Requirements document - Real Estate Management System

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1 Introduction

The Requirements Document (RD) is used to clearly define and document the specific requirements and functions of the property management system. This document is aimed at the development team to ensure that the desired functions and features of the system are fully understood and implemented.

2 Scope

The aim of the property management system is to provide a comprehensive platform to efficiently and effectively support the management of properties, tenants, rental contracts, maintenance requests, adverts and rental income. The scope of the system includes the following main functions:

- Adding, editing and deleting properties.

- Management of tenant data and rental contracts.

- Handling maintenance requests.

- Creating and managing property adverts.

- Tracking of rental income.

- Assigning roles such as admin, tenant, manager to users.

3   User Profiles

The property management system is aimed at various user profiles, including:

- **Administrator:** Responsible for managing the system, including user administration and system configuration.

- **Property manager:** Responsible for managing properties, rental contracts, maintenance and advertisement requests.

- **Tenants:** Responsible for managing their leases, submitting maintenance and advertisement requests.

4 Functional Requirements

The functional requirements of this property management system describe the specific functions and capabilities that the system provides to effectively support the business processes. These requirements ensure that the system performs all essential tasks necessary for the management of real estate while meeting the needs of the users.

4.1 User administration

Requirement ID	1
Requirement Name	User registration
Requirement Description	As a potential user, I would like to have the opportunity to register in the system by providing my personal information such as username, e-mail address and password.
Type of request	Function
Priority	High
Status	Implemented

Requirement ID	2
Requirement Name	Login of a user
Requirement Description	As a registered user, I would like to be able to log into the system with my login details (username and password).
Type of request	Function
Priority	High
Status	Implemented

Requirement ID	3
Requirement Name	Logging out a user
Requirement Description	As a logged-in user, I would like to be able to log out of the system safely in order to end my session.
Type of request	Function
Priority	High
Status	Implemented

4.2 User Authentication

Requirement ID	4
Requirement Name	Display username
Requirement Description	As a user, I would like to see my username displayed on the dashboard, so that I can confirm that I am logged in with the correct account.
Type of request	Function
Priority	Medium
Status	Implemented

4.3 Application control

Requirement ID	5
Requirement Name	Close application
Requirement Description	As a user, I would like to close the application, so that I can exit the system safely.
Type of request	Function
Priority	Low
Status	Implemented

Requirement ID	6
Requirement Name	Minimize application
Requirement Description	As a user, I would like to minimize the application window, so that I can temporarily hide the application without closing it.
Type of request	Function
Priority	Low
Status	Implemented

4.4 Property Management

Requirement ID	7
Requirement Name	Add a property
Requirement Description	As a user, I would like to be able to add a new property with details such as address, size and facilities.
Type of request	Function
Priority	High
Status	Implemented

Requirement ID	8
Requirement Name	Editing a property
Requirement Description	As a user, I would like to be able to edit the details of an existing property.
Type of request	Function
Priority	High
Status	Implemented

Requirement ID	9
Requirement Name	Delete a property
Requirement Description	As a user, I would like to be able to delete an existing property from the system.
Type of request	Function
Priority	High
Status	Implemented

Requirement ID	10
Requirement Name	Search property
Requirement Description	As a user, I would like to be able to search for properties using different criteria.
Type of request	Function
Priority	Medium
Status	Implemented

4.5   Tenant Management

Requirement ID	11
Requirement Name	Select a tenant from list
Requirement Description	As a user, I would like to be able to select a tenant from the list to view their details.
Type of request	Function
Priority	High
Status	Implemented

Requirement ID	12
Requirement Name	Edit tenant
Requirement Description	As a user, I would like to be able to update the details of a selected tenant.
Type of request	Function
Priority	High
Status	Implemented

Requirement ID	13
Requirement Name	Show tenants
Requirement Description	As a user, I would like to be able to view a list of all tenants.
Type of request	Function
Priority	Medium
Status	Implemented

Requirement ID	14
Requirement Name	Add new tenant
Requirement Description	As a user, I would like to be able to add a new tenant to the system.
Type of request	Function
Priority	High
Status	Implemented

