Project Report Format

1. INTRODUCTION

1.1 Project Overview

HouseHunt is a full-stack MERN (MongoDB, Express, React, Node.js) web application designed to simplify the rental home search process for users. The platform enables renters to find, book, and manage property rentals efficiently, while allowing property owners to list and manage their rental properties.

1.2 Purpose

The main goal of HouseHunt is to bridge the gap between tenants and property owners by providing a reliable, responsive, and secure digital platform. It streamlines the property discovery, inquiry, and booking processes while also enabling role-based access for renters, owners, and administrators.

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2. IDEATION PHASE

2.1 Problem Statement

Renters face challenges in finding reliable rental homes online due to outdated listings, poor communication, and limited filtering options. Property owners also struggle to showcase their properties and handle booking requests efficiently.

2.2 Empathy Map Canvas

- **Says**: "I want a place that matches my needs and is easy to book."
- **Thinks**: "Will this place look like the photos? What if it’s fake?"
- **Does**: Scrolls through apps, shortlists listings, tries to contact owners.
- **Feels**: Overwhelmed by options, anxious about being scammed, and annoyed with slow replies.

2.3 Brainstorming

- Role-based dashboards
- Verified listings
- Filter & search functionality
- Owner-renter booking interaction
- Image uploads via Cloudinary

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3. REQUIREMENT ANALYSIS

3.1 Customer Journey Map

- Visit website > Register/Login
- Browse available properties
- Send booking request
- Owner responds (Accept/Reject)
- Confirmation and dashboard update

3.2 Solution Requirements

Functional: Registration, Login, Property CRUD, Booking management, Image upload, Role-based dashboards

Non-functional: Usability, Security (JWT, bcrypt), Performance (API latency < 500ms), Availability, Scalability

3.3 Data Flow Diagram

Level-0 and Level-1 DFDs describe interactions between user, dashboard, property module, booking module, and database.

3.4 Technology Stack

- **Frontend**: React.js, Tailwind CSS
- **Backend**: Node.js, Express.js
- **Database**: MongoDB
- **Cloud Services**: Cloudinary (Image Upload), JWT (Auth)

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4. PROJECT DESIGN

4.1 Problem-Solution Fit

HouseHunt directly addresses renters' issues with property discovery and owners' challenges in managing bookings. It automates manual processes and introduces transparency through real-time updates.

4.2 Proposed Solution

Create a multi-role rental platform allowing:

- Renters to browse and book properties
- Owners to list and manage properties

- Admin to oversee all operations

4.3 Solution Architecture

- **Client**: React SPA with protected routes and state management
- **Server**: REST API in Express.js
- **Database**: MongoDB with Mongoose models
- **Authentication**: JWT with role-based access control

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5. PROJECT PLANNING & SCHEDULING

5.1 Project Planning

- Sprint-1: Registration, Login, Dashboard setup
- Sprint-2: Property CRUD
- Sprint-3: Booking flow implementation
- Sprint-4: Testing & UI polish
- Velocity: 16 story points/sprint

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6. FUNCTIONAL AND PERFORMANCE TESTING

6.1 Performance Testing

- Page Load Time: ~1.3s
- API Latency: 200-400ms
- Responsive on all screen sizes
- Session persistence verified

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7. RESULTS

7.1 Output Screenshots

- Registration/Login Pages
- Owner Dashboard
- Renter Dashboard
- Add Property Form
- Booking Confirmation Page

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8. ADVANTAGES & DISADVANTAGES

Advantages:

- Role-based dynamic content
- Responsive UI
- Fast API performance
- Easy-to-use booking flow

Disadvantages:

- Lacks in-app chat (future enhancement)
- No map-based search

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9. CONCLUSION

HouseHunt is a complete rental property management system offering a smooth user experience for renters and property owners. It solves key challenges in the rental ecosystem and can scale with additional features.

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10. FUTURE SCOPE

- Chat feature between renter and owner
- Map-based property search
- Admin analytics dashboard
- Payment gateway integration

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11. APPENDIX

- **Source Code:** https://github.com/22at1a0507/househunt
- **Project Demo:** https://drive.google.com/file/d/1pMtQcqROzjHuy_zML-xa-EuE5pTtIpLL/view?usp=drive_link