Hotel Booking System Project

Course: software engineering

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Fares baher elbarkoky
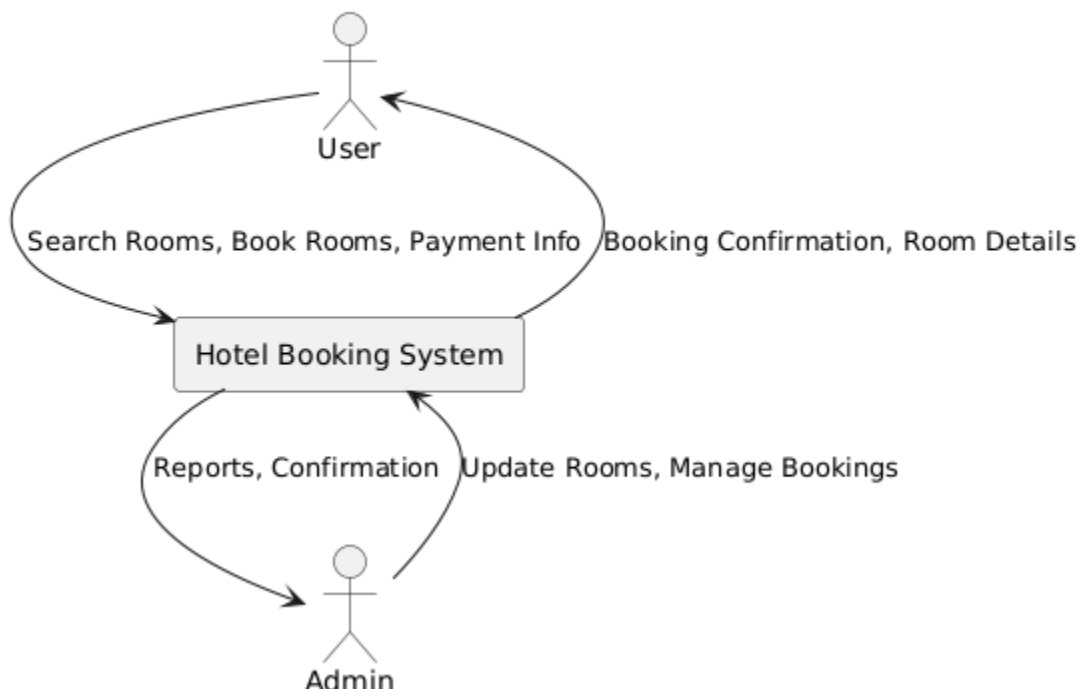
Hosny mohammed Hosny

Ziad abd elwahed

Introduction

The **Hotel Booking System** is a web-based platform designed to simplify hotel reservations. It allows users to search for rooms, make bookings, and process payments while enabling administrators to manage availability and reservations. This document outlines the system's design using diagrams and wireframes to guide its implementation.

Data Flow Diagrams (DFDs)

1-Level 0: Context Diagram

The Context Diagram shows the high-level interaction between external actors (User, Admin) and the Hotel Booking System as a single process.

