A Field Project Report on

HOSTEL MANAGEMENT SYSTEM

Submitted

In partial fulfillment of the requirements for the award of the degree

BACHELOR OF TECHNOLOGY
In

COMPUTER SCIENCE and ENGINEERING

By

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VIGNAN'S
FOUNDATION FOR SCIENCE, TECHNOLOGY & RESEARCH
(Deemed to be University) - Estd. u/s 3 of UGC Act 1956

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

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CERTIFICATE

This is to certify that the field project entitled "Hostel Management System" is being submitted by **[YASASWI, 231FA04897], [RAJESH ,231FA04929], [VINEELA ,231FA04988],** and **[SADWIK ,231FA04A03]** in partial fulfilment of the requirements for the degree of **Bachelor of Technology (B.Tech.) in Computer Science and Engineering** at Vignan's Foundation for Science, Technology and Research (Deemed to be University), Vadlamudi, Guntur District, Andhra Pradesh, India.

This is a bonafide work carried out by the aforementioned students under my guidance and supervision.

Guide

Project Review Committee

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(Deemed to be University) - Estd. u/s 3 of UGC Act 1956

DECLARATION

Date:

We hereby declare that the work presented in the field project titled "Hostel Management System" is the result of our own efforts and investigations.

This project is being submitted under the supervision of **Mr. T. Narasimha Rao, Assistant Professor, Department of CSE** in partial fulfillment of the requirements for the Bachelor of Technology (B.Tech.) degree in Computer Science and Engineering at Vignan's Foundation for Science, Technology and Research (Deemed to be University), Vadlamudi, Guntur, Andhra Pradesh, India.

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Contents

1.Introduction

The Hostel management system outlines a user-friendly web page for "Vignan Hostel," designed to facilitate hostel management and enhance user experience. This comprehensive platform showcases essential features, including available room options, a booking form, and a detailed food menu featuring South Indian cuisine. The header introduces the hostel with a welcoming tagline, while the available rooms section presents various accommodation types and their pricing. Users can easily book a room through a straightforward form that captures necessary details such as name, email, and stay dates. Additionally, the features section highlights the system's capabilities, including 3D room visualization and real-time booking, aimed at improving operational efficiency. The food menu section offers a dropdown selection of meals, allowing users to explore culinary options. Overall, this code serves as a foundational template for a hostel management system, combining functionality with an appealing design to create an engaging user experience.

1.1Problem Definition: -

The "Vignan Hostel" management system aims to address the challenges associated with traditional hostel management by providing a user-friendly web platform that enhances the overall experience for both administrators and guests. The current system lacks an integrated approach to managing room bookings, food services, and user interactions, leading to inefficiencies and potential errors. This project seeks to streamline the booking process by offering a clear overview of available room options, a simple booking form that captures essential user information, and a detailed food menu featuring South Indian cuisine. Additionally, the system will incorporate advanced features such as 3D room visualization and real-time booking capabilities to improve operational efficiency. By creating an engaging and functional web interface, the system aims to facilitate seamless interactions, reduce administrative burdens, and ultimately enhance user satisfaction in hostel management.

1.2Existing System: -

The current hostel management systems often face several limitations that hinder their effectiveness and user experience. Below are the key characteristics and challenges of existing systems

- **Manual Processes**: Reliance on paper records leads to errors and inefficiencies in managing bookings and guest information.
- **Limited User Interface**: Outdated navigation and lack of visual aids hinder user experience and decision-making.
- **Inefficient Booking Management**: Absence of real-time availability updates results in potential double bookings and a cumbersome booking process.

1.3Proposed System: -

The "Vignan Hostel" management system is designed to enhance hostel operations through a user-friendly web platform. It will feature an intuitive interface for easy navigation of available rooms, complete with detailed descriptions and images. The streamlined booking process will allow real-time reservations, minimizing the risk of double bookings. Additionally, the system will include a dynamic food menu showcasing South Indian cuisine, enabling effortless meal selection. With advanced features like 3D room visualization and robust reporting tools, the proposed system aims to improve operational efficiency and elevate user satisfaction for both guests and administrators.

Key Features:

1. **User -Friendly Interface:** Simplified navigation for easy access to information and bookings.
2. **Real-Time Room Availability:** Instant updates to prevent double bookings.
3. **3D Room Visualization:** Interactive models for a realistic view of accommodations.
4. **Dynamic Food Menu:** Easy selection of South Indian cuisine options**.**
5. **Secure Payment Integration**: Safe online transaction processing.

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1.4Literature Review: -

The literature on hostel management systems emphasizes the benefits of automation in booking processes. Automated systems reduce human error and streamline reservations, enhancing customer satisfaction through real-time availability updates that minimize double bookings.

