Prepared By:

- Mohammad Enan Al Harun Sahan,
  Reg No. 20101095
  Section: B2

- Md. Asadujjaman Noor
  Reg No. 20101100
  Section: B2

- Sheikh Nafez Sadnan
  Reg No. 20101106
  Section: B2

Presented to:

Ali Zafar Sadiq

Lecturer, CSE, UAP

House Rental System

System Analysis and Design

Course No. CSE 306

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Chapter 1: Introduction

1.1 Purpose

This document is the Software Requirements Specification (SRS) for the "House Rental System" web application. This document contains details, specification and diagram for our project "House Rental System". There is detail about the functions and features and how we are intending to implement them. House Rental System offers its users opportunity to reduce their stress and hassle by providing them a list of houses for rent. This service will serve both tenants and house owners which will continue to evolve as our user count grows.

1.2 Intended Audience

The "House Rental System" has the primary target of serving casual and business minded users. This system will create job opportunities for project managers, system designers, web developers, front-end and back-end developers and testers. Our service users will be:

1. **Property Owners:** Property owners will advertise their property list them for rent or sale.
2. **Tenant**: They will be the primary target of the advertisement.

These are the category of people who will participate and engage to keep the system running and continually develop.

Project Manager: They are the core of the system who will manage how other members of the system are working and how to improve the system.

System Designers: They will be designing the system to make it more approachable to the public and develop according to the need.

Web Developers: They will implement functions and features from the system designers.

1.3 Definitions and Acronyms

HRS – House Rental System

UAP- University of Asia Pacific

CSE- Computer Science and Engineering

SRS- Software Requirements Specifications

1.4 Conclusion

The above description will serve as a basic introduction to our designed system. It also clarifies its reader about this document's usefulness.

Chapter 2: Inception

2.1 Introduction

Inception is the beginning phase of requirements engineering. It defines how does a software project get started and what is the scope and nature of the problem to be solved. The goal of the inception phase is to identify concurrence needs and conflict requirements among the stakeholders of a software project. To establish the groundwork, we have worked with the following factors related to the inception phases:

- Identifying Stakeholders
- Recognizing multiple viewpoints
- Working towards collaboration
- Asking the First Questions

2.2 Identifying Stakeholders

The initial startup money will be from our investors. They will need to provide the economical backup to initiate the project and keep it afloat. As time passes the project will be able to sustain itself and benefit our investors. The money flow will be from our users.

The project outcomes will be used by the investors and users.

Aside from the investors the person in charge – the project manager, will be the head of decision making.

This web system/ application will let user put their property on rent and let users contact to rent them. The resources belong to the property owners who will the primary target for our system.

Once the project is completed the project will affect the mass people. During the development it will create job opportunity for web developers, system designers and developers.

2.3 Asking Question First

The economical benefit for our project will be sustainability of our project and continuation of cash flow for our investors. This will create job opportunity for many people and positively impact our national economy.

A successful solution will benefit our system and create positive impact amongst the users.

The solution will be used to develop and improve the user experience which will pull in more investors and users.

Special performance issues may interrupt and disrupt our whole system and cause declines in user approval or ratings.

2.4 Conclusion

This phase will assist users to enhance their basic understanding of our system. It will also assist the reader to recognize the infrastructure of our design. Identifying the benefactors and establish a preliminary communication with our stake holders.

Chapter 3: Elicitation

3.1 Introduction

Elicitation helps the user to define what is required and what is not. And through it we can understand the needs of the user and project sponsor with an ultimate aim of communicating these needs to the system developers. While in elicitation step, we face things like problems of scope, problems of volatility and problems of understanding. However, this is not an easy task. In order to overcome these problems, I have worked with the Eliciting requirements activity in an organized and systematic way.

3.2 User Scenario

Our House Rental System will allow people to look for houses for rent without any extra hassle.

In this system, Property owners will be posting advertisement promoting their property for sell/rent and tenant/buyers will be looking for them using our websites. This will allow people to search and compare between multiple options while at the comfort of their home.

Our targeted users are:

1. Property Owners
2. Tenants

Authentication:

Authentication will not be a requirement for clients who are looking for property to rent. They can browse through properties without having to create an account. Account creation is necessary for house owners to post advertisements.

To authenticate, we will need:

- User Name
- User Email
- Password

After registration user will have to further update his accounts with these details:

- User NID number
- Area
- Contact Number

Advertisement:

In order to post advertisement users will have to pay a small fee and create an account. This account will give them offer to post 3 advertisements without any extra charge. For any additional advertisement they will have to pay per advertisement.

Property Sell:

Selling a property is a very sensitive procedure. To smoothen this sensitive process decided to make it available for our enterprise level consumers. After opening a premium account, they will be able to apply for enterprise level. After physical verification of their property and details they will be given the enterprise level authentication without any extra fee. Enterprise level consumers will have to pay a percentage of their

total earning from a property sale to our system. We will be working as a third party with each party to negotiate the maximum benefit of our client.

Review:

Users will be able to review property after renting for future references and tenants.

Rating:

Our system will have an automatic rating system that will account for privileges of the property. The number of educational institutions, healthcare institutions, shopping malls, markets etc. and their value to determine the rating. This feature will further enhance our user experience.

