

RoomSync – Room Reservation and Facility Booking Portal

Full Stack Development

Project Proposal

BSCSev-V-C

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Introduction

RoomSync is a web-based **Hotel Management and Facility Booking Portal** designed to streamline hotel operations and enhance the guest experience. Built using the **MERN stack (MongoDB, Express.js, React.js, Node.js)**, the system provides a unified platform for guests, hotel staff, and administrators.

Guests can browse available rooms and facilities, make reservations, and manage their bookings conveniently online. Receptionists and staff can efficiently manage check-ins, check-outs, room assignments, and service requests. Administrators can monitor hotel occupancy, generate reports, and manage resources in real time.

By automating hotel operations, RoomSync reduces errors, saves time, improves resource utilization, and provides a seamless and modern experience for both guests and hotel staff.

Objectives

- To develop a user-friendly web portal for guests to browse rooms, check availability, and make online reservations.
- To streamline hotel operations by providing staff with tools to manage bookings, check-ins, check-outs, and room status.
- To implement a centralized system where admins can oversee users, rooms, facilities, payments, and performance metrics.
- To ensure secure user authentication with role-based access control for guests, staff, and administrators.
- To maintain efficient records and provide scalable, responsive performance using the MERN stack.

Core Functional Modules and Sub-Modules

1. User Management Modul

Handles all user accounts, authentication, and permissions.

- User Registration & Login
- Role-Based Access Control (Admin / Staff / Guest)
- User Profile Management
- Password Recovery & Reset
- User Activity Logs

2. Room & Facility Management Module

Manages rooms, categories, facilities, amenities, and pricing.

- Room Category Management
- Room Inventory (details, images, pricing)
- Facility Management (halls, gym, spa, meeting rooms)
- Room Status Update (available, booked, under maintenance)

3. Booking & Reservation Module

Allows booking of rooms and hotel facilities with real-time availability.

- Room Search & Filters
- Real-Time Availability Check
- Room Booking Workflow
- Facility/Service Booking
- Booking Modification & Cancellation

4. Payment & Billing Module

Handles all financial transactions and billing operations.

- Online Payment Processing
- Payment History Tracking
- Refund / Cancellation Handling
- Billing Dashboard for Admin

5. Dashboard & Administration Module

Centralized interface for hotel management and performance monitoring.

- Occupancy Overview
- Revenue Summary
- Staff & User Management
- Operational Tools (Check-in, Check-out, Housekeeping)
- System Logs & Monitoring

6. Notifications & Alerts Module

Sends automated communication to guests and staff.

- Booking Confirmation Alerts
- Check-in / Check-out Reminders
- Cancellation Alerts
- Admin Notifications (new booking, room issue)

7. Review & Feedback Module

Collects and manages customer feedback for quality improvement.

- Room Rating System
- Service Feedback Form
- Display Reviews on Room Pages
- Review Moderation (approve/delete)
- Feedback Analytics

8. Reporting & Analytics Module

Generates insights for business decisions and performance tracking.

- Booking Reports (daily/weekly/monthly)
- Revenue Reports
- Occupancy Reports
- Facility Usage Reports
- Exportable Reports

User Roles

- **Manager:** Manages daily hotel operations (check-ins, check-outs, room status, bookings).
- **Guest:** Searches rooms, books rooms/facilities, makes payments, submits reviews.

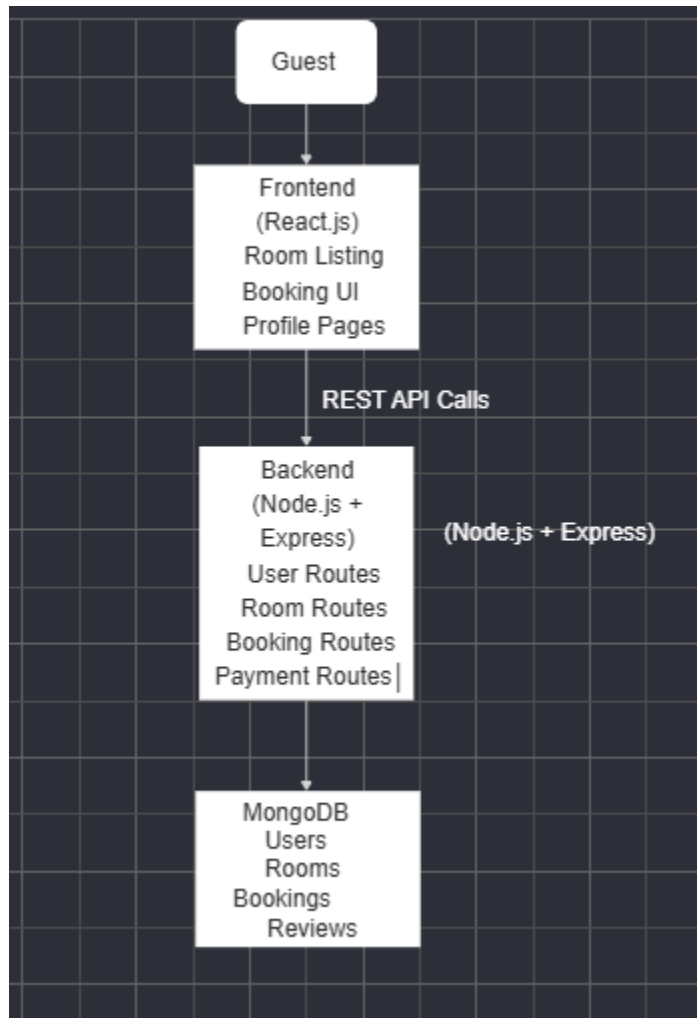
Key Entities

- **Users**
Stores user information such as name, email, password, role (Manager/Guest), contact details, and account status.
- **Rooms**
Contains room details including room number, category, capacity, price, amenities, images, and availability status.
- **Facilities**
Stores information about hotel facilities such as halls, meeting rooms, gym, spa, etc., including schedule and booking rules.
- **Bookings**
Records all room and facility reservations with check-in/check-out dates, user ID, room/facility ID, booking status, and total amount.
- **Reviews**
Stores customer feedback, ratings, and comments linked to the user and room/facility.
- **Notifications**
Keeps log of messages sent to users (confirmation, reminders, cancellations).

- **Categories**

Defines room categories (Deluxe, Suite, Standard), pricing tiers, and descriptions.

High-Level Architecture Diagram



System Workflow

1. Guests and staff access the portal through the web interface.
2. Users register or log in securely; role-based access is applied.
3. Guests browse rooms, view details, and select check-in/check-out dates.
4. The system checks real-time availability and processes bookings.
5. Online payments are handled and recorded in the database.
6. Booking confirmations and notifications are sent to users.
7. Admins manage rooms, view bookings, and monitor occupancy.
8. Guests can view booking history, provide reviews, and update profiles.