

# HOTEL MANAGEMENT SYSTEM

## Problem Statement:

This aims to develop a Hotel Management System to streamline operations and enhance guest experience.

The system should encompass the following functionalities:

- Reservation Management: Enable online booking, real-time availability checks, secure payments, and automated confirmations.
- Guest Services: Facilitate smooth check-in/out, handle guest requests, and provide information on hotel amenities.
- Inventory Management: Track room availability, manage room rates, and handle room assignments and maintenance.
- Financial Management: Generate invoices, process payments, manage accounts, and generate financial reports.
- Employee Management: Manage employee schedules, track attendance, and control access permissions.

# SOFTWARE REQUIREMENTS SPECIFICATION

classmate

Date 23/1/24

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## Software Requirement Specification (SRS)

### 1. Introduction

#### 1.1 Purpose of this Document

The SRS document outlines the detailed requirements for Hotel Management System. It serves as a blueprint for the development team, ensuring final product meets the specified specification and fulfills the customer requirements.

#### 1.2 Scope of this document

It aims to provide clear specifications for the system's development, including timelines of costs and involved. This HMS (Hotel Management System) is designed to streamline hotel operations and enhance customer experience.

#### 1.3 Overview

The HMS will provide a solution for managing hotel operations including reservations, customer management, billings and bookings. This will enable staff to handle daily tasks and offer user-friendly interface for bookings.

### 2. General Description

#### 2.1 User characteristics

The general users for HMS will be hotel staff, guests and administrators.

#### 2.2 Features and Benefits

- o User-friendly Interface
- o Mobile Compatibility
- o Real-time availability
- o Automated Reporting

3.2 Importance:  
The HMS is crucial for optimising hotel operations, improving customer satisfaction and increasing revenue through efficient management of resources.

### 3. Functional Requirements

- 3.1 Reservation Management
  - Users can search for available rooms
  - Users can create, modify, or cancel reservations.

### 3.2 Customer management

- Systems can store guest info, like contact details and preferences.
- Staff can view guest history.

### 3.3 Billings and Payments

- Generate invoices and process payments via various methods.
- Send automated payment confirmation emails.

### 3.4 Reporting

- Generate occupancy reports, revenue reports.
- Schedule regular reports to be sent to admins.

### 4. Interface Requirements

- 4.1 User Interfaces
  - Web and Mobile interfaces for staff and guest to manage bookings.
- 4.2 System Interfaces
  - Database connection - Interface for the HMS to communicate with database for data storage.

Payment Gateway - Integration with third party payment processors for handling transactions

### 5. Performance Requirements

- System should respond to users within 10 seconds.
- Support simultaneous access for 1000 users.
- Maximum error acceptable rate for payments should be less than 1%.

### 6. Design Constraints

- Must utilize specific set of technologies like Java for backend and React for frontend.
- Use of relational database (e.g. MySQL) for data management.

### 7. Non-functional

- Security - Implementing user authentication mechanisms.
- Portability - System should operate on various devices.
- Reliability - The system should have 99.9% uptime.
- Scalability - Ability to scale resources on demand.

