

# HouseHunt – Finding Your Perfect Rental Home

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## 1. INTRODUCTION

### 1.1 Project Overview

HouseHunt is a comprehensive full-stack web application developed using the MERN stack (MongoDB, Express.js, React.js, and Node.js). The system is designed to digitize and streamline the rental property lifecycle by enabling secure interaction between Renters, Owners, and Administrators. The application follows a structured three-tier architecture ensuring scalability, maintainability, and modular development practices.

### 1.2 Purpose

The primary objective of HouseHunt is to build a trustworthy digital rental ecosystem. The platform eliminates dependency on intermediaries by providing direct interaction between tenants and property owners, while ensuring regulatory oversight through an administrative approval mechanism. The system emphasizes transparency, security, and efficiency in rental transactions.

## 2. IDEATION PHASE

### 2.1 Problem Statement

Modern rental platforms often suffer from unverified listings, lack of accountability, and poor communication workflows. Renters frequently encounter fraudulent listings, while property owners struggle to reach authentic tenants. This results in mistrust and inefficiency within the rental marketplace.

### 2.2 Empathy Map Canvas

User Perspective (Renter):

The renter seeks affordable and verified housing options. They often feel anxious about scams and hidden charges. They compare multiple listings, apply search filters, and require transparency before committing to a booking.

### 2.3 Brainstorming

During ideation, multiple solution approaches were evaluated including decentralized listing systems, AI-based verification, and blockchain validation. After feasibility analysis, the final solution selected was a structured MERN-based platform with admin-controlled verification, role-based dashboards, and secure booking workflow management.

### 3. REQUIREMENT ANALYSIS

#### 3.1 Customer Journey map

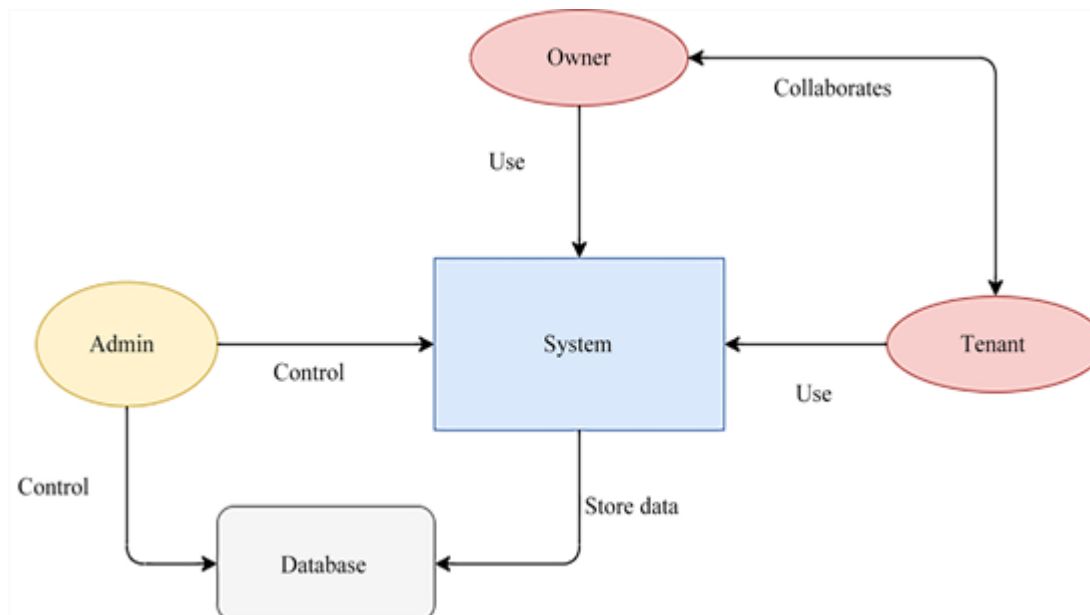
The renter journey begins with account registration and authentication. After successful login, the renter browses properties using advanced filtering mechanisms. Upon selecting a property, the renter submits a booking request, which is reviewed by the owner. Once approved, the booking status is updated and reflected in the renter dashboard.

