



# University of Central Punjab

FACULTY OF INFORMATION TECHNOLOGY

## Introduction to Computing-LAB

**Term Project: Fall-2024**

### **Project Title:**

**“Pak Airline and Railway Management System”**

### **Project Overview:**

The Pakistan Airline and Railway Management System (PARMS) is designed to simulate a system for managing passenger transportation services, allowing users to efficiently handle various aspects of flight and train bookings, schedules, passenger information, and ticket management. This system provides a comprehensive solution for entering and managing passenger details, scheduling journeys, booking tickets, and maintaining accurate travel records.

Develop a comprehensive C++ program to simulate and manage various aspects of a **Pakistan Airline and Railway Management System**. This project will enable students to practice and reinforce their understanding of fundamental programming concepts, including arrays, loops, character arrays, and conditional statements. The system must provide a user-friendly, menu-driven interface to interact with various functionalities.

### **Objectives and goals:**

Our primary goal is to enable you to effectively apply basic programming concepts to create a functional and interactive system. By the end of this project, you will learn;

- How to design and implement a menu-driven system using arrays, loops, and conditional statements.
- Managing and organizing data using simple arrays and character arrays.
- Enhancing problem-solving and debugging skills through hands-on practice.

### **Features to Implement:**

#### **1. Passenger Record Management:**

- Allow users to enter and store passenger details, including:
  - ❖ **Name, ID (CNIC or Passport Number), Age, and Contact Information.**
- Maintain a record of at least **10 passengers** using arrays.

## 2. Journey Management:

- Provide an option to select and manage transportation modes:
  - ❖ **Airline:** Manage flights, including flight numbers, destinations, departure times, and available seats.
  - ❖ **Railway:** Manage trains, including train numbers, routes, departure times, and available seats.

## 3. Booking Tickets:

- Simulate the ticket booking process:
  - ❖ Select a mode of transportation (Airline or Railway).
  - ❖ Choose a flight or train based on available schedules.
  - ❖ Book tickets for passengers and update the available seat count.
- Allow a maximum of **5 tickets per transaction**.

## 4. Search and Filter Options:

- **Search passengers** by ID or name.
- **Filter flights or trains** by destination, departure time, or availability.

## 5. Ticket Cancellation:

- Allow passengers to cancel booked tickets and update seat availability.

## 6. Generate Reports:

- Display a list of all passengers and their bookings.
- Show a list of all flights or trains with their schedules and available seats.

## 7. Exit:

- Provide an option to exit the program gracefully.

## Additional Details:

### Constraints:

- Use **simple arrays** to store passenger, flight, and train data.
- Use **character arrays** for strings such as passenger names, destinations, and train/flight names.
- Implement all logic using **loops** and **if-else statements only**.
- **No built-in or user-defined functions** are allowed.

### Expected Output:

- List of flights, trains, schedules, and available seats.
- List of passengers and their ticket bookings.
- Search results for passengers and transportation options.
- Updated records after ticket booking or cancellation.

### Deliverables:

- Complete C++ source code for the Pak Airline & Railway Management System.
- A report explaining the program's structure and functionality.

## Evaluation Criteria:

- Completeness and correctness of the implemented features.
- Efficient and readable use of arrays, loops, and conditional statements.
- Creativity in presenting outputs (e.g., tables, neat formatting).
- 20% Marks for submission and 70% Marks for the Viva/Presentation.

## Sample Output:

### Main Menu

1. Display All Flights and Trains
2. Add Passenger Record
3. Book Tickets
4. Cancel Tickets
5. Search Passenger Record
6. Filter Flights/Trains by Destination or Time
7. Generate Reports
8. Exit

## Project Marking:

Evaluation Criteria	
Project Submission	Viva / Presentation
20%	80%

✧ *Best of Luck!* ✧