

**HOUSE RENTAL**

**TEST PLAN**

**Project Code: HR**

**Document Code: HR\_Test Plan\_v1.0**

**Ho Chi Minh City, Oct 2023**

**RECORD OF CHANGE**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Effective Date** | **Changed Items** | **A\*  M, D** | **Change Description** | **New Version** |
| 10/10/23 | Add contact search feature | A | Create a new version with the original interface and contact search feature. | 1.0 |
| 12/10/23 | Optimize homepage interface. | M | This change focuses on optimizing the app's homepage interface to improve user experience. | 1.0 |
| 14/10/23 | Removed chat feature | D | The chat feature, which allowed users to engage in real-time conversations, has been eliminated. | 1.0 |
| 15/10/23 | Integrate a new payment gateway for online transactions. | A | Integrates a new payment gateway to process online transactions. | 1.0 |
| 17/10/23 | Redesign the user profile page for improved aesthetics and usability. | M | Redesigned user profile page to improve aesthetics and usability. | 1.0 |
| 20/10/23 | Eliminate the old "guest checkout" option. | D | Removing the '"guest checkout” option was done to simplify the payment process and increase security. | 1.0 |

\*A - Added M - Modified D - Deleted

**SIGNATURE PAGE**

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# **1 INTRODUCTION**

## **1.1** **Purpose**

This document outlines the comprehensive test plan for the House Rent project. The purpose of this document is to define the scope of testing and the activities that must be undertaken during the testing process of the project. It addresses the following key areas:

|  |  |
| --- | --- |
| ● Scopes of Testing  ● Requirements for Testing  ● Test Strategy | ● Test Resources  ● Test Milestones  ● Test Deliverables |

## 

## **1.2** **Definitions, Acronyms, and Abbreviations**

|  |  |
| --- | --- |
| **Abbreviations** | **Description** |
| AT | Acceptance Test |
| DMS | Defect Management System (a IUH in-house tool) |
| IT | Integration Test |
| ST | System Test |
| PM | Project Manager |
| PTL | Project Technical Leader |
| QA | Quality Assurance |
| FRS | Functional Requirement Specification |
| TP | Test Plan |
| TC | Test Case |
| TR | Test Report |
| UAT | User Acceptance test |
| UT | Unit Test |
| HFR | HouseForRent.com |
| APTRR | Act on Permanent and Temporary Residence Registration |
| TRUSTe | Privacy Seals, Online Trust & Safety service |
| WCG World | The third-party responsible for UI Design in collaboration with HFR |

## 

## **1.3** **Background information**

HouseForRent.com (HFR) is a visionary real estate service provider, committed to delivering innovative solutions for property seekers and owners alike. With an extensive presence in the real estate industry, HFR is dedicated to simplifying the process of finding and managing rental properties.

HFR is currently operating a desktop-oriented website, but in response to the evolving landscape of the real estate market and the increasing demand for mobile solutions, the company has embarked on an ambitious initiative. The primary objective is to develop a new and optimized platform tailored to meet the needs of mobile users, including those utilizing iOS and Android devices. The core functions of the new HFR platform include:

* Property Search and Listing
* User Accounts
* Application Management
* Communication
* Payment Processing
* Property Management

This project is driven by the evolving dynamics of the property rental industry and the growing reliance on mobile devices in everyday life. The transition to a mobile-optimized platform is imperative to meet the needs of a diverse and expanding base of mobile consumers. HFR is dedicated to delivering a solution that is accessible, user-centric, and highly responsive to the demands of both renters and property owners.

The project aims to provide a unified experience across web and mobile applications while adhering to industry standards and best practices in the property rental domain. HFR envisions maintaining its position as a forward-thinking leader in the property rental sector, delivering value to clients through cutting-edge technology and an unwavering commitment to excellence.