### 8. Preliminary schedule and Budget

#### 8.1 Schedule

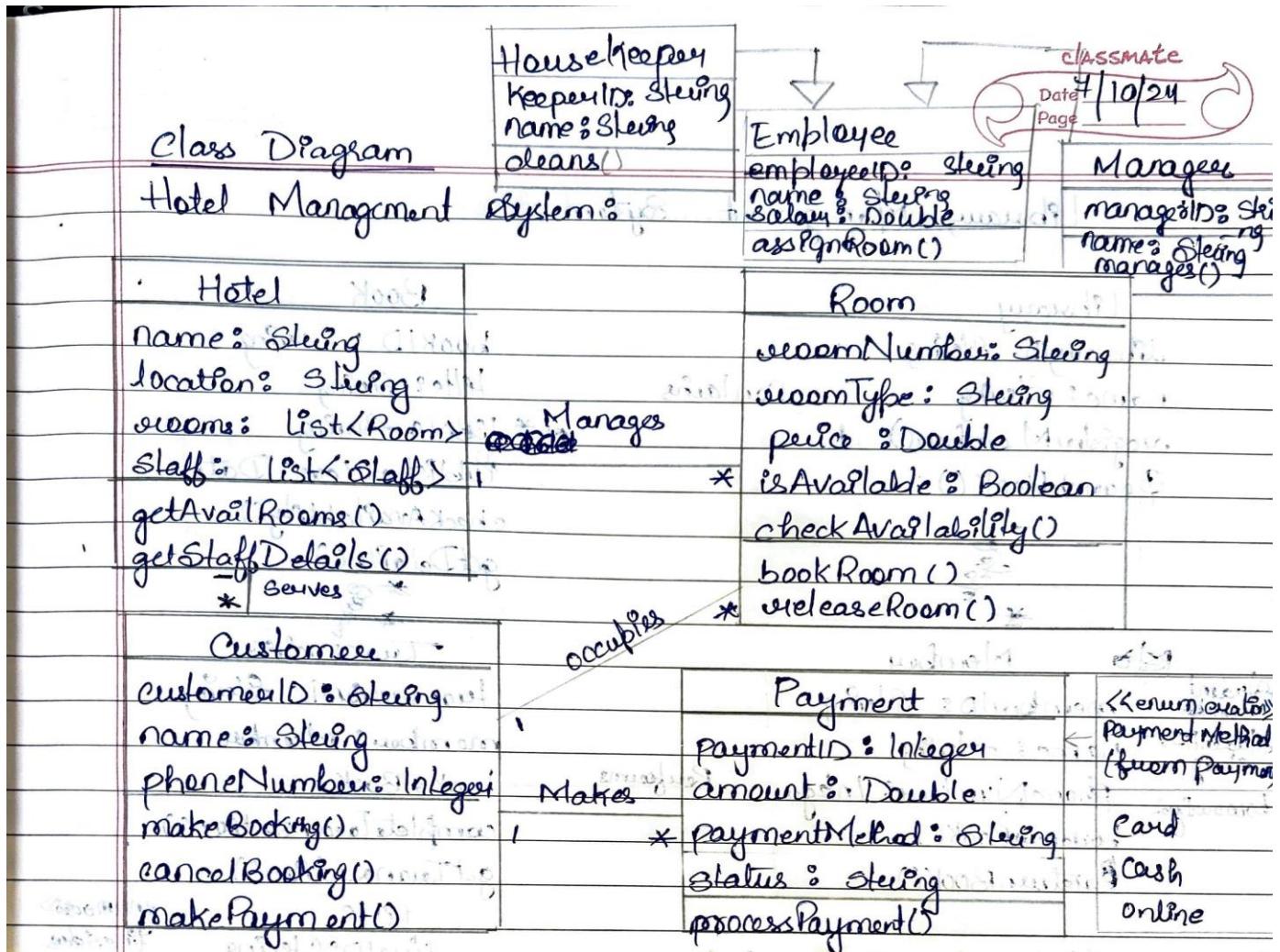
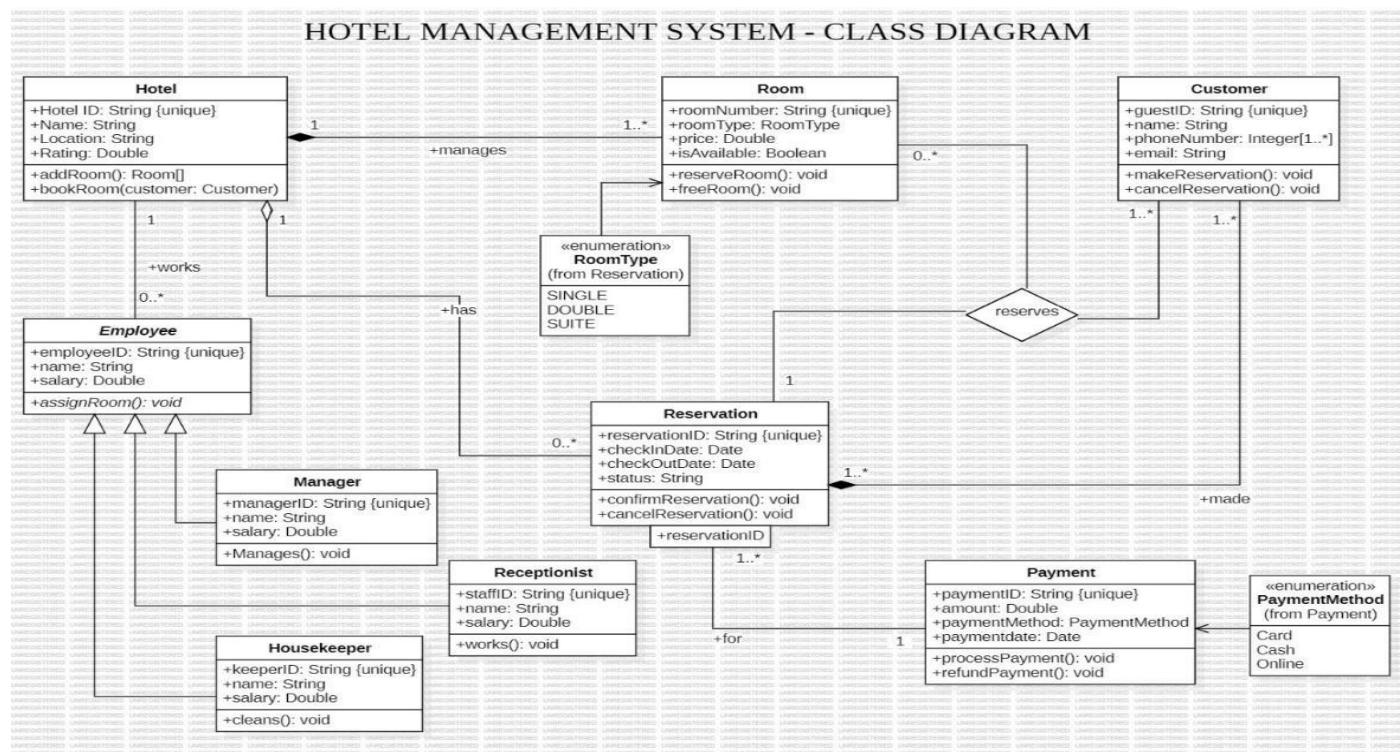
- Project Duration - 6 months
  - Requirements Gathering - 1 month
  - Design phase - 1 month
  - Development phase - 3 months
  - Testing phase - 1 month

#### 8.2 Budget

- |                                   |
|-----------------------------------|
| • Estimated Total cost - 1,55,000 |
| • Development - 100,000           |
| • Software license - 50,000       |
| • Hardware - 15,000               |
| • Miscellaneous - 50,000          |

# UML DIAGRAMS

## CLASS DIAGRAM



### **Brief Description :**

1. **Hotel:** Represents a hotel, managing multiple rooms and employees. It allows room booking and addition.
2. **Room:** Represents rooms in a hotel, with attributes like room type, price, and availability. Rooms can be reserved or freed.
3. **Reservation:** Manages bookings with details like check-in, check-out, and status. Customers can confirm or cancel reservations.
4. **Customer:** Represents guests, allowing them to make and cancel reservations. Includes personal details like name and contact info.
5. **Employee:** Generalised class for hotel staff with attributes like ID, name, and salary. Specialised into:
  - o **Manager:** Oversees hotel operations.
  - o **Receptionist:** Handles customer bookings and interactions.
  - o **Housekeeper:** Maintains room cleanliness.
6. **Payment:** Manages payment transactions, including methods (Card, Cash, Online), processing, and refunds.

### **Key Features:**

- **Associations:** Defines relationships between classes like a hotel managing rooms, customers making reservations, and employees working in the hotel.
- **Enumerations:** Includes RoomType (Single, Double, Suite) and PaymentMethod (Card, Cash, Online).

