INSTITUTE FOR ADVANCED COMPUTINGANDSOFTWARE DEVELOPMENT (IACSD),AKURDI, PUNE

Documentation On

Hotel Nest

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Submitted By:

Group No: 29

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ABSTRACT

The "Hotel Nest Management System" stands as a sophisticated and forward-looking software endeavor meticulously crafted to revolutionize the intricate landscape of managing multiple hotels seamlessly. Through a meticulously designed framework, this system revolves around three pivotal user roles - the esteemed Admin, the diligent Manager, and the valued Customer.

The core objective unfurling through the intricacies of this project is to redefine and elevate the entire hotel booking experience by affording users the privilege to craft their reservations in perfect harmony with their chosen cities. This innovative approach not only caters to the customers' personalized preferences but also empowers the vigilant hotel managers to orchestrate the labyrinthine processes of booking approvals and cancellations with remarkable finesse and efficacy.

ACKNOWLEDGEMENT

I take this occasion to thank God, almighty for blessing us with his grace and taking our endeavor to a successful culmination. I extend my sincere and heartfelt thanks to our esteemed guide, **Mrs.Megha** for providing me with the right guidance and advice at the crucial juncture sand for showing me the right way. I extend my sincere thanks to our respected **Centre Co-Ordinator Mr.Rohit Puranik**, for allowing us to use the facilities available. I would like to thank the other faculty members also, at this occasion. Last but not the least, I would like to thank my friends and family for the support and encouragement theyhave given me during the course of our work.

Manasi Teke (223049)

Abhishek Pujari (223071)

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INTRODUCTION

Welcome to the Hotel Nest System, a comprehensive and user-friendly platform designed to revolutionize the hospitality industry. With a suite of cutting-edge features, we're committed to enhancing the travel experience for both customers and hotel managers. From seamless bookings to efficient management, our system caters to every aspect of the hospitality

journey. Below, you'll find an overview of the features that make Hotel Nest System your ultimate choice for streamlined travel and hospitality management.

The Hotel Nest System is more than a platform; it's a comprehensive ecosystem designed to elevate every facet of the hospitality experience. By seamlessly integrating these features, we're reshaping the way customers explore and book hotels while empowering hotel managers and administrators to orchestrate efficient operations. Welcome to a new era of travel and hospitality management with the Hotel Nest System.

1.1 PROJECT OBJECTIVE

The Hotel Nest project offers customers the ability to search, book, and review hotels based on location and facilities, while enabling admins to manage hotel and location details, facilities, and Hotel Managers. Customers can seamlessly book, review, and manage their stays, while Hotel Managers gain access to real-time booking insights for efficient resource allocation and communication. Admins have a centralized dashboard to oversee the system, add locations and facilities, register Hotel Managers, and expand the platform's offerings, creating a comprehensive solution for streamlined hospitality management and enhanced guest experiences.

1.2 PROJECT OVERVIEW

The Hotel Nest project is a cutting-edge platform that aims to redefine the way hotels are managed and how customers experience hospitality. Designed with a customer-centric approach and streamlined functionalities, Hotel Nest provides a comprehensive solution for hotel owners, managers, and travelers. This project encompasses a range of features to enhance booking, management, and guest experiences.

Key Objectives:

The primary objective of the Hotel Nest project is to create an integrated system that simplifies the processes of booking, managing, and staying in hotels. This involves providing a user-friendly interface for customers, enabling efficient hotel management for administrators, and offering real-time insights for hotel managers.

1.3 PROJECT SCOPE

The Hotel Nest project's scope encompasses a holistic approach to hospitality management,
catering to the needs of customers, Hotel Managers, and administrators. By integrating advanced
features and functionalities, the project aims to revolutionize the way hotels are managed and
experienced, ultimately enhancing guest satisfaction and operational efficiency.

1.4 STUDY OF THE SYSTEM

1.4.1 MODULES:

The system after careful analysis has been identified to be presented with the following modules and roles.

The modules involved are:

- Admin
- Hotel Manager
- Customer

1. Customer-Facing Module:

Hotel Exploration and Search: Customers will have access to a user-friendly interface that allows them to search for hotels based on preferences, locations, amenities, and more.

Detailed Hotel Listings: Each hotel listing will provide in-depth information about the property, including facilities, room types, services, nearby attractions, and images.

Effortless Booking Process: Customers can easily book rooms online by selecting desired check-in and check-out dates, room preferences, and providing personal information.

Review and Rating System: Customers can leave reviews and ratings for hotels they've stayed in, contributing to an active feedback loop and helping other travelers make informed decisions.

Booking History and Management: Customers can access their booking history, view upcoming stays, and make modifications or cancellations if needed.

2. Admin Module:

Centralized Admin Dashboard: Administrators will have a dedicated dashboard for overseeing the entire system, managing hotels, locations, facilities, and Hotel Managers.

Hotel and Location Management: Admins can add new hotels, edit existing hotel details, introduce new locations, and maintain a diverse and appealing hotel portfolio.

Facility Management: Admins can manage the list of facilities offered by hotels, ensuring accuracy and relevancy in the system.

Hotel Manager Registration and Management: Admins can onboard and manage Hotel Managers, assigning roles, permissions, and overseeing their activities within the system.

3. Hotel Manager Module:

Booking Overview: Hotel Managers will have access to a dashboard displaying real-time information about customer bookings, check-ins, and check-outs.

Booking Status Updates: Hotel Managers can update the status of bookings in real-time, ensuring accurate room allocation and availability management.

Communication Hub: Hotel Managers can communicate with various hotel departments through the system, streamlining coordination and service delivery.

Resource Allocation: Based on booking insights, Hotel Managers can efficiently allocate staff resources, housekeeping services, and other operational aspects.

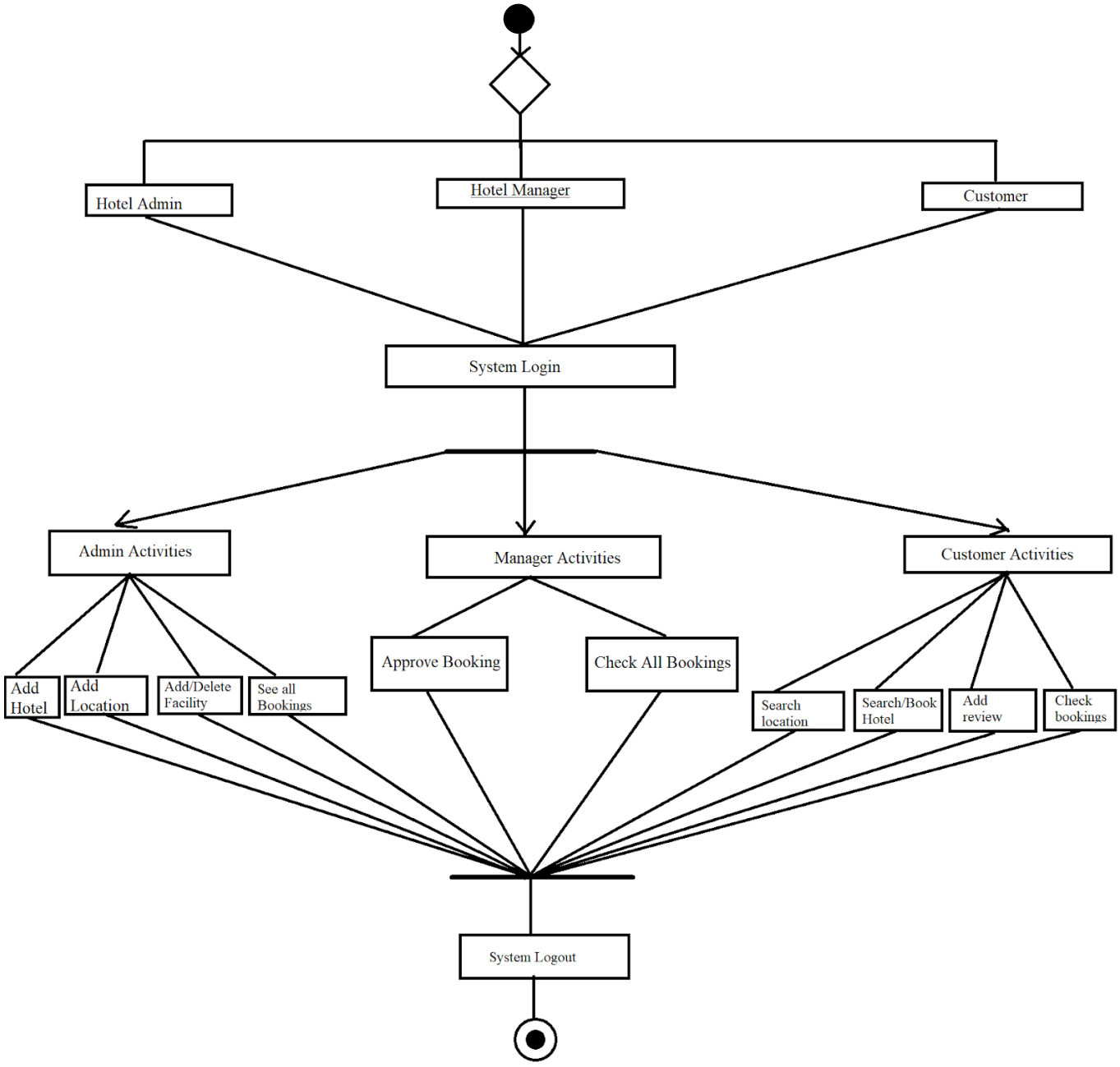


Fig 1. Activity Diagram

SYSTEM ANALYSIS

System analysis is the process of gathering and interpreting facts, diagnosing problems, and using the information to recommend improvements on the system. System analysis is a problem-solving activity that requires intensive communication between the system users and system developers.