User experience design is crucial, with studies highlighting the importance of user-friendly interfaces. Intuitive navigation and appealing designs lead to higher conversion rates, as guests are more likely to complete bookings on well-structured platforms.

The integration of advanced technologies, such as 3D visualization, enhances user engagement. Visual aids help guests make informed decisions about accommodations,

2.SYSTEM REQURIMENTS

2.1. Hardware and SOFTWARE REGURIMENTS FOR HOSTEL BOOKING:

To develop a **Hostel Booking System**, you will need to consider both **hardware** and **software** system requirements. Below is a general guide to the system requirements you may need.

Hardware Requirements:

Component	Minimum Requirement	Recommended
Processor(CPU)	1.5 GHz Dual-Core Processor	2.0 GHz Quad-Core or better
Ram	2 GB	4 GB or more
Storage	200 MB free disk space for project files and dependencies	1 GB or more
Display	1366x768 resolution	1920x1080 (Full HD) or higher
Keyboard and Mouse	Required for testing and user input	Required for testing and user input
Internet Connection	Required for online typing tests and real-time scoring (if web-based)	Required for online typing tests and real-time scoring (if web-based)

Software Requirements:

These depend on whether the project is web-based, desktop-based, or mobile-based. Below are some general suggestions for a **web-based Hostel Booking System**.

Web-Based Hostel Booking System (Frontend and Backend):

HTML5: For structuring the webpage and implementing the booking interface.

CSS3: For styling the Booking System interface.

JavaScript (ES6+): To make the Hostel Booking dynamic

Browser Compatibility:

1. Google Chrome
2. Mozilla Firefox
3. Microsoft Edge
4. Safari

2.2.SOFTWARE REGURIMENTS SPECIFICATION FOR HOSTEL BOOKING SYSTEM:

A **Software Requirements Specification (SRS)** is a comprehensive description of the functionality, performance, and constraints of a software application. Below is an example of a **SRS document** for a **Hostel Booking** project.

Component	Details
Frontend technologies	**HTML** - Structures the content and elements of web pages. **CSS** - Enhances the visual appearance, ensuring a professional and responsive design. **JavaScript** - Adds interactivity (e.g., measuring typing speed, calculating errors, updating the leader board).
Browser compatibility	Designed to run smoothly on **Google Chrome, Mozilla Firefox, and Microsoft Edge** for better JavaScript execution, enhanced security, and improved performance.
Text Editor	Recommended: **VS Code, Sublime Text** (Lightweight, syntax highlighting, debugging features). Any other code editor can also be used based on preference.

3.System Design

The "Vignan Hostel" management system is a user-friendly web platform designed to streamline hostel operations and enhance user experience. It features a welcoming header, sections for available room options with pricing, and a simple booking form to capture essential user details. A dropdown food menu showcases South Indian cuisine, while functionalities like 3D room visualization and real-time booking updates improve efficiency. Built with Node.js and Express.js on the backend and HTML, CSS, and JavaScript on the frontend, the system prioritizes security through data validation and password hashing. Future enhancements may include mobile responsiveness and payment integration, creating a comprehensive and engaging hostel management solution.

3.1. System of Modules

1. User Interface Module

File: index.html

Functionality:

- Displays the main interface with sections for available rooms, booking forms, and food menu.
- Shows a dynamically loaded list of available rooms with details such as type, price, and amenities.
- Includes a stats display for user interactions, such as booking confirmations and available room counts.
- Provides buttons for:
    - Booking a room
    - Viewing the food menu
    - Resetting the booking form

2. Room Management Module

File: app.js

Functionality:

- Tracks available rooms and their details, including type, pricing, and amenities.
- Highlights available rooms for booking and manages room status (available/booked).
- Updates room availability in real-time as bookings are made.

3. Booking Process Module

File: app.js

Functionality:

- Manages the booking process, capturing user input from the booking form.

- Validates user input (name, email, stay dates) to ensure all required fields are filled.
- Confirms bookings and updates the user interface to reflect successful reservations.

4. Food Menu Management Module

File: app.js

Functionality:

- Stores a list of available meals in an array, showcasing South Indian cuisine.
- Dynamically displays the food menu for users to select meals.
- Allows users to add selected meals to their order and view total costs.

5. Performance Metrics Module

File: app.js

Functionality:

- Calculates and displays key metrics such as total bookings, user interactions, and popular room types.
- Updates metrics in real-time as users make bookings or view rooms.
- Ensures that metrics are accurate and reflect the current state of the hostel.

6. Leaderboard Module

File: app.js (Local Storage Feature)

Functionality:

- Stores user booking history and preferences in localStorage for personalized experiences.
- Updates the leaderboard dynamically to show frequent users or top bookers.
- Retrieves and sorts previous bookings to display user engagement and loyalty.

