**National University of Computer & Emerging Sciences**

**Karachi Campus**



**Airport Management System**

**Project Proposal**

**Object-Oriented Programming**

**Section: 2F**

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Project Proposal

**Title: Airport Management System**

**Introduction:** The Airport Management System is a C++-based software designed to automate and manage key airport operations, ensuring efficient handling of flights, passengers, and staff. The system will allow airport authorities to schedule flights, manage passenger ticketing, oversee staff assignments, and track real-time flight status. By implementing Object-Oriented Programming (OOP) principles, this project aims to provide a structured and efficient solution for airport management.

**Existing System:** Currently, most airports use large-scale software solutions for managing their operations. These systems often include functionalities like flight scheduling, passenger ticketing, and staff management. However, smaller airports or training environments may lack access to such advanced systems. Existing systems may also be complex, expensive, and difficult to customize for specific needs.

**Problem Statement:** The existing systems used in airport management are often proprietary and costly, making them inaccessible to smaller airports or educational institutions for training purposes. Additionally, many current solutions do not offer modular, scalable designs that allow for easy customization. Our system aims to provide a simplified yet effective approach to airport management by introducing an easy-to-use, scalable, and customizable solution developed in C++.

**Proposed Solution:** Our Airport Management System will be developed as a console-based application that efficiently handles flight scheduling, ticketing, and personnel management. The system will integrate essential OOP principles, including encapsulation, inheritance, and polymorphism, to enhance modularity and scalability. Key improvements over existing systems include:

* A lightweight, cost-effective design suitable for smaller airports or academic purposes.
* A structured, modular approach that allows easy feature expansion.
* Improved file handling for persistent data storage.
* Exception handling to minimize system errors and improve reliability.

**Salient Features:**

* **Flight Management**: Scheduling, tracking, and updating flights.
* **Passenger Management**: Ticket booking, cancellations, and seat allocation.
* **Staff Management**: Assigning and managing airport personnel, including pilots and cabin crew.
* **Real-Time Flight Status**: Displaying arrivals, departures, and delays.
* **Data Storage & Retrieval**: Using file handling for maintaining flight and passenger records.
* **User Authentication**: Secure login for authorized airport staff.
* **Exception Handling**: Preventing invalid inputs and ensuring smooth system execution.

**Tools & Technologies:**

* **Programming Language**: C++
* Framework: Standard C++ libraries, STL (Standard Template Library)
* **Operating System**: Windows