**Project Report**

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COMP 371: Object Oriented Modeling and Design

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# Development Process

The development of the Hotel Management System was carried out using Java Swing for the frontend and SQLite for the backend. The project began with defining the core functionalities like reservation, guest management, and billing. After setting up the database schema and models, the user interface was constructed using modular forms.  
  
Role-based access was implemented to distinguish between Admin and Receptionist. Each UI component was tied to specific roles, enabling or restricting access accordingly. The DAO (Data Access Object) pattern was used to keep database logic separate from UI logic, ensuring maintainability.

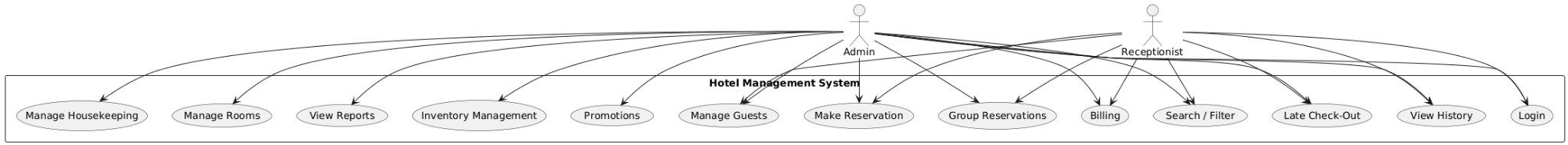
# Challenges Faced

* Integrating a smooth UI flow across different roles (Admin vs Receptionist)
* Implementing real-time room availability and ensuring data consistency
* Creating a flexible invoice generation system that accommodates seasonal pricing and discounts
* Managing state persistence in Java Swing without performance lags
* Avoiding redundant database connections and query failures

# UML Diagrams

Below are the key UML diagrams that represent the system’s architecture and interactions:

Use Case Diagram:



Class Diagram:

A diagram of a server

AI-generated content may be incorrect.

Sequence Diagram:

A close-up of a checklist

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# Scalability & Future Enhancements

The system is modular and scalable in design. Future enhancements include:

* Cloud integration for database and backups
* Role management UI for adding/editing user roles and permissions
* Mobile or web-based frontend using React or Flutter
* Advanced analytics and reporting dashboard
* Email/SMS notification integration for bookings and check-outs
* RESTful API exposure for third-party system integrations