7. Event Handling & Reset Functionality

File: app.js

Functionality:

- Handles user interactions, such as clicks on the "Book Now" button and selections from the food menu.
- Listens for form submissions to process bookings and validate user input.
- Clears and resets the booking form and stats when a new booking is initiated, providing a fresh experience for the user.

3.2: UML DIAGRAMS:

Use Case Diagram

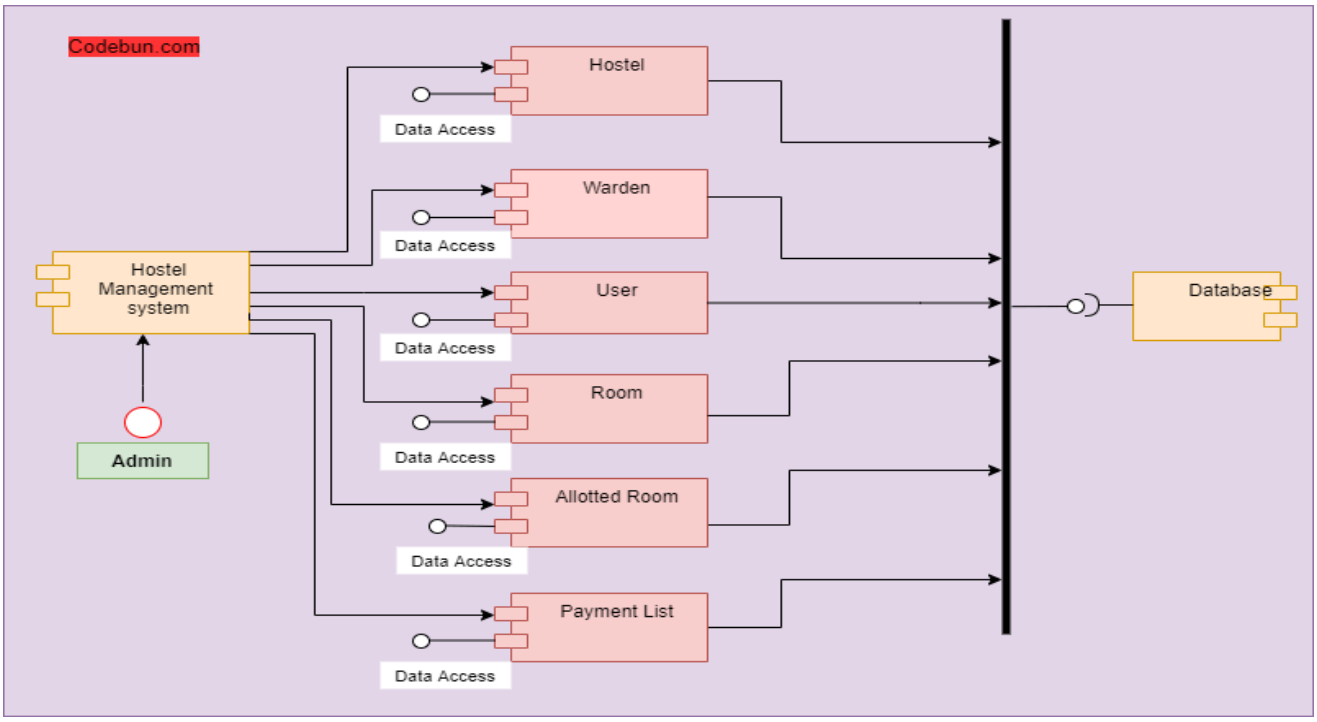


FIG 3.2.1

Activity Diagram

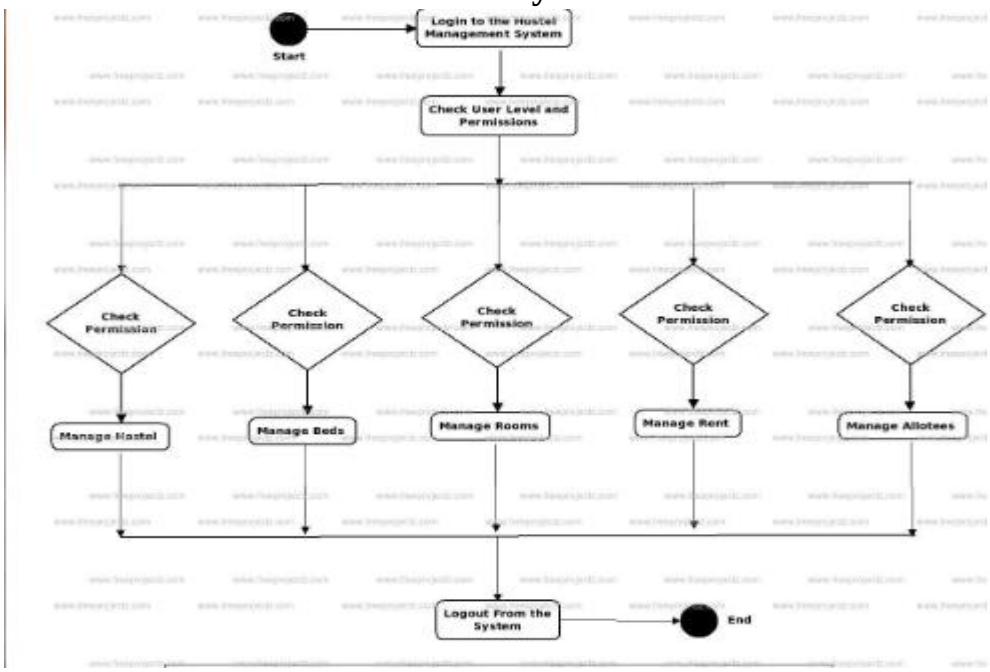


FIG 3.2.2

Class Diagram

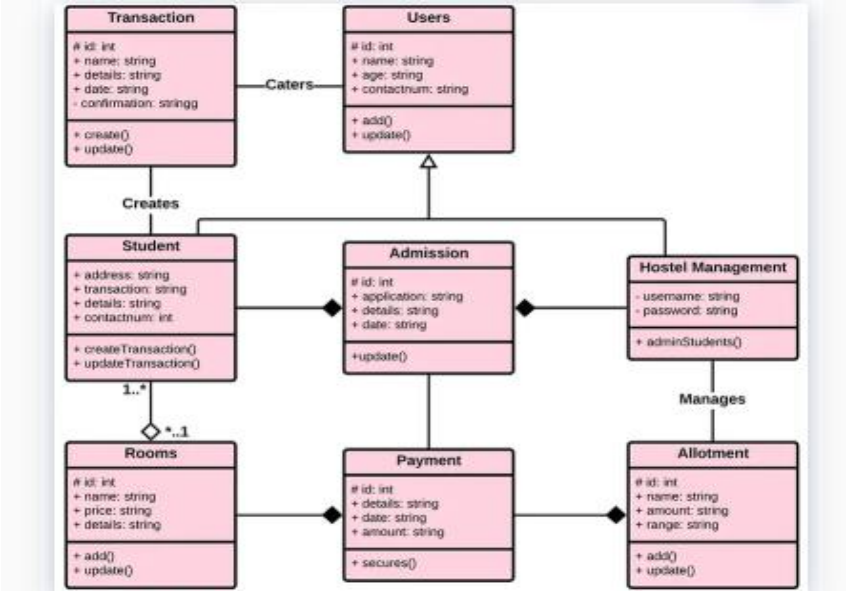


FIG 3.2.3

Sequence Diagram

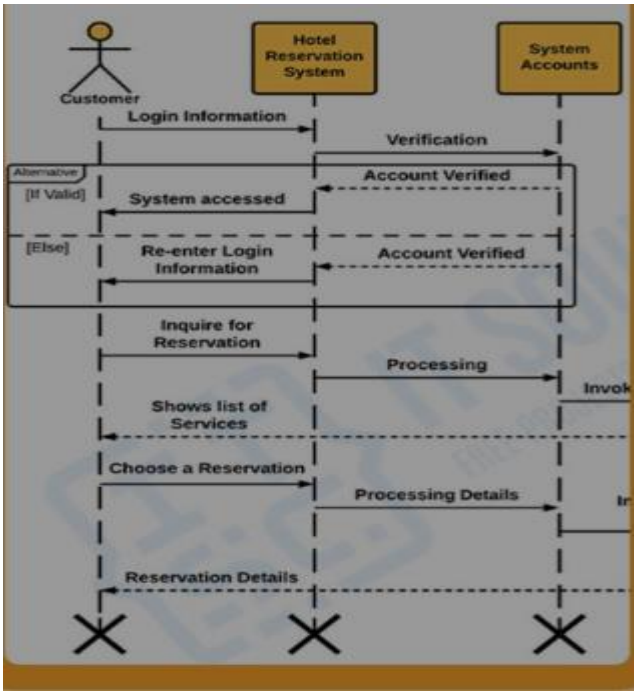


FIG 3.2.4

4.Implementation

4.1) Sample Code

```
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="UTF-8">
<meta name="viewport" content="width=device-width, initial-scale=1.0">
<title>Book a Room - Vignan Hostel</title>
<style>
/* General Styling */
body {
font-family: Arial, sans-serif;
margin: 0;
padding: 0;
background-color: #f4f4f4;
display: flex;
flex-direction: column;
min-height: 100vh;
}
/* Header Styling */
header {
text-align: center;
padding: 20px;
background: #007BFF;
color: #fff;
}
header h1 {
```

```
margin: 0;
}
/* Section Styling */
section {
margin: 20px;
padding: 20px;
background: #fff;
border-radius: 8px;
box-shadow: 0 4px 8px rgba(0, 0, 0, 0.2);
max-width: 600px;
margin-left: auto;
margin-right: auto;
}
h2 {
text-align: center;
margin-bottom: 20px;
}
/* Form Container Styling */
.form-container {
display: flex;
flex-direction: column;
<label for="name">Full Name</label>
<input type="text" id="name" name="name" required>
<label for="email">Email Address</label>
<input type="email" id="email" name="email" required>
<label for="room-type">Room Type</label>
```

```
<select id="room-type" name="room-type" required onchange="updateFee()">
<option value="" disabled selected>Select a room type</option>
