Question 1

Implement pow(x, n), which calculates x raised to the power n (i.e., x^n).

Example 1:

Input: x = 2.00000, n = 10
Output: 1024.00000

Solution:
Java: https://pastebin.com/ZXPjuVa4
Python: https://pastebin.com/4kvtricN
Javascript: https://pastebin.com/4vc1NVtb

TC : O(log n)
SC : O(1)

Question 2

A permutation of an array of integers is an arrangement of its members into a sequence or linear order.

- **For example, for arr = [1,2,3], the following are all the permutations of arr: [1,2,3], [1,3,2], [2, 1, 3], [2, 3, 1], [3,1,2], [3,2,1].**

The next permutation of an array of integers is the next lexicographically greater permutation of its integer. More formally, if all the permutations of the array are sorted in one container according to their lexicographical order, then the next permutation of that array is the permutation that follows it in the sorted container. If such arrangement is not possible, the array must be rearranged as the lowest possible order (i.e., sorted in ascending order).

- **For example, the next permutation of arr = [1,2,3] is [1,3,2].**
- **Similarly, the next permutation of arr = [2,3,1] is [3,1,2].**
- **While the next permutation of arr = [3,2,1] is [1,2,3] because [3,2,1] does not have a lexicographical larger rearrangement.**

Given an array of integers nums, *find the next permutation of* nums.

The replacement must be in place and use only constant extra memory.

Example 1:

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

Solution:
Java: https://pastebin.com/nLzxkvuG
Python: https://pastebin.com/ek8hzxWL
Javascript: https://pastebin.com/bW6aeZFT

Time complexity: *O*(*n*). In worst case, only two scans of the whole array are needed.

Space complexity: *O*(1). No extra space is used. In place replacements are done.

Question 3

Given an array arr[] of distinct elements size N that is sorted and then around an unknown point, the task is to check if the array has a pair with a given sum X.
Examples :

Input: arr[] = {11, 15, 6, 8, 9, 10}, X = 16
Output: true
Explanation: There is a pair (6, 10) with sum 16

Solution:
Java: https://pastebin.com/Qiwq93mT
Python: https://pastebin.com/uXaUAuS5
Javascript: https://pastebin.com/dP7iFnsB

Time Complexity: O(n), where n is the length of the input array.

Space Complexity: O(1).

Question 4

Given an array nums with n objects colored red, white, or blue, sort them in-place so that objects of the same color are adjacent, with the colors in the order red, white, and blue.
We will use the integers 0, 1, and 2 to represent the color red, white, and blue, respectively.

You must solve this problem without using the library's sort function.

Example 1:

Input: nums = [2,0,2,1,1,0]
Output: [0,0,1,1,2,2]

Solution:
Java: https://pastebin.com/1Ww9Ayva
Python: https://pastebin.com/hU0cv236
Javascript: https://pastebin.com/46w0pjc3

TC : O(n)
SC : O(1)

Question 5

Given an integer array nums, rotate the array to the right by k steps, where k is non-negative.
Example 1:

Input: nums = [1,2,3,4,5,6,7], k = 3
Output: [5,6,7,1,2,3,4]
Explanation:
rotate 1 steps to the right: [7,1,2,3,4,5,6]
rotate 2 steps to the right: [6,7,1,2,3,4,5]
rotate 3 steps to the right: [5,6,7,1,2,3,4]

Solution:
Java: https://pastebin.com/A2946y15
Python: https://pastebin.com/sKMwrVD7

Javascript: https://pastebin.com/JRePFGWE

TC: O(n)
SC: O(1)

Question 6

Given a binary array nums, return *the maximum number of consecutive 1's in the array*.
Example 1:

Input: nums = [1,1,0,1,1,1]
Output: 3
Explanation: The first two digits or the last three digits are consecutive 1s. The maximum number of consecutive 1s is 3.

Solution:
Java: https://pastebin.com/efc2VPCa
Python: https://pastebin.com/TniaKBBH
Javascript: https://pastebin.com/Wxaj7wut

TC : O(n)
SC : O(1)
