

**1.Title:** House Hunt – Smart Rental Property Platform

**2.Objective:** Designed and developed a House Rental web application using the MERN stack to enable users to post, browse, and rent properties efficiently, with secure login, filtering, and real-time messaging features.

**3.Introduction:** The House Rental Application is a web platform built using the MERN stack to simplify property renting. It allows owners to list properties and users to search, filter, and book rentals easily. The app streamlines the rental process with secure login and a user-friendly interface. It bridges the gap between tenants and landlords through digital interaction.

**4.Scope:** Rental Server users, admins .It enables:

- Property owners can list houses with details and images.
- Users can search and filter properties based on location, price, and type.
- Secure login system for owners, tenants, and admins.
- Users can send booking requests or contact property owners.
- The application is responsive and works on all devices.

**5.Features:**

- User authentication and role-based access for owners and tenants.
- Property listing with images, price, location, and description.
- Advanced search and filtering options for users.
- Booking request system and owner contact feature.
- Responsive and user-friendly interface for all devices.

**6.Tools and Technologies used:**

- **Front-End:** React.js, React Router ,Material-UI (MUI) ,Axios
- **Back-End:** Node.js ,Express.js , MongoDB + Mongoose, JWT Authentication ,Multer (for image uploads)

**7.System architecture:**

- The frontend built with React.js handles user interactions and sends requests to the backend.
- The Node.js + Express.js backend processes these requests and connects with the MongoDB database.
- Data flows between the client and server via RESTful APIs, ensuring smooth communication and secure operations.

**8.Modules Description:**

- **User Module** – Handles registration, login, profile, and roles (tenant/owner/admin).
- **Property Module** – Allows owners to add, update, and manage property listings.
- **Search & Filter Module** – Enables users to search properties by location, price, type, etc.
- **Booking Module** – Manages booking requests, approvals, and rental status.
- **Admin Module** – Lets admin monitor users, properties, and manage reports.

## 9.ER-Diagram Overview:

**Entities:** Key entities include User, Property, Booking, and Admin, each with attributes like name, email (User), location, price (Property), status, date (Booking).

### Relationships:

- A User can list multiple Properties (1-to-many).
- A User can make multiple Bookings.
- A Property can have many Bookings, but each Booking links to one User and one Property (many-to-one).

**10.Scenario Illustration:** A property owner lists a house for rent on the platform, and a tenant searches, filters, and sends a booking request for it. The owner reviews and approves the request, enabling both parties to communicate and complete the rental process smoothly.

## 11.Security Measures:

- **WT Authentication** – Ensures secure login sessions using JSON Web Tokens.
- **Password Hashing with bcrypt** – Encrypts user passwords before storing in the database.
- **Role-Based Access Control (RBAC)** – Limits access to features based on user roles (tenant, owner, admin).
- **Input Validation & Sanitization** – Protects against XSS, SQL/NoSQL injection, and other malicious inputs.

**12.Conclusion:** The House Rental Application offers a simple and efficient way for users to list and rent properties online.Built with the MERN stack, it ensures a responsive, user-friendly, and secure experience.It successfully bridges the gap between tenants and property owners through digital interaction.

## 13.Future Enhancements:

- **Online Payment Integration** – Enable secure rent payments through the platform.
- **Chat System** – Real-time messaging between tenants and property owners.

- **Map Integration** – Display property locations using Google Maps or Leaflet.
- **Notification System** – Send email or push notifications for booking updates and alerts.

#### 14.Screenshots:

- Home Page to Login/Register
- Property Browsing Page
- Properties Page

#### 15.References:

- ReactJS documentation
- Node.js Official Docs
- MongoDB Atlas
- Bootstrap and Material UI

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Git Link- <https://github.com/Bhojaraj123/househunt>

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