
Software Requirements and Design Document

for

SERENE HOMES

Prepared by JAVARIA HABIB and HAMNA SADIA RIZWAN

SECTION B

SCOPE

Vacation Home Rental Agency

DATE

3-12-2023

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- **Introduction**

- **Purpose**

This document serves as a guide for the development team, stakeholders, and anyone involved in the project to understand the functional and non-functional requirements of the software.

- **Product Scope**

SereneHomes is a vacation home rental service in Pakistan for tourists. It focuses on affordable stays, local partnerships, and customer satisfaction. Users can create accounts, book accommodations, and make advance payments in various currencies, preferably Pakistani rupees. The platform encourages user feedback for a better rental experience.

- **Title :**

SereneHomes - a vacation home rental agency

- **Objectives**

The primary objective of the project is to establish and operate a vacation home rental agency in Pakistan. The agency would be dedicated to providing customers with comfortable and affordable accommodations while visiting various destinations in Pakistan.

To achieve this SereneHomes would focus on local collaborations, promoting sustainable practices, ensuring safety and prioritizing customer satisfaction.

- **Problem Statement**

SereneHomes addresses the issue of expensive vacation home rentals in Pakistan by prioritizing affordability, local collaborations, and customer satisfaction. The platform requires customers to create an account, undergo a background check, and choose accommodations based on preferences. Homeowners also undergo a background check and provide details about their spaces.

The platform encourages transparency by sharing homeowner contact details, and payments, preferably in Pakistani rupees, are made in advance with a reasonable cancellation policy. A feedback system allows users to leave reviews, contributing to a more accessible and sustainable vacation home rental experience in Pakistan. Plus provides a source of income to local people and they get to share their culture with others.

● Overall Description

○ Product Perspective

The vocational home rental agency Serene Homes operates independently , its scope is confined to Pakistan . It is similar to Airbnb but it is specifically for Pakistan and more affordable to the people of Pakistan. The project is designed to be a comprehensive platform, covering all aspects of vacation home rental, from user authentication and property listing to booking, payment processing, and user feedback. The major user interfaces of SereneHomes are customers and property owners where they can store information in databases , process payments, book properties etc.

○ Product Functions

Product functions include user authentication, users can login with their username and password which will be verified from the database for security and login to their interface. Customers can search property , book property according to their needs and make payments. Customers can also give feedback for their stay and booking , they can also see feedback of other properties and reviews given by other customers so they can decide which property to book accordingly .

○ List of Use Cases

1. Login
2. Register
3. Search Property
4. Book Property
5. Manage Booking
6. Owner Cancel Booking
7. Payment
8. Feedback
9. Contact Support
10. Manage Property
11. Review Booking

○ Extended Use Cases

1. Login

Group member: Hamna Sadia Rizwan

Use case name	Login
Scope	Home rental management system
Level	User Goal
Primary Actor	Customer and Property owner
Stakeholders and interests	<ul style="list-style-type: none"> • External validation system: ensures validation of user's (customer and property owner) credentials, including CNIC verification. • Administrator: manages customer support and assists customer with system related issues etc
Preconditions	<ul style="list-style-type: none"> • User (customer or property owner) has a registered and verified account • User (customer or property owner) is accessing system through a device with internet connectivity
Postconditions	<ul style="list-style-type: none"> • User (customer or property owner) has successfully logged into their account • User (customer or property owner) gains access to their respective account features
Main success scenario	<ol style="list-style-type: none"> 1. User (customer or property owner) navigates to login page of SereneHomes 2. User enters their registered email address or username and password 3. The system validates the entered credentials through the external validation system 4. External validation system verifies user against stored data 5. System confirms authentications and directs user to dashboard 6. User gains access to their respective account features such as booking for customers or adding new properties in property listings for property owners
Extensions	<ul style="list-style-type: none"> • Incorrect credentials: if the entered username/email address or password is incorrect, the system displays an error message and prompts user to try again • Forgotten password: if the user forgets their password,

	<p>they can request a password reset. Upon which the system generates a reset link and sends it via email with instructions on how to reset their password</p> <ul style="list-style-type: none"> Account locked: after multiple unsuccessful attempts to login, the account is temporarily locked. The user can either contact customer support or unlock their account by password recovery process
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2. Register

Group member: Javaria Habib

Use case name	Register
Scope	Home rental management system
Level	User Goal
Primary Actor	Customer and Property owner
Stakeholders and interests	<ul style="list-style-type: none"> External validation system: ensures validation of user's (customer and property owner) credentials, including CNIC verification. Administrator: manages customer support and assists customer with system related issues etc
Preconditions	<ul style="list-style-type: none"> User is accessing website or apps User (customer or property owner) is accessing system through a device with internet connectivity
Postconditions	<ul style="list-style-type: none"> User will have their account registered and details recorded in system and get them verified User will be able to register into their account User (customer or property owner) gains access to their respective account features
Main success scenario	<ul style="list-style-type: none"> User will choose register option when access website

	<ul style="list-style-type: none"> • User will enter all required details like name email password etc and system will verify • Account is made and user is registered • User receives a confirmation mail • User can login
Extensions	<ul style="list-style-type: none"> • user entered invalid details and error message is displayed and user is asked to enter details again

3. Search property

Group member: Hamna Sadia Rizwan

Use case name	Search property
Scope	Home rental management system
Level	User Goal
Primary Actor	Customer
Stakeholders and interests	<ul style="list-style-type: none"> • Customer: wants to find suitable rental properties according to criteria such as price and location etc • SereneHomes: wants to provide customers with all the best available options to ensure customer satisfaction
Preconditions	<ul style="list-style-type: none"> • Customer is logged into their account • Customer has specified criteria such as budget, location, number of guests, availability and check-in/out dates
Postconditions	<ul style="list-style-type: none"> • Customer is presented with a list of rental properties based on chosen criteria • Customer can view detailed property listings, including descriptions, photos, prices and availability
Main success scenario	<ol style="list-style-type: none"> 1. Customer navigates to search properties page 2. Customer enters specific criteria including budget, location, number of guests, availability and check-in/out dates 3. SerenHomes's system displays list of properties to customer, showing property names, descriptions etc

	<ol style="list-style-type: none"> 4. Customer can click on a property to view detailed information, including photos, facilities and availability dates 5. Customer can select desired property to begin booking process
Extensions	<ul style="list-style-type: none"> • No properties found: if no properties match the customer's specified criteria, the system displays a message indicating no results found and suggests customer to broaden their search criteria

4. Book property

Group member: Javaria Habib

Use case name	Book property
Scope	Home rental management system
Level	User Goal
Primary Actor	Customer
Stakeholders and interests	<ul style="list-style-type: none"> • customer wants to book a vacation home for their preferred dates • Serene home staff facilitates booking process and update property availability
Preconditions	<ul style="list-style-type: none"> • customer has chosen property to book • Customer is logged in
Postconditions	<ul style="list-style-type: none"> • customer gets a confirmation mail that property is booked on required dates
Main success scenario	<ul style="list-style-type: none"> • customer selects "book now " • Enter selected property details and enter required verification details • Make payment or choose payment option • System confirms if booking dates are available
Extensions	property is not available on preferred dates so system provides alternate option

	to book
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5. Manage booking

Group member: Hamna Sadia Rizwan

Use case name	Manage Booking
Scope	Home rental management system
Level	User Goal
Primary Actor	Customer
Stakeholders and interests	Customer: wants to view, modify or cancel existing booking SereneHomes: wants to ensure a smooth process
Preconditions	Customer is logged into their account
Postconditions	Booking details are successfully managed (viewed, modified or canceled)
Main success scenario	<ol style="list-style-type: none"> 1. Customer navigates to Manage booking page 2. System retrieves and displays a list of customer's existing bookings, showing all details, including booking status (confirmed, pending or canceled) 3. Customer selects view, modify or cancel. <ol style="list-style-type: none"> a. View: system displays detailed information about selected booking, including property details and any additional services booked etc b. Modify: system validates changes, checking any clashes with availability or pricing rules. If modifications are valid then the system updates booking details and recalculates cost. c. Cancel: customer confirms cancellation. System validates cancellation request checking with policy and calculates cancellation charges. If applicable then system proceeds to refund process and booking status is changed to "Canceled". 4. Customer receives confirmation of action taken and updated booking details

Extensions	<p>Invalid modification: if the modification is conflicted by any policies or availability of property, the system displays an error message, prompting user to adjust modifications</p> <p>Cancellation policy violation: if violated then system informs user of penalties or additional applicable fees</p> <p>Confirmation emails: any modification prompts a confirmation email to customer by the system</p>
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6. Owner cancel booking

Group member: Javaria Habib

Use case name	Owner cancel booking
Scope	Home rental management system
Level	User Goal
Primary Actor	Property owner
Stakeholders and interests	<ul style="list-style-type: none"> property owner wants to cancel booking Serenehomes handles cancelling and update property availability details
Preconditions	property owner is logged in and registered , the property is booked
Postconditions	property booked is cancelled and property availability status is updated
Main success scenario	<ul style="list-style-type: none"> property owner chooses cancel booking from booking manage Property owner gives verification details of property to cancel booking Booking is cancelled Confirmation mail is sent of cancellation
Extensions	<ul style="list-style-type: none"> cancellation period is finished and now there will be extra charges and fine to cancel

7. Payment

Group member: Hamna Sadia Rizwan

Use case name	Payment
Scope	Home rental management system
Level	Sub-function
Primary Actor	Customer
Stakeholders and interests	<ul style="list-style-type: none"> • Customer: wants a secure, efficient payment process • SereneHomes: wants to ensure secure and timely processing of payments, all while maintaining customer trust • Property owners: want their payments to be processed securely and on time
Preconditions	<ul style="list-style-type: none"> • Customer has booked an accommodation • Customer has entered valid booking details • Customer has chosen payment method
Postconditions	<ul style="list-style-type: none"> • Payment is successfully processed • Booking status is updated to confirmed (booking process is completed) • Customer receives booking confirmation
Main success scenario	<ol style="list-style-type: none"> 1. Customer selects desired accommodation and enters booking details 2. Customer chooses a preferred payment method (credit/debit card or online transfer etc) 3. SereneHomes secures payment through selected platform 4. The platform verifies transaction and provides confirmation to SereneHomes 5. SereneHomes updates booking status to "Confirmed" 6. SereneHomes sends confirmation of booking to customer
Extensions	<ul style="list-style-type: none"> • Payment transaction fails: SereneHomes informs customer of transaction failure and offers another method of payment or to retry the payment • Customer has insufficient funds: SereneHomes informs customer of payment failure due to insufficient funds and prompts them to either update payment details or use another card • Payment platform error: Platform fails to process

	transaction, SereneHomes attempts process again. If unsuccessful then customer is informed of the issue and is advised to either contact customer support or try again after some time
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8. Feedback

Group member: Javaria Habib

Use case name	feedback
Scope	Home rental management system
Level	User goal
Primary Actor	Customer
Stakeholders and interests	<ul style="list-style-type: none"> Customer wants to give rating and review of vacations home they stayed in Serenehome collects reviews and improves their user experience and quality
Preconditions	customer stayed at booked property and completed their stay
Postconditions	user review is added to the feedback list
Main success scenario	<ul style="list-style-type: none"> customer chooses option feedback from home Customer gives their feedback and rates their stay
Extensions	<ul style="list-style-type: none"> feedback not accepted unless booking record found

9. Contact support

Group member: Hamna Sadia Rizwan

Use case name	Contact support
Scope	Home rental management system
Level	Sub-function

Primary Actor	Customer and property owner
Stakeholders and interests	<ul style="list-style-type: none"> Customer: seeks assistance for various issues such as booking inquiries, modifications or any complaints etc Property owner: may contact for property related concerns, booking clarifications or other queries
Preconditions	Contact support representative is logged into support system
Postconditions	Customer or property owner's query, issue or request is addressed and resolved
Main success scenario	<ol style="list-style-type: none"> 1. Contact support representative receives a query, issue or request from either customer or property owner 2. Representative access user's (customer or property owner) account and reviews relevant booking details or property information 3. Representative communicates with user (customer or property owner) to gain additional information 4. Representative provides necessary assistance such as answering queries or making modifications to bookings etc 5. Representative ensures user's (customer or property owner) concern is addressed and they are satisfied
Extensions	<ul style="list-style-type: none"> Issue escalation: if representative cannot handle the issue the case is handed off to administrator Follow-up: after resolution, representative follows up with the customer or property owner to ensure the solution addresses their concerns efficiently.