Boosting:

This feature will let users boost their advertisements to reach more audiences and increase the engagement. After posting advertisement the users will have to pay a small fee to boost their advertisements.

Chapter 4: Scenario Based Model

4.1 Introduction

In this model the system is described from the user's point of view. As this first model, it serves as input for creation of other modeling elements.

4.2 Use Case Scenario

Level-0 Use Case:

After analyzing the requirements, the information presents that there are two different types but co-related actors who will use the system. The admin will be controlling the system backend.

Following Case Diagram represents the actors in the system:

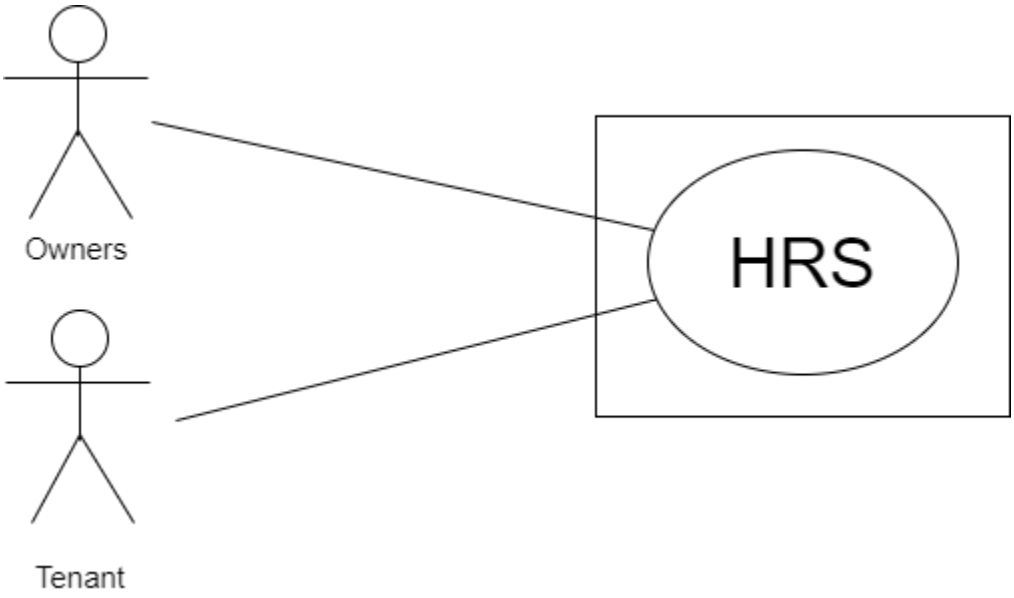


Fig: Level 0

System Description of Level-1 Use Case Diagram:

User:

Action 1: Clicks website.

Reply 1: Website UI opens.

Action 2: Users searches advertisement.

Reply 2: Advertisement is shown.

Action 3: User clicks on advertisement.

Reply 3: Advertisement details are shown.

Action 4: User clicks sign up.

Reply 4: Option for payment and required information is shown.

Action 5: User fulfills the requirements.

Reply 5: Registration successful.

Action 6: Users posts advertisements.

Reply 6: Advertisements are published.

Action 7: Users clicks sell property.

Reply 7: New application form opens.

Action 8: User property verified.

Reply 8: User is allowed to post sale ad.

Action 9: User clicks log out.

Reply 9: Log out successful.

Level-1 Use Case Diagram for Online Bus Service:

