

HouseHunt

Finding Your Perfect Rental Home

Full Stack Development with MERN
Project Report

Team ID: LTVIP2026TMIDS84924
Date: 18 February 2026

1. Introduction

Project Title	HouseHunt – Finding Your Perfect Rental Home
Team ID	LTVIP2026TMIDS84924
Team Leader	Gandi Kamal
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Team Member	Leela Jyothi Sri Ganta
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Date	18 February 2026

2. Project Overview

Purpose

HouseHunt is a MERN stack web application designed to simplify the process of finding, renting, and managing rental properties. It connects property owners and tenants, providing a seamless experience for property listing, searching, booking, and communication.

Key Features

Feature	Description
Authentication & Authorization	Role-based access control for Owners, Users, and Admins using JWT tokens
Property Listing & Management	Owners can list, update, and manage their rental properties
Property Search & Filtering	Tenants can search and filter listings by location, price, and type
Booking & Payment System	Integrated booking workflow with payment processing support
Chat & Notifications	Real-time messaging and notification system between owners and tenants
Reviews & Recent Views	Users can leave reviews and track recently viewed properties
Admin Dashboard	Centralized panel to manage all users, properties, and bookings

3. System Architecture

HouseHunt follows a standard MERN architecture, with a clear separation of concerns across the frontend, backend, and database layers.

Architecture Overview

```
[User / Admin / Owner]
      |
[React Frontend] <---> [Express Backend] <---> [MongoDB Database]
```

Frontend

- React.js with modular component structure
- Axios for API communication
- CSS Modules for scoped, maintainable styling

Backend

- Node.js with Express.js framework
- RESTful API design with modular controllers, routes, and middlewares
- JWT-based authentication and authorization

Database

- MongoDB (NoSQL) for flexible, scalable data storage
- Mongoose ODM for schema definition and data validation

4. Setup Instructions

Prerequisites

- Node.js v16 or higher
- npm or yarn package manager
- MongoDB (local installation or cloud instance via MongoDB Atlas)

Step 1: Clone the Repository

```
git clone https://github.com/kamalgandi508/RentEase-intership
```

Step 2: Backend Setup

```
cd "RentEase-intership/Project Files/backend"
npm install
```

Configure the MongoDB connection string in config/connect.js, then start the server:

```
node index.js
```

Step 3: Frontend Setup

```
cd "RentEase-intership/Project Files/frontend"
npm install
npm start
```

5. Folder Structure

```
RentEase-intership/
├── Project Files/
│   ├── backend/
│   │   ├── config/          # DB connection
│   │   ├── controllers/     # Route handlers
│   │   ├── middlewares/     # Auth & validation
│   │   ├── routes/          # API route definitions
│   │   ├── schemas/         # Mongoose models
│   │   ├── uploads/         # File storage
│   │   └── index.js         # Entry point
│   └── frontend/
│       ├── public/
│       └── src/
│           ├── modules/     # Feature modules
│           ├── styles/      # CSS Modules
│           └── App.js        # Root component
└── README.md
```

6. Running the Application

1. Start MongoDB server (if running locally)
2. Start the backend: navigate to Project Files/backend and run node index.js
3. Start the frontend: navigate to Project Files/frontend and run npm start
4. Open your browser and access the app at <http://localhost:3000>

7. API Documentation

The backend exposes RESTful API endpoints across multiple resource domains. All endpoints follow standard HTTP conventions and return JSON responses.

Users	/api/users – Registration, login, profile management
Properties	/api/properties – Listing, search, CRUD operations
Bookings	/api/bookings – Create, view, manage bookings
Payments	/api/payments – Payment initiation and status
Chat	/api/chat – Message threads between users
Notifications	/api/notifications – User alerts and updates
Reviews	/api/reviews – Property ratings and comments

8. Authentication & Authorization

HouseHunt uses JSON Web Tokens (JWT) for stateless, secure authentication. Upon successful login, users receive a token that must be included in the Authorization header of all protected requests.

