GROUP 4

TOR 3: Hotel Reservation System

ระบบจองโรงแรม

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Presented To

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Subject

System Analysis and Design

System Overview

The Hotel Reservation System is designed to facilitate users in booking hotel rooms, managing their reservations, checking room availability, and processing payments conveniently. The system caters to multiple user roles, such as regular customers, administrators, and hotel staff.

Core Functionalities:

1. **Room Booking**: Users can search for available rooms, check room availability, and make reservations for specific dates.
2. **Reservation Management**: Users can view, modify, or cancel their existing reservations.
3. **Payment Processing**: The system supports payment through credit cards or online payment gateways.
4. **Room Management**: Hotel staff can update room status (e.g., available, occupied, under cleaning).
5. **User Account Management**: Administrators can manage user accounts, including adding, editing, or removing accounts.

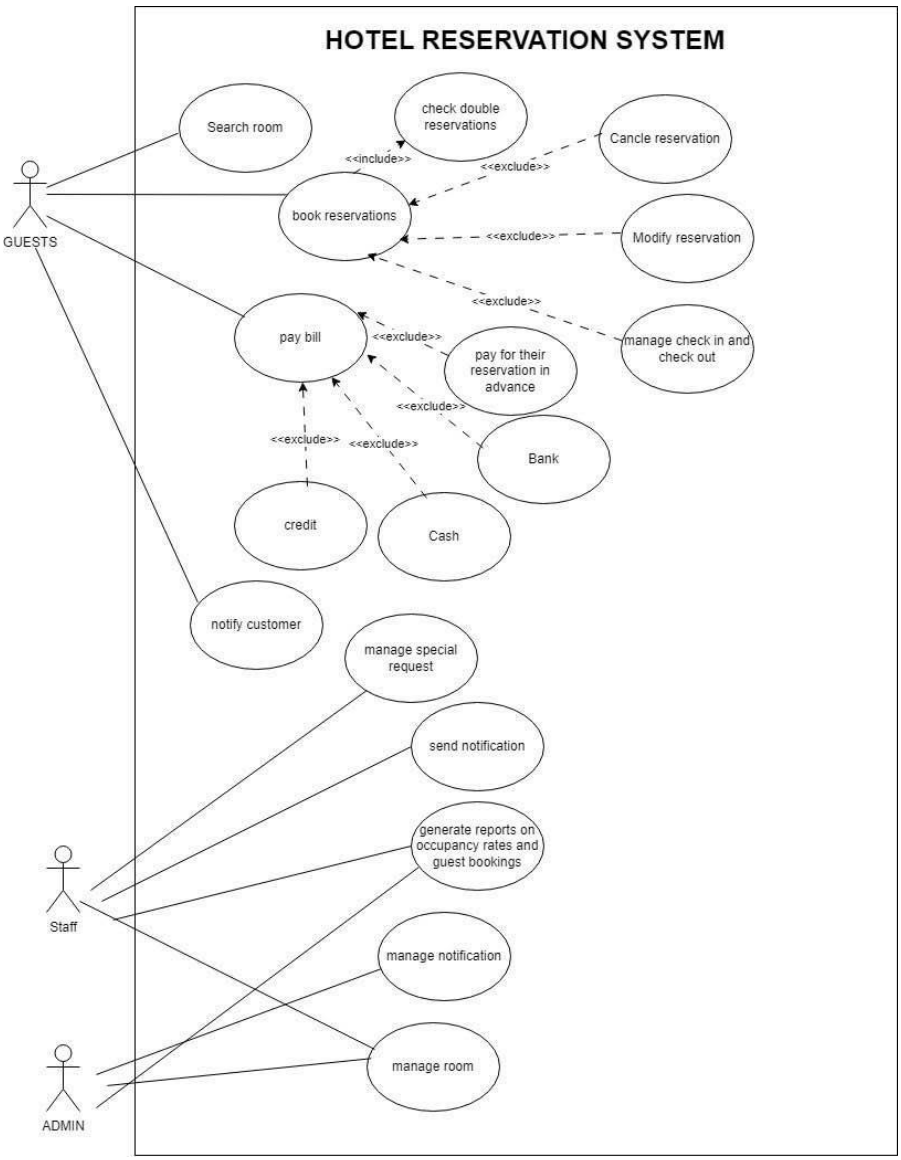
Non-Functional Requirements:

- **Security**: The system must protect user and payment information through encryption.
- **Performance**: The system must respond quickly to room searches and booking actions.
- **Reliability**: The system should be available 24/7 with minimal downtime.
- **Scalability**: The system must be scalable to accommodate increased users and bookings over time.

