Full Stack Development with MERN

Project Documentation Date:

17 February 2026

1. Introduction

Project Title: HouseHunt – Finding Your Perfect Rental Home

Team ID : LTVIP2026TMIDS81826 Team

Members:

Team Leader : Katta Aakash

Team member : Koruprolu Satya Divya

Team member : Sai Kammila

Team member : Sai Pradeep Bolla

2. Project Overview

Purpose:

HouseHunt is designed to provide a secure, scalable, and user-friendly rental property management platform. The system ensures verified owner onboarding, transparent booking workflows, and structured administrative governance. The platform eliminates traditional inefficiencies in rental systems by digitizing the end-to-end lifecycle from property listing to booking confirmation.

Features:

The application includes secure user registration and login, role-based authentication for Admin, Owner, and Renter, property CRUD operations for owners, structured booking request and approval workflow, and admin-controlled owner verification system. Each module is implemented following REST architectural principles.

3. Architecture

Frontend:

The frontend is developed using React.js with functional components and hooks. React

Router is used for client-side routing, and Axios is used for secure API communication. State management is handled using React's built-in hooks, ensuring modular and maintainable UI design.

Backend:

The backend is built using Node.js and Express.js. RESTful APIs manage authentication, property management, booking lifecycle, and admin approval mechanisms. Middleware is used for JWT verification and role-based authorization.
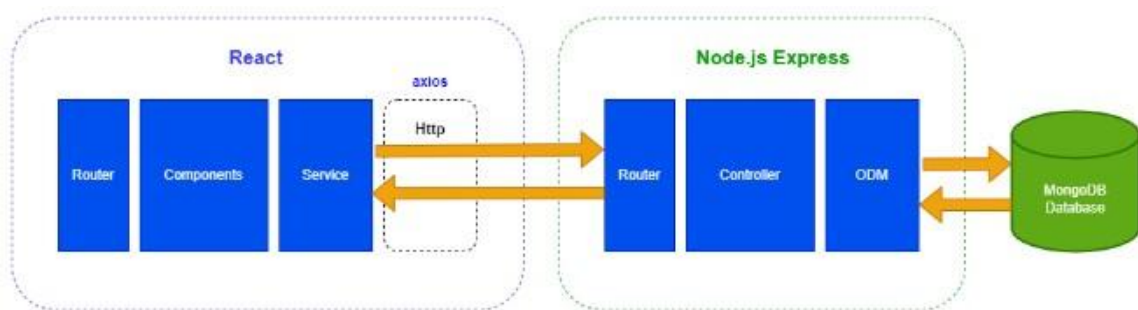
Database:

MongoDB serves as the NoSQL database. Mongoose ORM is used for schema modeling and validation. The system uses three primary collections: Users, Properties, and Bookings.

Database Schema Overview:

Collection	Key Fields	Description
Users	userId, email, password, role	Stores renter, owner, and admin accounts
Properties	propertyId, ownerId, rent, location	Stores property listings
Bookings	bookingId, userId, propertyId, status	Stores booking requests and status

System Architecture Diagram:

4. Setup Instructions

Prerequisites:

- Node.js
- MongoDB - npm

Installation:

Step 1: Clone the repository git clone
https://github.com/KAMMILASAI/HouseHunt

Step 2: Backend Setup

Create an env file in the backend root folder and add MongoDB connection URL
cd server npm install npm start

Step 3: Frontend Setup
cd client npm install
npm start

5. Folder Structure

frontend Directory: Contains reusable components, pages, services for API calls, and main App.js entry point. Follows modular component-based architecture.

Ex:

frontend/src/components

frontend/src/context frontend/src/styles

backend Directory: Organized into models (database schemas), routes (API endpoints), controllers (business logic), middleware (authentication & authorization), and server.js (application entry point).

Ex:

Backend/models

Backend/routes

Backend/server.js

6. Running the Application

To run the backend, navigate to the server directory and execute npm start. To run the frontend, navigate to the client directory and execute npm start. The frontend communicates with backend APIs running on configured port.

7. API Documentation

The backend exposes REST APIs for user management, property management, and booking lifecycle management. Each endpoint follows standard HTTP methods such as GET, POST, PUT, and DELETE.

