

**University Of Chakwal**

**Department Of Mechatronics Engineering**

**Computer Programming**

**Project Report**

**Submitted To : Miss Asmara Minhas**

**Submitted By :**

Nabeeda Fatima

Hamza Akbar

Wajahat Mahmood

Hamza Saeed

**Report on the Implementation of a Hotel Management System**

**Introduction**

The Hotel Management System developed in C++ is designed to streamline operations within a hotel, focusing on room allocation and the management of food and beverage services. The program serves as a critical tool for monitoring available inventory, processing customer transactions, and generating comprehensive reports on sales and inventory status, thereby enhancing operational efficiency.

**System Overview and Key Features**

* **Initial Inventory Input**

Upon initialization, the system prompts the manager to input the current inventory, including the number of available rooms and quantities of various food items like pasta, burgers, noodles, shakes, and chicken rolls.

* **User-Friendly Menu Interface**

The system offers a straightforward menu-driven interface, enabling users to easily select options to book rooms, order food, or generate sales reports.

* **Real-Time Transaction Management**

It dynamically checks the availability of rooms and menu items when requests are made. If inventory suffices, the transaction is processed; otherwise, the user is informed of the shortage, preventing overbooking and order mishaps.

* **Comprehensive Reporting**

The program includes a detailed reporting feature that outlines the total items sold, current inventory, and revenue generated from each category, which is vital for day-to-day management and strategic planning.

* **Continuous Operation with Safe Exit**

The system operates in a loop, allowing continuous interaction until the user opts to exit, ensuring a seamless operational flow.

**Technical Execution and Workflow**

* **Initialization**

All variables for inventory and sales data are initialized to zero at the start.

* **Stock Entry**

The user (typically a hotel manager) enters the initial stock levels for all items managed by the system.

* **Operational Menu**

The menu is presented in a loop, offering various choices including booking rooms, ordering food, and viewing the sales report.

* **Transaction Processing**

Based on the user’s choices, the system either processes transactions (updating inventory and sales data) or displays relevant operational data.

* **Program Termination**

The loop can be exited upon user request through an 'Exit' option, terminating the program gracefully.

**Example Use Case**

* A hotel manager starts the day by entering the available inventory into the system.
* Throughout the day, as customers book rooms or order food, the manager uses the system to enter these transactions.
* If a customer attempts to book more rooms than are available, the system immediately notifies the manager, who can then communicate the availability to the customer.
* The manager regularly checks the sales and inventory report to make decisions about potential promotions or other management interventions.

**Proposed Enhancements**

* **Robust Input Validation**

Implementing checks to ensure all user inputs are valid and reasonable, preventing system errors and data corruption.

* **Persistent Data Storage**

Integrating file handling mechanisms to maintain records across system restarts, enhancing data reliability.

* **Advanced Error Handling**

Enhancing the system's ability to handle unexpected situations gracefully, improving system stability and user experience.

* **Graphical User Interface (GUI)**

Transitioning from a text-based to a graphical interface to make the system more accessible and easier to use, especially in a busy hotel environment.

* **Enhanced Security Features**

Adding a secure login system for different user roles to protect sensitive data and restrict access based on user privileges.

* **Conclusion**

The developed Hotel Management System addresses fundamental needs for managing hotel operations effectively. By adopting the suggested enhancements, the system could significantly improve in terms of usability, security, and functionality, making it an essential tool for modern hotel management. This would not only streamline daily operations but also support strategic business decisions through detailed data insights