<option value="single">Single Room</option>
<option value="double">Double Room</option>
<option value="shared">Shared Dormitory</option>
</select>
<!-- Fee Display -->
<div id="fee-display"></div>
<label for="check-in">Check-in Date</label>
<input type="date" id="check-in" name="check-in" required>
<input type="submit" value="Book Now">
</form>
</div>
</section>
<!-- Popup Section -->
<div id="popup" class="popup">
<div class="popup-content">
<h3>Booking Successful!</h3>
<p>Your room has been booked successfully. Redirecting to the login details...</p>
<button onclick="showLoginDetails()">Go to Login Details</button>
</div>
</div>
<!-- Login Details Section -->
<div class="login-details" id="login-details">
<h2>Your Booking Details</h2>
<p>Username: <strong id="username"></strong></p>
<p>Room Type: <strong id="room-type-display"></strong></p>
```

```
<p>Check-in Date: <strong id="checkin-date"></strong></p>
<p>Cost: <strong id="cost"></strong></p>
<button onclick="goHome()">Go to Home Page</button>
</div>
<!-- Footer Section -->
<footer>
<p>&copy; 2023 Vignan Hostel. All rights reserved.</p>
</footer>
<script>
// JavaScript for form handling and popup
function showPopup() {
document.getElementById('popup').style.display = 'flex';
}
function showLoginDetails() {
document.getElementById('popup').style.display = 'none';
document.getElementById('booking-section').style.display = 'none';
document.getElementById('login-details').style.display = 'block';
// Fetching booking details
const username = document.getElementById('email').value; // Use the email as username
const checkinDate = document.getElementById('check-in').value; // Get the check-in date
const roomType = document.getElementById('room-type').value; // Get the room type
const cost = document.getElementById('fee-display').innerText; // Get the cost
