HOTEL BOOKING SYSTEM

A MINI PROJECT REPORT

SUBMITTED BY

SEENUVASANS

220701255

In partial fulfillment for the award of the degree of

COMPUTER SCIENCE AND ENGINEERING

RAJALAKSHMI ENGINEERING

COLLEGE(AUTONOMOUS)

THANDALAM

CHENNAI-602105

2023 - 24

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Acknowledgment

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Abstract

The **Hotel Booking System** is a web application designed to simplify room booking operations in the hospitality industry. This system caters to users seeking an intuitive platform to browse, select, and book hotel rooms seamlessly. The platform provides real-time updates on room availability and prevents overbooking by dynamically validating bookings.

The system is built using a modern tech stack:

- **Frontend:** ReactJS, Bootstrap
- **Backend:** Node.js, Express
- **Database:** MySQL

The project achieves its objectives through features like a responsive room grid, secure booking management, and robust backend integration. This report delves into the development, architecture, and potential of the project.

Introduction

Hotel management has undergone significant transformations with digital solutions. This project addresses the specific challenge of managing room bookings efficiently by offering:

1. A **visual interface** for room selection.
2. **Real-time availability tracking** to prevent errors.
3. A responsive, user-friendly design for a seamless experience.

The system automates operations that were traditionally manual, reducing errors and improving customer satisfaction. It lays the foundation for future enhancements such as payment integration, analytics dashboards, and mobile app support.

Objectives

- Provide a user-friendly interface for viewing and booking hotel rooms.
- Ensure accurate tracking of room availability in real-time.
- Enable scalability to handle growing user and booking data.
- Enhance operational efficiency for hotels using a digital solution.
- Lay groundwork for future features like payment systems and admin dashboards.

System Requirements

Functional Requirements

1. **User Features:**
    - View room availability and details.
    - Book rooms securely through a user-friendly form.
    - Receive confirmation of successful bookings.
2. **Administrative Features (Future Scope):**
    - Add, update, or remove room information.
    - View and manage bookings.

Non-Functional Requirements

1. **Performance:** The system must handle concurrent bookings without delays.
2. **Reliability:** Ensure consistent operations with a robust backend.
3. **Scalability:** Allow addition of new rooms and features with minimal disruption.
4. **Usability:** Intuitive design for ease of navigation across all devices.

System Flow

1. **Homepage:** Displays a grid of rooms with their status and details.
2. **Booking Process:** Users select a room, fill out a booking form, and submit.
3. **Backend Validation:** The system checks availability before confirming the booking.
4. **Database Update:** Successful bookings update the room status in the database.
5. **Dynamic Refresh:** Room status dynamically reflects changes in availability.

Features

Room Display

- Displays rooms in a structured grid.
- Each box shows room details, status (available/booked), and an image.
- Example:
    - Room 101 | AC | Available
    - Room 102 | Non-AC | Booked

Booking Form

- Allows users to fill in:
    - Name
    - Email
    - Selected room details
- Ensures validation of data before submission.

Authentication

- Secure login system for users.
- Displays a personalized greeting and profile icon upon successful login.

Responsive Design

- Built with Bootstrap for device compatibility.
- Adapts to screen sizes, ensuring usability on mobiles, tablets, and desktops.

System Architecture

1. **Client-Side (Frontend):**
    - ReactJS components handle dynamic rendering.
    - Bootstrap ensures responsive and visually appealing design.
2. **Server-Side (Backend):**
    - Node.js processes user requests.
    - Express handles API routing for fetching and storing data.
3. **Database Layer:**
    - MySQL stores room details, booking information, and user credentials.

Technical Stack

- **Frontend:** ReactJS, Bootstrap
- **Backend:** Node.js, Express
- **Database:** MySQL
- **Version Control:** Git
- **Development Tools:** VS Code, MySQL Workbench

Database Design

Rooms Table

Schema for room management:

```
CREATE TABLE rooms (
    id INT AUTO_INCREMENT PRIMARY KEY,
    room_number VARCHAR(10),
    is_ac BOOLEAN,
    is_booked BOOLEAN,
    image_url VARCHAR(255)
);
```

Bookings Table

Schema for booking records:

```
CREATE TABLE bookings (
    id INT AUTO_INCREMENT PRIMARY KEY,
    name VARCHAR(100),
    email VARCHAR(100),
    room_id INT,
    FOREIGN KEY (room_id) REFERENCES rooms(id)
);
```

Users Table

Schema for user authentication:

```
CREATE TABLE users (
    id INT AUTO_INCREMENT PRIMARY KEY,
    name VARCHAR(100),
    email VARCHAR(100),
    password VARCHAR(255)
);
```

Implementation Details

1. **Frontend Implementation**
    - Pages:
        - Homepage with room grid.
        - Booking form.
    - Components:
        - `RoomGrid`: Fetches and displays room details.
        - `BookingForm`: Captures user input and submits to the backend.
2. **Backend Implementation**
    - RESTful APIs for handling requests.
    - Example Endpoints:
        - `GET /rooms`: Fetch all room data.
        - `POST /bookings`: Save booking data after validation.
3. **Database Management**
    - Efficient schema design to ensure scalability.
    - Proper indexing for faster queries.