System analysis or study is an important phase of any system development process. The system is viewed as a whole, the inputs are identified, and the system is subjected to close study to identify the problem areas. The solutions are given as a proposal. The proposal is reviewed on user request and suitable changes are made. This loop ends as soon as the user is satisfied with the proposal.

2.1 EXISTING SYSTEM

The existing system for Hotel Nest is characterized by outdated and manual processes that fall short in effectively managing hotel operations. Prior to the implementation of the Hotel Nest platform, the hotel management relied on traditional methods that posed several challenges
and drawbacks:

- **Manual Guest Information:** Hotels collected guest information through manual data entry,
  which not only increased the likelihood of errors but also consumed valuable staff time.
- **Paper-Based Bookings:** Reservation and booking processes were managed using pen and
  paper, leading to inefficiencies and potential booking conflicts.
- **Limited Accessibility:** The manual system hindered accessibility to information, making it
  difficult for hotel staff to access and update guest details and preferences in real-time.
- **Inefficient Communication:** Notices and updates were communicated through physical notice
  boards or direct communication with guests, leading to delays and miscommunication.

2.2 PROPOSED SYSTEM

The proposed system for Hotel Nest represents a paradigm shift from the existing manual methods, offering a comprehensive and technologically advanced solution that optimizes hotel operations and elevates guest experiences. The Hotel Nest platform introduces a range of functionalities to revolutionize the way hotels are managed:

Problem Statement:

The existing manual processes and outdated methods employed in the current hotel management system pose significant challenges for efficient operations and guest satisfaction. The lack of an integrated digital platform results in cumbersome guest check-ins, room assignments, and communication, leading to errors, delays, and suboptimal experiences. The absence of real-time data management inhibits informed decision-making and prevents the hotel from maximizing its potential. Additionally, the reliance on paper-based record-keeping and limited accessibility hampers scalability and remote management capabilities. These issues collectively highlight the urgent need for the implementation of the Hotel Nest system, a comprehensive solution designed to overcome these shortcomings and revolutionize the way hotels are managed, ensuring seamless operations, enhanced guest experiences, and data-driven decision-making.SYSTEM OBJECTIVES

2.3.1 SYSTEM REQUIREMENTS

2.3.3.1 NON-FUNCTIONAL REQUIREMENTS

i. EFFICIENCY REQUIREMENT

When secretary or flat owner or security guard visits system it should access in an efficient manner.

ii. RELIABILITY REQUIREMENT

The system should provide a reliable environment to secretary and flat owner. All data should be store on server.

iii. USABILITY REQUIREMENT

The Web application is designed for user friendly environment and ease of use.

iv. IMPLEMENTATION REQUIREMENT

Implementation of the system using React in front end with Spring Boot as back end and it will beused for database connectivity. And the database part is developed by MySQL. Responsive web designing is used for making the website compatible for any type of screen

v. DELIVERY REQUIREMENT

The whole system is expected to be delivered in four months of time with a weekly Evaluation bythe project guide.

2.3.3.2 FUNCTIONAL REQUIREMENTS

Functional Requirement

- **Online Booking:** Enable guests to make room reservations through an online booking system.
- **Guest Profiles:** Maintain digital profiles for guests, including preferences and history.
- **Automated Check-In/Out:** Implement automated processes for guest check-in and check-out.
- **Real-Time Room Allocation:** Allocate rooms in real time based on availability and guest preferences.
- **Digital Communication:** Facilitate digital communication for notices and updates.
- **Centralized Data Management:** Maintain a centralized database for guest data and operational information.
- **Reporting and Analytics:** Generate reports and analytics for occupancy rates and guest preferences.
- **Mobile App Access:** Provide mobile app access for staff to manage operations and guest requests.

- **Housekeeping Management:** Enable efficient housekeeping management with real-time updates.
- **Remote Monitoring:** Allow remote monitoring of operations for hotel owners/managers.

SYSTEM DESIGN

System design is the solution for the creation of a new system. This phase focuses on the detailed implementation of the feasible system. Its emphasis on translating design. Specifications to performance specification. System design has two phases of development.

- Logical Design
- Physical Design

During logical design phase the analyst describes inputs (sources), outputs(destinations), databases (data sores) and procedures (data flows) all in a format that meets the user requirements. The analyst also specifies the needs of the user at a level that virtually determines the information flowin and out of the system and the data resources. Here the logical design is done through data flowdiagrams and database design. The physical design is followed by physical design or coding. Physical design produces the working system by defining the design specifications, which specifyexactly what the candidate system must do. The programmers write the necessary programs that accept input from the user, perform necessary processing on accepted data and produce the required report on a hard copy or display it on the screen.

3.1 INPUT AND OUTPUT DESIGN

3.1.1 INPUT DESIGN:

Input design is the link that ties the information system into the world of its users. The input designinvolves determining the inputs, validating the data, minimizing the data entry and provides a multi-user facility. Inaccurate inputs are the most common cause of errors in data processing. Errors entered by the data entry operators can be controlled by input design. The user-originated inputs are converted to a computer-based format in the input design. Input data are collected and organized into groups of similar data. Once identified, the appropriate input media are selected forprocessing. All the input data are validated and if any data violates any conditions, the user is warned by a message. If the data satisfies all the conditions, it is transferred to the appropriate tables in the database. In this project the student details are to be entered at the time of registration.A page is designed for this purpose which is user friendly and easy to use. The design is done suchthat users get appropriate messages when exceptions occur.

3.1.2 OUTPUT DESIGN:

Computer output is the most important and direct source of information to the user. Output design is a very important phase since the output needs to be in an efficient manner. Efficient and intelligible output design improves the system relationship with the user and helps in decision making. Allowing the user to view the sample screen is important because the user is the ultimate judge of the quality of output. The output module of this system is the selected notifications

DATABASE DESIGN

3.2 DATABASE

Databases are the storehouses of data used in the software systems. The data is stored in tables inside the database. Several tables are created for the manipulation of the data for the system. Twoessential settings for a database are

- Primary key - the field that is unique for all the record occurrences
- Foreign key - the field used to set relation between

tablesNormalization is a technique to avoid redundancy in

the tables.

3.3 SYSTEM TOOLS

The various system tools that have been used in developing both the front end and the back end ofthe project are being discussed in this chapter.

3.3.1 FRONT END:

React is a library which is developed by Facebook are utilized to implement the frontend. React (also known as React.js or ReactJS) is a free and open-source front-end JavaScript library for building user interfaces or UI components. It is maintained by Facebook and a community of individual developers and companies. React can be used as a base in the development of single page or mobile applications. However, React is only concerned with state management and rendering that state to the DOM, so creating React applications usually requires the use of additional libraries for routing, as well as certain client-side functionality.

3.3.2 BACKEND:

The back end is implemented using MySQL which is used to design databases.

MySQL:

MySQL is the world's second most widely used open-source relational database management system (RDBMS). The SQL phrase stands for Structured Query Language.

Spring-Boot:

This is used to connect MYSQL and fetch data from database and store the data in database. The Spring Framework is an application framework and inversion of control container for the Java platform. The framework's core features can be used by any Java application, but there are extensions for building web applications on top of the Java EE (Enterprise Edition) platform. Although the framework does not impose any specific programming model, it has become popularin the Java community as an addition to the Enterprise JavaBeans (EJB) model. The Spring Framework is Open-source Framework.

