



## Term Project

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Section:2

Course ID:CSE307

Course: System Analysis and Design

Submitted to:

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# Section 1

## INTRODUCTION

- Introduction
- History leading to project request
- Identify Problem, opportunity
- Project goal and objectives

## Introduction:

Rent IT is a rental management system designed to make the rental process easier for both property owners and renters. It is intended to simplify the rental and management of properties, including property listings, the renter applications, rental agreements, and rent collection. Rent IT provides a wide variety of features and tools to assist owners in efficiently managing their properties, such as a centralized dashboard for managing multiple properties, the renter screening tools, and online rent payment options. Property owners can use Rent IT to save time, reduce administrative tasks, and provide a better rental experience for their residents.

## History leading to project request:

We created RENT IT with the aim of assisting individuals in finding suitable rental properties and ensuring that they secure their desired house. Furthermore, we strive to promote the development of various affordable, accessible, and high-quality rental housing options within the community. Our ultimate goal is to provide financial planning for homeownership, enabling low and moderate-income families to achieve success. Many of our acquaintances are currently pursuing their studies in Dhaka. As managing a rental property for bachelors can be a challenging task, they faced several difficulties in finding an appropriate apartment. This issue is not unique to them, as bachelors living outside of the city often encounter similar problems. Therefore, we are determined to establish RENT IT that can provide people with a quick and effective long-term solution in less than a minute.

## Problems and Solutions:

Problem	Solution
The rental application process needs to be handled manually.	RENT IT can simplify the rental application process by providing an online application form that potential renters can access from anywhere at any time.
Property owners may find it difficult to keep track of all of their properties, which can lead to missed rental payments, tenant complaints, and inefficient property management.	RENT IT provides a central hub for all property management tasks, such as listing properties, managing leases, and communicating with renters.
Manually collecting rent payments can be time-consuming.	RENT IT has an automated rent collection system that allows renters to pay rent online.
Property owners may struggle to communicate effectively with renters, and important messages or requests may be missed.	This system includes messaging, alerts, and notifications to help property owners stay on top of renters' requests and concerns.

**Opportunities:**

- There is currently no similar all-in-one platform.
- By utilizing machine learning algorithms, the RENT IT website could provide customized recommendations for properties based on a user's search history, location, and other preferences.
- Incorporating virtual property tours using 3D modeling and virtual reality technology can provide a more immersive and convenient viewing experience for potential renters.

**Project goal and objectives:**

The purpose of RENT IT is to provide a comprehensive and efficient property management system that streamlines the rental application process, improves communication between owners and renters, and improves overall property management operations. The system aims to improve efficiency, reduce errors, and improve the renter's experience by providing a centralized platform for managing all rental-related activities. Ultimately, the goal is to increase property management companies' profits while providing tenants with a better experience.

## Section 2

### INTRODUCTION CONT.

- Product Description
- System Context diagram
- Hardware detail (Include Rich Picture)
- Key Technical Features of Software

## Product Description:

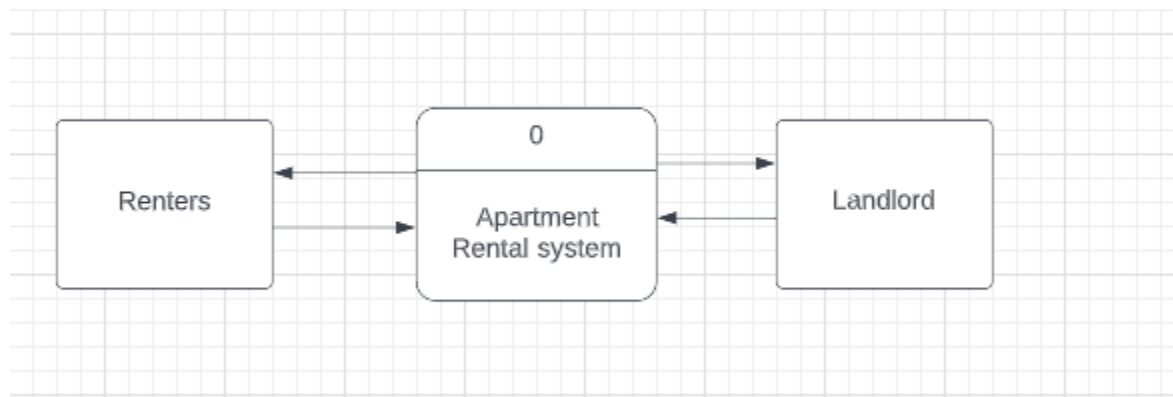
RENT IT is an innovative online platform designed to simplify the rental process for both property owners and renters. It is a user-friendly, reliable and secure rental management system that streamlines the rental process and reduces the need for paper-based documentation.

With RENT IT, property owners can easily list their rental properties, track rental applications, and manage tenant information. The system offers a range of tools to help property owners streamline the rental process, including online tenant applications, background checks, and online lease signing. In addition, landlords can track rent payments, and renewals through the system.

For renters, RENT IT offers a streamlined process for finding and applying for rental properties. Renters can easily search for available rental properties, submit rental applications, and communicate with landlords through the platform. The system also provides tenants with access to their rental history, lease agreements, and payment records.

Overall, RENT IT is a comprehensive rental management system that offers a range of tools and features to simplify the rental process for property owners and renters alike. With its intuitive user interface and robust functionality, RENT IT is a great website for anyone looking to manage their rental properties more efficiently.

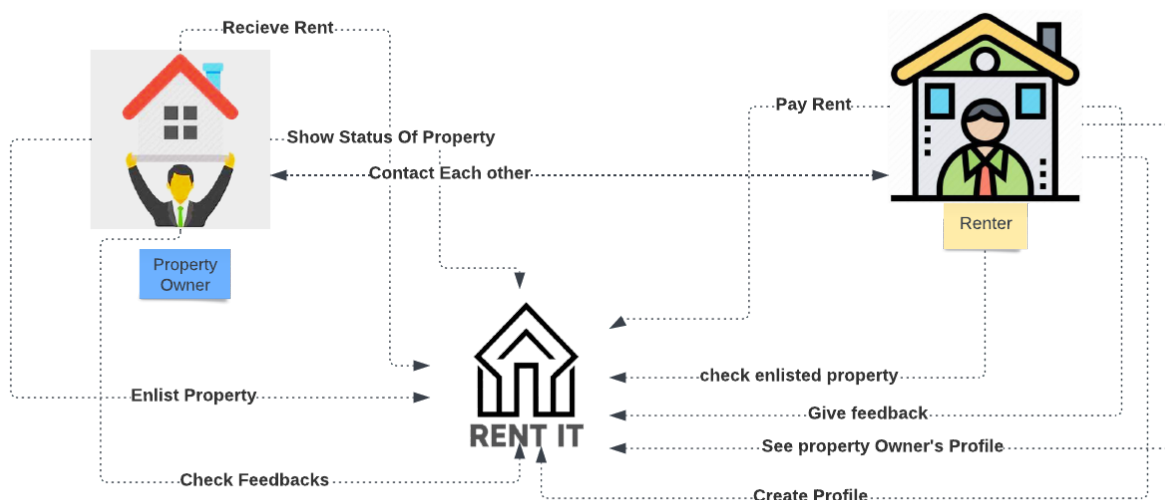
## System Context diagram:



## Hardware detail (Include Rich Picture):

The RENT IT website is hosted on a web server and can be accessed by client devices such as desktop computers and mobile devices. The website's hardware infrastructure is designed to ensure reliable and efficient performance, with high-speed internet connectivity, powerful processors, and ample storage space for data management. The web server plays a crucial role in hosting the website and managing the flow of data between the client devices and the server. It is equipped with advanced features and technologies such as load balancing, firewalls, and intrusion detection systems to ensure the website's security and availability. In addition, client devices such as desktop computers and mobile devices require adequate hardware specifications to access and use the RENT IT website. This includes sufficient

processing power, memory, and storage capacity to run the website smoothly and provide a seamless user experience. Overall, the hardware infrastructure of the RENT IT website is optimized to support its functionality, ensure reliable performance, and provide a superior user experience to clients accessing the platform from various devices.



