

Full Stack Development with MERN

House Rent Application with MERN Stack

1. Introduction

Project Title: House Rent Application using MERN

Team Members:

- P. Alfred Ebenezer – Full-stack Developer
- S. Ashraf Ali – Front End Developer
- D. Pradip Raj -Back End Developer
- S. Prakash – Technical Support

2. Project Overview

Purpose: This project is designed to simplify the process of renting and managing house listings. It allows property owners to post rentals, tenants to browse available properties, and both parties to communicate effectively.

Features:

- User registration and login using JWT authentication.
- Property management (create, update, delete listings).
- Tenant dashboard for browsing and applying for properties.
- Admin dashboard for managing property listings and user activity.

3. Architecture

Frontend: Built using React, featuring components for user authentication, property browsing, and messaging. React Router ensures smooth navigation.

Backend: Developed with Node.js and Express.js, handling requests, authentication, and MongoDB integration for data management.

Database: MongoDB stores user details, property listings, and communication logs, enabling efficient data operations.

4. Setup Instructions

Prerequisites:

- Node.js v14+
- MongoDB v4+
- npm or yarn for package management

Installation:

- Clone the repository: `git clone <repository-url>`
- Install dependencies in both frontend and backend directories:
 - Backend: `cd backend && npm install`
 - Frontend: `cd ../frontend && npm install`
- Set up environment variables in the backend for database and JWT configuration.

5. Folder Structure

Frontend:

- `src/components` - Reusable React components.
- `src/pages` - Pages for property listings, login, and dashboard.
- `src/styles` - CSS files for styling.

Backend:

- config - Database connection configuration.
- controllers - Handles business logic.
- routers - Defines API endpoints.
- middlewares - Authentication and error handling.
- schemas - MongoDB schemas and models.

6. Running the Application

Start the frontend server: npm start

Start the backend server: npm start

7. API Documentation

The backend exposes API endpoints, such as:

- POST /api/auth/login - User login with JWT authentication.
- POST /api/auth/register - User registration.
- GET /api/properties - Fetch available property listings.

Example Response:

```
{  
  "status": "success",  
  "data": {  
    "properties": [  
      {  
        "id": "property-id",
```

```
    "title": "Spacious 2BHK Apartment",  
    "location": "Chennai",  
    "price": 15000  
  }  
]  
}  
}
```

8. Authentication

JWT tokens are implemented for secure login and user session management. Tokens are stored in local storage, and protected routes verify token validity using middleware.

9. User Interface

Includes the following:

- Login and registration forms for tenants and property owners.
- Property listing page with filters for location, price, and property type.
- Dashboard for property owners to manage listings and for tenants to track applied rentals.

10. Testing


Testing is performed using tools like Jest for unit tests and Postman for API validation. Tests cover API endpoints, authentication, and CRUD operations for properties.

- 11. Screenshots

A Login/ Registration page

RentEase

HomeLoginRegister



Sign up

Renter Full Name/Owner Name

mathan

Email Address

mathan@gmail.com

Password

...

User Type

Owner


SIGN UP

Have an account? [Sign In](#)

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RentEase

HomeLoginRegister



Sign In

Email Address

alfredebenezer0304@gmail.com

Password

...

SIGN UP

forgot password? [Click here](#)

Have an account? [Sign Up](#)

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Sign up

Renter Full Name/Owner Name

Alfred Ebenezer P

Email Address

alfredebenezer0304@gmail.com

Password

...

User Type

Renter

SIGN UP

Have an account? [Sign In](#)

Add Property

Property type

Commercial

Property Ad type

Sale

Property Full Address

Selaiyur

Property Images

Choose Files

Screenshot 2024-11-15 100703.png

Owner Contact No.

917111248

Property Amt.

250000

Additional details for the Property

nice view property with excellent features and amenities

Submit form

Add Bookings

RentEase

Hi MathanLog Out

ADD PROPERTYALL PROPERTIESALL BOOKINGS

Booking ID	Property ID	Tenant Name	Tenant Phone	Booking Status	Actions
6736d20d877271d7ccbec18a	673597c1dfdb0e4739ddcb89	Bala	9940150271	booked	<div>Change</div>

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All Properties

RentEase

Hi MathanLog Out

ADD PROPERTYALL PROPERTIESALL BOOKINGS

Property ID	Property Type	Property Ad Type	Property Address	Owner Contact	Property Amt	Property Availability	Action
6736d715877271d7ccbec1b4	commercial	rent	Selalalur	9884957817	515541	Available	<div>EditDelete</div>
6736d759877271d7ccbec1bd	land/plot	sale	Mudichur	990150271	5151750	Available	<div>EditDelete</div>

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List of properties

Filter By:

: Address

All Ad Types ▾

All Types ▾



Location:
Selaiyur

Property Type:
commercial

Ad Type:
rent


Owner Contact:
9884957817

Availability:
Available

Property Amount:
Rs.515541

[Get More info of the Property](#)

Get Info



Location:
Mudichur

Property Type:
land/plot

Ad Type:
sale

Owner Contact:
990150271

Availability:
Available

Property Amount:
Rs.5151750

[Get More info of the Property](#)

Get Info

12. Known Issues

- Token expiration may log out users unexpectedly.
- Occasional delays in updating property listings in real-time.

13. Future Enhancements

- Add features like payment integration for rent deposits.
- Enable virtual property tours and enhanced search filters.