#### 3.2 Solution Requirement

Functional requirements include secure authentication, property CRUD operations, booking workflow management, and admin approval mechanisms. Non-functional requirements include high availability, secure password hashing, role-based authorization, database scalability, and optimized response time under concurrent load.

#### 3.3 Data Flow Diagram

The Level-0 Data Flow Diagram represents the interaction between user interface, application logic, and database layer. User requests are processed by the React frontend and routed to the Express backend via REST APIs. Data persistence is handled by MongoDB using structured schemas.



#### 3.4 Technology Stack

Frontend technologies include React.js with component-based architecture and Axios for HTTP communication. The backend is implemented using Node.js and Express.js. MongoDB serves as the NoSQL database, while authentication is secured using JSON Web Tokens (JWT) and bcrypt hashing.

## 4. PROJECT DESIGN

### 4.1 Problem Solution Fit

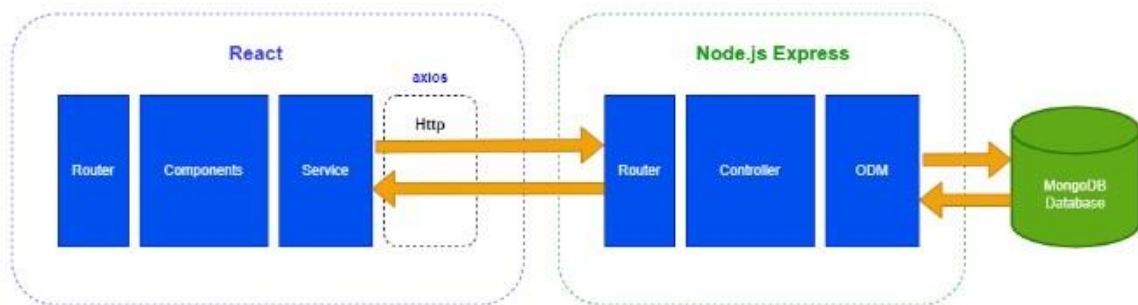
The solution effectively aligns with the identified customer pain points by introducing verified owner onboarding and structured digital workflows. The system directly addresses trust deficits and operational inefficiencies.

### 4.2 Proposed Solution

HouseHunt operates as a three-tier architecture web application enabling secure rental transactions. The application ensures separation of concerns between presentation, logic, and data layers.

### 4.3 Solution Architecture

The architecture follows a layered approach. The React-based frontend handles user interaction, the Node/Express backend manages API processing and business logic, and MongoDB handles persistent data storage.



## 5. PROJECT PLANNING & SCHEDULING

### 5.1 Project Planning

Development followed Agile Scrum methodology with sprint-based execution. Sprint 1 focused on authentication, Sprint 2 on property management, and Sprint 3 on booking workflows and admin governance. The team maintained an average velocity of 20 story points per sprint.