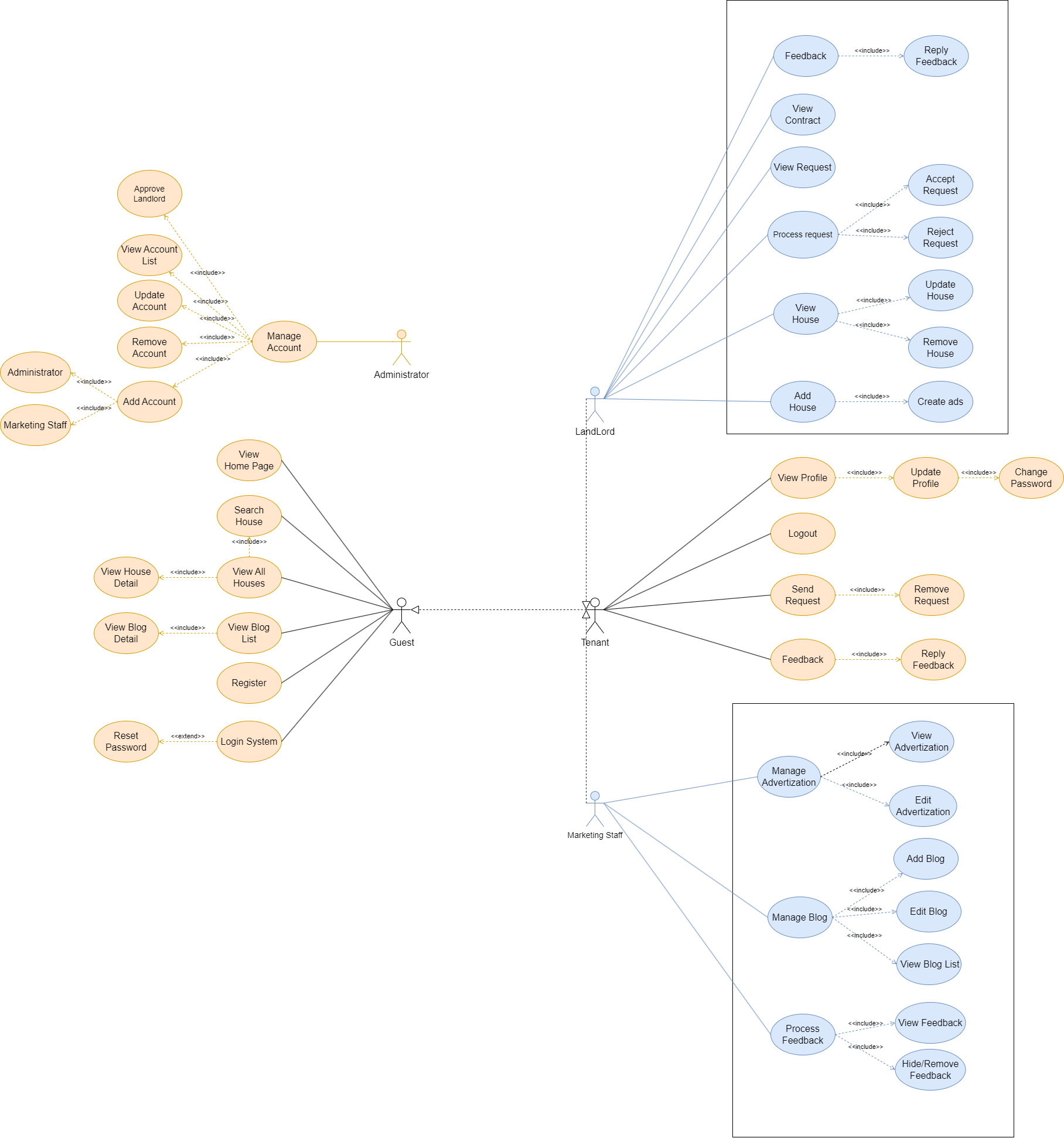
## **1.4** **Scope of testing**

Within the scope of the "House Rental System" project, our focus is to verify and ensure the reliability and quality of information related to rental properties.