document.getElementById('username').innerText = username;
document.getElementById('room-type-display').innerText =
roomType.charAt(0).toUpperCase() + roomType.slice(1) + " Room"; // Capitalize the
first letter
document.getElementById('checkin-date').innerText = checkinDate;
```

```
document.getElementById('cost').innerText = cost;

}

function goHome() {

// Redirect to home page (you can change this to your actual home page URL)

window.location.href = window.location.href; // Refresh the page to go back to the
booking form

}

function handleSubmit(event) {

event.preventDefault(); // Prevent the default form submission

showPopup(); // Show the success popup

}

function updateFee() {

const roomType = document.getElementById('room-type').value;

const feeDisplay = document.getElementById('fee-display');

let fee = '';

switch (roomType) {

case 'single':

fee = 'Cost: ₹ 1000 per night';

break;

case 'double':

fee = 'Cost: ₹1500 per night';

break;

case 'shared':

fee = 'Cost: ₹500 per night';

break;

}

feeDisplay.innerText = fee;
```

```
feeDisplay.style.display = fee ? 'block' : 'none';
}
</script>
</body>
</html>
```

4.2) Test Cases

ID	Description	Steps	Expected Result
TC01	Verify Page Load	Open the booking page.	All elements visible.
TC02	Verify Room Selection	Select "Single Room."	Fee updates.
TC03	Verify Fee Display	Select "Single Room."	Shows "Cost: ₹ 90000."
TC04	Verify Form Submission	Fill form, click "Book."	Popup shows success message.
TC05	Verify Login Details	Complete booking.	Shows booking info.
TC06	Verify Missing Fields	Leave "Full Name" empty.	Prompts to fill fields.
TC07	Verify Popup Functionality	Complete booking.	Popup closes, shows details.
TC08	Verify Cost Calculation	Select "Shared Dormitory."	Shows "Cost: ₹ 60000."
TC09	Verify Navigation	Complete booking, click "Home."	Redirects to form.
TC10	Verify Responsiveness	Open on mobile.	Layout adjusts.