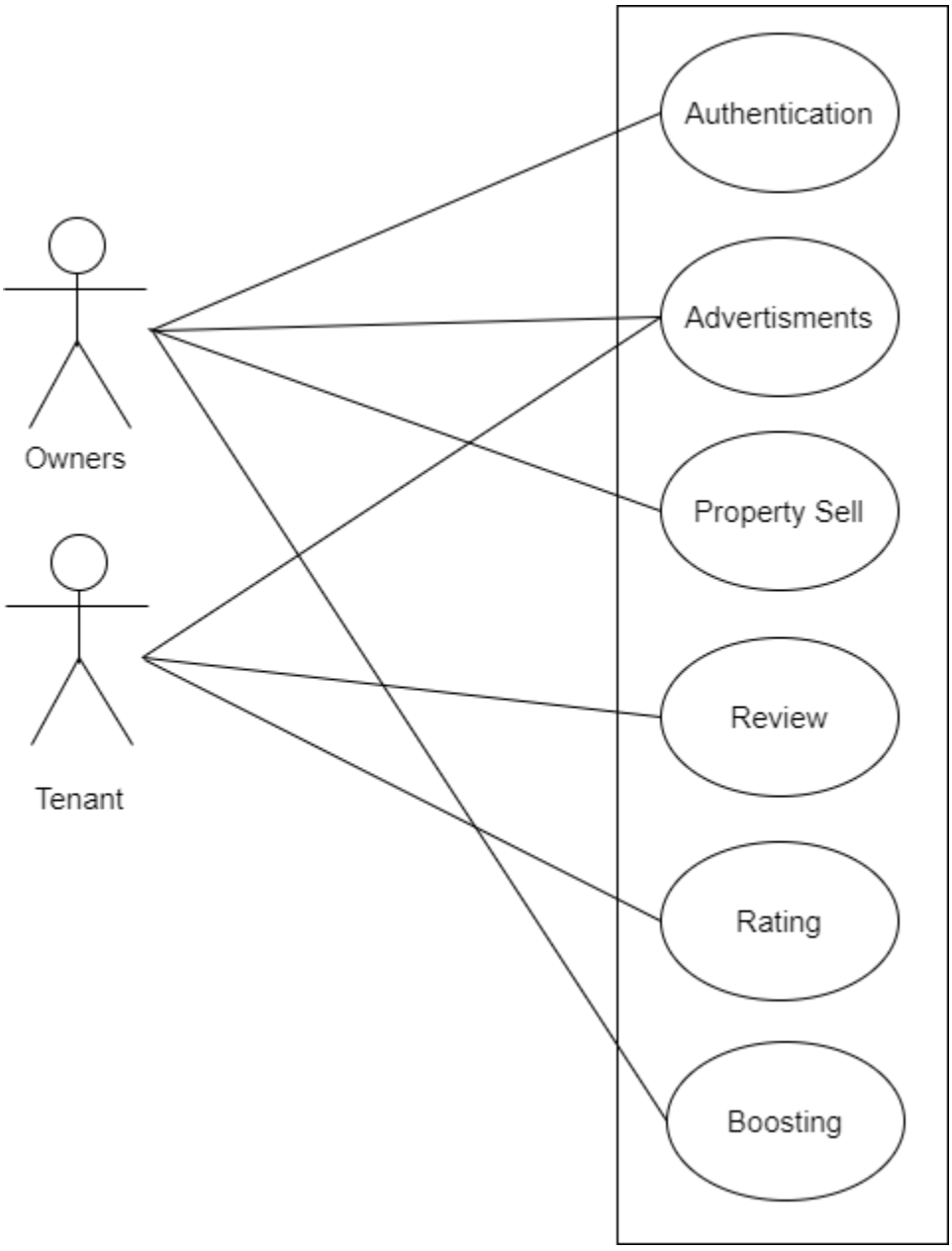


Fig: Level 1

Subsystems of Authentication:

Actors who will sell or put their property up for rent will need to authenticate and create an account. Creating an account will let them access further features. To sign up/register they will have to provide valid information which will be authenticated via the system.

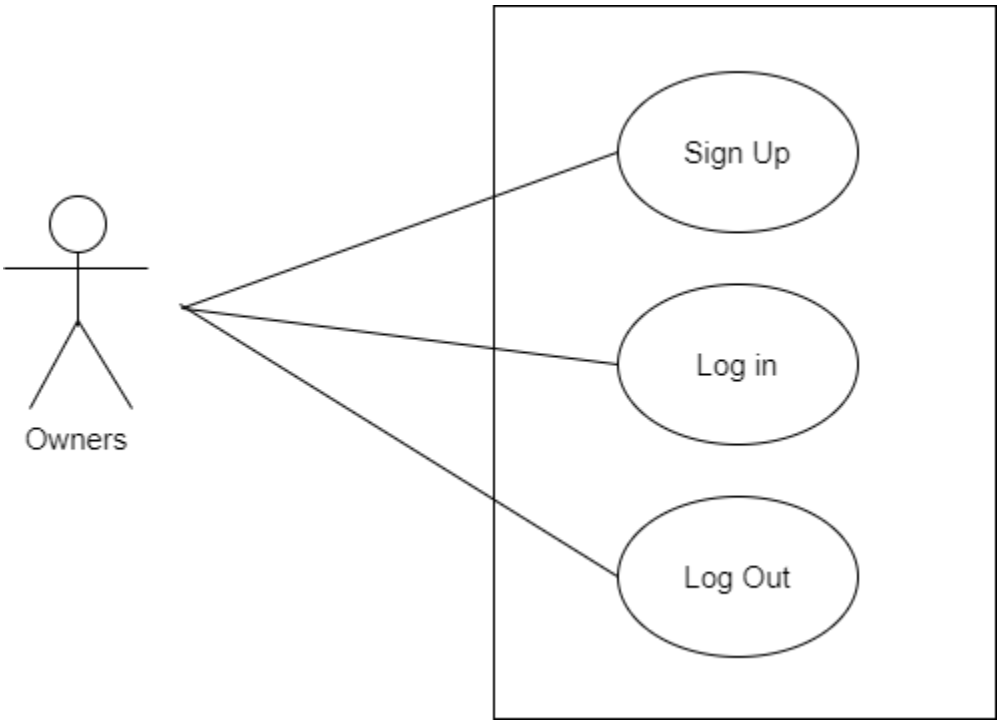


Fig: Level 2.1

Subsystems of Advertisements:

Actors who have signed up can publish advertisements. Publishing advertisements will let tenants look for property and compare between them.