## Key Technical Features of Software:

- **Cloud-based:** RENT IT is a cloud-based software, which means that it can be accessed from anywhere with an internet connection.
- **Scalable:** The software is designed to be scalable, which means that it can grow as the business grows.
- **User-friendly interface:** RENT IT has a user-friendly interface that makes it easy to navigate and use.
- **Data management:** The software provides tools for efficient data management, including the ability to track properties, renters, rent payments, and a lot more.
- **Mobile accessibility:** RENT IT website is responsive that allows property owners and renters to access the platform on the go, making it easier to manage properties and stay up to date on rental activity.

## Section 3

### REQUIREMENTS DISCOVERY AND USES CASES

- Information Gathering methods (At least three methods)
- Major functionalities offered by the system
- Use Case Diagram
- Normal Scenarios (At least 2)
- Alternate Scenarios (At least 2)
- Functional Requirements
- Non-Functional Requirements (At least 5)



## Information Gathering methods:

**Interviewing:** Information gathering interviews are purpose-driven conversations with relevant experts in the field and stakeholders. Typically, interviews are conducted to ascertain the interviewee's opinions, perceptions about the current system, goals, and essential background information. A thorough preparation is required for a fruitful interview. Preparation may include reading background material, selecting who to interview, establishing interview objectives, informing the interviewee ahead of time, and determining the type and structure of the questions.

Open-ended questions may lead to more engaging conversations, but they have the possibility of being out of context and perhaps even irrelevant. Closed interview questions may yield precise, reliable data, but they may be too boring for the interviewee and may fail to obtain rich details. The most efficient method is to design an interview with both types of questions.

### **Interview Questions asked to the higher Executives(arranged in a funnel to extract maximum information)**

- A brief overview of how the current system works.
- Why do they require a new system?
- What are your main concerns about the current system?
- What changes/improvements are needed to the current system?

### **Interview Questions asked to the students**

- What do you think is the best aspect of the current system?
- Do you have any suggestions for new features?
- How can the current system be improved?
- Are you comfortable renting the apartment through the system?

**Joint Application Design (JAD):** JAD is a process for gathering business requirements while developing new information systems for a company. The JAD process also includes approaches for increasing user participation, accelerating development, and improving specification quality. It consists of a workshop in which knowledge workers and IT specialists meet for several days to define and review the system's business requirements. High-level management officials will be among those in attendance, ensuring that the product provides the necessary reports and information at the end. This serves as a management process, allowing departments to work more efficiently with users in less time.

For the JAD session we sat down with the interviewee for 6 consecutive day in an outdoor place to discuss the functionalities of the system. Following an orientation session led jointly by our Session leader and the organization's Executives and others, we first documented the existing system's user stories and determined the logical workflow. We expressed concerns about some of their requirements because the cost, workability, and practicality rendered certain requirements unfeasible given their budgetary constraints and our limited expertise. They were understanding, and we agreed on a scalable system that would allow for easy integration with any future components they might want to add.

**Questionnaires:** Questionnaires are an effective way to collect information from a large number of people in a short period of time. This is especially useful when stakeholders are spread across different

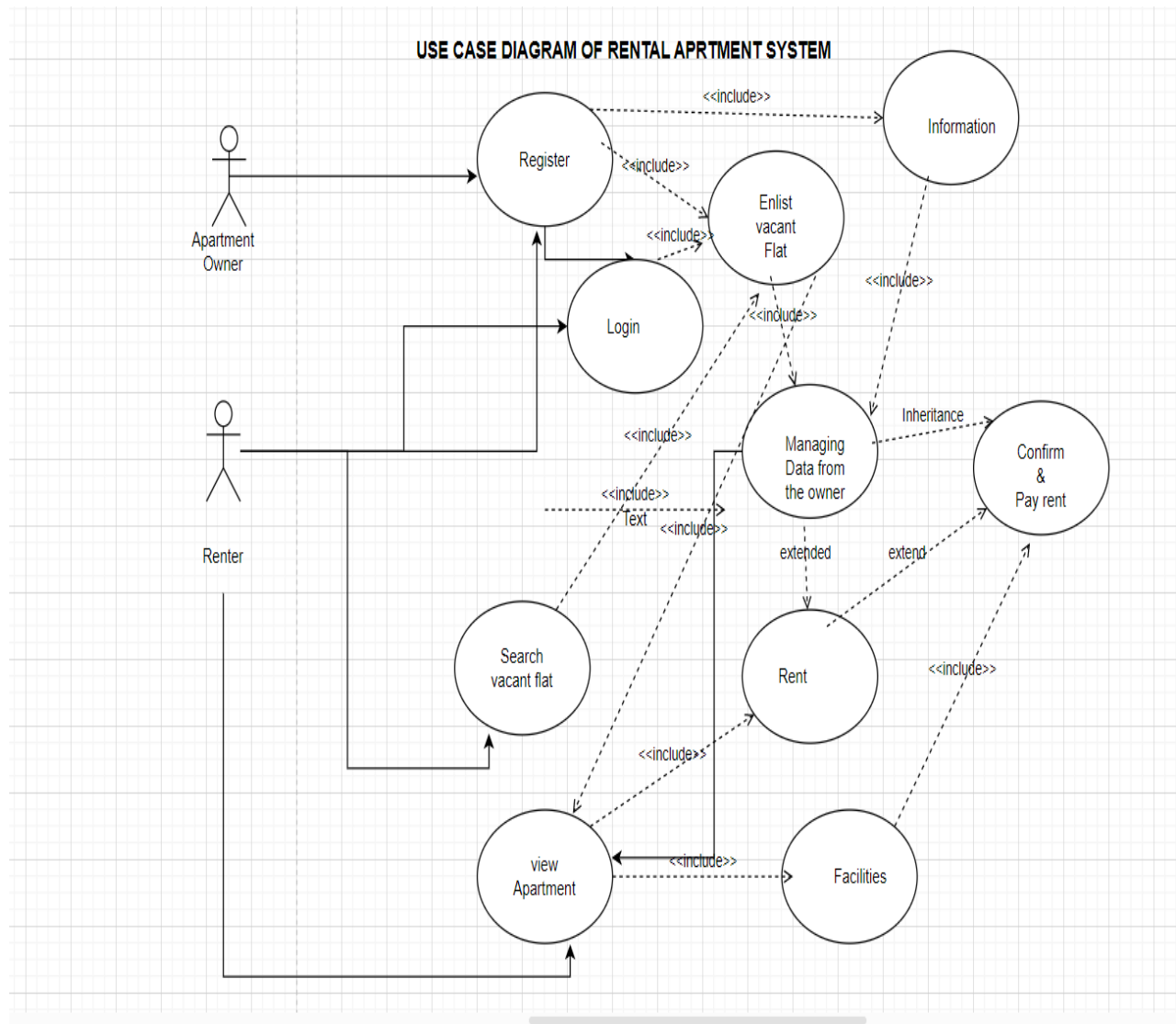
areas or when there are numerous respondents whose input is required to help establish system requirements. When using questionnaires, the questions should be focused and organized around a specific feature or project goal. The questionnaires should not be too long ensuring the respondent completes it. The questionnaires are listed below.

- How long have you been with the company?
- How satisfied are you with the current system?
- How willing are you to adapt to the new system?
- How effective do you think the current system is for renting apartments or ensuring secure transactions?
- What would make it easier for you to use the website more effectively?

### **Major functionalities offered by the system:**

The system allows property owners to manage their properties, including adding new properties, updating property information, and viewing property details. The system allows property owners to manage their renters including adding new renters and viewing renters details. The system allows property owners to collect rent from renter and keep track of rent payments. Renters can submit rental applications for properties through the system, and property owners can review and approve or reject applications. The system facilitates communication between the property owner and the renter.

