Week 12- Day 4 : Coding Challenge

(Maximum marks -15)

Q-1) Kth Largest Element in an Array

https://leetcode.com/problems/kth-largest-element-in-an-array/

(5 marks)

(Medium)

Given an integer array nums and an integer k, return *the* kth *largest element in the array*.

Note that it is the kth largest element in the sorted order, not the kth distinct element.

Example 1:

Input: nums = [3,2,1,5,6,4], k = 2
Output: 5

Example 2:

Input: nums = [3,2,3,1,2,4,5,5,6], k = 4
Output: 4

Q-2)Kth Largest Element in a Stream **(5 marks)**

https://leetcode.com/problems/kth-largest-element-in-a-stream/

(Easy)

Design a class to find the kth largest element in a stream. Note that it is the kth largest element in the sorted order, not the kth distinct element.

Implement KthLargest class:

- **KthLargest(int k, int[] nums) Initializes the object with the integer k and the stream of integers nums.**
- **int add(int val) Returns the element representing the kth largest element in the stream.**

Example 1:

Input

["KthLargest", "add", "add", "add", "add", "add"]

[[3, [4, 5, 8, 2]], [3], [5], [10], [9], [4]]

Output

[null, 4, 5, 5, 8, 8]

Explanation

KthLargest kthLargest = new KthLargest(3, [4, 5, 8, 2]);

kthLargest.add(3); // return 4

kthLargest.add(5); // return 5

kthLargest.add(10); // return 5

kthLargest.add(9); // return 8

kthLargest.add(4); // return 8

Q-3)Minimum Cost of ropes **(5 marks)**
https://practice.geeksforgeeks.org/problems/minimum-cost-of-ropes-1587115620/1
(Easy)

There are given **N** ropes of different lengths, we need to connect these ropes into one rope. The cost to connect two ropes is equal to sum of their lengths. The task is to connect the ropes with minimum cost.

Example 1:

Input:

n = 4

arr[] = {4, 3, 2, 6}

Output:

29

Explanation:

For example if we are given 4

ropes of lengths 4, 3, 2 and 6. We can

connect the ropes in following ways.

1) First connect ropes of lengths 2 and 3.

Now we have three ropes of lengths 4, 6

and 5.

2) Now connect ropes of lengths 4 and 5.

Now we have two ropes of lengths 6 and 9.

3) Finally connect the two ropes and all

ropes have connected.

Total cost for connecting all ropes is 5

+ 9 + 15 = 29. This is the optimized cost

for connecting ropes. Other ways of

connecting ropes would always have same

or more cost. For example, if we connect

4 and 6 first (we get three strings of 3,

2 and 10), then connect 10 and 3 (we get

two strings of 13 and 2). Finally we

connect 13 and 2. Total cost in this way

is 10 + 13 + 15 = 38.

Marks distribution:
Question 1,2 and 3 carry 5 marks each.