Testing

Functional Testing

- Room booking tested with valid and invalid data.
- Double booking prevention validated.

Usability Testing

- Verified responsiveness on various devices.
- Ensured intuitive navigation for users.

Performance Testing

- Tested simultaneous bookings to ensure system stability.

Results

- The system successfully displays room availability.
- Users can book rooms without conflicts or errors.
- Room statuses update dynamically in real-time.

Future Enhancements

1. **Admin Dashboard:** Manage rooms, bookings, and user data.
2. **Payment Integration:** Support for online payment gateways.
3. **Analytics Dashboard:** Insights into booking trends and revenue.
4. **Mobile App:** Extend usability to mobile platforms.

Conclusion

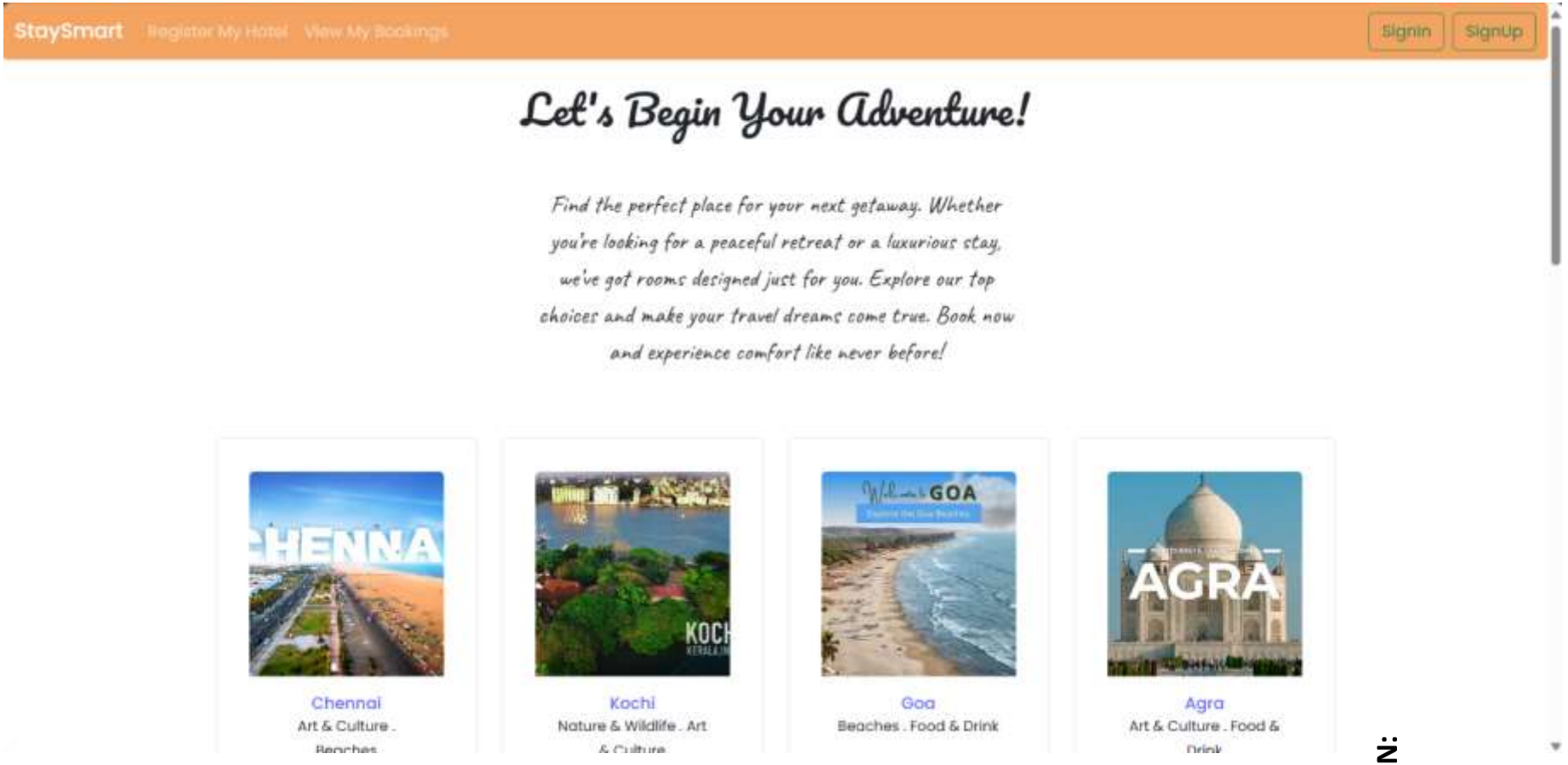
The "Hotel Booking System" is a robust solution for managing hotel bookings. Its intuitive design and dynamic features simplify operations while ensuring user satisfaction. With planned enhancements, the system can scale to meet the demands of larger hotels and more complex operations.

