Hotel Reservation System

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Use Case Model

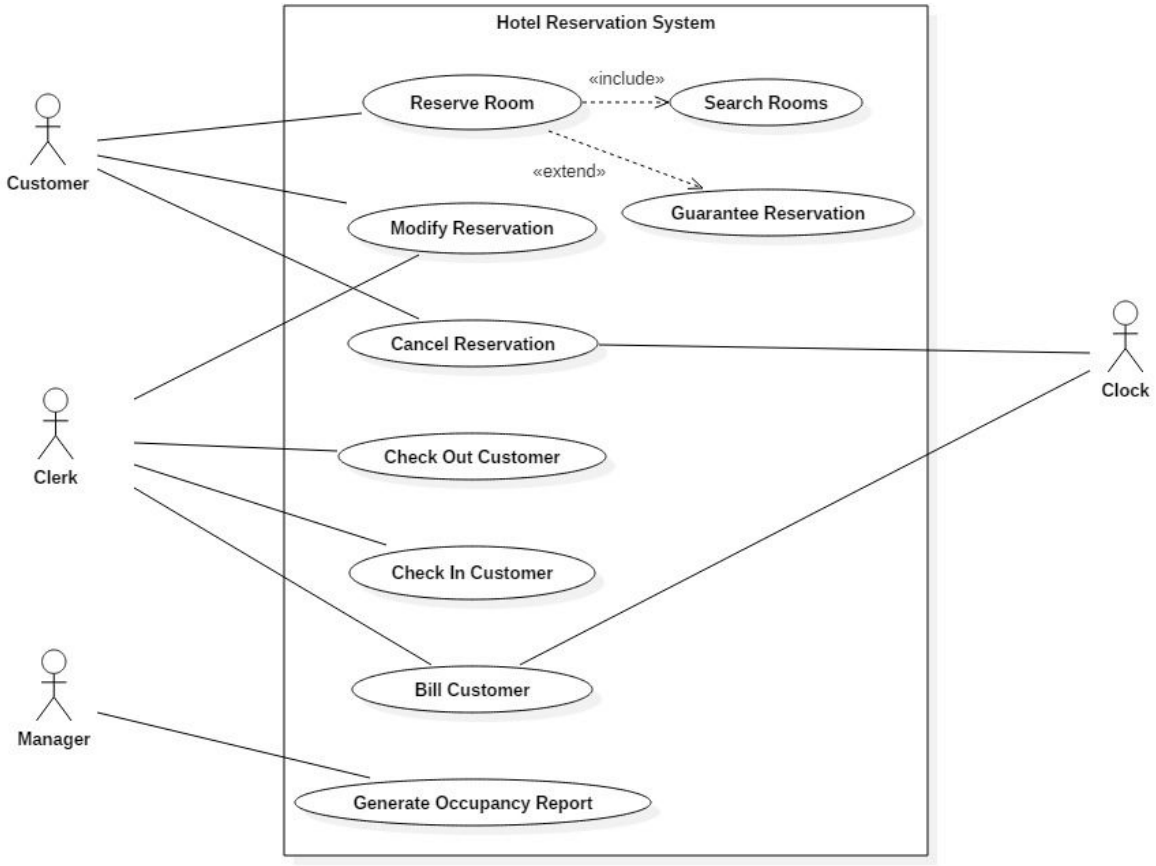
Functional Requirement

I. Display Availability of Rooms
II. Create Reservations
III. Modify Reservations
IV. Assign Rooms
V. Check - In / Check - Out Customer
VI. Automatic Billing and Cancellation
VII. Validate Credit Card
VIII. Generate Check - Out Statement
IX. Generate Management Report (Occupancy || Billing)
X. Print Reservation Info

Use Case Relationship Table

Reserve Room	**II**
Search Room	**I**
Modify Reservation	**III, VI**
Guarantee Reservation	**VII**
Cancel Reservation	**III**
Check-out Customer	**V, VIII, X**
Check-In Customer	**IV, V**
Bill Customer	**VI, VII**
Generate Occupancy Report	**IX**

Use Case Diagram



Use Case Description

Search Rooms

Summary: Customer enters a request to view rooms. All available rooms will be displayed to the customer..

Actor(s): Customer

Preconditions: System is idle.

Main Sequence:

1. Customer request to view rooms.
2. All available rooms will be displayed to the customer for a choice of selection.

Alternate Sequence:
Step 2: If there are no available rooms, system will display “There are no available rooms”.

Post-condition: System has display all available rooms.

Reserve Room

Summary: Customer enters a request to reserve a room through the online reservation system. The system will approve customer's request and give informational feedback regarding the reservations.

Actors: Customer, Clerk

Preconditions: The customer or has selected one or more rooms.

Main Sequence:

1. Customer provides order request such as number of occupants, room type, and date of arrival as well as date of departure.
2. System prompts customer for his or her information such as name and address.
3. Customer has option of either guarantee or no guarantee reservations.
4. If customer selects guarantee reservations, system will prompt customer for credit card information.
5. System checks the customer's credit card for the purchase amount and if approved, creates a credit card authorization purchase.

Alternate Sequence:
Step 1. Selected room type is unavailable. System will prompt customer to choose different room type or cancel request.
Step 5: If the customer's credit card request is denied, the system prompts the customer to enter a different credit or cancel reservation request.

Post-condition: Customer has made reservations at the hotel.

Modify Reservation

Summary: Customer has made changes to their reservations.

Actors: Customer, Clerk

Preconditions: Customer has upcoming reservations.

Main Sequence:

1. System prompts customer for what they would like to modify. The options are change reservation date or cancel reservations.
2. If customer chooses to change reservation date, the system will the prompt the customer to select a different available date.
3. If customer chooses to cancel reservations, the system will prompt user to confirm and reservations will be canceled.

Alternate Sequence:
Step 2: If the newly selected date is unavailable, system will prompt customer to select different date.
Step 3: If customer was a guarantee and tries to cancel reservations the day of the request and it's after 6:00 pm, customer will automatically get billed for the hotel reservations.

Post-condition: Customer has modified their reservations.

Reserve Room

Summary: Customer request to reserve room through front desk clerk. Front Desk Clerk will receive customer's information and log it into the system.

Actors: Clerk, Customer

Preconditions: Customer

Main Sequence:

1. Customer provides number of occupants, selects available room type, and choose a check - in and check - out date.
2. Customer provides his or her information such as name and address.
3. Front Desk prompts customer to choose either guaranteed or non - guaranteed reservations.
4. If customer selects guaranteed reservations, system will prompt customer for credit card information.
5. System checks the customer's credit card for the purchase amount and if approved, creates a credit card authorization purchase.

Alternate Sequence:
Step 5: If the customer's credit card request is denied, the system prompts the customer to enter a different credit or cancel reservation request.

Post-condition: Front Desk Clerk has made reservations for a customer.

Check - In Customer

Summary: Front Desk Clerk gets Customer's credit card information to place on hold for any possible damages. The system prints out the customer's name, room rate, check - in date and check - out date.

Actors: Clerk, Customer

Preconditions: Customer has reservations on the day of check - in.

Main Sequence:

1. Customer request to check - in at hotel by providing name and address.
2. Customer provides credit card to front desk clerk which will be place card hold as a security deposit.
3. If approved, the system will print out the customer's name, room rate, check - in and check - out date, and a room key.

