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# Design Document

for

## Homestay Booking Website Project

Version 1.0

Prepared by

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**Date:** 04/05/2024

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## REVISIONS

Version	Primary Author(s)	Description of Version	Date Completed
#1	Group 6	Initial Design Document	04/05/24



# 1. Introduction

## 1.1 Purpose

The purpose of this document is to provide a detailed architecture design of the Homestay Booking System by focusing on four key quality attributes: usability, availability, maintainability, and testability. This document will help the development team to determine how the system will be structured at the highest level. It is also intended for the project manager to sign off on the high-level structure before the team shifts into detailed design, and to validate that the development team is meeting the agreed-upon requirements during evaluation process.

## 1.2 Scope

This document will address the architecturally significant functional requirements as well as a prototype of the user interface design. Additionally, a class diagram and sequence diagram are provided for each use case. By addressing these aspects comprehensively, this document aims to provide stakeholders, including developers, designers, and project managers, with a clear understanding of the homestay booking website's design and functionality. It serves as a reference point throughout the development lifecycle, guiding decision-making and facilitating effective communication among project team members.

## 1.3 Definitions, Acronyms and Abbreviations

User    refers to any individual who interacts with the homestay booking website.

Guest   a user of the homestay booking website who seeks temporary accommodation in various locations.

Host    a user who offers accommodation on the homestay booking website.

UI       User Interface

## 1.4 References

Application Architecture Guide 2.0 patterns and practices. © 2008 Microsoft Corporation.

Retrieved from: [http://fizyka.umk.pl/~jacek/docs/net/Application\\_Architecture\\_Guide\\_v2.pdf](http://fizyka.umk.pl/~jacek/docs/net/Application_Architecture_Guide_v2.pdf)

Textbook: Software Engineering PEARSON Tenth Edition – Ian Sommerville.

Architecture model, use case diagram templates provided by teaching assistant.

## 2. Architectural Design

### 2.1 Overview

This figure shows a high-level overview of the system's architecture. Further details on the system components and their interactions will be explained in detail in the following sections.

Overall, the sections of the application design can be thought of as four basic sets of services:

- **Presentation services:** These are the user-oriented services responsible for managing user interaction with the system, and generally consist of components located within the presentation layer. They provide a common bridge into the core business logic encapsulated in the business services.
- **Application services:** These services handle the presentation layer requests, transformation of disparate data for presentation and serve as the controller component.
- **Business services:** These services implement the core functionality of the system and encapsulate the relevant business logic. They generally consist of components located within the business layer, which may expose service interfaces that other callers can use.
- **Data services:** These services provide access to data that is hosted within the boundaries of the system, and data exposed by other back-end systems; perhaps accessed through services. The data layer exposes data to the business layer through generic interfaces designed to be convenient for use by business services. This layer implements the communication with the data source (in this case, a database).

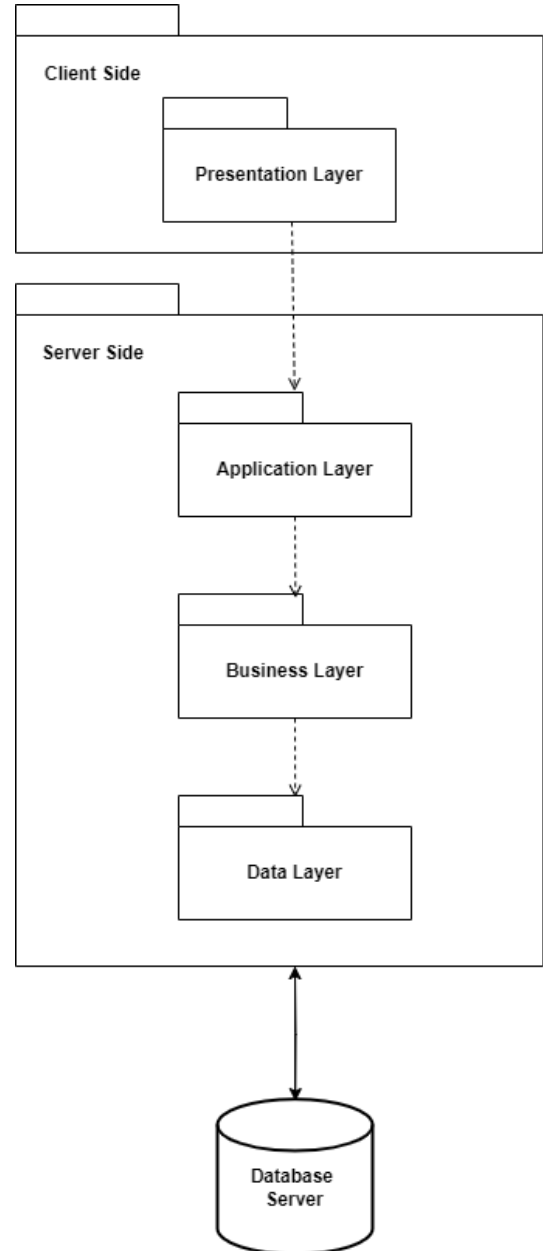


Figure 1. Architecture overview

## 2.2 Architectural Details

### 2.2.1 Presentation Layer Components

Presentation layer components implement the functionality required to allow users to interact with the application. In our Homestay Booking System, these components are separated into two types:

- **User interface (UI) components.** These components provide the mechanism for users to interact with the application. They format data and render it for display, acquire and validate data entered by user. Specifically, they are React components such as header, search bar, pop-up messages, etc.

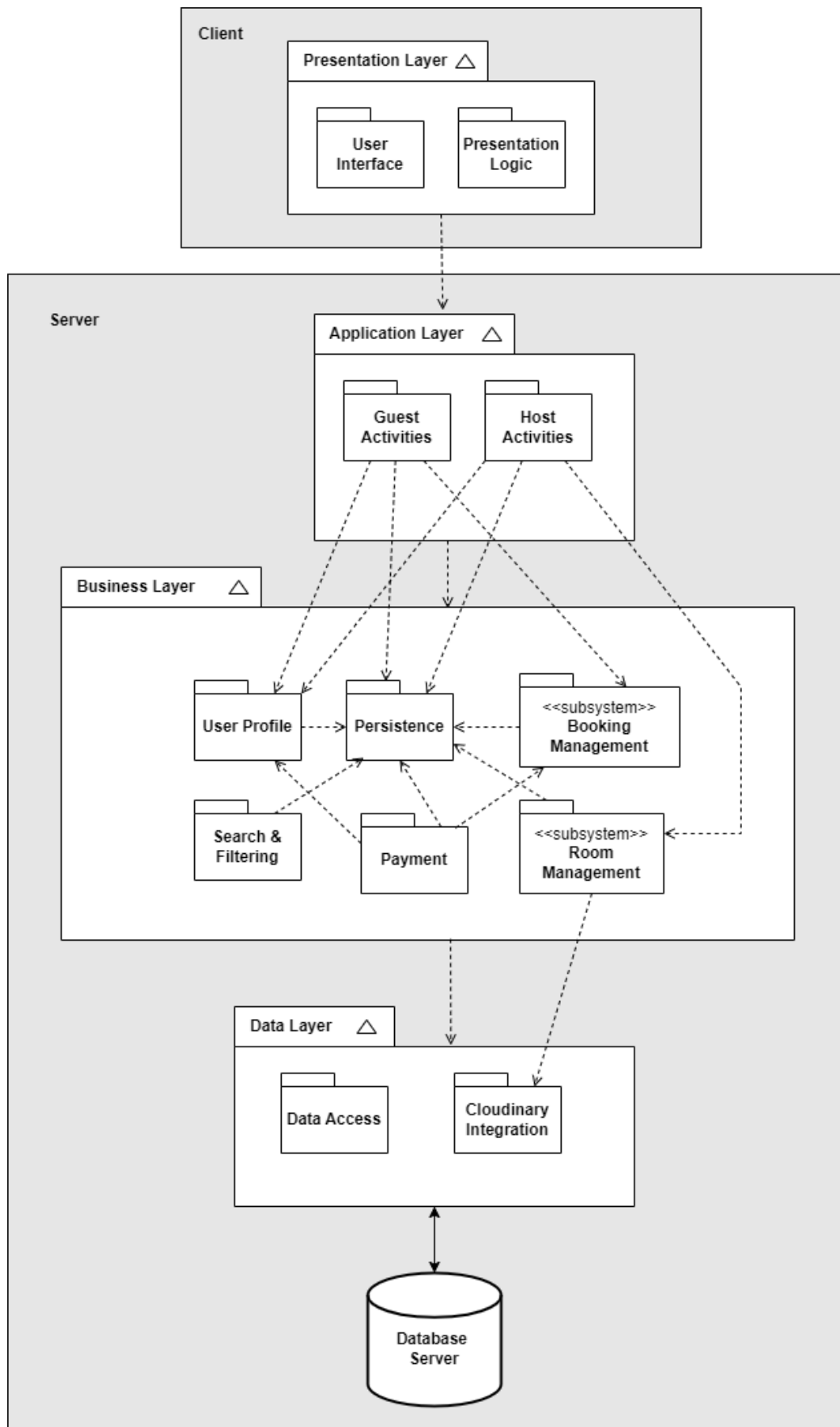


Figure 2. Architectural model

- **Presentation Logic components.** They are responsible for managing the user interface and controlling how data is presented to the user. These components handle tasks such as managing the state of UI elements and responding to user interactions. Within the homestay booking system, we also leverage caching mechanisms to optimize room lookups and avoid network round trips.