10. Manage property

Group member: Javaria Habib

Use case name	Manage property
Scope	Home rental management system
Level	User Goal
Primary Actor	Property Owner
Stakeholders and interests	<ul style="list-style-type: none"> customer wants to add , Deere update property and it's details Serenehomes wants accurate and updated property listings on

Preconditions	property owner is logged in
Postconditions	property owner adds new property , delete property , edit property history and details
Main success scenario	<ul style="list-style-type: none"> Property owner selects "Manage Listings" from their account dashboard. Property owner can add a new property listing with details, edit existing listings, or remove listings. System validates the information and updates the listings accordingly.
Extensions	property owner adds incomplete information and system prompts owner to fill out complete and accurate details that's are valid

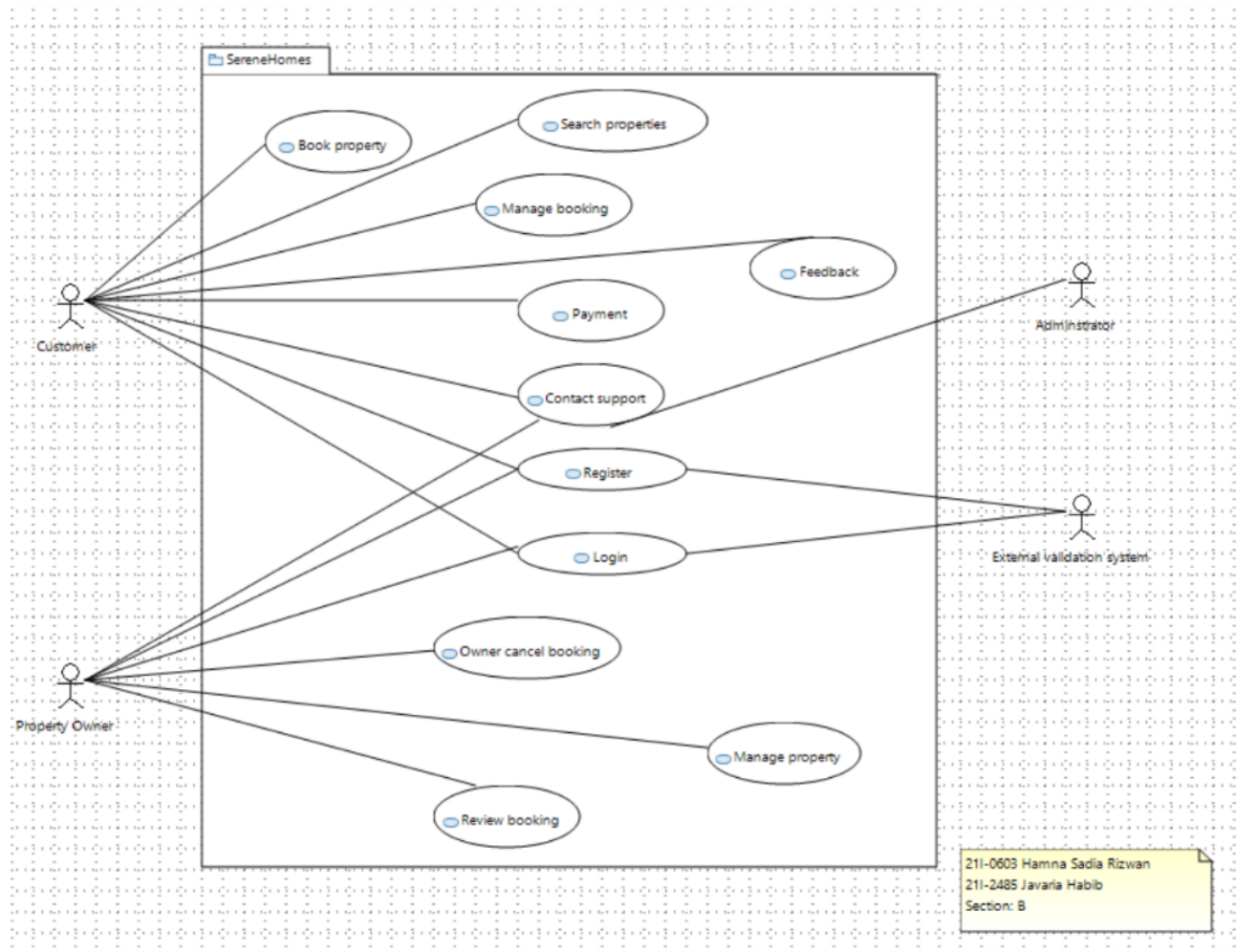
11. Review booking

Group member: Hamna Sadia Rizwan

Use case name	Review booking
Scope	Home rental management system
Level	Sub-function
Primary Actor	Property owner
Stakeholders and interests	<ul style="list-style-type: none"> Property owner: wants to review details of a specific booking made by a customer including guest information, booking dates and special requests etc Customer: expects a satisfying stay SereneHomes: wants to make the process for property owners easier and to ensure customer satisfaction
Preconditions	<ul style="list-style-type: none"> Property owner is logged into their account

Preconditions	<ul style="list-style-type: none">• Property owner is logged into their account• Booking to be viewed exists made by a verified customer
Postconditions	<ul style="list-style-type: none">• Property owner has successfully reviewed booking details and is prepared to accommodate guests accordingly
Main success scenario	<ol style="list-style-type: none">1. Property owner logs into their account2. System displays a list of bookings for the property3. Property owner selects a specific booking to review in detail4. System retrieves and displays all information regarding booking5. Property owner verifies booking information, ensuring it aligns with all policies6. Property owner confirms preparedness to accommodate guest to the best of their availability
Extensions	Inquiries or concerns: if property owner has a concern or inquiry they may contact support

○ Use Case Diagram



● Other Nonfunctional Requirements

○ Performance Requirements

The response time of the system for interaction with the user should be within 2 seconds .
The platform will be allowed to store information for a large number of users and properties through a database that will not affect the working performance of it. Multiple users will be able to use the system at the same time.

○ Safety Requirements

User data should be protected and should not be leaked , same goes with property data to prevent unauthorized access. There should be secure transactions of payments with industry standard encryption and protecting history of transactions and payments details.

○ **Security Requirements**

Users should undergo a secure authentication process where their background details are verified and checked. Also all user data, maybe it be personal or financial , the information must be encrypted during storage and transmission and linked to a secure database.

○ **Software Quality Attributes**

The usability of our software is that it is user friendly because it has an intuitive interface for both Property Owners and Customers. Also Reliability of our platform is significant as SereneHomes should operate with 98% uptime to ensure constant availability . It also requires an internet connection which is a stable and connected operating system on which this software works with proper input output devices .

○ **Business Rules**

The Customers and PropertyOwners should be verified and undergo proper authentication. For booking rules Customers should be allowed to book accommodations only after they made an account and registered so their data should be verified . The Property Owner should not be allowed to have customer details that the customer does not want to share and payment should be done through the SerneHomes platform .

○ **Operating Environment**

The SerneHomes software will run on standard web servers where there is enough processing memory and power for the hardware platform. As for operating systems , it should be compatible with major operating systems like Windows , macOS and Linux. Serene Homes will be able to interact with standard web browsers like Chrome and Safari for user access . It can also integrate with payment gateway for secure transactions. There should be a connected relational database management system to store the information of users and properties and bookings.

○ **User Interfaces**

There are two user interfaces , one for Customers and other for property owners.

Both have different home interfaces where property owners are given options to manage property where they can edit details of properties ,delete and add properties.

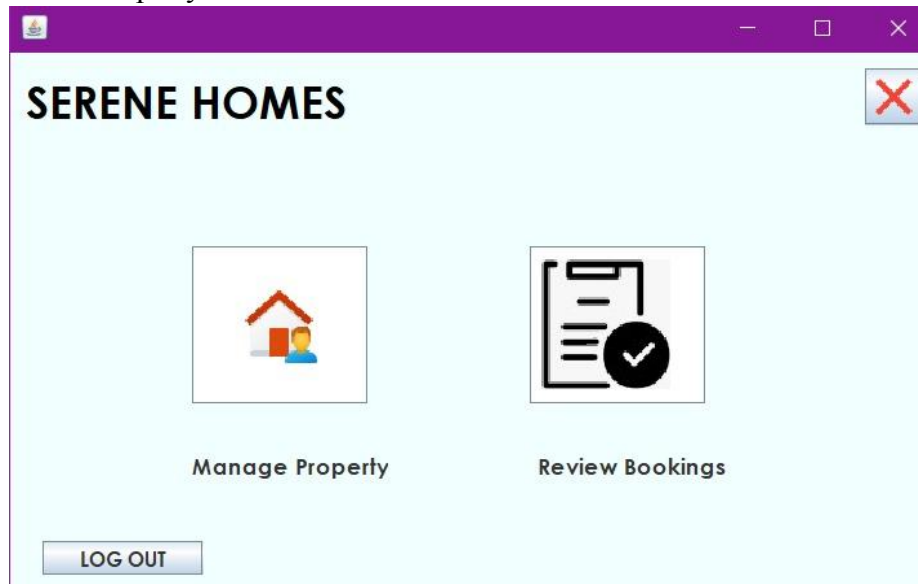
They can also review booking for their properties , for example they will be shown all the booking made to their properties and they can evaluate booking and cancel any booking if there is a clash of dates or availability is no or owner does not wish to give booking to that customer or dates etc.

Property owners can delete booking by entering the booking id of that booking .

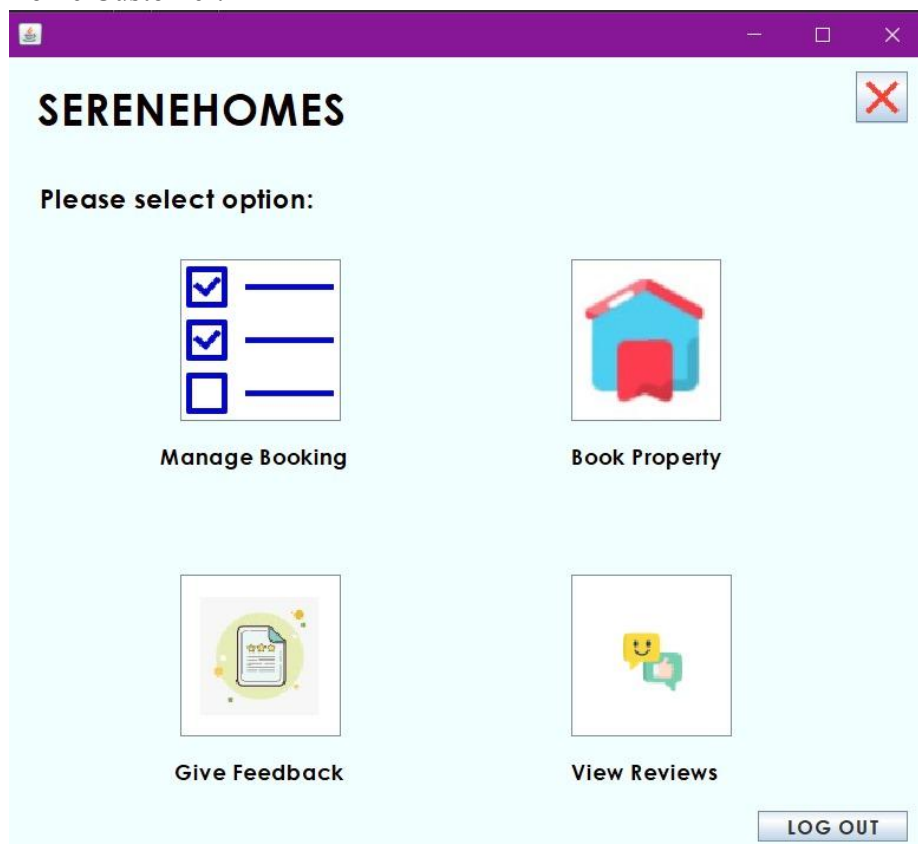
The customer user interface has an option to give feedback where they will write the name of the property they stayed in and give feedback . They can also view feedback for any property if they want to book by searching its feedback by property name , if there is no feedback the form will be blank . Customers can search for properties given their criteria of budget, check-in-date,

check-out-date etc. Also they can book property and manage their bookings and pay for it as well. Manage booking would include edit booking information or delete (cancel) booking. There is also a go back button on all forms linked to both home pages of both users.