## 6. FUNCTIONAL AND PERFORMANCE TESTING

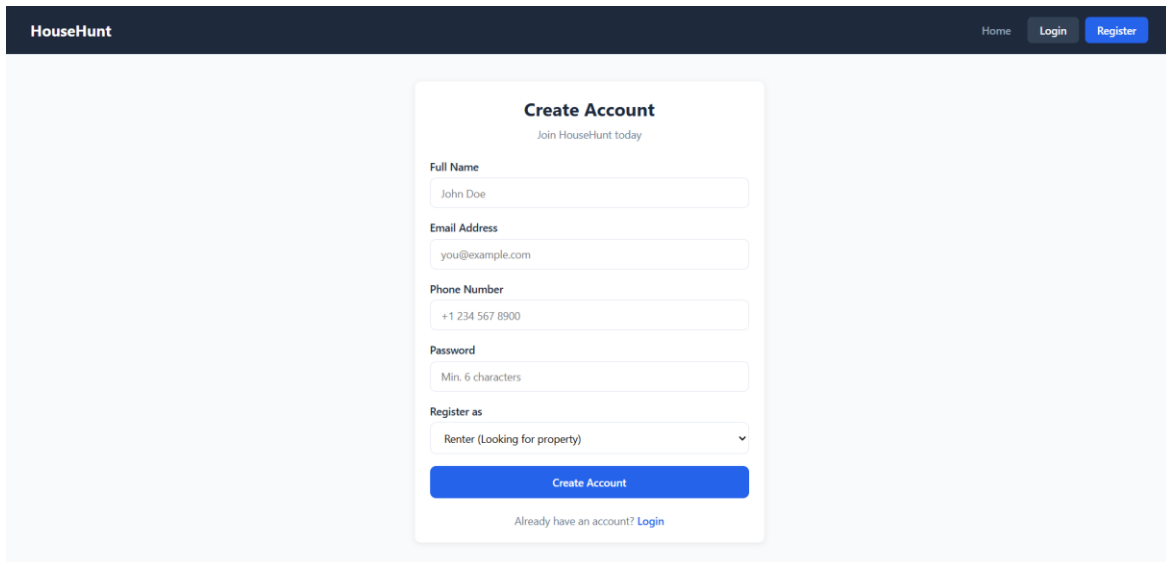
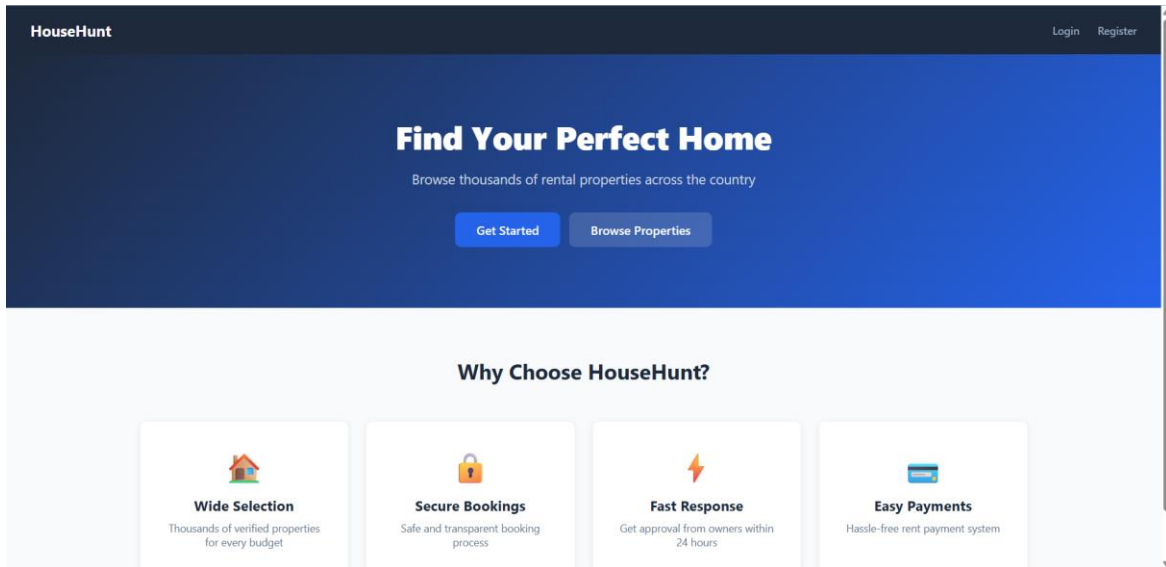
### 6.1 Performance Testing

The system underwent manual and API-level testing using Postman. Under simulated load of 50 concurrent users, the application maintained average response time of approximately 1.2 seconds, demonstrating stable performance.