Role-Based Access Control

- User – Can search properties, make bookings, and leave reviews
- Owner – Can list and manage their properties, respond to bookings
- Admin – Full access to manage all users, properties, and bookings via the dashboard

9. User Interface

- Fully responsive React UI compatible with desktop and mobile browsers
- Separate module structure for admin, owner, and tenant-facing features
- Clean navigation with dedicated dashboard views per role
- CSS Modules ensure scoped, conflict-free styling across components

10. Testing

All core features of HouseHunt were tested manually across the following areas:

- User registration, login, and session management
- Property listing creation, editing, and deletion by owners
- Search and filtering functionality for tenants
- Booking creation, confirmation, and cancellation
- Chat messaging between users and owners

- Admin dashboard operations including user and content management

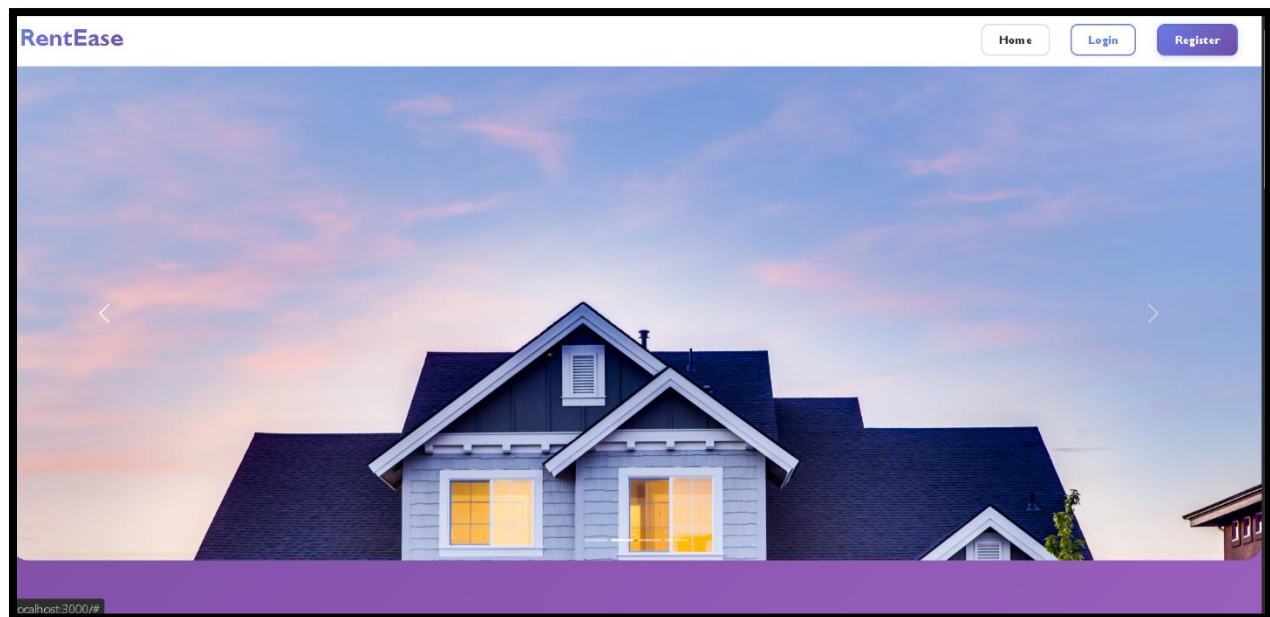
Note: Automated test suites (unit and integration tests) are planned for future development sprints.

