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|  | MINISTRY OF EDUCATION & TRAINING  **HOCHIMINH CITY UNIVERSITY OF TECHNOLOGY** |

**Information Technology Major Project**

**Home Rental Management System**

Discipline: **INFORMATION TECHNOLOGY**

Major: **SOFTWARE TECHNOLOGY**

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Class: 19DTHQA2

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Despite my best efforts, there may be errors or omissions in this project. We welcome any feedback and constructive criticism to improve and learn from this experience.

We sincerely thank you!

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# **Chapter 1: INTRODUCTION**

* 1. **Motivation**

In recent years, with the rapid development of Information Technology (IT), conducting business and shopping online has become a popular trend. Leveraging IT not only helps businesses manage more easily and save costs but also provides customers with better experience in all aspects.

Given its great potential and recognizing the increasing demand for home rentals, especially for tourists visiting our country who often face difficulties in finding and renting homes, we were inspired to create a system that bridges the gap between tourists and homeowners.

For these reasons, we decided to build a "Home Rental Management System". Our primary motivation is to harness the advantages of technology to create a platform that simplifies all processes related to home rentals for both customers and homeowners. This system not only helps customers find and rent homes but also supports homeowners in managing and renting out their properties efficiently.

* 1. **Project functions**

Since this is a rental website aimed at tourists, we focus on the convenience and completeness of the functions when using it. In addition, we also pay great attention to the user-friendliness and aesthetics of the website interface. With this website, users can be tourists looking for a house to rent or administrators who want to manage properties on the system.

Functions for customer users:

* Visit the website.
* register, log in to the system.
* Filter properties by category.
* Search properties by personal criteria.
* Add to favorites.
* View host information.
* Contact host.
* Book a room.
* Pay online.
* View booking history.

The admin users have all the authority to manage his website through an explicit Admin account. Main functions such as:

* Manage properties on the system.
* Manage accounts on the system.
* Manage transactions.
  1. **Objective of project**

Improve programming skills with Python, JavaScript, TypeScript and PostgreSQL database management system. Take advantage of the advantages of the NextJS and Django frameworks. Learn more about how to integrate third-party components (PayOS) into the system. Understand better how a complete project works from the client to the server. Our result is a relatively complete website system, serving the needs of users and completing the goals set by the group.

* 1. **Practical significance**

With the initial goal, Home Rental Management System brings a lot of meaning to users: Customers can easily find the exact information about real estate according to their own requirements. Homeowners can reach more customers to improve business performance.

# **Chapter 2: ANALYSIS AND DESIGN**

1. **System analysis and design**
   * 1. Identify the actors and general usecases of the system
        1. Actors of the system

Customer: The person who books and pays through HomeRental.

Host: The person who manages the listed property for rent, tracks payments, and provides customer support.

Admin: Manages and monitors the entire system, including accounts, properties, and payments.

|  |  |
| --- | --- |
| **Actor** | **Function** |
| Customer | Sign up  Login  View property information  Search  Filter by category  Add to favorites  Book/Cancel  Tracking payment |
| Host | Login  Rent home  Manage properties  Support customer |
| Admin | Login  Manage account  Manage properties  Manage payments |

**Table 2.1.** System actors and their functions

* + - 1. General usecase of the system

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| A diagram of a rental company |
| **Figure 2.1.1** General usecase diagram of the system |
| A diagram of a system  Description automatically generated |
| **Figure 2.1.2** Manage account usecase diagram of the system |
| A diagram of a diagram  Description automatically generated |
| **Figure 2.1.3** Manage property usecase diagram of the system |
| **A diagram of a business** |
| **Figure 2.1.4** Manage booking usecase diagram of the system |

* + - 1. Analyze the system's functions in detail
    1. ER Diagram of the system

A diagram of a diagram

Description automatically generated

* + 1. Database

2.1.3.1. Database deisgn

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| *Figure 2.1.3.1: Database design* |

2.1.3.2 Database table

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| A screenshot of a computer  Description automatically generated  *Figure 2.1.3.2.1: User Table* |
| A screen shot of a computer  Description automatically generated  *Figure 2.1.3.2.2: Property Table* |
| A blue and white box with text  *Figure 2.1.3.2.3: Property\_favorited Table* |
| A white and blue background with text  Description automatically generated  *Figure 2.1.3.2.4: Reservation Table* |
| A blue and white rectangular sign  Description automatically generated  *Figure 2.1.3.2.5: Conversation Table* |
| A screen shot of a conversation  Description automatically generated  *Figure 2.1.3.2.6: Conversation\_message Table* |
| A blue and white box with text  Description automatically generated  *Figure 2.1.3.2.7: Conversation\_user Table* |

* 1. **Interface design** 
     1. Customer-side interfaces

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| * + - 1. Homepage |
| A screenshot of a homepage  Description automatically generated  *Figure 2.2.1.1.1: Homepage* |
| * + - 1. Search |
| *Figure 2.2.1.2: Search* |

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| * + - 1. Property |
| *Figure 2.2.1.3: Property* |

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| * + - 1. Login |
| *Figure 2.2.1.4: Login* |
| Sign up    *Figure 2.2.1.5: Sign up* |

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| 2.2.1.6 Favorites |
| *Figure 2.2.1.6: Favarites* |
| 2.2.1.7 Landlords |
| *Figure 2.2.1.7: Landlords* |

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| 2.2.1.8 Chat |
| *Figure 2.2.1.8: Chat* |
| 2.2.1.9 Make payment    *Figure 2.2.1.9: Make payment* |

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| 2.2.1.10 Reservation |
| *Figure 2.2.1.10 Reservation* |

2.2.2 *Admin/Host-side interfaces*

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| 2.2.2.1 Login |
| *Figure 2.2.2.1: Login* |

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| --- |
| 2.2.2.2 Home page |
| *Figure 2.2.2.2: Home page* |

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| 2.2.2.3 Manage user |
| *Figure 2.2.2.3: Manage user* |

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| 2.2.2.4 Add/Update user |
| *Figure 2.2.2.4: Add/Update user* |

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| 2.2.2.5 Manage property |
| *Figure 2.2.2.5: Manage property* |

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| 2.2.2.6 Add/update property |
| *Figure 2.2.2.6: Add/update property* |

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| 2.2.2.7 Manage Reservations |
| *Figure 2.2.2.7: Manage reservations* |

# **Chapter 3: TOOLS AND DEVELOPMENT ENVIRONMENT**

# **Chapter 4: IMPLEMENTATION AND EVALUATION**

# **Chapter 5: CONCLUSIONS AND FUTURE WORK**

* 1. **Conclusions**
  2. **Future work**

# **REFERENCES**

# **APPENDICES**