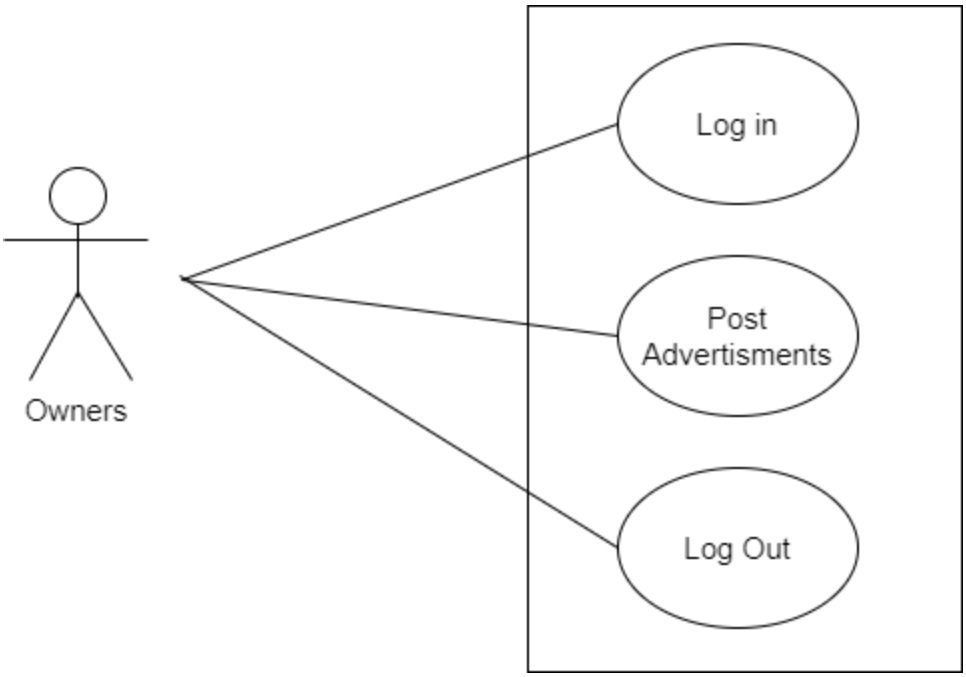


Fig: Level 2.2

Subsystems of Property Sell:

Those who are registered can apply for property sell. Their property will be verified physically via field agents. Once they complete the agreement, they will be allowed to post property sale advertisements. Our system will act as a third party and promote to increase the chance of sell and profit. As a compensation, we will be receiving a percentage from the total sale.

