

LUXURYSTAY HOSPITALITY

Hotel Management System

MERN Stack Web Application



Submitted By: _____ | Institute: Aptech



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Batch Code:

PR2-202309C+08C1



Project Title: **LuxuryStay Hospitality – Hotel Management System**
Aptech



INTRODUCTION



The rapid advancement in information technology has increased the demand for practical implementation of concepts in real-life scenarios. In today's competitive IT industry, professionals are expected not only to understand theoretical knowledge but also to apply it effectively.

However, factors such as busy schedules, limited resources, and lack of real-time practice environments create challenges for students. To overcome these limitations, eProject provides a structured and step-by-step learning approach that bridges the gap between theory and practical implementation.

The LuxuryStay Hospitality – Hotel Management System is developed as part of this eProject to simulate a real-world hotel management environment using modern web technologies.



OBJECTIVES OF THE PROJECT



- To design and develop a real-life Hotel Management System.
- To understand and implement MERN Stack technologies.
- To provide a centralized system for managing hotel operations.
- To automate room booking, guest management, and billing processes.
- To enhance practical knowledge and technical skills through hands-on experience.
- To build a scalable, secure, and user-friendly web application.



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PROBLEM STATEMENT

- Many hotels still rely on manual or semi-automated systems.
- Managing room availability, reservations, and guest records is time-consuming.
- Lack of centralized data causes errors in billing and reporting.
- Poor coordination between departments such as reception, housekeeping, and management.
- Difficulty in generating real-time reports for decision-making.

Hence, a modern web-based Hotel Management System is required to automate operations and improve efficiency.

PROJECT BACKGROUND



- LuxuryStay Hospitality is a high-end hotel chain known for providing exceptional services and luxurious accommodations. With hotels located in multiple locations, managing daily operations efficiently has become a critical requirement.
- To enhance operational efficiency and improve guest experience, LuxuryStay envisions a modern and scalable Hotel Management System. The proposed system aims to streamline hotel workflows, centralize data management, and support better decision-making through accurate and real-time information.



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SYSTEM OVERVIEW



The LuxuryStay Hotel Management System (HMS) is a web-based application designed to automate and streamline hotel operations. It provides a centralized platform for managing room reservations, guest profiles, billing, housekeeping, and reporting.

The system enables staff and management to coordinate efficiently, reduce manual errors, and improve overall guest satisfaction. It is developed using modern web technologies (MERN Stack) to ensure scalability, security, and a user-friendly interface.



FUNCTIONAL REQUIREMENTS

User Management:



- Admin Dashboard – Manage user roles and permissions.
- Staff Profiles – Create, modify, and deactivate staff accounts.
- Guest Profiles – Maintain guest information including contact and preferences.



Room Management:

- Room Inventory – Maintain details of room types, availability, status, and pricing.
- Room Booking – Reserve rooms, assign guests, and manage bookings.
- Room Status Updates – Real-time updates for cleaning, maintenance, and occupancy.



FUNCTIONAL REQUIREMENTS (CONTINUED)



Reservation and Check-in/Check-out:

- Reservation System – Facilitate online and staff-assisted bookings.
- Check-in/Check-out – Automated procedures for room allocation, billing, and status updates.

Billing and Invoicing:

- Billing System – Generate accurate bills including room rates and additional services.
- Invoicing – Print or email detailed invoices to guests.

Housekeeping and Maintenance:

- Housekeeping Management – Schedule cleaning tasks and mark completion.
- Maintenance Requests – Report and track maintenance issues.



Reporting and Analytics:

- Reporting Dashboard – Customizable reports on occupancy, revenue, and feedback.
- Analytics – Forecast demand, optimize pricing, and improve service.

Feedback and Guest Services:

- Feedback Mechanism – Guests can leave ratings and reviews.
- Additional Services – Room service, wake-up calls, transportation requests.

System Administration:

- System Settings – Configure room rates, policies, and taxes.
- System Notifications – Alerts for bookings, maintenance, and other updates.



FUNCTIONAL REQUIREMENTS (CONTINUED)



Performance:

- The system should respond to user actions within 1–2 seconds.
- Should support hundreds of concurrent users without performance issues.
- Scalable to handle increasing data and users over time.

Security:

- All sensitive data must be securely encrypted during storage and transmission.
- Implement secure authentication and authorization mechanisms.
- Role-based access control to ensure proper data access.

Reliability:

- Minimum 99% uptime, with scheduled maintenance communicated in advance.
- Regular automated data backups to prevent data loss.

Usability:

- User-friendly interface with consistent navigation.
- Responsive design for desktop and mobile devices.
- Adhere to accessibility standards (WCAG).



Compatibility:

- Cross-browser compatibility (Chrome, Firefox, Safari, Edge).
- Works smoothly on various mobile devices and screen sizes.

Privacy:

- Comply with data privacy regulations (e.g., GDPR).
- Users have control over the data they share and give informed consent.

Testing & Quality Assurance:

- Unit testing, integration testing, and end-to-end testing.
- Regular security and performance testing.

Documentation:

- User manuals, tutorials, FAQs.
- Developer documentation for future maintenance and upgrades.



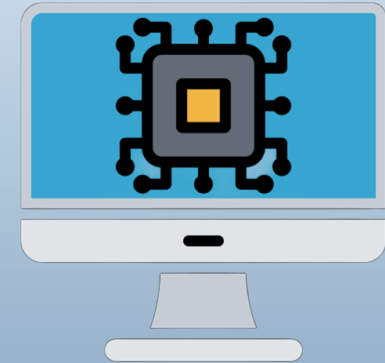
HARDWARE & SOFTWARE REQUIREMENTS

Hardware Requirements:

- A minimum computer system with Pentium 166 or better processor
- At least 128 MB RAM
- Windows 2000 Server or higher
- Internet connection for project deployment and testing

Software Requirements:

- Operating System: Windows OS
- Database: MongoDB
- Backend: Node.js with Express.js
- Frontend: React.js
- Code Editor: VS Code or Notepad++
- Browser: Chrome, Firefox, Edge, or Safari



SYSTEM ARCHITECTURE



The LuxuryStay Hotel Management System follows a modern web-based architecture using the **MERN Stack**:

1. Frontend (React.js):

- Provides a responsive and interactive user interface for Admin, Staff, and Guests.
- Handles user inputs and displays real-time data.

