**FINAL OOP PROJECT**

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**Submitted to**

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# Project Report: Hotel Management System in Object-Oriented Programming using Java

***1. Introduction:***

The Hotel Management System project is designed to streamline and automate various operations within a hotel, including room management, guest registration, billing, and more. The system is developed using Object-Oriented Programming (OOP) principles in Java to ensure modularity, reusability, and maintainability.

***2. Project Scope:***

The project aims to create a user-friendly application that allows hotel staff to efficiently manage guest reservations, room assignments, check-ins, check-outs, and billing. It provides an intuitive graphical interface for users to interact with the system.

***3. Objectives:***

* Develop a system that simplifies the hotel management process.
* Implement a user-friendly GUI for easy interaction.
* Enable efficient room allocation and reservation management.
* Generate accurate bills for guests based on their stay and additional services.

***4. System Architecture:***

The Hotel Management System follows a layered architecture:

Presentation Layer: Graphical User Interface (GUI) for user interaction.

Business Logic Layer: Contains classes for managing guest details, room assignments, and billing calculations.

Data Access Layer: Handles database connectivity and operations.

***5. Features:***

Guest Registration: Collects guest information during check-in.

Room Management: Allows staff to allocate, modify, and free rooms.

Reservation System: Enables the reservation of rooms for future dates.

Check-in/Check-out: Facilitates guest arrival and departure processes.

Billing: Calculates bills based on room charges and additional services.

Reporting: Generates reports on occupancy, revenue, and more.

***6. Implementation Details:***

OOP Principles: The project extensively utilizes principles like encapsulation, inheritance, and polymorphism for well-organized code.

Java Swing: GUI components are built using Java's Swing library for a responsive interface.

File Handling: Guest and reservation data is stored in files using serialization.

Database: JDBC is used to connect the application to a relational database for data storage.

Error Handling: Robust error handling ensures the application gracefully handles exceptions.

***7. Future Enhancements:***

Online Booking: Implement an online reservation system for guests.

User Authentication: Add secure login for staff with different access levels.

Mobile App: Extend the system with a mobile app for real-time updates.

Analytics Dashboard: Incorporate a dashboard to monitor hotel performance.

***8. Conclusion:***

The Hotel Management System project demonstrates the effective use of Object-Oriented Programming concepts in Java to create a comprehensive application that simplifies hotel operations. The system's modular architecture and user-friendly interface contribute to efficient management of guest reservations, room allocation, and billing.