0 Level DFD

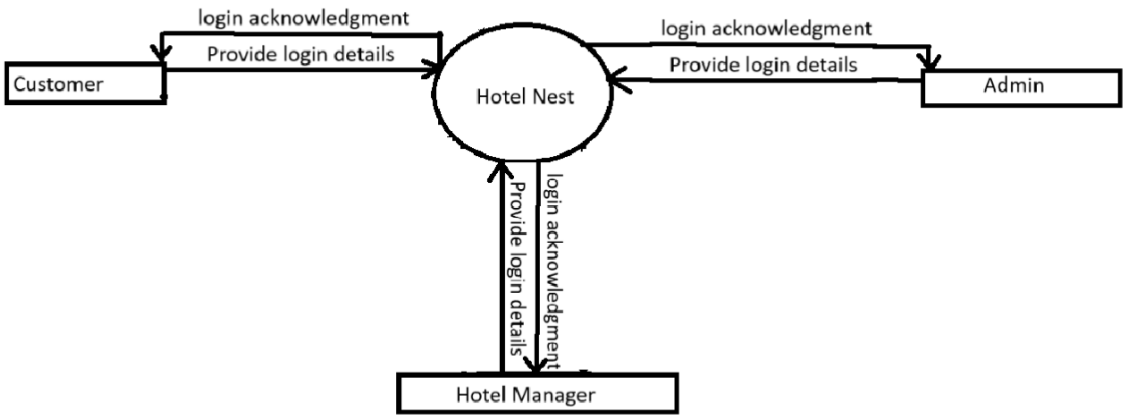


Figure 0 Level DFD

1Level DFD for Secretary

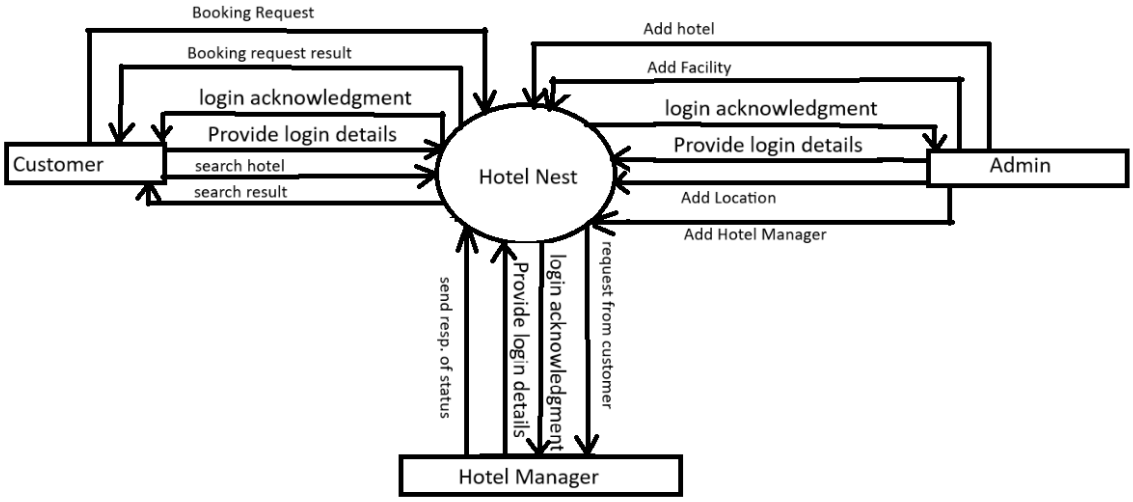


Figure 1 Level DFD for Secretary

Use Case Diagram:

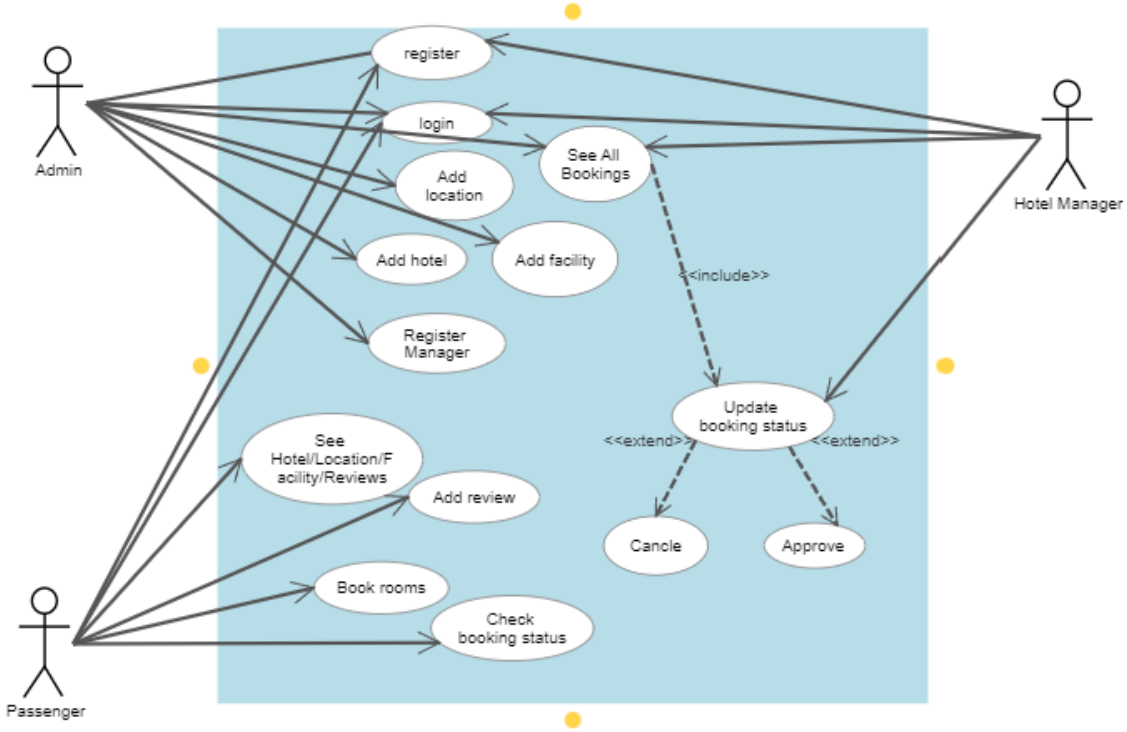


Figure Use Case Diagram

E-R Diagram:

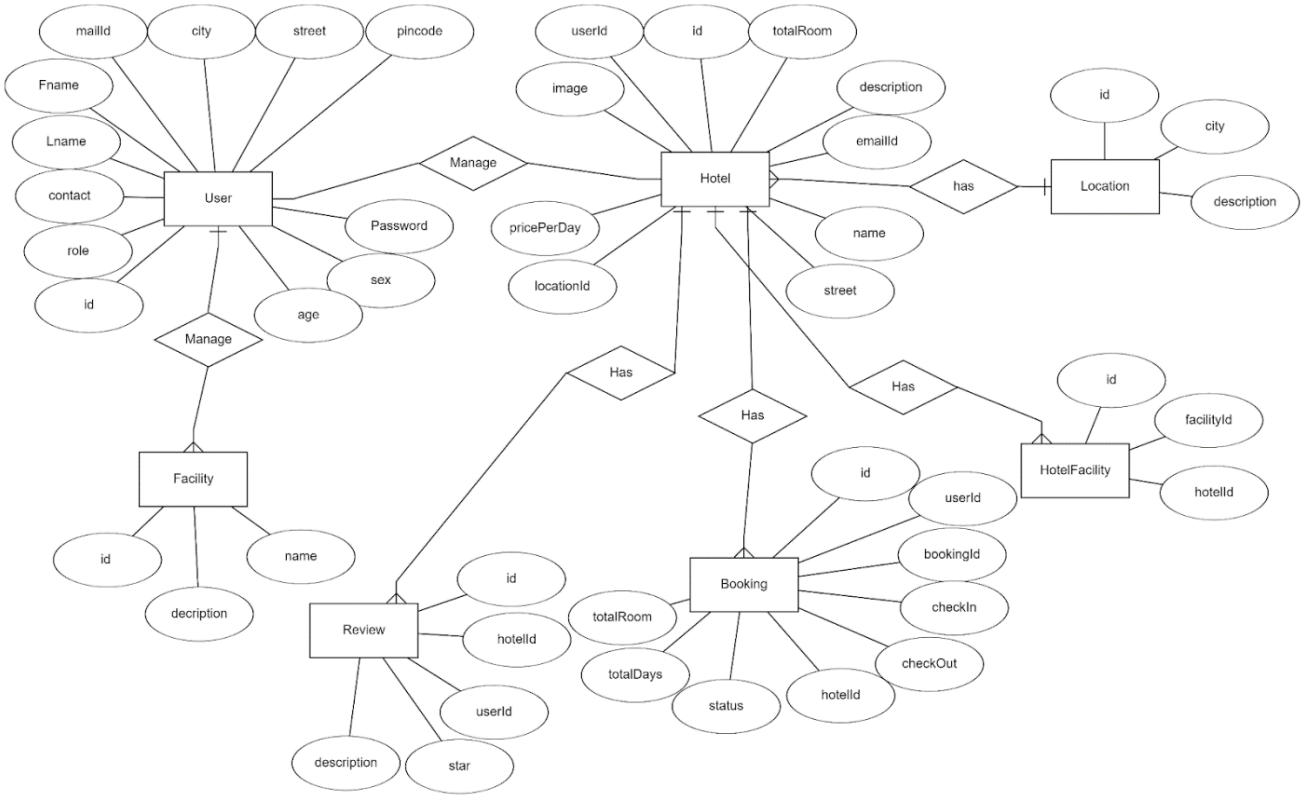


Figure E-R Diagram

Class Diagram

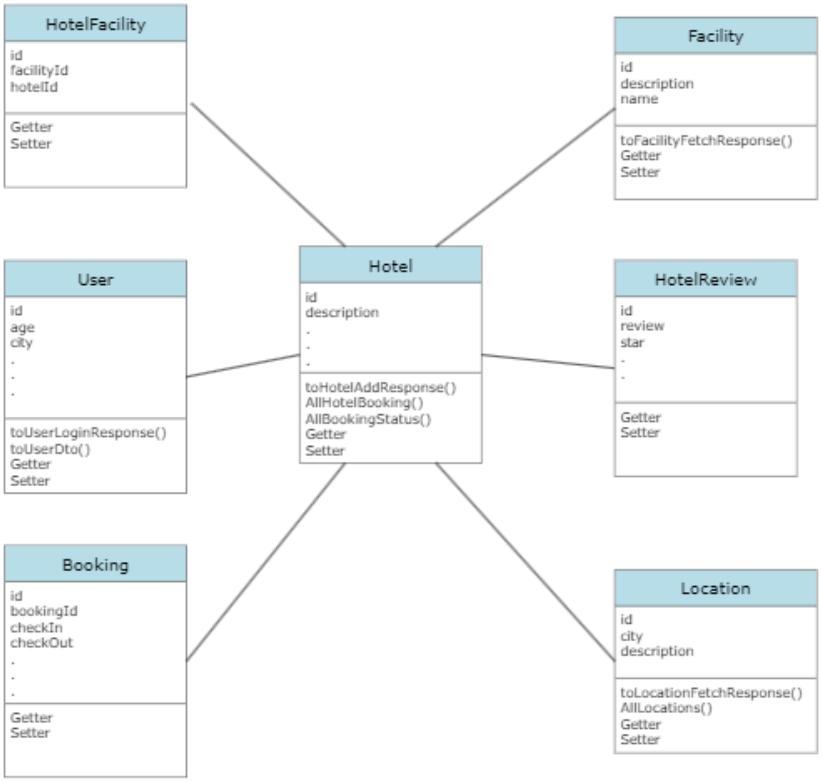
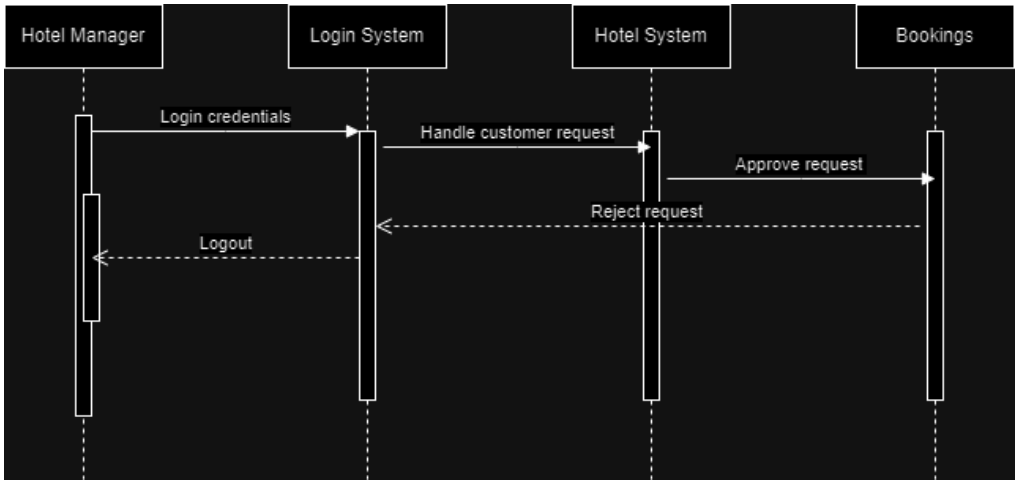
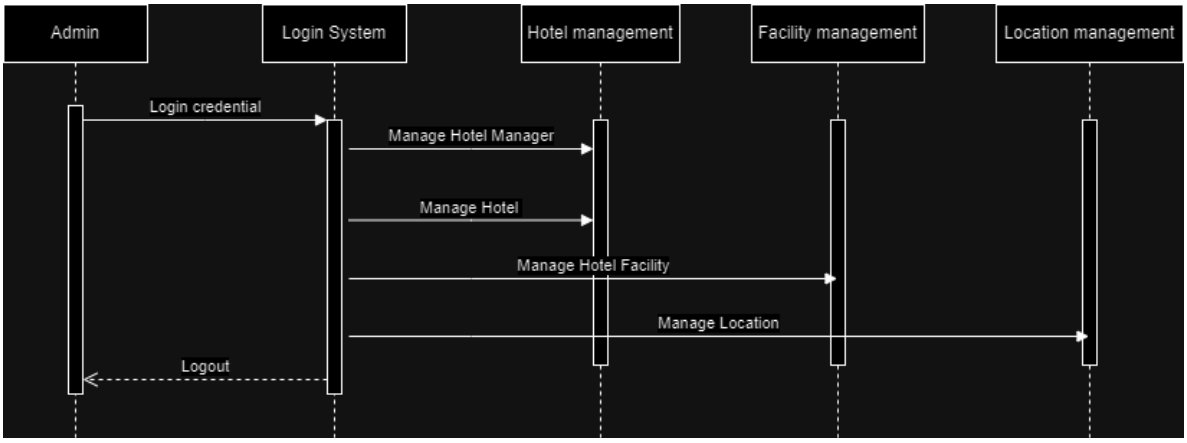


Figure Class Diagram

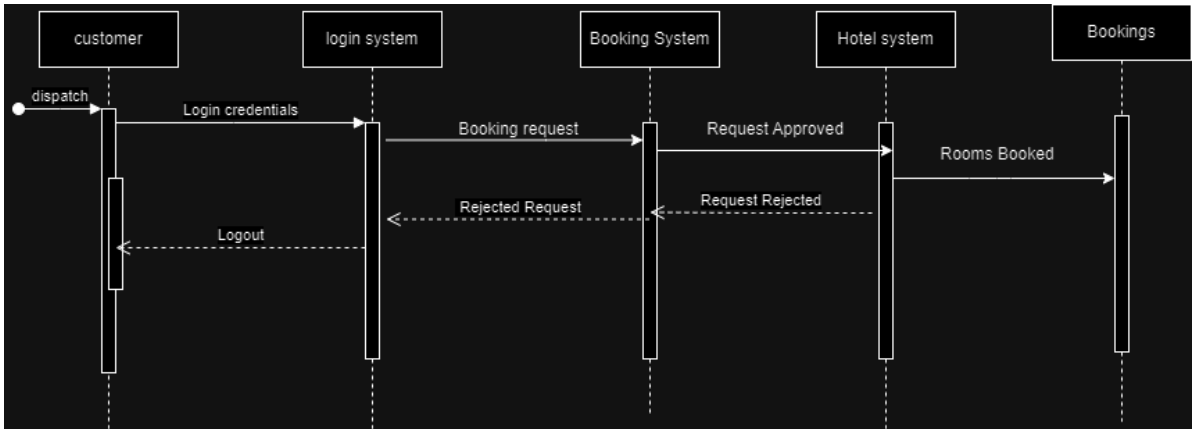
Sequence Diagram:



Hotel Manager



Admin



Customer

Figure Sequence Diagram

TABLE STRUCTURE:

Tables:

```
mysql> show tables;
+-----------------------------------+
| Tables_in_hotel_management_system |
+-----------------------------------+
| booking                           |
| facility                          |
| hotel                             |
| hotel_facility                    |
| hotel_review                      |
| location                          |
| location_hotels                   |
| user                              |
+-----------------------------------+
8 rows in set (0.01 sec)
```

Booking:

```
mysql> desc booking;
+------------+--------------+------+-----+---------+----------------+
| Field      | Type         | Null | Key | Default | Extra          |
+------------+--------------+------+-----+---------+----------------+
| id         | int          | NO   | PRI | NULL    | auto_increment |
| booking_id | varchar(255) | YES  |     | NULL    |                |
| check_in   | varchar(255) | YES  |     | NULL    |                |
| check_out  | varchar(255) | YES  |     | NULL    |                |
| hotel_id   | int          | NO   |     | NULL    |                |
| status     | varchar(255) | YES  |     | NULL    |                |
| total_day  | int          | NO   |     | NULL    |                |
| total_room | int          | NO   |     | NULL    |                |
| user_id    | int          | NO   |     | NULL    |                |
+------------+--------------+------+-----+---------+----------------+
9 rows in set (0.01 sec)
```

User:

```
mysql> desc user;
+------------+--------------+------+-----+---------+----------------+
| Field      | Type         | Null | Key | Default | Extra          |
+------------+--------------+------+-----+---------+----------------+
| id         | int          | NO   | PRI | NULL    | auto_increment |
| age        | int          | NO   |     | NULL    |                |
| city       | varchar(255) | YES  |     | NULL    |                |
| contact    | varchar(255) | YES  |     | NULL    |                |
| email_id   | varchar(255) | YES  |     | NULL    |                |
| first_name | varchar(255) | YES  |     | NULL    |                |
| hotel_id   | int          | NO   |     | NULL    |                |
| last_name  | varchar(255) | YES  |     | NULL    |                |
| password   | varchar(255) | YES  |     | NULL    |                |
| pincode    | varchar(255) | YES  |     | NULL    |                |
| role       | varchar(255) | YES  |     | NULL    |                |
| sex        | varchar(255) | YES  |     | NULL    |                |
| street     | varchar(255) | YES  |     | NULL    |                |
+------------+--------------+------+-----+---------+----------------+
13 rows in set (0.01 sec)
```

Location:

```
mysql> desc location;
+-------------+--------------+------+-----+---------+----------------+
| Field       | Type         | Null | Key | Default | Extra          |
+-------------+--------------+------+-----+---------+----------------+
| id          | int          | NO   | PRI | NULL    | auto_increment |
| city        | varchar(255) | YES  |     | NULL    |                |
| description | varchar(255) | YES  |     | NULL    |                |
+-------------+--------------+------+-----+---------+----------------+
3 rows in set (0.00 sec)
```