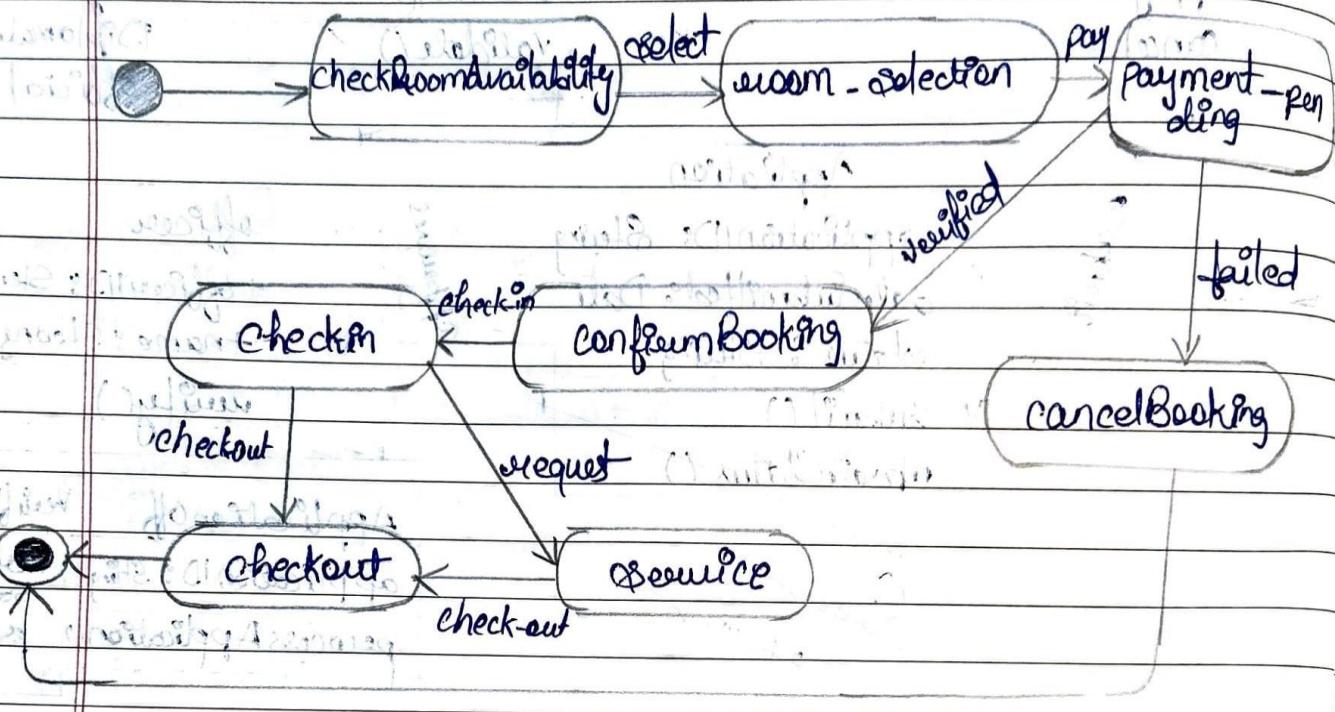
# STATE DIAGRAM

## SIMPLE STATE DIAGRAM

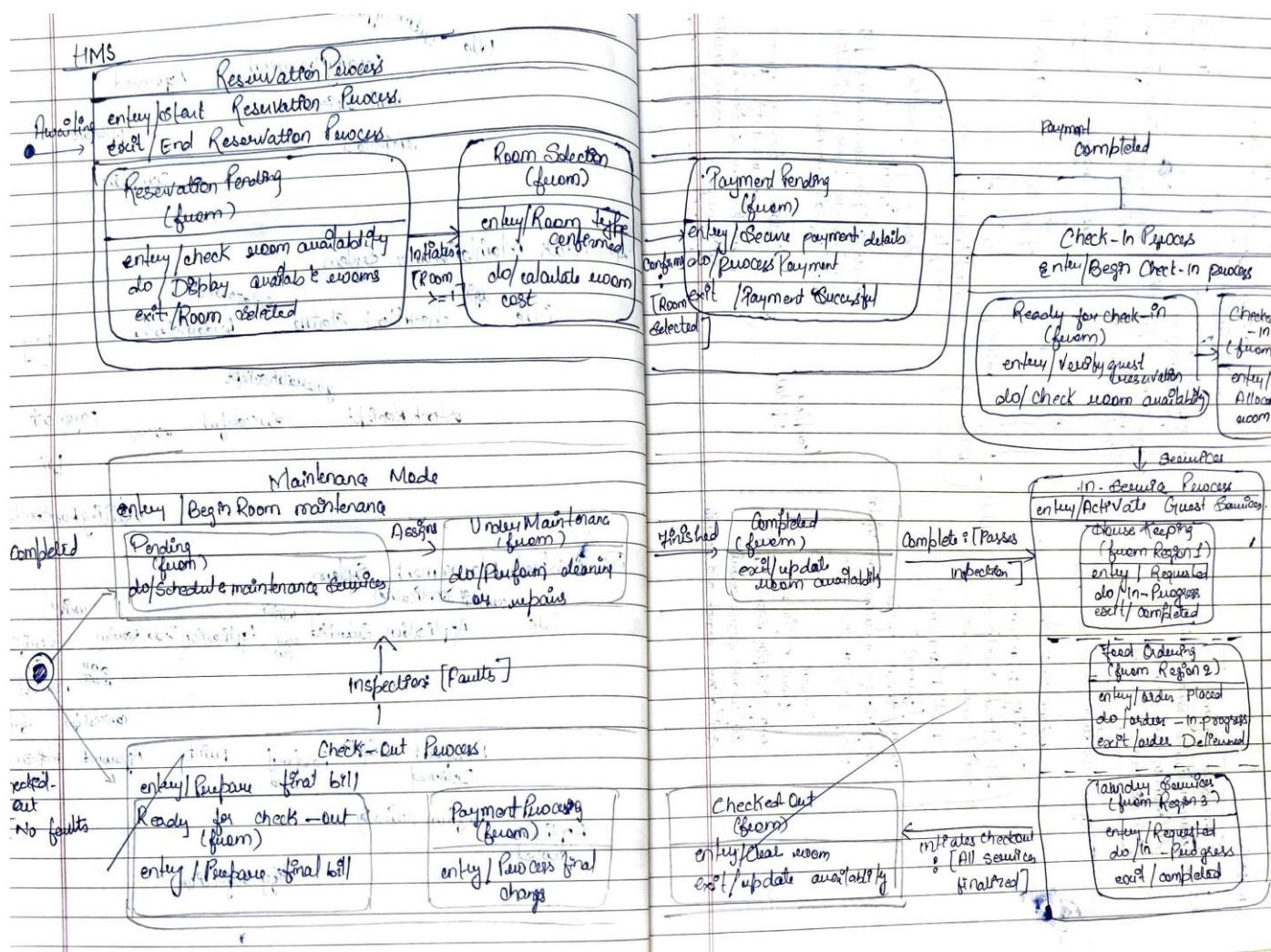
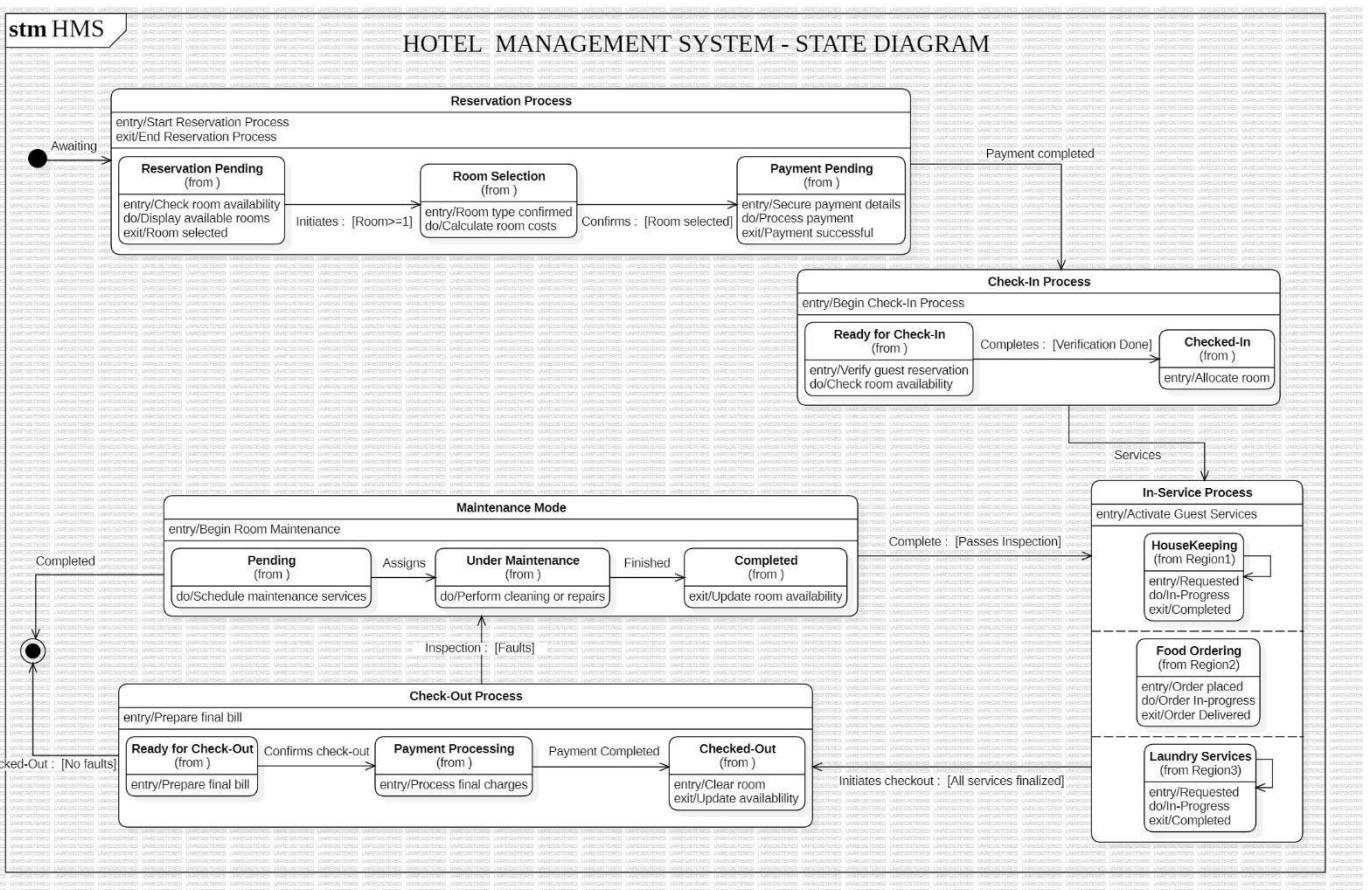
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### State Diagrams

#### 10 Hotel Management System



# ADVANCED STATE DIAGRAM



**Brief Description:****1. Reservation Process:**

- Starts with "Awaiting Reservation."
- Transitions to "Reservation Pending" after room availability is checked.
- Moves to "Room Selection" where the guest chooses a room.
- Proceeds to "Payment Pending" for payment processing.
- Finally, reaches "Payment Completed" upon successful payment.

**2. Check-In Process:**

- Begins with "Ready for Check-In."
- Transitions to "Checked-In" after guest verification and room allocation.

**3. Maintenance Mode:**

- Starts with "Pending" for scheduling maintenance services.
- Moves to "Under Maintenance" for cleaning or repairs.
- Transitions to "Finished" upon completion.
- Finally, moves to "Completed" after inspection and room availability update.