2. Backend (Node.js & Express.js):

- Processes client requests and handles business logic.
- Provides RESTful APIs to communicate with the database.

3. Database (MongoDB):

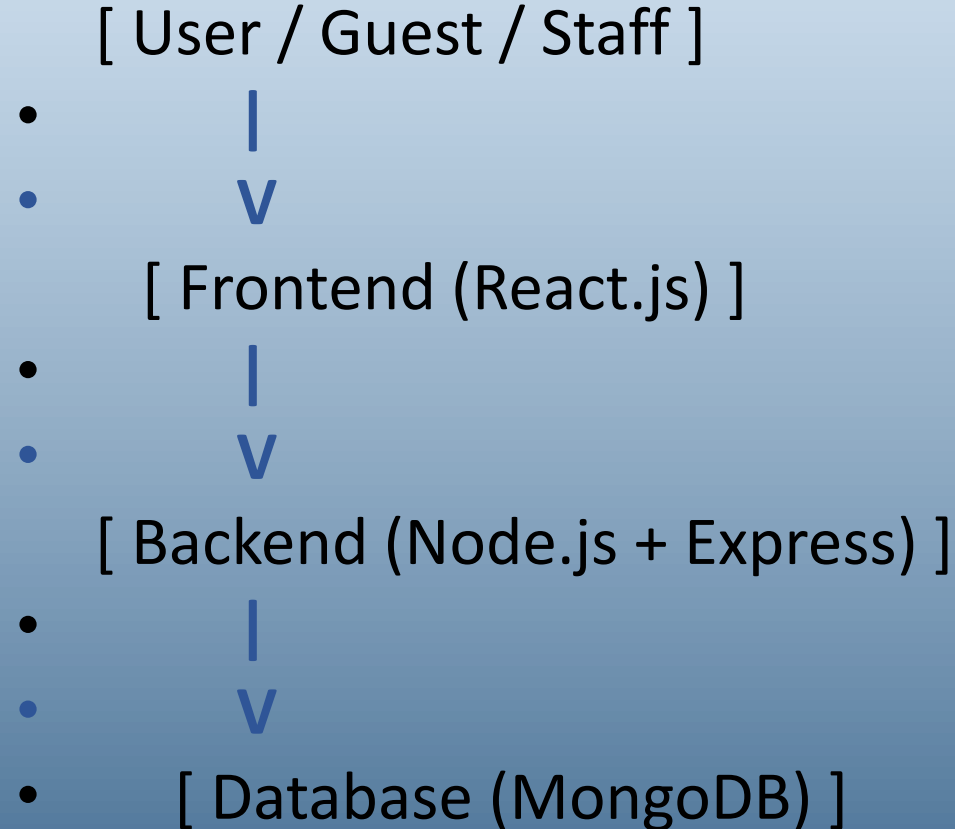
- Stores user information, guest profiles, room inventory, bookings, and billing data.
- Enables secure and efficient data retrieval.

4. Flow:

- User interacts with the frontend → Frontend sends requests to backend → Backend processes requests → Backend communicates with MongoDB → Response sent back to frontend for display.



Diagram Suggestion (Visual Layout)



MODULES DESCRIPTION



1. Admin Module:

- Manage users, assign roles, set system configurations, generate reports.

2. Staff Module:

- Handle room bookings, check-in/check-out, manage housekeeping tasks.

3. Guest Module:

- View room availability, make bookings, provide feedback, request additional services.

4. Room & Booking Module:

- Maintain room inventory, track availability, manage reservations.

5. Billing Module:

- Generate bills, process payments, provide invoices.

6. Housekeeping & Maintenance Module:

- Schedule cleaning, track maintenance issues, update room status.

7. Reporting & Analytics Module:

- Generate reports on occupancy, revenue, guest feedback, and service optimization.