Hotel Review:

```
mysql> desc hotel_review;
+----------+--------------+------+-----+---------+----------------+
| Field    | Type         | Null | Key | Default | Extra          |
+----------+--------------+------+-----+---------+----------------+
| id       | int          | NO   | PRI | NULL    | auto_increment |
| hotel_id | int          | NO   |     | NULL    |                |
| review   | varchar(255) | YES  |     | NULL    |                |
| star     | int          | NO   |     | NULL    |                |
| user_id  | int          | NO   |     | NULL    |                |
+----------+--------------+------+-----+---------+----------------+
5 rows in set (0.00 sec)
```

Hotel Locations:

```
mysql> desc location_hotels;
+-------------+------+------+-----+---------+-------+
| Field       | Type | Null | Key | Default | Extra |
+-------------+------+------+-----+---------+-------+
| location_id | int  | NO   | MUL | NULL    |       |
| hotels_id   | int  | NO   | PRI | NULL    |       |
+-------------+------+------+-----+---------+-------+
2 rows in set (0.00 sec)
```

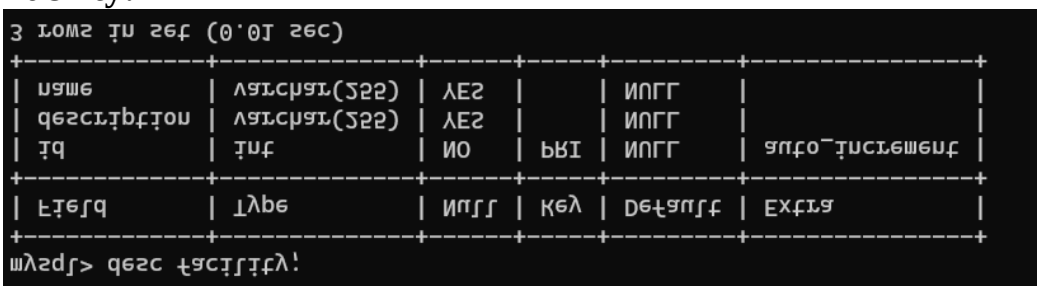
Hotel:

```
mysql> desc hotel;
+---------------+--------------+------+-----+---------+----------------+
| Field         | Type         | Null | Key | Default | Extra          |
+---------------+--------------+------+-----+---------+----------------+
| id            | int          | NO   | PRI | NULL    | auto_increment |
| description   | varchar(255) | YES  |     | NULL    |                |
| email_id      | varchar(255) | YES  |     | NULL    |                |
| image1        | varchar(255) | YES  |     | NULL    |                |
| image2        | varchar(255) | YES  |     | NULL    |                |
| image3        | varchar(255) | YES  |     | NULL    |                |
| name          | varchar(255) | YES  |     | NULL    |                |
| pincode       | varchar(255) | YES  |     | NULL    |                |
| price_per_day | double       | NO   |     | NULL    |                |
| street        | varchar(255) | YES  |     | NULL    |                |
| total_room    | int          | NO   |     | NULL    |                |
| user_id       | int          | NO   |     | NULL    |                |
| location_id   | int          | YES  | MUL | NULL    |                |
+---------------+--------------+------+-----+---------+----------------+
13 rows in set (0.01 sec)
```

Hotel Facility:

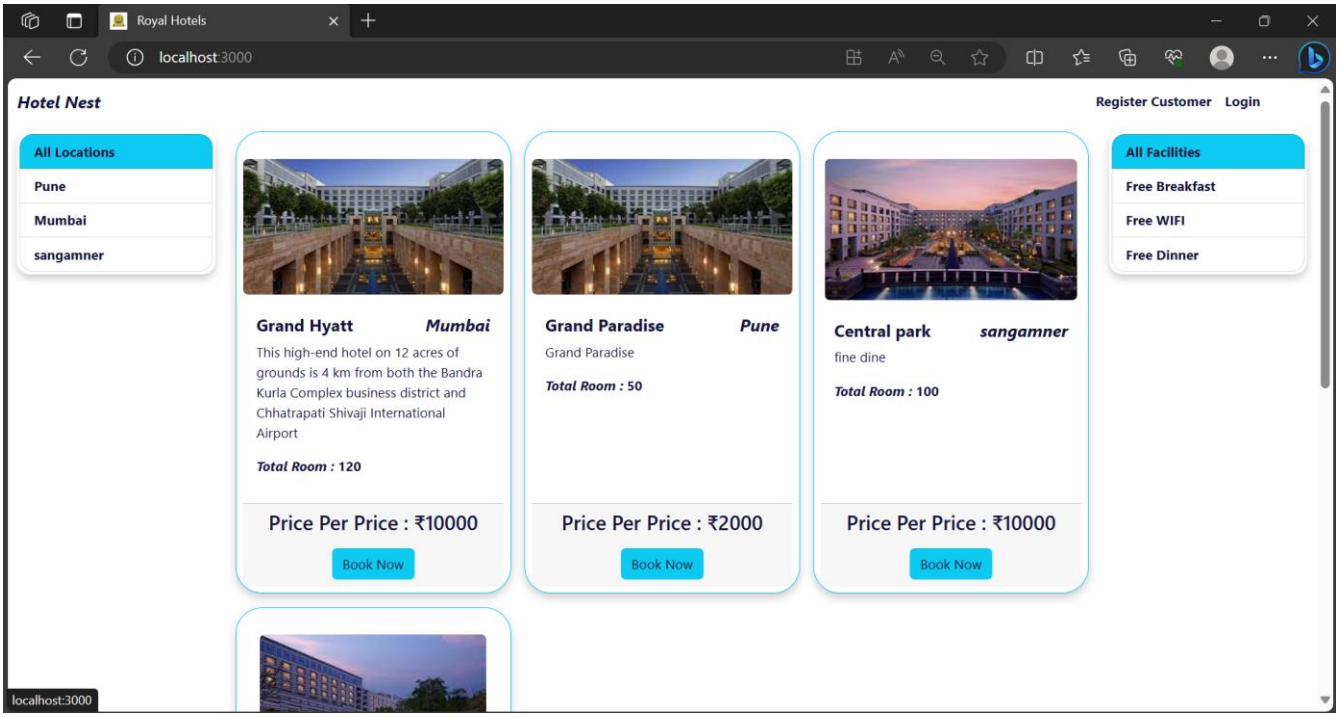
```
mysql> desc hotel_facility;
+-------------+------+------+-----+---------+----------------+
| Field       | Type | Null | Key | Default | Extra          |
+-------------+------+------+-----+---------+----------------+
| id          | int  | NO   | PRI | NULL    | auto_increment |
| facility_id | int  | NO   |     | NULL    |                |
| hotel_id    | int  | NO   |     | NULL    |                |
+-------------+------+------+-----+---------+----------------+
3 rows in set (0.01 sec)
```

Facility:

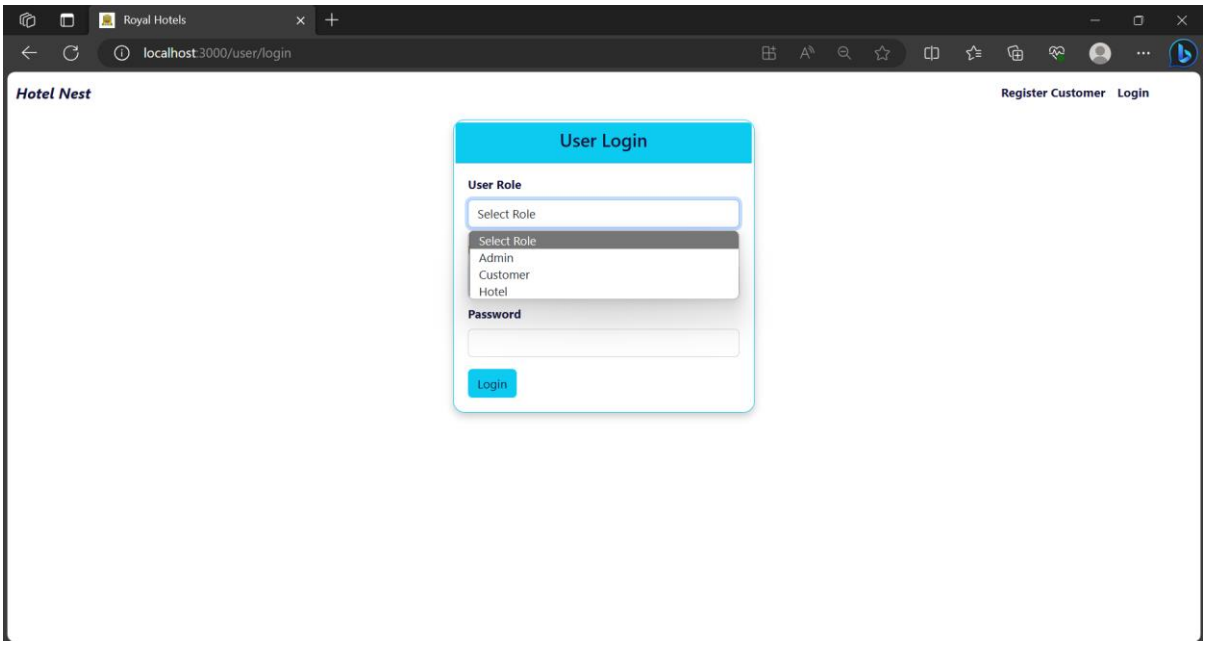

mysql> desc facility;
+-------------+-------------+------+-----+---------+----------------+
| Field | Type | Null | Key | Default | Extra |
+-------------+-------------+------+-----+---------+----------------+
id	int	NO	PRI	NULL	auto_increment
description	varchar(255)	YES		NULL	
name	varchar(255)	YES		NULL	
+-------------+-------------+------+-----+---------+----------------+
3 rows in set (0.01 sec)

