



DSA Assignment

1. Arrays – Cricket Scores Analyzer

You are the data analyst for a cricket match. The scores of 10 players are stored in an array.

Tasks:

- Find the highest scorer and lowest scorer.
- Calculate the team's average score.
- Display the players who scored above average.

2. Sorting – College Election Votes

In a college election, 15 students are contesting. Their names are listed in random order.

Tasks:

- Sort the names alphabetically using Bubble Sort or Selection Sort.
- Display the sorted list to prepare the ballot paper.

3. Searching – Movie Ticket Booking System

A cinema hall stores seat numbers (1–100) in an array.

Tasks:

- Implement Linear Search to check if a seat number is booked.
- Implement Binary Search (after sorting booked seat numbers) to quickly find a seat.

4. LinkedList – Food Delivery Order Queue

You are building a food delivery system like Swiggy/Zomato.

Tasks:

- Add a new order (order ID & customer name) at the end of the list.
- When an order is delivered, remove it from the beginning.
- Display all pending orders.
- Bonus: Allow inserting a priority order at the beginning (VIP customer).

5. Stack – Parking Lot Simulation

You are managing a single-lane parking lot where cars are parked in a line.

Tasks:

- Cars enter one by one → push into stack.
- Cars leave only from the exit end → pop from stack.
- Display all cars currently parked.
- Bonus: If a car in the middle wants to leave, simulate moving other cars temporarily using another stack.

6. Binary Search Tree (BST) – Student Admission IDs

A college assigns unique admission IDs (integers) to students.

Tasks:

- Insert new IDs into a BST.
- Search whether a given student ID exists.
- Display all IDs in sorted order using in-order traversal.
- Bonus: Display IDs in pre-order (admission sequence).