APPLICATION SCREENSHOTS



Dark Mode

Admin Login Screen

Light Mode

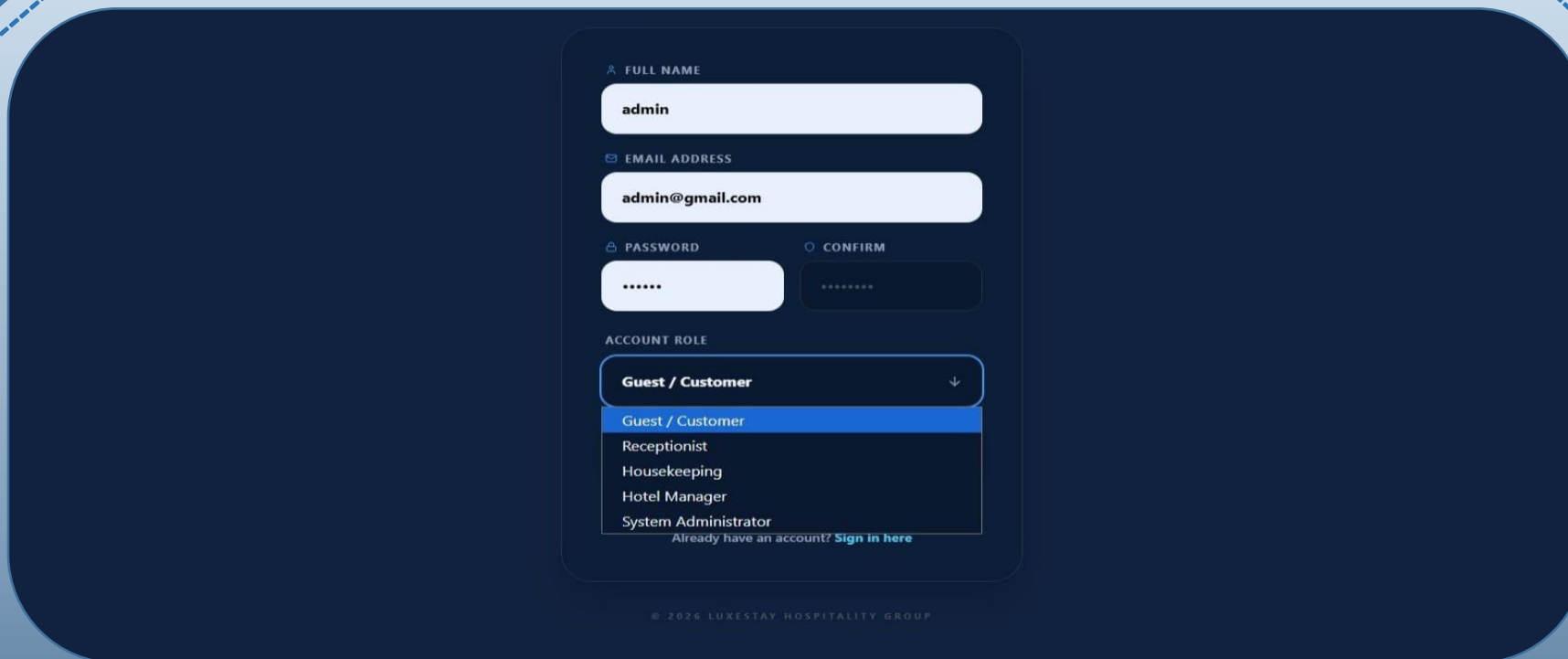
The screenshot shows the admin login screen in dark mode. It features a dark blue background with a central white login form. At the top, there is a blue icon of a building. Below it, the text "Welcome Back" is displayed in white, followed by the subtitle "Please sign in to access your luxury dashboard". The login form contains two input fields: "EMAIL ADDRESS" with the value "admin@gmail.com" and "PASSWORD" with masked characters "*****". A blue "Sign In →" button is positioned below the password field. At the bottom of the form, there is a link "Don't have an account? Create one here". The footer text "© 2024 LUXESTAY HOSPITALITY GROUP" is visible at the very bottom.

The screenshot shows the admin login screen in light mode. It features a white background with a central light blue login form. At the top, there is a blue icon of a building. Below it, the text "Welcome Back" is displayed in blue, followed by the subtitle "Please sign in to access your luxury dashboard". The login form contains two input fields: "EMAIL ADDRESS" with the value "admin@gmail.com" and "PASSWORD" with masked characters "*****". A blue "Sign In →" button is positioned below the password field. At the bottom of the form, there is a link "Don't have an account? Create one here". The footer text "© 2024 LUXESTAY HOSPITALITY GROUP" is visible at the very bottom.

This screen allows the admin to log in using a secure email and password.
The system supports both dark mode and light mode for better user experience.



