P1) Given an array of positive integers nums and a positive integer target, return the minimal length of a **contiguous subarray** [numsl, numsl+1, ..., numsr-1, numsr] of which the sum is greater than or equal to target. If there is no such subarray, return 0 instead.

**Example 1:**

**Input:** target = 7, nums = [2,3,1,2,4,3]

**Output:** 2

**Explanation:** The subarray [4,3] has the minimal length under the problem constraint.

P2) Given a string s, find the length of the longest substring without repeating characters.

Example 1:

Input: s = "abcabcbb"

Output: 3

Explanation: The answer is "abc", with the length of 3.

P3) Given an array of integers nums and an integer k, return the number of unique k-diff pairs in the array. A k-diff pair is an integer pair (nums[i], nums[j]), where the following are true:

* 0 <= i, j < nums.length
* i != j
* |nums[i] - nums[j]| == k

**Notice** that |val| denotes the absolute value of val.

 Example 1:

**Input:** nums = [3,1,4,1,5], k = 2

**Output:** 2

**Explanation:** There are two 2-diff pairs in the array, (1, 3) and (3, 5).

Although we have two 1s in the input, we should only return the number of **unique** pairs.

P4) Given an array nums, write a function to move all 0's to the end of it while maintaining the relative order of the non-zero elements.

**Example:**

**Input:** [0,1,0,3,12]

**Output:** [1,3,12,0,0]

P5) Given two arrays, write a function to compute their intersection.

**Example 1:**

**Input:** nums1 = [1,2,2,1], nums2 = [2,2]

**Output:** [2]

P6) Write a function that takes a string as input and reverse only the vowels of a string.

**Example 1:**

**Input:** "hello"

**Output:** "holle"

P7) Given an array nums of integers and integer k, return the maximum sum such that there exists i < j with nums[i] + nums[j] = sum and sum < k. If no i, j exist satisfying this equation, return -1.

**Example 1:**

**Input:** nums = [34,23,1,24,75,33,54,8], k = 60

**Output:** 58

**Explanation:** We can use 34 and 24 to sum 58 which is less than 60.