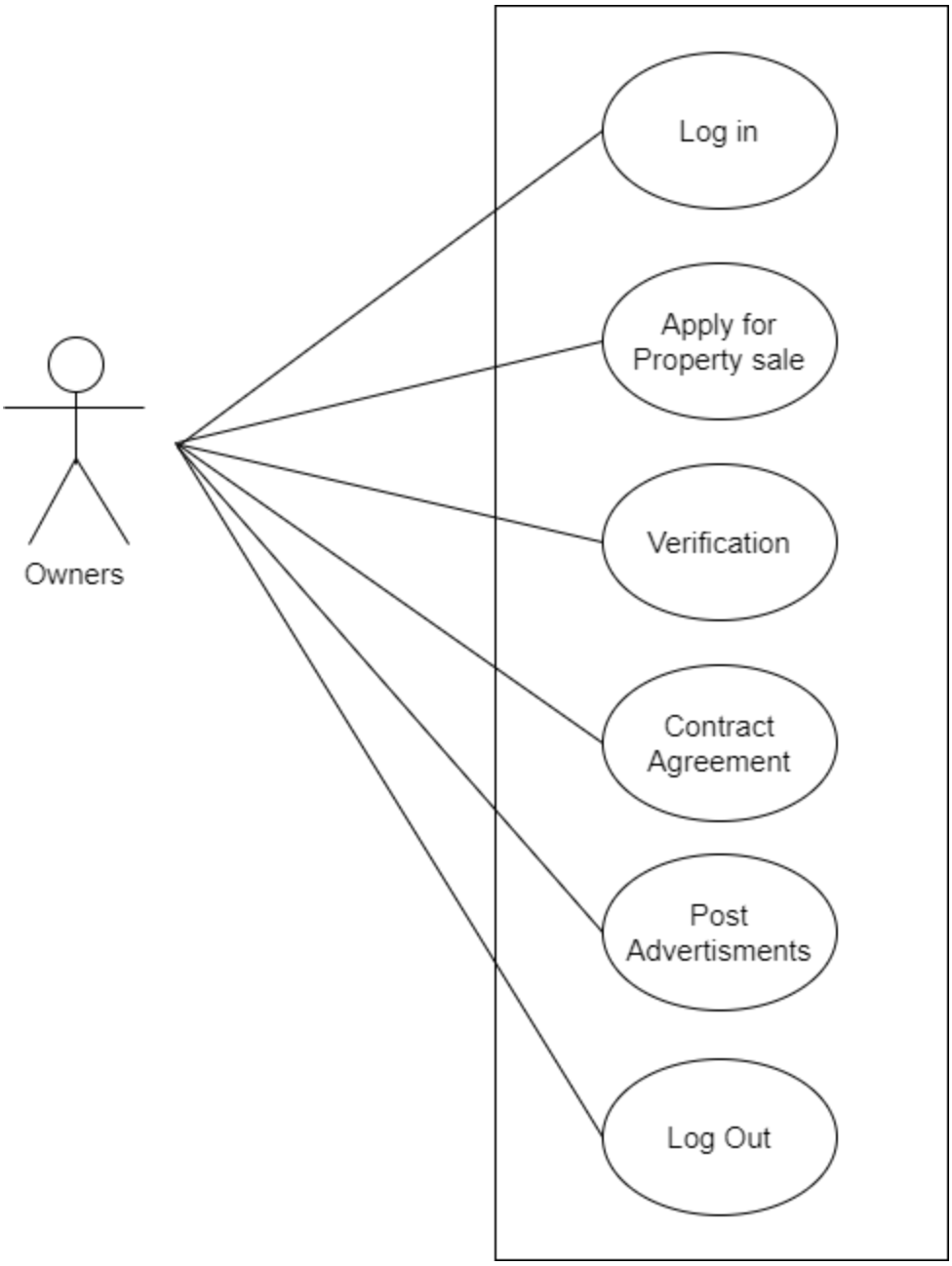

Log in
Apply for Property sale
Verification
Contract Agreement
Post Advertisments
Log Out
Owners

Fig: Level 2.3

Subsystems of Review:

Tenants are the users who won't have to log in or create account to view advertisement. But once they rent a property, they can post review. They will need to provide their contact number as a reference which will only be shown to the property owner.

Reviews can contain information about the property environment and services. About the positive or negative impact on the tenant etc.

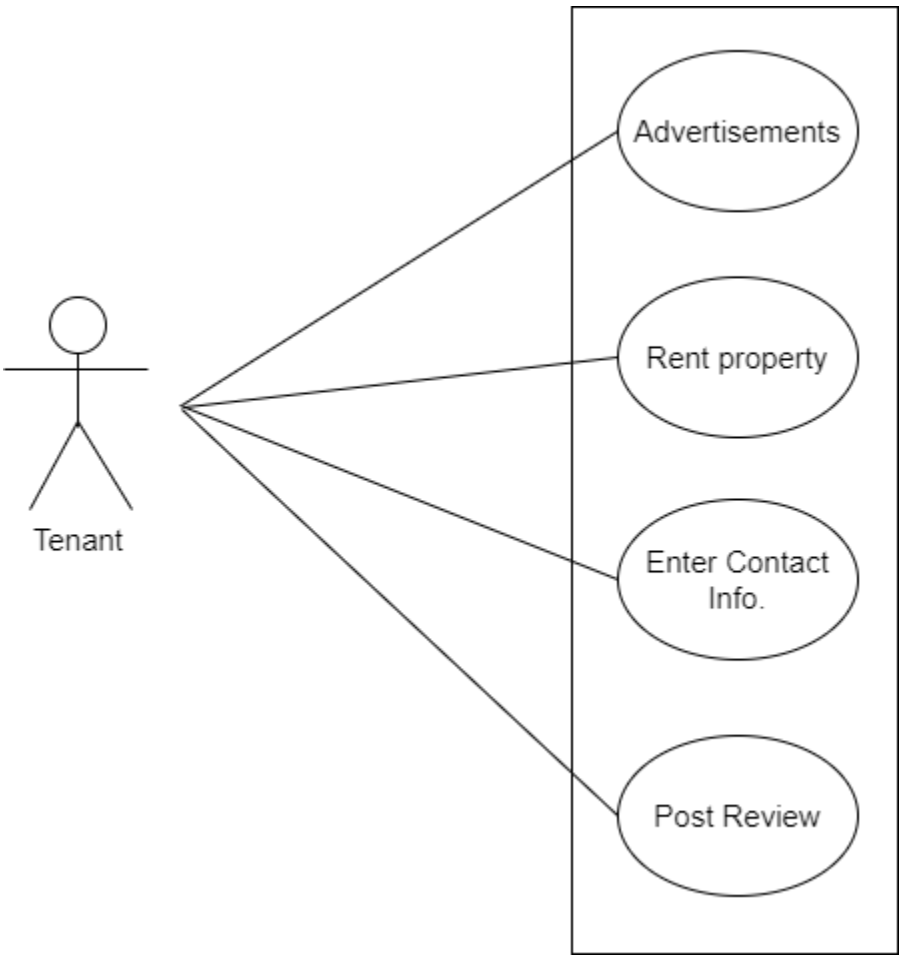


Fig: Level 2.4

Subsystem of Rating:

Our system will be rating the places based on user reviews and facilities near the property – such as shopping malls, educational institutes, hospitals etc.