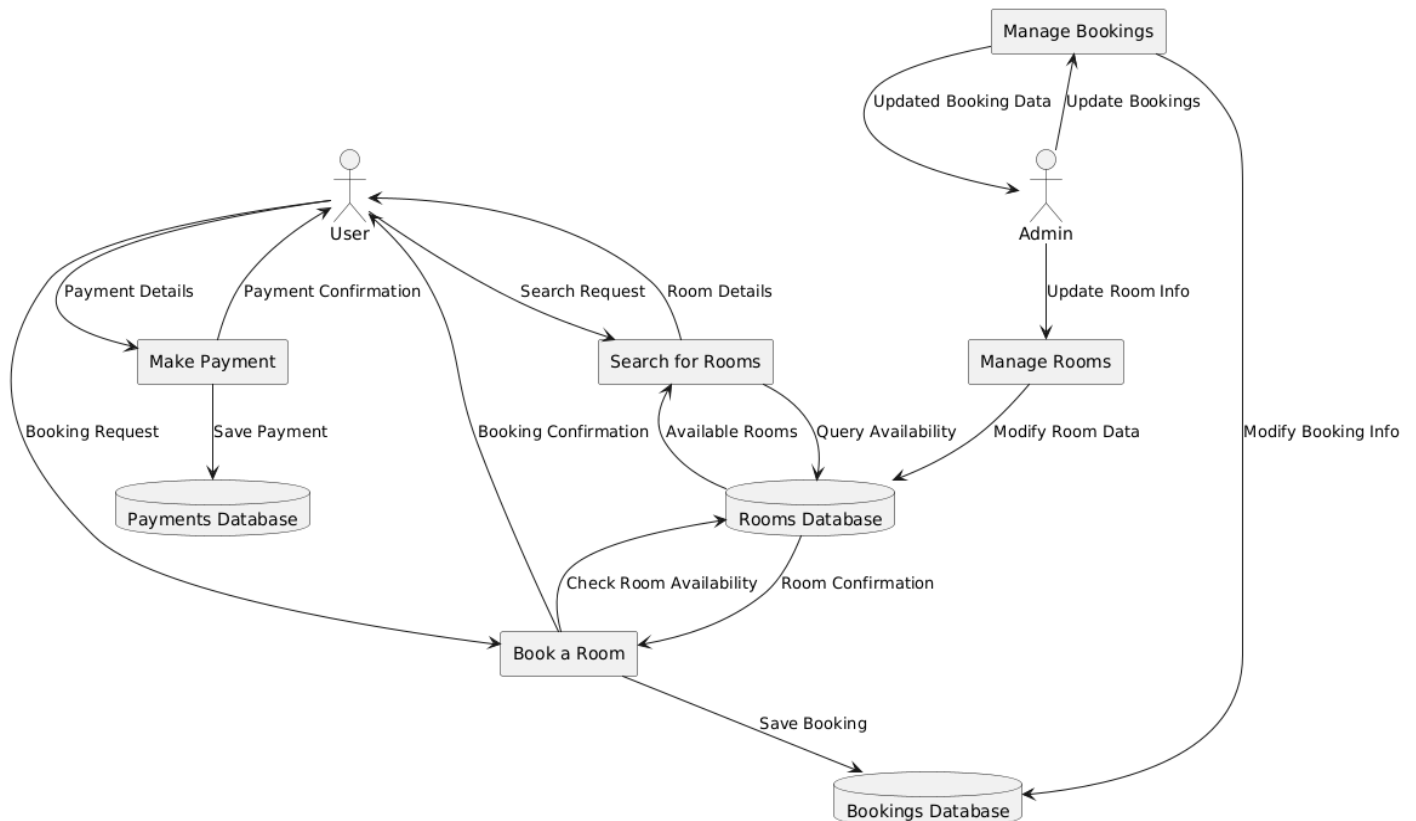**Level 0: Context Diagram - Hotel Booking System**