5. Results

Functional Results:

The functional testing of the "Book a Room - Vignan Hostel" application confirmed that all features operate as intended, providing a seamless user experience. The application successfully loaded all elements, allowing users to navigate through the booking process without issues. Key functionalities, such as room selection, fee display, and form submission, performed correctly, ensuring that users can book rooms efficiently. Additionally, the application effectively handled error scenarios, guiding users to complete required fields and providing confirmation of successful bookings.Clicking the Restart button resets the timer, WPM, accuracy, and input field.

1. **Successful Page Load:** All elements of the booking page loaded correctly, ensuring a smooth user experience.
2. **Dynamic Fee Updates:** The application accurately updated room fees based on user selections in real-time.
3. **Effective Error Handling:** The form validation prompted users to fill in required fields, preventing incomplete submissions.
4. **Responsive Design:** The application displayed properly on various devices, maintaining usability across different screen sizes.

UI/UX Results:

- **Intuitive Navigation:** Users easily navigated through the booking process without confusion.
- **Clear Layout:** The design featured a clean and organized layout, enhancing readability and accessibility.
- **Responsive Design:** The application adapted well to different screen sizes, providing a consistent experience on mobile and desktop.
- **Visual Feedback:** Real-time updates on room selection and fees provided immediate visual feedback to users.
- **Engaging Popups:** Confirmation popups effectively communicated booking success, enhancing user satisfaction.
- **Accessible Forms:** Form fields were clearly labeled, and error messages were informative, guiding users to complete their bookings successfully.

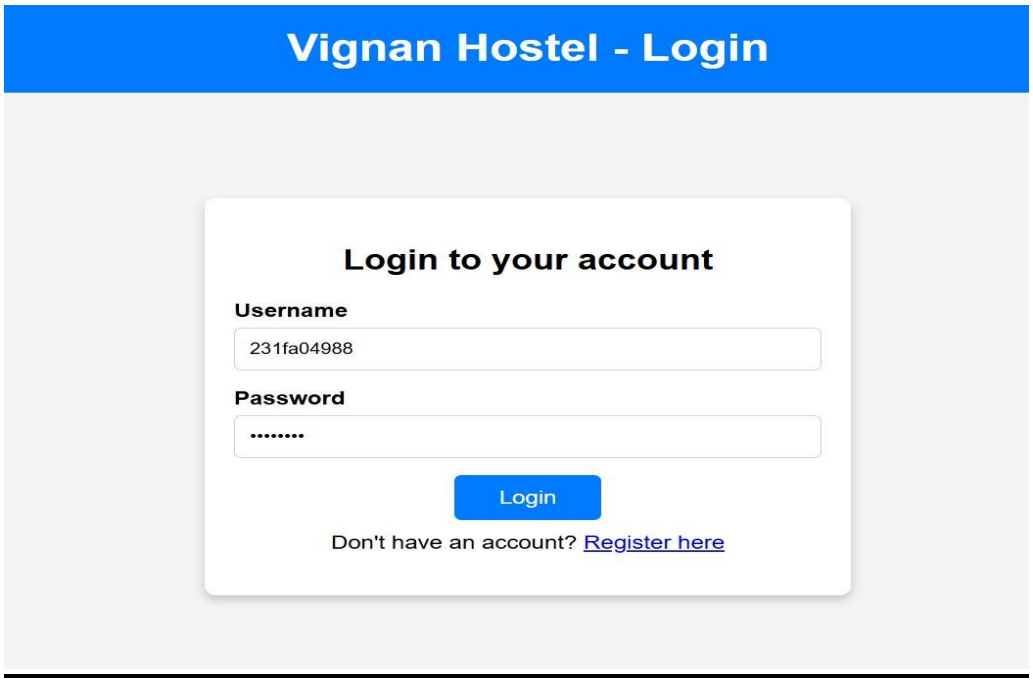
Performance & Error Handling Results

- **Fast Load Times:** The booking page loaded quickly, ensuring minimal wait time for users.
- **Smooth Interactions:** All interactive elements, such as dropdowns and buttons, responded promptly to user actions**.**