### 2.2.2 Application Layer Components

By placing guest and host activities in this layer, we separate the concerns of managing user interactions and business rules from other layers as they represent different sets of functionalities available to users acting as guests and hosts within the Homestay Booking System.

- Both guest and host activities rely on **User Profile** in the Business Layer for managing user information, preferences, and authentication. They have common user management functionalities, such as registration, login, profile editing.
- Both guest and host activities depend on **Persistence** component in the Business Layer for storing and retrieving data from the database.
- Guest activities rely on the **Booking Management** subsystem for functionalities such as searching for available rooms, making reservations, and managing bookings.
- Host activities depend on the **Room Management** subsystem for functionalities such as listing properties, managing room availability, editing room, viewing guests' bookings.

### 2.2.3 Business Layer Components

- The **Payment** component handles payment processing for homestay booking (in our project, this is done through Stripe). It interacts with both **User Profile** component to retrieve user payment information and the **Booking Management** component to associate payments with specific bookings.
- The **Search & Filtering** component enables users to search for hotels based on criteria such as location, dates, number of guests.
- All components in this layer interacts with **Persistence** component to ensure that each component can access and manipulate data stored in the database efficiently.
- **Room Management** subsystem is responsible for managing room inventory, including descriptions, amenities, and images. **Integrating with Cloudinary** in the Data Layer allows system to store room images and media assets in the cloud, providing a centralized and scalable solution for managing and serving media content.

### 2.2.4 Data Layer Components

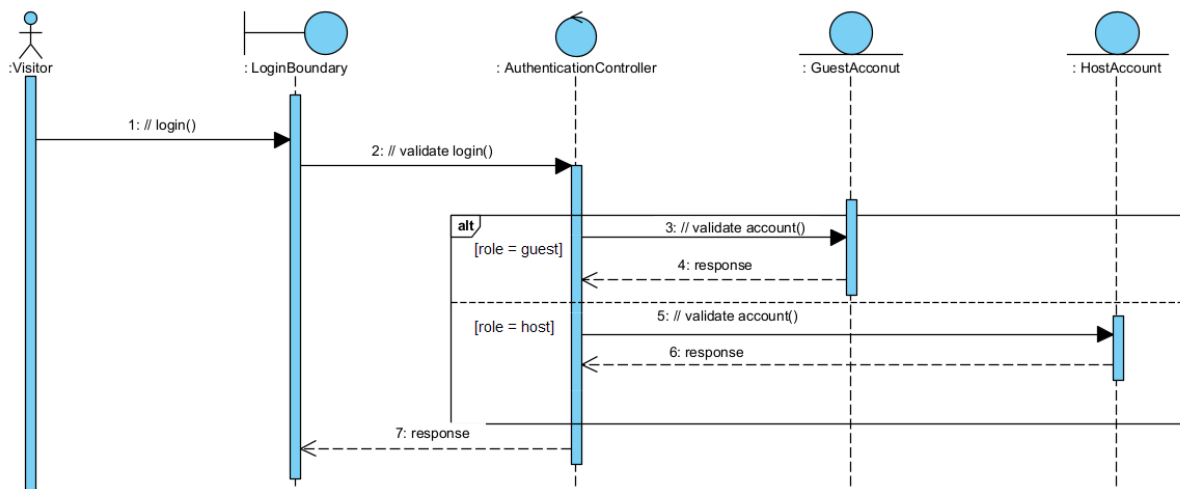
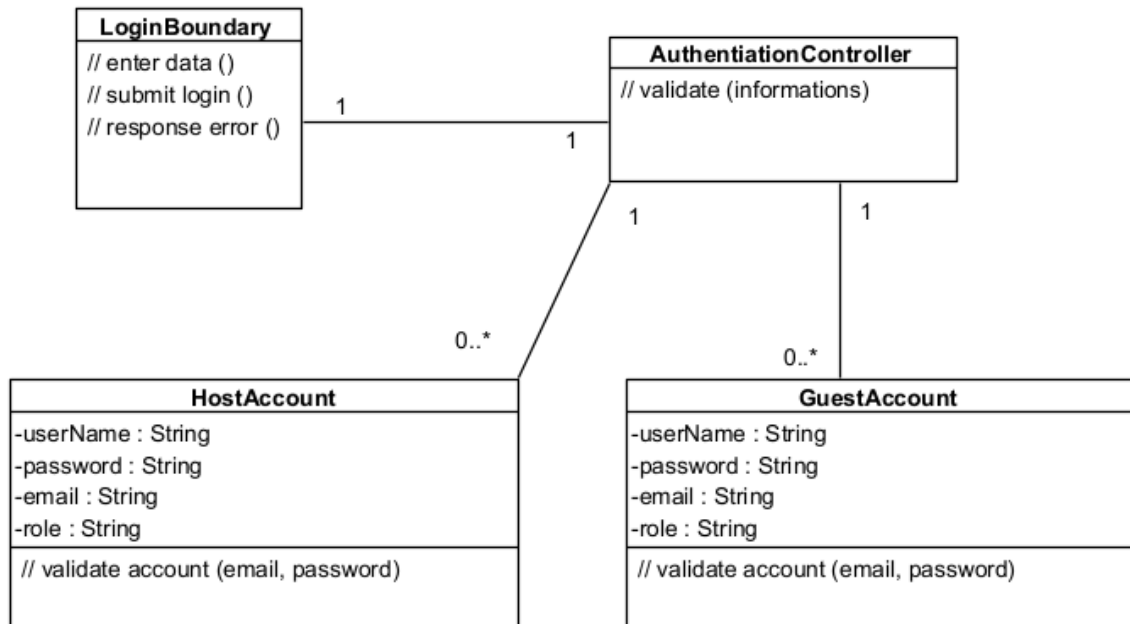
- The **Data Access** component is responsible for handling interactions with the database, providing a set of interfaces, methods, or classes that abstract the details of data storage and retrieval operations, allowing other components in higher layers to interact with the database without needing to know the underlying implementation details. It includes functionalities such as: connecting to the database, executing queries, inserting – updating – deleting data.
- **Cloudinary Integration**, as mentioned before, is a cloud-based media management platform that manages host's images, directly involves in the process of adding room which belongs to **Room Management** subsystem.

Figure 2 illustrates components of each layer and the dependencies between them.

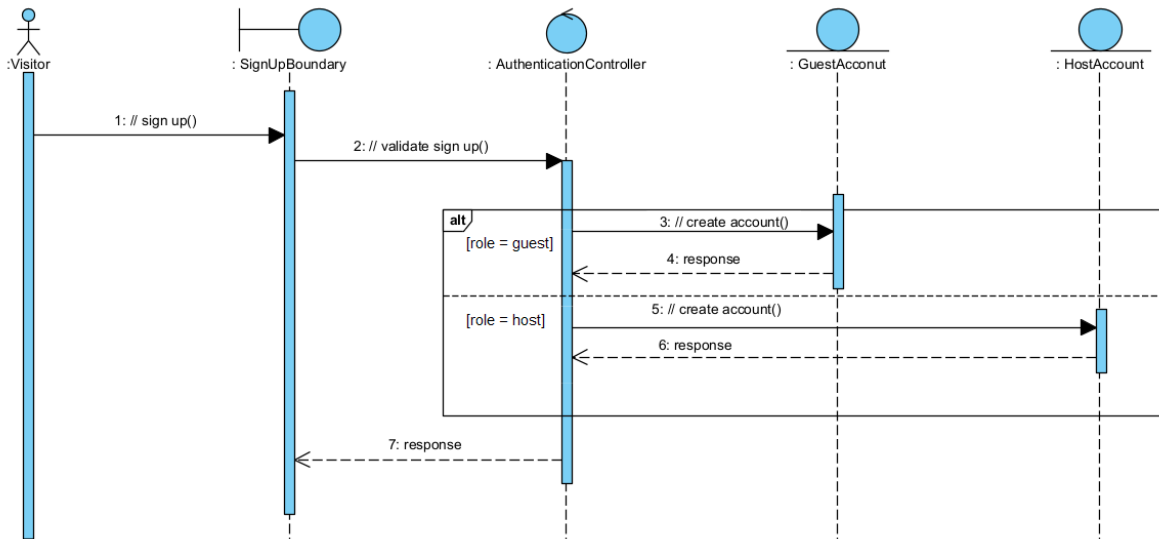
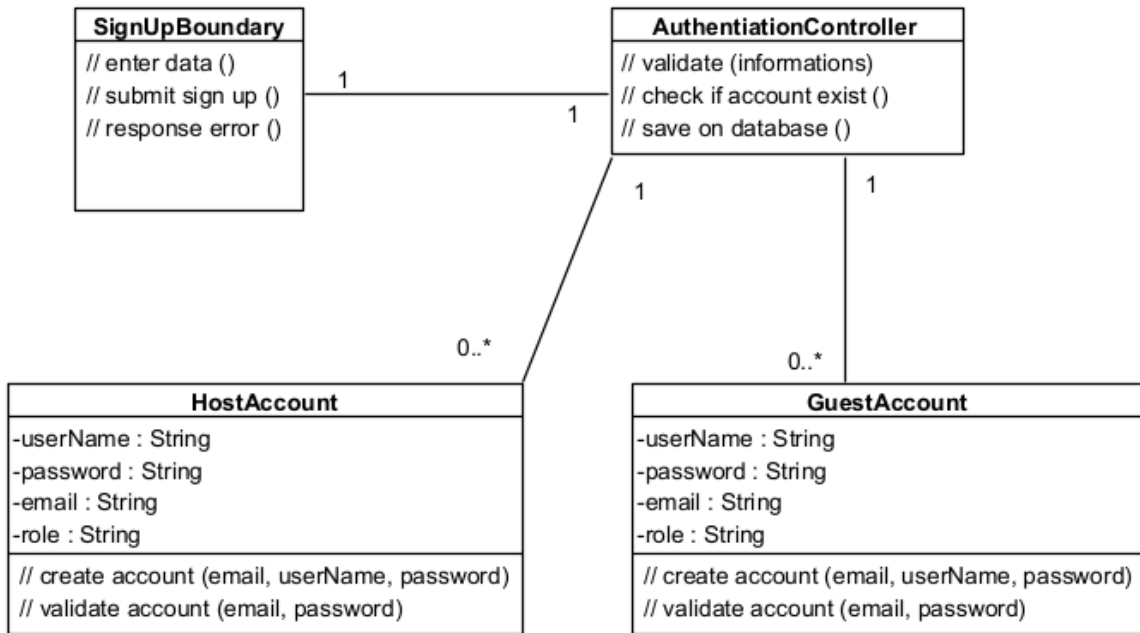
## 2.3 Use Case Diagrams



