Low Level Design (LLD)

Hotel/Farm House Booking Management System

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Document Version Control

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Abstract

The Tourism Industry is expanding day by day, with this the need to effective communication and efficient management of it by the service providers.The effective communication can leverage the tourists and their host with the real time information.So this project is a step in enhancement in this direction related to the tourist booking platform providing the users real and up to date information so they can conveniently plan their trips ahead with proper customer care support. This project includes various technologies to make it in reality like the React, Cloud Database' s and many more.

1. Introduction:

The Hotel Booking Project is a web-based application that enables users to search, book, and manage hotel reservations. This document provides a detailed low-level design (LLD) for the project, including the system architecture, modules, and database schema. The system architecture comprises the Presentation Layer, Application Layer, and Data Layer. Key modules include User Management, Hotel Search, Reservation Management, and Payment Processing. The database schema includes tables for User, Hotel, Room, and Reservation. The project aims to offer a user-friendly platform for efficient hotel booking

1.1 Why this Low-Level Design Document?

This document provides an overview of the Hotel Booking Project. The main goal is to create a user-friendly web application for convenient hotel reservations. It aims to explain the project's objectives, features, interfaces, limitations, and how the system handles external factors. It is intended for stakeholders, developers, and will be presented for approval.

The Hotel Booking Project aims to offer an easy-to-use website for booking hotels. Users can search for hotels, view room availability, and make reservations. The system will provide information on pricing, amenities, and allow secure payment processing. Users can manage bookings, make changes, and handle cancellations.

The application will prioritize intuitive navigation, responsive design, and efficient search algorithms. It will consider scalability, security, and compatibility with different devices and browsers. The system will handle unexpected scenarios, such as invalid input or room unavailability, with appropriate error handling and user notifications.

1.2 Scope

This document outlines the scope of the Hotel Booking Project. It defines the objectives and goals of the project, including the development of a user-friendly web application for hotel reservations. The document covers the features, interfaces, limitations, and expected outcomes of the project. It serves as a guide for stakeholders and developers, providing a clear understanding of the project's scope and deliverables. The scope encompasses functionalities such as hotel search, room availability, reservation management, secure payment processing, and user-friendly navigation. The document aims to ensure that the project meets the needs and expectations of users while delivering a seamless and efficient hotel booking experience.

1.3 Constraints

We will be implementing only few of the functionalities in the given time frame.

1.4 Risks

Document specific risks that have been identified or that should be considered

3. System Architecture

The Hotel Booking Project will be divided into three main parts:

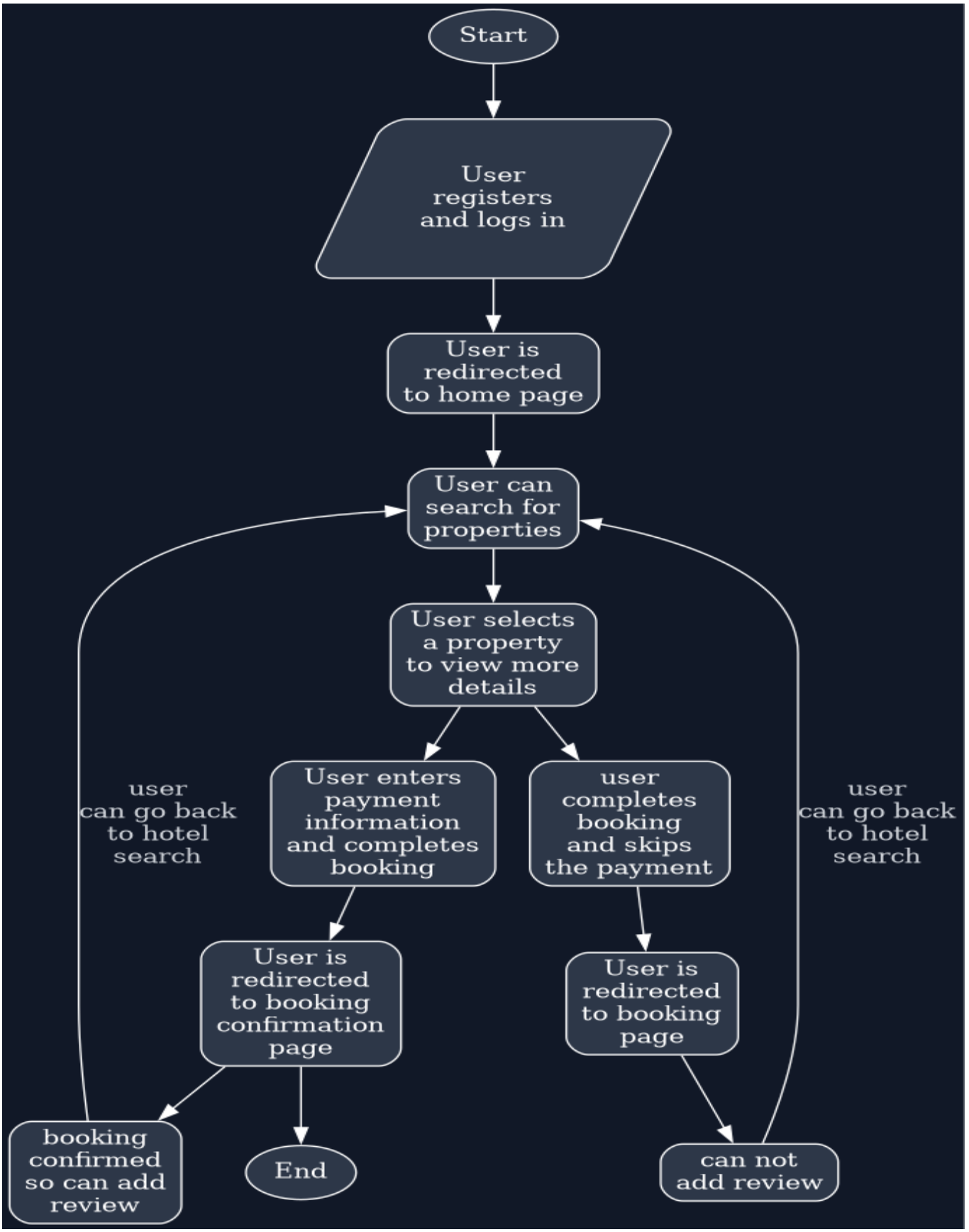
- Front-end: This is the part of the website that users see and interact with. It will be built using HTML, CSS, and JavaScript, which are the basic building blocks of web pages. We will use a framework called React to make the website responsive and user-friendly.