Admin Account and Role Management

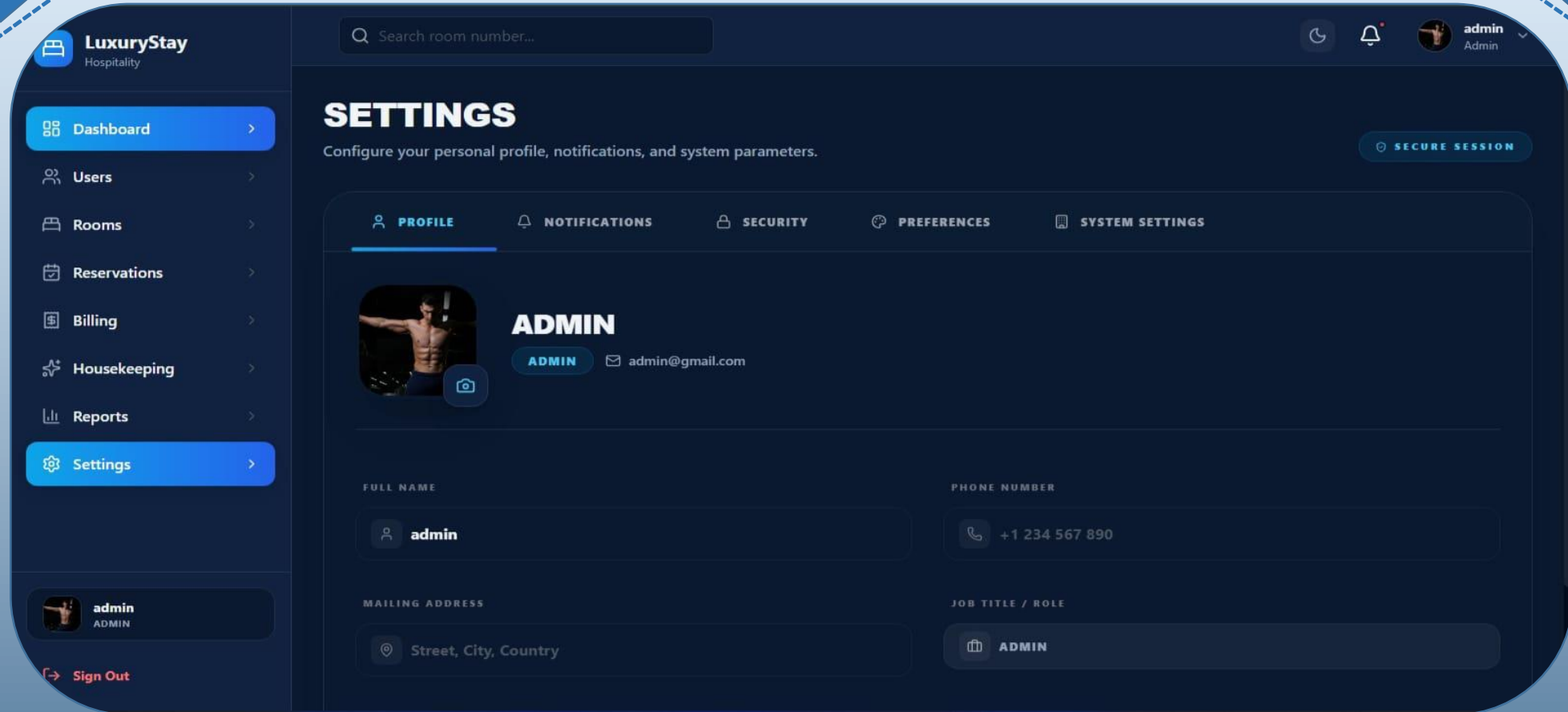


The screenshot shows a web form for creating an admin account. It includes input fields for 'FULL NAME' (containing 'admin'), 'EMAIL ADDRESS' (containing 'admin@gmail.com'), 'PASSWORD' (masked with dots), and 'CONFIRM' (also masked). Below these is a dropdown menu for 'ACCOUNT ROLE' with options: 'Guest / Customer' (selected), 'Receptionist', 'Housekeeping', 'Hotel Manager', and 'System Administrator'. At the bottom of the form, there is a link: 'Already have an account? [Sign in here](#)'. The footer of the form area reads '© 2026 LUXESTAY HOSPITALITY GROUP'.

This screen displays admin account details including email and role. Role-based access control ensures secure system usage.



Admin DashboardAdmin Dashboard



The admin dashboard provides an overview of system activities such as room management, bookings, and user information.

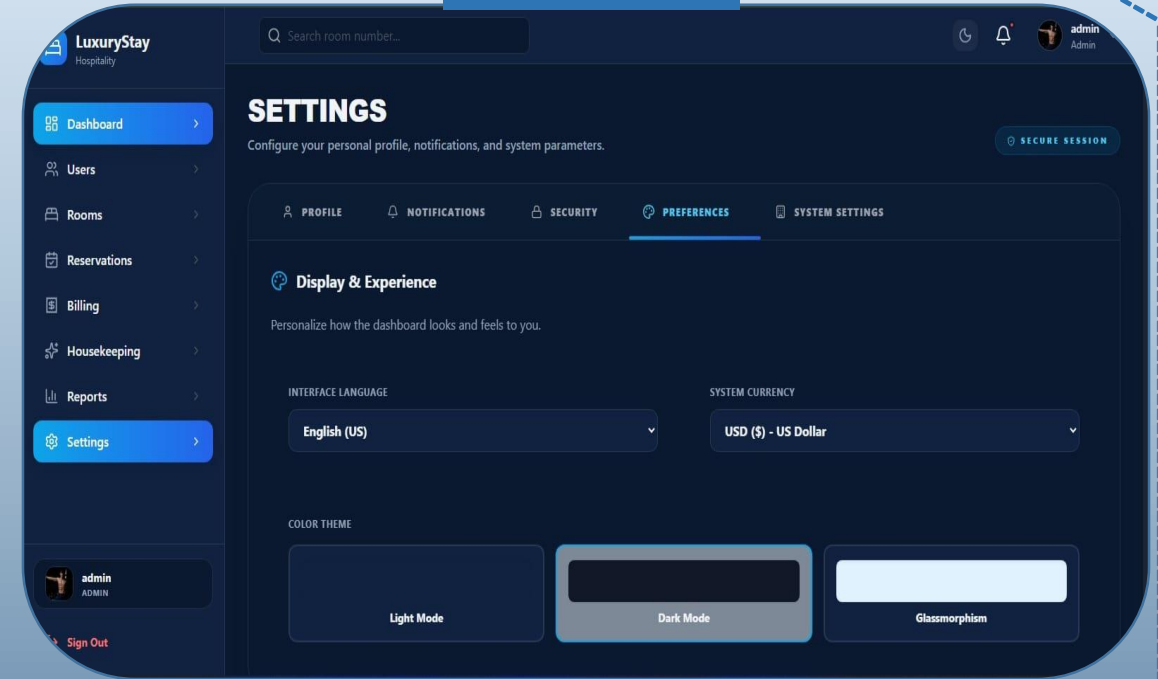
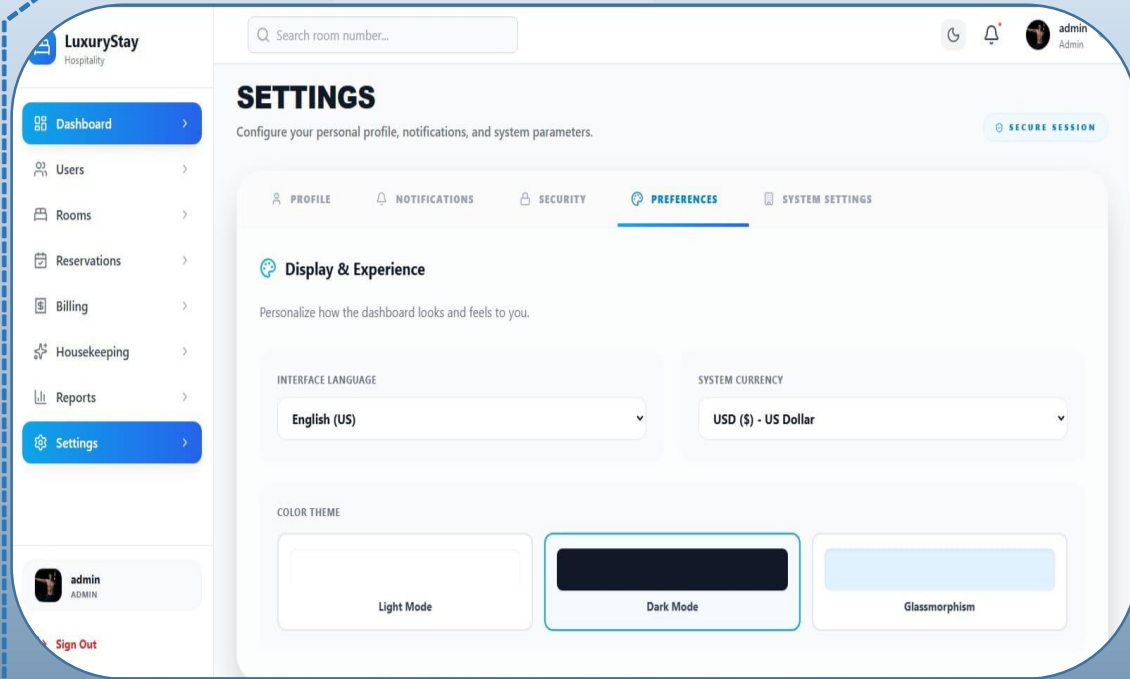
The profile section allows the admin to manage personal details.