Functional Requirements:

- The system must allow users to book hotel rooms.
- It must display details of each room type, including pricing and availability.
- The system must support online payment transactions.
- It must send confirmation emails and receipts upon successful booking and payment.

Use Case Diagram



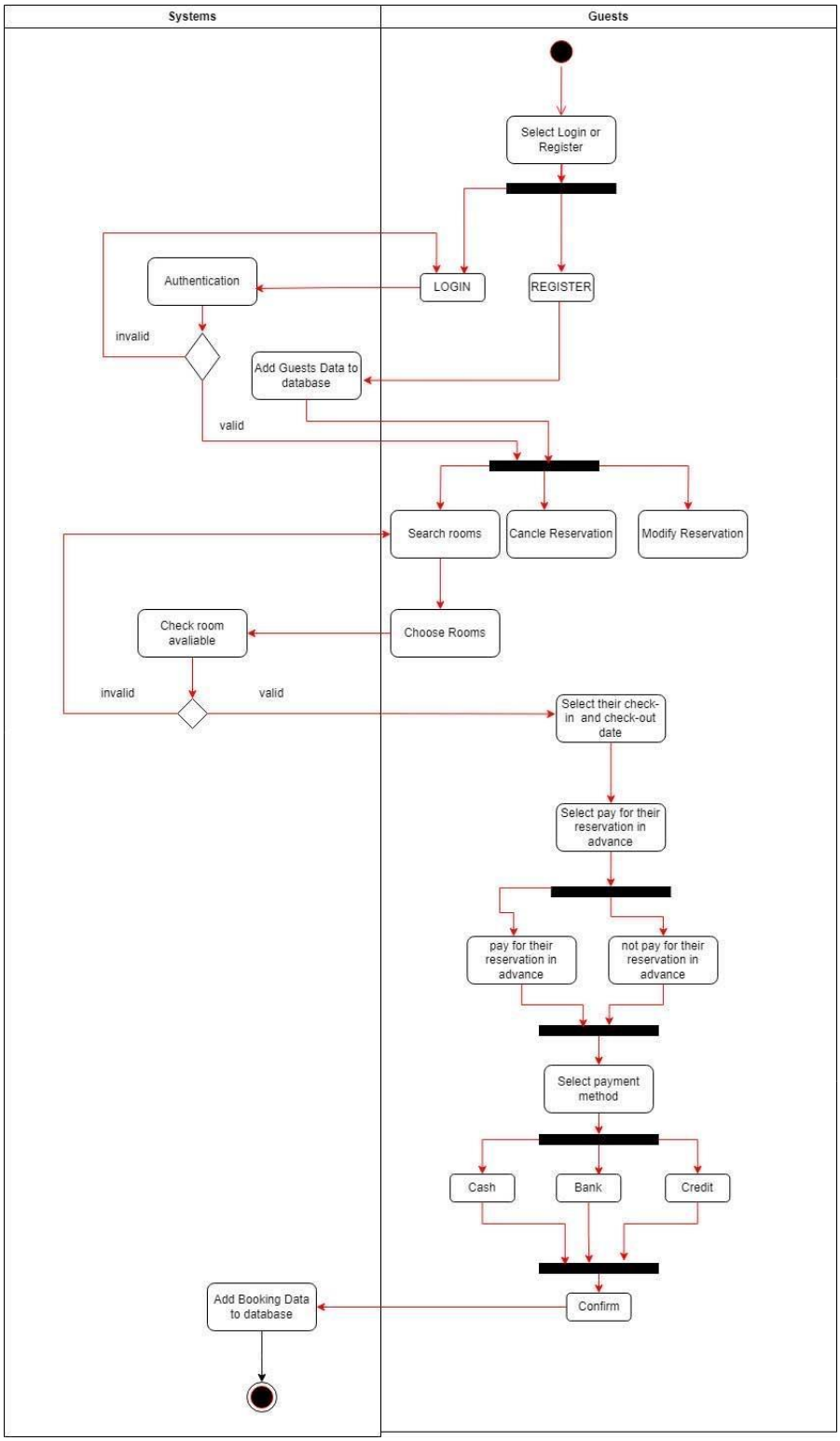
The overview of the use case diagram for the hotel reservation

1. **Guest**: Guests can search for available rooms, make reservations, and process payments.

2. **Staff**: Staff members can manage guest requests, send notifications, and generate reports on customer room bookings to be forwarded to the Admin.

3. **Admin**: The Admin can receive reports from staff to verify the availability of rooms requested by guests and send notifications back to the staff.