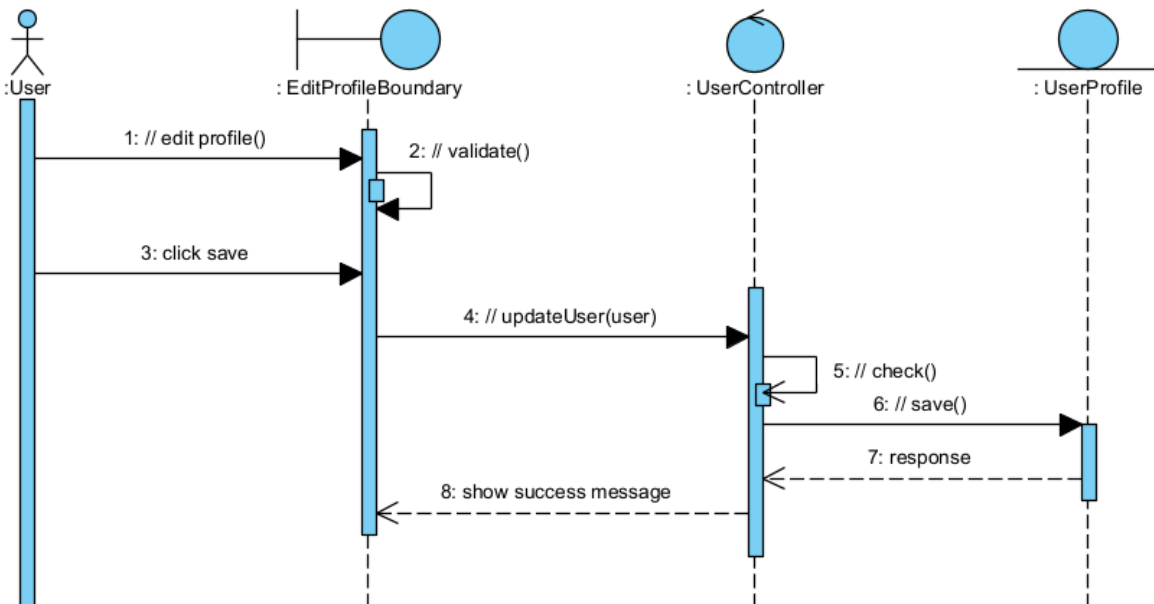
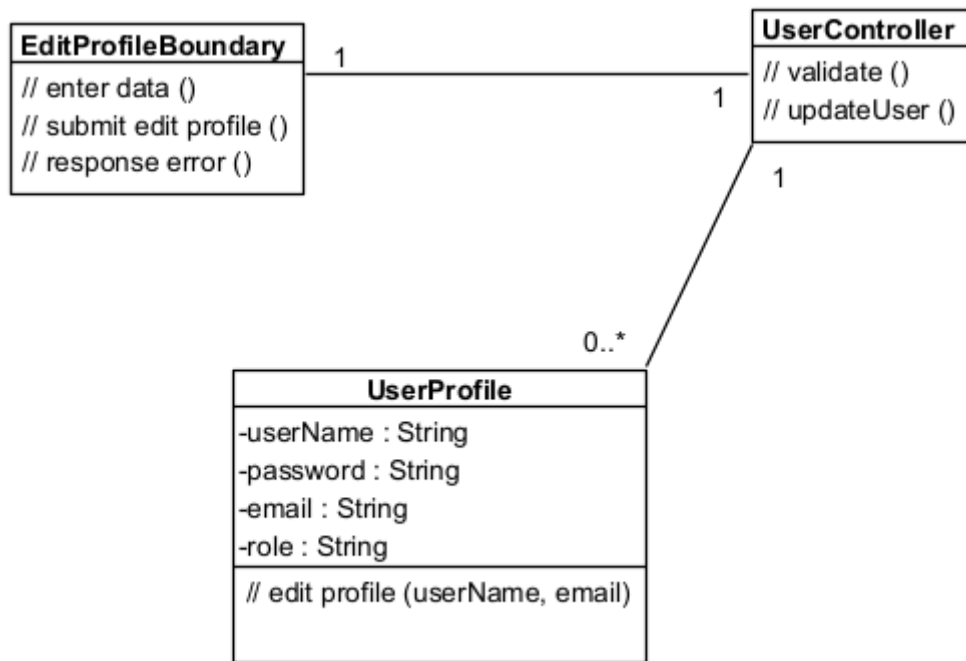
### 2.3.1 Login