Alternate Sequence:
Step 1: Customer is not in the system with reservations. Customer will be asked to show proof of reservations or to purchase room reservations.
Step 2: If the customer's credit card request is denied, the system prompts the customer to enter a different credit card or cancel reservation request.

Post-condition: System has printed out customer's room and reservation information and customer has been checked in.

Check - Out Customer

Summary: Customer checks - out of the hotel. The system then prints a checkout statement containing the hotel name, customer name and address, room number and charge per night, number of nights reserved, total price, tax, and amount payable.

Actors Clerk, Customer

Preconditions: Customer request to check - out.

Main Sequence:

1. Customer request to check - out of hotel.
2. The front desk clerk prompts the customer to pay for reservation either by cash or by credit card.
3. If by credit card, the system bills the external bank authorization system.
4. The system then prints a checkout statement containing the hotel name, customer name and address, room number and charge per night, number of nights reserved, total price, tax, and amount payable.

Alternate Sequence:
Step 3: If the customer's credit card request is denied, the system prompts the customer to enter a different credit or pay by cash.

Post-condition: Customer has successfully visited and checked - out of the hotel.

Generate Occupancy Report

Summary: The manager views the hotel occupancy figure for the past or present dates.

Actors: Management

Preconditions: System is idle.

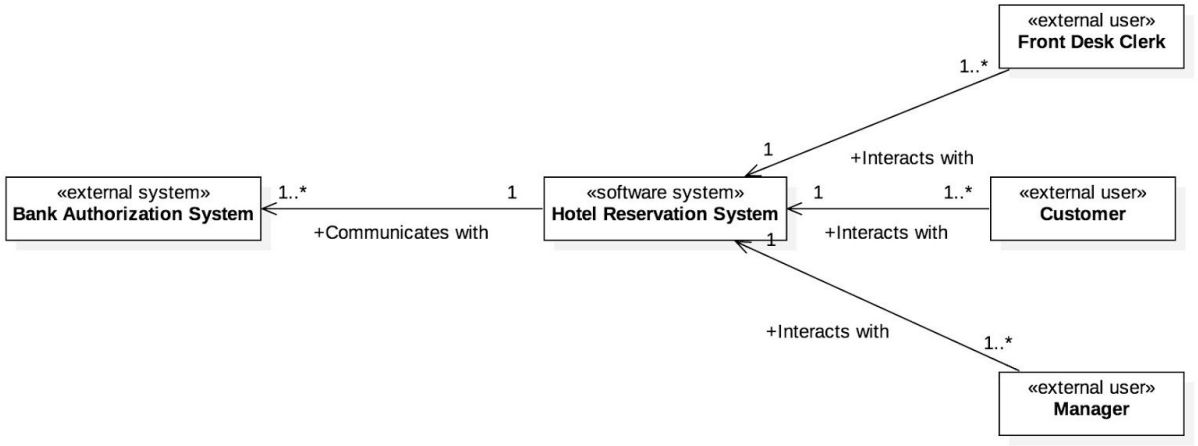
Main Sequence:

1. Management request to generate occupancy report.
2. The system displays an occupancy reports showing the total occupancy and revenue (computed from the rooms allocated) for the selected dates.

Post-condition: Management has successfully generated an occupancy report.

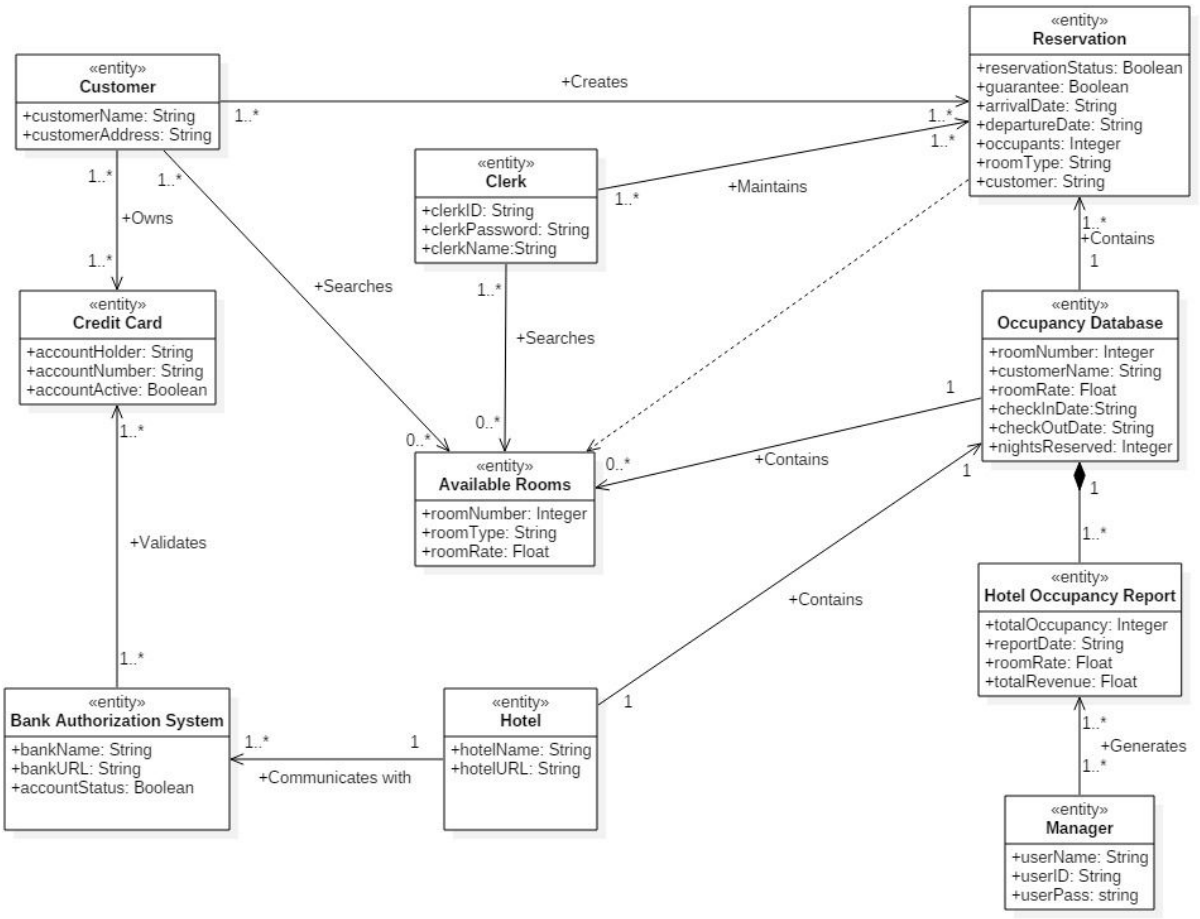
Static Model

Software System Context Model



Static Model

Conceptual Static Model for Entity Classes



Entity Class Purposes

1. **Customer:** This class contains the customer information.

2. **Credit Card**: This class contains the credit card account information and status.

3. **Bank Authorization System:** This class contains the name and access information of the bank.

4. **Clerk:** This class contains the clerk's log in information,

5. **Available Rooms:** This class contains the number, type, and rate information for the room.

6. **Hotel:** This class contains the name and access information for the Hotel.

7. **Reservation:** This class contains all identifying information for the reservation.