4.6 Lease Contract Management

Requirement ID	15
Requirement Name	Show lease contracts
Requirement Description	As a user, I would like to view a list of all lease contracts that have been added to the system, so that I can monitor and manage lease contracts.
Type of request	Function
Priority	Medium
Status	Implemented

Requirement ID	16
Requirement Name	Add lease contract
Requirement Description	As a user, I would like to add lease contract details into the system, so that the lease contracts are properly documented and managed.
Type of request	Function
Priority	High
Status	Implemented

Requirement ID	17
Requirement Name	Create lease contract as PDF
Requirement Description	As a user, I would like to create a PDF document for a lease contract, so that I can provide a formal and printable agreement.
Type of request	Function
Priority	High
Status	Implemented

Requirement ID	18
Requirement Name	Download lease contract
Requirement Description	As a user, I would like to download the PDF document of a selected lease contract from the system, so that I can view the contract details as needed.
Type of request	Function
Priority	Medium
Status	Implemented

4.7   Payment Management

Requirement ID	19
Requirement Name	Show payments
Requirement Description	As a user, I would like to view a list of all payments that have been added to the system.
Type of request	Function
Priority	Medium
Status	Implemented

Requirement ID	20
Requirement Name	Add Payment
Requirement Description	As a user, I want to add new payment records, so that I can keep track of tenant payments.
Type of request	Function
Priority	High
Status	Implemented

4.8 Maintenance Request Management

Requirement ID	21
Requirement Name	Show maintenance requests
Requirement Description	As a user, I would like to display a list of maintenance requests with relevant details.
Type of request	Function
Priority	High
Status	Implemented

Requirement ID	22
Requirement Name	Add a maintenance request
Requirement Description	As a user, I would like to add a maintenance request.
Type of request	Function
Priority	High
Status	Implemented

Requirement ID	23
Requirement Name	Search maintenance request
Requirement Description	As a user, I would like to search through maintenance records.
Type of request	Function
Priority	Medium
Status	Implemented

Requirement ID	24
Requirement Name	Edit selected maintenance request
Requirement Description	As a user, I would like to edit the details of selected maintenance request, so that I can keep the maintenance records current and accurate.
Type of request	Function
Priority	High
Status	Implemented

Requirement ID	25
Requirement Name	Delete selected maintenance request
Requirement Description	As a user, I would like to delete selected maintenance requests, so that I can remove outdated or completed maintenance tasks from the list.
Type of request	Function
Priority	High
Status	Implemented

Requirement ID	26
Requirement Name	Display pie chart
Requirement Description	As a user, I would like to display a pie chart of open maintenance work by status, so that I can visualize the distribution of maintenance tasks.
Type of request	Function
Priority	Medium
Status	Implemented

4.9   Reporting

Requirement ID	27
Requirement Name	Display total sold properties
Requirement Description	As a user, I would like to see the total number of sold properties.
Type of request	Function
Priority	Medium
Status	Implemented

Requirement ID	28
Requirement Name	Display total income
Requirement Description	As a user, I would like to see the total income so that I can keep track of the financial performance.
Type of request	Function
Priority	Medium
Status	Implemented

Requirement ID	29
Requirement Name	Display number of available properties
Requirement Description	As a user, I would like to see the number of available properties, so that I can monitor property availability.
Type of request	Function
Priority	Medium
Status	Implemented

Requirement ID	30
Requirement Name	Display chart
Requirement Description	As a user, I would like to see a stacked bar chart of total costs so that I can track income and expenses.
Type of request	Function
Priority	Medium
Status	Implemented

4.10 Advertisement Management

Requirement ID	31
Requirement Name	Show advertisements
Requirement Description	As a user, I would like to display a list of all advertisements, so that I can manage the advertisements effectively.
Type of request	Function
Priority	High
Status	Implemented

Requirement ID	32
Requirement Name	Add advertisement
Requirement Description	As a user, I would like to add advertisement, so that I can keep the advertisements up-to-date.
Type of request	Function
Priority	High
Status	Implemented

