2020 02 01 - Sliding Window

Q1. Max Consecutive Ones

Link: https://leetcode.com/problems/max-consecutive-ones-iii/

Given an array A of 0s and 1s, we may change up to K values from 0 to 1.
Return the length of the longest (contiguous) subarray that contains only 1s.

Example 1:   Example 2:

```
Input: A = [1,1,1,0,0,0,1,1,1,1,0], K = 2
Output: 6
Explanation:
[1,1,1,0,0,1,1,1,1,1,1]
Bolded numbers were flipped from 0 to 1.  The longest
subarray is underlined.
```

```
Input: A = [0,0,1,1,0,0,1,1,1,0,1,1,0,0,0,1,1,1,1], K = 3
Output: 10
Explanation:
[0,0,1,1,1,1,1,1,1,1,1,1,0,0,0,1,1,1,1]
Bolded numbers were flipped from 0 to 1.  The longest
subarray is underlined.
```

Note:

i) 1 <= A.length <= 20000   ii) 0 <= K <= A.length

Q2. Longest Substring with At Most Two Distinct Characters

Link:https://leetcode.com/problems/longest-substring-with-at-most-two-distinct-characters/

Given a string **s**, find the length of the longest substring **t** that contains **at most** 2 distinct characters.

Below are a couple of examples:

```
Input: "eceba"
Output: 3
Explanation: t is "ece" which its length is 3.
```

```
Input: "ccaabbb"
Output: 5
Explanation: t is "aabbb" which its length is 5.
```

Q3. Trapping Rain Water

Link: https://leetcode.com/problems/trapping-rain-water/

Given n non-negative integers representing an elevation map where the width
of each bar is 1, compute how much water it is able to trap after raining.

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Example:

```
Input: [0,1,0,2,1,0,1,3,2,1,2,1]
Output: 6
```


The above elevation map is represented by array [0,1,0,2,1,0,1,3,2,1,2,1]. In this case, 6 units of rain water (blue section) are being trapped. **Thanks Marcos** for contributing this image!

Q4. Permutation in String

Link: https://leetcode.com/problems/permutation-in-string/

Given two strings s1 and s2, write a function to return true if s2 contains the permutation of s1. In other words, one of the first string's permutations is the substring of the second string.

Example 1
```
Input: s1 = "ab" s2 = "eidbaooo"
Output: True
Explanation: s2 contains one permutation of s1 ("ba").
```

Example 2
```
Input:s1= "ab" s2 = "eidboaoo"
Output: False
```