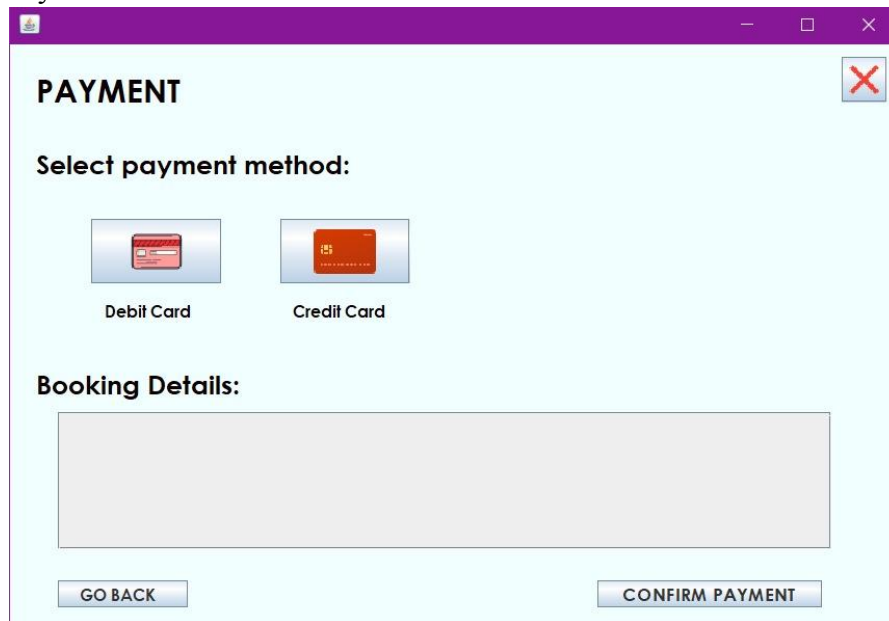
Home Property Owner:



Home Customer:



Payment



A screenshot of a web application window titled "PAYMENT". The window has a purple title bar with standard minimize, maximize, and close buttons. The main content area is light blue. At the top right of the content area is a red "X" icon in a blue box. Below the title, the text "Select payment method:" is displayed. There are two options: "Debit Card" with a red card icon and "Credit Card" with a red card icon. Below these is the section "Booking Details:" followed by a large, empty, light gray rectangular box. At the bottom of the window, there are two buttons: "GO BACK" on the left and "CONFIRM PAYMENT" on the right.

PAYMENT

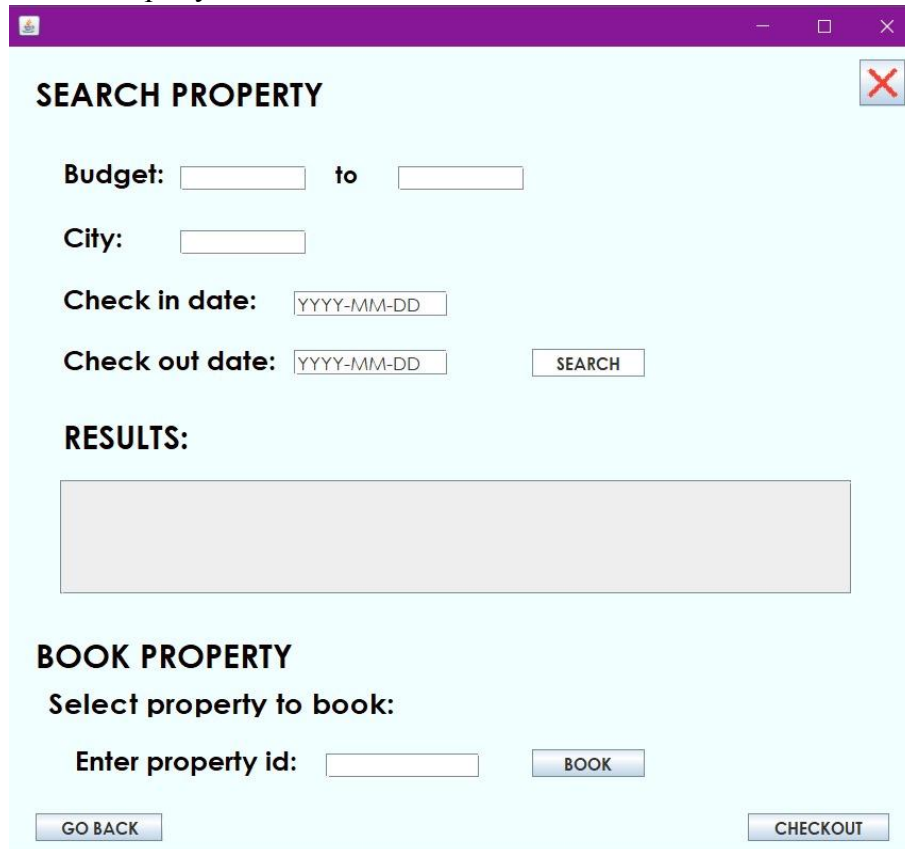
Select payment method:

Debit Card Credit Card

Booking Details:

GO BACK CONFIRM PAYMENT

Search Property and book



A screenshot of a web application window titled "SEARCH PROPERTY". The window has a purple title bar with standard minimize, maximize, and close buttons. The main content area is light blue. At the top right of the content area is a red "X" icon in a blue box. Below the title, there are input fields for "Budget:" (with a "to" label and another input field), "City:", "Check in date:" (with a placeholder "YYYY-MM-DD"), and "Check out date:" (with a placeholder "YYYY-MM-DD"). A "SEARCH" button is located to the right of the "Check out date" field. Below these is the section "RESULTS:" followed by a large, empty, light gray rectangular box. At the bottom of the window, there is a section titled "BOOK PROPERTY" with the text "Select property to book:". Below this is an input field for "Enter property id:" and a "BOOK" button. At the very bottom of the window, there are two buttons: "GO BACK" on the left and "CHECKOUT" on the right.

SEARCH PROPERTY

Budget: to

City:

Check in date:

Check out date: SEARCH

RESULTS:

BOOK PROPERTY

Select property to book:

Enter property id: BOOK

GO BACK CHECKOUT

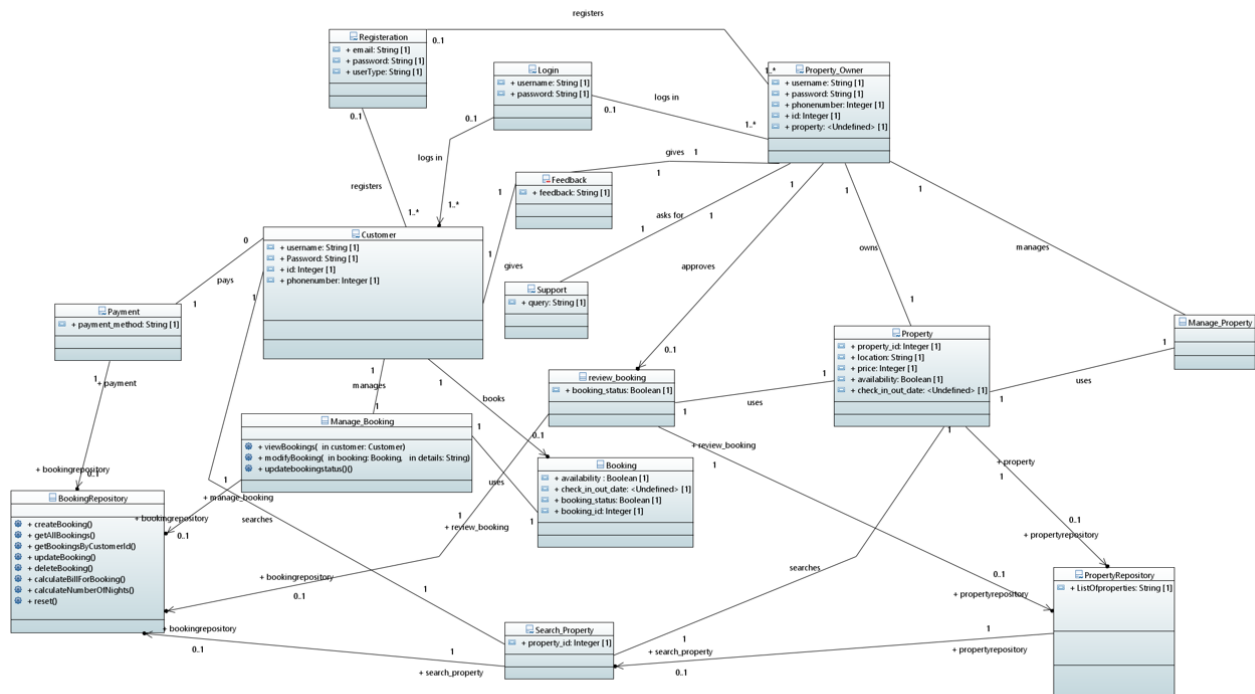
View feedback of other properties

View Feedbacks

Enter your property name for which you want to view feedbacks :

Property name:

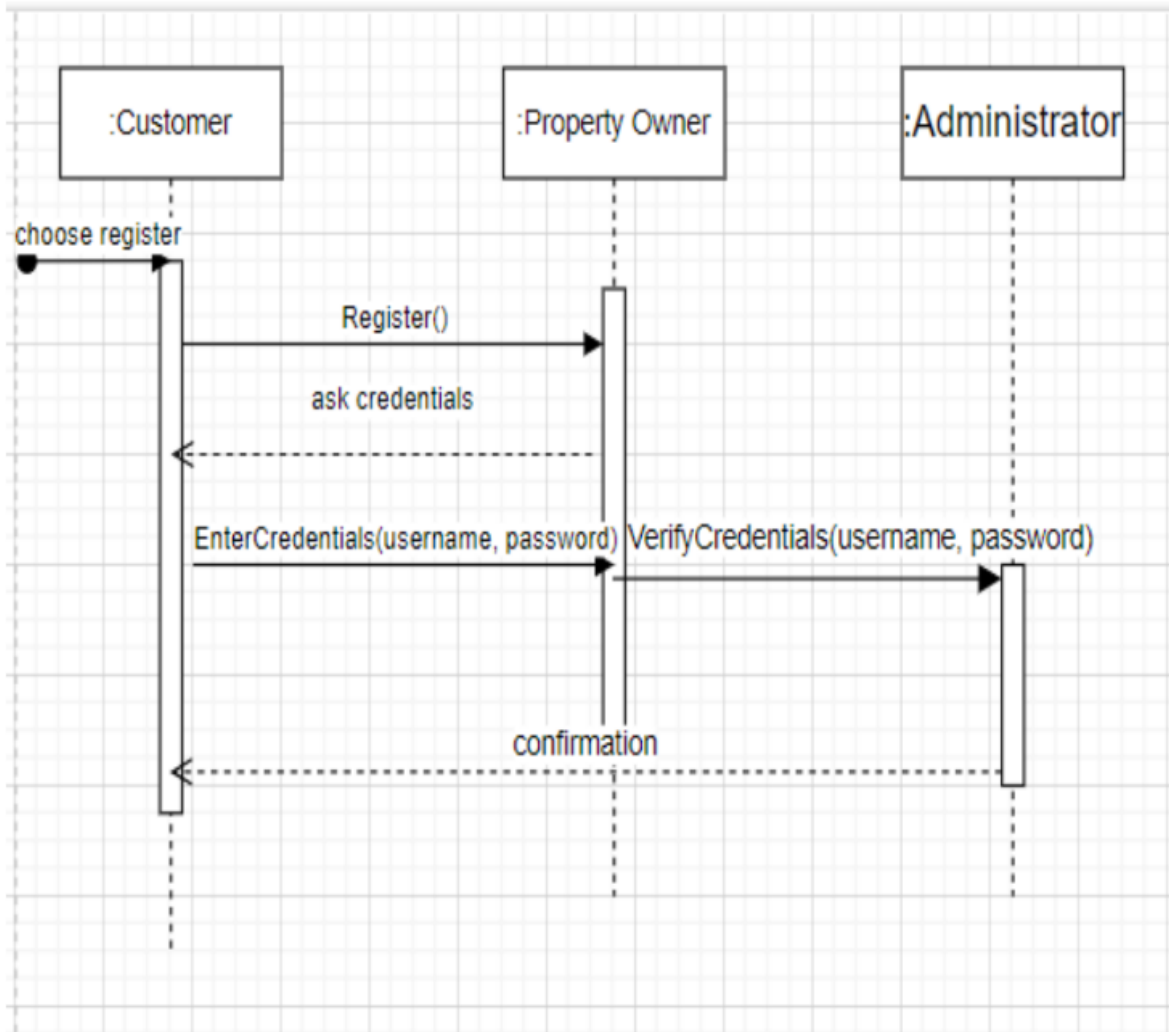
● Domain Model



● System Sequence Diagram

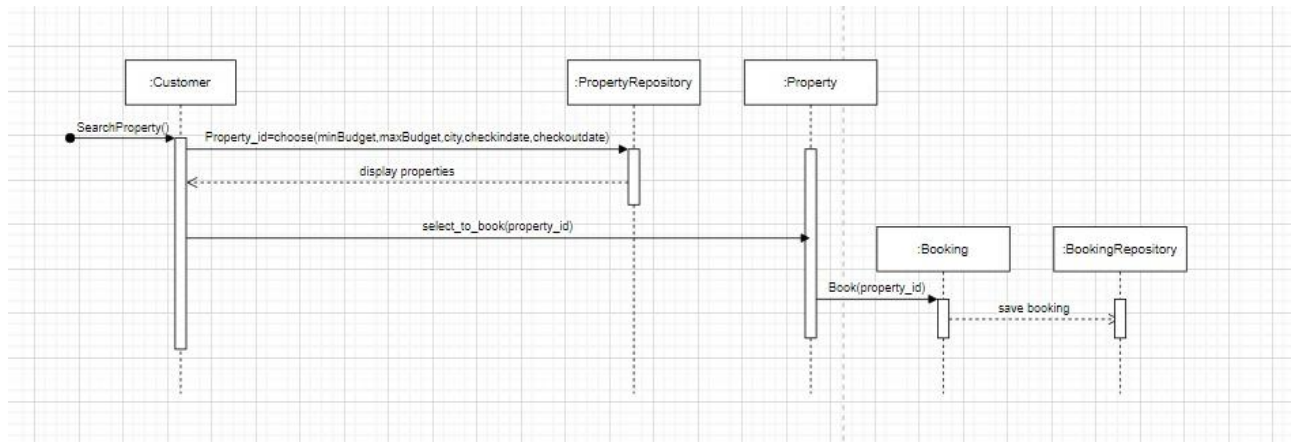
1. Register

Group member: Javaria Habib



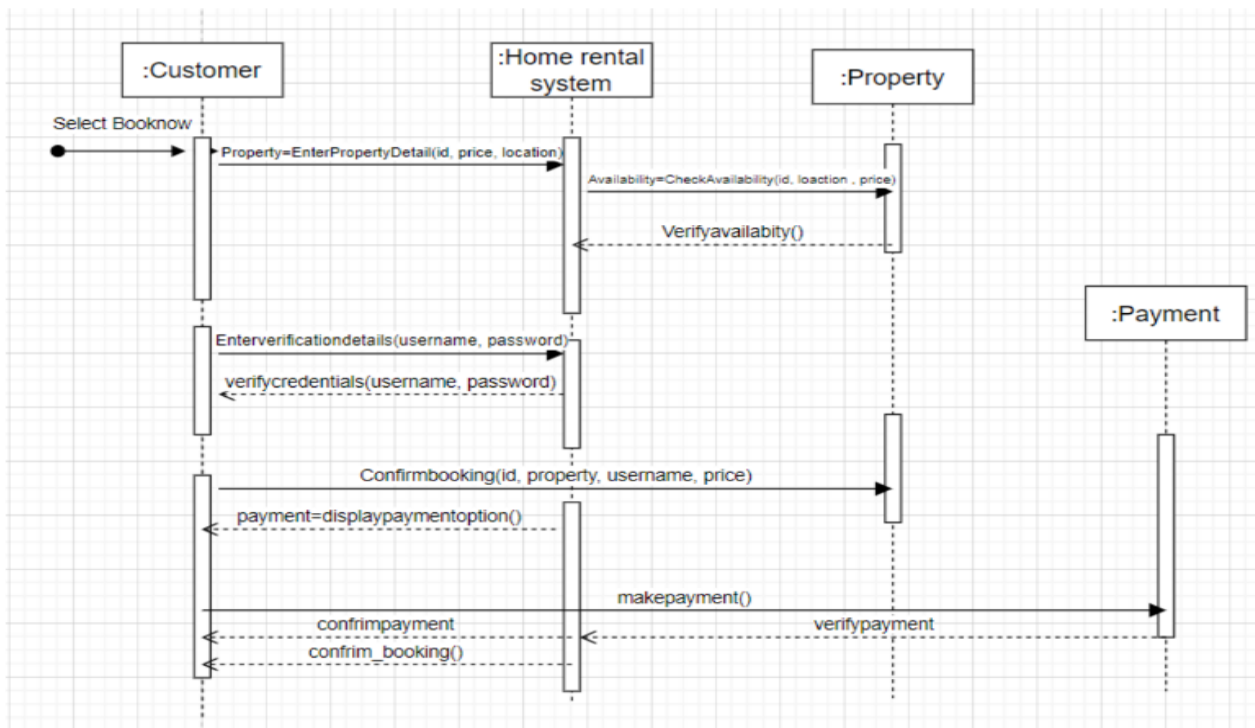
2. Search property

Group member: Hamna Sadia Rizwan



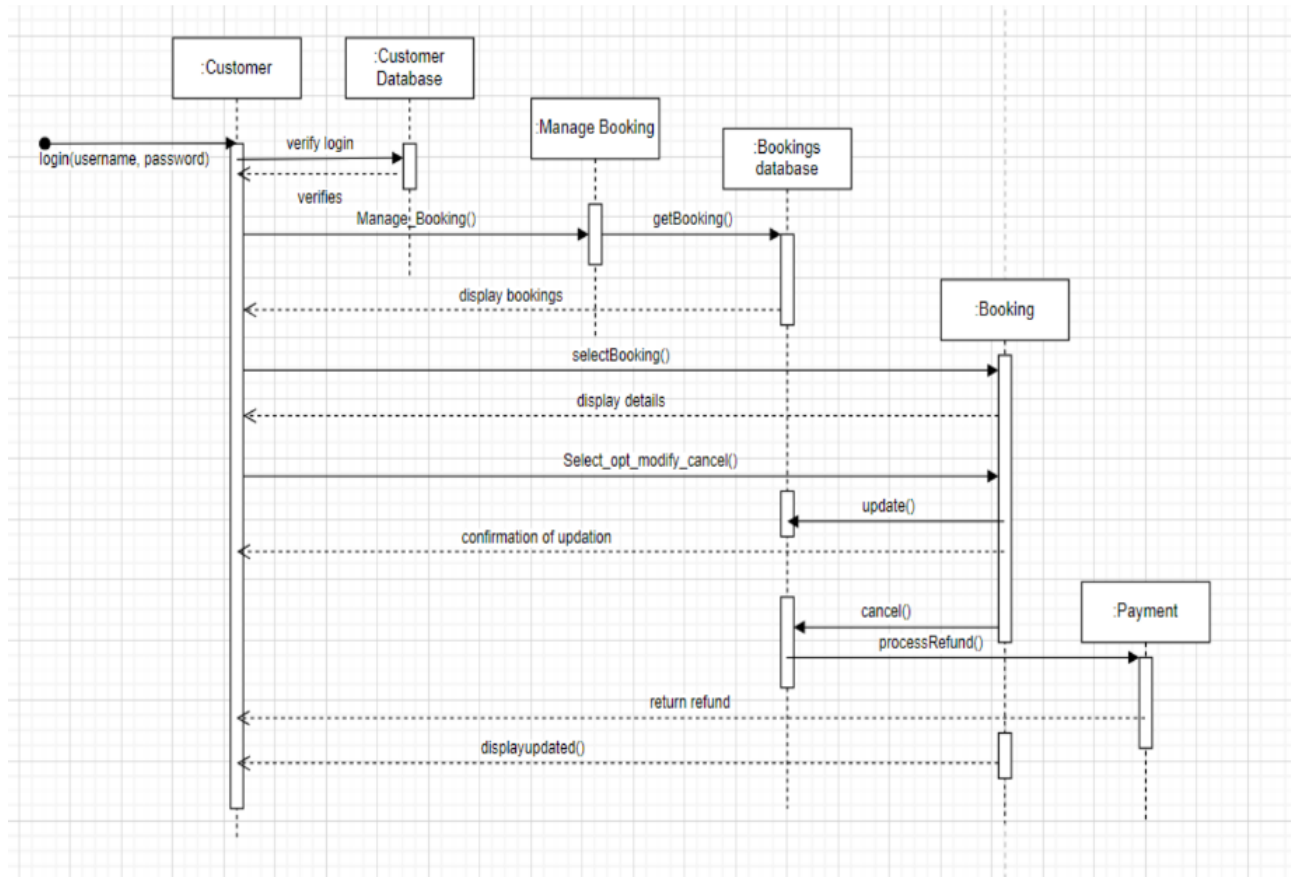
3. Book property

Group member: Javaria Habib



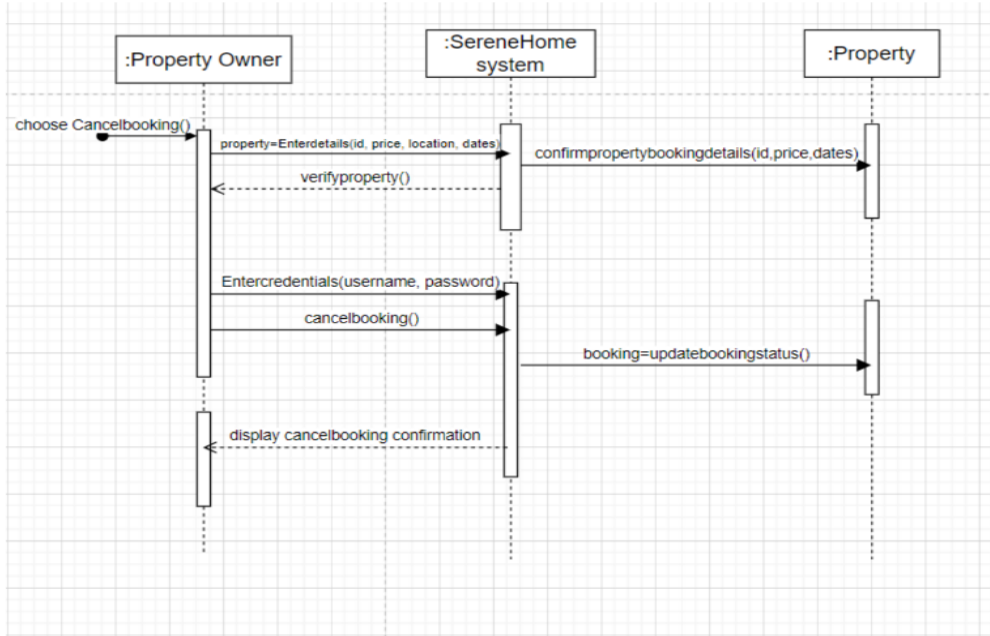
4. Manage booking