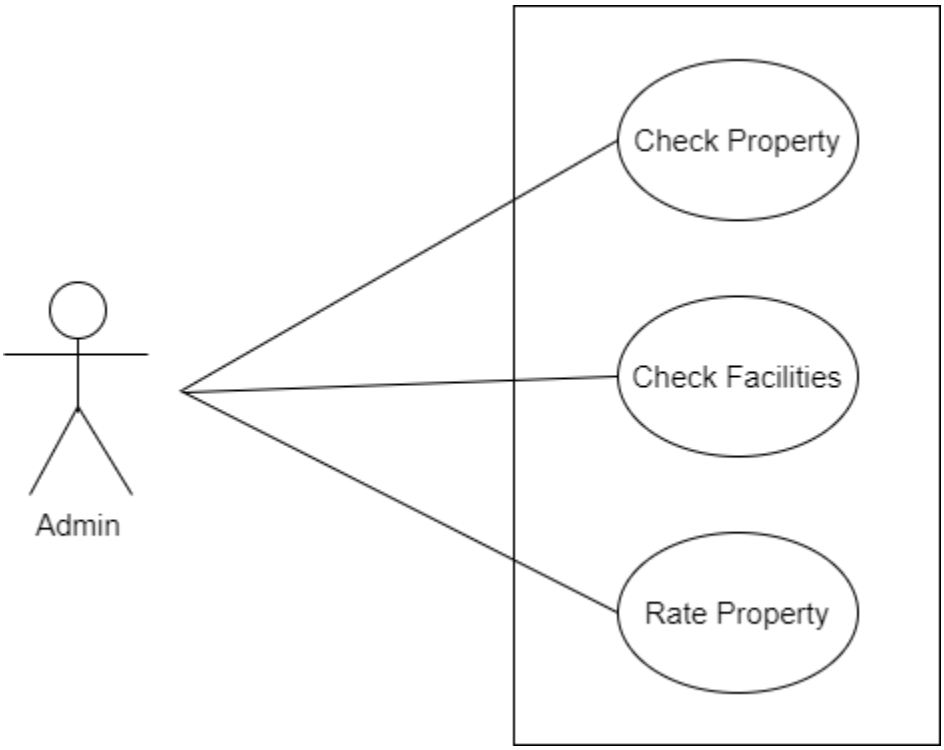


Fig: Level 2.5

Subsystem of Boosting:

After posting an advertisement owners will be given opportunity to boost/promote their advertisement for a small fee. Boosted properties will be suggested to more people and show up higher in a search result.

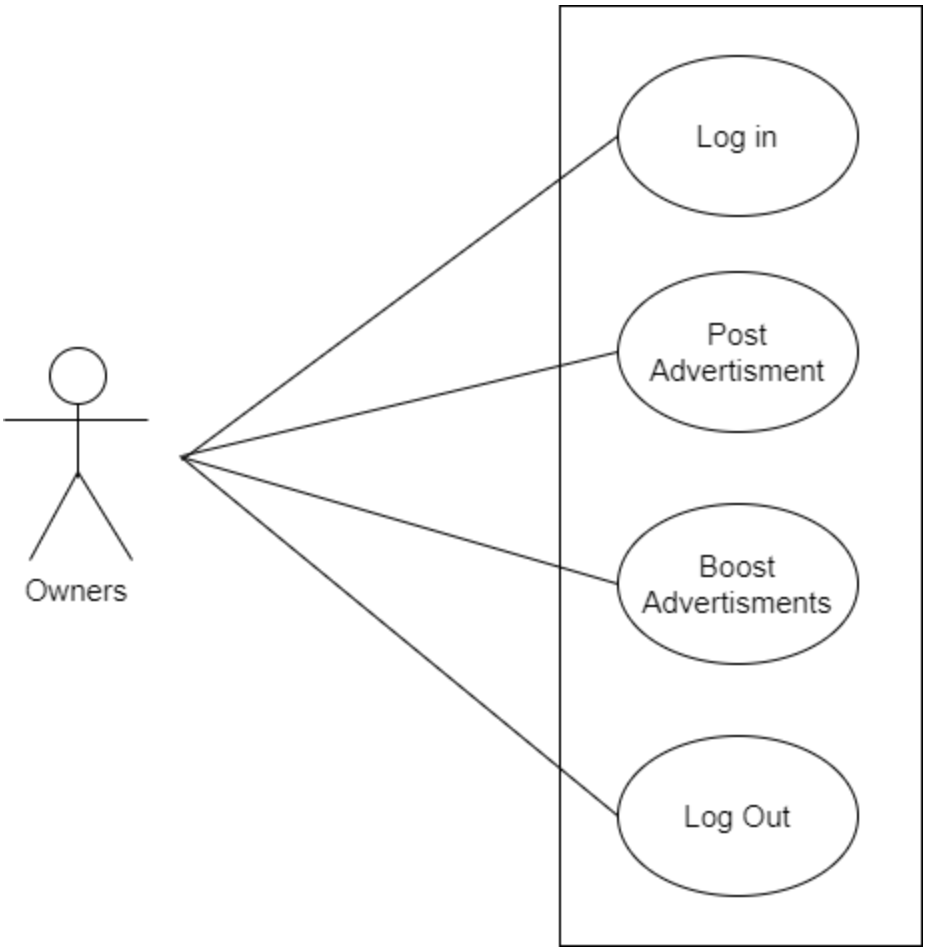
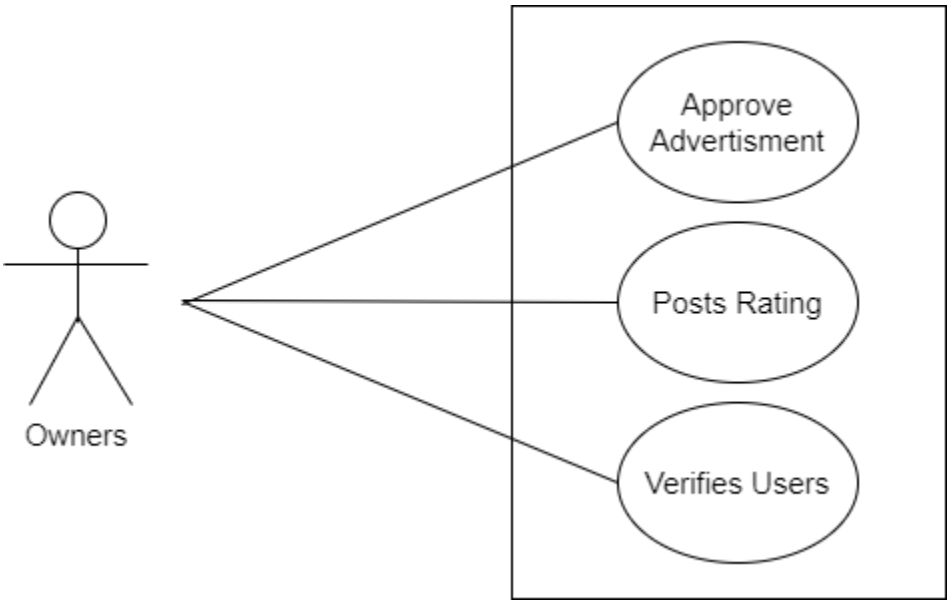