Activity Diagram

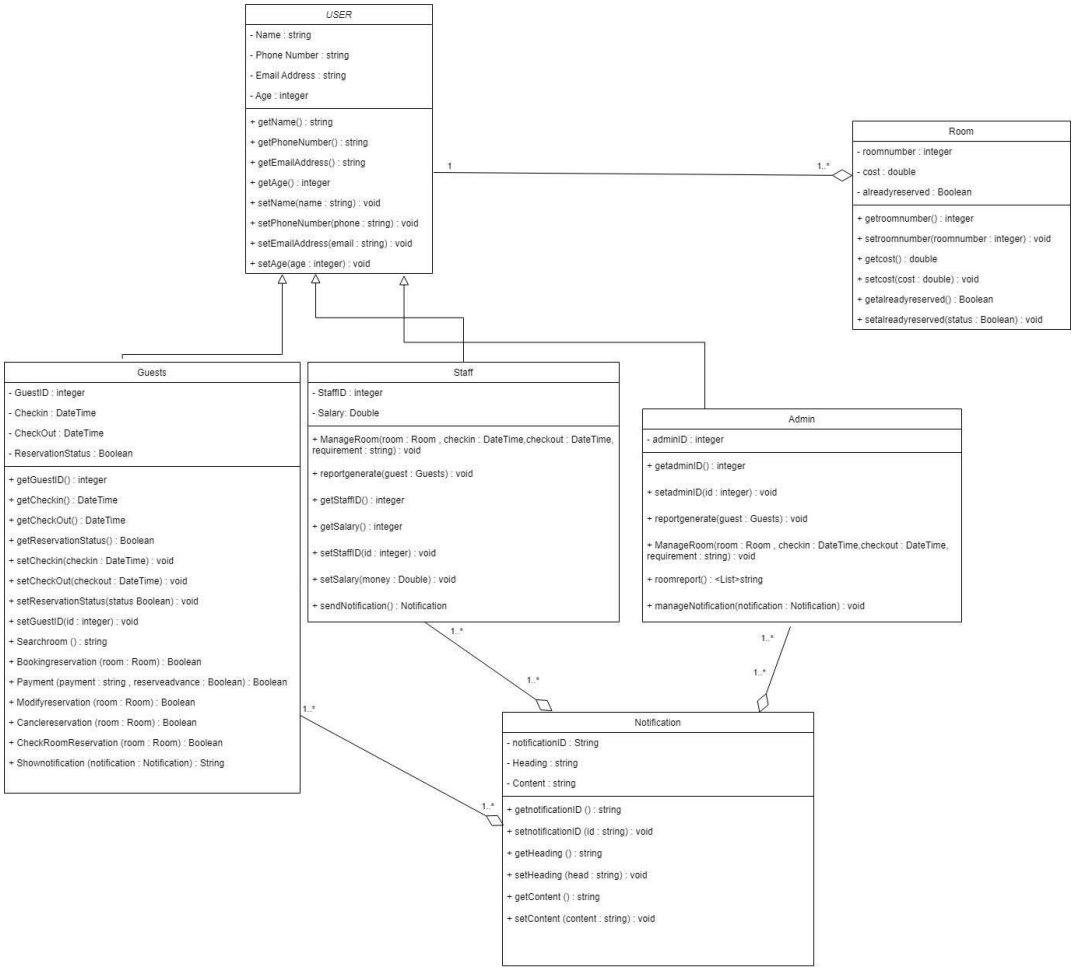


Activity Diagram

This section shows how customers interact with the system.

1. **Log In/Register**: Guests choose to log in or create an account, then verify their identity.
2. **Add Info**: The system saves the customer's details in the database.
3. **Search and Book**: Customers search for rooms, check availability, and select a room. If the room is unavailable, they choose another.
4. **Select Dates**: Customers pick check-in and check-out dates.
5. **Payment**: They choose to pay in advance or on the booking date, using cash, bank transfer, or credit card.
6. **Confirm Booking**: The customer confirms the booking, and the system reserves the room and saves it in the database.