## Use Case Diagram of the Software:



### Normal Scenario:

USE CASE name: <b>Register</b>	Unique Id: 1
Area: Registration page	
Actor(s): Renter, property owner	
Stakeholder:	
Description: Users are able to register	
Triggering Event: click on the Register button on the page	
Trigger type: External	

Steps Performed (Main Path)	Information for Steps
<ol style="list-style-type: none"> <li>1. Click on Register button</li> <li>2. Completes all the necessary sections</li> <li>3. Read and agree to the registration form and click on register.</li> </ol>	Registration form Details Response and Registration form
<b>Alternative scenario</b>	
<ol style="list-style-type: none"> <li>1. User clicks on register button</li> <li>2. Fill up all the required data</li> <li>3. Clicks on register but fails and an alert is shown “account already exists”</li> <li>4. The user is redirected to the login page.</li> </ol>	
Preconditions: <ol style="list-style-type: none"> <li>1. Must have an internet connection</li> <li>2. Complete all the sections</li> <li>3. Must not be registered yet</li> </ol>	
Postconditions: <ol style="list-style-type: none"> <li>1. User successfully registered</li> <li>2. Will be able to rent or view apartments</li> </ol>	
Assumptions: <ol style="list-style-type: none"> <li>1. user can view the registration page</li> <li>2. Details of the user is stored in the system</li> </ol>	
Success Guarantee: User can rent apartment	
Minimum Guarantee: The profile details is saved	
Requirements Met: Users are allowed to create new profiles.	
Outstanding Issues: can the user login from different devices?	

USE CASE name: <b>Pay rent</b>	Unique Id: 2
Area: payment page	
Actor(s): Renter	
Stakeholder: Property owner and rental manager	
Description: users will be able to pay the rent	
Triggering Event: click on the Pay button on the page	
Trigger type: Temporal	

Steps Performed (Main Path)	Information for Steps
<ol style="list-style-type: none"> <li>1. Click on pay button</li> <li>2. Fill up all the required data</li> <li>3. Read and agree to the registration form and click on pay.</li> </ol>	Pay form Details Response and pay form
<b>Alternative scenario</b>	
<ol style="list-style-type: none"> <li>5. User clicks on pay button</li> <li>6. Fill up all the required data</li> <li>7. Clicks on pay but fails and an alert is shown “payment failed”</li> <li>8. The user is redirected to the dashboard.</li> </ol>	
Preconditions: <ol style="list-style-type: none"> <li>1. Must have an internet connection</li> <li>2. Must be logged in to the system</li> </ol>	
Postconditions: <ol style="list-style-type: none"> <li>1. User successfully paid the rent</li> </ol>	
Assumptions: <ol style="list-style-type: none"> <li>1. user can view the payment page</li> <li>2. Details of the user is stored in the system</li> </ol>	
Success Guarantee: user pays the rent	
Minimum Guarantee: the transaction data is saved	
Requirements Met: User is allowed to make payment	
Outstanding Issues: was the payment successful?	

USE CASE name: <b>Search Vacant Apartment</b>	Unique Id: 3
Area: Homepage	
Actor(s): Apartment owner, Renters	
Stakeholder: Apartment owner, Renters	
Description: Renter are searching according to the Locations and Price-range	
Triggering Event: Search vacant apartment Button on the homepage	
Trigger type: Temporal	
Steps Performed (Main Path)	Information for Steps

<ol style="list-style-type: none"> <li>1. Click on search button</li> <li>2. Fill up all the required data</li> <li>3. Select location and price range</li> </ol>	Search Details Details
<b>Alternative scenario</b>	
<ol style="list-style-type: none"> <li>1. User clicks the search button.</li> <li>2. Fill up all the required data</li> <li>3. “No relevant Apartment are found in these Area”</li> <li>4. The user is redirected to the dashboard.</li> </ol>	
Preconditions: <ol style="list-style-type: none"> <li>1. Must have an internet connection</li> <li>2. Must be logged in to the system</li> <li>3. Be specific about the locations</li> </ol>	
Postconditions: <ol style="list-style-type: none"> <li>1. User successfully found vacant apartments</li> <li>2. Allows user to view details about the specific apartments, including photos and descriptions</li> </ol>	
Assumptions: <ol style="list-style-type: none"> <li>1. User can view all the facilities</li> <li>2. Details of the user is stored in the system</li> </ol>	
Success Guarantee: user searches and views apartment	
Minimum Guarantee: All the options will be overviewed	
Requirements Met: User is allowed to search vacant apartment	
Outstanding Issues: was the searching process successful?	

## Functional Requirements:

- Login  
Users will be able to access the system after proper authentication.
- Pay Rent  
The student who will rent the apartment will be able to pay rent using the system in a secure transaction.
- Enlist property  
Property owners can list their property for rent.
- Rent apartment  
Property owners can rent out their properties.
- Receive rent  
The property owners will receive their rent through the system ensuring a secure transaction.
- View apartment

The user will be able to see the pictures of the enlisted apartments with the details.

### **Non-Functional Requirements:**

- Usability:  
To interact with the system, the system provides a help and support menu in all interfaces.
- Security  
To prevent unauthorized access to the system, the system provides a username and password. The subsystem should provide a high level of security and integrity for the data held by the system; only authorized personnel should be able to gain access to the system's page; and only users with a valid password and username should be able to login to view the user's page.
- Performance  
The system response time for each instruction issued by the user must be extremely fast. The system should have a high performance rate when executing user input and should be able to respond quickly.
- Availability  
The system should be accessible 24 hours a day, seven days a week. In the event of a major system malfunction, the system should be repaired as soon as possible so that the business process is not adversely affected.
- Error handling  
Errors should be greatly reduced, and an appropriate error message that guides the user through the recovery process should be provided. The validation of user input is essential.

