

Hostel Reservation and Cancellation System

A MINI PROJECT REPORT

Submitted By

RUDRAPRIYAN N- (220701232)

In partial fulfillment for the award of the degree of

BACHELOR OF ENGINEERING

IN

COMPUTER SCIENCE AND ENGINEERING

RAJALAKSHMI ENGINEERING COLLEGE
(AUTONOMOUS) THANDALAM

CHENNAI-602105 2024-2025

Table of Contents

1. Introduction
2. Abstract
3. Problem Statement
4. Objectives
5. System Requirements and Scope
6. Software Description and Key Features
7. Programming Languages and Technologies Used
8. Code Implementation
9. Output(UI)
- 10.Results and Analysis
- 11.Conclusion

1. Introduction

Hostel management traditionally relies on manual systems for managing room reservations, which can lead to inefficiencies and errors. The *Hostel Room Reservation and Cancellation System* automates this process, ensuring smooth operations for both administrators and students. The system also integrates security measures, such as **JWT-based authentication** and **password hashing**, to ensure only authorized users can access the system while keeping sensitive data safe.

Scope of the Project

- Gender-based room segregation for male and female students.
- Room reservations and cancellations with real-time availability updates.
- Secure authentication with JWT and password protection using hashing.

Objectives

- Implement secure user authentication with **JWT**.
- Use **password hashing** to securely store user credentials.
- Streamline the room booking and cancellation process while ensuring availability is always up to date.

2. Abstract

The *Hostel Room Reservation and Cancellation System* is an automated solution designed to streamline the management of hostel accommodations, providing an efficient way to allocate rooms, manage bookings, and handle cancellations. The system uses **JWT (JSON Web Tokens)** for user authentication and **password hashing** to ensure secure login and user data protection. Developed with Node.js, Express, EJS, and MySQL, this system minimizes manual errors and improves efficiency.

Features include gender-specific room assignments, dynamic room availability, and a user-friendly interface for students to make or cancel reservations.

3. Problem Statement

The traditional approach to hostel room management presents numerous challenges, primarily due to manual processes. The key issues identified include:

1. **Manual Room Reservations:** The lack of automation in room booking and cancellation leads to errors in room allocation, double bookings, and difficulties in managing room availability.
2. **Gender-Specific Room Allocation:** Ensuring that male and female students are assigned rooms according to their gender manually is prone to mistakes, leading to confusion and inefficiencies.
3. **Security and Data Integrity:** The absence of secure authentication and password protection exposes user data to potential breaches and unauthorized access.

4. Objectives

1 Streamline Room Booking and Cancellation Processes

- Implement an automated online system for room reservation and cancellation.
- Reduce manual workload and minimize errors in room allocation.
- Enhance convenience and accessibility for students to book and cancel rooms in real time.

2 Ensure Gender-Specific Room Assignments

- Automate gender-based room allocation to ensure male and female students are assigned appropriate rooms.
- Prevent mix-ups and inefficiencies in room assignments by automating the process.

3 Enhance Security and Data Integrity

- Implement secure login and authentication using **JWT** (JSON Web Tokens) to ensure only authorized users can access the system.
- Use **password hashing** to securely store user credentials and protect sensitive data.

4 Provide Real-Time Room Availability

- Offer an intuitive interface displaying the real-time availability of rooms.
- Help students easily view and select available rooms based on their preferences.

5 Facilitate Data-Driven Management

- Track and analyze room reservations and cancellations for better administrative control.
- Generate reports on room occupancy and user activity to support decision-making and improve system efficiency.

5. System Requirements and Scope

1 Online Room Reservation and Cancellation System

- Allow students to search for available rooms and reserve them online.
- Display real-time availability of rooms and provide instant reservation confirmations.
- Enable students to cancel their room reservations easily through the system.

2 Gender-Specific Room Assignment

- Automatically assign rooms based on the gender of the student.
- Ensure that room allocation adheres to the rules of gender-specific rooms to prevent errors.

3 Real-Time Room Availability Display

- Provide a dynamic interface that shows available rooms in real time.
 - Help students choose and book rooms based on availability.
- 4 Secure Authentication and User Management
- Implement secure login and user authentication using JWT for access control.
 - Securely store user credentials using password hashing to protect sensitive information.
-

Non-Functional Requirements

1. Performance

- The system should handle high traffic during peak times, such as exam seasons or new membership drives.

2. Security

- Ensure robust data protection and compliance with privacy regulations to safeguard user information.