Preferences Settings

Light Mode

Dark Mode

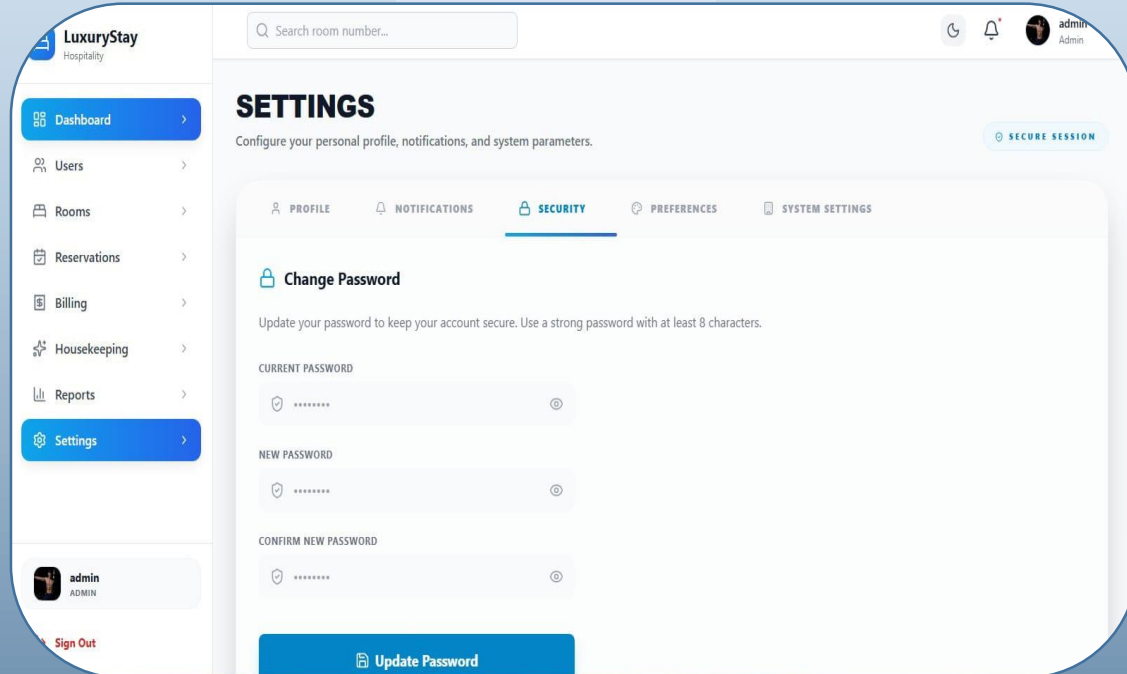


This screen allows the admin to customize system preferences such as interface mode, display options, and general application behavior.