- Back-end:

This is the behind-the-scenes part of the website that handles the logic and data. We will uses a Javascript and node to build the back-end. Javascript will help us manage things like user authentication, database connections, and handling requests from the front-end.

- Database: This is where we will store all the information about hotels, rooms, reservations, and users. We will use either MongoDB to create and manage the database.

Its design —----------


Start
User registers and logs in
User is redirected to home page
User can search for properties
User selects a property to view more details
User enters payment information and completes booking
user completes booking and skips the payment
user can go back to hotel search
user can go back to hotel search
User is redirected to booking confirmation page
User is redirected to booking page
booking confirmed so can add review
End
can not add review

4. Modules:

- User Management: This module will take care of things like user registration, login, and managing user information.

- Hotel Search: This module will allow users to search for hotels based on their preferences, like location, check-in and check-out dates, and room amenities.

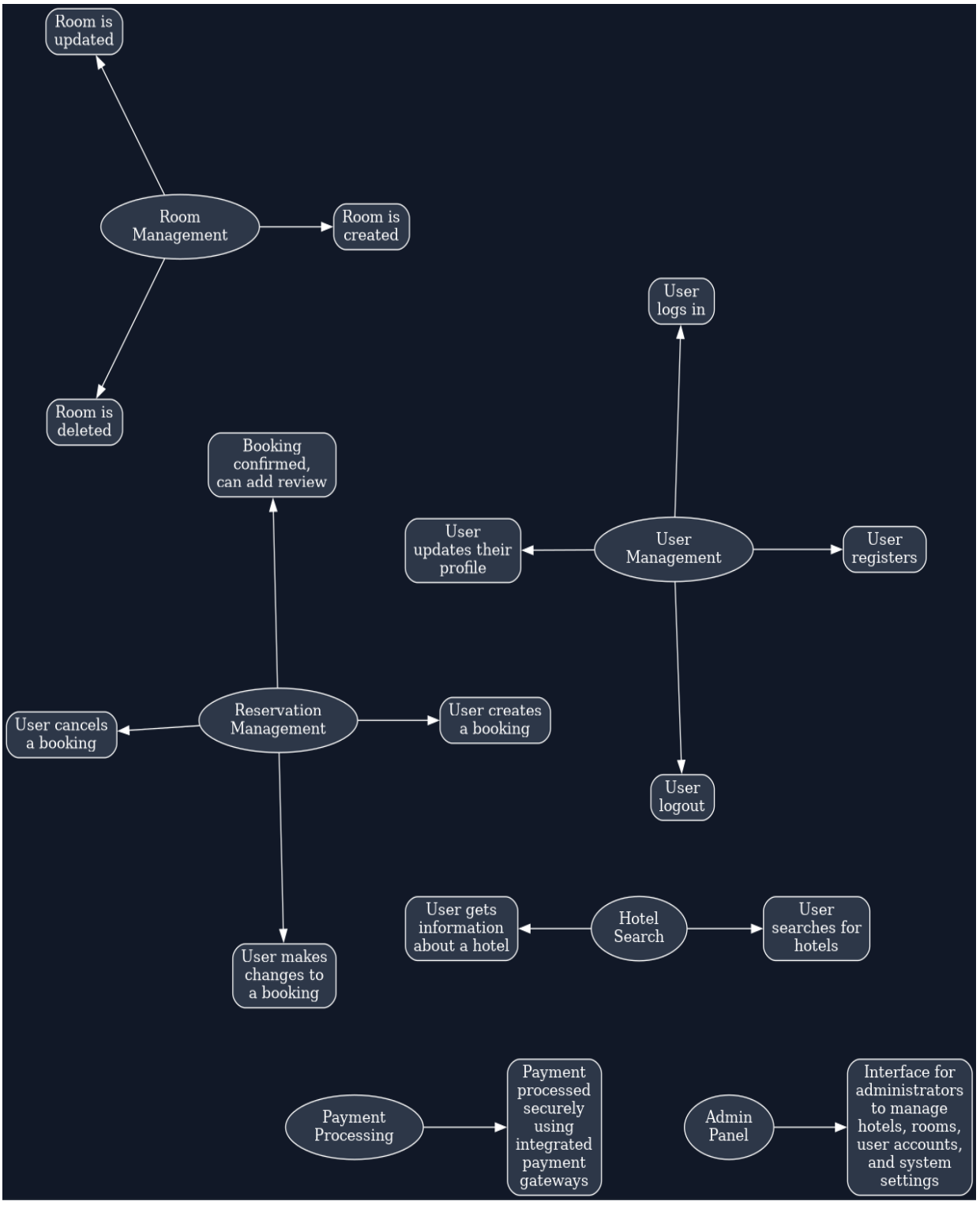
- Room Availability: This module will show users which rooms are available for the dates they choose. It will display information about the room types, prices, and amenities.