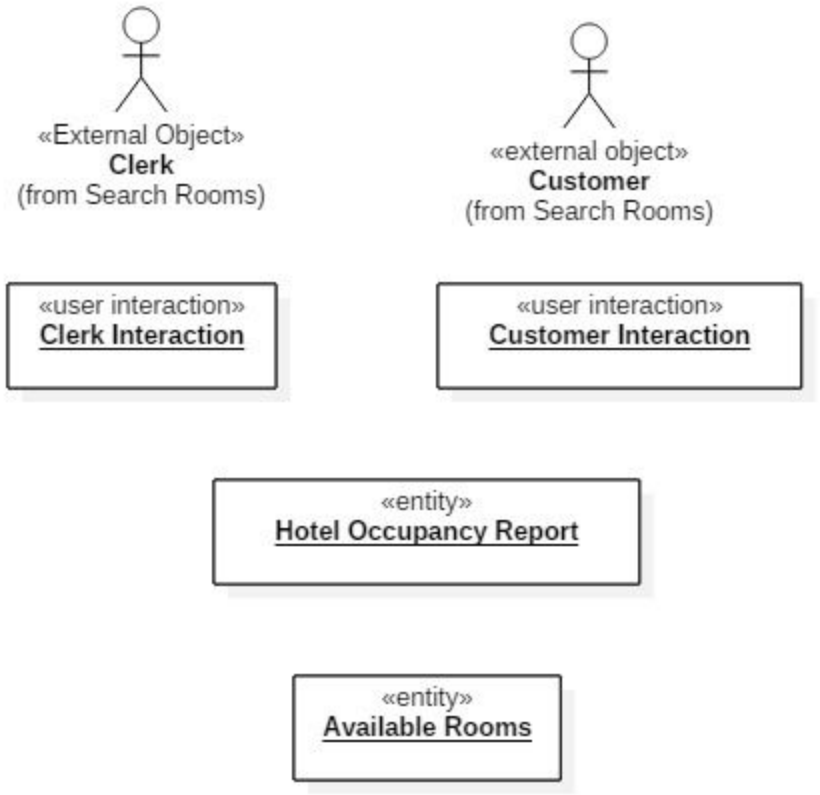
8. **Occupancy Database:** This class contains reservation information and status for all rooms in the hotel.

9. **Hotel Occupancy Report:** This class contains the rooms reserved, date of report, and total revenue generated.

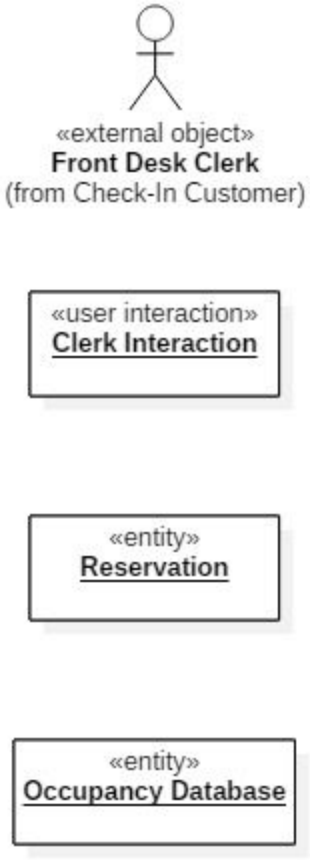
10. **Manager:** This class contains the manager login information.