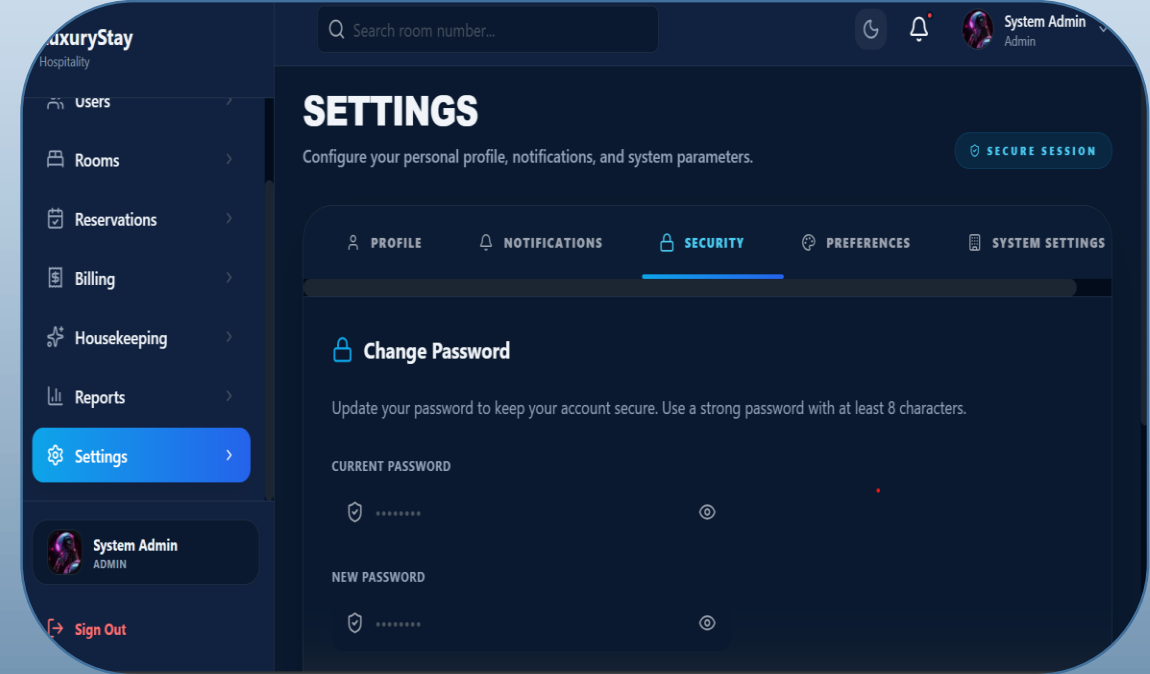


Security Settings

Light Mode



Dark Mode

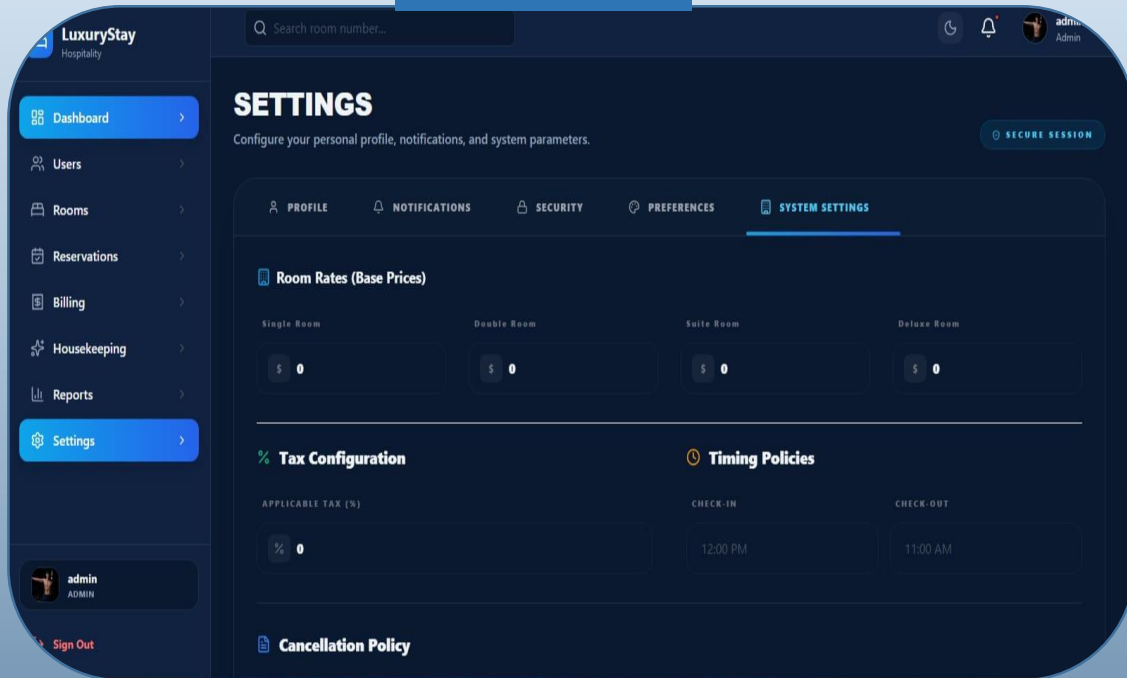


The security settings enable the admin to manage authentication and security-related configurations to protect system data.