Our goal is to ensure that individuals seeking rental accommodations on this platform have accurate and detailed information about the available houses, providing an easy and convenient experience.

We will conduct thorough checks and testing to ensure the system's suitability and performance, as well as to safeguard the security of personal information. Let's delve deeper into the testing scope to understand how we ensure that "HouseForRent" meets the highest standards in the field of house rentals

A. **Target of Test**



|  |  |
| --- | --- |
| ● Create House  ● Send Request  ● Add Contract | ● Add/Edit Blogs  ● Send mail  ● View/Edit Profile |

### B. **Test Stage**

|  |  |  |
| --- | --- | --- |
| **No** | **Test Stages** | **Description** |
| 1 | Unit Test | The Unit Test phase is the initial testing stage and is carried out by the IUH development team. It focuses on testing individual components or units of the software to ensure they perform as expected. |
| 2 | Integration Test | The Integration Test stage is performed by the IUH Quality Assurance (QA) team. It follows the Unit Test and is initiated only after the Unit Test Gate is passed.  Integration Testing verifies that the individual units or components work together seamlessly.  Testers focus on specific use cases and ensure all requirements are met. This phase ensures that all integrated components are incorporated well. |
| 3 | System Test | The System Test is conducted by the IUH QA team. It involves comprehensive end-to-end testing of the system in a pre-production environment.  This stage aims to validate that all system functions and interfaces perform as expected in a production environment. System Testing evaluates the system as a whole to ensure it meets the specified requirements. |
| 4 | Acceptance Test | The Acceptance Test phase is carried out by HouseForRent.com.  IUH has certain responsibilities during this phase, which include:   * Facilitating the application deployment * Providing support for bug fixes * Assisting with the Final User Acceptance Test.   This stage ensures that the system aligns with the requirements and expectations of HouseForRent.com, the end user of the application |

### C. **Test Assumption**

The following assumptions are made for test process:

● **HouseForRent.com Validation:** HouseForRent plays a critical role in validating and approving the final software product, test procedures, and the results of the testing process. Their feedback and approval are instrumental in determining the readiness of the software for production use.

● **IUH Project Team Verification**: Verification from the IUH project team is assumed for test execution, documentation, and the results obtained during the testing process. This verification ensures that the testing activities are carried out effectively and in accordance with the defined procedures.

● **IUH Project Manager Approval**: IUH project managers are responsible for approving and committing the necessary test resources. This includes providing the resources required for conducting testing activities, such as personnel, tools, and infrastructure.

●  **Limited Test Requirements**: The scope of testing is limited to the functional and non-functional requirements specified in Section 2 of the test plan document. These requirements form the basis for the testing process and are used to assess the software's performance and functionality.

●  **Specific Hardware and Software:**

1. Hardware:

* Computer and Server:
* Test Workstations: MSI Bravo 15 B5DD with AMD Ryzen 5 5600H, 8GB RAM, and Windows 11.
* Mobile Device:
* Android Smartphone: Xiaomi Redmi Note 8 Pro with MIUI 12.
* iOS Devices: iPhone XR.

1. Software:

* Operating Systems:

Test Machines: Windows 11.

* Browsers:
* Google Chrome: Version 118.
* Microsoft Edge: Version 118.

## **1.5** **Constraints**

The following constraints may apply when testing is performed on the House for Rent (HFR) system:

* **Schedule Dependency**: The deadline for testing can only be met if the development progress remains on schedule. Delays in the development phase may have a direct impact on the testing timeline.
* **Unit Test Inspection**: Test execution can only commence when the system successfully passes the Unit Test Inspection, ensuring that the basic building blocks of the system function as intended.
* **Requirements Testing**: At least one round of testing must be conducted to validate the system against the specified requirements. This ensures that the system aligns with the defined functionality and user expectations.
* **Production Environment Support**: To conduct complete testing, support from HFR, particularly for production environment setup, is essential. A collaborative effort is required to replicate the real-world environment in which the system will operate, ensuring accurate and comprehensive testing.

