

Output: 7

Explanation: Replace index 7 to get the continuous sequence of length 6 containing all 1's.

Input: [0, 1, 1, 0, 0]

Output: 0

Explanation: Replace index 0 or 3 to get the continuous sequence of length 3 containing all 1's. The solution should return the first occurrence.

Input: [1, 1]

Output: -1

Explanation: Invalid Input (all 1's)

Constraints:

$1 \leq \text{nums.length} \leq 10^5$

nums[i] is either 0 or 1

## Q2. Max Consecutive Ones II

Link: <https://leetcode.com/problems/max-consecutive-ones-ii/>

Given a binary array nums, return the maximum number of consecutive 1's in the array if you can flip at most one 0.

Input: nums = [1,0,1,1,0]

Output: 4

Explanation:

- If we flip the first zero, nums becomes [1,1,1,1,0] and we have 4 consecutive ones.

- If we flip the second zero, nums becomes [1,0,1,1,1] and we have 3 consecutive ones.

The max number of consecutive ones is 4.

Example 2:

Input: nums = [1,0,1,1,0,1]

Output: 4

Constraints:

$1 \leq \text{nums.length} \leq 10^5$

nums[i] is either 0 or 1.

### Q3. Longest Palindromic Substring

Link: <https://leetcode.com/problems/longest-palindromic-substring/description/>

Given a string *s*, return the longest palindromic substring in *s*.

Example 1:

Input: *s* = "babad"

Output: "bab"

Explanation: "aba" is also a valid answer.

Example 2:

Input: *s* = "cbbd"

Output: "bb"

Constraints:

$1 \leq s.length \leq 1000$

*s* consists of only digits and English letter

### Q4. Candy

Link: <https://leetcode.com/problems/candy/>

There are *n* children standing in a line. Each child is assigned a rating value given in the integer array *ratings*. You are giving candies to these children subjected to the following requirements:

Each child must have at least one candy.

Children with a higher rating get more candies than their neighbors.

Return the minimum number of candies you need to have to distribute the candies to the children.

Example 1:

Input: *ratings* = [1,0,2]

Output: 5

Explanation: You can allocate to the first, second and third child with 2, 1, 2 candies respectively.

Example 2:

Input: *ratings* = [1,2,2]

Output: 4

Explanation: You can allocate to the first, second and third child with 1, 2, 1 candies respectively.

The third child gets 1 candy because it satisfies the above two conditions.

Constraints:

$n == ratings.length$

$1 \leq n \leq 2 * 10^4$

$0 \leq ratings[i] \leq 2 * 10^4$