HANOI UNIVERSITY OF SCIENCE AND TECHNOLOGY

GRADUATION THESIS

Room rental management system

Dinh Ngoc Khue
khue.dn194782@sis.hust.edu.vn

Major: Information Technology
Specialization: Global ICT

Supervisor: Dr. Nguyen Thi Oanh _____

Signature

Department: Computer Science

School: Information and Communications Technology

HANOI, 01/2025

ACKNOWLEDGMENTS

First of all, I would like to express my sincere gratitude to my advisor, Ms. Nguyen Thi Oanh, for creating the conditions for me to conduct research and for guiding me. In addition, I am also extremely grateful to my family and friends, who have always supported me both materially and spiritually, which is essential for me to complete this thesis. Finally, I would like to acknowledge my own efforts and determination, overcoming challenges is a meaningful personal achievement.

ABSTRACT

The growing demand for rental properties, especially in cities, has created challenges in managing the rental process effectively. Many hosts and tenants still rely on traditional methods, which can be inefficient and time-consuming. This project focuses on developing an online rental management system to address these issues. The chosen approach uses modern web technologies to create a platform that is easy to use, efficient, and secure. Key features of the system include room listing management, role selection, rental tracking, and integration with PayPal for secure payments. The system also automates payment processing, ensuring that hosts receive their monthly payments on time while simplifying the process for tenants. The main contribution of this project is to provide a complete solution for managing room rentals and saving time for hosts and tenants. The result is a reliable and user-friendly system that improves the rental experience, ensures secure transactions, and helps build trust between hosts and tenants.

Student

(Signature and full name)

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF ABBREVIATIONS

Abriviation	Full Expression
API	Application Programming Interface
UI	User Interface
UX	User Experience

CHAPTER 1. INTRODUCTION

This chapter will introduce the practical challenges that motivated this research. It will then outline the goals and an overview of the proposed system solution.

1.1 Motivation

In recent years, urbanization and population growth have led to a significant increase in demand for rental housing, especially in large cities. This trend has created challenges for both landlords and tenants in effectively managing the rental process. Landlords often struggle with time-consuming tasks such as advertising properties, tracking rent payments, and managing tenant information. Meanwhile, tenants struggle to find suitable accommodation, understand rental terms, and ensure secure transactions.

Despite the growing demand, many rental management processes remain manual or rely on disparate, inefficient, and error-prone tools. These inefficiencies can lead to misunderstandings, late payments, and a lack of trust between landlords and tenants. A well-organized rental management system is essential to address these challenges, improve efficiency, and foster trust.

If these issues are addressed, the benefits are enormous. Landlords can save time and effort, reduce errors, and improve the overall management of their properties. Tenants, on the other hand, can enjoy a more seamless and transparent leasing process. Beyond individuals, such a system could also benefit real estate companies, property managers, and other stakeholders in the rental market. Furthermore, the principles and features of such a system could be adapted and applied to other sectors, such as hotel reservations, office leasing, or event venue management.

1.2 Objectives and scope of the thesis

Current rental management tools, such as online listing platforms and basic property management software, provide some support to hosts and tenants, but often lack integration, secure payment systems, and customized features for diverse user needs. These limitations result in inefficient workflows, limited transparency, and reduced trust between parties.

This thesis aims to address these issues by developing a comprehensive rental management system. Key features include secure payment processing, rental tracking, role-based user management, and automated processes. The system will overcome the limitations of existing solutions, improving efficiency, reliability, and transparency in the rental process.

By providing a modern and user-friendly platform, this project seeks to set a new