These constraints underscore the interdependency between development and testing phases, emphasizing the need for alignment and collaboration among different stakeholders to ensure the successful and timely testing of the HFR system.

## 

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## **1.6** **Risk List**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **#** | **Description** | **Source** | **Probability** | **Exposure** | **Trigger** |
| 1 | Inaccurate or delayed notifications to users | Software bugs, server delays | High | Moderate | User feedback about missing or late alerts |
| 2 | Insufficient Hardware Resources | Resource Management | High | High | When the number of testing machines is insufficient to run all test cases |
| 3 | Booking and Payment System Errors | Payment gateway, financial institutions, or internal booking systems | Moderate | High | When users face difficulties in booking or making payments |
| 4 | Non-Platform Compatibility | Varied devices, browsers, and operating systems used by customers | High | High | When users report compatibility issues or non-functionality on specific devices or browsers |
| 5 | Personal Information Security | Cybersecurity threats, external attacks, or internal vulnerabilities | Low | High | When security vulnerabilities are detected or there is a potential data breach attempt |
| 6 | Delayed Rental Requests Processing | Internal systems and processes for request handling | Moderate | Moderate | When users experience delays in rental request processing |
| 7 | Unavailability of Rental Properties | Property Listings or Real Estate Agencies | Moderate | High | When there is a shortage of available rental properties for testing |
| 8 | Inaccurate Property Information | Property Owners or Listing Providers | High | Moderate | When users report discrepancies between the property details on the website and the actual property |
| 9 | Payment Processing Failures | Payment Gateway or Financial Institutions | Moderate | High | When payment transactions fail or users report payment-related issues |
| 10 | Regulatory and Legal Compliance | Legal and Regulatory Changes | Low | High | When new regulations are introduced, or when non-compliance is identified |

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## **1.7** **Training Needs**

|  |  |  |
| --- | --- | --- |
| **No** | **Training items** | **Description** |
| 1 | Unit Test | Learn & study from internal: IUH's other teams  Learn & study from external:  1. Microsoft Pax: [Microsoft Research – Emerging Technology, Computer, and Software Research](https://www.microsoft.com/en-us/research/?from=https%3A%2F%2Fresearch.microsoft.com%2Fen-us%2Fdownloads%2Fd2279651-851f-4d7a-bf05-16fd7eb26559%2Fdefault.aspx&type=no-match)  2. Udemy:[Top Unit Testing Courses Online - Updated [October 2023] (udemy.com)](https://www.udemy.com/topic/unit-testing/) |
| 2 | System Test | Learn & study from external:  1. Coursera: [Coursera | Degrees, Certificates, & Free Online Courses](https://www.coursera.org/) |
| 3 | Security Test | Learn & study from external:<https://www.owasp.org/>  1. Ethereal/WireShark  2. Coursera: [Coursera | Degrees, Certificates, & Free Online Course](https://www.coursera.org/) |

# 

# **2 REQUIREMENTS FOR TEST**

## **2.1** **Test Items**

### A. **Functional Items**

|  |  |
| --- | --- |
| 1. Homepage 2. Rent Listings  * View rental listings * Contact property owners * Get directions to the property  1. Search Filters 2. Find Any Property  * Search by address * Search by property type * Search by price  1. User Account  * Log in * Forgot Password * Dashboard * Create an account * Create a user profile * View user profile * Edit user profile * Delete user profile/account * Delete account | 1. Support and Contact  * Online support * Contact us  1. Property Reports 2. Renting Resources  * Renting guides * Renting laws * Important documents  1. News and Updates 2. About HFR  * About us * Customer commitment * Policies and Terms |