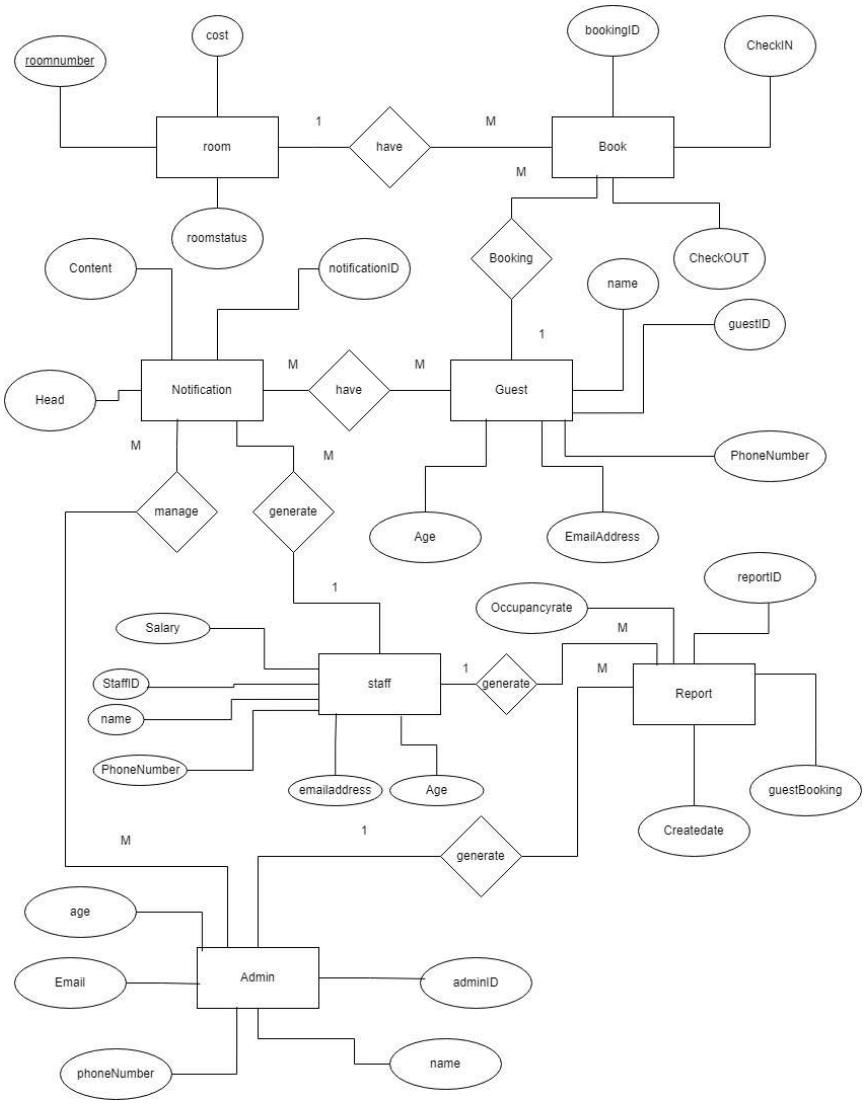
Class Diagram



The Class Diagram is a fundamental part of the structure of the Hotel Reservation System

The **Guests** class manages guest-related functions such as booking and checking in/out, while the **Staff** class handles room management and reporting tasks. The **Room** class keeps track of individual room details like room number, cost, and reservation status. Lastly, the **Admin** class, also inheriting from **USER**, focuses on administrative tasks and user management. Overall, this diagram captures the relationships and responsibilities of each class within the hotel reservation system.

ER Diagram



This ERD provides an overview of a hotel room booking system

This ERD illustrates a hotel booking system where guests can book rooms, and their details are stored, including check-in and check-out dates. Staff generate reports based on guest bookings, while the admin oversees the system and manages notifications sent to guests. The system handles room management, bookings, reports, and notifications to ensure smooth hotel operations.

UX/UI

UI (User Interface)

1. **Layout Design**: How the page is organized.
2. **Mobile Compatibility**: Works well on phones and tablets.
3. **Branding Consistency**: Using the same colors and fonts everywhere.
4. **Easy Navigation**: Simple menus and buttons.
5. **Form Design**: User-friendly booking forms.
6. **Confirmation Page**: Clear booking details and receipts.
7. **Room Displays**: Show rooms with pictures and filters.

UX (User Experience)

1. **User Journey**: Steps from searching to booking.
2. **User-Friendly Design**: Easy to use for everyone.
3. **Error Messages**: Clear feedback for mistakes.
4. **Quick Booking**: Fast and easy reservation process.
5. **Accessibility**: Usable for all, including people with disabilities.
6. **Personal Recommendations**: Suggest rooms based on preferences.
7. **Fast Loading**: Quick response times for actions.

Maintenance Plan for Hotel Reservation System

Regular Updates:

- Keep the software up to date for new features and better security.
- Add new features based on what users want.

Data Backup:

- Back up all data every day to avoid losing information.
- Have a simple plan to recover data if something goes wrong.

Monitor Performance:

- Check the system regularly to make sure it runs smoothly.
- Test the system to ensure it can handle lots of users at busy times.

Security Checks:

- Regularly look for and fix any security issues.
- Keep user information safe and follow privacy rules.

Scalability:

- Check if the servers can handle more users as the business grows.
- Use cloud services to easily add more resources when needed.

User Support:

- Offer help for users who have questions or problems.
- Keep user guides and help documents updated.

Gather Feedback:

- Regularly ask users for their opinions to improve the system.
- Review the system every few months to ensure it meets user needs.