Group member: Hamna Sadia Rizwan



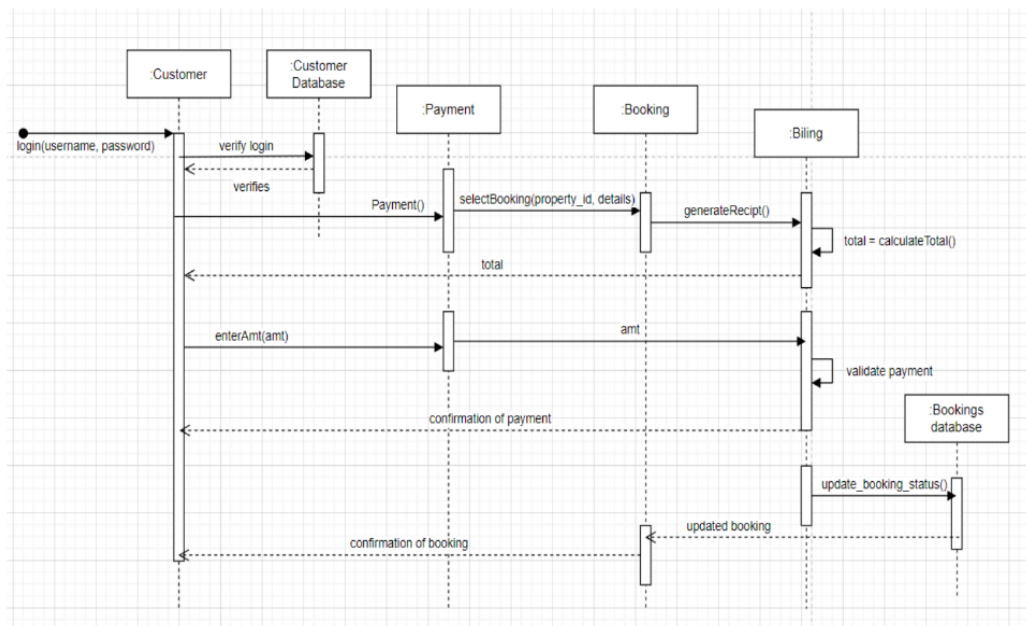
5. Owner cancel booking

Group member: Javaria Habib



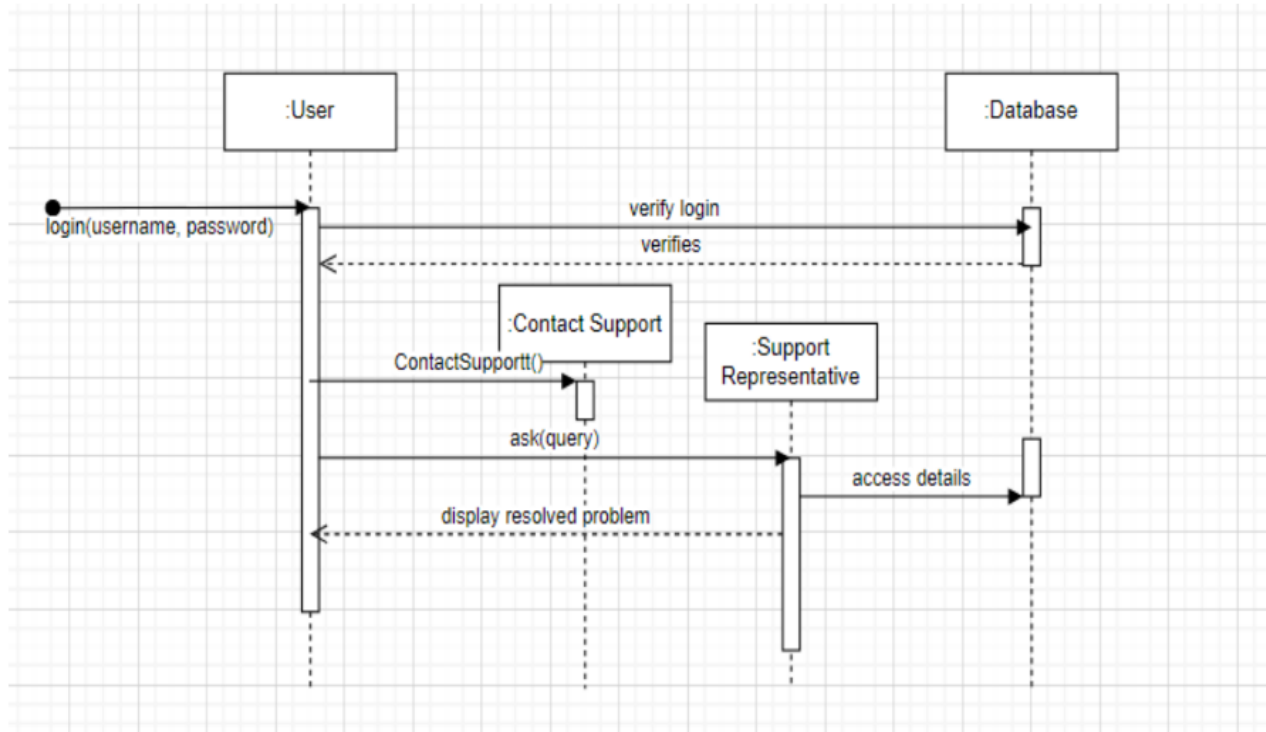
6. Payment

Group member: Hamna Sadia Rizwan



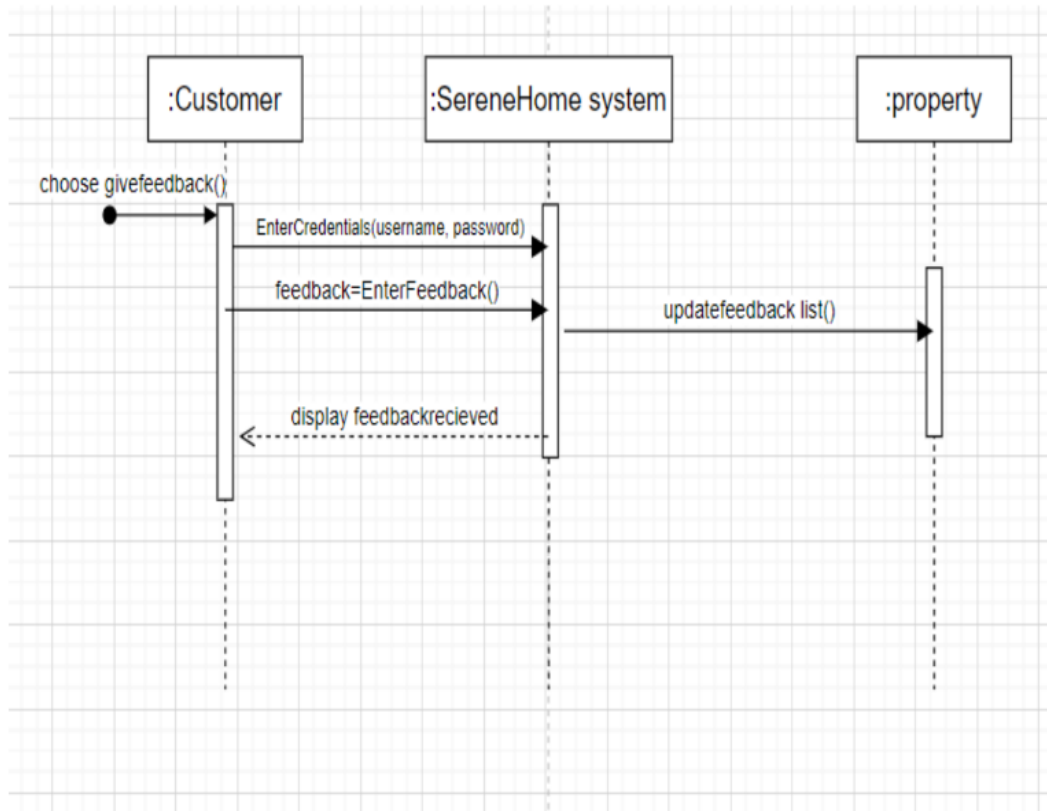
7. Contact support

Group member: Hamna Sadia Rizwan



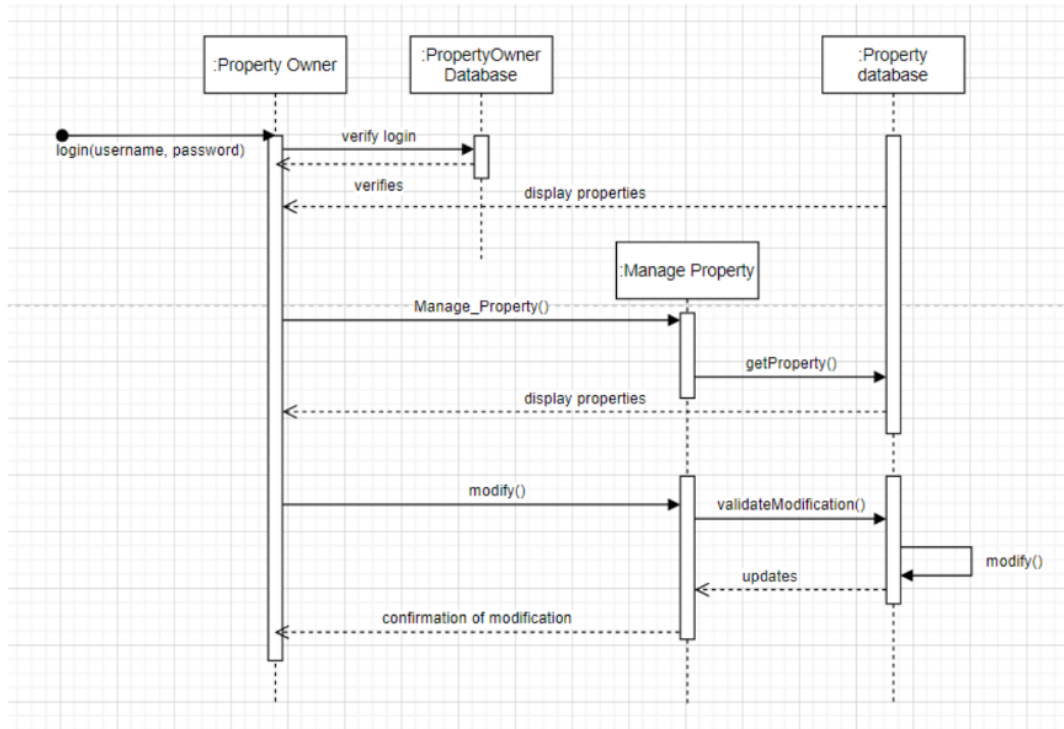
8. Feedback

Group member: Javaria Habib



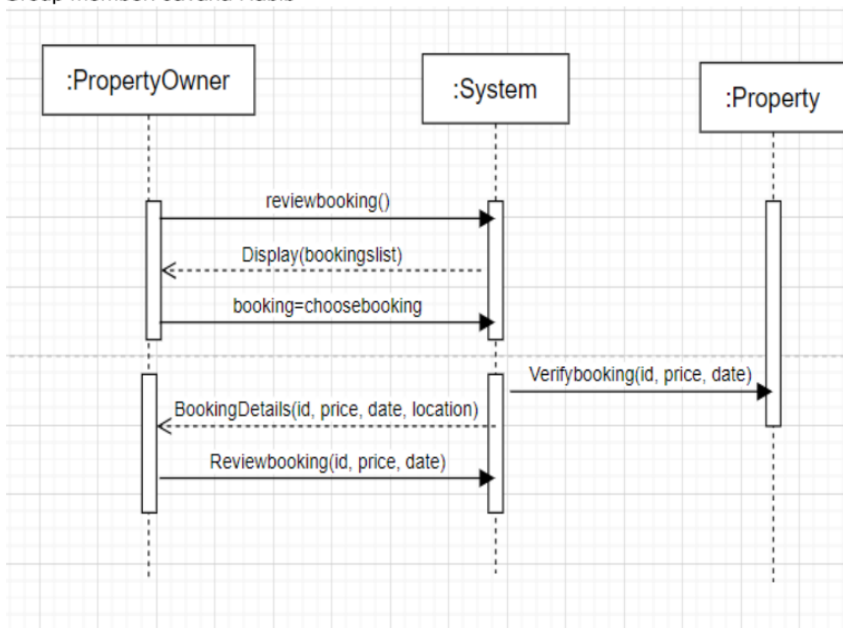