### 

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### B. **Non functional Items**

|  |
| --- |
| 1. System must be APTRR and TRUSTe compliance.  2. In the normal condition (could be 100 concurrent users or less), each page should load in 4 seconds or less.  3. In the stress condition (could be more than 100 concurrent users), each page should load in 12 seconds or less. |

## 

## **2.2** **Acceptance Test Criteria**

|  |  |  |
| --- | --- | --- |
| **No** | **Test Stages** | **Qualified ratios** |
| 1 | Unit Test | To pass this stage, all unit test cases must be tested and passed 100%. All defects should be fixed and re-tested. Average of 11 bugs/KLOC. |
| 2 | Integration Test | To pass this stage, all test cases must be tested and passed 100%. All defects should be fixed and re-tested. Average of 4 bugs/KLOC. |
| 3 | System Test | To pass this stage, all test cases must be tested and passed 100%. All defects should be fixed and re-tested. Average of 0.5 bugs/KLOC. |
| 4 | Acceptance Test | Acceptance Test will be conducted and approved by HouseForRent.com |

|  |  |  |
| --- | --- | --- |
|  |  |  |
| 1 | Functional requirement | 100% of all requirement defined on part 2.1 A |
| 2 | Non-functional requirement | 100% of all requirement defined on part 2.1 B |

# **3 TEST STRATEGY**

## **3.1** **Test Types**

### A. **Function Testing**

|  |  |
| --- | --- |
| **Test Objective:** | This will ensure that all functionalities related to house renting, such as searching for houses, viewing details, making a booking, etc., are working as expected. |
| **Technique:** | - Use black-box testing to test the functions without knowledge of how they are implemented.  - Execute testing steps based on real-world scenarios that users might perform.  - Execute each case, using valid and invalid data, to verify the following:  + Get the expected results when valid and invalid data is used  + Valid input data is updated correctly into database  + The appropriate errors or warning messages are displayed when invalid data is used |
| **Completion Criteria:** | - All functions related to house renting must be tested.  - No critical errors are found during the testing process.  - All test scenarios have been executed and achieved expected results. |
| **Special Considerations:** | - Ensure that testing does not affect the actual user data in the system.  - When testing functionalities related to payments, use a separate testing environment and do not perform actual transactions. |

### B. **Usability Testing**

|  |  |
| --- | --- |
| **Test Objective:** | The goal is to ensure that the house renting system has a user-friendly interface, is intuitive, and does not cause confusion for users, ranging from those searching for rental properties to landlords posting listings. |
| **Technique:** | - User Interaction Testing:  + Conduct testing sessions with real users to observe how they interact with the system.  + Assess how users search for houses, filter results, view property details, and carry out rental steps.  - Heuristic Evaluation:  + User Experience experts evaluate the system based on a predefined set of criteria.  + Evaluate factors such as interface design, consistency, system feedback, and ease of navigation. |
| **Completion Criteria:** | - All testing sessions have been conducted and feedback from users has been collected.  - There are no usability issues causing confusion or difficulty for users.  - Issues identified during testing have been addressed or planned for resolution. |
| **Special Considerations:** | - Focus on the target user groups, including both tenants and landlords.  - Consider testing across various devices and browsers to ensure usability across all platforms. |

### C. **Security Testing**

|  |  |
| --- | --- |
| **Test Objective:** | To ensure the confidentiality, integrity, and availability of the house renting system's data and functionalities. The objective is to identify vulnerabilities and weaknesses that could be exploited by malicious entities, ensuring that users' personal and financial data are secure. |
| **Technique:** | - Vulnerability Scanning:  Description: Automated scanning of the system to identify known vulnerabilities.  Application: Use tools to scan the house renting system for known vulnerabilities that need patching.  - SQL Injection Testing:  Description: Test for vulnerabilities that could allow unauthorized database access using SQL code.  Application: Check if the house renting system's input fields can be manipulated to retrieve, modify, or delete data from the database.  - Authentication and Session Management Testing:  Description: Ensure that authentication processes and session management are secure.  Application: Test the login process, password recovery, and ensure sessions expire appropriately. |
| **Completion Criteria:** | - All identified vulnerabilities are either resolved, mitigated, or accepted based on the risk they present.  - The house renting system meets industry standards and best practices for security.  - No unauthorized access or data breach occurs during testing. |
| **Special Considerations:** | - Ensure testing is performed in a controlled environment to prevent unintended disruptions or disclosures.  - Always have backups before performing security tests to prevent data loss or system downtimes. |