User

Search Rooms, Book Rooms, Payment Info   Booking Confirmation, Room Details

Hotel Booking System

Reports, Confirmation   Update Rooms, Manage Bookings
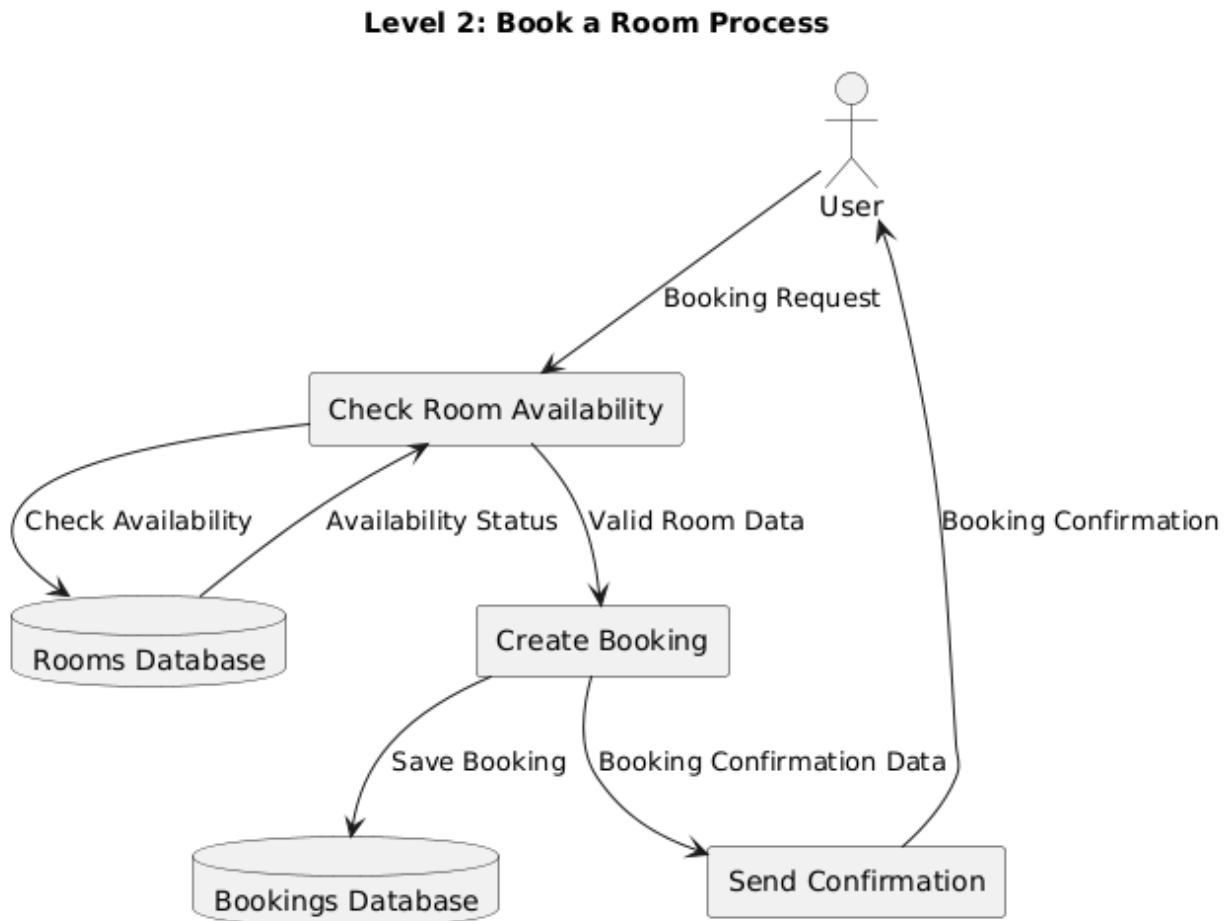
Admin

2-Level 1: Decomposed DFD

The Level 1 DFD decomposes the system into core processes like Search, Booking, Payment, and Management.

Level 1: Hotel Booking System

3-Level 2: Book a Room Process

this diagram focuses on the detailed steps for the 'Book a Room' process.

Level 2: Book a Room Process

User

Booking Request

Check Room Availability

Check Availability   Availability Status   Valid Room Data   Booking Confirmation