11. Project Demo & Repository

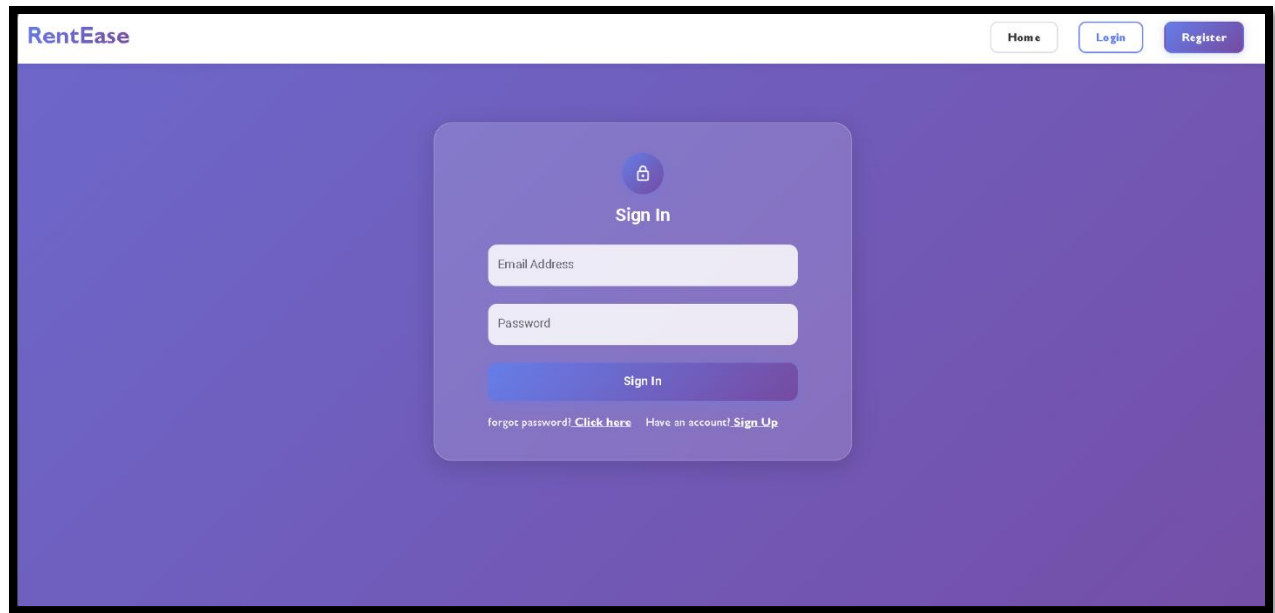
The project source code and demonstration video are available at the following links:

GitHub Repository	https://github.com/kamalgandi508/RentEase-intership
Video Demonstration	https://drive.google.com/file/d/1MKxk3njbXcAm2LSPBNxPp5cekrWO2Aw-/view

HomePage:

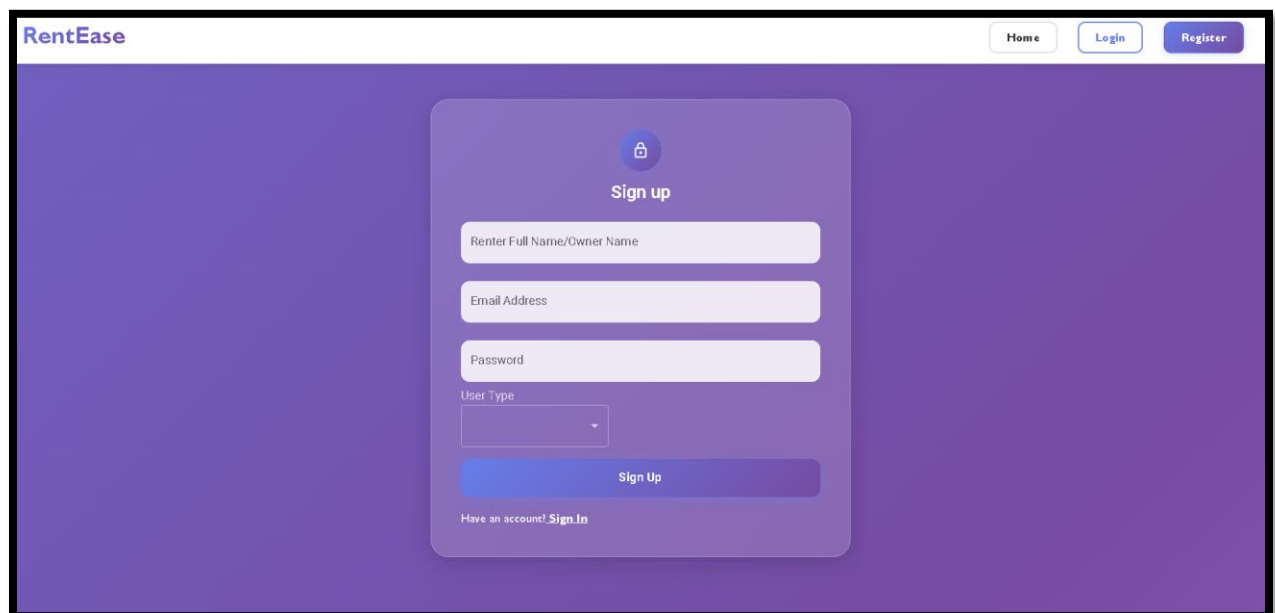


LoginPage:



The image shows the 'Sign In' page of the RentEase application. The page has a purple gradient background. At the top left is the 'RentEase' logo. At the top right are three navigation buttons: 'Home', 'Login', and 'Register'. In the center, there is a white rounded rectangle containing a lock icon and the text 'Sign In'. Below this are two input fields: 'Email Address' and 'Password'. A blue 'Sign In' button is positioned below the password field. At the bottom of the white box, there are two links: 'forgot password? Click here' and 'Have an account? Sign Up'.