### 

### D. **Integration Testing**

|  |  |
| --- | --- |
| **Test Objective:** | To validate that different modules or components of the house renting system interact and work seamlessly together as intended, ensuring that data flow and functional interactions between modules do not result in any errors or issues. |
| **Technique:** | - Big Bang Integration Testing:  + This approach involves integrating all the modules at once and then testing the entire system.  + Useful for smaller systems or when all modules are developed simultaneously for the house renting platform. |
| **Completion Criteria:** | - All modules or components of the house renting system are successfully integrated.  - Data flows seamlessly between integrated modules without any loss or corruption.  - All test cases devised for integration points pass successfully. |
| **Special Considerations:** | - Ensure that any mock data or stubs/drivers used for testing closely mimic real-world scenarios for accuracy.  - Continuous integration tools and practices can be beneficial in automating and streamlining integration tests, especially for larger systems. |

## **3.2** **Test Stages**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Types of Test** | **Stages of Test** | | | |
| **Unit** | **Integration** | **System** | **Acceptance** |
| Function Test | X | X | X | X |
| Usability Test | X | X | X | X |
| Security Test | X |  | X | X |
| Integration Test | X | X | X |  |

## **3.3** **Tools**

|  |  |  |  |
| --- | --- | --- | --- |
| **Purpose** | **Tool** | **Vendor/In-house** | **Version** |
| Defect log | DMS | IUH tool |  |
| Collect test effort | Timesheet | IUH tool |  |
| Documenting | MS Word, Excel | Microsoft | 2021 |
| Unit Testing | JUnit 5 | FrameWork |  |
| Function Testing | Manual | Manual |  |
| Usability Testing | SonarQube | <open source> | 10.2.1 |
| Security Testing | SonarQube | <open source> | 10.2.1 |
| Integration Testing | SonarQube | <open source> | 10.2.1 |
| Database | SQL Server | Microsoft | 2022 |

# **4 RESOURCE**

## **4.1** **Human Resource**

This table shows the staffing assumptions for the project.

|  |  |  |
| --- | --- | --- |
| **Worker/Doer** | **Role** | **Specific Responsibilities/Comments** |
| Dư Đức Dương | Project Manager | Manage test resources and assign test tasks  Approve Test Cases (UT, IT, ST),Create Test Plan, Test Plan, Test Results, Test Reports |
| Võ Chúc Duyên | Test Leader | Manage test resources and assign test tasks  Test Cases (IT, ST), Test Scripts (IT, ST)  Review Test Data  Create Test Reports |
| Phạm Thanh Sơn | Tester | Review Test Cases (IT, ST)  Create Test Data and Execute Test (IT, ST)  Report Test Results,Test Plan, Test Reports |
| Khuất Văn Thái | Tester | Review Test Cases (IT, ST)  Create Test Data and Execute Test (IT, ST)  Report Test Results,Test Plan, Test Reports |
| Trần Quang Minh | Tester | Review Test Cases (IT, ST)  Create Test Data and Execute Test (IT, ST)  Report Test Results,Test Plan, Test Reports |

## 

## 

## 

## **4.2** **Hardwares and Softwares**

Web performs well on these Hardwares and Softwares:

| **Hardware** | **OS Version** |
| --- | --- |
| **iPhone** | iOS |
| **Samsung Galaxy** | Android |
| **MacBook** | MacOS Catalina |
| **Xiaomi** | MIUI |
| **Windows** | Microsoft |

|  |  |
| --- | --- |
| **Software** | **Version** |
| Microsoft Windows Server | 2019 SP2 |
| Microsoft IIS | 10.0 |
| Microsoft SQL Server | 2022 |
| Microsoft .NET Framework | 4.8 |