API Endpoint Overview:

Method	Endpoint	Description
POST	/api/register	Register new user
POST	/api/login	Authenticate user
GET	/api/properties	Fetch properties
POST	/api/property	Add new property
POST	/api/booking	Create booking request

8. Authentication

Authentication is implemented using JSON Web Tokens (JWT). Upon successful login, a signed token is generated and stored on the client side. Middleware validates tokens for protected routes. Passwords are hashed using bcrypt before storage to ensure data security.

9. User Interface

The user interface is built using React.js and Bootstrap to ensure responsive design. Separate dashboards are provided for Renters, Owners, and Admin. The UI emphasizes usability, clarity, and accessibility.

- Registration Page
- Login Page
- Renter Dashboard - Owner Dashboard
- Admin Dashboard
- Property Listing Page
- Booking Management Page

10. Testing

Comprehensive testing was conducted including API testing using Postman, functional testing for booking workflow, and role-based access validation. Edge cases and invalid inputs were tested to ensure robustness.

11. Screenshots or Demo

GitHub Repository: https://github.com/KAMMILASAI/HouseHunt

Demo
Link: https://drive.google.com/file/d/1HKCZYdcZ39zthmswCL69hApZESza2yBY/view?usp=sharing

Find Your Perfect Home

Browse thousands of rental properties across the country

Get Started   Browse Properties

Why Choose HouseHunt?

Wide Selection
Thousands of verified properties for every budget

Secure Bookings
Safe and transparent booking process

Fast Response
Get approval from owners within 24 hours

Easy Payments
Hassle-free rent payment system

HouseHunt

Home   Login   Register

Welcome Back

Login to your HouseHunt account

Email Address

you@example.com

Password

••••••••

Forgot Password?

Login

Don't have an account? Register

HouseHunt

Home   Login   Register

Create Account

Join HouseHunt today

Full Name

John Doe

Email Address

you@example.com

Phone Number

+1 234 567 8900

Password

Min. 6 characters

Register as

Renter (Looking for property)

Create Account

Already have an account? Login

Admin Side:

HouseHunt Admin

- Dashboard
- All Users
- All Properties
- All Bookings

Dashboard

Welcome, Admin   Logout

2	1	1	4	2
Total Users	Owners	Renters	Total Properties	Available

2	0	2
Total Bookings	Pending	Approved

Quick Actions

Manage Users

Manage Properties

View All Bookings

System Info

Platform: HouseHunt v1.0
Role: Administrator
Email: admin000@gmail.com

HouseHunt Admin

- Dashboard
- All Users
- All Properties
- All Bookings

All Users

2 users

NAME	EMAIL	PHONE	ROLE	JOINED	ACTION
Kammila Sai	saikammila143@gmail.com	8179077852	Owner	2/18/2026	Delete
Kammila Sai	saikammila123@gmail.com	8179077851	Renter	2/18/2026	Delete

HouseHunt Admin

- Dashboard
- All Users
- All Properties
- All Bookings

All Properties

4 total

TITLE	OWNER	CITY / STATE	TYPE	RENT/MO	STATUS	ACTION
Budget Studio Room	Kammila Sai saikammila143@gmail.com	Pune, Maharashtra	Studio	₹10,000	Rented	Delete
Luxury Villa with Private Garden	Kammila Sai saikammila143@gmail.com	Bangalore, Karnataka	Villa	₹75,000	Rented	Delete
Spacious 3BHK Family Home	Kammila Sai saikammila143@gmail.com	Hyderabad, Telangana	Apartment	₹15,000	Available	Delete
Modern 1BHK Near Metro	Kammila Sai saikammila143@gmail.com	Mumbai, Maharashtra	Apartment	₹17,999	Available	Delete

HouseHunt Admin

- Dashboard
- All Users
- All Properties
- All Bookings

All Bookings

PROPERTY	RENTER	OWNER	START DATE	END DATE	AMOUNT	STATUS
Budget Studio Room Pune	Kammila Sai saikammila123@gmail.com	Kammila Sai saikammila143@gmail.com	2/18/2026	2/19/2026	₹10,000	approved
Luxury Villa with Private Garden Bangalore	Kammila Sai saikammila123@gmail.com	Kammila Sai saikammila143@gmail.com	2/18/2026	2/21/2026	₹75,000	approved

Rent Owner Side:

HouseRent Owner

Dashboard
Add Property
My Properties
Bookings

Add New Property

City
Mumbai

State
Maharashtra

Full Address
Street, Area, Landmark

Monthly Rent (₹)
15000

Property Type
Apartment

Bedrooms
1

Bathrooms
1

Area (sq ft)
800

Amenities (comma separated)
WiFi, Parking, AC, Gym

Property Images
Choose Files   No file chosen

Add Property   Cancel

HouseHunt Owner

Dashboard
Add Property
My Properties
Bookings

My Properties   + Add Property

Budget Studio Room   Rented
Room 12, IT Park Road, Hinjewadi, Pune
₹10,000/mo
1 Bed • 1 Bath • Studio
Delete Property

Luxury Villa with Private Garden   Rented
Villa 12, Prestige Layout, Whitefield, Bangalore
₹75,000/mo
4 Bed • 3 Bath • Villa
Delete Property

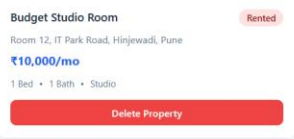**Spacious 3BHK Family Home**   Available
Plot 45, Banjara Hills Road No. 12, Hyderabad
₹15,000/mo
3 Bed • 2 Bath • Apartment
Delete Property

Modern 1BHK Near Metro   Available

HouseHunt Owner

- Dashboard
- Add Property
- My Properties
- **Bookings**

Booking Requests

PROPERTY	RENTER	DATES	AMOUNT	STATUS	ACTIONS
Budget Studio Room Pune	Kammila Sai 8179077851	2/18/2026 – 2/19/2026	₹10,000	approved	
Luxury Villa with Private Garden Bangalore	Kammila Sai 8179077851	2/18/2026 – 2/21/2026	₹75,000	approved	

HouseHunt Owner

- **Dashboard**
- Add Property
- My Properties
- Bookings

Owner Dashboard

Kammila Sai [Logout]

