

**Question that might get asked in you college semester exam practical which might cover all your logic and help you built complex logics also help you understand how the real world project will be done.**

### **1. Library Management (Structures, Arrays, File Handling)**

Create a structure Book with fields:

- bookID, title, author, price, availability.
  - Implement the following:
    - Take input for n books.
    - Allow the user to search for a book by bookID or title.
    - Display all books by a specific author.
    - Write all available books to a file named library.txt.
- 

### **2. Hospital Management (Structures, 2D Arrays, Sorting)**

Define a structure Patient with:

- name, disease, doctorAssigned, age.
  - Implement:
    - Input records for n patients.
    - Sort patients by age in ascending order.
    - Display the list of patients treated by a specific doctor.
    - Find the youngest and oldest patient.
- 

### **3. Cinema Seat Reservation (2D Arrays, Functions)**

Simulate a cinema seat reservation system:

- Use a 2D array to represent seats (0 for available, 1 for reserved).
  - Allow users to book or cancel seats.
  - Display the seating arrangement after each transaction.
  - Ensure users can't book an already reserved seat.
- 

#### **4. E-commerce Cart System (Structures, Arrays, File Handling)**

Create a structure Product with:

- productID, name, price, quantity.
  - Implement:
    - Input details for n products.
    - Allow users to add products to the cart.
    - Calculate the total bill after applying discounts for purchases above ₹5000.
    - Write the cart details to a file named bill.txt.
- 

#### **5. Railway Reservation (Structures, 2D Arrays, Functions)**

Simulate a railway reservation system:

- Structure Passenger with name, trainNo, seatClass, age.
  - Implement:
    - Book tickets for different trains and seat classes (1st AC, 2nd AC, etc.).
    - Calculate the total cost based on class and display the bill.
    - Display all passengers for a particular train.
- 

#### **6. Student Grade Calculator (Structures, Arrays, Sorting, File Handling)**

Create a structure Student with:

- rollNo, name, marks[5], total, percentage, grade.

- Implement:
    - Calculate the total and percentage for each student.
    - Assign grades based on percentage (A, B, C, D, F).
    - Sort students based on their percentage.
    - Write all student records to a file named grades.txt.
- 

## **7. Online Voting System (Arrays, Structures, Functions)**

Implement a simple voting system with candidates stored in a structure:

- candidateID, name, votes.
  - Allow users to vote by entering candidate IDs.
  - Display the result showing the winner and total votes for each candidate.
- 

## **8. Hotel Booking (Structures, Arrays, Pointers)**

Create a structure Room with:

- roomNo, type, price, status (booked/free).
  - Implement:
    - Book and cancel rooms.
    - Display all free rooms by type (AC, Non-AC, Deluxe).
    - Calculate the bill based on room type and duration of stay.
- 

## **9. Supermarket Billing (Structures, Arrays, File Handling)**

Create a structure Item with:

- itemCode, name, price, quantity.
- Implement:
  - Allow users to purchase items by entering item codes and quantities.
  - Calculate and display the total bill.

- Store the bill in invoice.txt.

---

## **10. Inventory Management (Structures, File Handling, Arrays)**

Define a structure Inventory with:

- itemID, itemName, quantity, price.
- Implement:
  - Update stock by adding or removing quantities.
  - Display items with quantities below a threshold.
  - Write the updated stock to a file named stock.txt