9. Manage property

Group member: Hamna Sadia Rizwan



10. Review booking

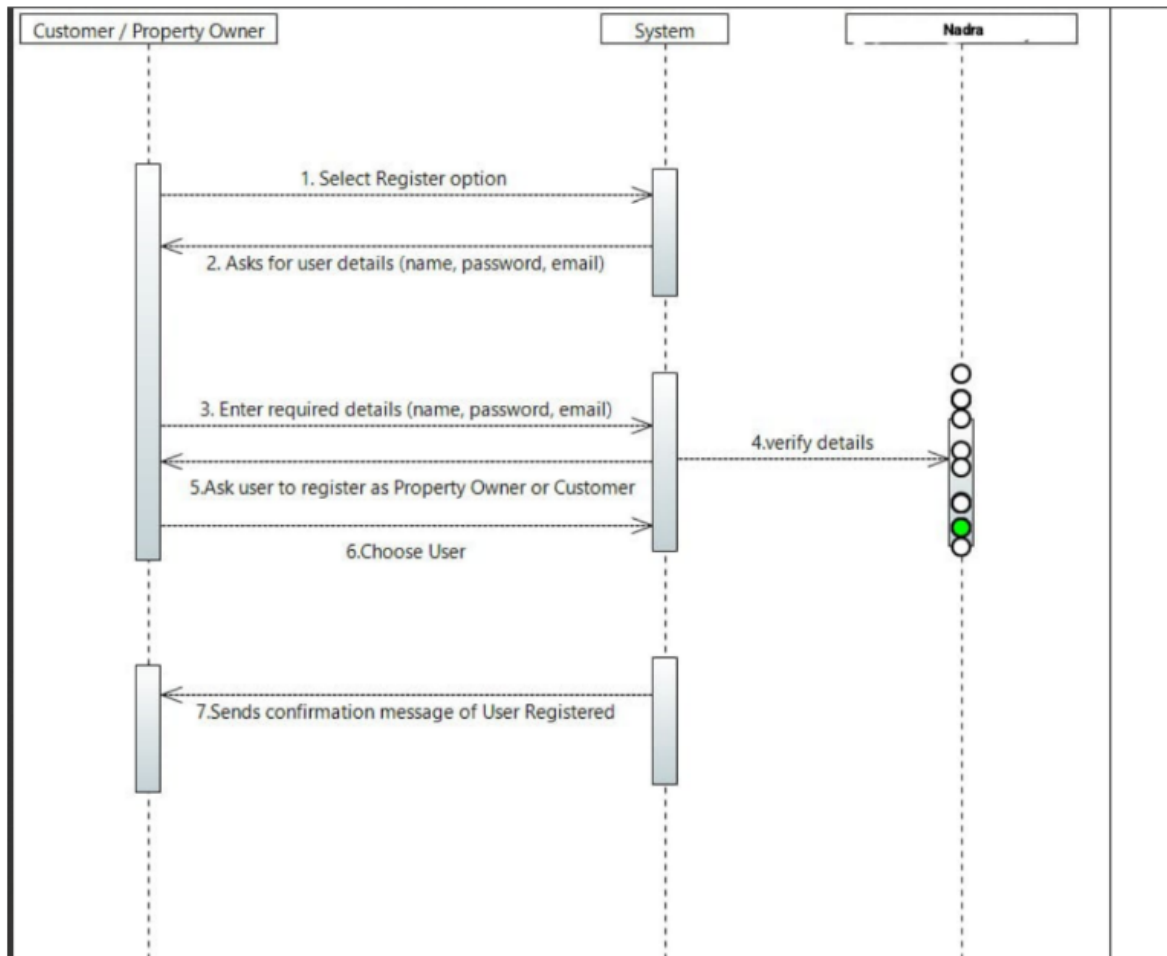
Group member: Javaria Habib



● Sequence Diagram

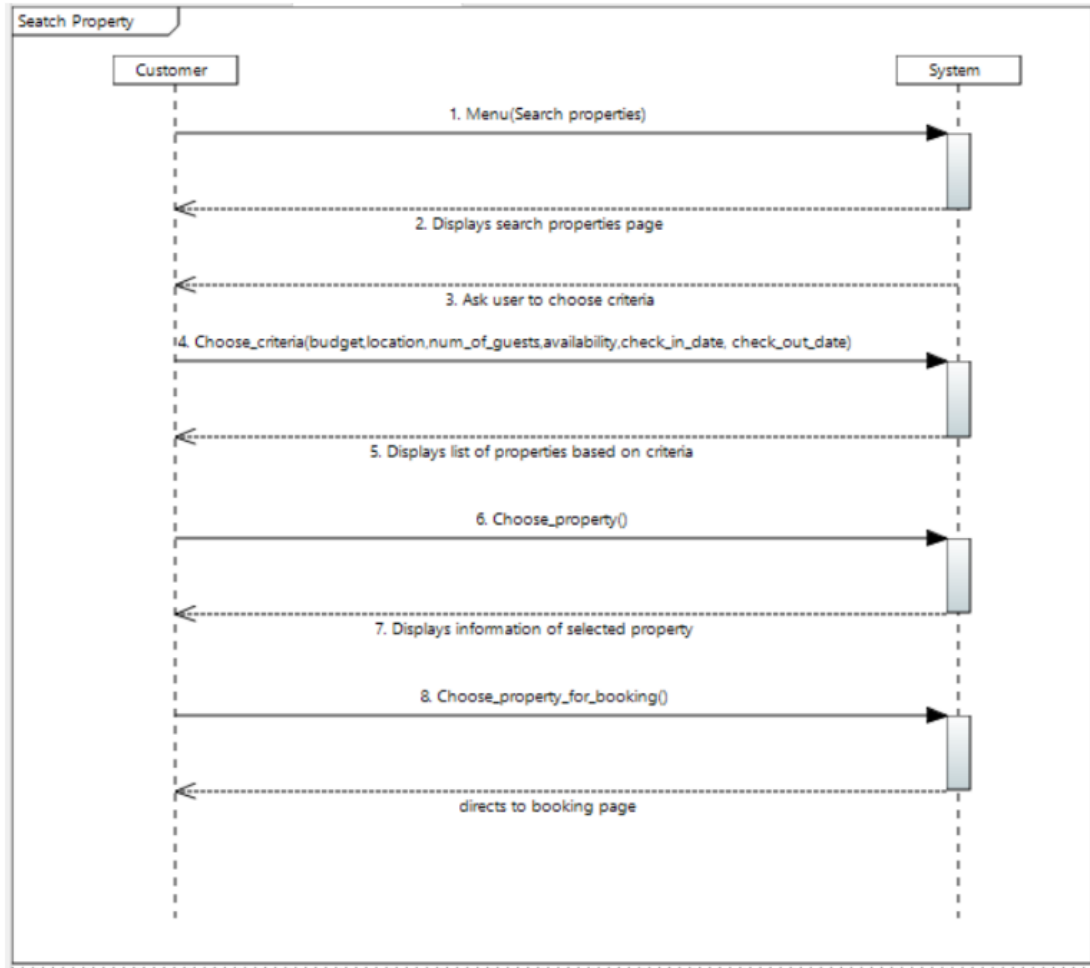
1. Register

Group member: Javaria Habib



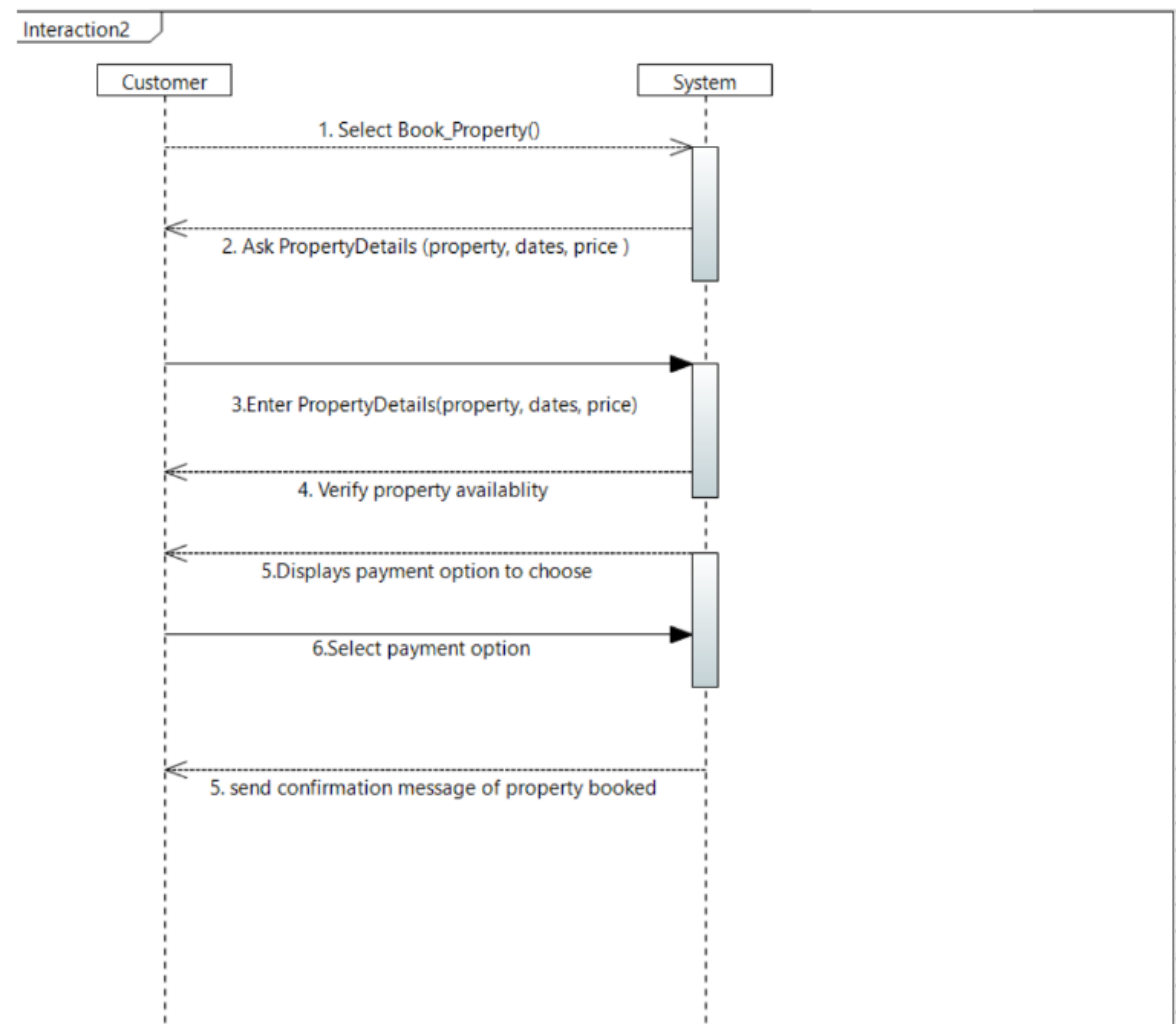
2. Search property

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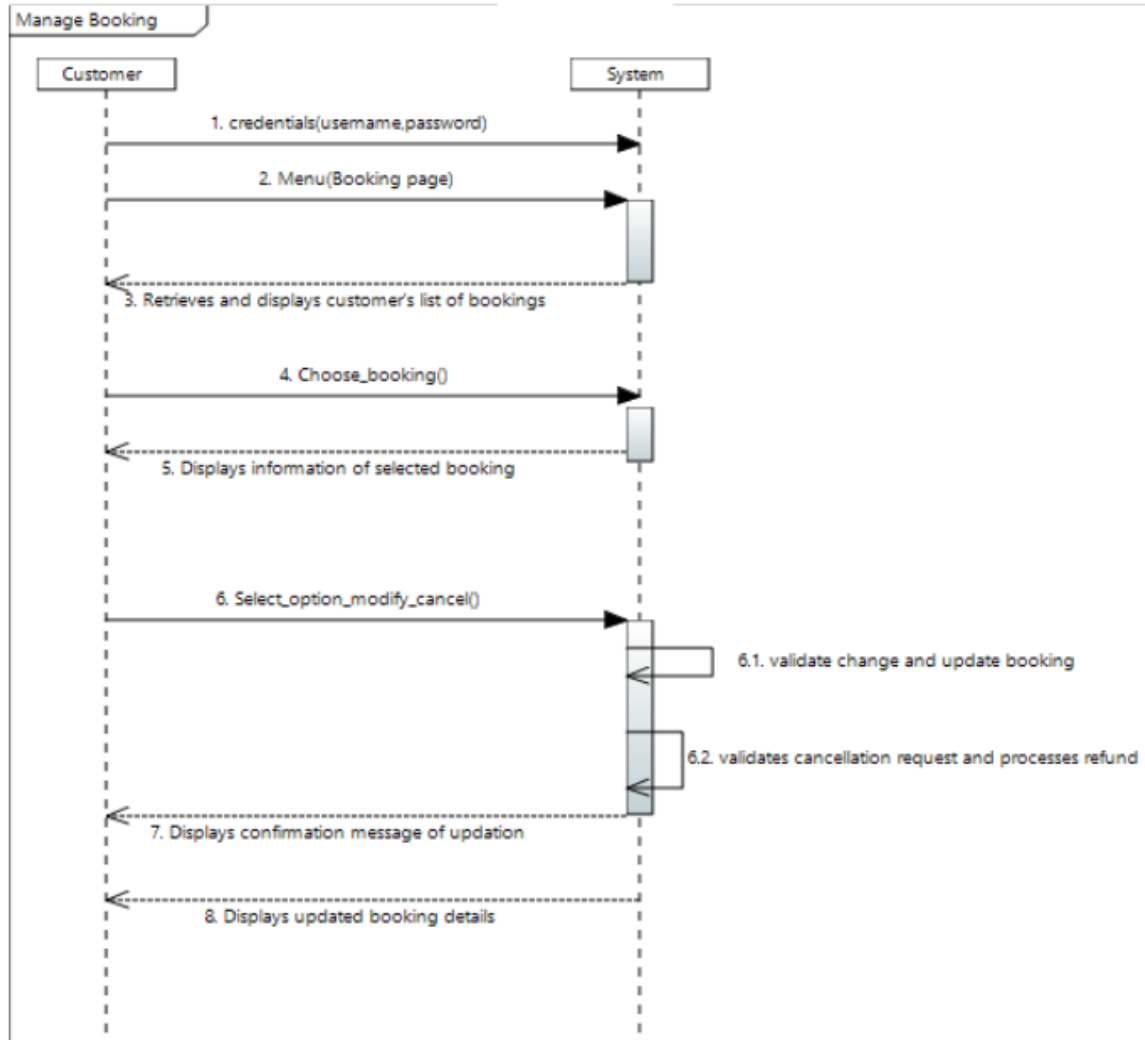
3. Book property

