PROJECT REPORT

On

Estate Sphere

Submitted in partial fulfilment of the requirement for the Course BEE of

COMPUTER SCIENCE AND ENGINEERING

B.E. Batch-2022 in

July -Dec 2024

Submitted By:

Diya
2210991543

Under the Guidance of
Mr Alok Halder

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

CHITKARA UNIVERSITY

PUNJAB

CERTIFICATE

\

This is to be certified that the project entitled “Estate Sphere” has been submitted for the Bachelor of Computer Science Engineering at Chitkara University, Punjab during the academic semester July 2024-December 2024 is a Bonafide piece of project work carried out by “Diya (2210991543)” towards the partial Fulfillment for the award of the course Integrated Project (CS 203) under the guidance of “Mr Alok Halder” and supervision.

Sign. of Project Guide:
Mr Alok Halder

CANDIDATE'S DECLARATION

I, Diya,2210991543 OF GROUP G20, B.E.-2022 of the Chitkara University, Punjab hereby declare that the Integrated Project Report entitled "Estate Sphere" is an original work and data provided in the study is authentic to the best of our knowledge. This report has not been submitted to any other Institute for the award of any other course.

ACKNOWLEDGEMENT

It is our pleasure to be indebted to various people, who directly or indirectly contributed in the development of this work and who influenced my thinking, behaviour and acts during the course of study.

We express our sincere gratitude to all for providing me an opportunity to undergo Integrated Project as the part of the curriculum.

We are thankful to “Mr Alok Halder” for his support, cooperation, and motivation provided to us during the training for constant inspiration, presence and blessings.

We also extend our sincere appreciation to Mr Alok Halder who provided his valuable suggestions and precious time in accomplishing our Integrated project report.

Lastly, We would like to thank the almighty and our parents for their moral support and friends with whom we shared our day-to day experience and received lots of suggestions that improve our quality of work.

1. Abstract/Keywords

Abstract:
Estate Sphere is a comprehensive real estate platform designed to simplify property exploration and investment. Users can discover their dream homes, explore lucrative investment opportunities, and browse an extensive range of property listings tailored to their needs. The platform also empowers administrators to manage and add property listings, ensuring up-to-date and accurate information. Estate Sphere bridges the gap between buyers, sellers, and investors, offering a seamless experience for all.

Keywords:
Real Estate, Property Listings, MERN Stack, MongoDB, Express.js, React.js, Node.js, Property Search, Admin Dashboard, Investment Opportunities.

---

2. Introduction to the Project

2.1 Background:

The evolution of the real estate market has been transformed by digital platforms, offering convenience and accessibility. Estate Sphere is designed to cater to individuals and investors seeking properties, dream homes, or investment opportunities. Built on the MERN stack, this platform combines robust functionality with a user-friendly design, ensuring a seamless experience for property exploration and management.

2.2 Problem Statement:

Despite the abundance of online real estate platforms, there is a gap in specialized platforms that seamlessly combine property search, investment opportunities, and efficient listing management. Estate Sphere addresses this gap by offering a comprehensive solution tailored to the needs of homebuyers, investors, and administrators.

---

3. Software and Hardware Requirement Specification

3.1 Methods:

- **Frontend:** React.js for a dynamic user interface.
- **Backend:** Node.js with Express.js for server-side logic.
- **Database:** MongoDB for storing user, product, and order data.

- **Authentication:** JSON Web Tokens (JWT) for secure user sessions.

3.2 Programming/Working Environment:

- **IDE/Editor:** Visual Studio Code
- **Operating System:** Windows 10/Linux/MacOS
- **Version Control:** Git & GitHub

3.3 Requirements to Run the Application:

- **Hardware:**
  - Processor: Intel i3 or higher
  - RAM: 4 GB minimum
  - Storage: 20 GB free space
- **Software:**
  - Node.js 18+
  - MongoDB 6.0+
  - Browser: Chrome/Edge/Firefox

---

4. Database Analysing, Design, and Implementation

- **Database Design:**
  - **Collections:** Users, Products, Orders
  - **Key Attributes:**
    - **Users:** Name, Email, Password, Role
    - **Products:** Name, Description, Price, Stock, Images
    - **Orders:** User ID, Product IDs, Total Amount, Payment Status
- **Implementation:**
  - MongoDB Atlas for cloud-based storage.
  - Mongoose for object data modelling in Node.js.