- Reservation Management: This module will handle the process of making reservations, modifying existing bookings, and canceling reservations.

- Payment Processing: This module will make sure that payments for confirmed reservations are processed securely. It will integrate with popular payment gateways to handle transactions.

- **Admin Panel:** This module will provide an interface for administrators to manage hotels, rooms, user accounts, and system settings.

–user modules flowchart –

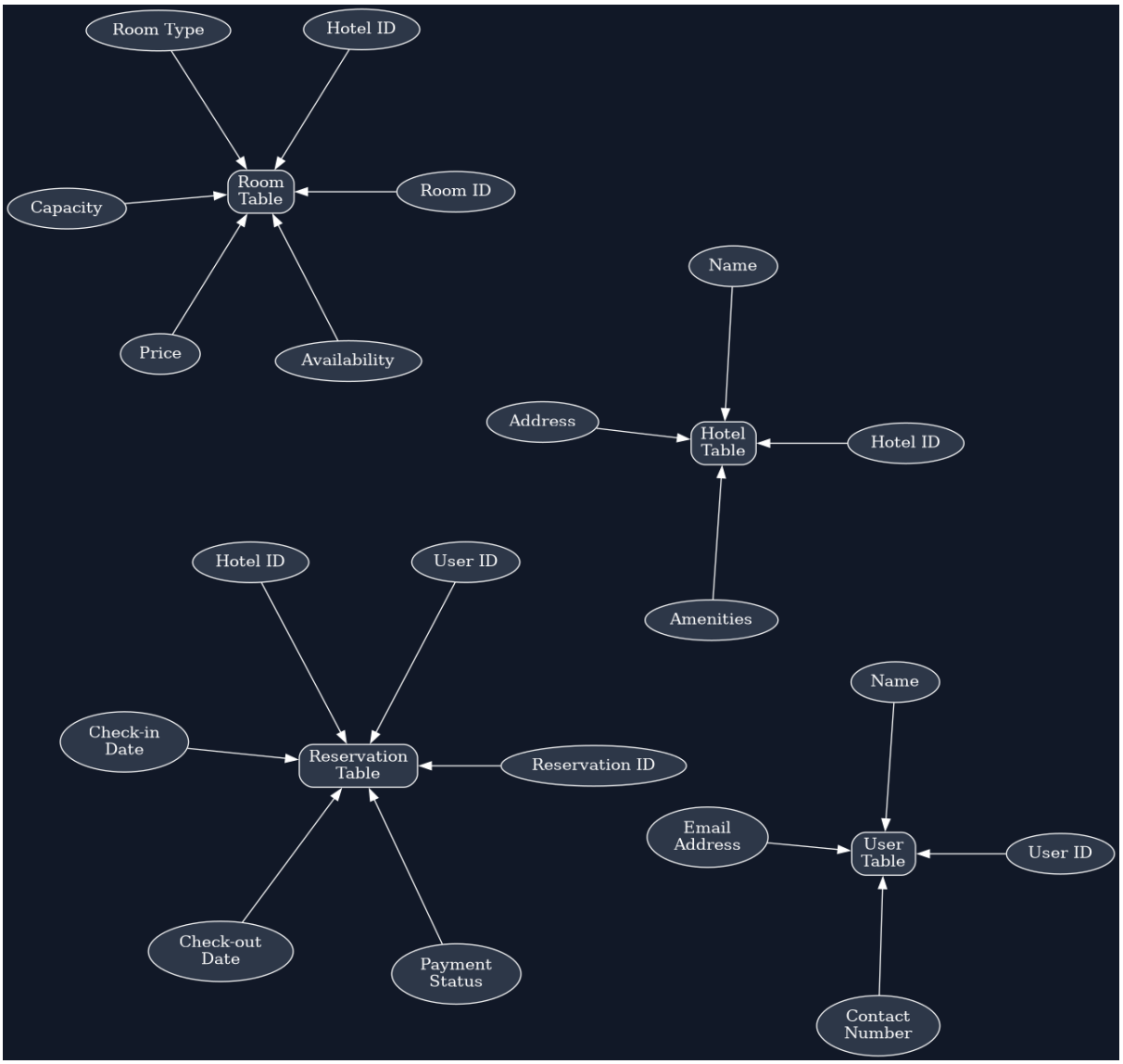

Room is updated
Room Management
Room is created
Room is deleted
User logs in
Booking confirmed, can add review
User updates their profile
User Management
User registers
User cancels a booking
Reservation Management
User creates a booking
User logout
User gets information about a hotel
Hotel Search
User searches for hotels
User makes changes to a booking
Payment Processing
Payment processed securely using integrated payment gateways
Admin Panel
Interface for administrators to manage hotels, rooms, user accounts, and system settings

5. Database Schema

The database will be organized into different tables to store specific types of information:

- **User Table:** This table will store user account details, such as names, email addresses, and contact information.
- **Hotel Table:** This table will contain information about each hotel, including names, addresses, and amenities.
- **Room Table:** This table will store details about the different types of rooms available, such as their capacities, prices, and availability.
- **Reservation Table:** This table will keep track of reservations made by users, including check-in and check-out dates, room assignments, and payment status.

– Database schema flowchart –



6. Key Functionalities

The Hotel Booking Project will have several key functionalities:

- User Registration and Login: Users will be able to create new accounts and log in using their email addresses and passwords.

- Hotel Search and Filtering: Users will be able to search for hotels based on their preferred location, dates, and other criteria. They will also be able to filter search results based on price range, and more.

- Room Selection and Booking: Once users find a hotel they like, they can select a room and make a booking for their desired dates.

- Reservation Management: Users will be able to view and manage their bookings. They can modify or cancel existing reservations as needed.

- Payment Processing: The system will securely handle payment transactions for confirmed reservations, allowing users to pay using popular payment methods.

