

**DS\_LAB Assignment Batch: B1**

1	WAP to implement Bubble sort and Quick Sort on 1D array of Student structure (contains student_name, student_roll_no, total_marks), with key as student_roll_no. And count the number of swap performed.	1
2	WAP to implement Insertion sort and Merge Sort on 1D array of Student structure (contains student_name, student_roll_no, total_marks), with key as student_roll_no. And count the number of swap performed.	2
3	WAP to implement Selection sort and Bucket Sort on 1D array of Employee structure (contains employee_name, emp_no, emp_salary), with key as emp_no. And count the number of swap performed.	3
4	WAP to implement Insertion and Heap Sort on 1D array of Employee structure (contains employee_name, emp_no, emp_salary), with key as emp_no. And count the number of swap performed.	4
5	WAP to implement Insertion sort and Quick Sort on 1D array of Student structure (contains student_name, student_roll_no, total_marks), with key as student_roll_no. And count the number of swap performed.	5
6	WAP to implement Selection sort and Merge Sort on 1D array of Student structure (contains student_name, student_roll_no, total_marks), with key as student_roll_no. And count the number of swap performed.	6,22
7	WAP to implement Quick and Bubble sort on 1D array of Employee structure (contains employee_name, emp_no, emp_salary), with key as emp_no. And count the number of swap performed.	7,23
8	WAP to implement Bubble sort and Heap Sort on 1D array of Employee structure (contains employee_name, emp_no, emp_salary), with key as emp_no. And count the number of swap performed.	8,24
9	WAP to implement Insertion and Quick sort on 1D array of Faculty structure (contains faculty_name, faculty_ID, subject_codes, class_names), with key as faculty_ID. And count the number of swap performed	9
10	WAP to implement Merge Sort and Heap Sort on 1D array of Faculty structure (contains faculty_name, faculty_ID, subject_codes, class_names), with key as faculty_ID. And count the number of swap performed.	10

11	You have a fleet of N cars waiting for repair, with the estimated repair times $r_k$ for the car $C_i$ , $1 \leq k \leq N$ . What is the best repair schedule (order of repairs) to minimize the total lost time for being out-of-service. How much computation is needed to find the lost service-times all schedules?	11
12	Write a program to arrange the data of the faculties recruited in the institute. There are three categories of faculties in the every department namely professor, Associate professor, and assistant professor. Recruitment is done as mentioned below. 1. Every professor has two associate professors. 2. Every Associate has two assistant professors. Data is given randomly. Suggest suitable sorting method and implement.	12,17
13	Assume that an array A with n elements was sorted in an ascending order, but two of its elements swapped their positions by a mistake while maintaining the array. Write a code to identify the swapped pair of elements and their positions in the asymptotically best possible time. [Assume that all given elements are distinct integers.]	13,18
14	Using Quick sort, assign the roll nos. to the students of your class as per their previous years result. i.e. topper will be roll no. 1.	14,19
15	Arrange the list of employees as per the average of their height and weight by using appropriate sorting method.	15,20
16	Given a set of points $P_i$ , $1 \leq i \leq N$ ( $\geq 2$ ) on the x-axis, find $P_i$ and $P_j$ such that $ P_i - P_j $ is minimum. e.g. $P_1   P_2   P_3   P_4   P_5   P_6$ { $P_4$ , $P_6$ } is the closest pair.	16,21