# **5 TEST MILESTONES**

|  |  |  |  |
| --- | --- | --- | --- |
| **Milestone Task** | **Effort (pd)** | **Start Date** | **End Date** |
| Create Test Plan | 5 | 15/09/2023 | 15/09/2023 |
| Review & Update Test Plan | 2 | 20/09/2023 | 21/09/2023 |
| Create IT&ST Test Cases | 3 | 23/09/2023 | 24/09/2023 |
| Review & Update IT&ST Test Cases | 3 | 26/09/2023 | 28/09/2023 |
| Create & Execute & Report UT for Software Package version 1.0 | 3 | 29/09/2023 | 30/09/2023 |
| Create test data for Software Package version 1.0 | 4 | 01/10/2023 | 01/10/2023 |
| UT Gate for Software Package version 1.0 | 1 | 02/10/2023 | 05/10/2023 |
| Execute IT for Software Package version 1.0 | 4 | 06/10/2023 | 07/10/2023 |
| Execute ST for Software Package version 1.0 | 0.5 | 06/10/2023 | 07/10/2023 |
| Create IT&ST Test Report for Software Package version 1.0 | 2 | 08/10/2023 | 09/10/2023 |
| Create & Execute & Report UT for Software Package version 1.1 | 0.5 | 08/10/2023 | 09/10/2023 |
| UT Gate for Software Package version 1.1 | 2 | 10/10/2023 | 12/10/2023 |
| Create test data for Software Package version 1.1 | 3 | 13/10/2023 | 14/10/2023 |
| Execute IT for Software Package version 1.1 | 1 | 14/10/2023 | 16/10/2023 |
| Execute ST for Software Package version 1.1 | 1 | 15/10/2023 | 17/10/2023 |
| Create IT&ST Test Report for Software Package version 1.1 | 3 | 18/10/2023 | 18/10/2023 |
| Create & Execute & Report UT for Software Package version 1.2 | 0.5 | 18/10/2023 | 19/10/2023 |
| UT Gate for Software Package version 1.2 | 1 | 19/10/2023 | 19/10/2023 |
| Create test data for Software Package version 1.2 | 1 | 20/10/2023 | 22/10/2023 |
| Execute IT for Software Package version 1.2 | 1 | 22/10/2023 | 23/10/2023 |
| Execute ST for Software Package version 1.2 | 0.5 | 22/10/2023 | 22/10/2023 |
| Create IT&ST Test Report for Software Package version 1.2 | 1 | 23/10/2023 | 24/10/2023 |
| Execute System Test for Software Package final version | 1 | 24/10/2023 | 24/10/2023 |
| Create Test Report for Software Package final version | 0.5 | 24/10/2023 | 25/10/2023 |

# **6 DELIVERABLES**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Deliverables** | **Delivered Date** | **Delivered by** | **Delivered to** |
| 1 | Test Plan | 15/09/2023 | IUH | HFR |
| 2 | Test Reports for Software Package version 1.0 | 29/09/2023 | IUH | HFR |
| 3 | Test Reports for Software Package version 1.1 | 08/10/2023 | IUH | HFR |
| 4 | Test Reports for Software Package version 1.2 | 18/10/2023 | IUH | HFR |
| 5 | Test Reports for Software Package final version | 24/10/2023 | IUH | HFR |

Phân công nhiệm vụ:

* Phần 1: Trần Quang Minh, Phạm Thanh Sơn
* Phần 2: Khuất Văn Thái
* Phần 3: Dư Đức Dương
* Phần 4: Võ Chúc Duyên
* Phần 5: Võ Chúc Duyên
* Phần 6: Võ Chúc Duyên