Critical Problem Solving
Assignment-3 (Sorting, Searching, Recursion)

Week-3

1. ***Leetcode_215***

Given an integer array nums and an integer k, return the kth largest element in the array. Note that it is the k^{th} largest element in the sorted order, not the k^{th} distinct element. Can you solve it without sorting?

2. **Leetcode_268**

Given an array nums containing n distinct numbers in the range [0, n], return *the only number in the range that is missing from the array.*

3. ***Leetcode_441***

You have n coins and you want to build a staircase with these coins. The staircase consists of k rows where the ith row has exactly i coins. The last row of the staircase may be incomplete.

4. ***Leetcode_704***

Given an array of integers nums which is sorted in ascending order, and an integer target, write a function to search target in nums. If target exists, then return its index. Otherwise, return -1. You must write an algorithm with O(log n) runtime complexity.

5. ***Leetcode_744***

You are given an array of characters letters that is sorted in non-decreasing order, and a character target. There are at least two different characters in letters. Return the smallest character in letters that is lexicographically greater than target. If such a character does not exist, return the first character in letters.

6. ***Leetcode_747***

You are given an integer array nums where the largest integer is unique. Determine whether the largest element in the array is at least twice as much as every other number in the array. If it is, return the index of the largest element, or return -1 otherwise.

7. ***Leetcode_922***

Given an array of integers nums, half of the integers in nums are odd, and the other half are even. Sort the array so that whenever nums[i] is odd, i is odd, and whenever nums[i] is even, i is even. Return any answer array that satisfies this condition.

8. ***Leetcode_976***

Given an integer array nums, return the largest perimeter of a triangle with a non-zero area, formed from three of these lengths. If it is impossible to form any triangle of a non-zero area, return 0.