3. Usability

- Provide intuitive interfaces for users, library staff, and administrators, ensuring ease of use across all functions.
-

Scope

The *Hostel Room Reservation and Cancellation System* focuses on core functionalities such as room reservations, gender-specific room assignments, real-time availability management, secure authentication, and feedback collection. It does not cover administrative back-end tasks such as

financial accounting, student fee management, or hostel maintenance operations.

6. Software Description and Key Features

The *Hostel Room Reservation and Cancellation System* includes various features designed to improve the user experience and streamline room management:

- **Online Room Reservation and Cancellation**
 - Allows students to reserve and cancel hostel rooms through an intuitive web interface.
 - Provides real-time room availability, enables selection of preferred rooms, and generates instant reservation and cancellation confirmations.
- **Gender-Specific Room Assignment**
 - Automatically assigns rooms based on the gender of the student to ensure appropriate room allocation.
 - Prevents booking errors by strictly adhering to gender-specific room policies.
- **Real-Time Room Availability Management**
 - Displays real-time availability of rooms, enabling students to select from available options.
 - Updates room status instantly to avoid double bookings and ensure a smooth reservation process.
- **Secure User Authentication**
 - Implements secure login through **JWT (JSON Web Tokens)** for authentication.
 - Uses **password hashing** to store user credentials securely, preventing unauthorized access and ensuring data protection.

7. Programming Languages and Technologies Used

- **Frontend:**

- HTML, CSS, JavaScript, and Bootstrap are used to create a responsive and user-friendly interface.
- Libraries like React or Angular may be employed for dynamic content rendering and improving interactivity.

- **Backend:**

- Node.js with Express is used as the backend framework to handle server-side operations, process requests, and manage business logic.
- JWT (JSON Web Tokens) is implemented for secure user authentication, while bcrypt is used for password hashing.

- **Database:**

- MySQL is used for efficient data storage and management, supporting student records, room reservations, cancellations, and feedback.

- **APIs and Libraries:**

- Integration with third-party libraries and enhanced **security** features like JWT ensures improved functionality and performance.

8.Output (UI)

Hostel Room Reservation System

Signup

Roll Number:

220701232

Email:

220701232@rajalakshmi.edu.in

Password:

Gender:

Male

Signup

Back to Login

© 2024 Hostel Management System

Hostel Room Reservation System

Login

Roll Number

Password

Login

Sign Up

© 2024 Hostel Management System

Hostel Room Reservation System

Available Rooms



Single Room

A private room with all the necessary amenities for a comfortable stay.

Book Now



Triple Sharing

A spacious room suitable for three occupants, perfect for friends or groups.

Book Now

© 2024 Hostel Management System

Hostel Room Reservation System

Available Rooms

Room Type: single

Room No.: 1

Available Capacity: 1

Book This Room

Room Type: single

Room No.: 4

Available Capacity: 1

Book This Room

Room Type: single

Room No.: 6

Available Capacity: 1

Book This Room

Room Type: single

Room No.: 7

Available Capacity: 1

Book This Room

My Bookings

You have no current bookings.

Back to Rooms

© 2024 Hostel Management System

Hostel Room Reservation System

Available Rooms

Room Type: single
Room No.: 1
Available Capacity: 1
[Book This Room](#)

Room Type: single
Room No.: 4
Available Capacity: 1
[Book This Room](#)

Room Type: single
Room No.: 6
Available Capacity: 1
[Book This Room](#)

My Bookings

Booked Room: single
Room ID: 7
[Cancel Booking](#)

[Back to Rooms](#)

© 2024 Hostel Management System

9. Results and Analysis

The implementation of the **Library Management System (LMS)** has shown promising results in improving library operations and user experience. Key outcomes include:

- **Enhanced Efficiency**
 - The automated room reservation and cancellation system reduces manual errors, streamlines room booking, and ensures real-time availability updates, resulting in quicker and more efficient room management.
- **Improved User Satisfaction**
 - Feedback indicates that students appreciate the ease of online reservations, the gender-specific room allocation, and the secure, user-friendly interface for booking and managing rooms.
- **Security system**
 - With the implementation of **JWT** for authentication and **password hashing** for secure user credentials, the system has strengthened data protection. Users' personal information and

booking details are now securely stored, mitigating the risk of unauthorized access or data breaches.

10. Conclusion

The *Hostel Room Reservation and Cancellation System* has successfully streamlined the room booking process by automating reservations, cancellations, and gender-specific assignments, improving operational efficiency and reducing manual errors. Users benefit from an intuitive, secure platform with real-time room availability, leading to higher satisfaction. Administrators gain valuable insights through the admin dashboard, enhancing resource management. Overall, the system has met its objectives of simplifying room management and ensuring security, while offering opportunities for future enhancements like payment integration and scalability to accommodate growing needs.