Problemset: Sorting Algorithms

1. Find the kth smallest element from an array.

Input	Output
a = [6,5,1,3,4], k = 2	3
a = [7,9,1,8,2] , k = 4	8

2. Find the median from an array.

Input	Output
a = [5,2,1,4,7]	4
a = [11,9,17,15]	13

3. Find the smallest difference of elements from an array.

Input	Output
a = [15,7,2,12,13]	1
a = [2,13,11,19,5]	2

4. Sort an array by absolute value in ascending order.

Input	Output
a = [-10, 5, -3, 7, -2]	[-2, -3, 5, 7, -10]

5. Sort an Array of Strings according to length.

Input	Output
a = ["apple", "bat", "carrot", "dog"]	["bat", "dog", "apple", "carrot"]

6. Sort odd indexed elements of an array in descending order and even indexed elements in ascending order.

Input	Output
a = [16,17,4,18,1,20,5,12]	[1,20,4,18,5,17,16,12]
a = [4,3,2,1]	[2,3 ,4,1]

7. Find the Longest Consecutive Subsequence after sorting an array.

Input	Output
a = [1, 9, 3, 10, 4, 20, 2]	4
a = [3,1]	1

8. Sort an array based on the frequency of its elements. If two elements have the same frequency, sort them in ascending order.

Input	Output
a = [4, 3, 1, 6, 1, 3, 4, 4]	[4, 4, 4, 1, 1, 3, 3, 6]

9. You are given two arrays a and b. Merge a and b into a single array sorted in non-decreasing order.

Input	Output
a = [1,16,13,14,4] b = [15,12,5,3,7]	[1,3,4,5,7,12,13,14,15,16]

10. You are given a list of tasks, where each task is represented as (StartTime, FinishTime). The goal is to sort the tasks based on their durations (calculated as FinishTime - StartTime) in ascending order.

Input	Output
[(2, 5), (1, 2), (4, 6)]	[(1, 3), (4, 6), (2, 5)]