Log in
Post Advertisment
Boost Advertisments
Log Out
Owners

Fig: Level 2.6

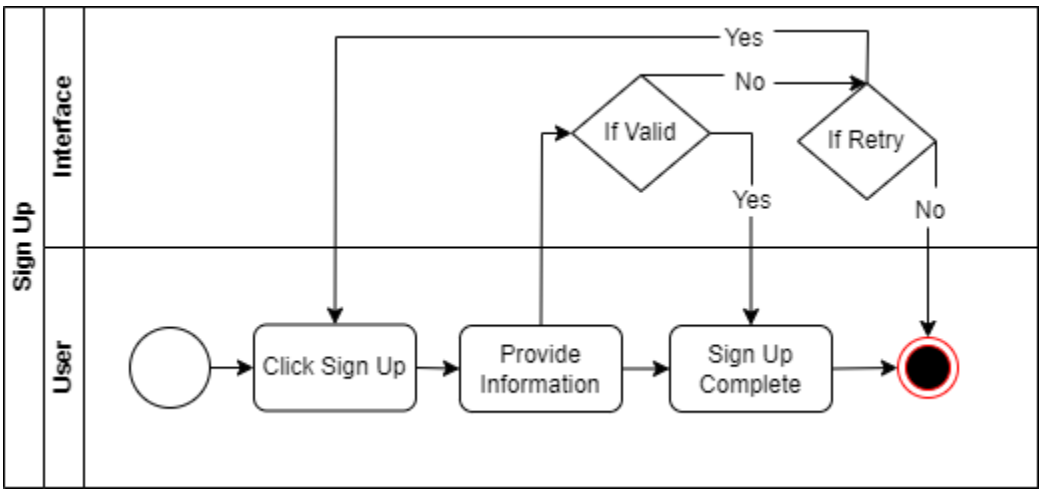
Secondary Sector:

Admin will be controlling the system backend and approve all the features and functions. Admin will verify information and send agents to verify users for enterprise level partnership (Users allowed to sell property). Admin controls the development process of the system and updates.