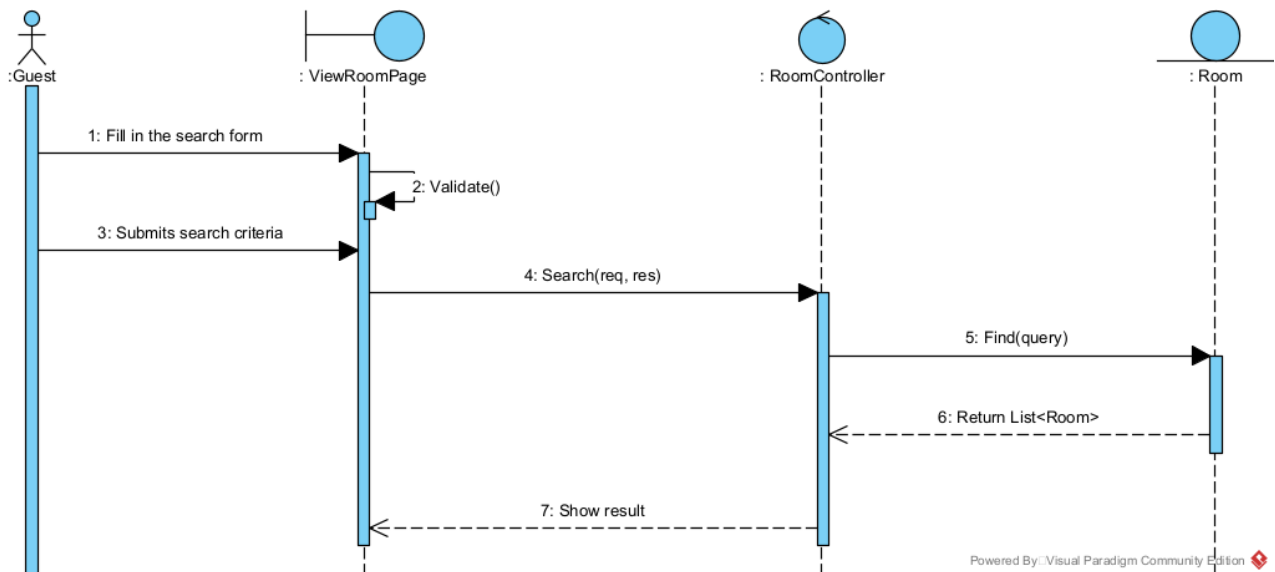
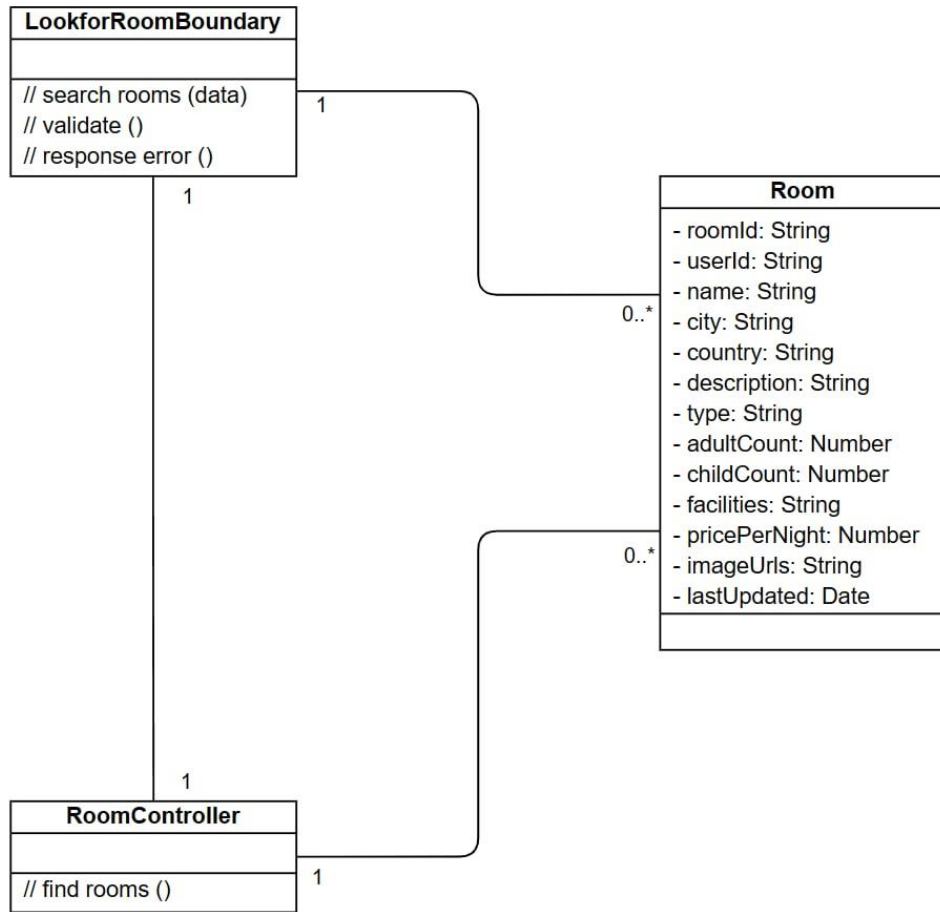
## 2.3.2 Register