RegisterPage:



The image shows the 'Sign up' page of the RentEase application. The page has a purple gradient background. At the top left is the 'RentEase' logo. At the top right are three navigation buttons: 'Home', 'Login', and 'Register'. In the center, there is a white rounded rectangle containing a lock icon and the text 'Sign up'. Below this are four input fields: 'Renter Full Name/Owner Name', 'Email Address', 'Password', and 'User Type' (which is a dropdown menu). A blue 'Sign Up' button is positioned below the 'User Type' field. At the bottom of the white box, there is a link: 'Have an account? Sign In'.

Admin Side:

RentEase Hi Kiran Mahesh [Log Out](#)

[DASHBOARD](#) [ADD PROPERTY](#) [ALL PROPERTIES](#) [ALL BOOKINGS](#) [BOOKED HOUSES](#) [REVIEWS](#) [ANALYTICS](#) [CHAT](#)

Welcome back, Kiran Mahesh! 🏡
Here's what's happening with your properties today.

2 Total Properties
→ 2 listed

4 Active Bookings
→ 1 pending/checked

₹25,000 Total Revenue
→ From 4 bookings

7 Property Views
→ 7 total views

Property Performance

Most top performing properties

Property	Type	Status	Price	Views
residential @ Pedastadepalli Tadepalligudem	residential	Available	₹10,000	0/3
residential @ A101	residential	Available	₹15,000	0/4

Recent Bookings

Latest Booking Inquiries

CHAVIN PRASADSETTI 📞 9777075446	View
MD Furkan 📞 9777075446	View
vtmanoj 📞 9777075446	View
farhan 📞 9777075446	View
farhan 📞 9777075446	View

Payment History

Recent payments received from tenants

Transaction ID	Tenant	Property	Amount	Date	Status
#1234567	farhan	@ MD1014	₹5,000	05/06/2024	View
#0234567	vtmanoj	@ MD1014	₹5,000	05/06/2024	View
#6456789	MD Furkan	@ Pedastadepalli Tadepalligudem	₹10,000	05/06/2024	View

Quick Actions

[Add Property](#)

[New Bookings](#)

[Analytics](#)

[Reviews](#)

RentEase Hi Kiran Mahesh [Log Out](#)

[DASHBOARD](#) [ADD PROPERTY](#) [ALL PROPERTIES](#) [ALL BOOKINGS](#) [BOOKED HOUSES](#) [REVIEWS](#) [ANALYTICS](#) [CHAT](#)

Add New Property

Fill in all the details to list your property

Basic Information

Property Type * Residential **Listing Type *** For Rent **Furnished Status** Unfurnished

Property Address * Enter complete address with locality, city, state **Area Size *** e.g., 1200 sq ft

Property Details

Bedrooms **Bathrooms** **Owner Contact *** **Monthly Rent ***

Perking Available

Amenities

Click to select/deselect amenities

Property Images *

Upload Images (Max 10)

Choose File No file chosen

Upload high-quality images. First image will be used as cover photo.

Property Video

Upload Video (Max 100MB)

Choose File No file chosen

Record directly from your phone camera or upload an existing video (MP4, MOV/M4V, FLV, 1080P).

Additional Details & Description

Virtual Tour URL (YouTube, Matterport, etc.)

Paste a YouTube video link or any virtual tour URL to help visitors explore your property remotely.