Dynamic Interaction Model

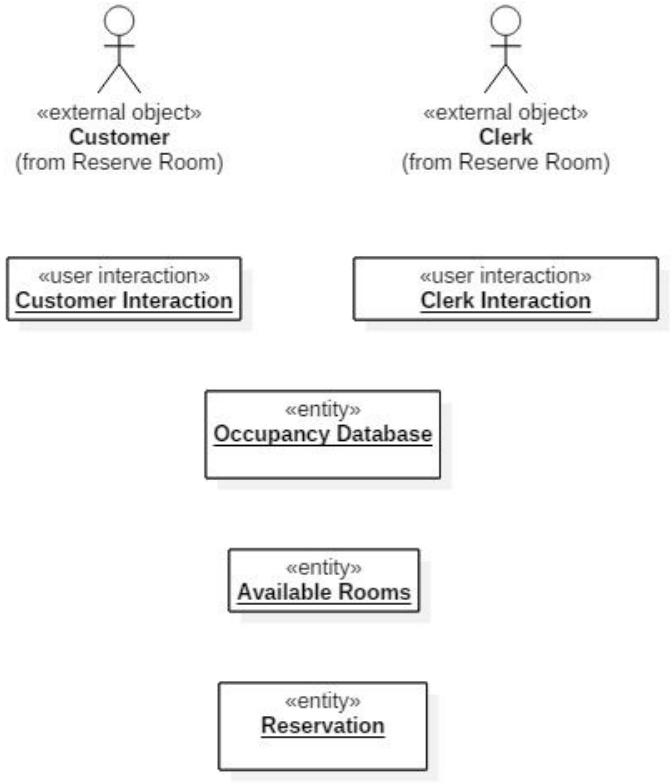
Search Room Object Model



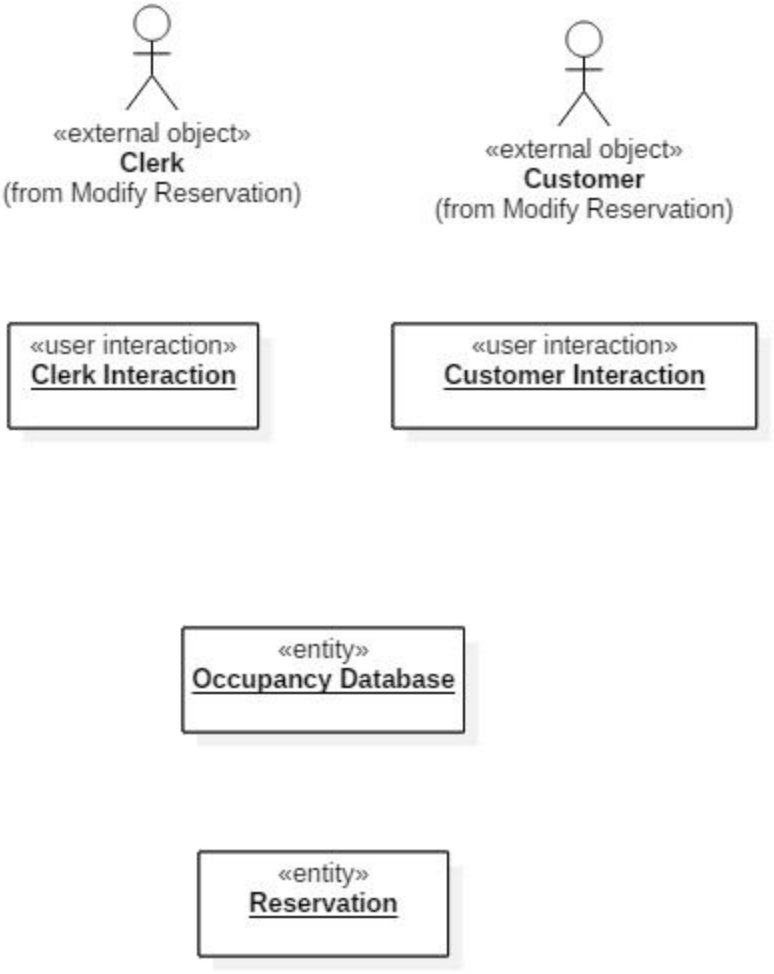
Check In Customer Object Model



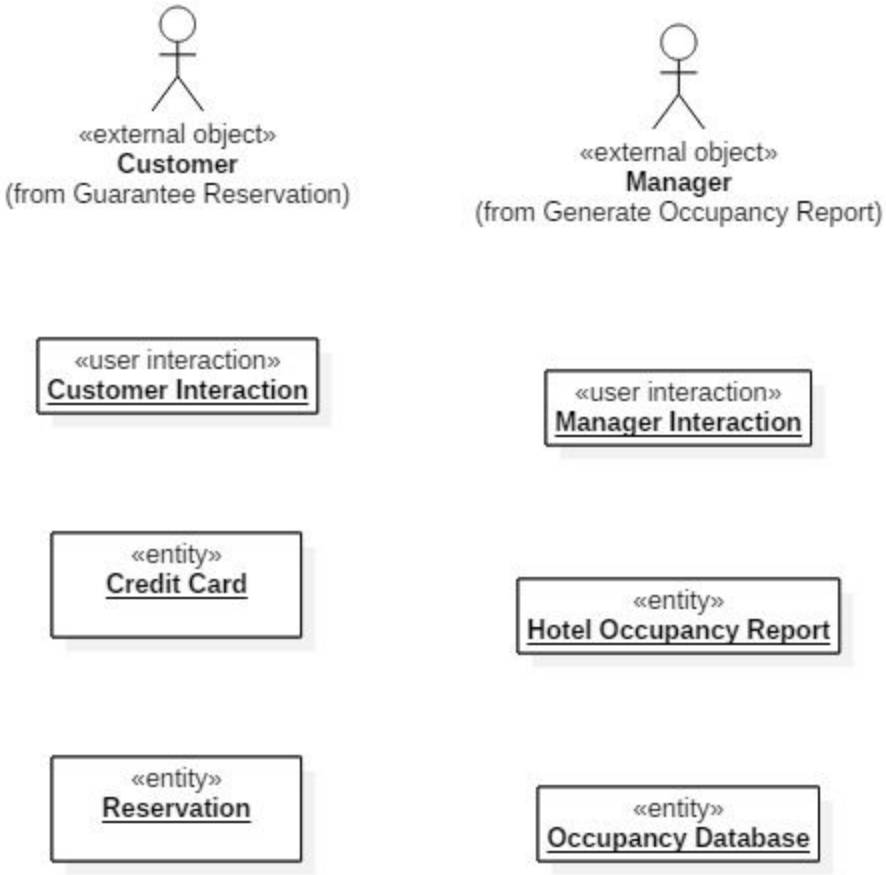
Reserve Room Object Model



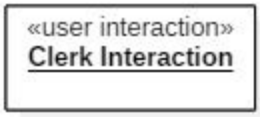
Modify Reservation Object Model

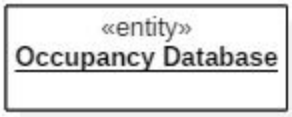


Guarantee Reservation and Generate Occupancy Report Object Models

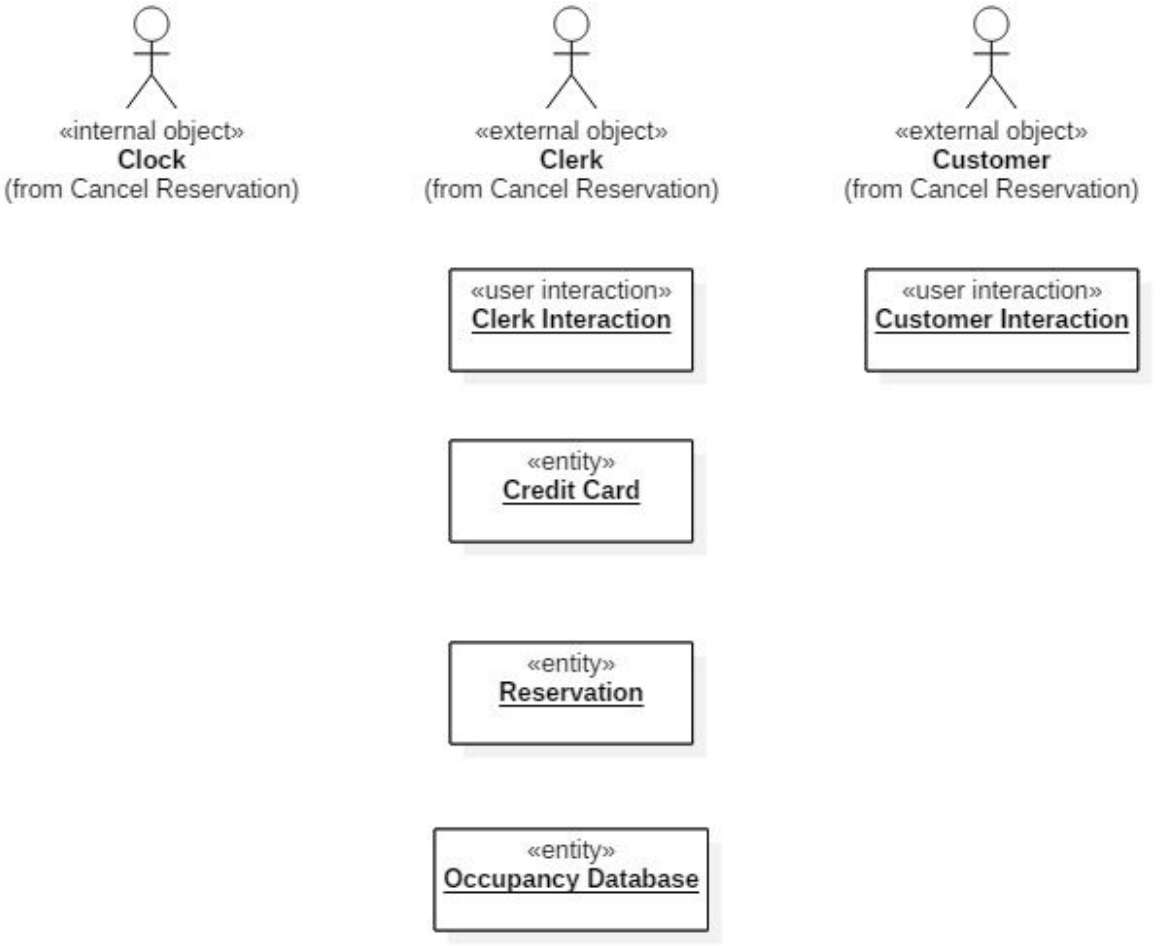


Check-out Customer Object Model

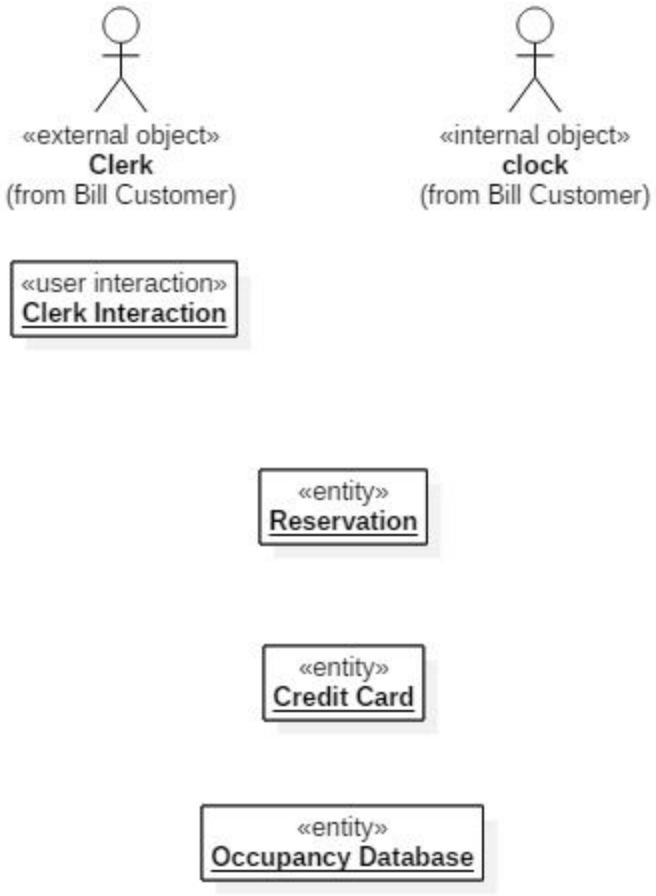




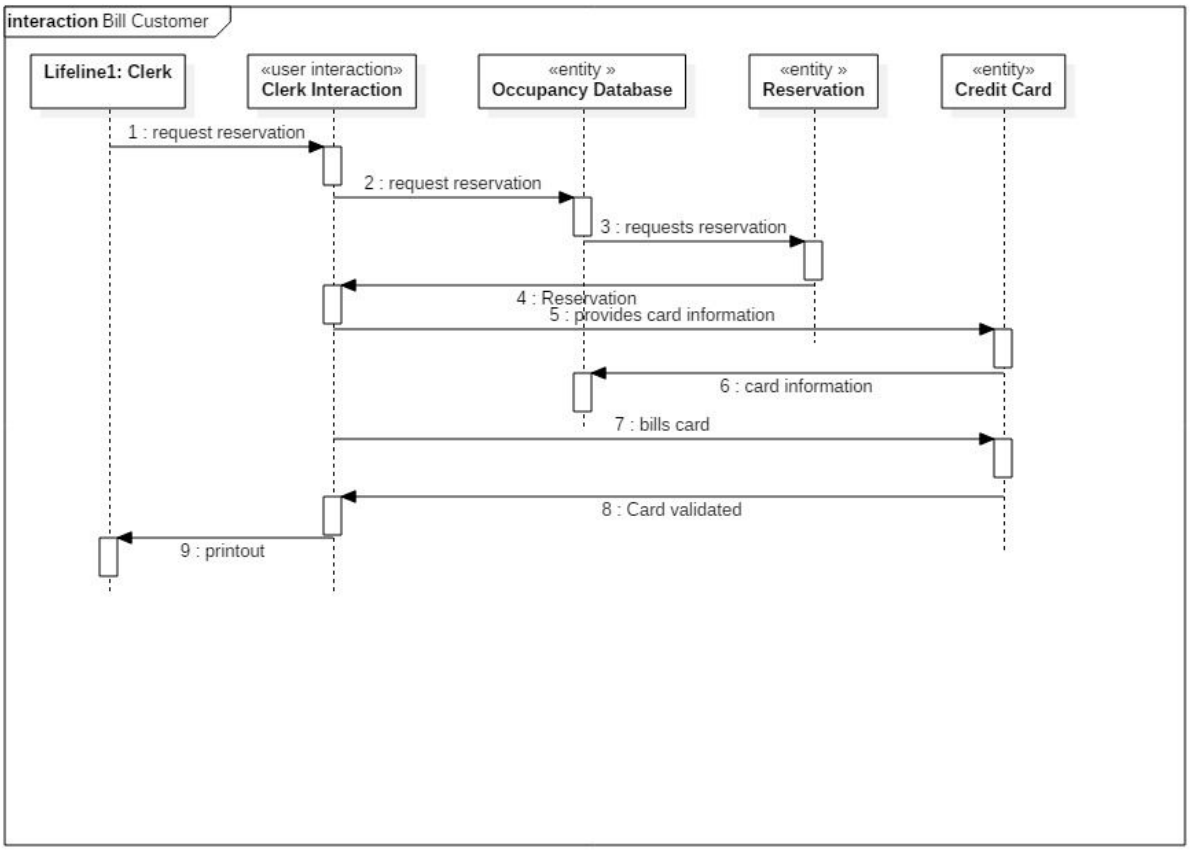
Modify Reservation Object Model

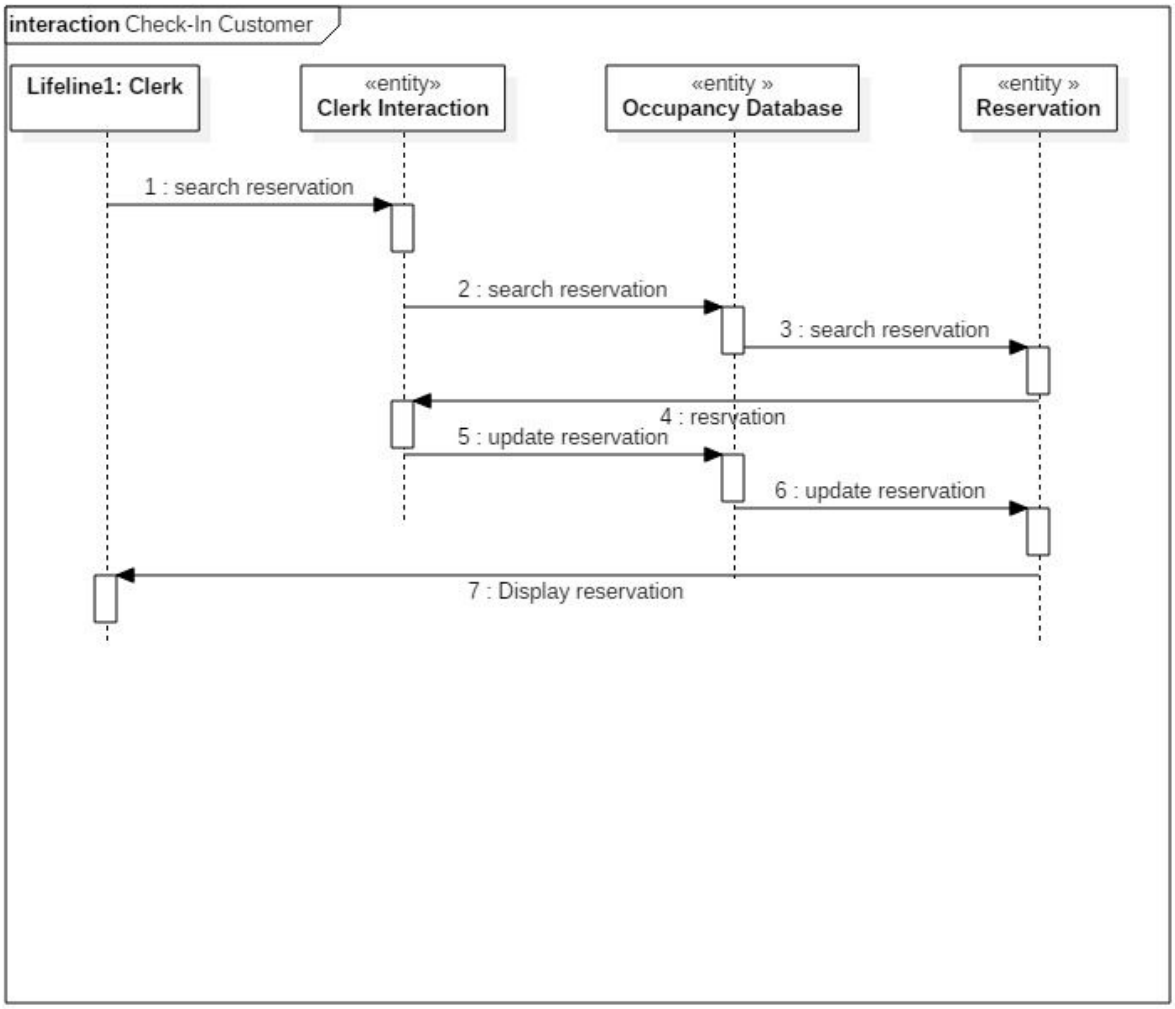


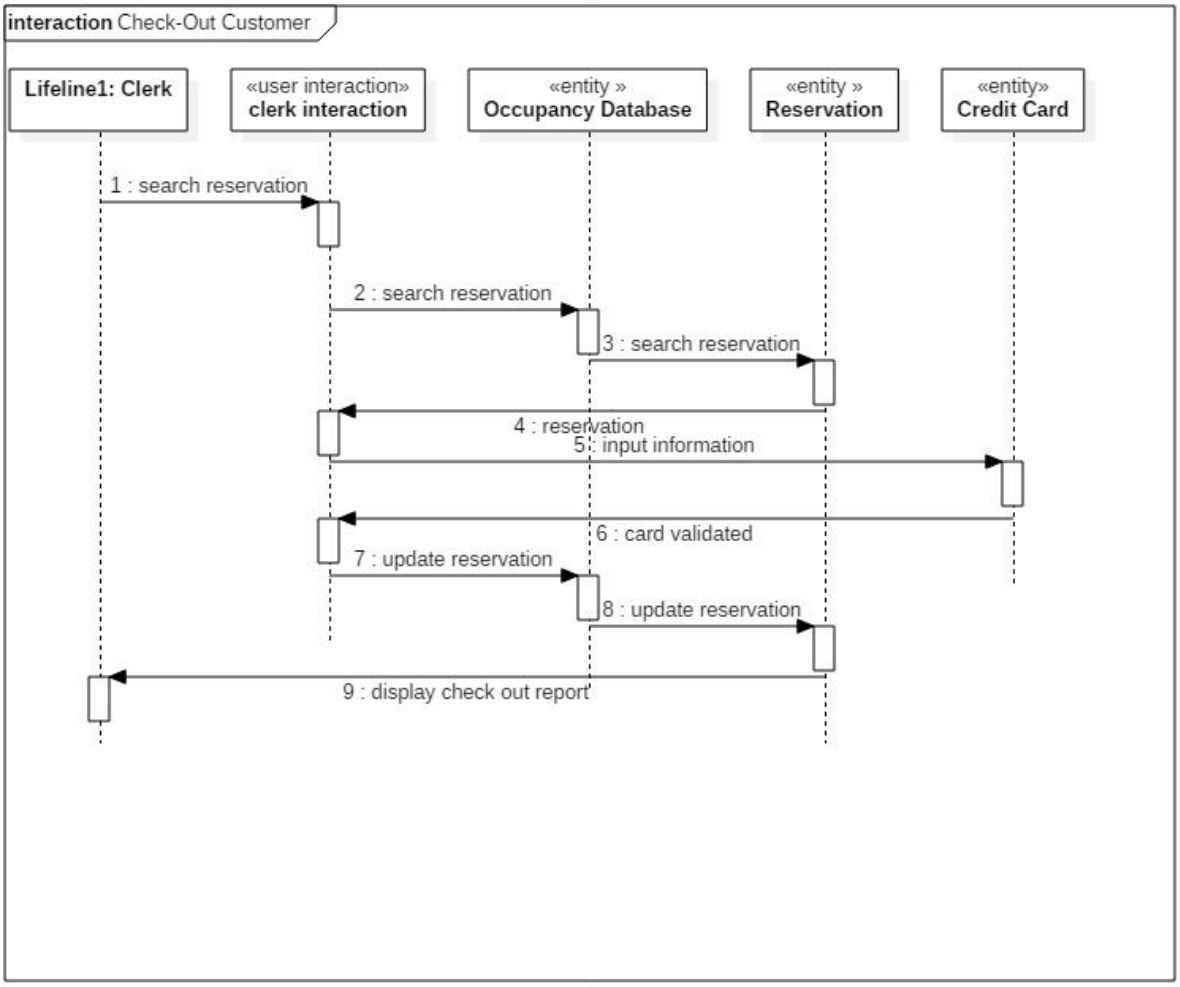
Bill Customer Object Model

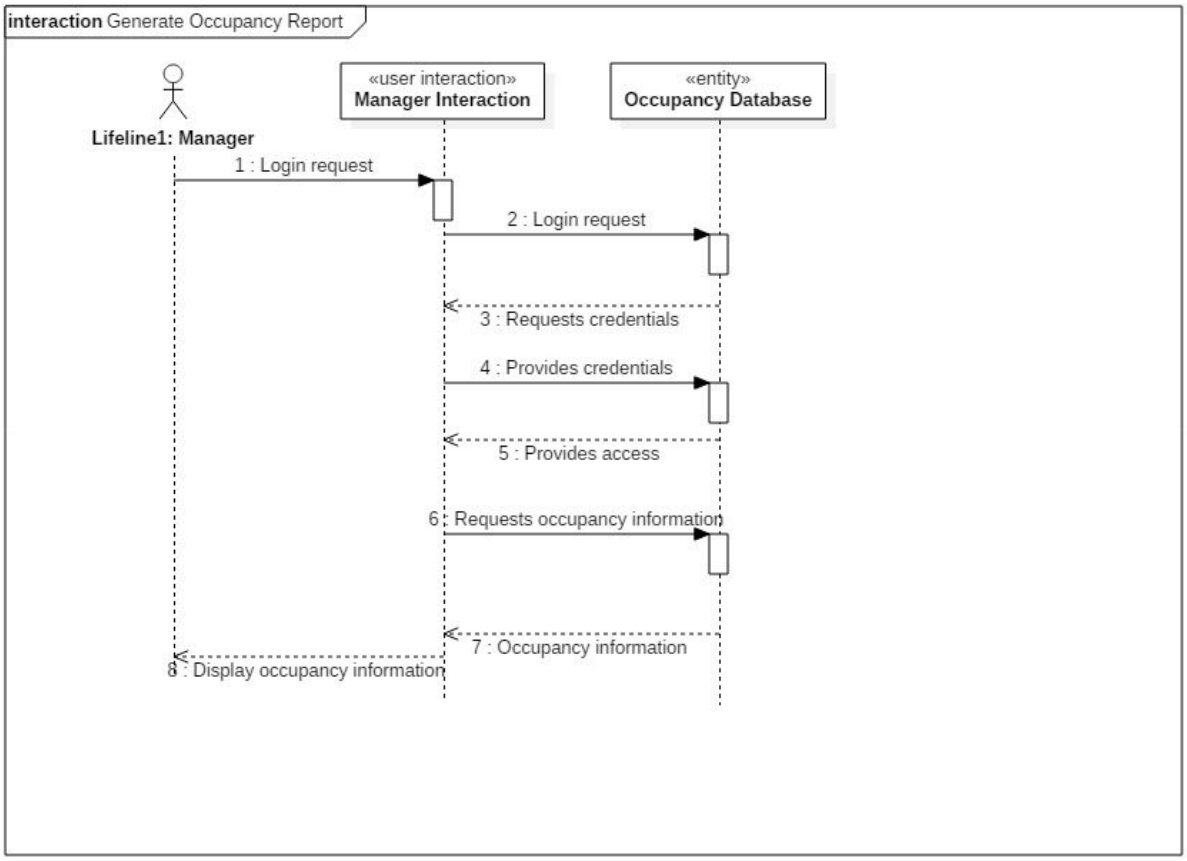


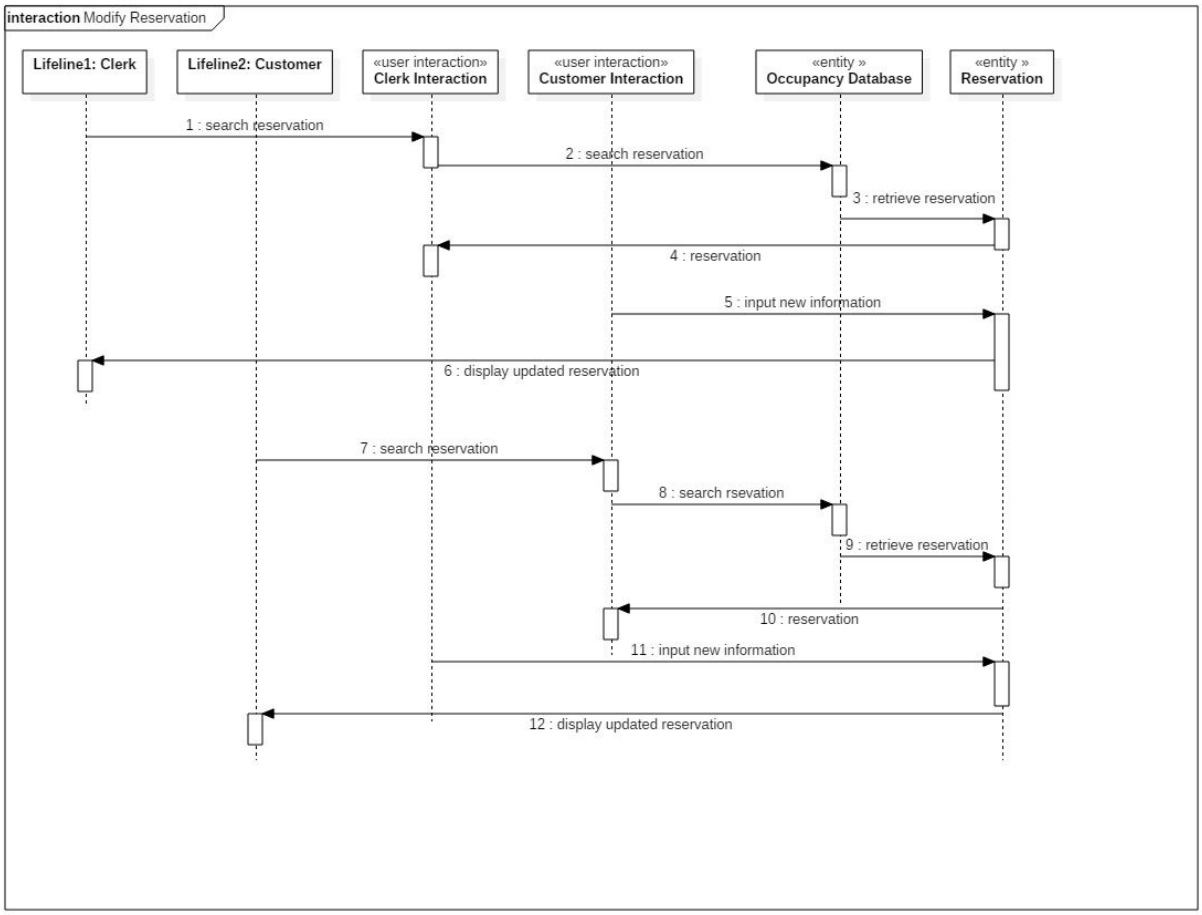
Interaction Models

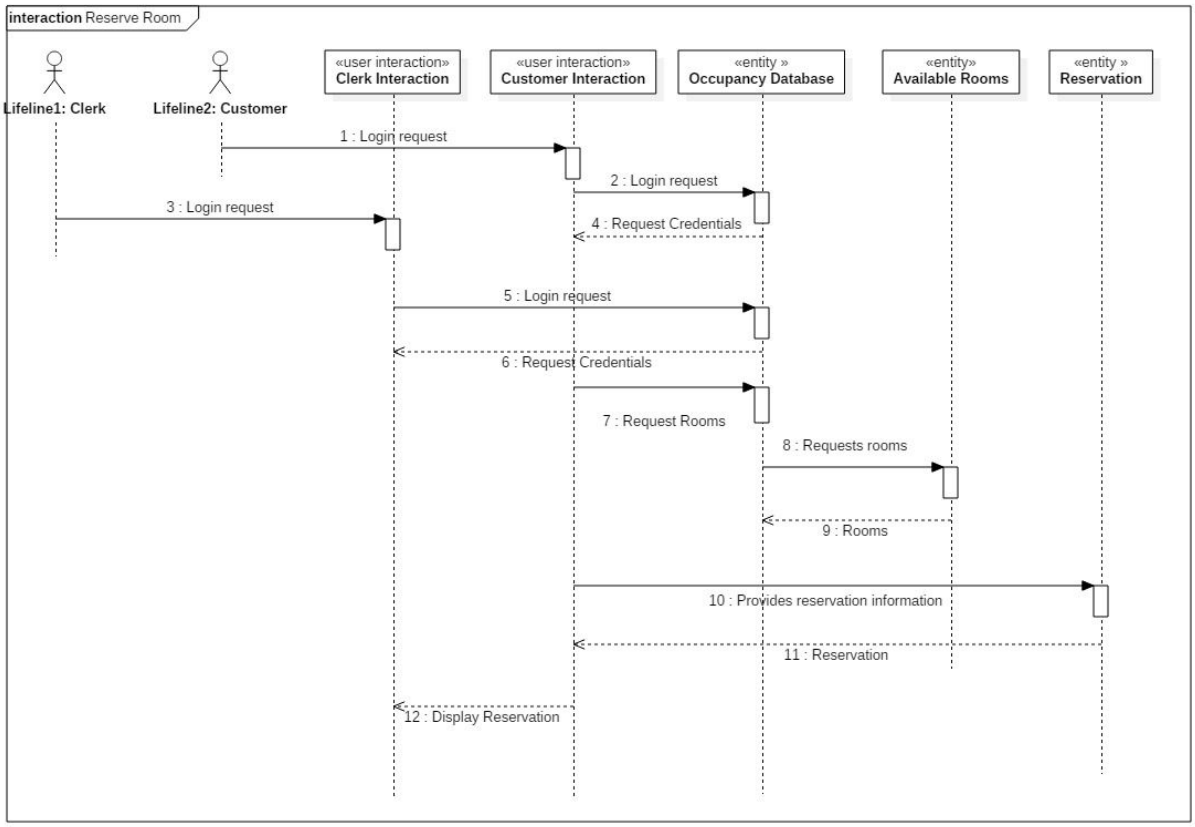


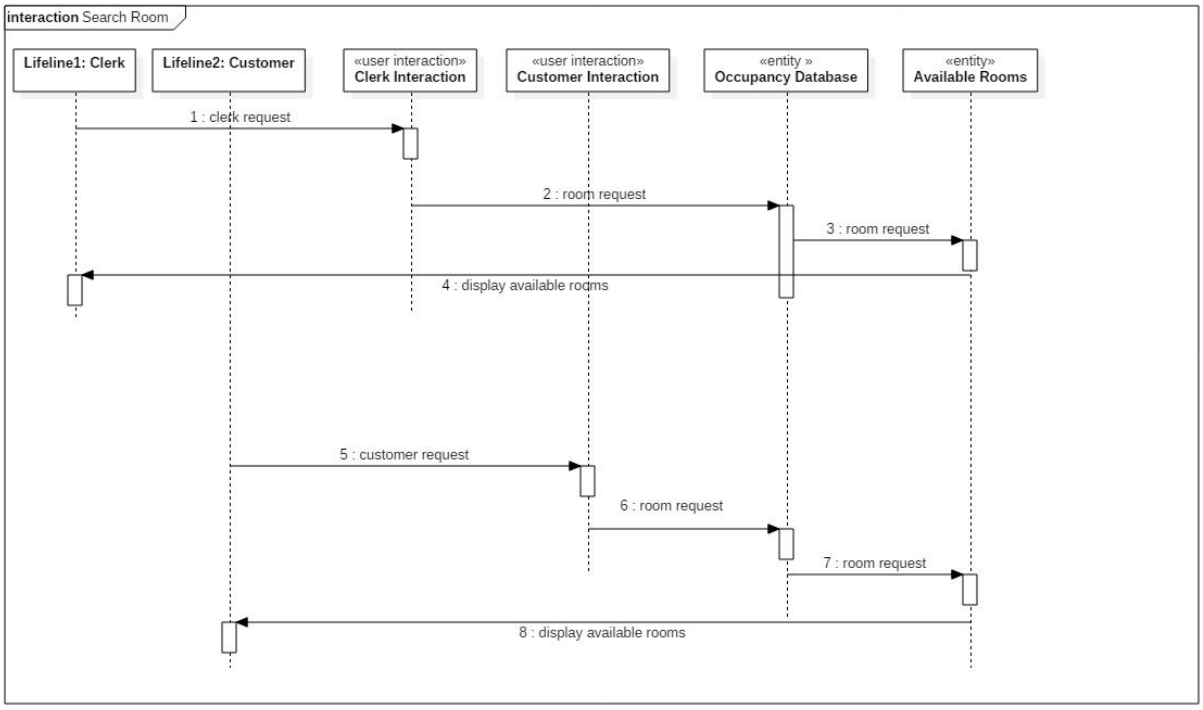

interaction Check-In Customer
Lifeline1: Clerk
«entity»
Clerk Interaction
«entity »
Occupancy Database
«entity »
Reservation
1 : search reservation
2 : search reservation
3 : search reservation
4 : resrvation
5 : update reservation
6 : update reservation
7 : Display reservation


interaction Check-Out Customer
Lifeline1: Clerk