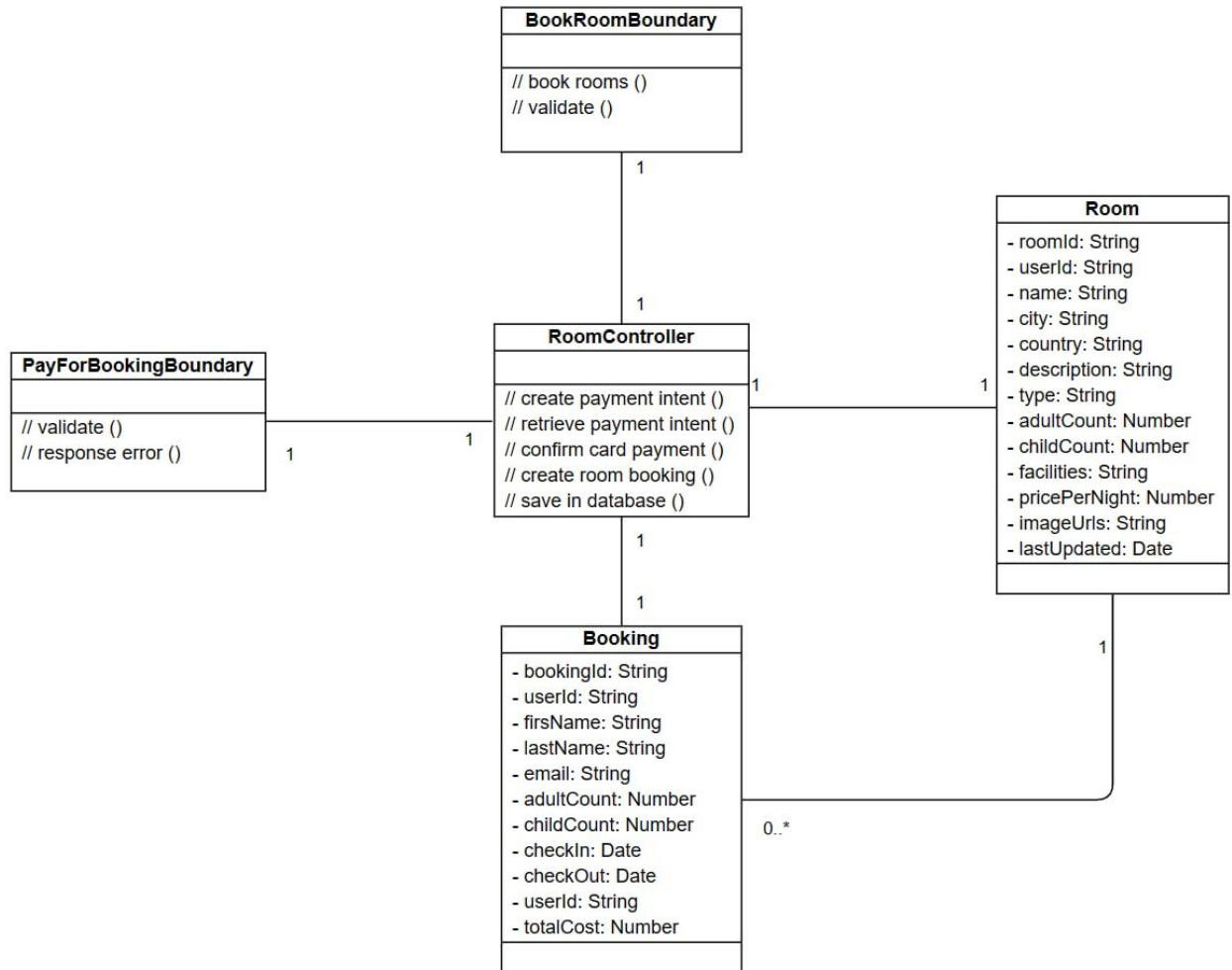
### 2.3.3 Edit Profile



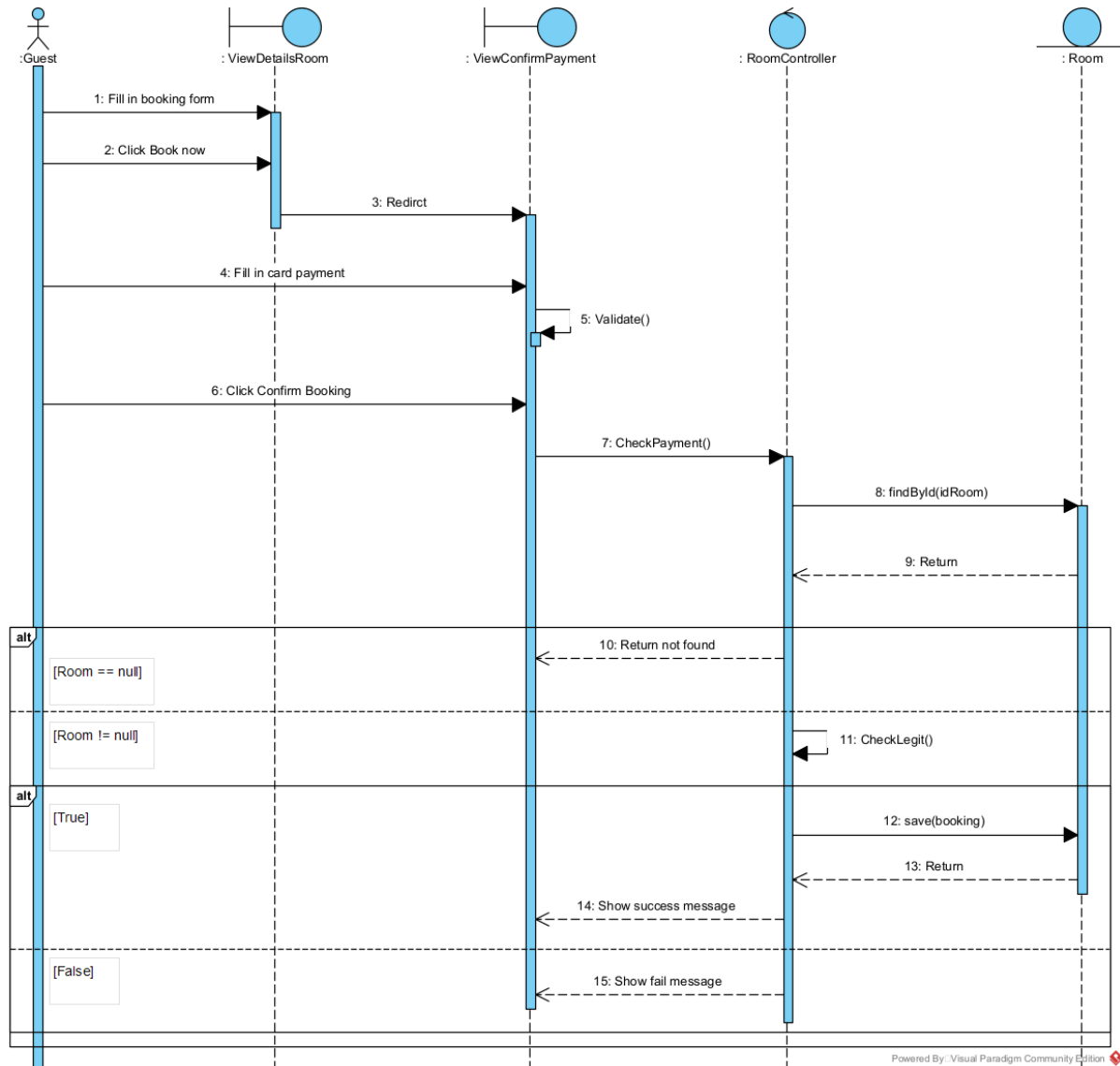
### 2.3.4 Search Room



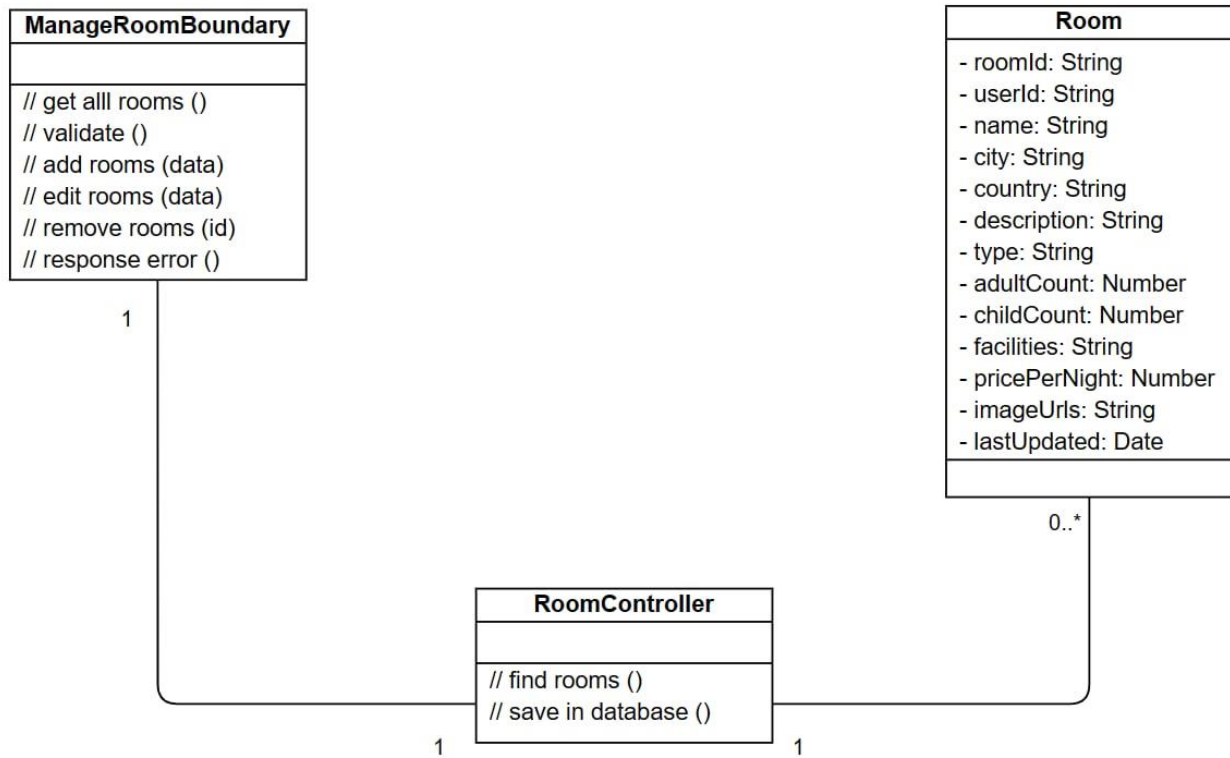
### 2.3.5 Book Room



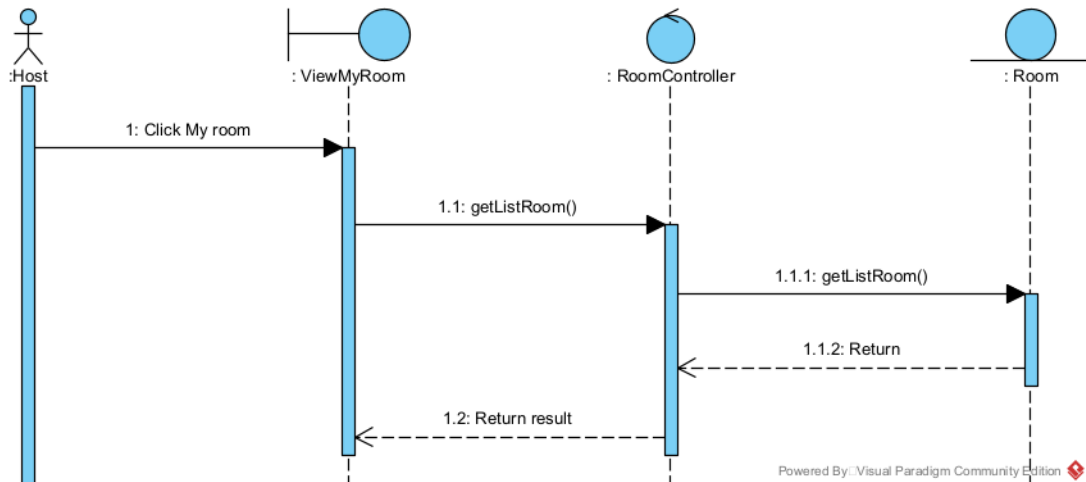
# HOMESTAY BOOKING WEBSITE PROJECT

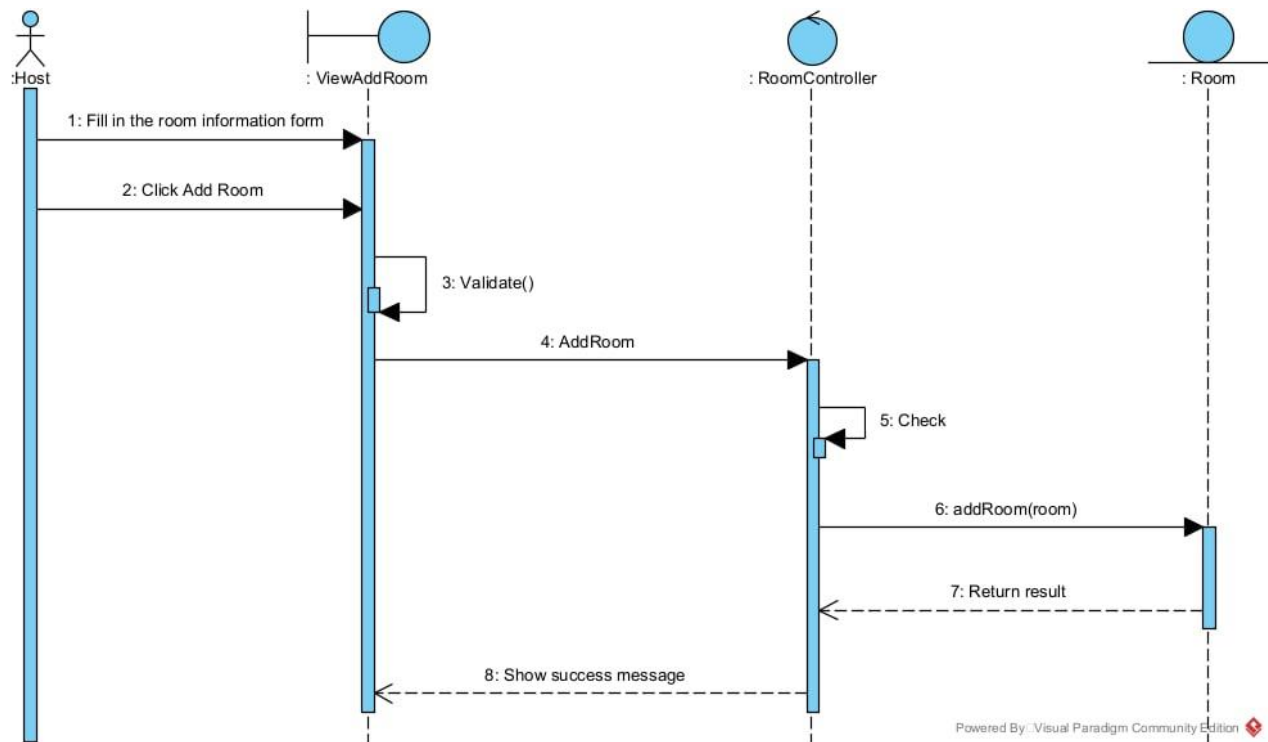


## 2.3.6 Manage Room

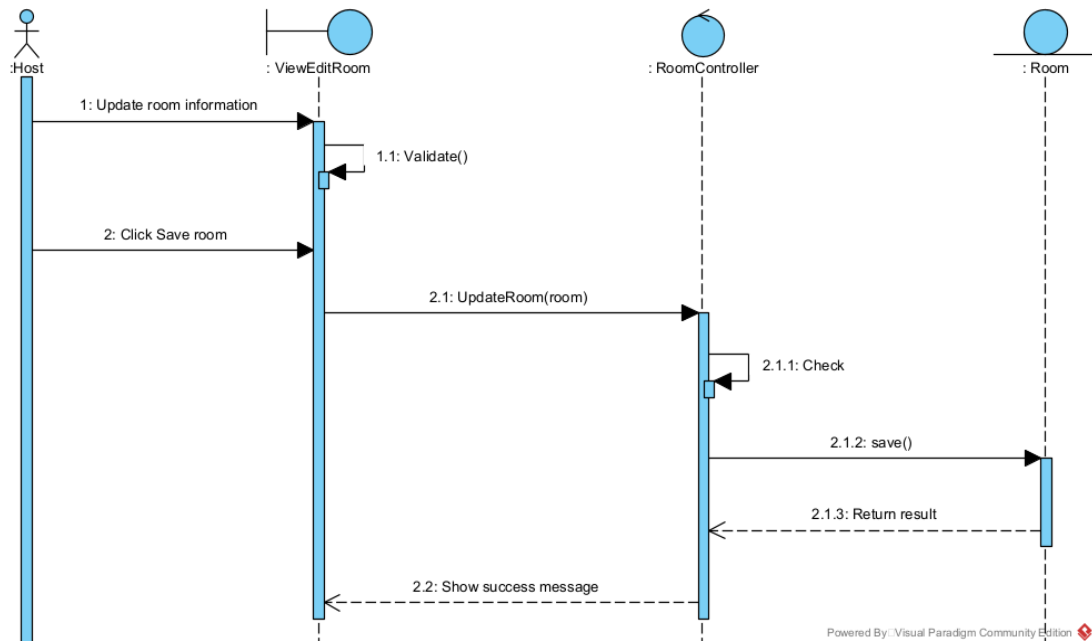


### 2.3.6.1 View my room



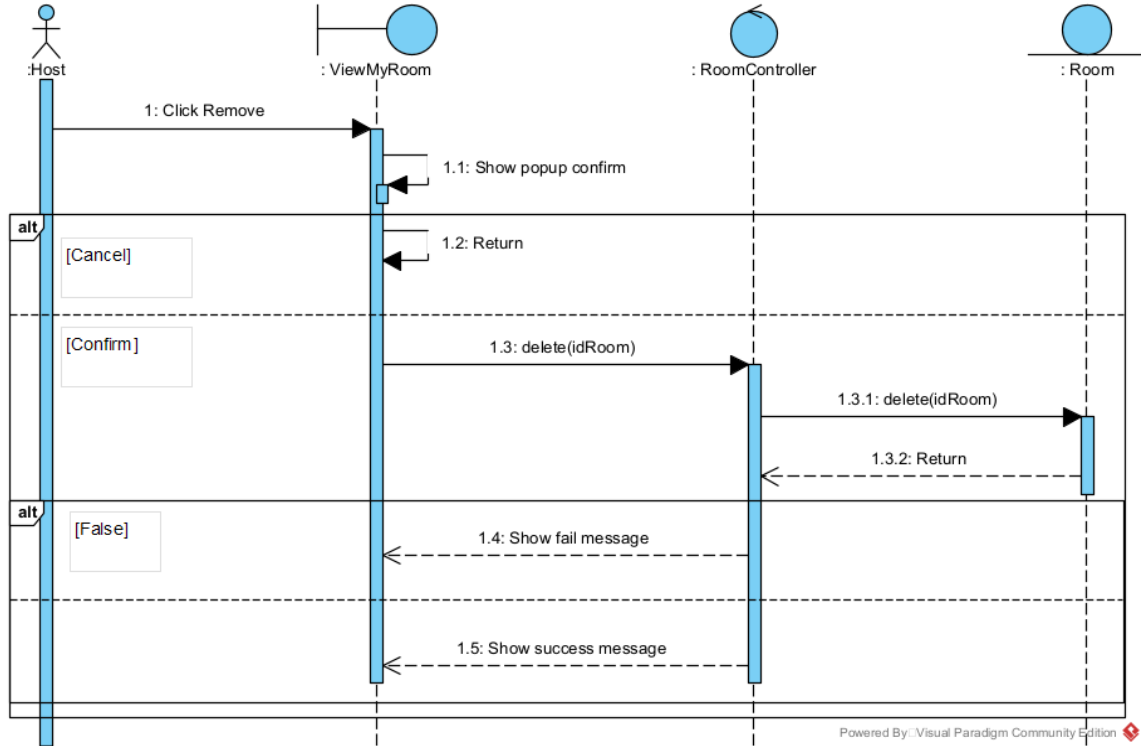


## 2.3.6.2 Add room





### 2.3.6.3 Edit room



### 2.3.6.4 Delete room

## 3. User Interface Design

### 3.1 Login

[Home](#)
[Rooms](#)

Welcome back

Login to access your Golobe account

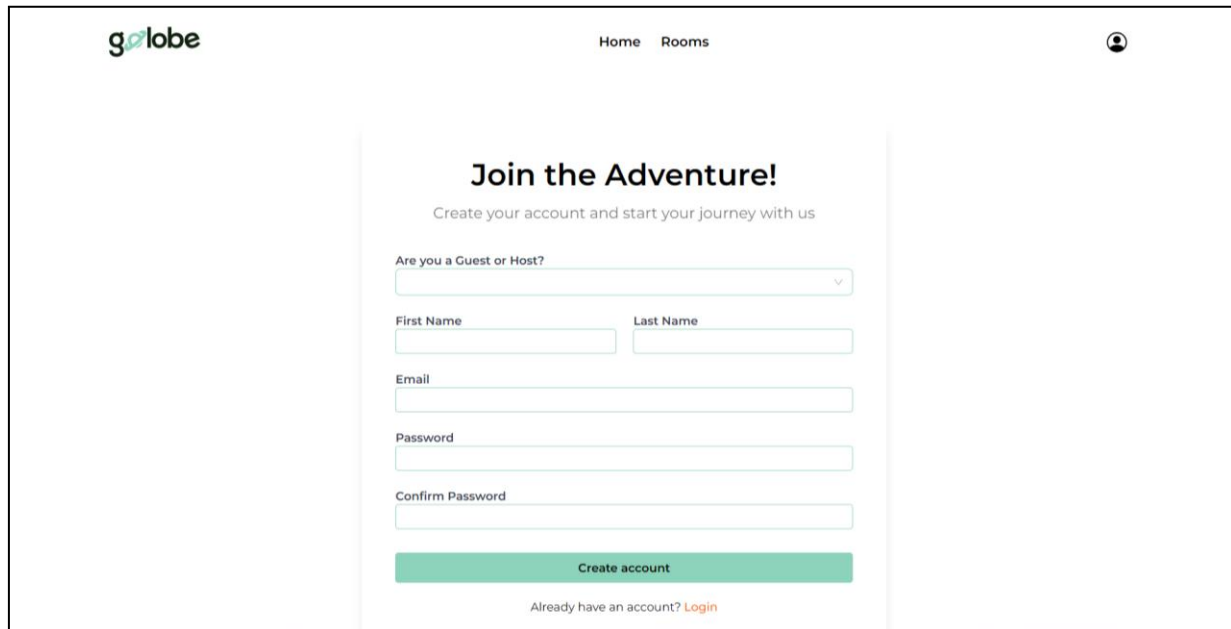
Email

Password

Login

Not Registered? [Create an account here](#)

## 3.2 Register



The registration form is titled "Join the Adventure!" with the subtitle "Create your account and start your journey with us". It features a dropdown menu for "Are you a Guest or Host?". Below this are input fields for "First Name", "Last Name", "Email", "Password", and "Confirm Password". A green "Create account" button is at the bottom, followed by a link "Already have an account? Login". The form is centered on a white background with a light gray border.

**golobe** Home Rooms

### Join the Adventure!

Create your account and start your journey with us

Are you a Guest or Host?