Requirement ID	33
Requirement Name	Search advertisement
Requirement Description	As a user, I would like to search for advertisements based on different criteria.
Type of request	Function
Priority	Medium
Status	Implemented

Requirement ID	34
Requirement Name	Edit selected advertisement
Requirement Description	As a user, I would like to edit the details of selected advertisement, so that I can keep the advertisement records current and accurate.
Type of request	Function
Priority	High
Status	Implemented

Requirement ID	35
Requirement Name	Delete selected advertisement
Requirement Description	As a user, I would like to delete a selected advertisement, so that I can manage and remove outdated advertisements.
Type of request	Function
Priority	High
Status	Implemented

5   Non-functional Requirements

The non-functional requirements for the property management system are essential to ensure that the system not only provides the desired functions, but also does so in an efficient, secure and user-friendly manner. Following requirements define the quality attributes of the system that are critical to successful operation and user satisfaction.

5.1   Performance

Requirement ID	1
Requirement Name	Performance under load
Requirement Description	The system must offer high performance and availability, even when used by multiple users at the same time.
Type of request	Non-functional
Priority	High
Status	Implemented

5.2   Security

Requirement ID	2
Requirement Name	User privacy protection
Requirement Description	The system must ensure the privacy of users and their personal details.
Type of request	Non-functional
Priority	High
Status	Implemented

5.3   Usability

Requirement ID	3
Requirement Name	User-friendly interface
Requirement Description	The system must have an intuitive and user-friendly interface, that is easy to use by clear navigation and minimal training required for users to perform tasks efficiently.
Type of request	Non-functional
Priority	High
Status	Implemented

5.4 Scalability

Requirement ID	4
Requirement Name	System scalability
Requirement Description	The system must be able to scale with increasing numbers of users and properties..
Type of request	Non-functional
Priority	High
Status	Implemented

5.5 Compatibility

Requirement ID	5
Requirement Name	Cross-platform compatibility
Requirement Description	The system must be usable across all major operating systems, including Windows.
Type of request	Non-functional
Priority	High
Status	Implemented

6 System Visualisation

In this section, we provide a comprehensive visualization of the property management system by summarizing and displaying various diagrams. These diagrams are essential to show the structure, interactions and dynamic processes of the system in a clear and understandable way. By visualizing the system components and their relationships, we can gain a deeper understanding of how the system works and its architecture.