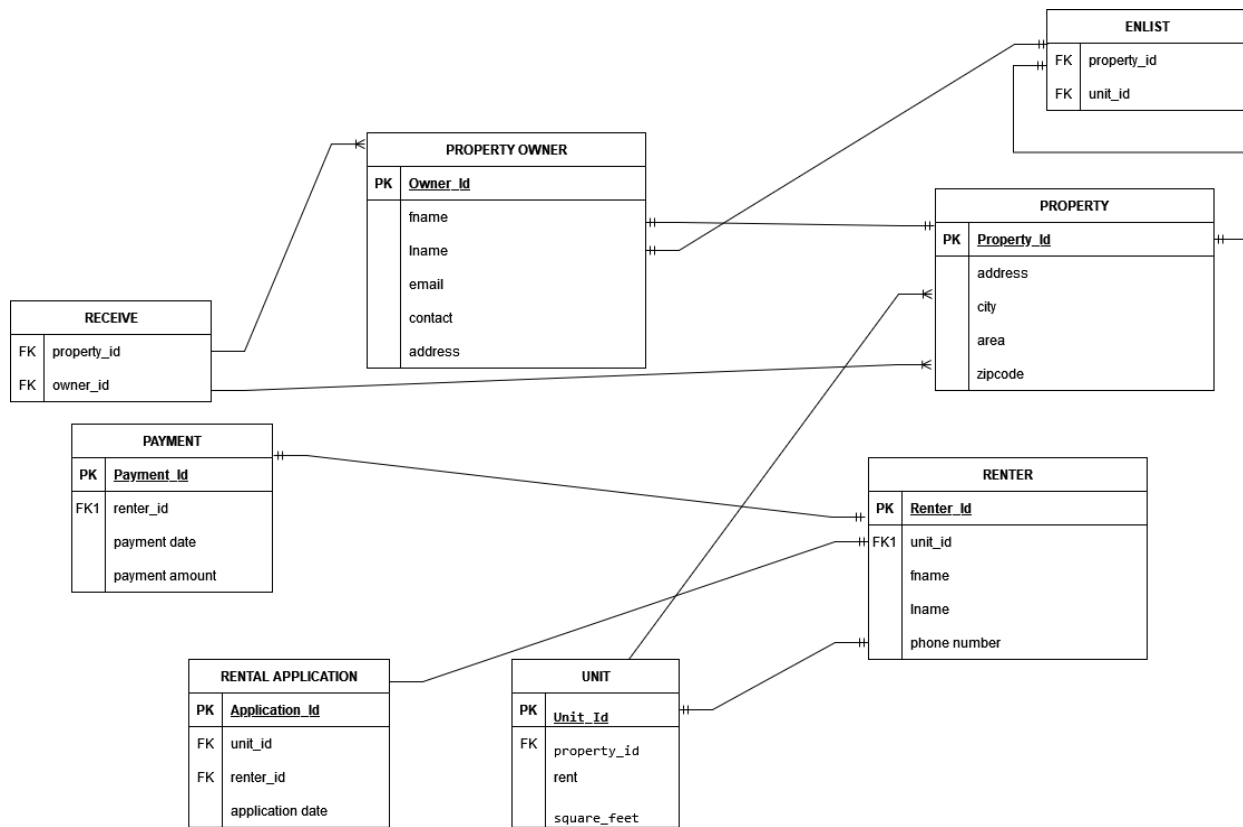
## Section 4

### ERD and UML diagrams

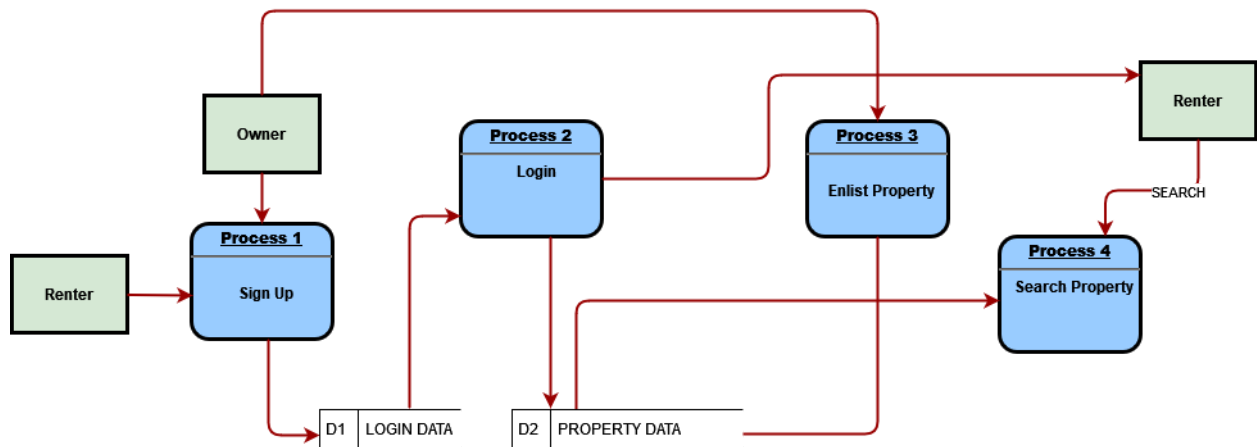
- Entity Relationship Diagram
- Logical Data Flow diagram
- Physical Data Flow diagram
- Activity diagrams
- Sequence diagrams
- Class diagrams
- State-chart diagrams.
- CRUD matrix