Rooms Database

Create Booking

Save Booking   Booking Confirmation Data
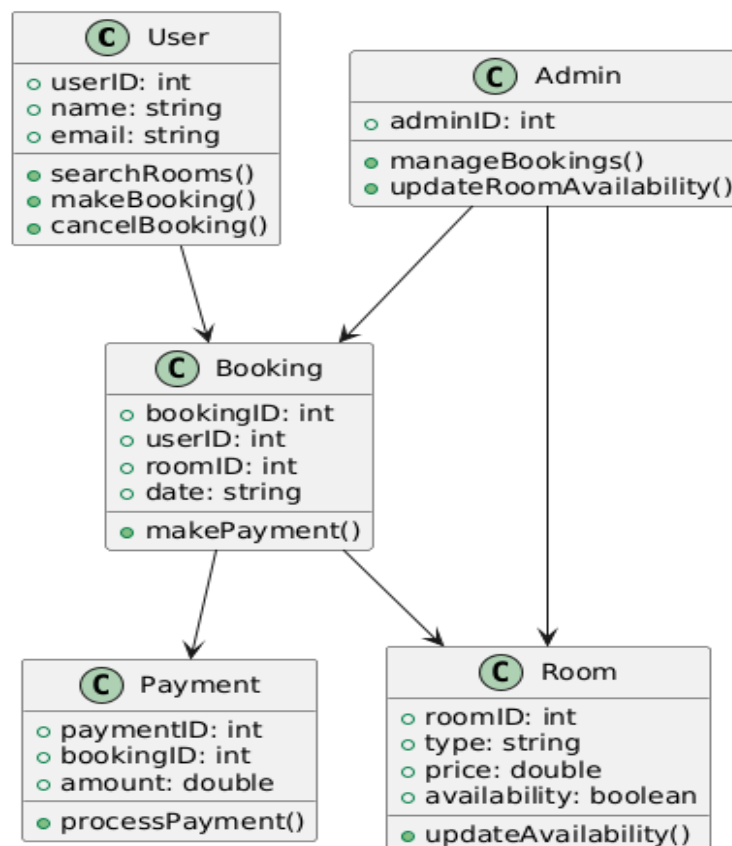
Bookings Database

Send Confirmation

UML Diagrams

1-Use Case Diagram

The Use Case Diagram represents interactions between users (User, Admin) and the system's functionalities.

Use Case Diagram
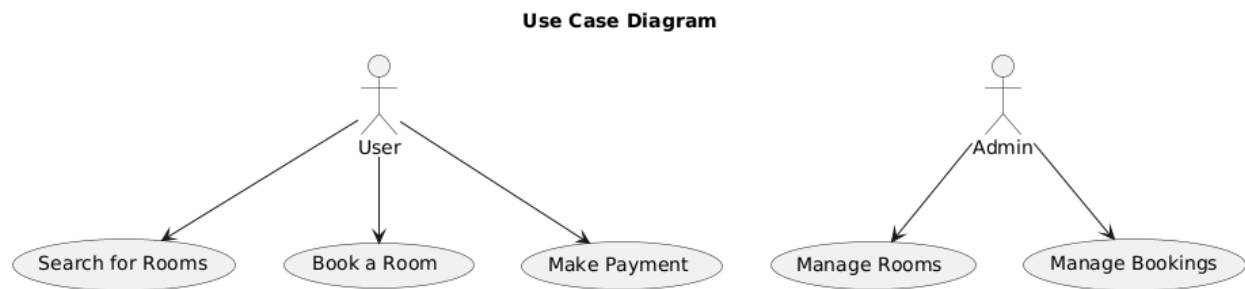
2-Class Diagram

The Class Diagram shows the system's data structure, relationships between classes like User, Booking, Room, and Admin.

3-Sequence Diagram

the Sequence Diagram illustrates the step-by-step interactions involved in booking a room, from searching and selecting a room to confirming the booking and payment.