Group member: Javaria Habib



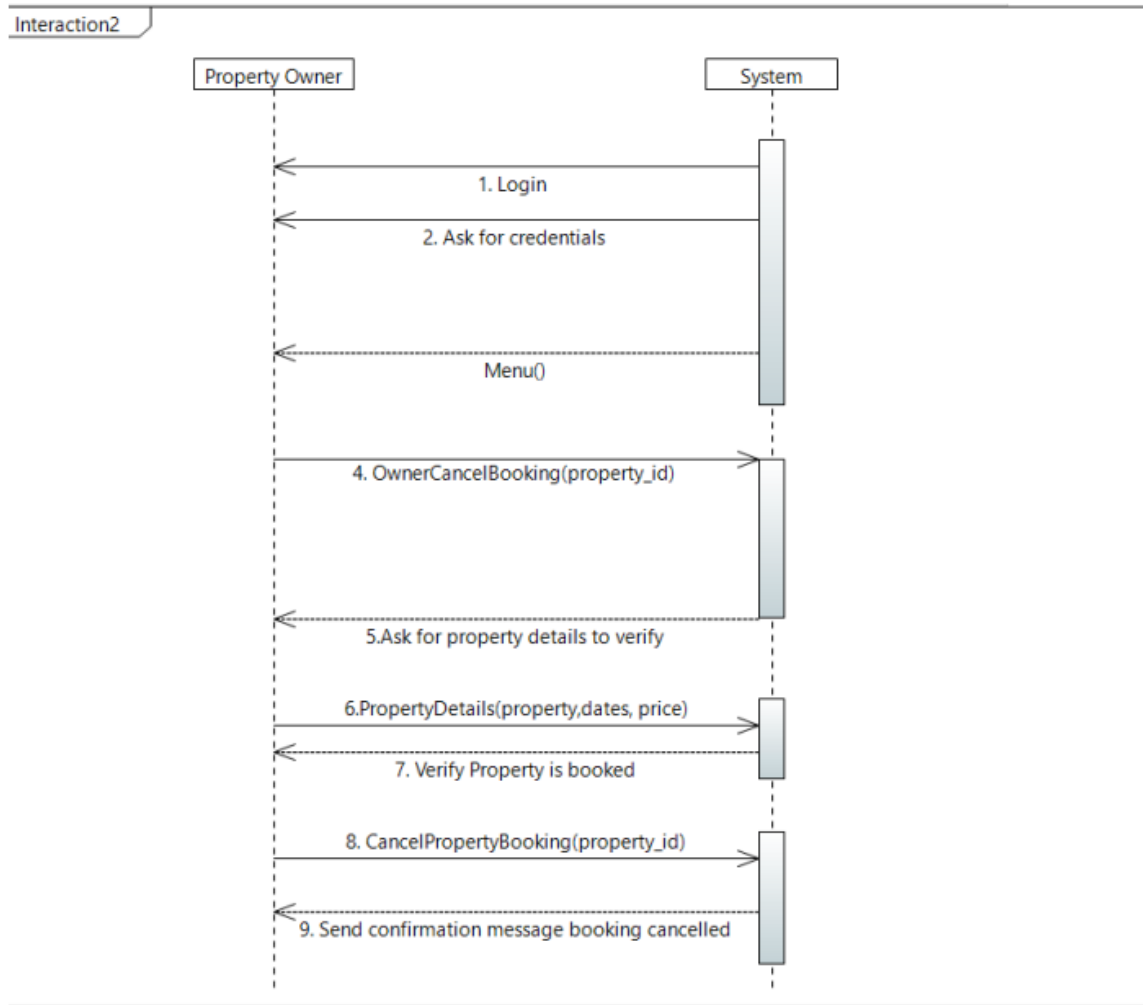
4. Manage booking

Group member: Hamna Sadia Rizwan



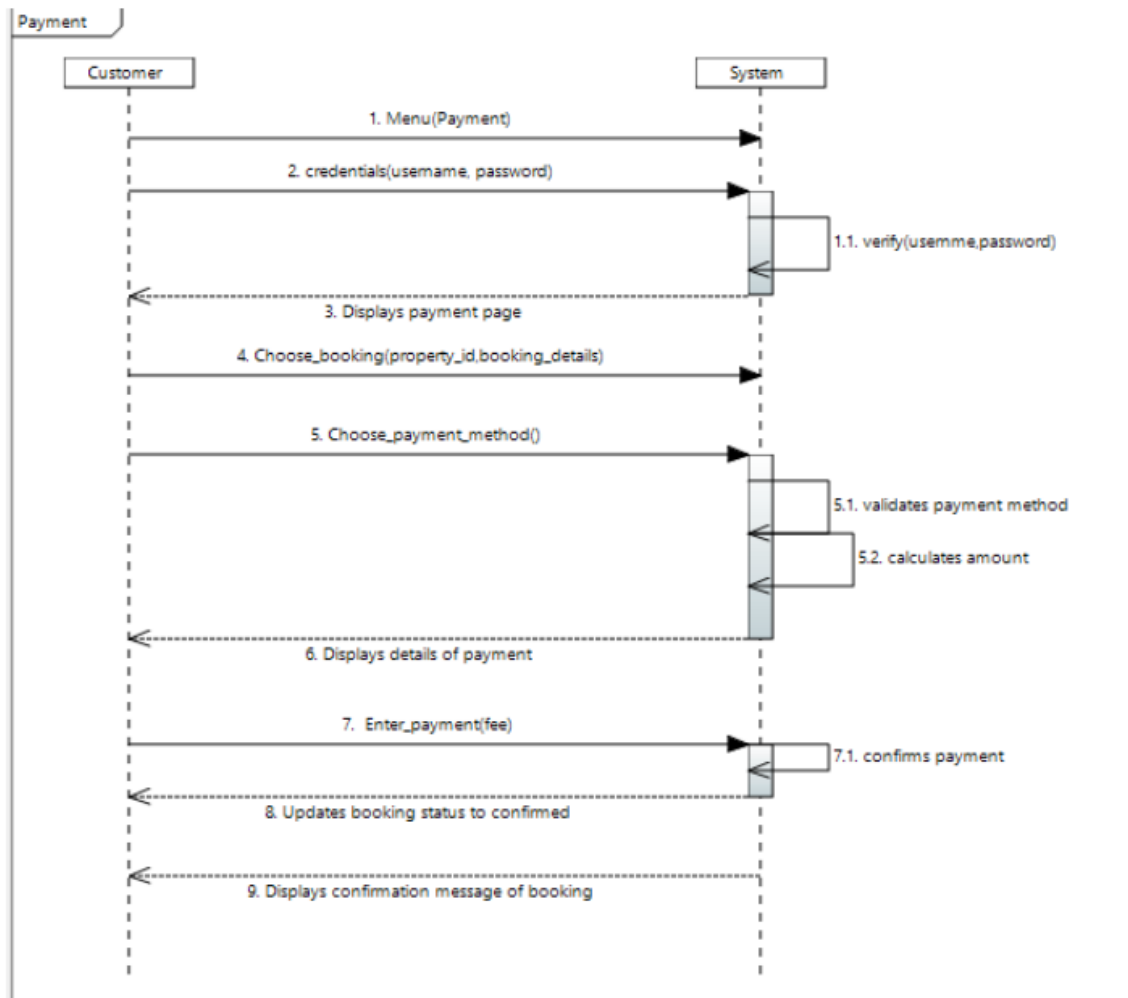
5. Owner cancel booking

Group member: Javaria Habib



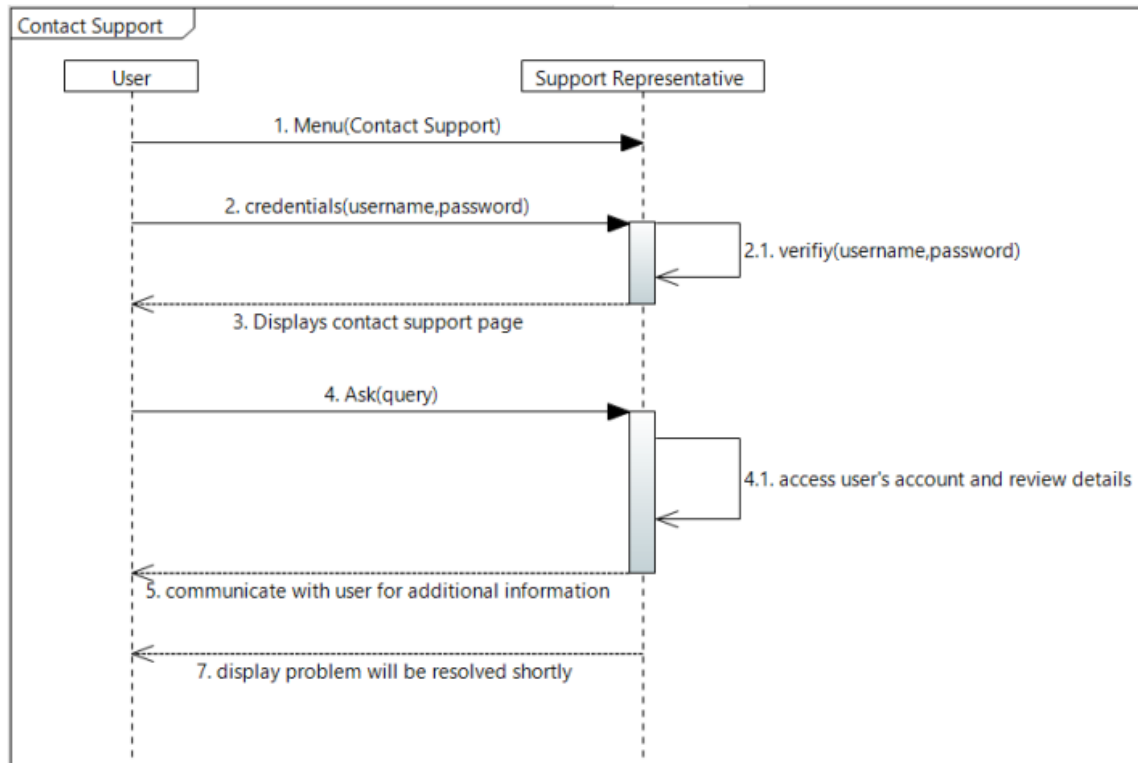
6. Payment

Group member: Hamna Sadia Rizwan



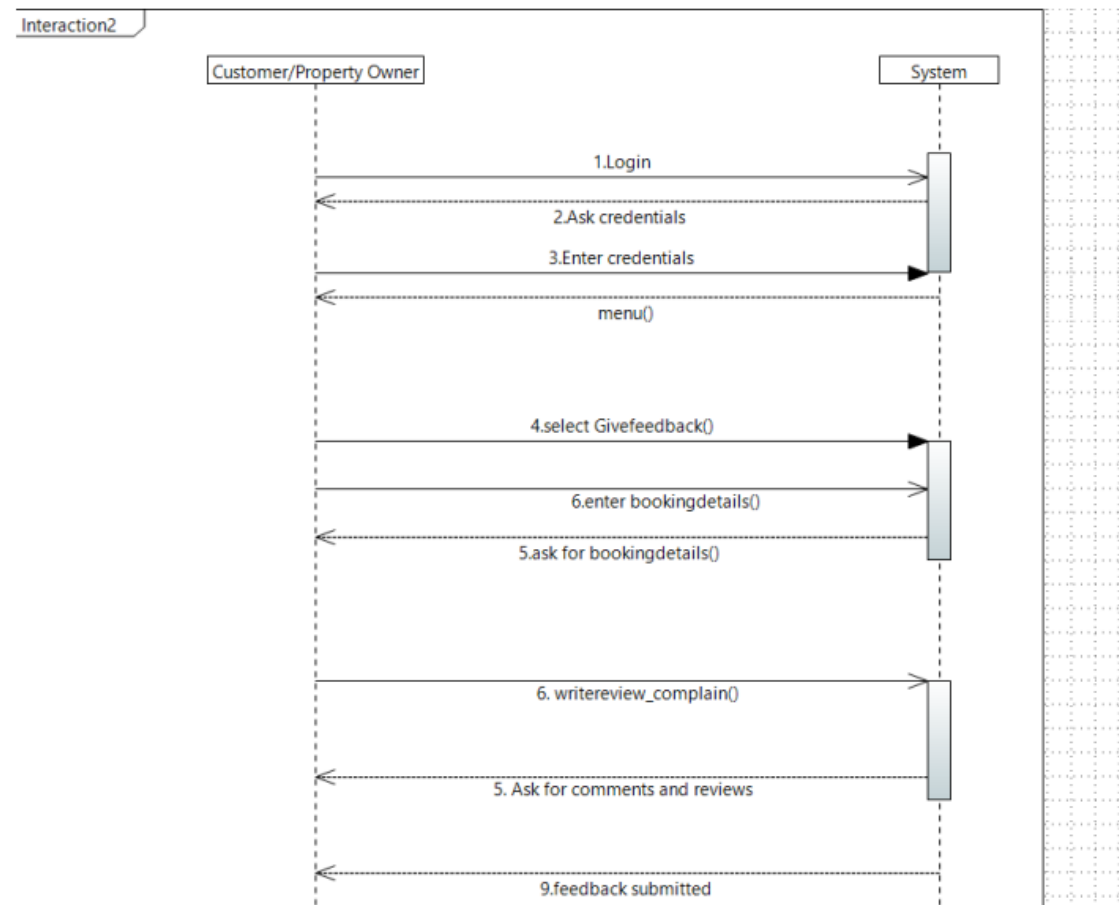
7. Contact support

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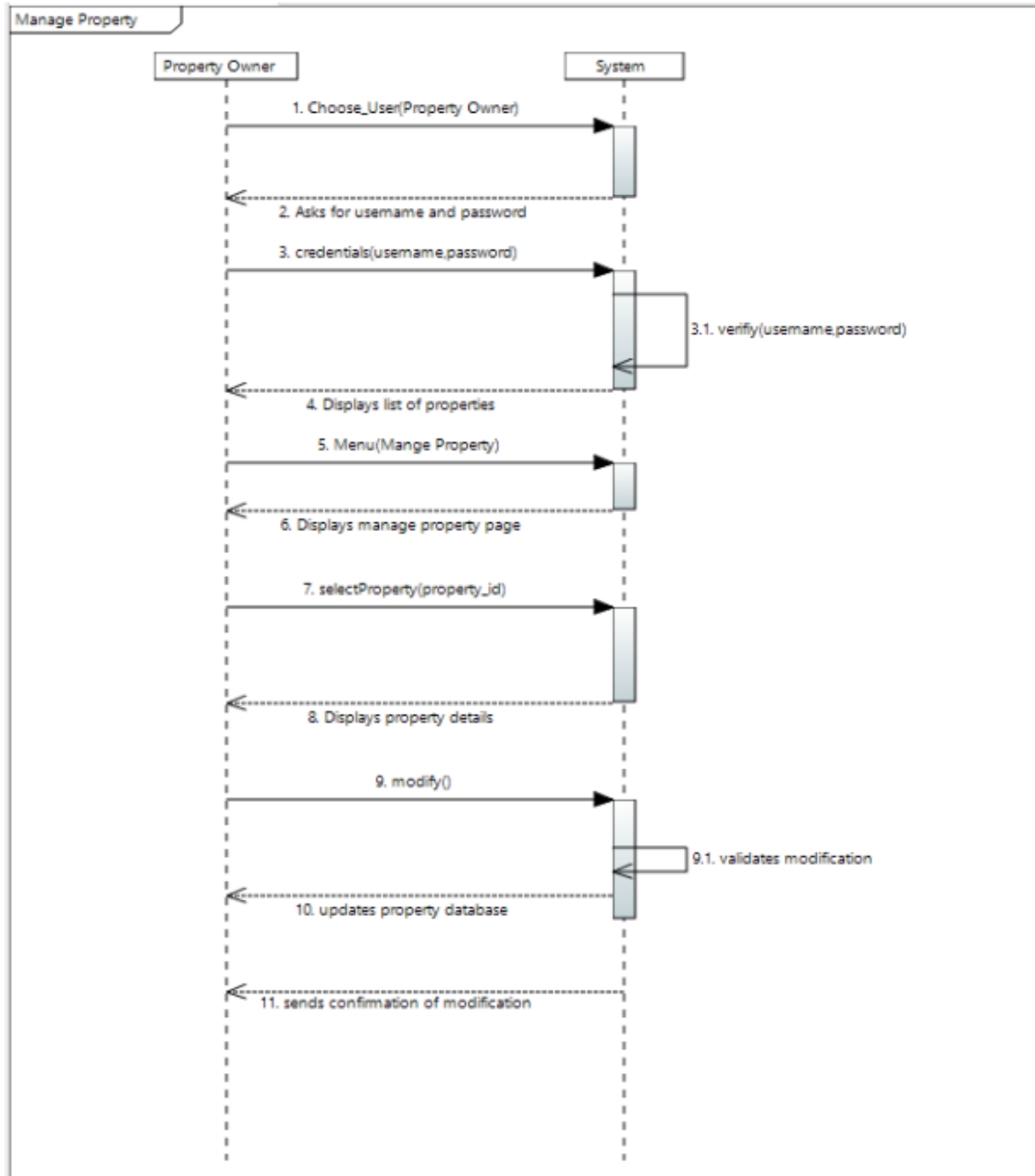