## Entity Relationship Diagram for RENT IT:

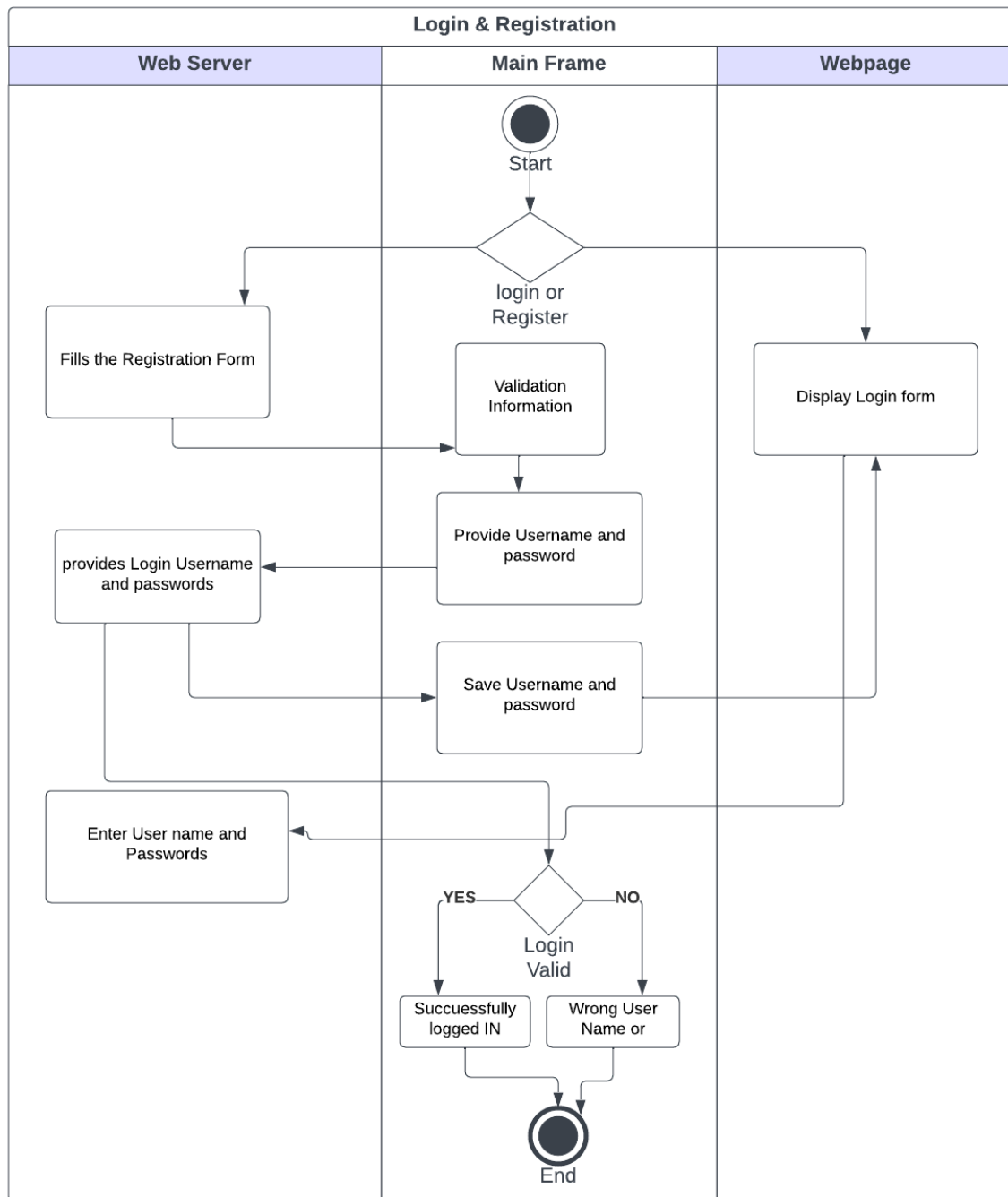


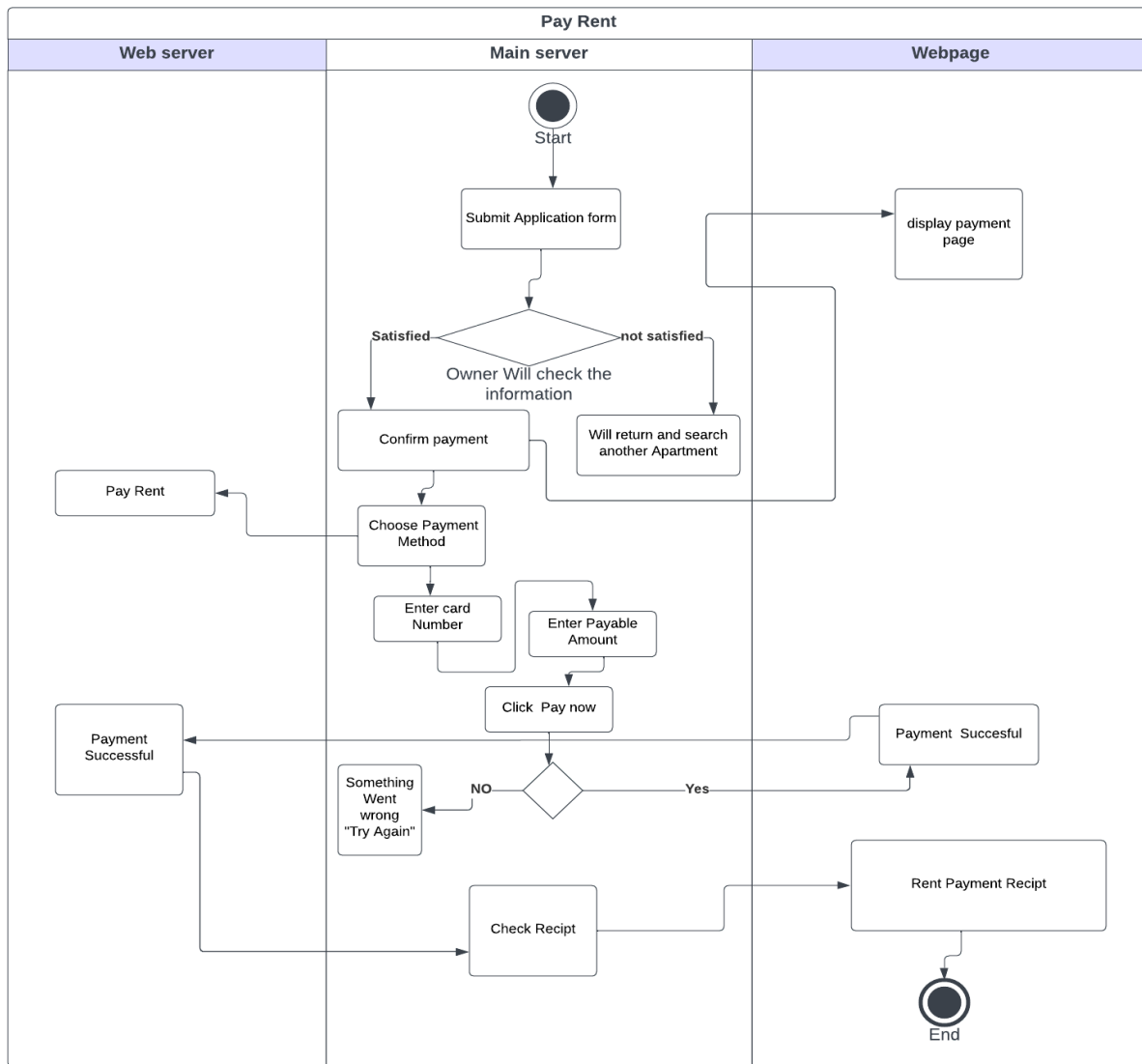
## Logical Data Flow diagram:

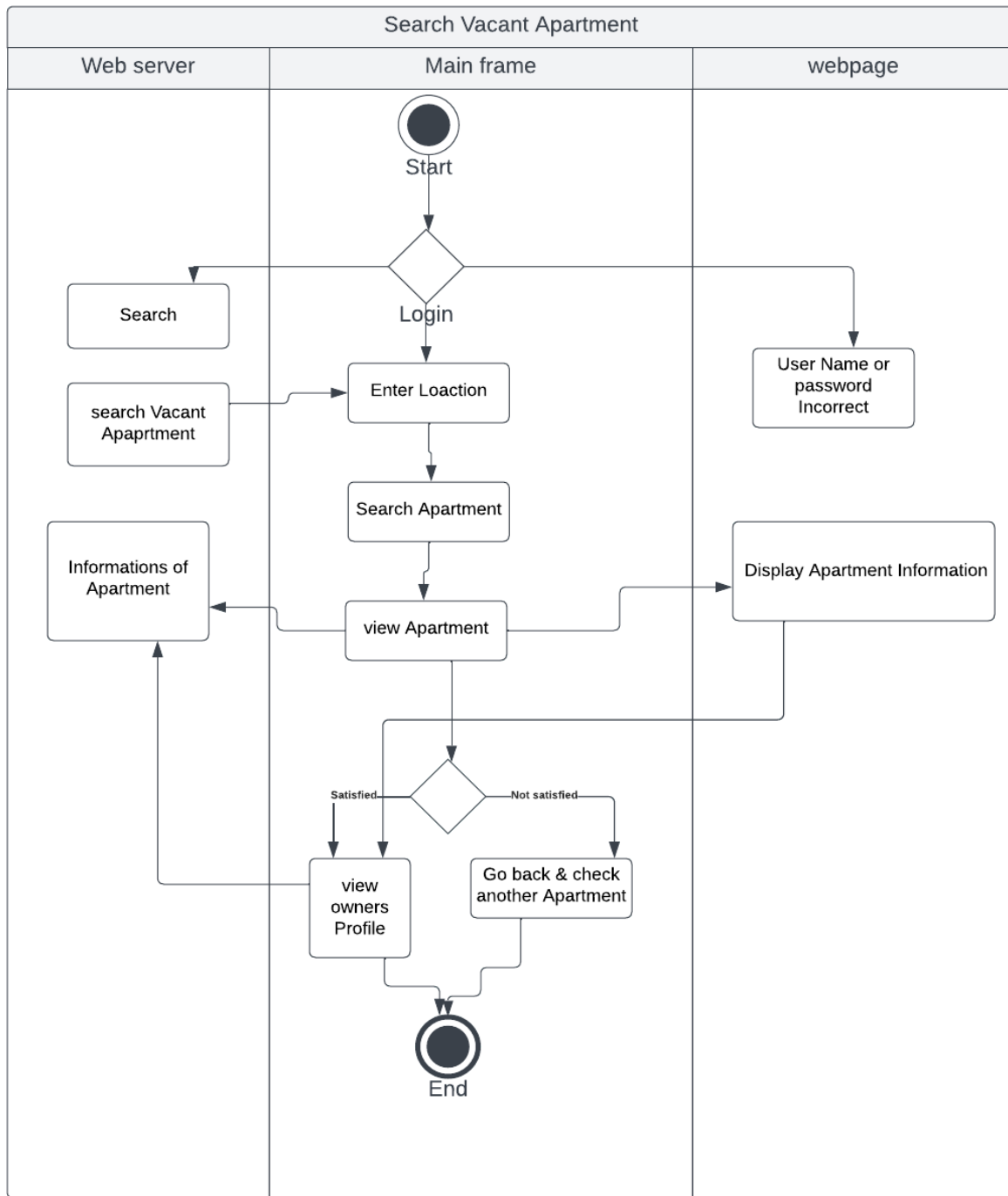


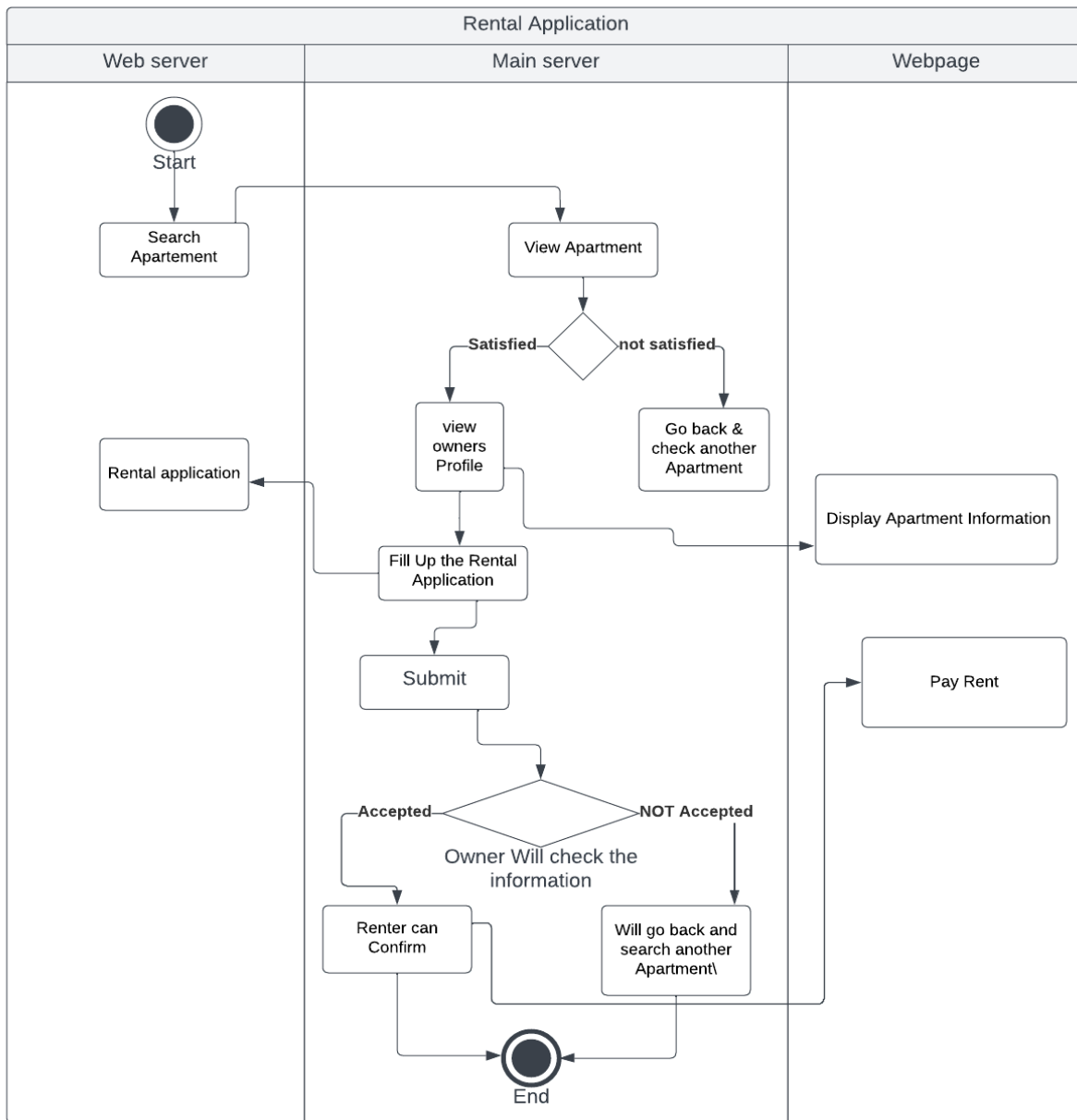


## Activity diagrams:

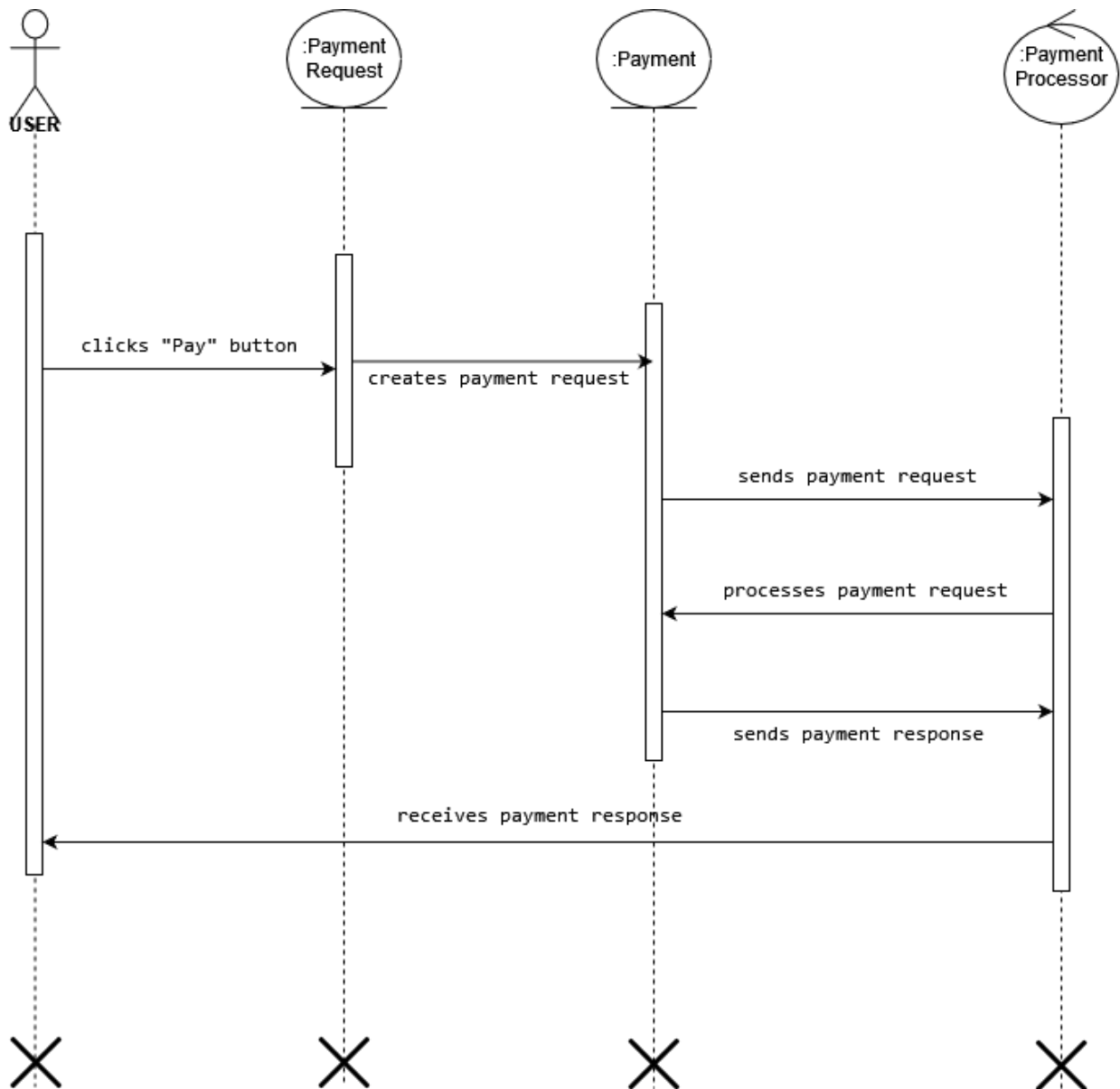