Sequence Diagram: Booking a Room

User	Search System	Booking System	Payment Gateway

Search for Rooms →

← Show Available Rooms

Select Room & Provide Details →

Validate Availability

Process Payment →

← Payment Confirmation

← Booking Confirmation

User	Search System	Booking System	Payment Gateway
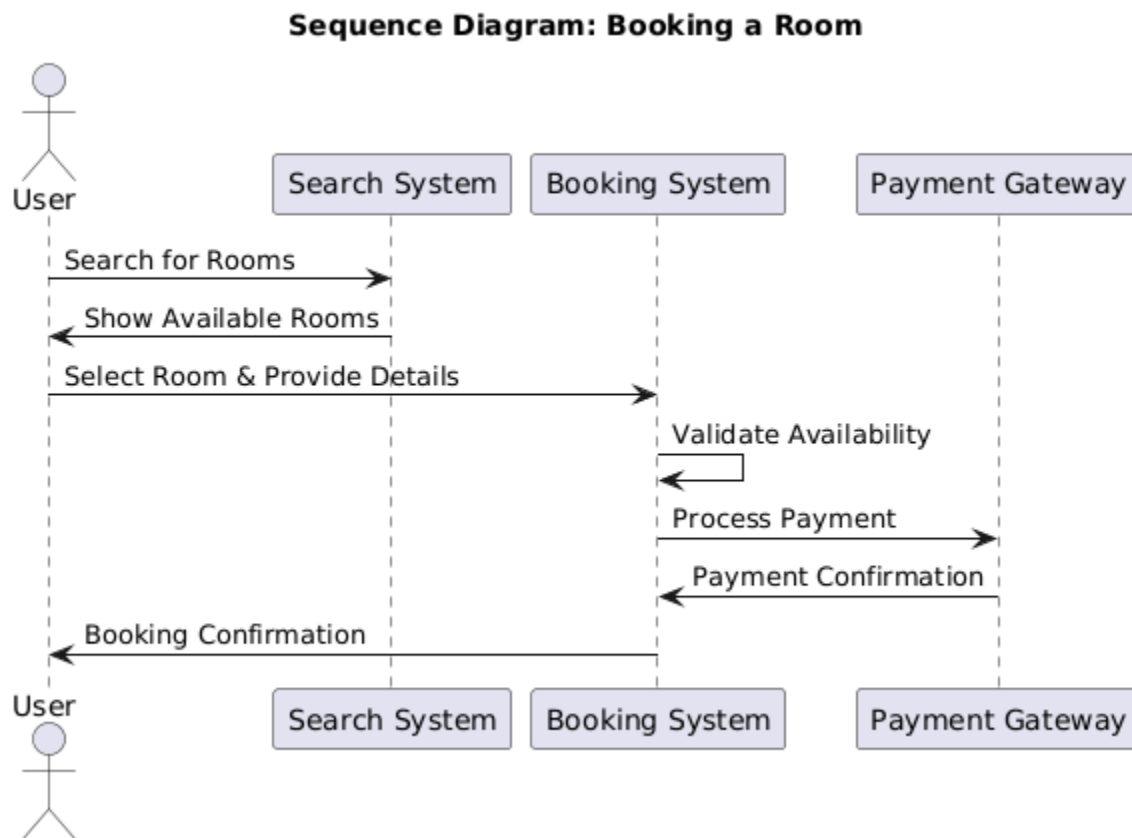
4-Activity Diagram

The Activity Diagram outlines the flow of actions in the booking process, including decisions like availability checks and payment confirmation