---

5. Program’s Structure Analysing and GUI Constructing (Project Snapshots)

- **Frontend Structure:**

Homepage:

- Features a login/signup option for users to access personalized functionality.
- Includes an "About Us" section providing an overview of the platform.
- Navbar contains a search bar with filters such as price (low to high/high to low), date (latest/oldest), and property type.

Add Property Page:

- Admin functionality to upload property details for sale, including images, descriptions, and pricing.

Listings Page:

- Displays all available properties with options to filter and sort results.
- Includes a "Contact Owner" feature to email property owners directly for inquiries**.**

Profile Page:

- Allows users to update their profile information.
- Displays all the user's available property listings.
- Includes options to delete the account or sign out.

---

6. Code Implementation and Database Connections

- **Backend:**
    - Express.js routes for CRUD operations on products, users, and orders.
    - Middleware for authentication and error handling.
- **Frontend:**
    - React components for each feature.
    - Redux for state management.

- **Database Connections:**
    - MongoDB Atlas connected via Mongoose in the backend.

---

7. System Testing

- **Unit Testing:**
    - Testing individual React components and Express.js routes.
- **Integration Testing:**
    - Verifying seamless integration of the cart, payment, and order features.
- **User Testing:**
    - Gathering feedback from beta testers for usability improvements.

---

8. Limitations

- Dependency on stable internet connection.
- Limited product categories.
- Payment gateway supports restricted regions.

---

9. Conclusion

EstateSphere demonstrates how the MERN stack can be utilized to create a robust, scalable, and efficient real estate platform. The application successfully integrates advanced features such as property search filters, user authentication, and direct communication with property owners, all while providing a user-friendly interface.

---

10. Future Scope

Expand Property Categories: Introduce a wider range of property types, including commercial spaces, rental properties, and vacation homes.

Advanced Filters and Personalized Recommendations: Incorporate more detailed filters such as location, property size, and amenities, along with AI-driven personalized property suggestions based on user preferences.

AI-driven Assistance and Voice Search: Implement an AI-powered chat assistant and voice search capabilities to enhance user experience and streamline property inquiries.

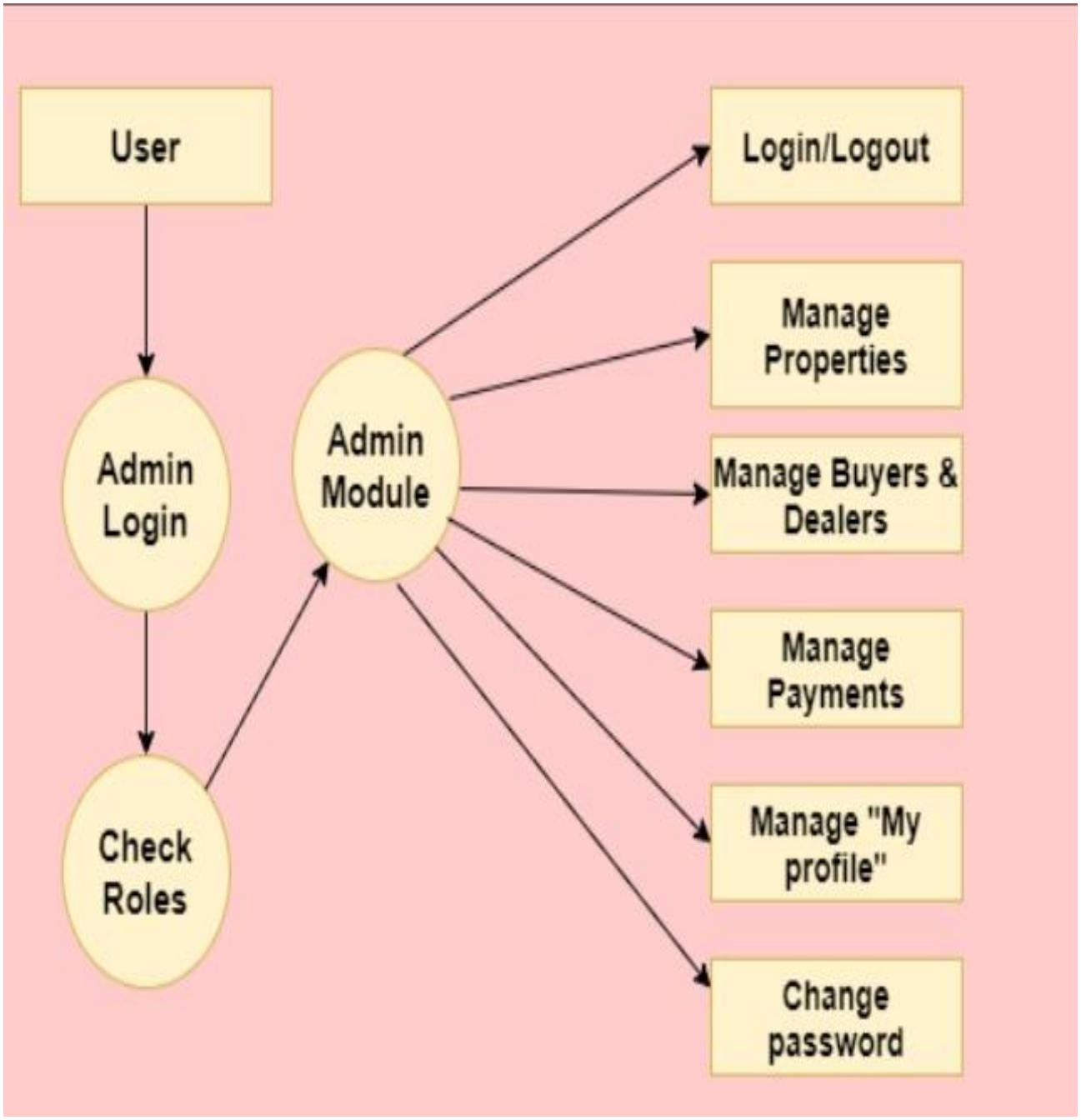
Optimize for Progressive Web App (PWA) Deployment: Transform the platform into a PWA for improved performance, offline access, and mobile-first usability, ensuring broader accessibility for users.