«user interaction»
clerk interaction
«entity »
Occupancy Database
«entity »
Reservation
«entity»
Credit Card
1 : search reservation
2 : search reservation
3 : search reservation
4 : reservation
5 : input information
6 : card validated
7 : update reservation
8 : update reservation
9 : display check out report


interaction Generate Occupancy Report
«user interaction»
Manager Interaction
«entity»
Occupancy Database
Lifeline1: Manager
1 : Login request
2 : Login request
3 : Requests credentials
4 : Provides credentials
5 : Provides access
6 : Requests occupancy information
7 : Occupancy information
8 : Display occupancy information


interaction Modify Reservation
Lifeline1: Clerk
Lifeline2: Customer
«user interaction»
Clerk Interaction
«user interaction»
Customer Interaction
«entity »
Occupancy Database
«entity »
Reservation
1 : search reservation
2 : search reservation
3 : retrieve reservation
4 : reservation
5 : input new information
6 : display updated reservation
7 : search reservation
8 : search rsevation
9 : retrieve reservation
10 : reservation
11 : input new information
12 : display updated reservation


interaction Reserve Room
Lifeline1: Clerk
Lifeline2: Customer
«user interaction»
Clerk Interaction
«user interaction»
Customer Interaction
«entity »
Occupancy Database
«entity»
Available Rooms
«entity »
Reservation
1 : Login request
2 : Login request
3 : Login request
4 : Request Credentials
5 : Login request
6 : Request Credentials
7 : Request Rooms
8 : Requests rooms
9 : Rooms
10 : Provides reservation information
11 : Reservation
12 : Display Reservation


interaction Search Room
Lifeline1: Clerk
Lifeline2: Customer
«user interaction»
Clerk Interaction
«user interaction»
Customer Interaction
«entity »
Occupancy Database
«entity»
Available Rooms
1 : clerk request
2 : room request
3 : room request
4 : display available rooms
5 : customer request
6 : room request
7 : room request
8 : display available rooms

Bill Customer

1. The clerk requests the reservation information from the database.
2. The reservation is located.
3. The reservation information is returned to the clerk.
4. The clerk provides card number, expiration date, and customer name.
5. The card information is returned to the database.
6. The clerk bills the card.
7. The card is validated.
8. The clerk receives a receipt.

Check In Customer

1. The clerk searches the reservation.
2. The reservation is located in the database.
3. The reservation date, customer and room is returned to the clerk.