- Admin Panel Management: Administrators will have access to a special admin panel where they can manage hotels, rooms, user accounts, and system configurations.

6. Exceptional Scenarios

To ensure smooth working, the Hotel Booking Project will handle exceptional situations, such as:

- Invalid User Input: The system will validate user inputs to ensure they are correct and complete. If users provide incorrect or incomplete information, appropriate error messages will be shown.

- Room Unavailability: If a room becomes unavailable during the booking process, users will be notified and offered alternative options.

- **Payment Failure:** In case of payment transaction failures, users will receive notifications and be guided to retry or choose an other payment way.
- **System Errors:** The system will have error handling mechanisms in place to capture and handle unexpected errors, minimizing disruptions for users.

– Test Cases

A thorough set of test cases will be designed and executed to verify that the Hotel Booking Project works correctly. Test cases will cover scenarios such as user registration, hotel search, room selection, reservation management, payment processing, and error handling.

– Optimization:

Before uploading the images , they should be resized to proper configurations, that are used on the website , using suitable techniques to facilitate proper storage usage and along with enhance the website usage experience.

8. Deployment

1. REENDER :

The Hotel Booking Project will be deployed on a web server using render for front-end, back-end, and database components. The deployment will ensure the system can handle increased traffic and will prioritize performance and security considerations..

1.1.

Webserver does not need any modification before deployment , it can be deployed without any prerequisites to be done.

1.2

Regarding the Frontend for client and Admin Portal , as they are static web pages , so before they are deployed on render , their respective build are need to be built and after that a successful deployment can be initiated.

9 Technology stack

Front End	HTML/SASS/JS/React
Backend	NODE/ Javascript
Database	MongoDB
Deployment	RENDER

Conclusion :

This LLD document serves as a comprehensive blueprint for the Hotel Booking Project, outlining its design, architecture, modules, and key functionalities. By following this document, we aim to develop a user-friendly and efficient hotel booking system that meets the needs of our users.