4	**2**	**0**
My Properties	Total Bookings	Pending Approval

Quick Actions

+ Add New Property

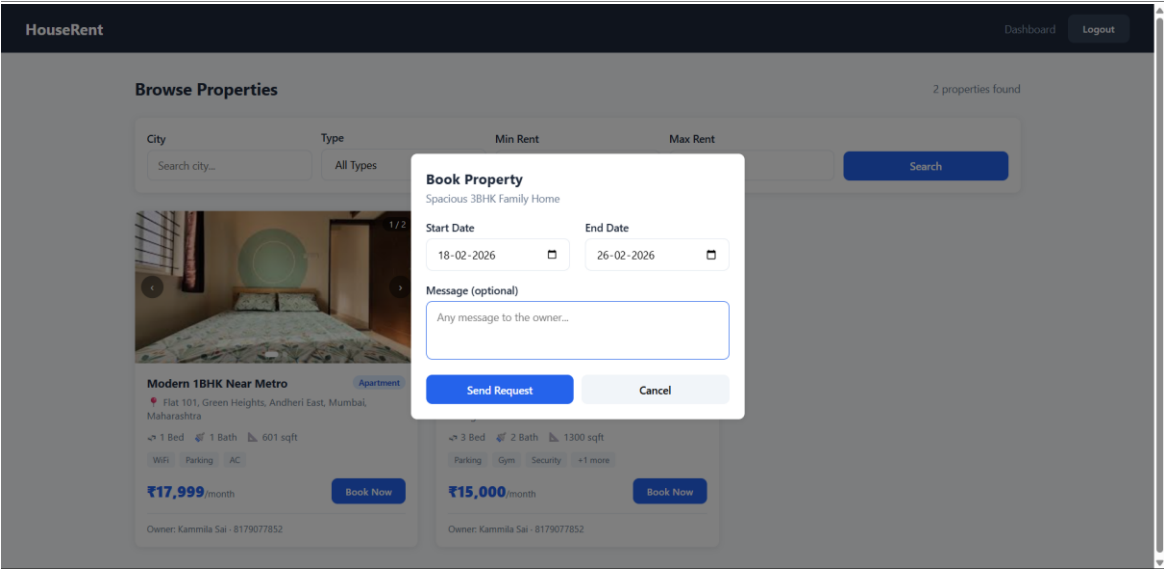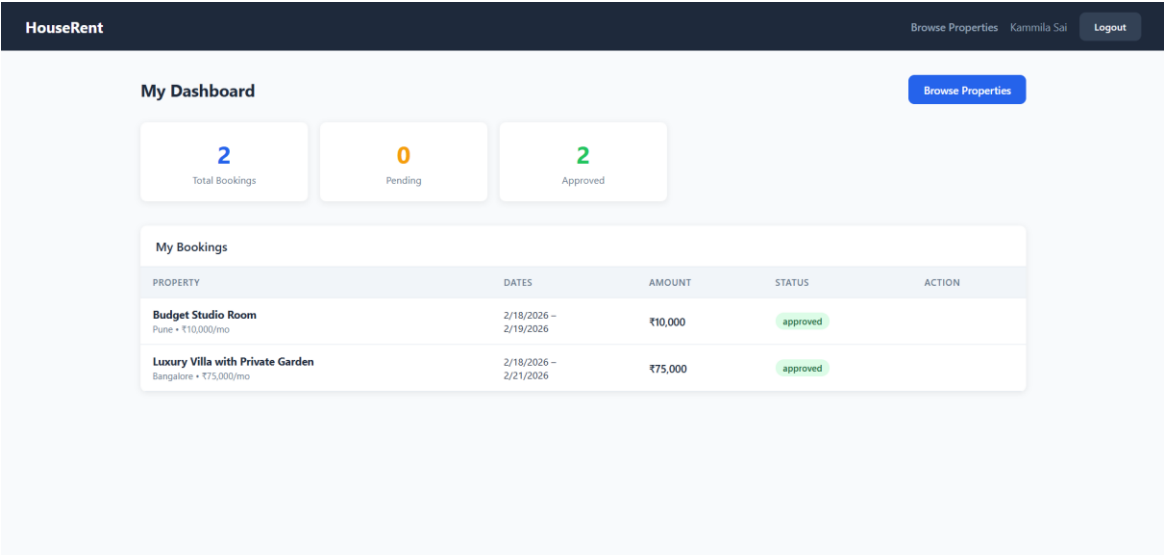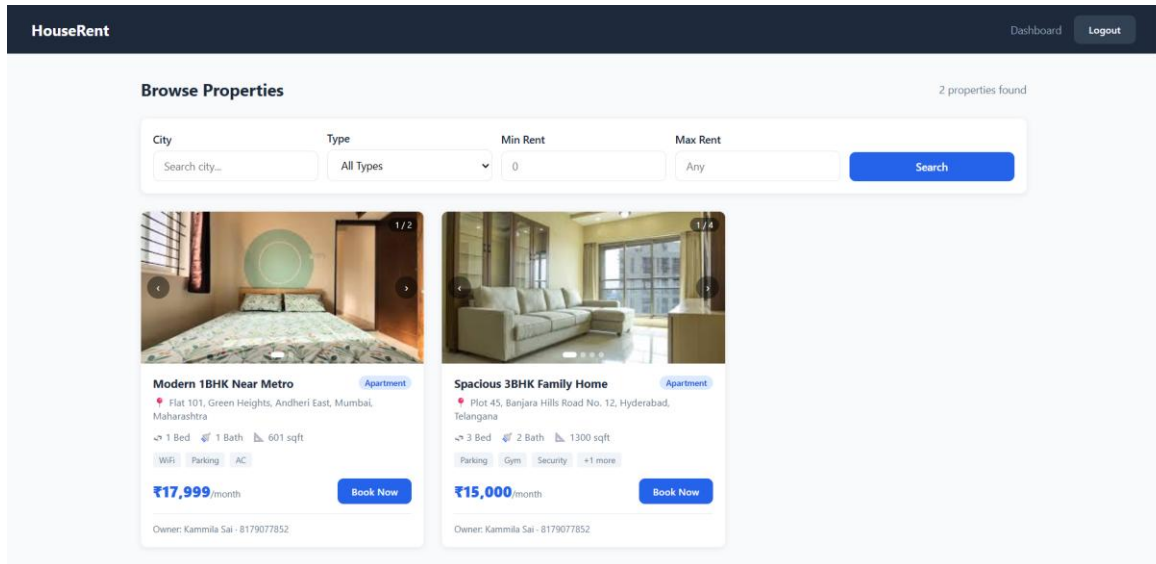View My Properties

Manage Bookings

Account Info

Name: Kammila Sai
Email: saikammila143@gmail.com
Role: Property Owner

User side:

12. Known Issues

The system currently does not integrate online payment gateways or real-time chat modules. Email verification and advanced notification systems are not implemented.

13. Future Enhancements

Future enhancements include payment gateway integration, AI-based recommendation engine, real-time messaging using WebSockets, containerized deployment using Docker, and cloud deployment on AWS or similar infrastructure.