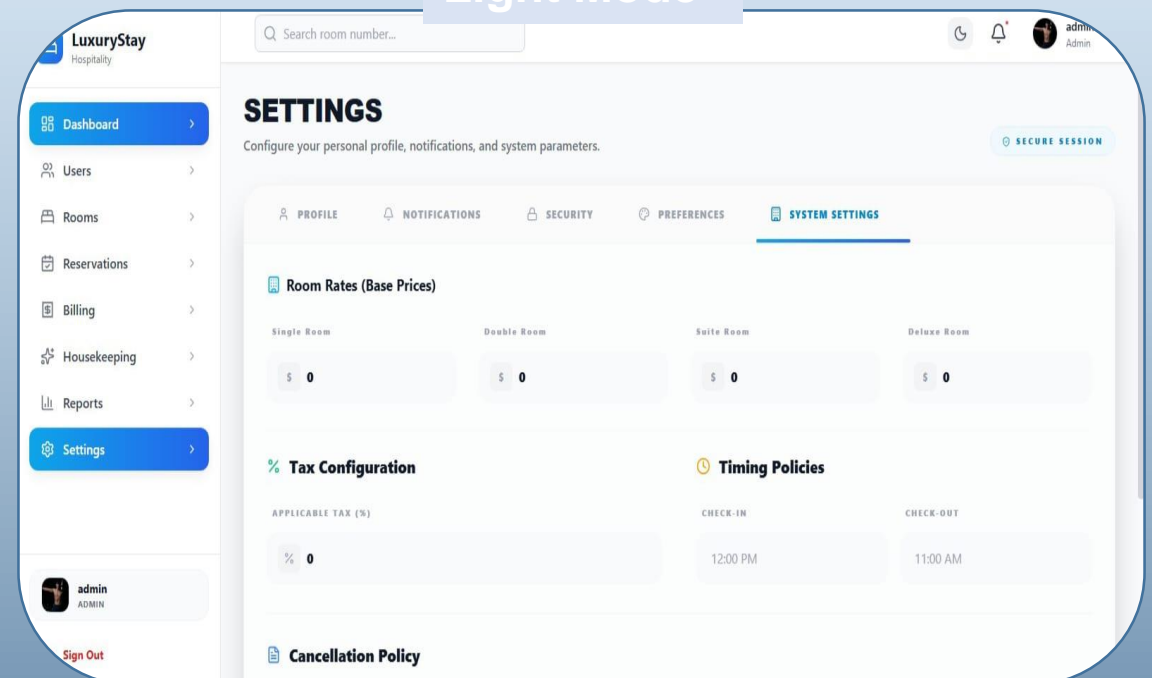


System Settings

Dark Mode



Light Mode

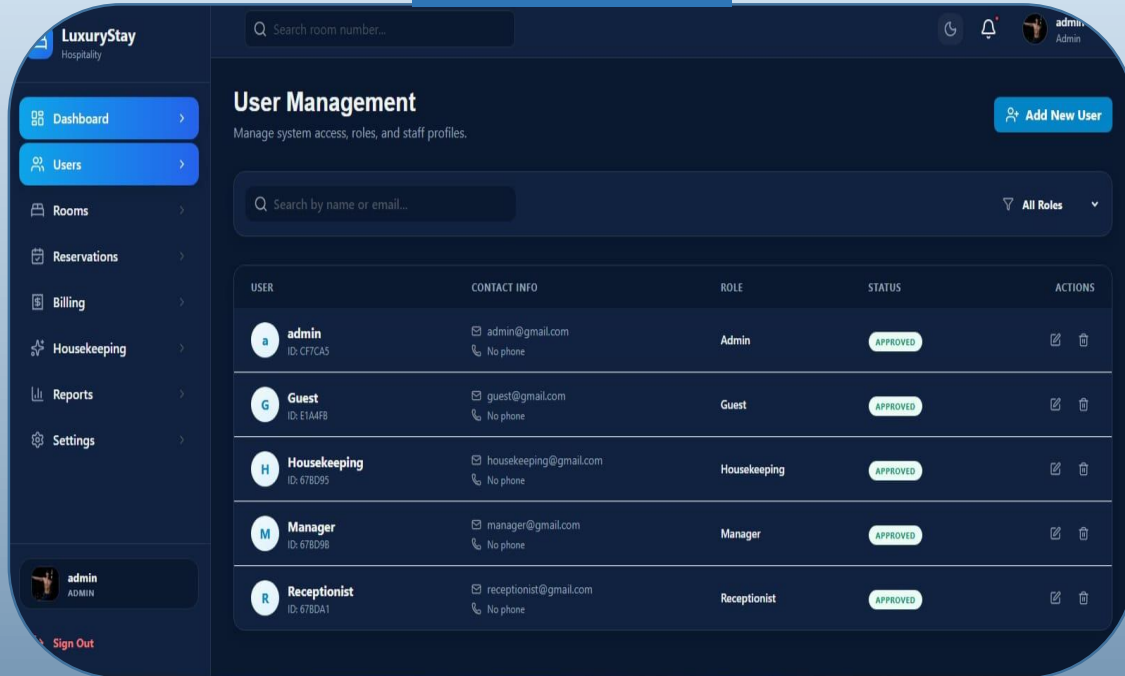


This screen allows the admin to configure system-level settings such as application rules, policies, and operational configurations.



User Management

Dark Mode



User Management
Manage system access, roles, and staff profiles.

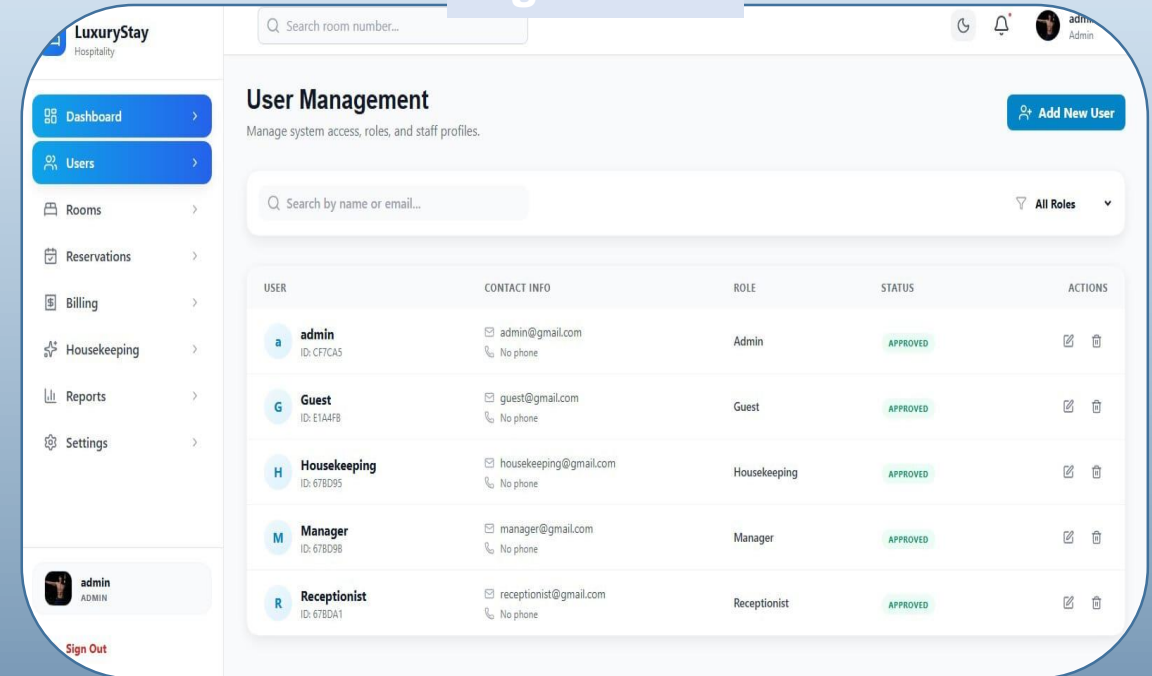
Search by name or email...

All Roles

USER	CONTACT INFO	ROLE	STATUS	ACTIONS
admin ID: CF7CA5	admin@gmail.com No phone	Admin	APPROVED	[Edit] [Delete]
Guest ID: E1A4F8	guest@gmail.com No phone	Guest	APPROVED	[Edit] [Delete]
Housekeeping ID: 67BD95	housekeeping@gmail.com No phone	Housekeeping	APPROVED	[Edit] [Delete]
Manager ID: 67BD98	manager@gmail.com No phone	Manager	APPROVED	[Edit] [Delete]
Receptionist ID: 67BDA1	receptionist@gmail.com No phone	Receptionist	APPROVED	[Edit] [Delete]

admin
ADMIN
Sign Out

Light Mode



User Management
Manage system access, roles, and staff profiles.

Search by name or email...