---

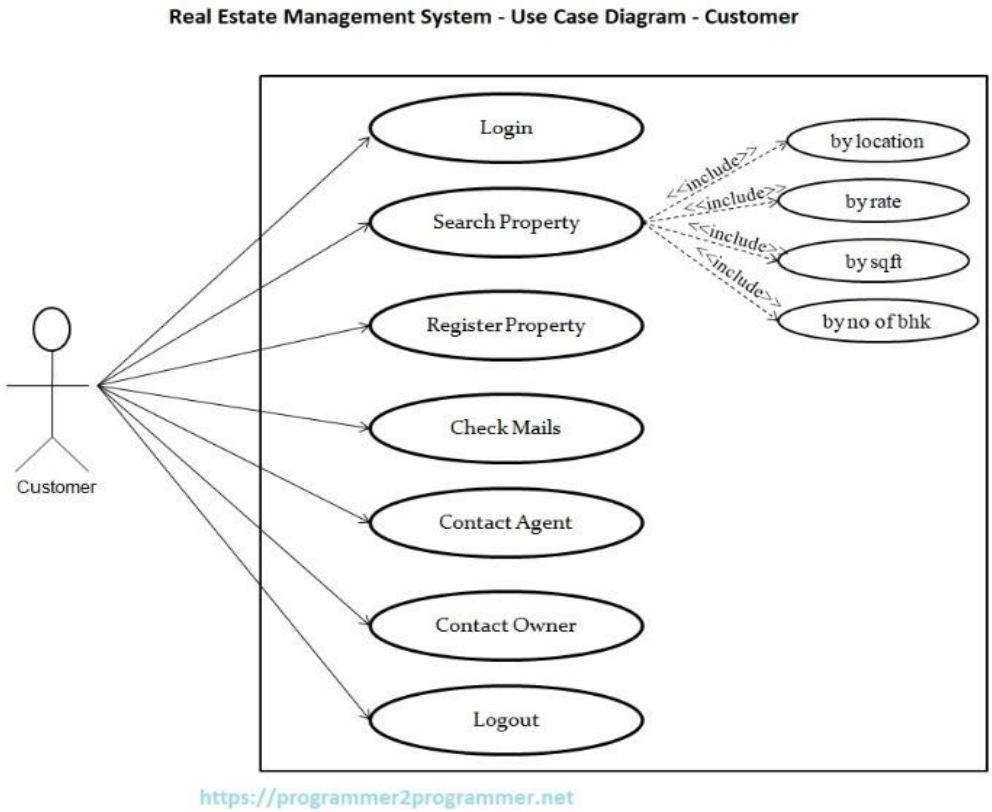
11. Bibliography/References

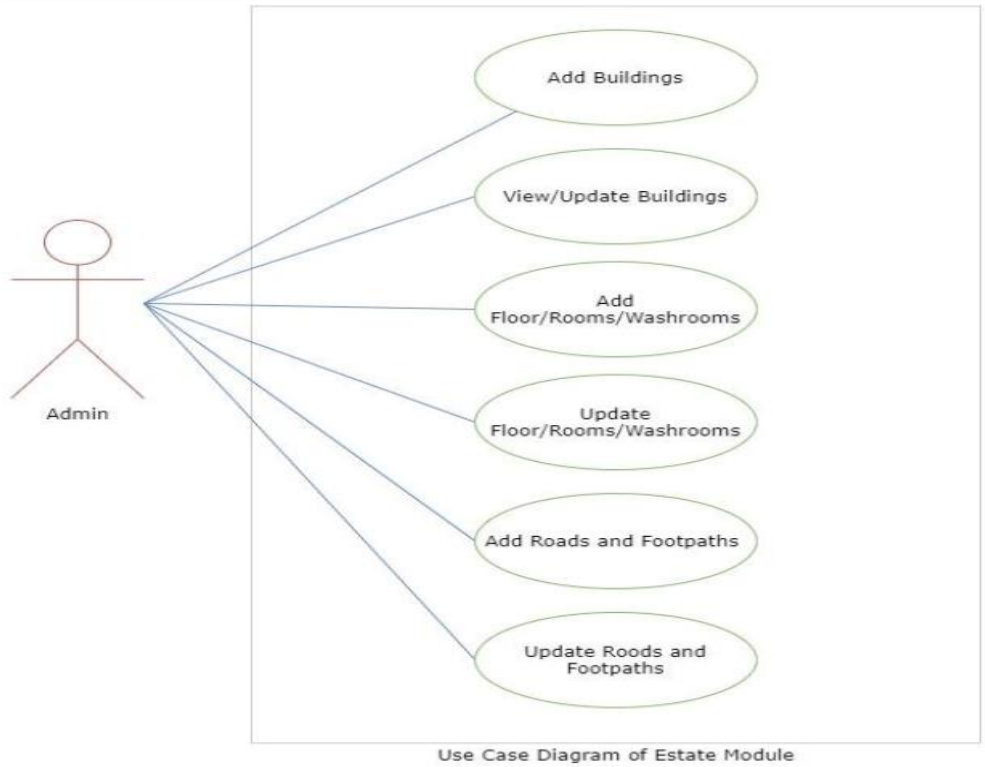
- MERN Stack Documentation
- MongoDB Atlas Guides
- React Official Documentation
- Node.js and Express.js Tutorials
- Payment Gateway API (Stripe/PayPal) Documentation

ER DIAGRAM:


User
Admin Login
Check Roles
Admin Module
Login/Logout
Manage Properties
Manage Buyers & Dealers
Manage Payments
Manage "My profile"
Change password

UML DIAGRAM :





Use Case Diagram of Estate Module

A

Research proposal
on

EstateSphere

Submitted to
Chitkara University, Punjab
by

Diya (2210991543)

Under the supervision of

Mr Alok Halder

Complete Affiliation

1. Introduction

The EstateSphere project is a MERN stack-based real estate platform designed to help users find and manage properties for sale or investment. It offers essential features such as property browsing, advanced search filters, user profiles, and property listings management. The platform ensures a smooth user experience by providing direct communication with property owners and offering an intuitive interface for both buyers and sellers

---

2. Literature Review

2.1 Tools and Technologies

- **MongoDB**: NoSQL database for storing user and product data.
- **Express.js**: Server-side framework for building RESTful APIs.
- **React**: Frontend library for creating dynamic and responsive interfaces.
- **Node.js**: JavaScript runtime environment for backend development.

---

3. Justification for Research:

3.1 Motivation

With the growing demand for online real estate platforms, the need for efficient, scalable, and user-friendly solutions has increased. This project aims to provide a seamless platform for users to explore, buy, and manage properties, catering to homebuyers, investors, and property sellers.

3.2 Research Gaps

Despite the availability of real estate platforms, many fail to offer an intuitive and user-centric experience. Additionally, most platforms lack advanced search filters and seamless property listing management. This project addresses these gaps by leveraging the MERN stack to provide a modern, efficient, and scalable solution that enhances the overall user experience.

---

4. Problem Statement

The challenge addressed by this project is the development of a feature-rich, scalable real estate platform that can handle high traffic, ensure data security, and provide a smooth user experience for property seekers, investors, and administrators managing listings.

5. Expected Outcomes

The expected outcomes of this project include a fully functional, responsive real estate website with features such as property browsing, advanced search filters, user authentication, listing management, and direct communication with property owners. It will also demonstrate the power of the MERN stack in creating modern web applications for the real estate industry.