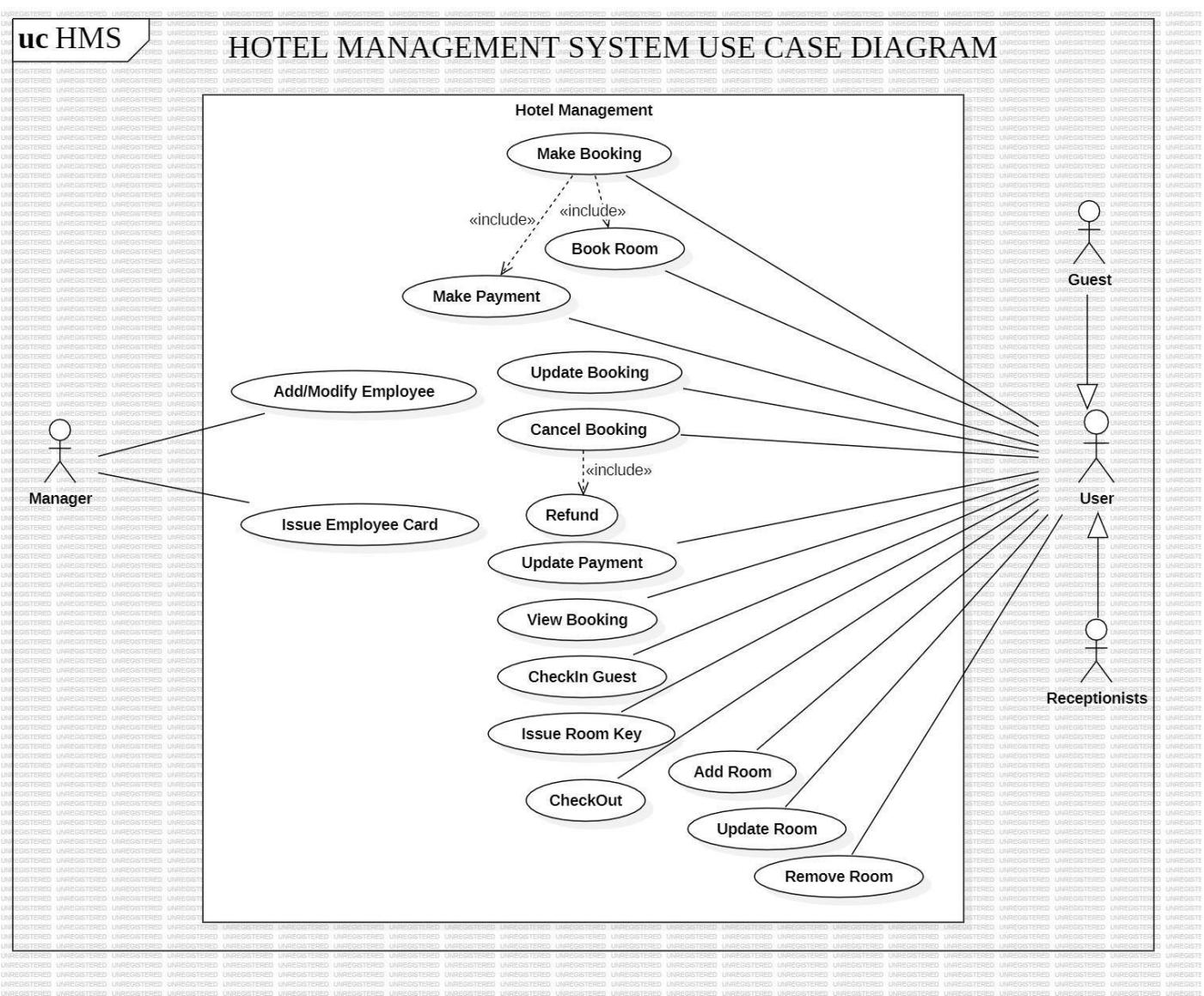
**4. Check-Out Process:**

- Starts with "Ready for Check-Out."
- Transitions to "Checked-Out" after final bill preparation, payment processing, and room clearance.

**5. Services:**

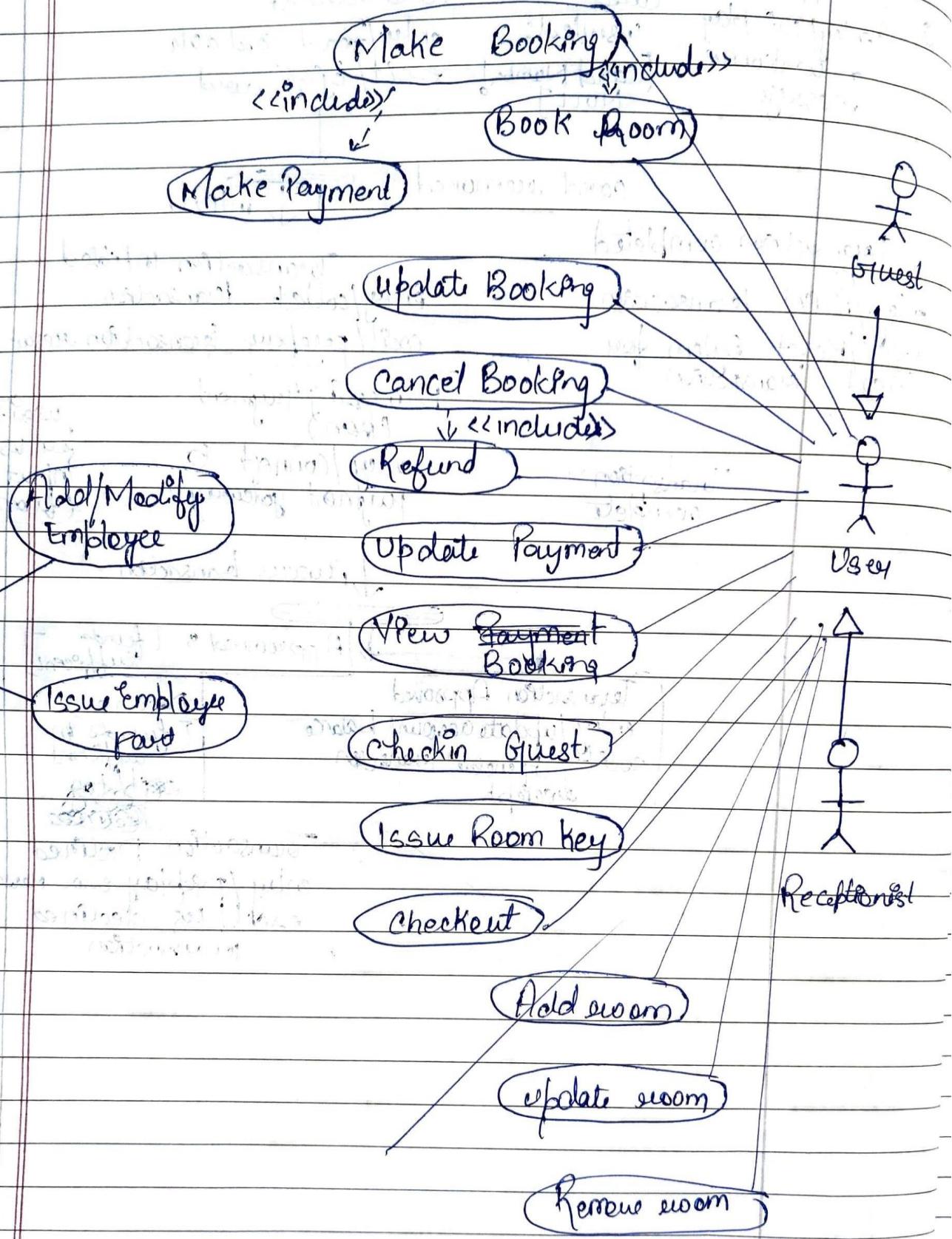
- Includes Housekeeping, Food Ordering, and Laundry Services.
- Each service has its own state transitions, such as "Requested," "In-Progress," and "Completed."