RentEase Hi Kiran Mahesh [Log Out](#)

[DASHBOARD](#) [ADD PROPERTY](#) [ALL PROPERTIES](#) [ALL BOOKINGS](#) [BOOKED HOUSES](#) [REVIEWS](#) [ANALYTICS](#) [CHAT](#)

My Properties

PROPERTY ID	PROPERTY TYPE	AD TYPE	ADDRESS	CONTACT	AMOUNT	AVAILABILITY	ACTION
#e947e7	residential	rent	Pedastadepalli Tadepalligudem	9392774033	₹10000	Unavailable	Edit Delete
#38564f	residential	rent	A118	9392774033	₹15000	Unavailable	Edit Delete

DASHBOARDADD PROPERTYALL PROPERTIESALL BOOKINGSBOOKED HOUSESREVIEWSANALYTICSCHAT

All Bookings

BOOKING ID	PROPERTY ID	TENANT NAME	TENANT PHONE	STATUS	ACTIONS
#d20201	#d2026d	farhan	8919439778	booked	Revoke
#d202de	#d2026d	farhan	1234567890	cancelled	Revoke
#c47d4e	#d2026d	srimanoj	9398049662	booked	Revoke
#e94803	#e947e7	MDFarhan	8919439778	booked	Revoke
#38566c	#38564f	CH VRS PRANEETH	9977894545	booked	Revoke

DASHBOARDADD PROPERTYALL PROPERTIESALL BOOKINGSBOOKED HOUSESREVIEWSANALYTICSCHAT

Total Booked Houses4

Total Tenants4

Total Revenue / Month₹25,000

Search by tenant name, property address, or type...

Export to Excel

S.No	Tenant Name	Phone	Property Type	Address	Rent (₹)	Bedrooms	Furnished	Status	Booked Date
1	farhan	8919439778	N/A	N/A	₹0	0	N/A	Booked	9/2/2026
2	srimanoj	9398049662	N/A	N/A	₹0	0	N/A	Booked	9/2/2026
3	MDFarhan	8919439778	residential	Pedatadeipalli Tadepalligudem	₹10,000	1	unfurnished	Booked	9/2/2026
4	CH VRS PRANEETH	9977894545	residential	Attli	₹15,000	4	fully furnished	Booked	9/2/2026

Showing 4 of 4 booked properties

Total Revenue₹25,000

DASHBOARDADD PROPERTYALL PROPERTIESALL BOOKINGSBOOKED HOUSESREVIEWSANALYTICSCHAT

Average Rating4.8

Total Reviews4

Rating Distribution

Search reviews by tenant name, content, or property...

54321

MDFarhan

17 Feb 2026

★★★★★

"outstanding"

N/A

N/A

CH VRS PRANEETH

9 Feb 2026

★★★★★

"nice house"

Attli

residential

Srimanoj

9 Feb 2026

★★★★★

"outstanding"

N/A

N/A

MDFarhan

7 Feb 2026

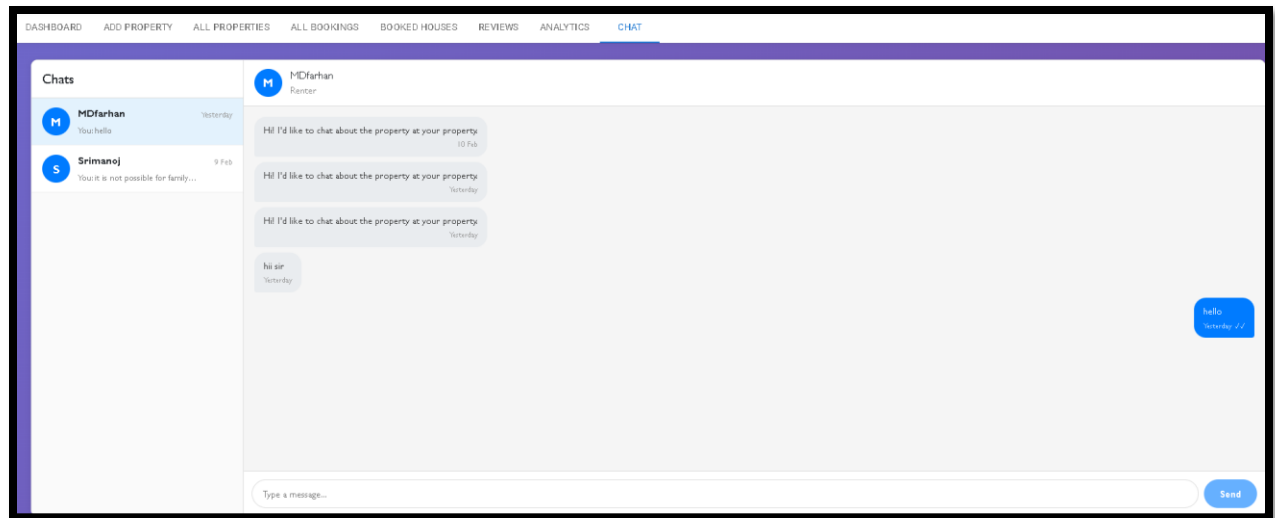
★★★★★

"Nice I Like it"