First Name Last Name

Email

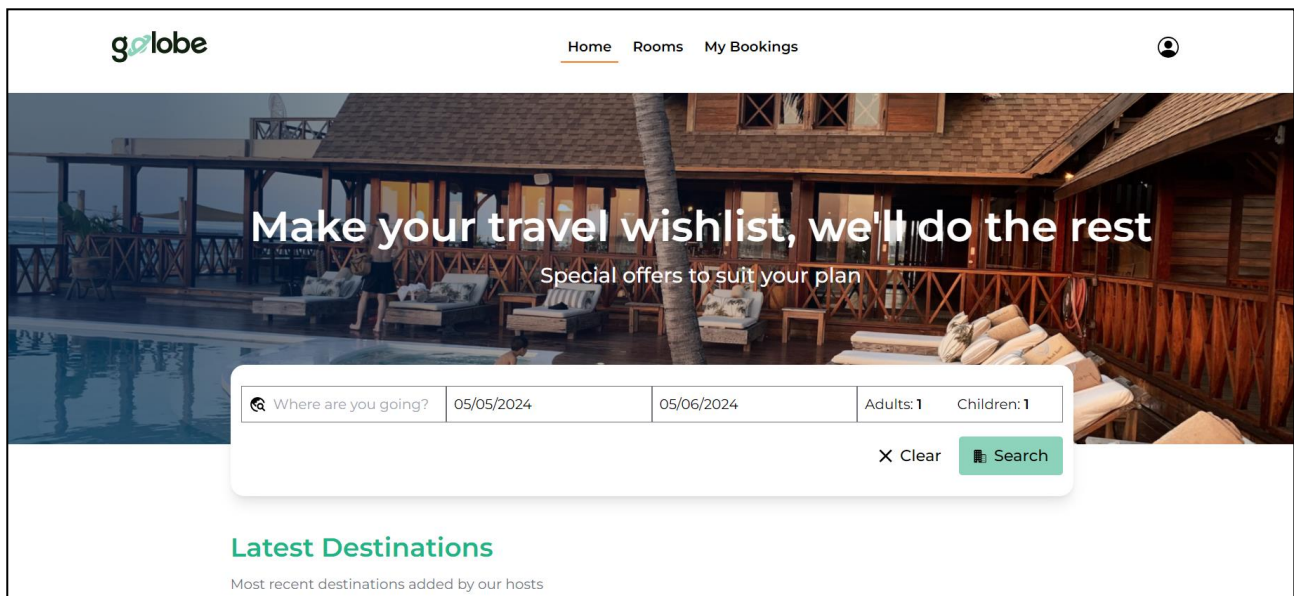
Password

Confirm Password

Create account

Already have an account? [Login](#)

## 3.3 Landing Page



The landing page features a large background image of a tropical resort with a pool and wooden buildings. The header includes the "golobe" logo and navigation links "Home", "Rooms", and "My Bookings". The main headline reads "Make your travel wishlist, we'll do the rest" with the subtitle "Special offers to suit your plan". Below this is a search bar with fields for "Where are you going?", dates "05/05/2024" and "05/06/2024", and guest counts "Adults: 1" and "Children: 1". A "Clear" button and a green "Search" button are also present. The bottom section is titled "Latest Destinations" with the text "Most recent destinations added by our hosts".

**golobe** Home Rooms My Bookings

## Make your travel wishlist, we'll do the rest

Special offers to suit your plan

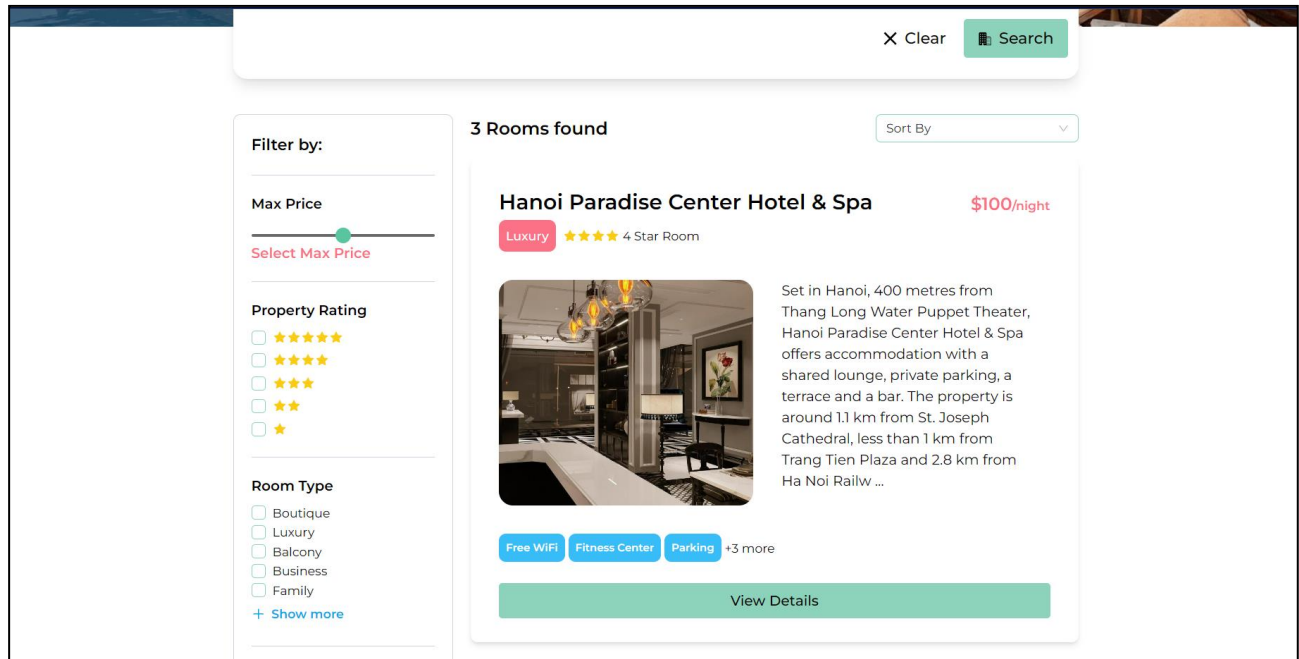
Where are you going? 05/05/2024 05/06/2024 Adults: 1 Children: 1

Clear Search

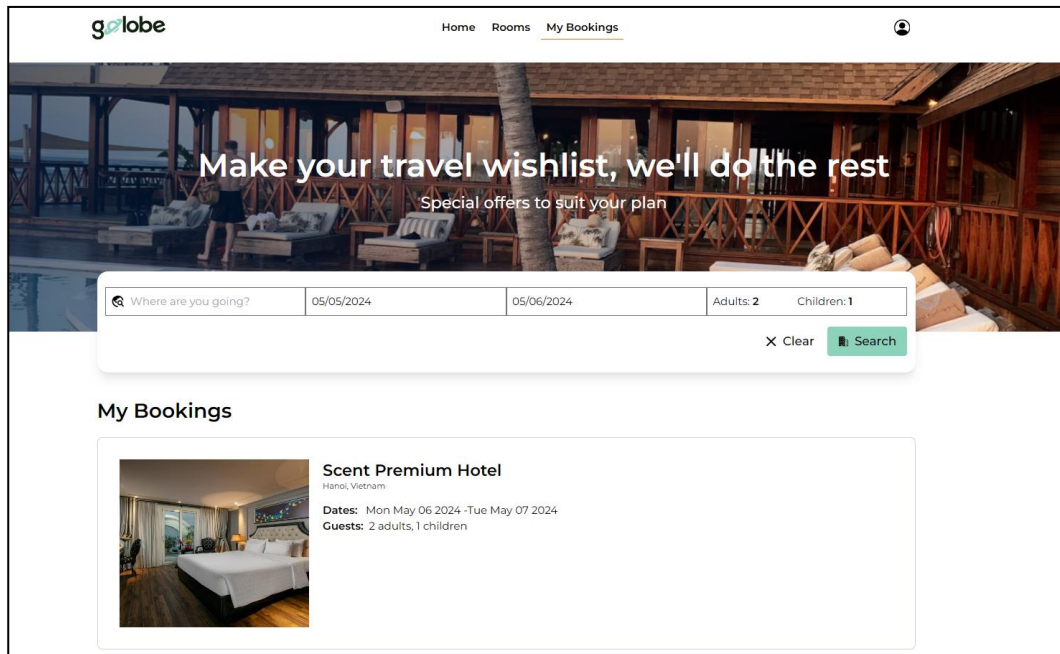
### Latest Destinations

Most recent destinations added by our hosts

### 3.4 Search Page



### 3.5 View Bookings



## 3.6 Hotel Detail Page





Vietnam > Hanoi > Hanoi Paradise Center Hotel & Spa

Luxury

★★★★★ 4 Star Room

\$100/night

Hanoi, Vietnam



### Overview

Set in Hanoi, 400 metres from Thang Long Water Puppet Theater, Hanoi Paradise Center Hotel & Spa offers accommodation with a shared lounge, private parking, a terrace and a bar. The property is around 1.1 km from St. Joseph Cathedral, less than 1 km from Trang Tien Plaza and 2.8 km from Ha Noi Railway station. The accommodation features a 24-hour front desk, airport transfers, room service and free WiFi.

