



SCHOOL OF INFORMATION
TECHNOLOGY

ITS120L- Application Development and Emerging Technologies (Laboratory)

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Project Title	HomeHub AI: A Rental Marketplace with Intelligent Tenant Matching and Smart Booking
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Project Requirement

Look for a specific problem faced by any company, organization, or practically anyone and think of a possible IT solution. The solution can be web-based or mobile applications.

Describe the problem here and include details.

Specify clearly what A.I. or cybersecurity method to apply in a specific system in a particular business.

Ex: IMPLEMENTING AI-based Biometrics for SECURITY in Coffee Shop Inventory System

Note:

- PROJECT SHOULD HAVE AI OR SECURITY FEATURE OR BOTH EITHER IN WEB APP OR MOBILE APP.
- PROJECT TOPIC/TITLE SHOULD BE UNIQUE IN EACH GROUP IN ALL SECTIONS OF ITS120L.

Project Proposal

HomeHub AI: A Rental Marketplace with Intelligent Tenant Matching and Booking

I. Introduction

The rental property market continues to grow, yet both tenants and landlords face persistent difficulties. Tenants spend long hours browsing irrelevant listings, while landlords struggle to find reliable tenants who meet their requirements. Traditional rental platforms rely only on basic search filters and static listings, which are often outdated and lack intelligent recommendations.

These inefficiencies highlight the need for a smarter solution that can streamline the rental process for both tenants and landlords. To address this, the project proposes HomeHub AI, a web and mobile-based rental marketplace that integrates Artificial Intelligence (AI) to provide intelligent matching, personalized recommendations, and efficient booking.

II. Problem of the Statement

1. Tenant-Property Mismatch – Most inquiries come from tenants who cannot afford the rent or do not meet her requirements.
2. Difficult Search for Renters – Tenants struggle to find homes that fit their budget, location, and lifestyle preferences, leading to frustration.
3. Time-Consuming Process – Manually handles inquiries, screening, and scheduling property visits.
4. Outdated Listings – Tenants complain about listings that are no longer available, creating frustration.
5. Inefficient Bookings – Lack of an automated booking system results in missed opportunities and tenant dissatisfaction.

III. Proposed IT Solutions (AI Method)

The proposed solution is HomeHub AI, a smart rental marketplace that applies AI technologies to improve efficiency and accuracy in the rental process.

- **AI Method: Intelligent Tenant Matching (Cosine Similarity)**

Tenant preferences (budget, location, lifestyle, amenities) and property attributes will be represented as vectors. The system will apply cosine similarity to measure how closely a property matches a tenant's requirements, ensuring better recommendations.

- **AI Method: Smart Recommendation System**

A recommendation engine will suggest properties based on a tenant's browsing history, search patterns, and similarity with other users.

- **AI Method: Automated Availability Management**

AI will detect outdated or duplicate property listings and prioritize updated ones to reduce tenant frustration.

- **AI Method: Predictive Analytics for Landlords**

Regression models will analyze past rental data to provide insights such as demand forecasts and optimal rental pricing.

IV. Objectives

1. General Objectives

To develop a rental marketplace platform that utilizes Artificial Intelligence to enhance tenant–landlord matching, provide smart recommendations, and optimize the booking process.

2. Specific Objectives

- To implement machine learning algorithms for matching tenants with properties.
- To design an AI-powered recommendation engine for personalized property suggestions.
- To integrate AI-driven property availability management to keep listings updated.
- To apply predictive analytics to help landlords make informed business decisions.
- To build a booking system enhanced by AI for smoother scheduling and reservations.

V. Unique Value Propositions

HomeHub AI makes renting easier and more reliable for both tenants and landlords. Unlike traditional rental platforms that only list properties, HomeHub AI ensures a smooth process, faster occupancy, and greater satisfaction for everyone involved.

- For Tenants: Enjoy an easy search and find homes that truly fit their budget, location, and lifestyle preferences.
- For Landlords: Gain faster occupancy and reduced risks with smarter tenant matching.
- AI-Driven Recommendations: Improve accuracy and trust in rental decisions.
- Time and Effort Savings: Reduces frustration and streamlines the entire rental process for both parties.

By combining compatibility AI recommendations, HomeHub AI delivers a smarter, safer, and more satisfying rental experience for everyone.