Activity Diagram: Booking Process

```
                        ●
                        │
                        ▼
          ┌─────────────────────────────┐
          │  Search for Available Rooms  │
          └─────────────────────────────┘
                        │
                        ▼
        Yes ╱─────────────────────╲ No
      ┌────<   Rooms Available?    >────┐
      │     ╲─────────────────────╱     │
      ▼                                 ▼
┌──────────────┐              ┌────────────────────┐
│ Select Room  │              │ No Rooms Available │
└──────────────┘              └────────────────────┘
      │                                 │
      ▼                                 │
┌────────────────────────┐             │
│ Provide Booking Details│             │
└────────────────────────┘             │
      │                                 │
      ▼                                 │
┌──────────────┐                       │
│ Make Payment │                       │
└──────────────┘                       │
      │                                 │
Yes ╱───────────────────╲ No           │
 ┌─<  Payment Successful? >─┐          │
 │  ╲───────────────────╱   │          │
 ▼                          ▼          │
┌──────────────────┐ ┌──────────────┐  │
│ Booking Confirmed│ │ Payment Error│  │
└──────────────────┘ └──────────────┘  │
      │                    │           │
      └────────◇───────────┘           │
               │                       │
               └──────────◇────────────┘
                          │
                          ▼
                          ◉
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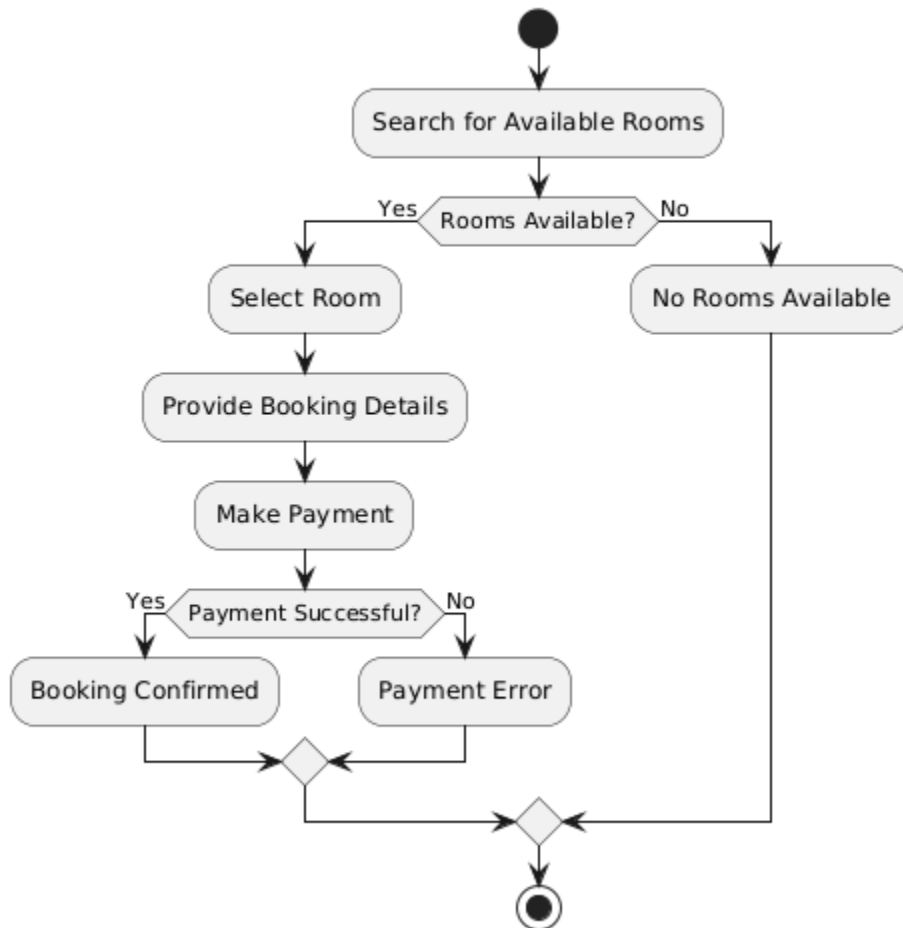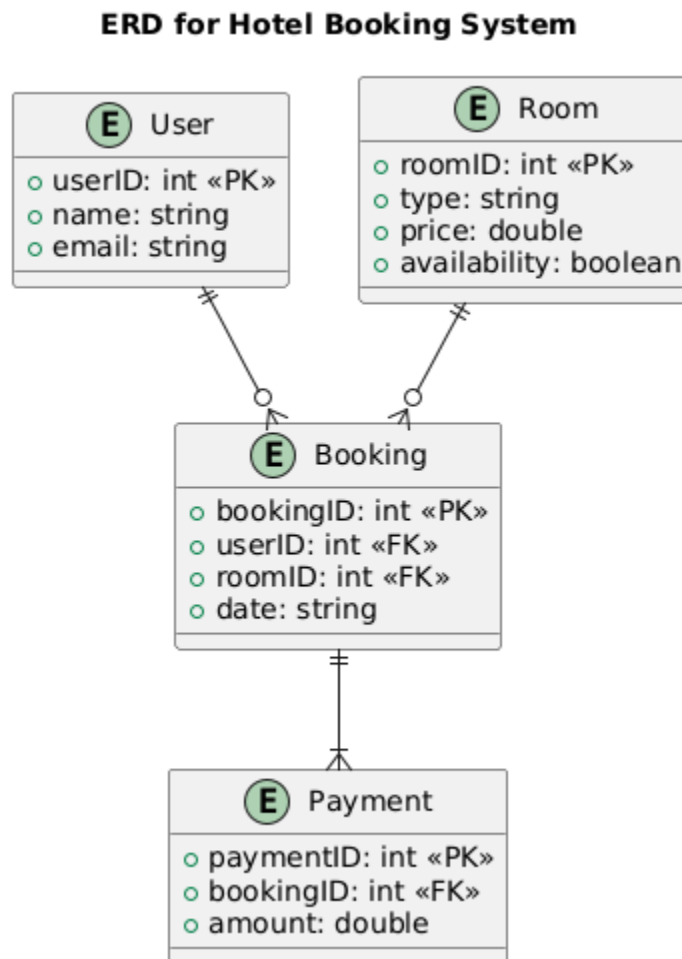
Entity-Relationship Diagram (ERD)

The ERD illustrates the database structure, relationships among Users, Bookings, Rooms, and Payments with primary and foreign keys.
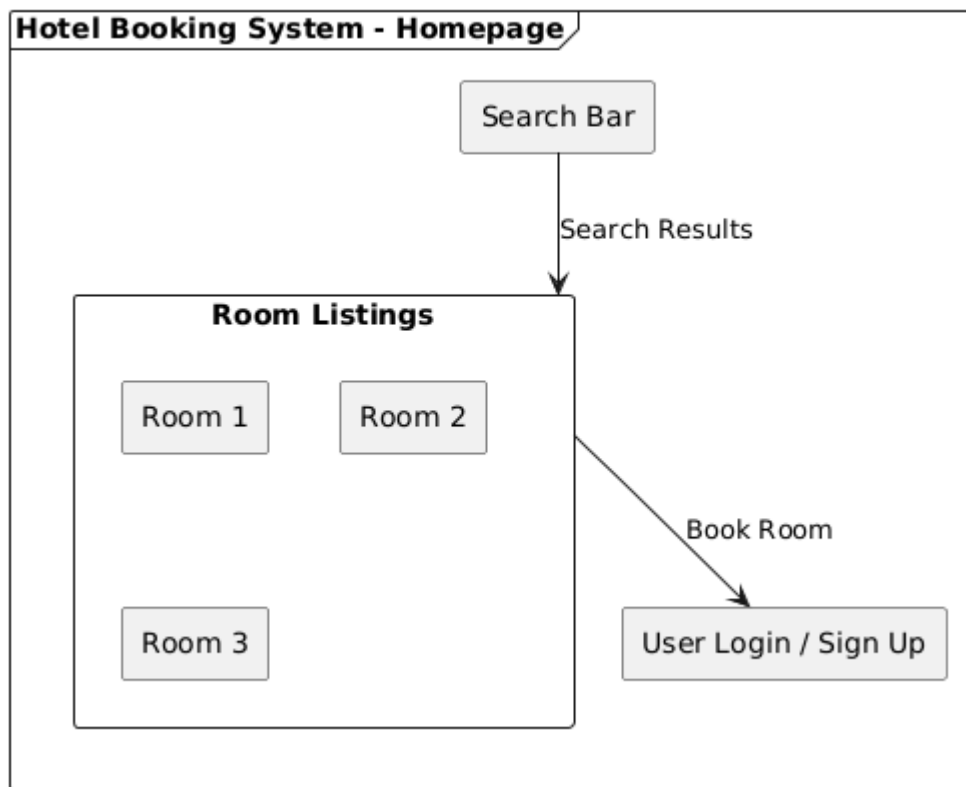
ERD for Hotel Booking System

Wireframes

1-Homepage Wireframe

The Homepage Wireframe shows the initial screen where users can search for rooms and navigate the system.

Wireframe: Homepage

Hotel Booking System - Homepage

Search Bar

Search Results

Room Listings

Room 1   Room 2

Book Room

Room 3

User Login / Sign Up

2-Booking Page Wireframe

The Booking Page Wireframe outlines the user interface for viewing room details and completing a booking.

Wireframe: Booking Page

Booking Page

Room Details

Booking Form

Name   Date

Payment Info   Submit Booking
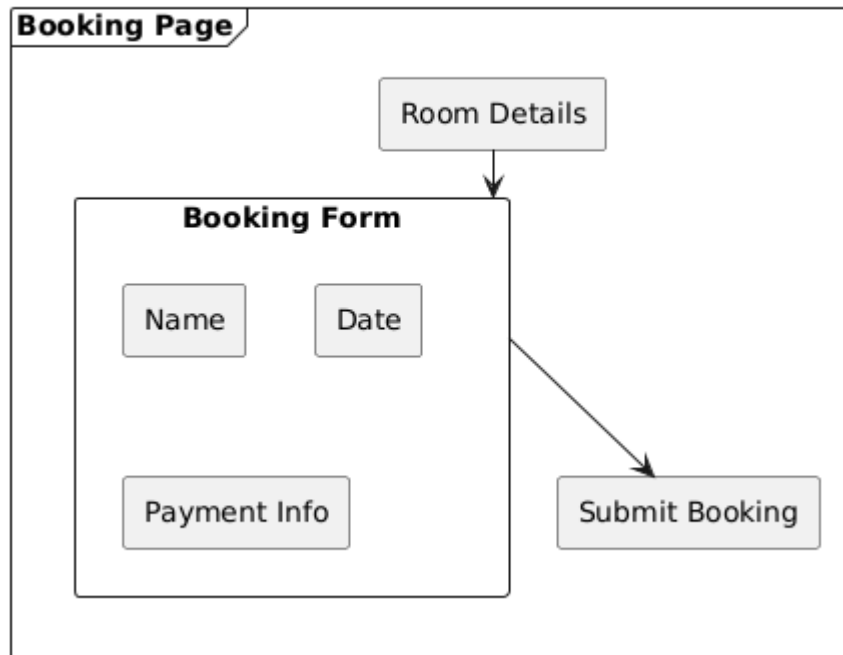
System Testing and Quality Assurance

The Hotel Booking System will undergo rigorous testing to ensure functionality, reliability, and seamless user experience. The testing process includes:

Unit Testing: Testing individual components such as search functionality and booking flow.

Integration Testing: Verifying that different modules work together correctly.

User Testing: Conducting tests with real users to gather feedback and identify issues.

Performance Testing: Ensuring the system can handle peak traffic efficiently.

Testing tools such as Selenium and Postman will be used where applicable to automate and streamline testing.

Deployment and Version Control

The project is hosted on GitHub to manage version control and facilitate team collaboration. Key GitHub features include:

Branching: To manage development, testing, and main production stages.

Pull Requests: For peer review and code merging.

Issue Tracking: To document and resolve bugs or enhancements.

The system will be deployed on a cloud platform (e.g., AWS, Azure, or Heroku) for real-time use. Deployment includes setting up a web server, database hosting, and domain configuration.

Technologies and Frameworks

The following technologies and frameworks will be used in the project:

Frontend: HTML, CSS, JavaScript,

Backend: Express.js

Database: MySQL

Version Control: GitHub

Conclusion

The Hotel Booking System is designed to streamline room bookings and enhance the user experience for both guests and administrators. This document provides a comprehensive system design to guide implementation.