4. The clerk changes the status to checked -in.
5. The updated information is stored in the reservation.
6. The updated reservation is displayed to the clerk.

Check-out Customer

1. The clerk searches the reservation.
2. The reservation is located in the database.
3. The reservation date, length of stay, rate of room, and customer name is returned to the clerk
4. The clerk validates the credit card information
5. The clerk changes the status of the reservation to checked out in the database.
6. The system displays the check out report with customer name, room number, room rate, check-in date, and check out date.

Generate Occupancy Report

1. The Manager requests to log in.
2. The database requests the manager's login password and id.
3. The manager provides login credentials.
4. The database provides access.
5. The manager requests the total occupancy, the revenue per room, and total revenue.
6. The database returns occupancy information.

Guarantee Reservation

1. The customer enters their card number, customer name, and expiration date into the database.
2. The customer's card information is stored in the reservation.
3. The reservation status changes in the database to guaranteed.
4. The database returns a guaranteed reservation status.

Modify Reservation

1. The user, Clerk or Customer, enters the name attached to the reservation into the database.
2. The database searches the reservations using the reservation name.
3. The database returns the reservation to the user.
4. The user enters new information into the database.
5. The database stores the updated information in the reservation.
6. The the database displays the updated reservation to the user.

Reserve Room

1. The user, Clerk or Customer, enters a login request.
2. The database requests the user's login password and username.
3. The user then requests enters a room type to request.
4. The database searches available rooms.
5. Available rooms are returned with the room type and rate information.
6. The user provides their name, reservation date, address, number of occupants, and date of arrival and departure.
7. The database stores this reservation information.
8. The database displays the reservation to the user.

Search Room

1. The user, clerk or customer, enters a request for room to the database.
2. The database requests the available room information, room number, room type, room rate.
3. The database returns the available rooms information to the user.

Software Architectural Design