# USE CASE DIAGRAM



# Use Case Diagram

## + Hotel Management



**Brief Description:****1. Hotel Management**

This is the overarching use case, encompassing all other functionalities within the system.

**2. Make Booking**

Includes the sub-use cases of:

Book Room: Allows guests to select and reserve rooms.

Make Payment: Processes payment for the reservation.

**3. Update Booking**

Enables guests to modify or change their reservation details.

**4. Cancel Booking**

Includes the sub-use case of:

Refund: Processes refunds for canceled bookings.

**5. View Booking**

Allows guests to view their reservation details and status.

**6. Check-in Guest**

Handles the process of checking guests into their rooms.

**7. Issue Room Key**

Provides room keys to checked-in guests.

**8. Check-Out**

Handles the process of checking guests out of their rooms.

**9. Add Room**

Allows the addition of new rooms to the hotel's inventory.

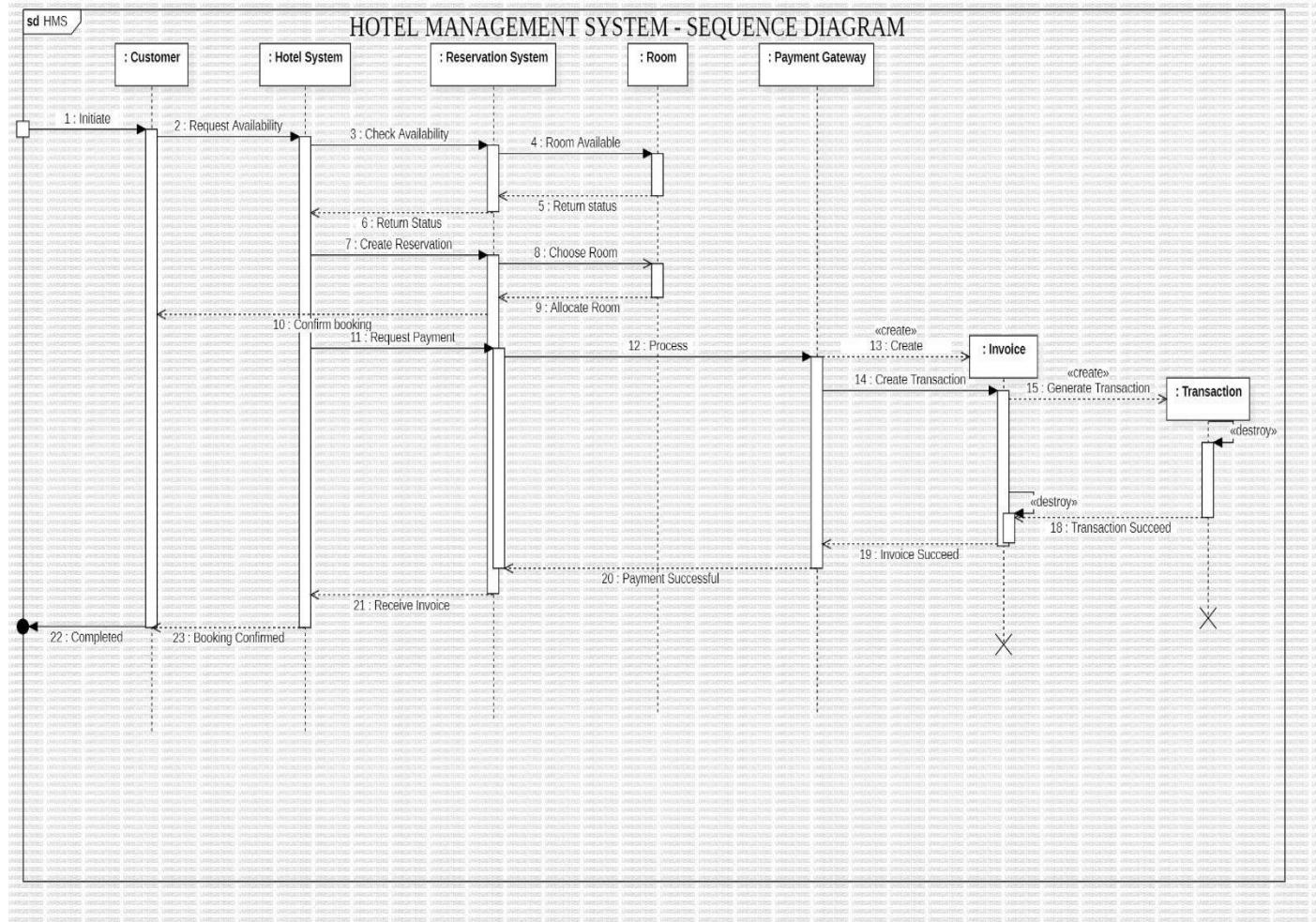
**10. Update Room**

Enables updates to room information, such as amenities or status.