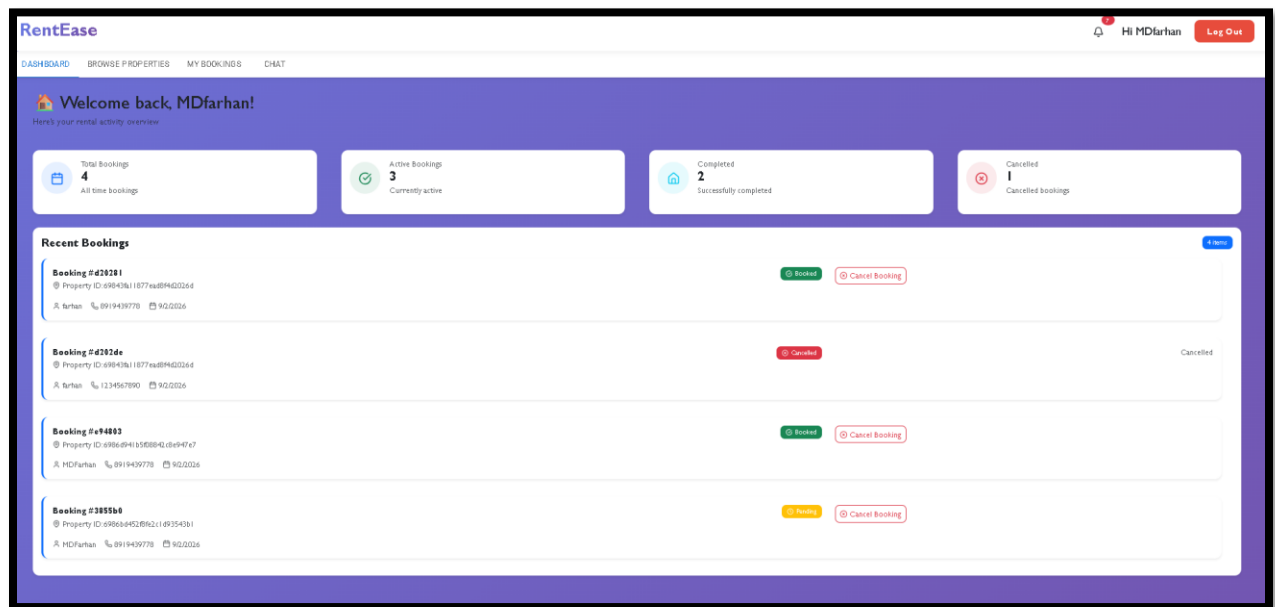
Pedatadeipalli Tadepalligudem

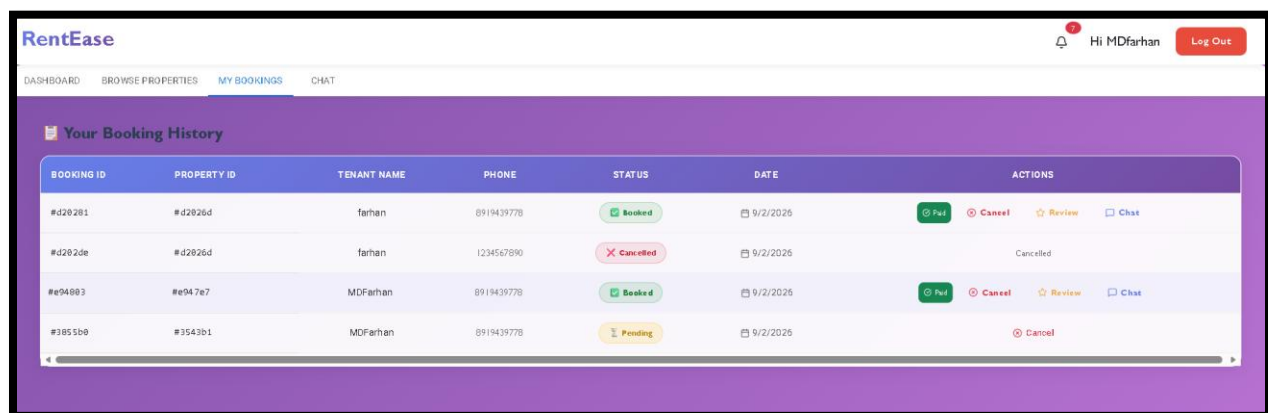
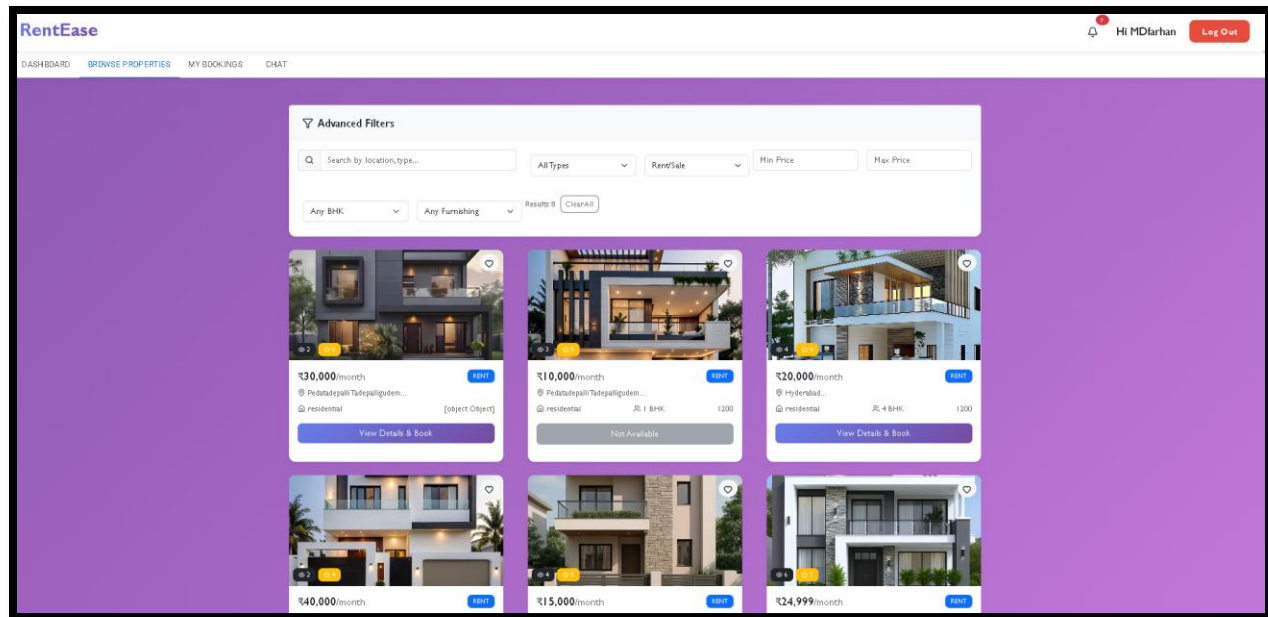
residential

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User Side:





12. Known Issues

The following limitations and known issues have been identified during development and testing:

- Payment gateway integration is currently simulated and not connected to a live provider
- Real-time chat uses polling rather than WebSocket, which may introduce slight latency
- Mobile responsiveness may require further tuning on very small screen sizes
- Image uploads are stored locally; cloud storage (e.g., AWS S3) integration is pending

13. Future Enhancements

The following features and improvements are planned for upcoming development phases:

Advanced Search & Filtering	Map-based search, price range sliders, and amenity filters
Payment Gateway Integration	Live payment processing via Razorpay, Stripe, or PayPal
Email / SMS Notifications	Automated transactional alerts using services like Twilio or SendGrid
Mobile App	Native Android/iOS app using React Native
Improved UI/UX	Multiple themes, dark mode, and enhanced accessibility features
Automated Testing	Unit and integration test suites using Jest and Supertest
Cloud Deployment	CI/CD pipeline with deployment to AWS, Vercel, or Heroku

Conclusion

HouseHunt successfully demonstrates a full-stack rental management platform built on the MERN stack. The application covers the complete lifecycle of a rental transaction — from property discovery through to booking and communication — with a clean, role-based architecture that scales well for future enhancement. The project reflects practical application of modern web development practices including RESTful API design, JWT authentication, and modular frontend architecture.