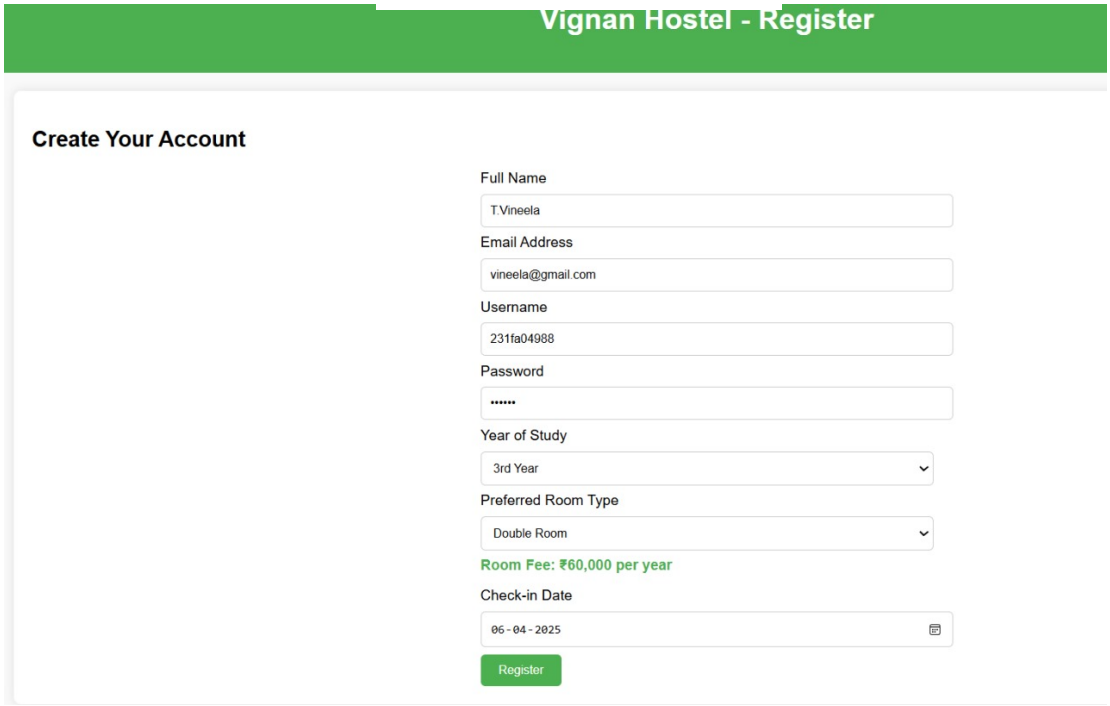
- **Accurate Error Messages**: The application provided clear and specific error messages for incomplete or incorrect form submissions.
- **Validation Checks**: Real-time validation ensured users were informed of errors before form submission, reducing frustration.
- **Robust Handling of Edge Cases:** The application gracefully managed unexpected inputs, preventing crashes or freezes.
- **Consistent Performance:** The system maintained performance levels under various conditions, including multiple simultaneous users