6.1 ER-diagram

An entity-relationship diagram (ER diagram) is an essential tool in system development that visually represents the data structure of a system. The ER diagram is particularly important for a real estate management system, as it illustrates the relationships between the various data entities and thus provides a basis for the design and implementation of the database schema.
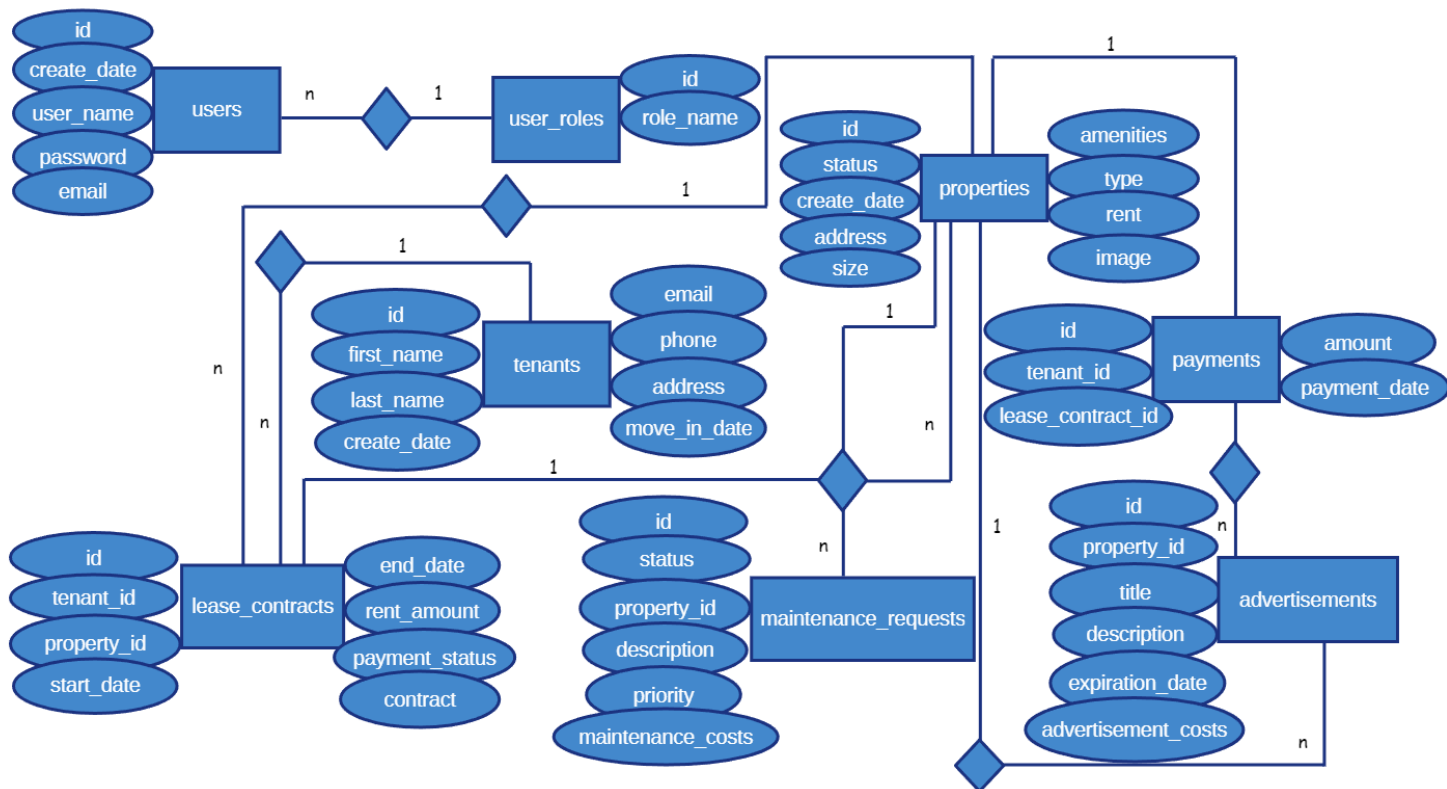

Figure 1: ER-Diagram

6.2 Use case diagram

The use case diagram for the property management system provides a comprehensive overview of the various interactions between the user and the system. This diagram is an essential tool to visualize the functional requirements of the system. Each use case represents a unit of functionality that provides added value for users.
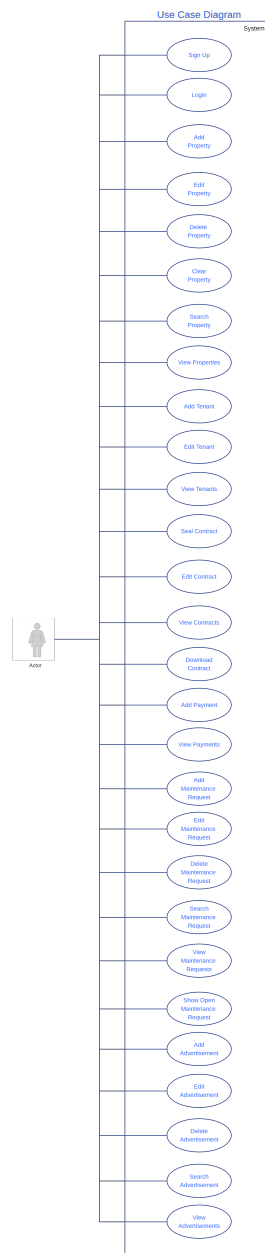

Figure 2: Use Case Diagram

6.3 Class diagram

The class diagram of the property management system represents the static structure of the system by describing the most important classes and their relationships to each other. It is a central modeling element in object-oriented software development and provides a detailed overview of the system architecture.

In the context of the property management system, the class diagram helps to visualize the various data objects, their attributes and methods as well as the interactions between them. This diagram forms the basis for the design and implementation of the software, as it defines the structure and logical relationships within the system.

Figure 3: Class Diagram