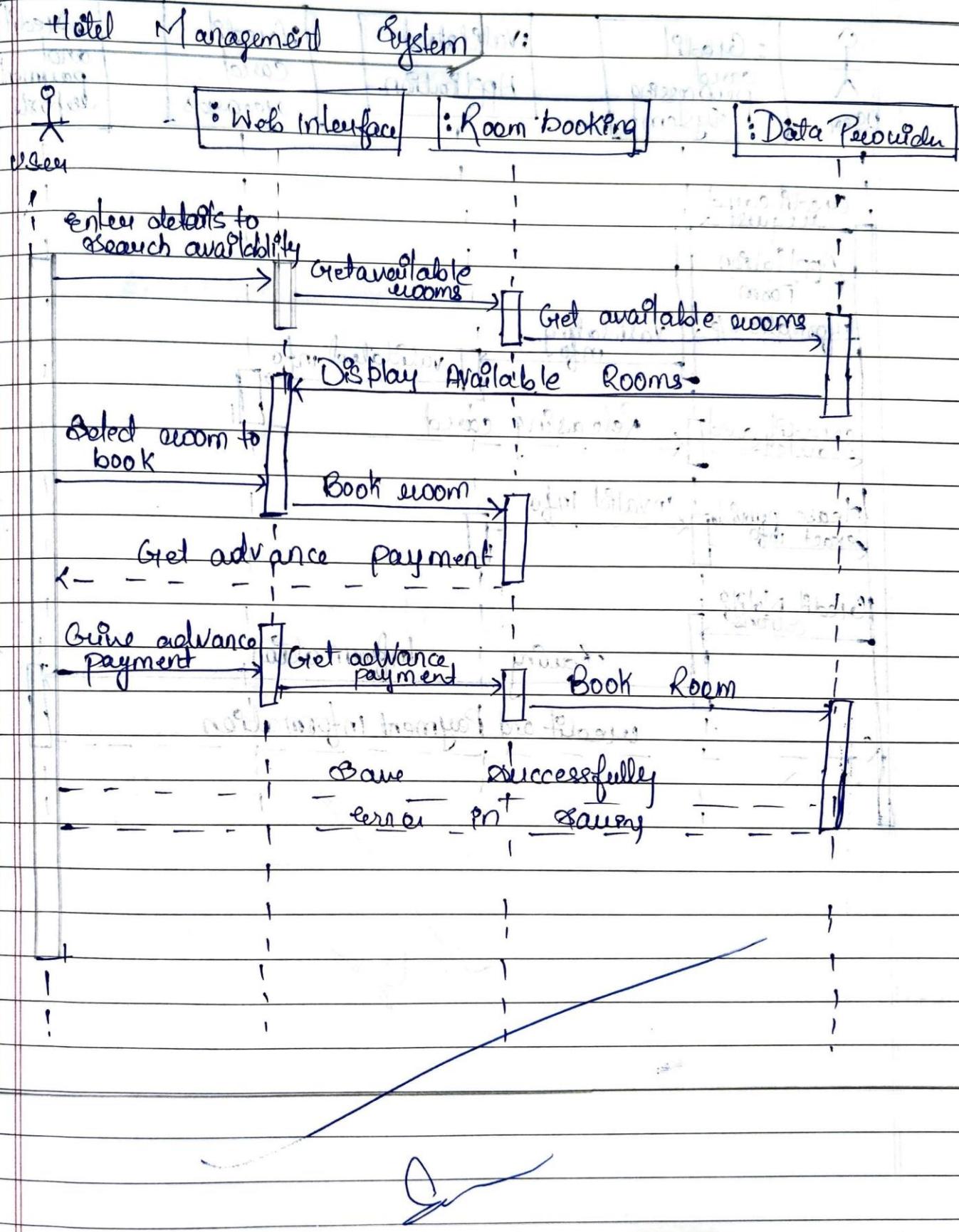
**11. Remove Room**

Allows the removal of rooms from the hotel's inventory.