8. Feedback

Group member: Javaria Habib



9. Manage property

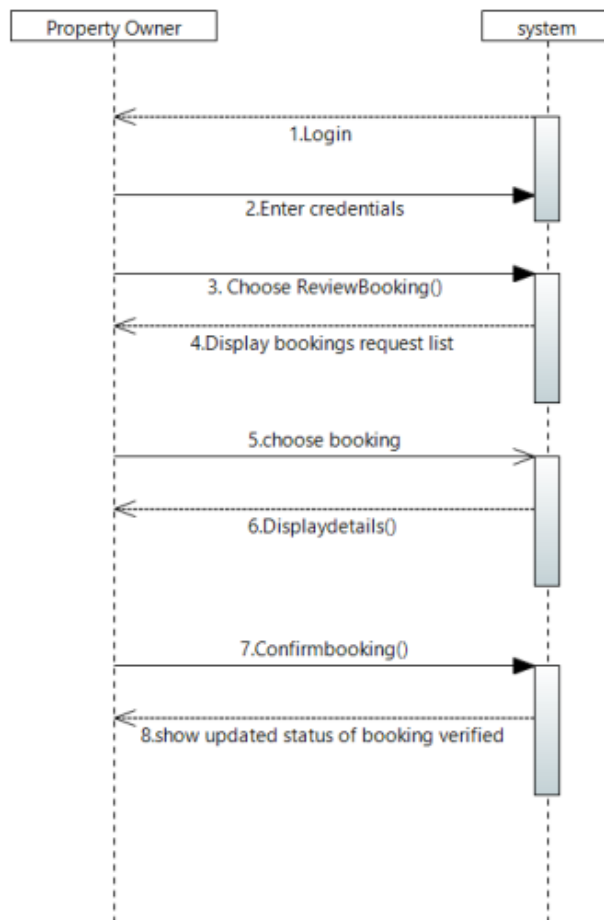
Group member: Hamna Sadia Rizwan



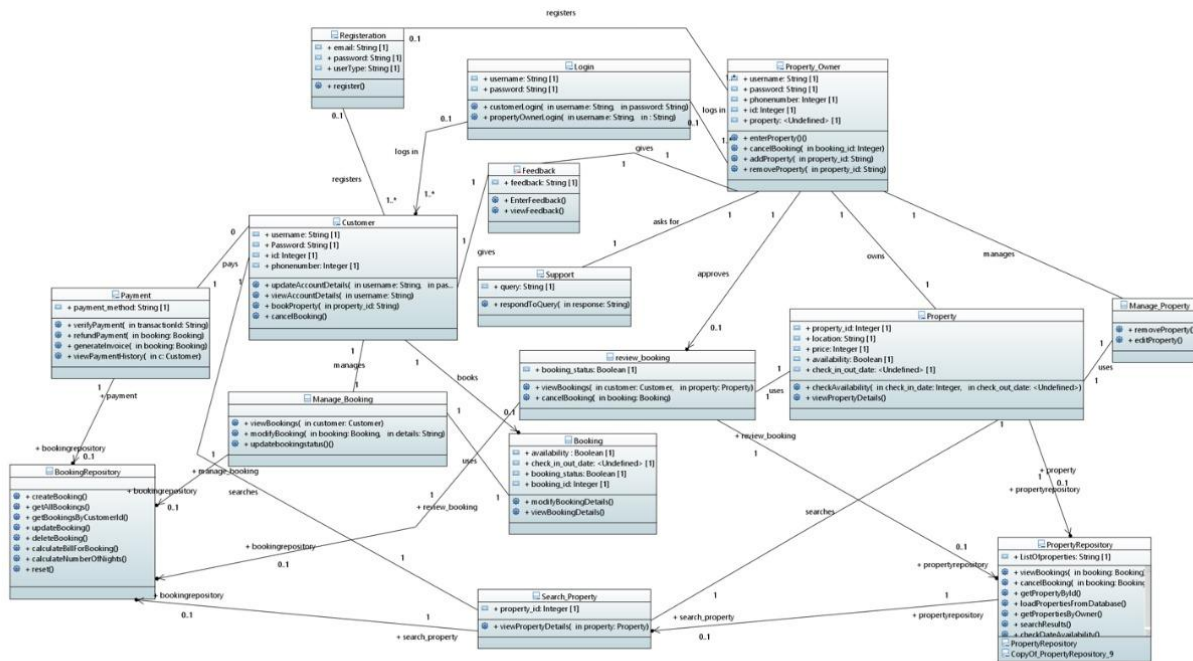
10. Review booking

Group member: Javaria Habib

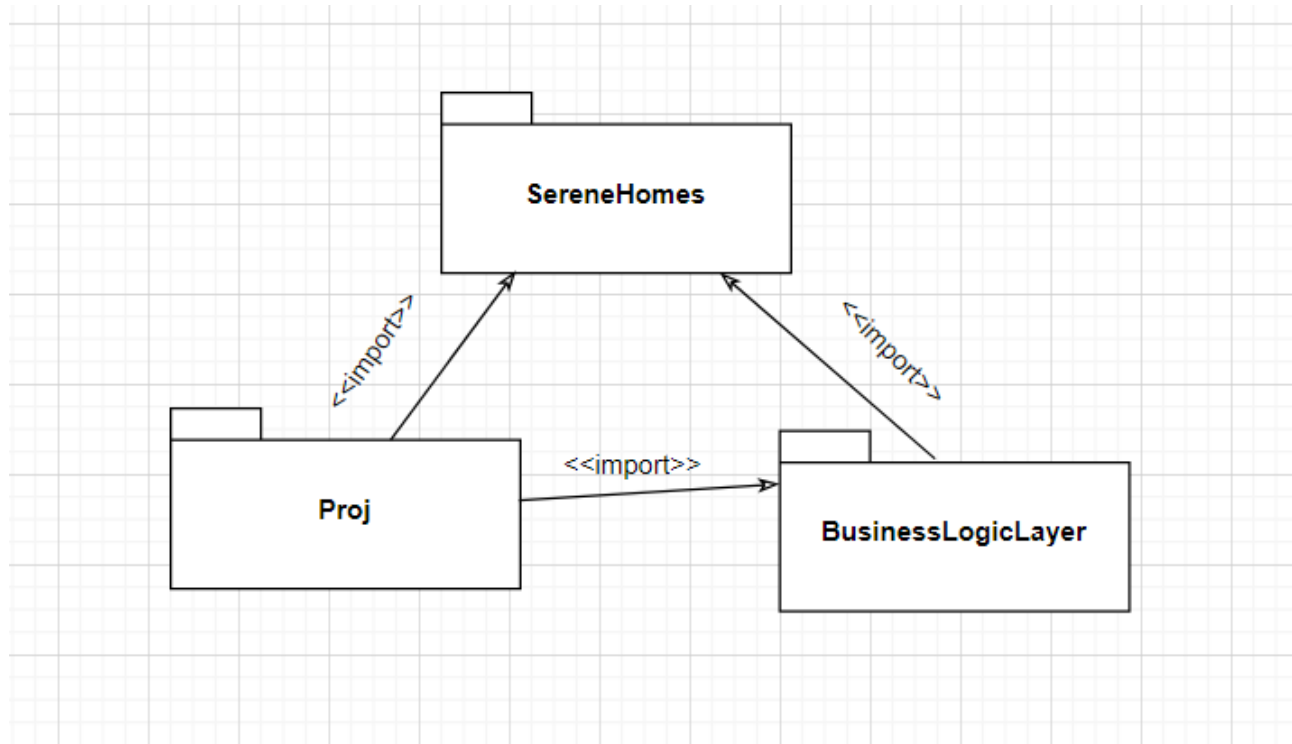
Interaction2



● Class Diagram



- **Package Diagram**



Where Proj is the database layer and SereneHomes acts as the UI layer

● Deployment Diagram

