
HumaraGhar - A Revolutionary real-estate application.

*A project report submitted in partial fulfillment of the requirements for the
award of the degree of*

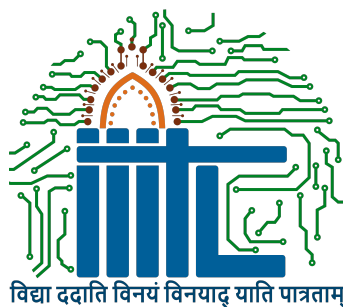
B.Tech. in Information Technology

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Declaration of Authorship

We, **Ayush Kumar and Akshay Bhatnagar**, declare that the work presented in “**HumaraGhar**” is our own. We confirm that:

- This work was completed entirely while in candidature for B.Tech. degree at Indian Institute of Information Technology, Lucknow.
- Where we have consulted the published work of others, it is always cited.
- Wherever we have cited the work of others, the source is always indicated. Except for the aforementioned quotations, this work is solely our work.
- We have acknowledged all major sources of information.

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CERTIFICATE

This is to certify that the work entitled “**HumaraGhar**” submitted by **Ayush Kumar and Akshay Bhatnagar** who got their name registered on **Jul 2020** for the award of B.Tech. degree at Indian Institute of Information Technology, Lucknow is absolutely based upon their own work under the supervision of **Dr. Mainak Adhikari**, Department of Computer Science, Indian Institute of Information Technology, Lucknow - 226 002, U.P., India and that neither this work nor any part of it has been submitted for any degree/diploma or any other academic award anywhere before.

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ABSTRACT

The modern dynamics of housing and shared living arrangements have evolved significantly, paving the way for innovative solutions to streamline the process of finding roommates and renting accommodations. This project introduces a comprehensive room renting application that revolutionizes the traditional approach to housing searches by integrating collaborative features and personalized matchmaking.

The core feature of this application is its versatility, offering users the flexibility to either form teams to explore rental options collectively or seek individual accommodations. The unique selling proposition (USP) lies in its capability to facilitate seamless roommate searches for those seeking cohabitation or simply looking to fill vacancies in existing spaces.

Key functionalities include a sophisticated matchmaking system leveraging user preferences and profiles to pair compatible roommates and predicting accurate renting price suggestions based on neighbourhood and amenities provided. The application utilizes Next.js for its frontend, harnessing its capabilities for dynamic and responsive web interfaces. Meanwhile, Supabase, a robust PostgreSQL-based backend, powers the application's database, ensuring efficient data management and scalability.

Through a user-centric design approach and a user-friendly interface, this application aims to redefine the room renting experience, fostering connections, and simplifying the often daunting task of finding suitable accommodations or roommates.

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Chapter 1

Introduction

1.1 Background and Context

In the evolving landscape of urban living, the challenges associated with securing suitable accommodations transcend the boundaries of traditional housing searches. Our endeavor to develop a room renting application stems from the personal experiences of our team members—recent bachelor graduates navigating their entry into professional realms in new, bustling cities. The initial hurdle of securing affordable living spaces without an established network of friends or acquaintances drove us to conceive a solution that redefines the norms of housing searches.

As young professionals transitioning from academic settings to bustling urban environments, the lack of a supportive network to share the costs and experiences of renting became a significant obstacle. This personal experience serves as the driving force behind our initiative, inspiring us to craft a comprehensive solution that addresses not only the financial burden but also the social and logistical challenges associated with finding suitable accommodations and compatible roommates.

“The Decision Diffie–Hellman assumption (DDH) is a gold mine,” Dan Boneh wrote in his 1998 overview paper [1].

1.2 Need

The contemporary housing market poses challenges for individuals transitioning from academia to professional spheres, particularly in unfamiliar urban landscapes. There exists a pressing need for an inclusive, efficient, and user-centric platform that accommodates both solo renters and those

seeking collaborative living arrangements or compatible roommates. The absence of such a tool creates inefficiencies and hurdles in finding affordable, compatible, and convenient housing solutions.

1.3 Problem Statement

The challenge lies in bridging the gap between traditional housing approaches and the modern needs of individuals seeking varied accommodation options. The absence of a centralized platform that caters to both the individual renter and those interested in collaborative living leads to prolonged searches, incompatible living situations, and financial strains.

1.4 Objectives

1. **Comprehensive Housing Searches:** Develop a platform that accommodates both individuals seeking independent rentals and those forming teams for collective exploration of rental spaces, ensuring inclusivity and convenience.
2. **Efficient Roommate Matchmaking:** Create a robust matchmaking system that caters not only to those in search of compatible roommates but also to individuals seeking solo accommodations, ensuring tailored matches.
3. **AI-Driven Rent Price Suggestions:** Utilize machine learning models trained on diverse rent data to suggest optimal rent prices for listed properties, empowering users with informed pricing strategies.
4. **Owner Dashboard & Property Management:** Enable property owners to manage their listings through a dedicated dashboard, facilitating tasks like sending rent reminders, generating contract templates for rent agreements, and ensuring seamless property management.
5. **Controlled Chat Feature:** Implement a secure and controlled chat function, allowing users to interact and negotiate further deals only with authorized and interested parties, enhancing user security and convenience.
6. **User-Centric Design:** Prioritize user experience by delivering an intuitive interface that simplifies the search for accommodations or roommates, irrespective of the individual's preferences.

7. **Addressing Financial and Social Barriers:** Alleviate the challenges associated with securing affordable living arrangements and establishing connections in new cities, catering to diverse housing needs.

1.5 Scope

The project aims to develop a Next.js-based web application utilizing Supabase, a PostgreSQL-based backend, to create a scalable, dynamic, and responsive platform. The focus lies in providing a holistic solution catering to both individuals seeking independent rentals and those in search of compatible roommates, fostering a sense of community and ease in the process of finding suitable accommodations. Leveraging machine learning models, the platform will suggest rent prices for listed properties, while a controlled chat feature will enable secure interactions between authorized users, further enhancing the platform's utility and user experience.

Chapter 2

Literature Review

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Chapter 3

Methodology

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Chapter 4

Simulation and Results

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Chapter 5

Conclusion and Future Work

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- [1] D. Boneh. The decision diffie-hellman problem. In *Algorithmic Number Theory: Third International Symposium, ANTS-III Portland, Oregon, USA, June 21–25, 1998 Proceedings*, pages 48–63. Springer, 2006.