References

- ReactJS Documentation
- Bootstrap Official Guide
- Node.js and Express Resources
- MySQL Reference Manual

USER INTERFACE:

HOME:


StaySmart
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SignUp
Let's Begin Your Adventure!
Find the perfect place for your next getaway. Whether you're looking for a peaceful retreat or a luxurious stay, we've got rooms designed just for you. Explore our top choices and make your travel dreams come true. Book now and experience comfort like never before!
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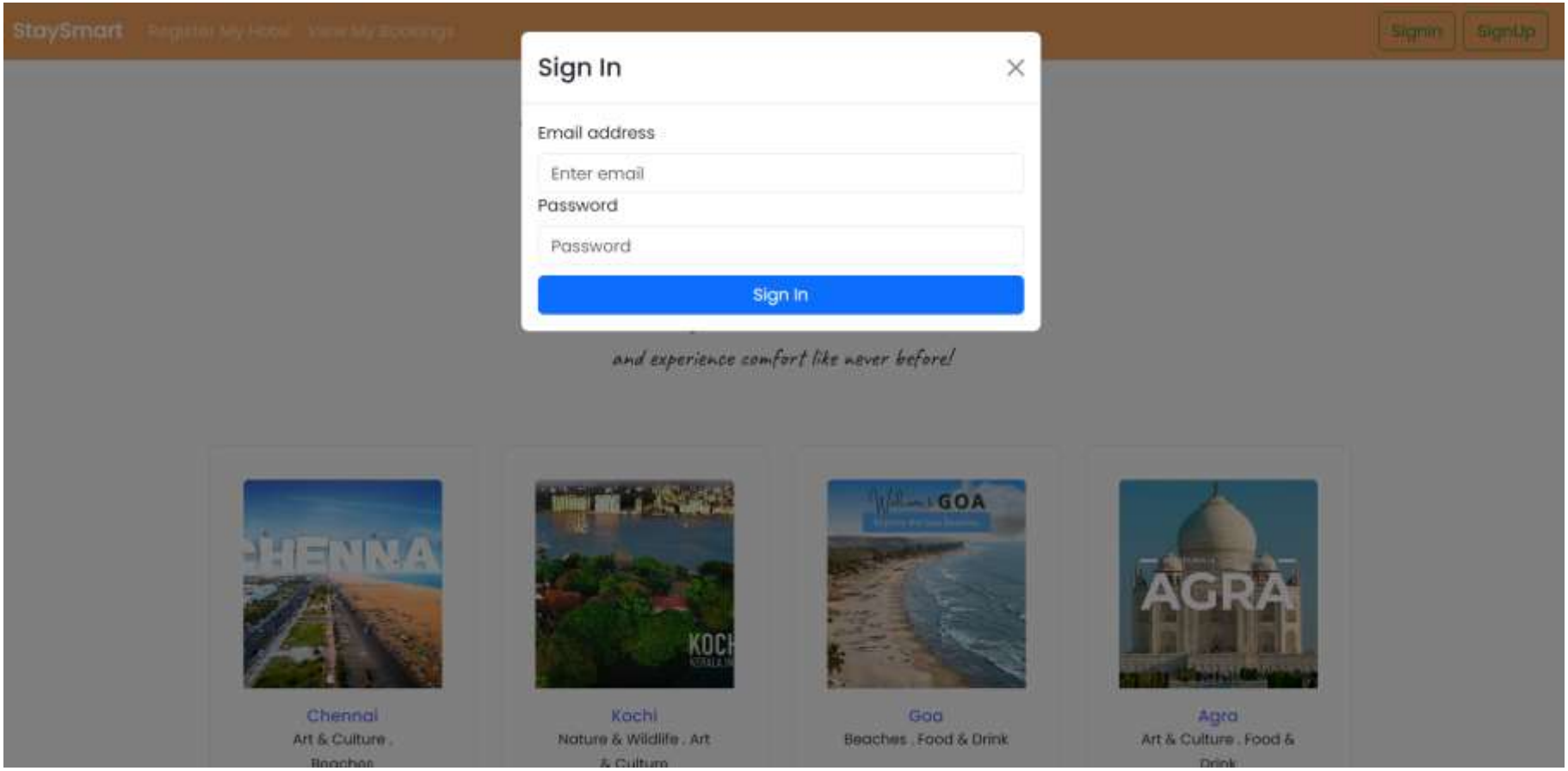
StaySmart
Sign In
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and experience comfort like never before!
Chennai
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Kochi
Nature & Wildlife , Art
& Culture
Goa
Beaches , Food & Drink
Agra
Art & Culture , Food &

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ROOMS:

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Rooms Available at Chennai

Room 1

AC

Available

Book Room

Room 2

Non-AC

Available

Book Room

Room 3

AC

Available

Book Room