PROJECT DIAGRAMS

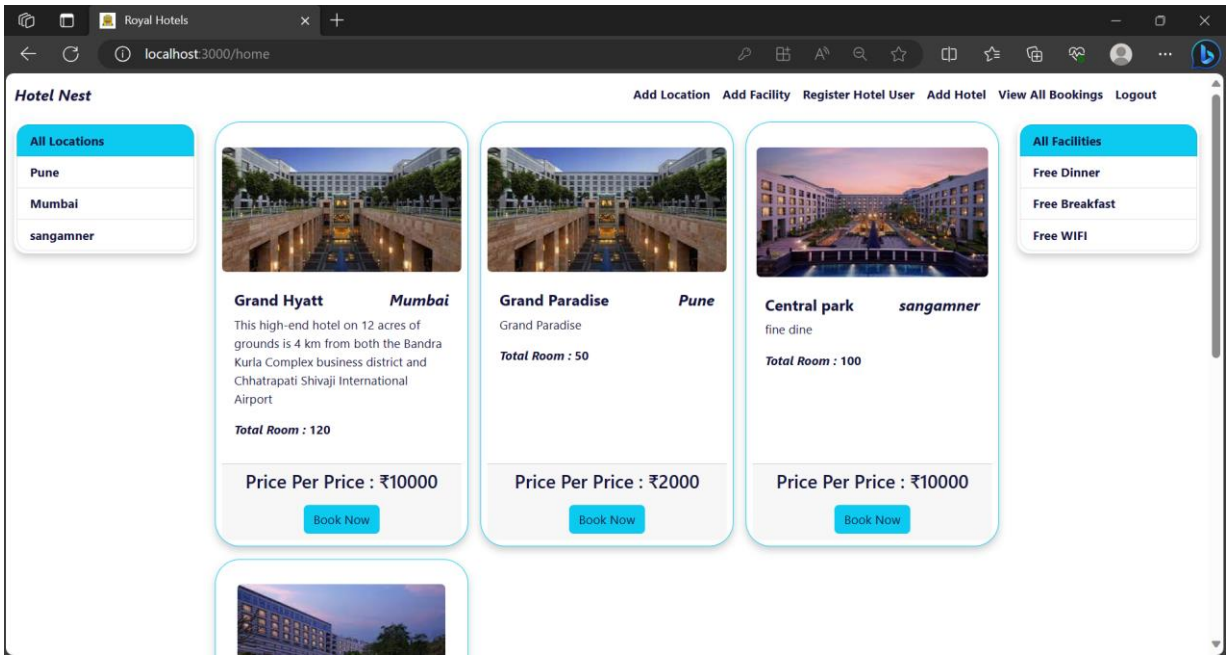
Home Page:



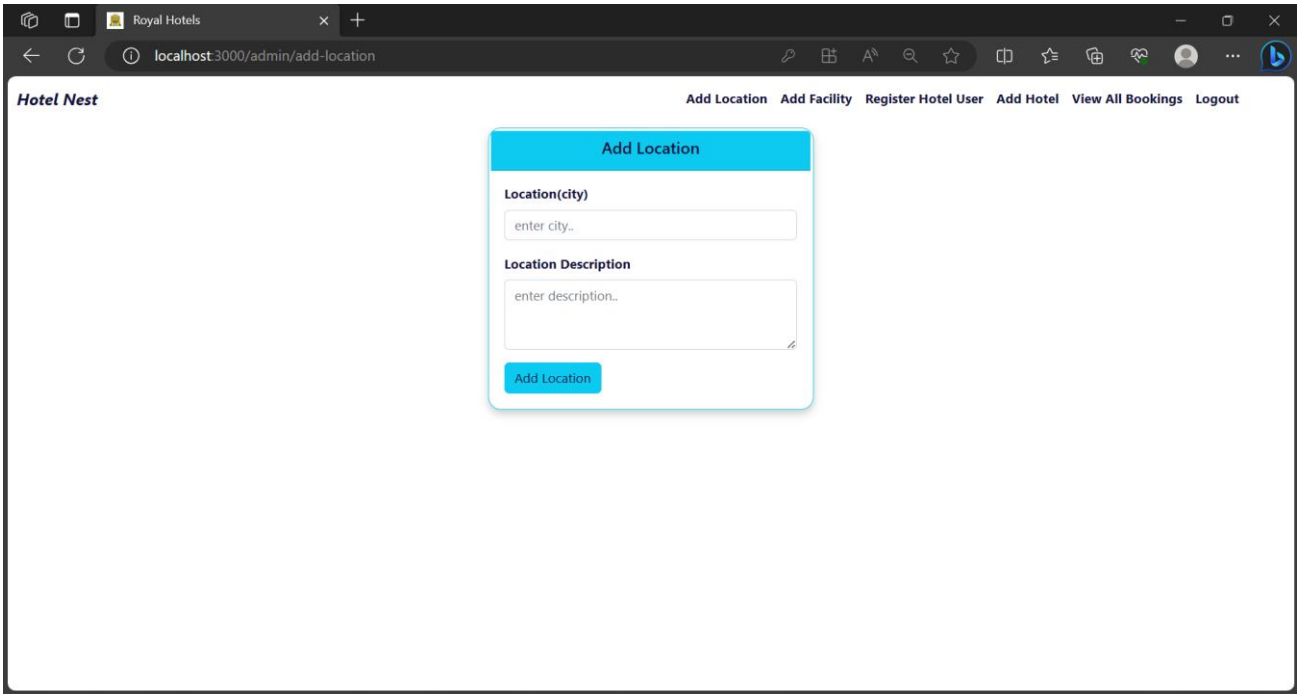
Login page



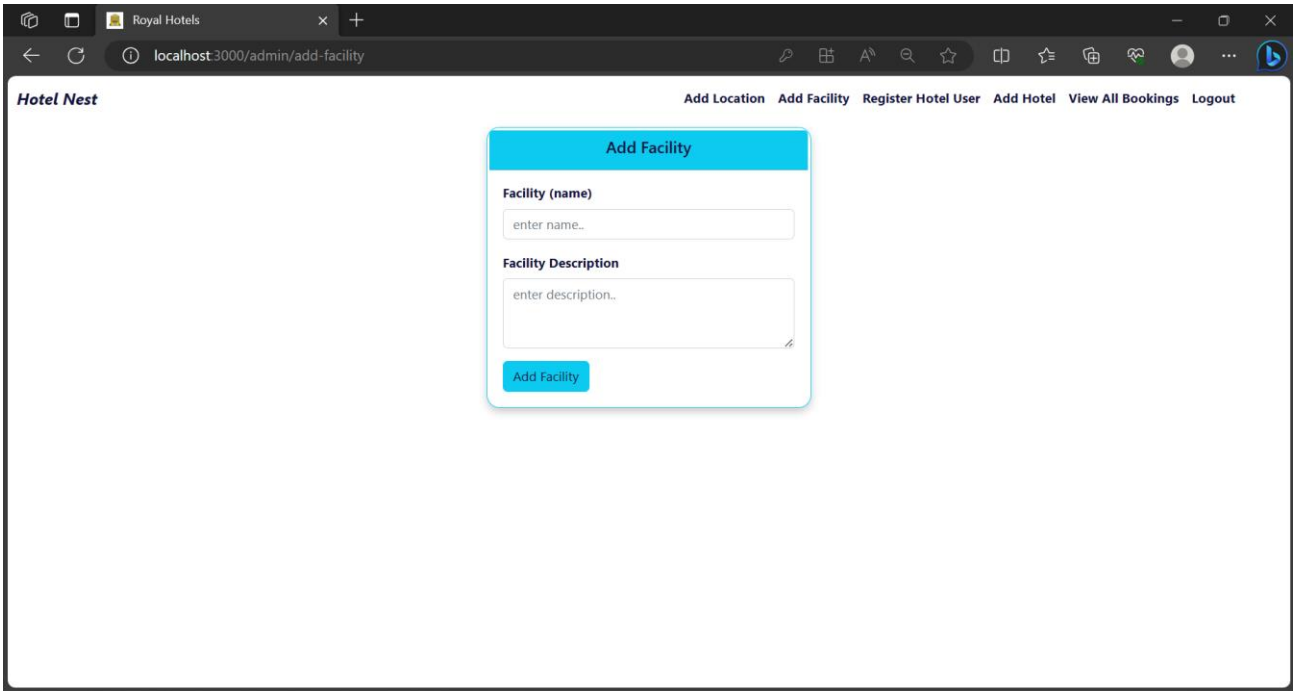
Admin Page:



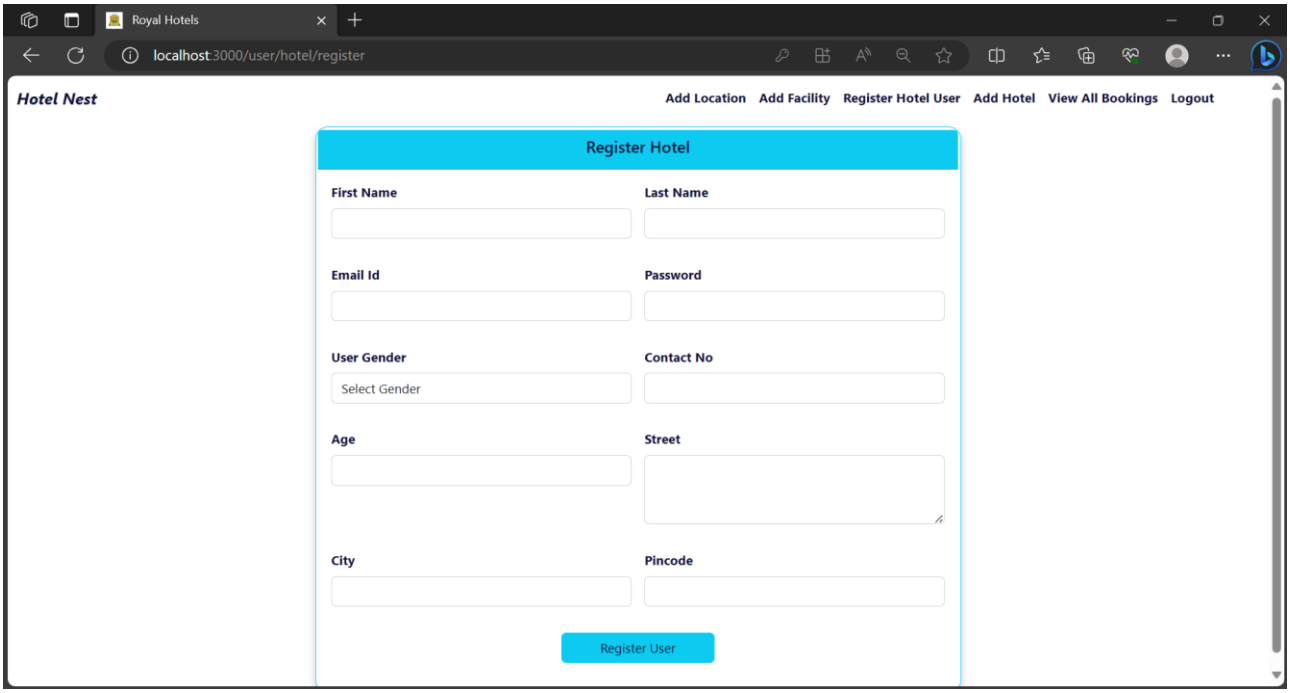
Add Location:



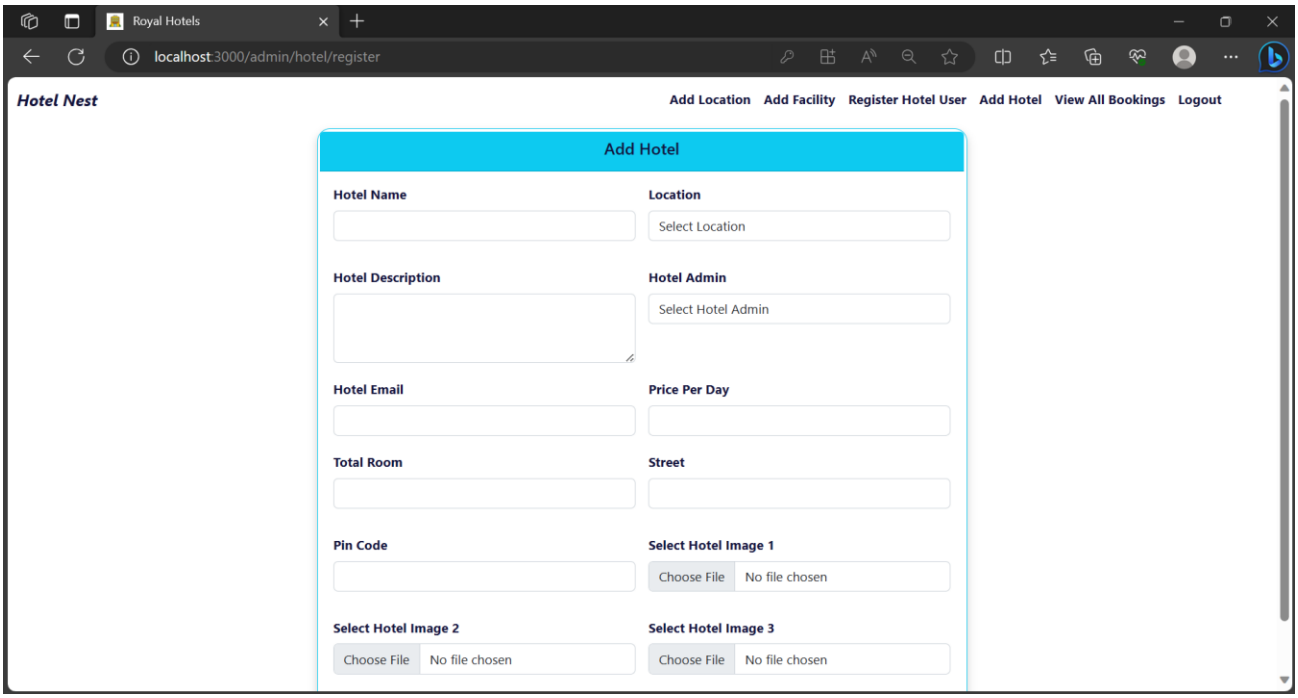
Add Facility:



Add Hotel Manager:



Add Hotel:



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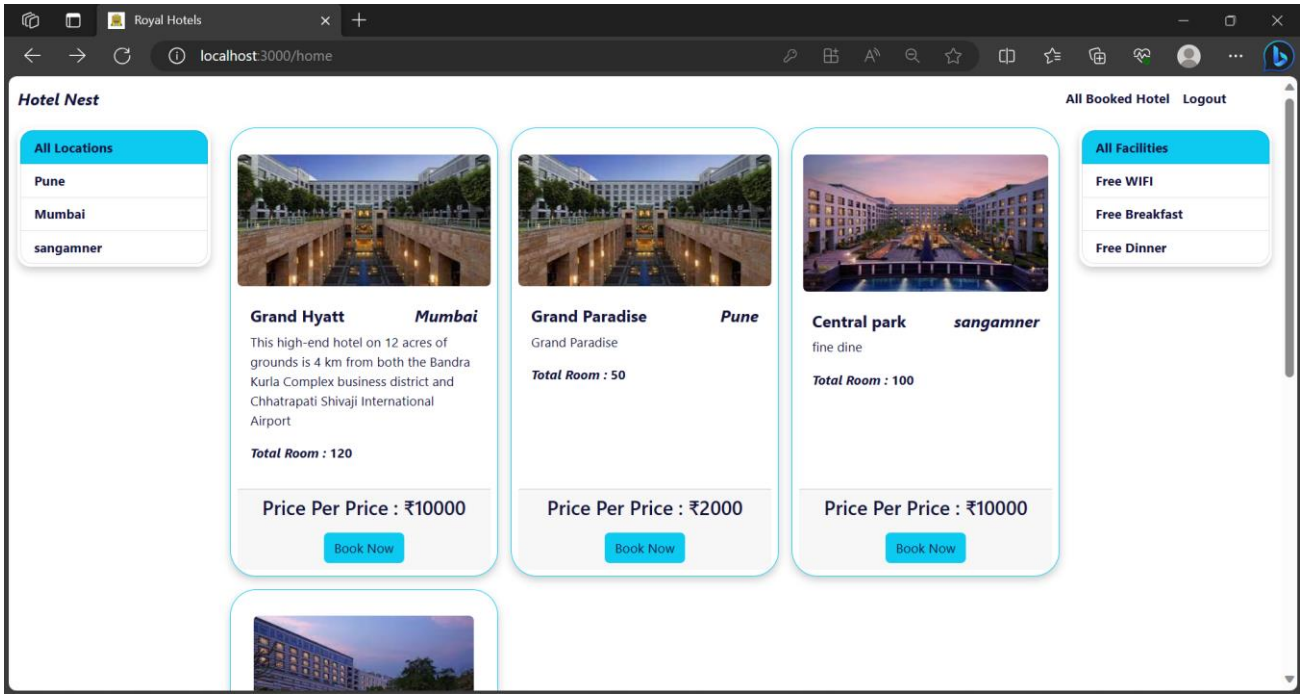
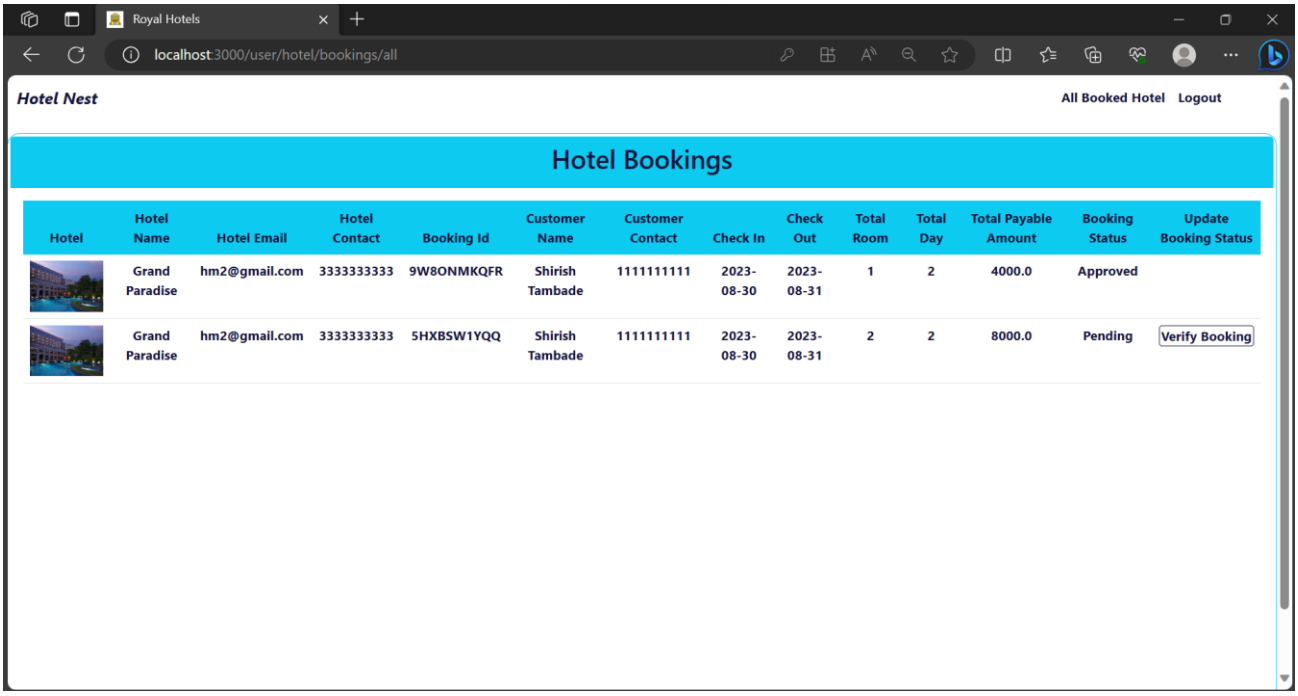