All Roles

USER	CONTACT INFO	ROLE	STATUS	ACTIONS
admin ID: CF7CA5	admin@gmail.com No phone	Admin	APPROVED	[Edit] [Delete]
Guest ID: E1A4F8	guest@gmail.com No phone	Guest	APPROVED	[Edit] [Delete]
Housekeeping ID: 67BD95	housekeeping@gmail.com No phone	Housekeeping	APPROVED	[Edit] [Delete]
Manager ID: 67BD98	manager@gmail.com No phone	Manager	APPROVED	[Edit] [Delete]
Receptionist ID: 67BDA1	receptionist@gmail.com No phone	Receptionist	APPROVED	[Edit] [Delete]

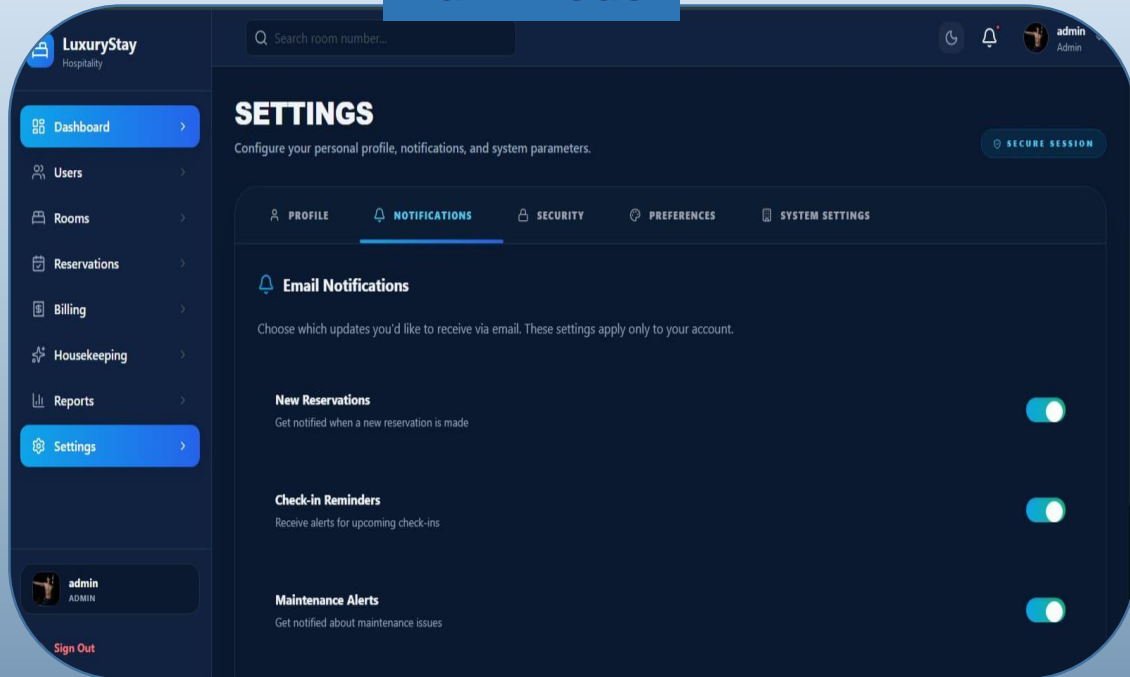
admin
ADMIN
Sign Out

This screen allows the admin to manage user accounts, assign roles, and control access permissions using role-based access control.

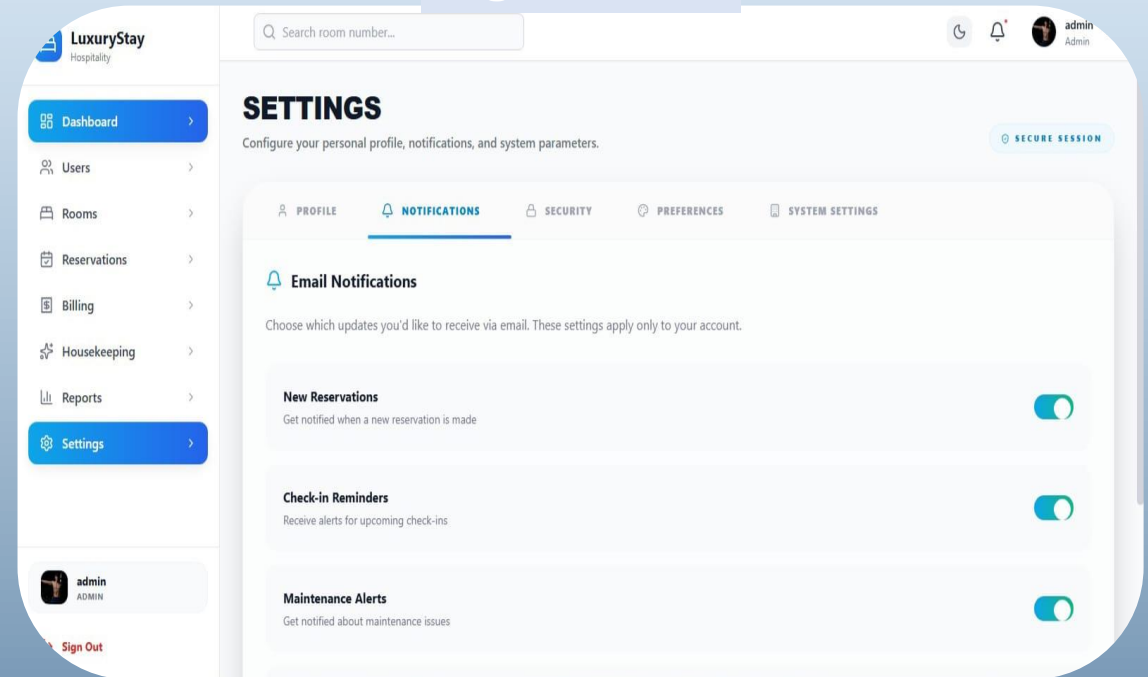


Notifications

Dark Mode



Light Mode



The notification module provides real-time alerts such as new reservations, maintenance updates, and email notifications to ensure smooth hotel operations.



CONCLUSION



The LuxuryStay Hospitality – Hotel Management System successfully implements a complete web-based solution for hotel operations. The system automates key processes such as user management, room booking, billing, and notifications.

This project enhanced practical knowledge of MERN Stack technologies and provided real-world application development experience.