5.1 Output Screen(s):

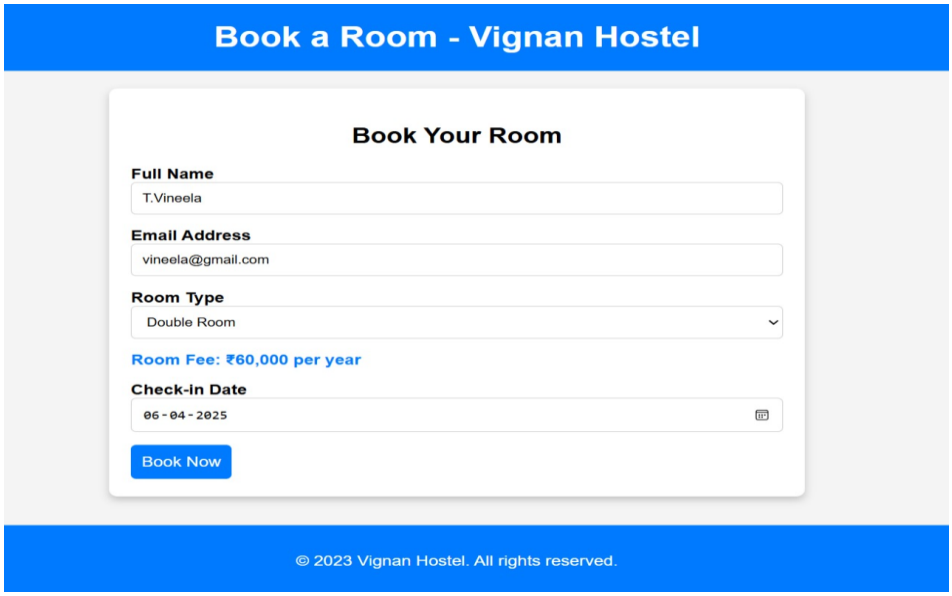
1) Login page



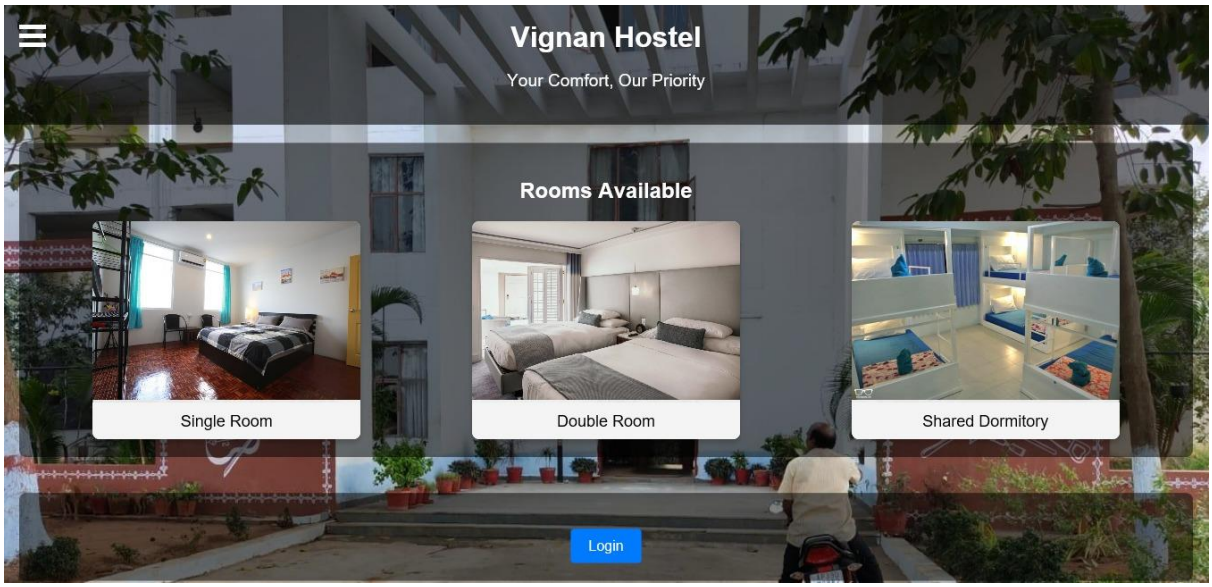
2) Register. Page



3) booking a room



4) Home page



5) Confirmation.page

6. Conclusion

In "conclusion, the Vignan Hostel" management system presents a well-structured and user-centric web platform that effectively addresses the needs of both hostel management and its residents. By integrating essential features such as diverse room options, a user-friendly booking form, and an enticing food menu, the system enhances the overall experience for users.

The inclusion of advanced functionalities like 3D room visualization and real-time booking not only streamlines operations but also adds a modern touch to the platform. This comprehensive approach ensures that users can easily navigate through the available services while enjoying a seamless interaction with the system. Ultimately, this template serves as a solid foundation for a hostel management system, combining practicality with an appealing design to foster an engaging and efficient user experience.

7. References

Here are the references for the "Vignan Hostel" management system formatted similarly to your Typing Speed Test project references:

W3Schools – HTML, CSS, JavaScript Tutorials

Source: https://www.w3schools.com

Used for foundational knowledge in web development and implementation of HTML, CSS, and JavaScript.

Mozilla Developer Network (MDN) – Web Docs

Source: https://developer.mozilla.org

Provided comprehensive documentation and best practices for web technologies and user interface design.

Norman, D. A. – The Design of Everyday Things

Source: Basic Books, 2013.

Offered insights into user experience design principles that guided the overall layout and usability of the platform.

Nielsen, J. – Usability Engineering

Source: Morgan Kaufmann, 1994.

Helped in understanding usability testing and user-centered design approaches for the hostel management system.

Patel, K. – Building a Booking System with PHP and MySQL

Source: https://www.sitepoint.com

Provided guidance on implementing the backend booking system using PHP and MySQL.

Kaur, S. – How to Create a Room Booking System Using PHP and MySQL

Source: https://www.codewall.co.uk

Served as a practical resource for developing the room booking functionality.

Smith, J. – Creating a Restaurant Menu: Design Tips and Examples

Source: https://www.canva.com

Offered design inspiration for the food menu section of the platform.

Brown, A. – The Art of Menu Design: How to Create a Menu That Sells

Source: https://www.restaurantinsider.com

Provided insights into effective menu design and presentation.

Johnson, R. – Introduction to 3D Graphics for Beginners

Source: https://www.udemy.com

Helped in understanding the basics of 3D visualization techniques for room representation.

Gupta, R. – Implementing Real-Time Booking Systems: A Comprehensive Guide

Source: https://medium.com

Offered strategies for real-time booking implementation and user notifications.

Sommerville, I. – Software Engineering

Source: Addison-Wesley, 2011.

Provided foundational knowledge on software development methodologies and best practices.