# SEQUENCE DIAGRAM



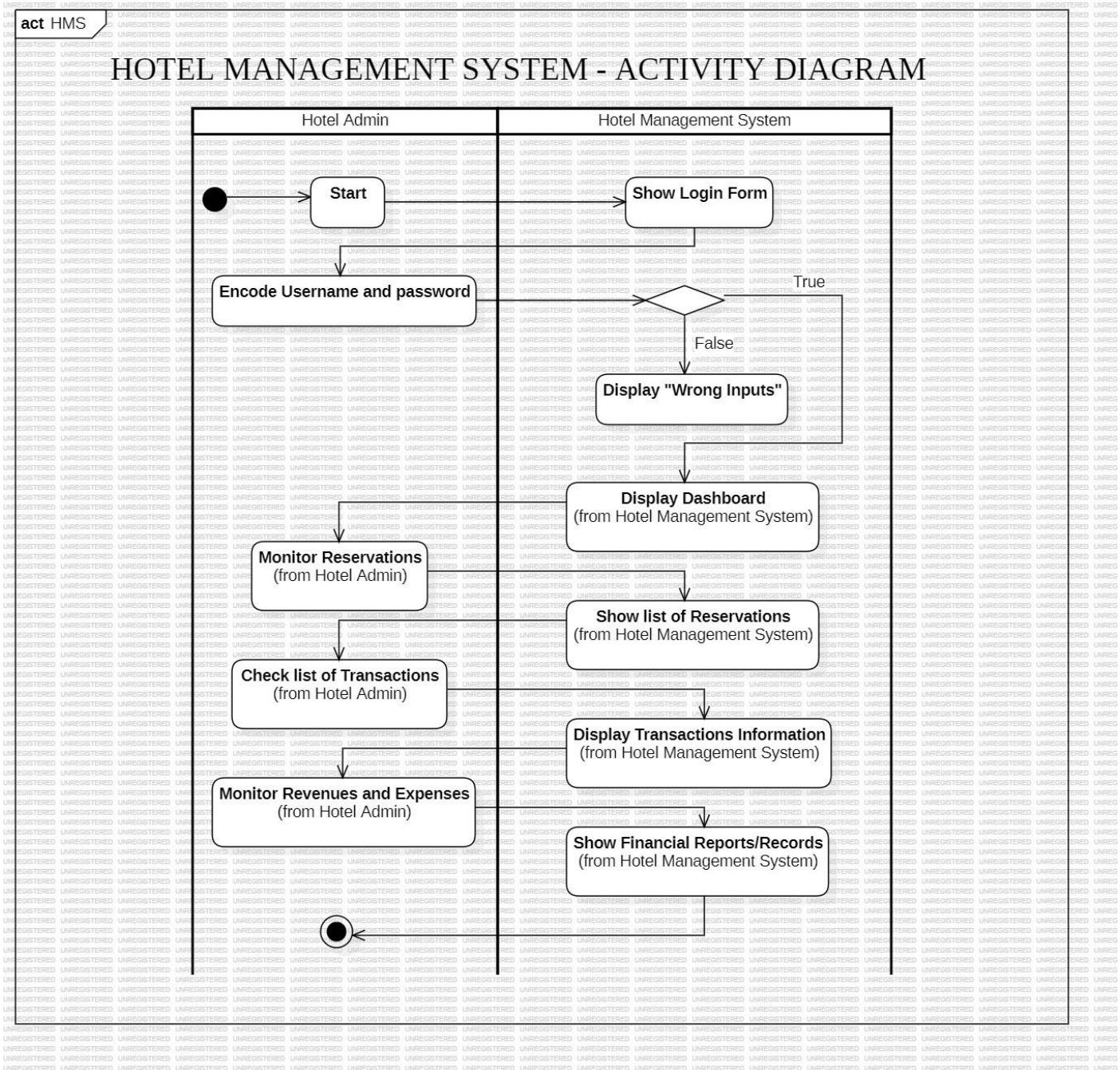
## Sequence Diagram



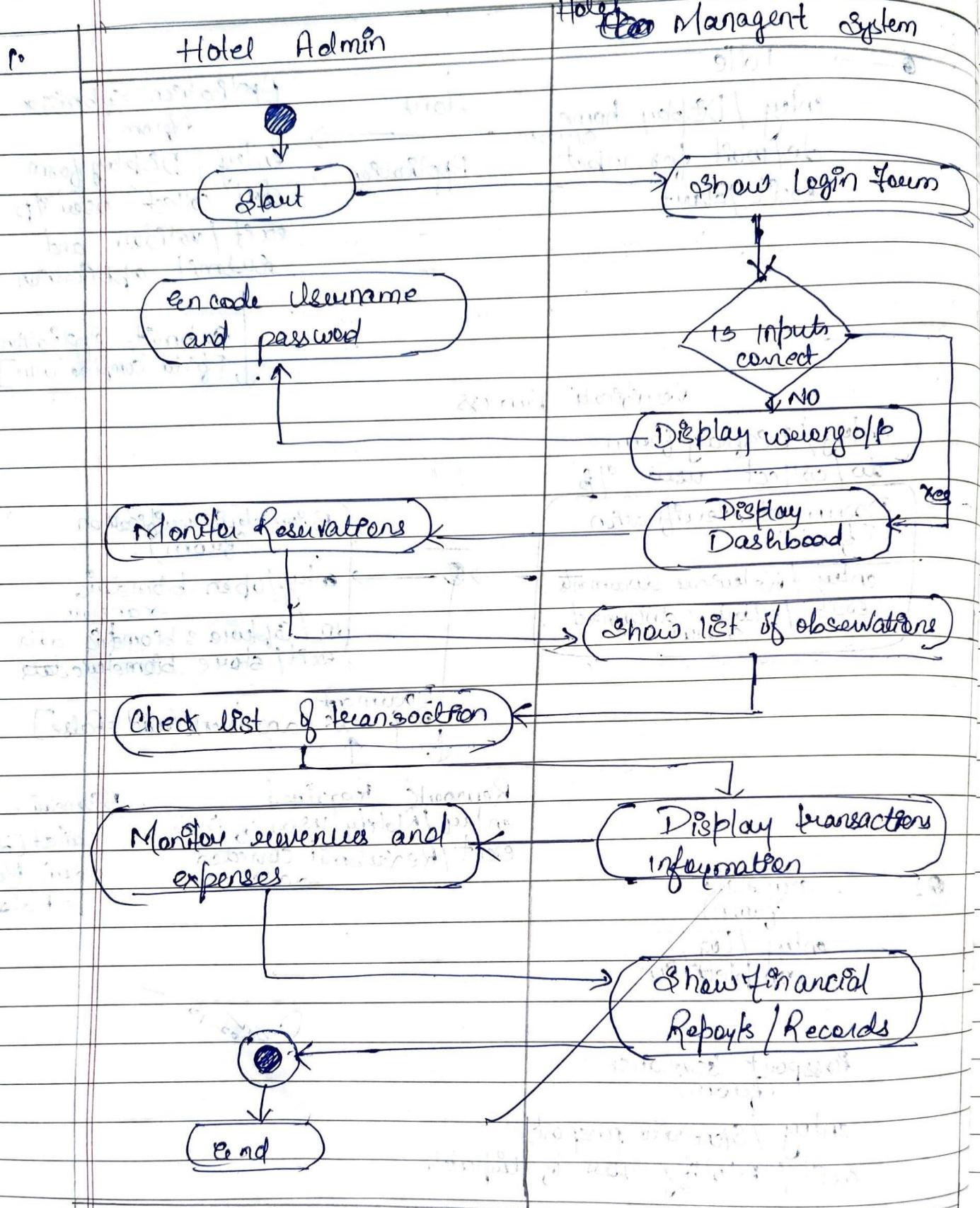
**Brief Description:**

1. **Customer Initiates Reservation:** The customer starts the process by initiating a reservation request.
2. **Check Availability:** The customer requests availability information, and the hotel system checks for available rooms.
3. **Room Available:** The hotel system returns the available rooms to the customer.
4. **Choose Room:** The customer selects a preferred room.
5. **Create Reservation:** The hotel system creates a reservation record.
6. **Request Payment:** The hotel system requests payment from the customer.
7. **Process Payment:** The payment gateway processes the payment.
8. **Transaction Succeed:** The payment gateway confirms successful transaction.
9. **Booking Confirmed:** The hotel system confirms the booking to the customer.

# ACTIVITY DIAGRAM



# Activity Diagram



**Brief Description:**

1. **Start:** The process begins with the administrator starting the system.
2. **Show Login Form:** The system displays a login form to the administrator.
3. **Encode Username and Password:** The administrator enters their username and password.
4. **Login Validation:** The system validates the entered credentials. If they are correct:
  - o **True:** The administrator is granted access to the dashboard.
  - o **False:** An error message ("Wrong Inputs") is displayed, and the process returns to the login form.
5. **Display Dashboard:** Once logged in, the administrator is presented with the main dashboard.
6. **Monitor Reservations:** The administrator can view a list of current reservations.
7. **Check List of Transactions:** The administrator can access and review transaction records.
8. **Monitor Revenues and Expenses:** The administrator can view financial reports and records.