### Facilities

- Free WiFi
- Fitness Center
- Parking
- Airport Shuttle
- Outdoor Pool
- Spa

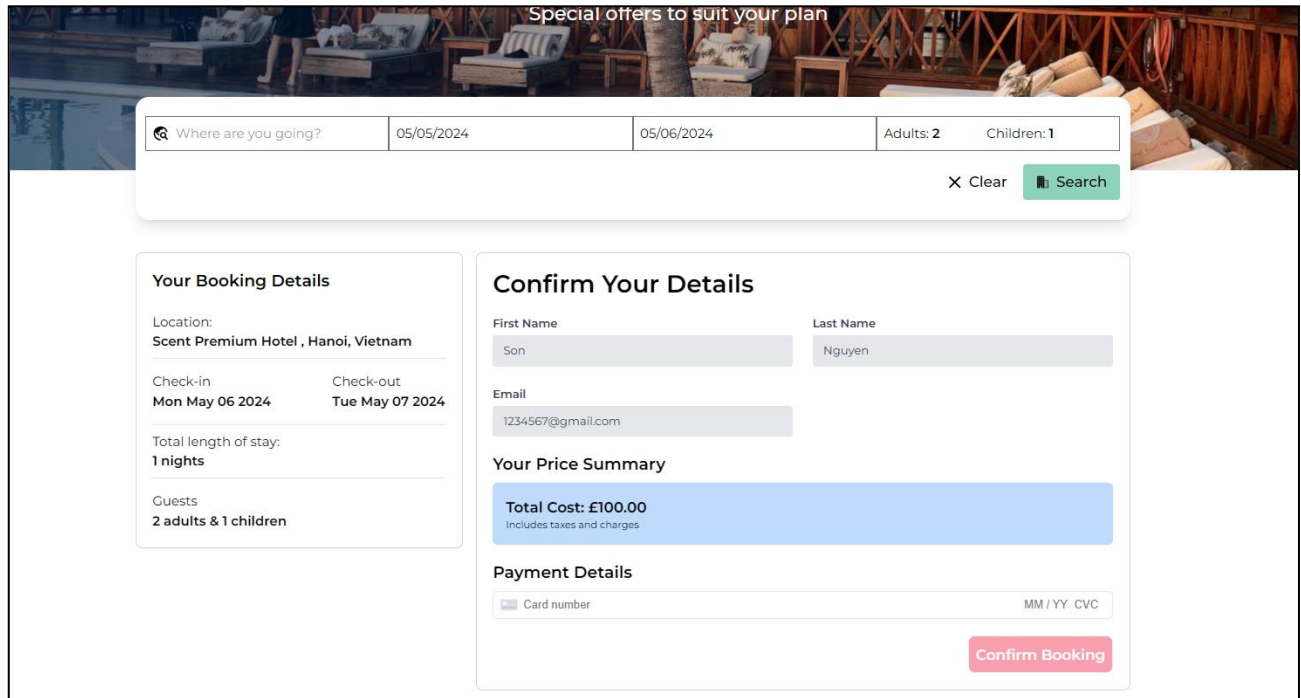
05/05/2024

05/05/2024

Adults: 1 Children: 1

Book Now

## 3.7 Booking Confirmation



Special offers to suit your plan

Where are you going? 05/05/2024 05/06/2024 Adults: 2 Children: 1

X Clear Search

### Your Booking Details

Location:  
Scent Premium Hotel , Hanoi, Vietnam

Check-in  
Mon May 06 2024

Check-out  
Tue May 07 2024

Total length of stay:  
1 nights

Guests  
2 adults & 1 children

### Confirm Your Details

First Name  
Son

Last Name  
Nguyen

Email  
1234567@gmail.com

### Your Price Summary

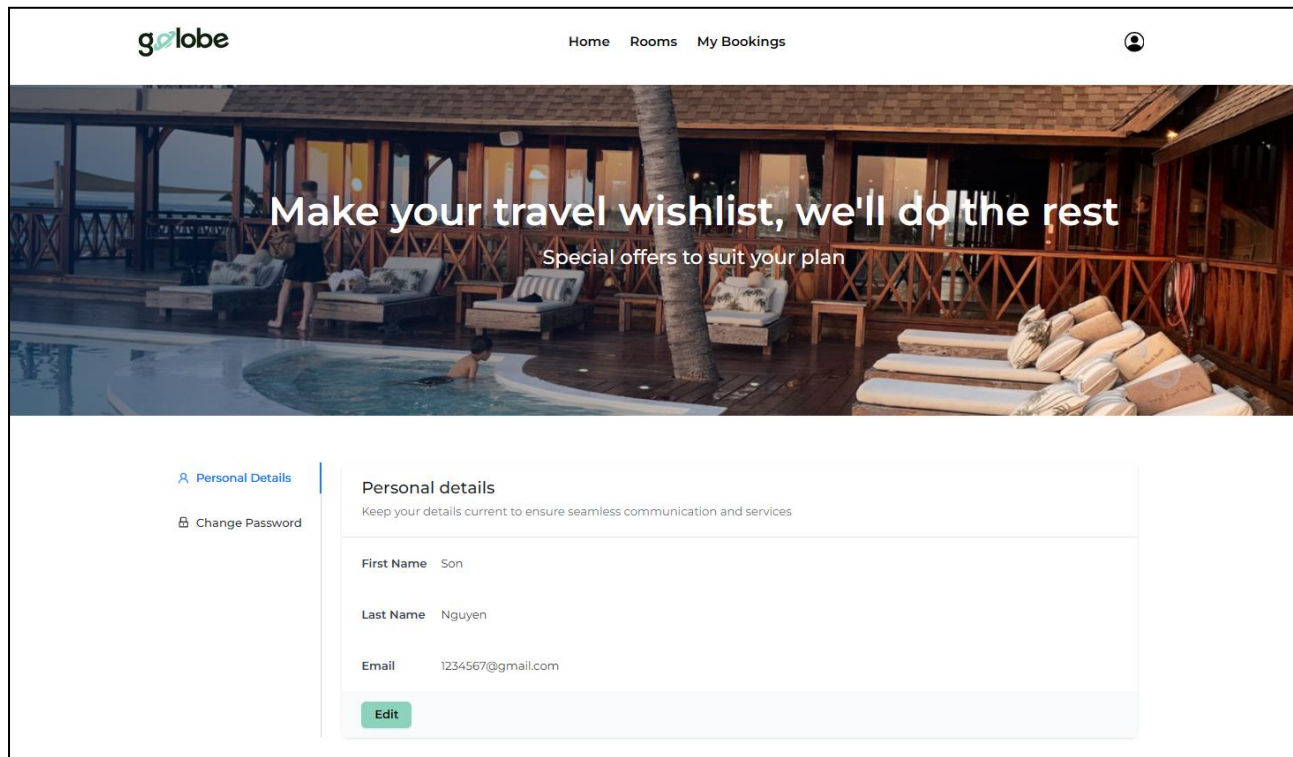
**Total Cost: £100.00**  
Includes taxes and charges

### Payment Details

Card number MM / YY CVC

Confirm Booking

## 3.8 User Profile



golobe Home Rooms My Bookings

Make your travel wishlist, we'll do the rest

Special offers to suit your plan

Personal Details

Change Password

### Personal details

Keep your details current to ensure seamless communication and services

First Name Son

Last Name Nguyen

Email 1234567@gmail.com

Edit



### 3.9 Change Pasword

globe

[Home](#) [Rooms](#) [My Bookings](#)

Make your travel wishlist, we'll do the rest

Special offers to suit your plan

Personal Details

Change Password

Change Password

Keep your password secure and up to date

Current Password

New Password

Confirm Password

Save

### 3.10 View Host's Rooms

My Rooms

Add Room

You're owning 2 rooms

Hanoi Paradise Center Hotel & Spa

★★★★ 4 Star Rating

\$100/night

Hanoi, Vietnam

Description

Set in Hanoi, 400 metres from Thang Long Water Puppet Theater, Hanoi Paradise Center Hotel & Spa offers accommodation with a shared lounge, private parking, a terrace and a bar. The property is around 1.1 km from St. Joseph Cathedral, less than 1 km from Trang Tien Plaza and 2.8 km from Ha Noi Railway station. The accommodation features a 24-hour front desk, airport transfers, room service and free WiFi.

Luxury

5 adults, 5 children

Remove

Edit Details

View Bookings

The Five Residences Hanoi

★★★★★ 5 Star Rating

\$200/night

18

### 3.11 Add Room

#### Add Room

Name

City

Country

Select a city

Select a country

Description

Price Per Night

Star Rating

Select as Rating

Type

Boutique

Luxury

Balcony

Business

Family

Romantic

Breakfast

Cabin

Non-Smoking

Bath

Motel

All Inclusive

Pet Friendly

Self Catering

Facilities

☐ Free WiFi

☐ Parking

☐ Airport Shuttle

☐ Outdoor Pool

☐ Spa

☐ Fitness Center

Guests

Adults

Children

Images

Choose Files

No file chosen

Save

### 3.12 View Guests' Bookings

Where are you going?

05/05/2024

05/06/2024

Adults: 2

Children: 1

✕ Clear

🔍 Search

#### Guest Bookings

Booked by: Son Dopin

Email: 123456@gmail.com

Dates: From Saturday, May 4, 2024 to Monday, May 6, 2024

Guests: 2 adults and 3 children