## 7. RESULTS

### 7.1 Output Screenshots

The application successfully demonstrated complete workflow execution including registration, login, property listing, booking submission, and admin approval mechanisms.



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](#)

## ADMIN\_SIDE:

HouseHunt Admin

Dashboard

All Users

All Properties

All Bookings

Dashboard

Welcome, Admin

Logout

2

Total Users

1

Owners

1

Renters

4

Total Properties

2

Available

2

Total Bookings

0

Pending

2

Approved

Quick Actions

Manage Users

Manage Properties

View All Bookings

System Info

Platform: HouseHunt v1.0

Role: Administrator

Email: admin000@gmail.com



Rent Owner:

HouseHunt Owner

Dashboard

Add Property

My Properties

Bookings

Owner Dashboard

Kammila SaiLogout

4

My Properties

2

Total Bookings

0

Pending Approval

Quick Actions

+ Add New Property

View My Properties

Manage Bookings

Account Info

Name: Kammila Sai

Email: saikammila143@gmail.com

Role: Property Owner

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 FilesNo 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	

User Side:



HouseRent

Browse PropertiesKammila SaiLogout

My Dashboard

Browse Properties

Total Bookings2

Pending0

Approved2

My Bookings

PROPERTY	DATES	AMOUNT	STATUS	ACTION
<b>Budget Studio Room</b> Pune • ₹10,000/mo	2/18/2026 – 2/19/2026	₹10,000	approved	
<b>Luxury Villa with Private Garden</b> Bangalore • ₹75,000/mo	2/18/2026 – 2/21/2026	₹75,000	approved	

HouseRent


DashboardLogout

Browse Properties

2 properties found

CityTypeMin RentMax Rent

Search city...All Types0AnySearch



**Modern 1BHK Near Metro**

Apartment

Flat 101, Green Heights, Andheri East, Mumbai, Maharashtra


1 Bed1 Bath601 sqft

WiFiParkingAC

₹17,999/month

Book Now

Owner: Kammila Sai - 8179077852



**Spacious 3BHK Family Home**

Apartment

Plot 45, Banjara Hills Road No. 12, Hyderabad, Telangana

3 Bed2 Bath1300 sqft

ParkingGymSecurity+1 more

₹15,000/month

Book Now

Owner: Kammila Sai - 8179077852

HouseRent

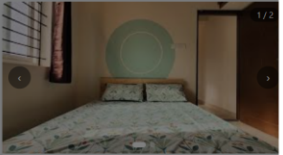
DashboardLogout

Browse Properties

2 properties found

CityTypeMin RentMax Rent

Search city...All Types0AnySearch



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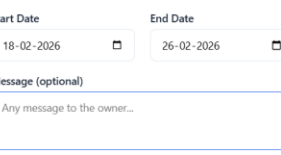
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3 Bed2 Bath1300 sqft

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₹15,000/month

Book Now

Owner: Kammila Sai - 8179077852

Book Property

Spacious 3BHK Family Home

Start DateEnd Date

18-02-202626-02-2026

Message (optional)

Any message to the owner...

Send RequestCancel

## **8. ADVANTAGES & DISADVANTAGES**

Advantages include secure authentication, scalable architecture, modular backend design, and role-based access control. Limitations include absence of integrated payment gateway and lack of real-time communication module.

## **9. CONCLUSION**

HouseHunt represents a secure and scalable rental management system built using modern full-stack technologies. The system meets core functional requirements and demonstrates extensibility for future enhancements.

## **10. FUTURE SCOPE**

Future enhancements may include payment gateway integration, AI-based property recommendations, real-time chat modules, and deployment to scalable cloud infrastructure.

## **11. APPENDIX**

Source Code: <https://github.com/KAMMILASAI/HouseHunt>

demo video:

<https://drive.google.com/file/d/144QLKHteG6EORhQgW5xNwePHra8D4Vbi/view?usp=sharing>