See all bookings:



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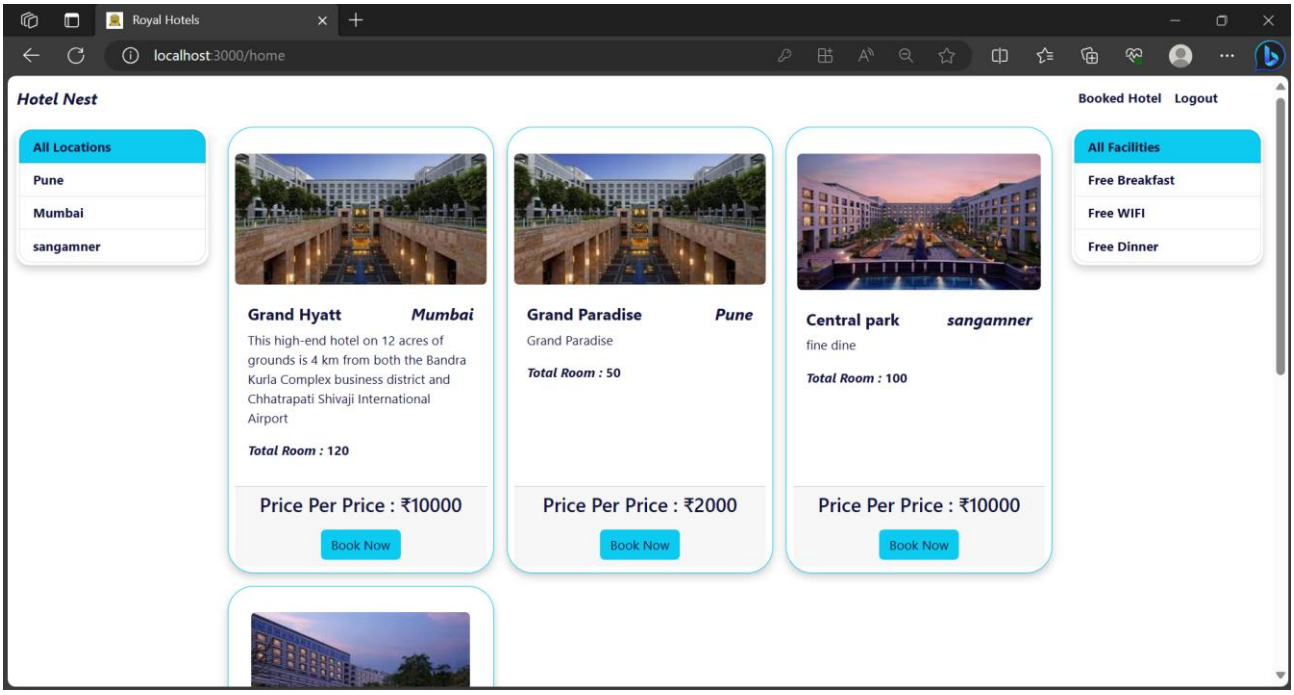
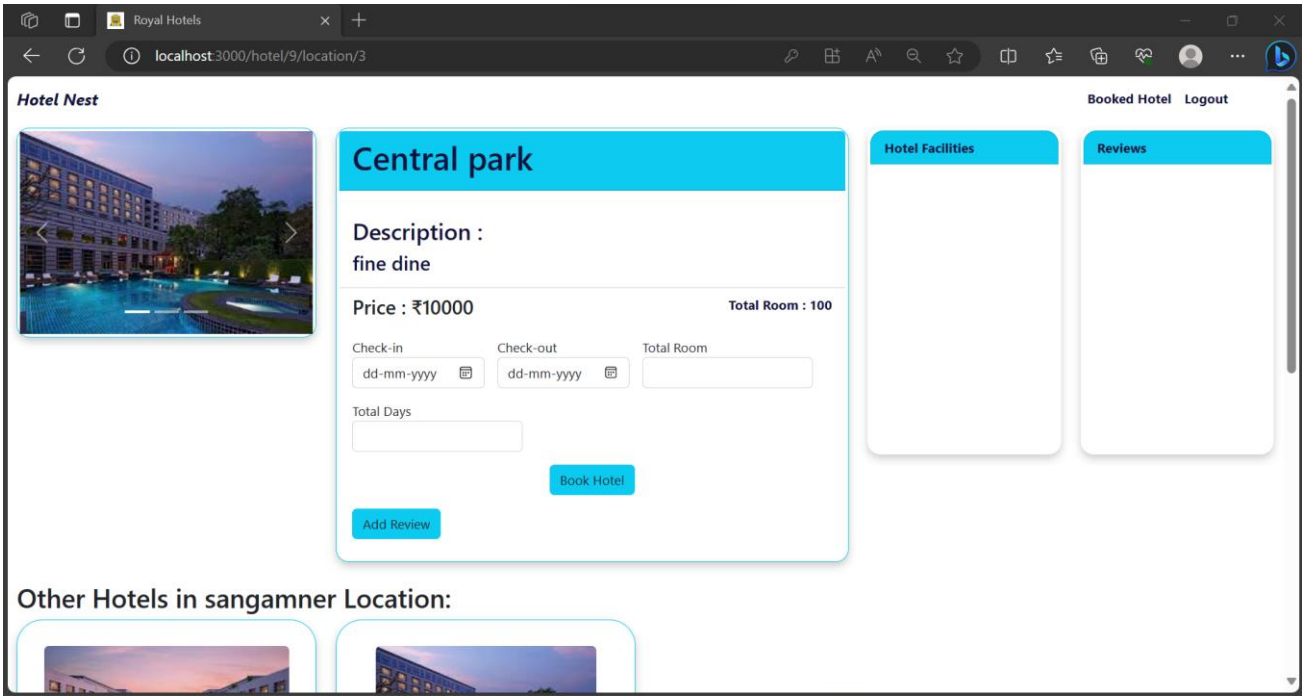


Book Hotel:



CONCLUSION

In conclusion, the Hotel Nest project presents a comprehensive and innovative solution to the challenges faced in modern hotel management systems. Through the integration of advanced technology and thoughtful design, this system offers a streamlined approach to various aspects of hotel operations, enhancing efficiency, guest satisfaction, and overall profitability.

The project's emphasis on a user-friendly interface ensures that both staff members and guests can navigate the system effortlessly, leading to improved communication and smoother interactions. The incorporation of real-time data tracking and analytics empowers hotel managers to make informed decisions promptly, optimizing resource allocation, pricing strategies, and guest services.

By centralizing reservation management, room assignments, and guest preferences, the Hotel Nest system minimizes the potential for errors and eliminates redundant processes. This not only enhances the overall guest experience but also provides staff with more time to focus on personalized services that elevate the hotel's reputation.

Furthermore, the project's commitment to data security and privacy safeguards sensitive information, fostering trust among guests and complying with industry regulations. This attention to data protection is crucial in today's digital landscape, where breaches can have far-reaching consequences.

In essence, the Hotel Nest project redefines hotel management systems, transcending traditional boundaries and setting new standards for operational excellence. Its holistic approach, from reservation to departure, creates a harmonious and seamless experience for both guests and staff.

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