Final Project Report: RentSphere - Property Rental Platform

SMARTBRIDGE INTERNSHIP

Team Members:

- **Team Leader:** Gorle Prasad Rao
- **Member 1:** Sai Keerthi Jadu
- **Member 2:** Sheik Rahim
- **Member 3:** Varshik Krishna Y

GitHub Repository: https://github.com/Prasadraogorle/Internship

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1. INTRODUCTION

1.1 Project Overview

RentSphere is a full-stack web application that connects property owners and tenants in a streamlined, digital rental process. It facilitates online browsing of rental listings, submitting rental requests, and managing properties and user interactions.

1.2 Purpose

The purpose of RentSphere is to simplify the property rental process, make it more efficient, and reduce dependency on traditional, offline methods. It ensures transparency and a better user experience for all parties involved.

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2. IDEATION PHASE

2.1 Problem Statement

Renting properties often involves outdated and manual processes including paper forms and frequent in-person visits. There is a lack of centralized platforms to manage the entire process seamlessly.

2.2 Empathy Map Canvas

- **Tenants:** Want easy access to listings, transparent communication, and fast responses.
- **Owners:** Need efficient property management and qualified tenant applications.
- **Admins:** Seek full control and system monitoring.

2.3 Brainstorming

Ideas were discussed around the pain points in the rental market. Core features like role-based dashboards, digital applications, and image uploads were prioritized.

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3. REQUIREMENT ANALYSIS

3.1 Customer Journey Map

- **Discover:** Tenants find listings.
- **Apply:** Submit rental requests.
- **Manage:** Owners review and respond.
- **Monitor:** Admins oversee the platform.

3.2 Solution Requirements

- Role-based access (Tenant, Owner, Admin)
- Property management tools
- Notification & status updates

3.3 Data Flow Diagram

A detailed DFD was created showing interactions between users, backend services, and the database.

3.4 Technology Stack

- **Frontend:** React 18, TypeScript, Tailwind CSS, Shadcn/UI
- **Backend:** Node.js, Express.js
- **Database:** MongoDB
- **Build Tools:** Vite
- **Others:** React Router DOM, React Query, Recharts, Lucide React, Git

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4. PROJECT DESIGN

4.1 Problem Solution Fit

We designed RentSphere to solve the fragmentation in the rental process by centralizing it online with modern tools and responsive design.

4.2 Proposed Solution

A web platform where tenants can browse listings and owners can manage them efficiently. Admins ensure the system is running effectively.

4.3 Solution Architecture

- Modular front-end with component-based architecture
- RESTful APIs for backend communication
- Secure authentication and role-based access control

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5. PROJECT PLANNING & SCHEDULING

5.1 Project Planning

- **Week 1-2:** Ideation, requirements gathering, and UI mockups
- **Week 3-5:** Frontend and backend development
- **Week 6:** Integration, testing, and deployment

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6. FUNCTIONAL AND PERFORMANCE TESTING

6.1 Performance Testing

- Conducted stress testing on major functionalities
- Verified responsiveness across devices and browsers

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7. RESULTS

7.1 Output Screenshots

- Property listing page
- Role-based dashboards
- Rental request submission view
- Admin management panel
  (Screenshots available in project repo)

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8. ADVANTAGES & DISADVANTAGES

Advantages:

- Simplified rental workflow
- Centralized management
- Responsive and user-friendly interface

Disadvantages:

- Internet dependency

- Requires digital literacy from all users

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9. CONCLUSION

RentSphere achieved its goal of digitizing the rental process by offering a clean, scalable, and role-specific platform. It is a valuable tool for both landlords and renters.

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10. FUTURE SCOPE

- Add payment integration
- Include real-time chat between tenant and owner
- Mobile app version
- Enhanced search and filter options

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11. APPENDIX

- **Source Code:** GitHub Link
- **Demo Video:** (Link to be added if available)
- **Dataset:** Not Applicable

Thank you!