Tutorial and Assignment Sheet – ODD 2022

15B11CI311 – Data Structures

Week 5 (05 Sep-10 Sep, 2022)

Q.1. Given a test case Arr[] = 12 14 19 23 25 29 40 43 86 99, write the steps of bubble, selection and insertion sort. Can these be optimized further? If yes, how? Also compare these sorting techniques based on

- Number of comparisons
- Number of swaps
- Extra Space Requirement.
- In Place sorting

Q.2. Apply quicksort on Arr[] given in Q.1.

- Taking pivot always as the first element
- Taking pivot always as the last element
- Taking pivot always as the middle element

Write number of comparisons happened in each case.

Q.3. Given an integer array nums, move all the even integers at the beginning of the array followed by all the odd integers. Return any array that satisfies this condition.

Input: nums = [3, 1, 2, 4]
Possible Output: [2,4,3,1]/ [4,2,3,1]/[2,4,1,3],/[4,2,1,3].

Q.4. Given an array of meeting time intervals consisting of start and end times[[s1,e1],[s2,e2],...](si< ei), determine if a person could attend all meetings.

Input: [[0,30],[5,10],[15,20]]	Input: [[7, 10],[2,4]]
Output : false	Output : true

Q.5. Apply merge sort and write all the steps on Arr[] given in Q.1.