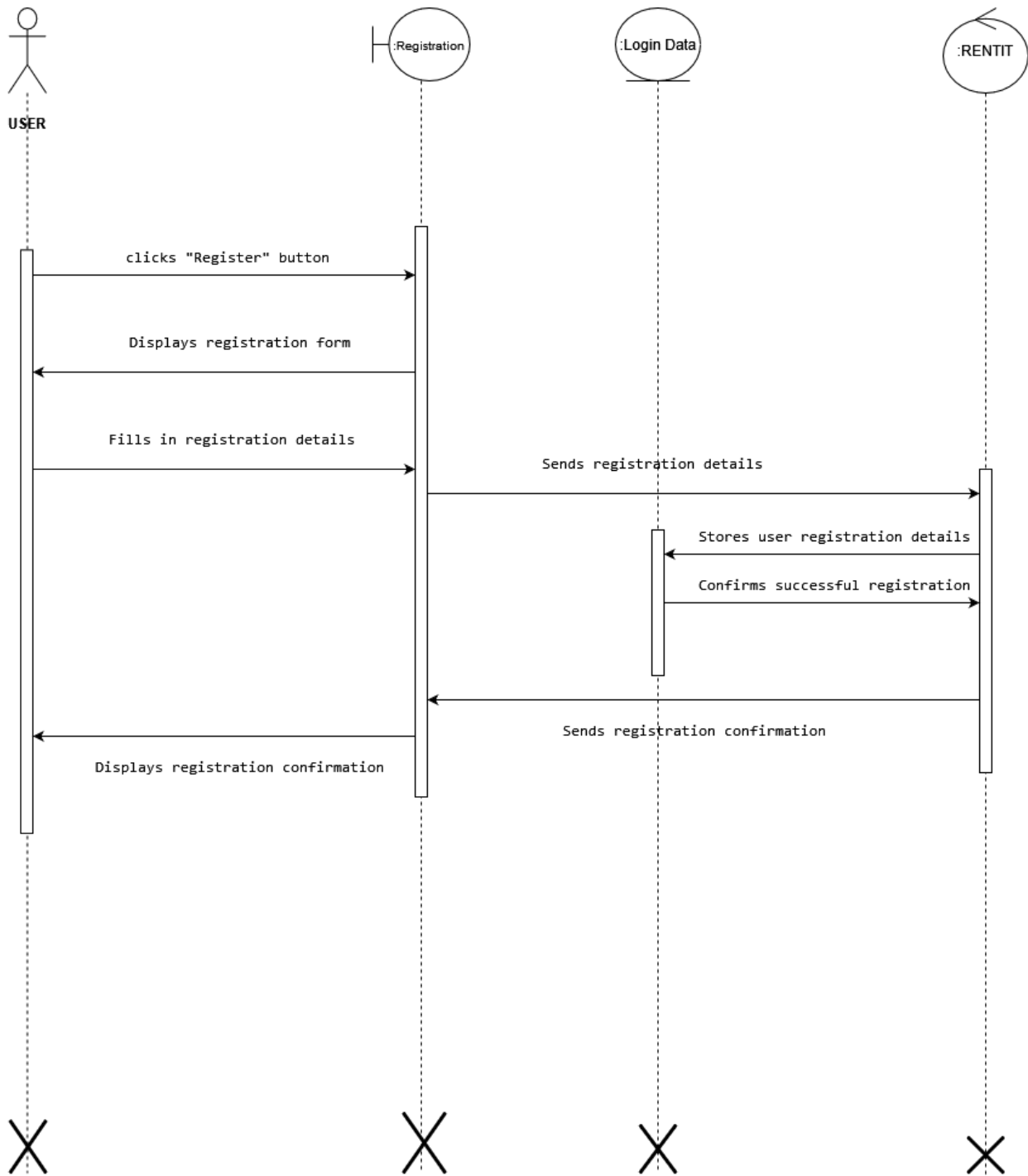






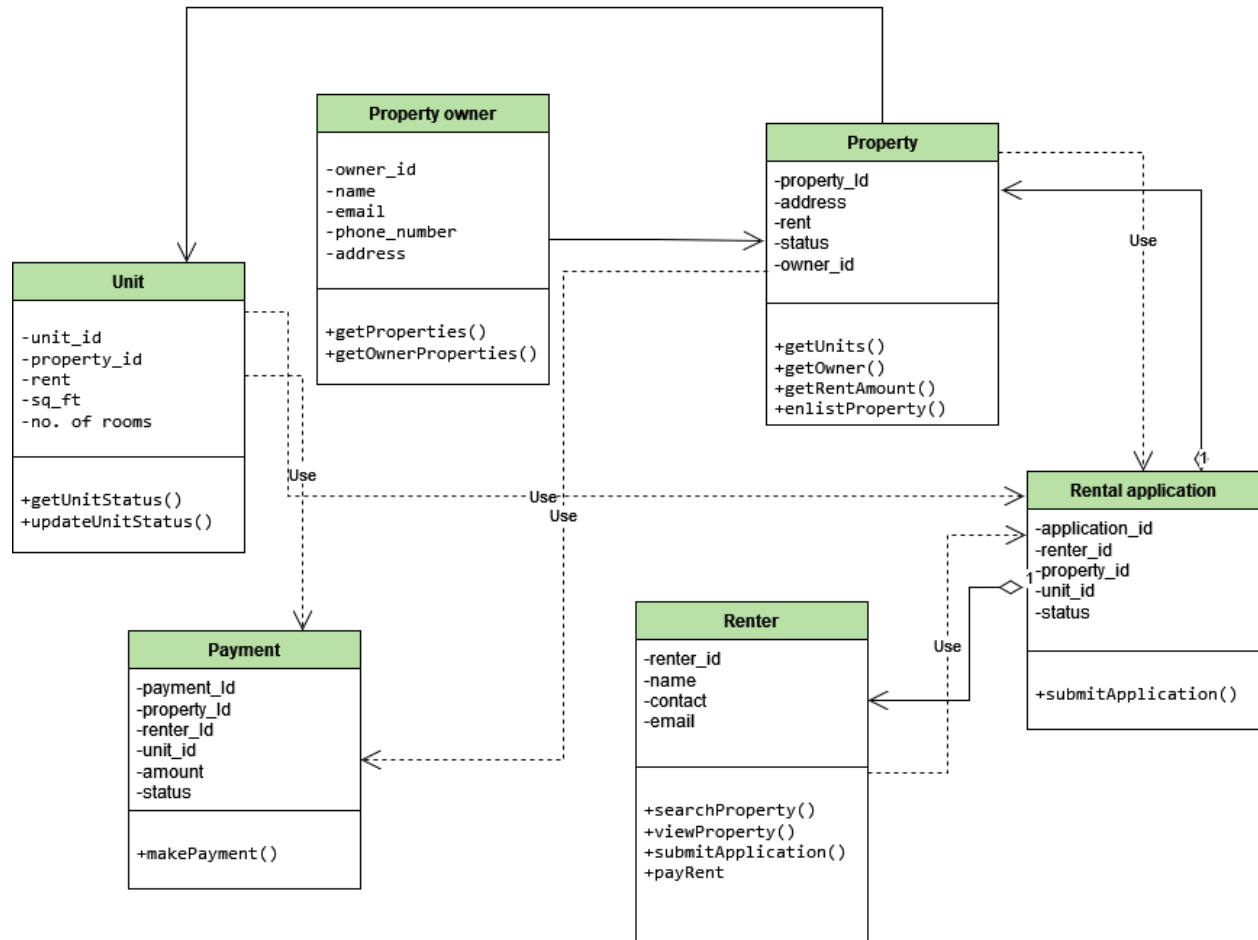
## Sequence diagrams:



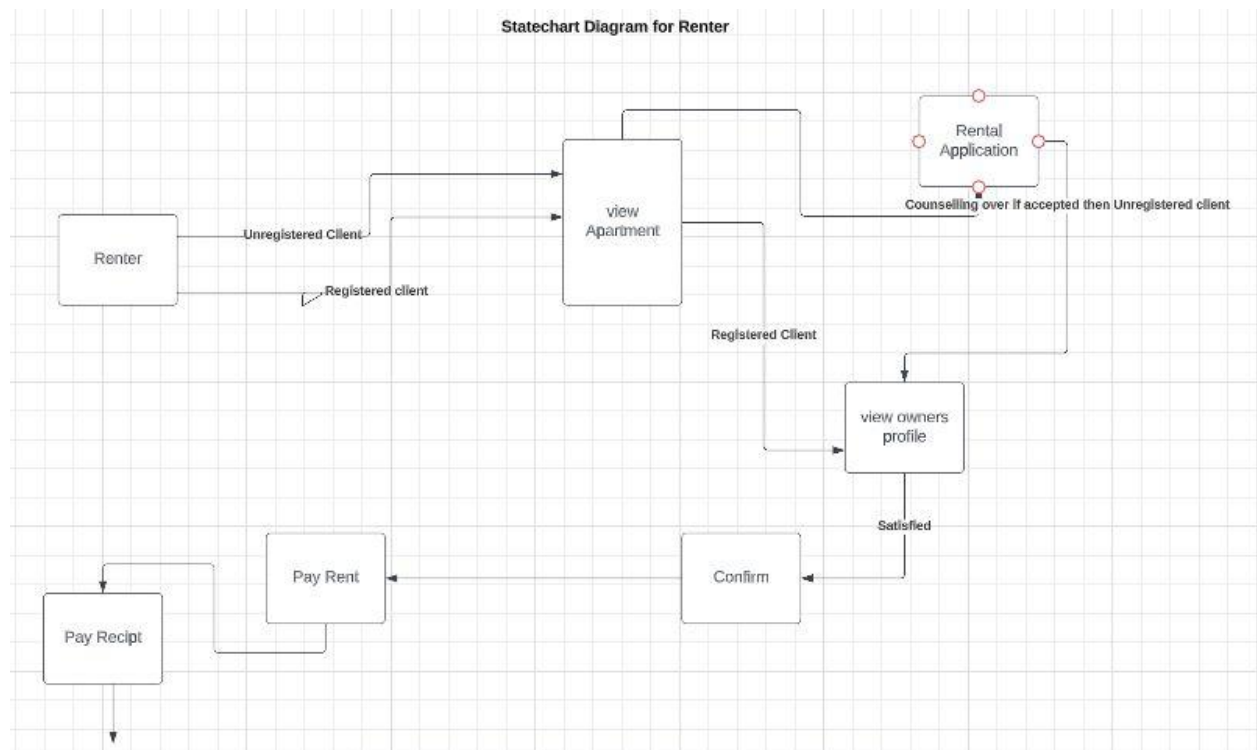
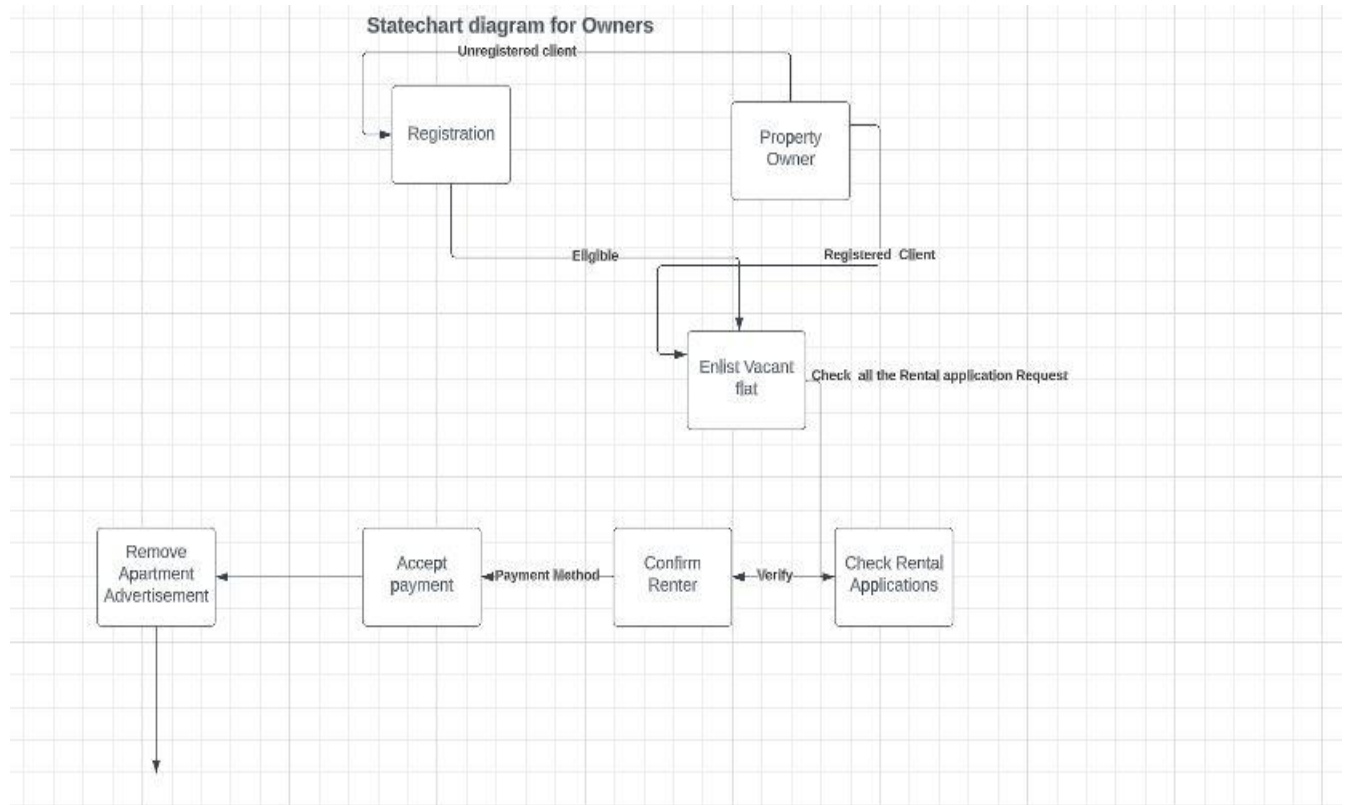




## Class diagrams:



## State-chart diagrams:



## CRUD matrix:

OPERATIONS	Enlist	Property	Unit	Renter	Rental Application	Payment	Location
Create	✓	✓	✓	✓	✓	✓	✓
Read	✓	✓	✓	✓	✓	✓	✓
Update	✓	✓	✓	✓	✗	✗	✗
Delete	✗	✗	✗	✗	✗	✗	✗


## Section 5

### Prototype

- Prototype the user interface


## Prototype the user interface:

Rent IT   Add Apartment   Sign In     

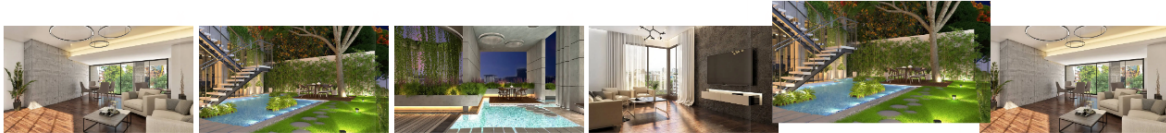
A wide-angle photograph of a city skyline at dusk, featuring a large suspension bridge with illuminated cables and towers, and numerous skyscrapers with lit windows.

Rent IT   Add Apartment   Sign In

Sign In

The RENT IT logo, consisting of a stylized house icon above the text "RENT IT".

## Featured projects



Valeria

RENT: \$55

Bashundhara R/A

Edison Amour

RENT: \$90

Bashundhara R/A

Dulce Domi

RENT: \$85

Uttara

Prime View

RENT: \$65

Uttara

Three

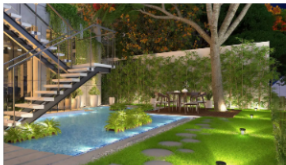
RENT: \$85

Gulshan

Magnifico

RENT: \$65

Gulshan



### Edison Amour

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**SquareFeet :** 1600sq/ft

**Rent :** \$90

**Number of Rooms :** 3

[View Owner's profile](#)

[Submit Rental Application](#)

## Owner's Profile



### Edison Real Estate

Email: [hello@edisonrealestatebd.com](mailto:hello@edisonrealestatebd.com)

Phone: +88012345678910

Address: Rangs Babylonia, Bir Uttam Mir Shawkat Road Tejgaon, Dhaka-1208



### Select Payment Option

**Payment Method:**

Credit Card 

**Card Number:**

Enter card number

**Expiry Date:**

MM/YY

**CVV:**

Enter CVV

Pay Now

## Payment Successful

Thank you for your payment. Your transaction has been successful.

[Check Receipt](#)

## Rent Payment Receipt

Thank you for your rent payment. Here's a receipt for your records:

Description	Amount
Rent Payment	\$85.00
Late Fee	\$10.00
Total Payment	\$95.00

Authorized Signature