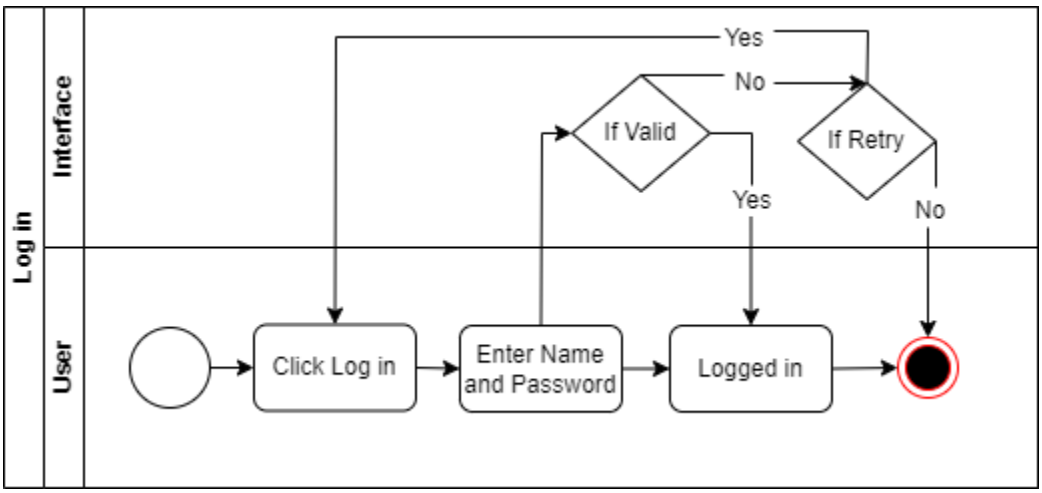


4.3 Activity Diagram

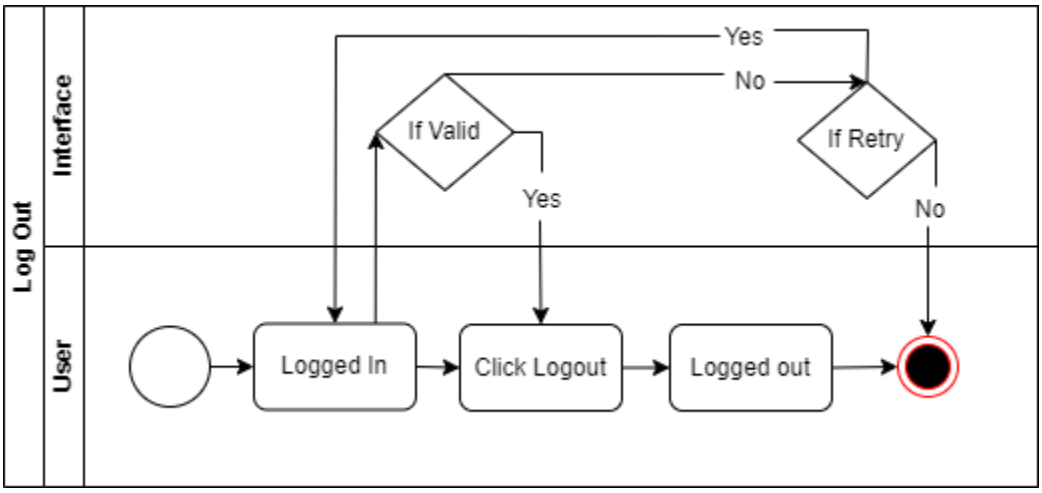
Activity Diagram for Sign up:



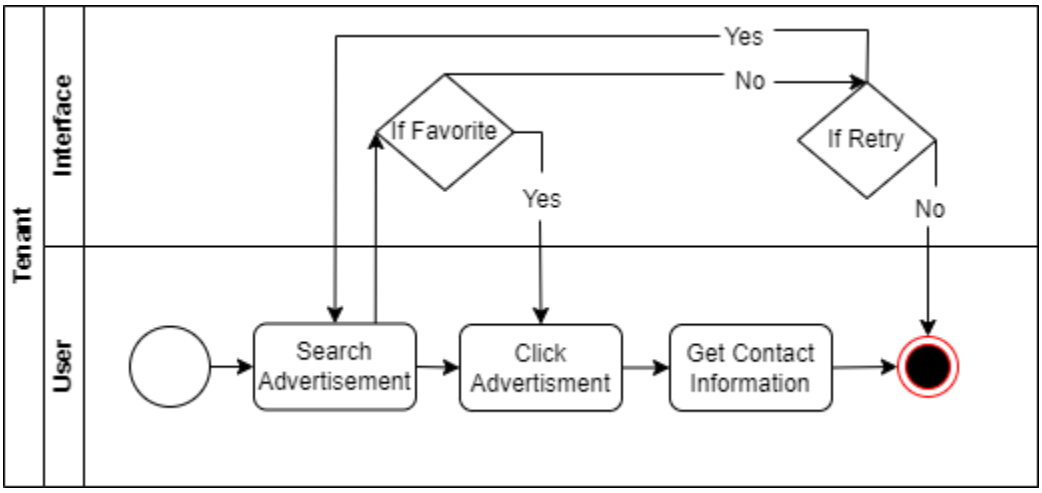
Activity Diagram for Log in:



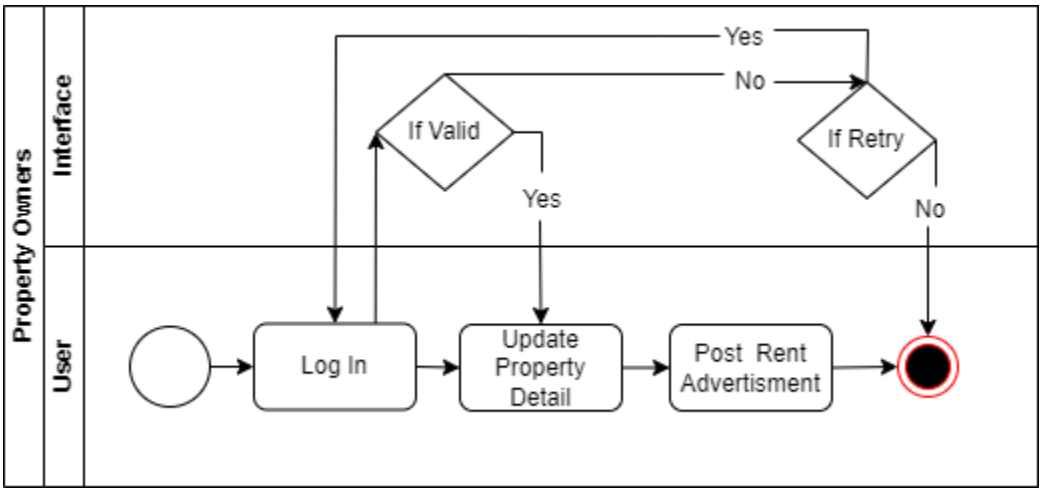
Activity Diagram for Log Out:



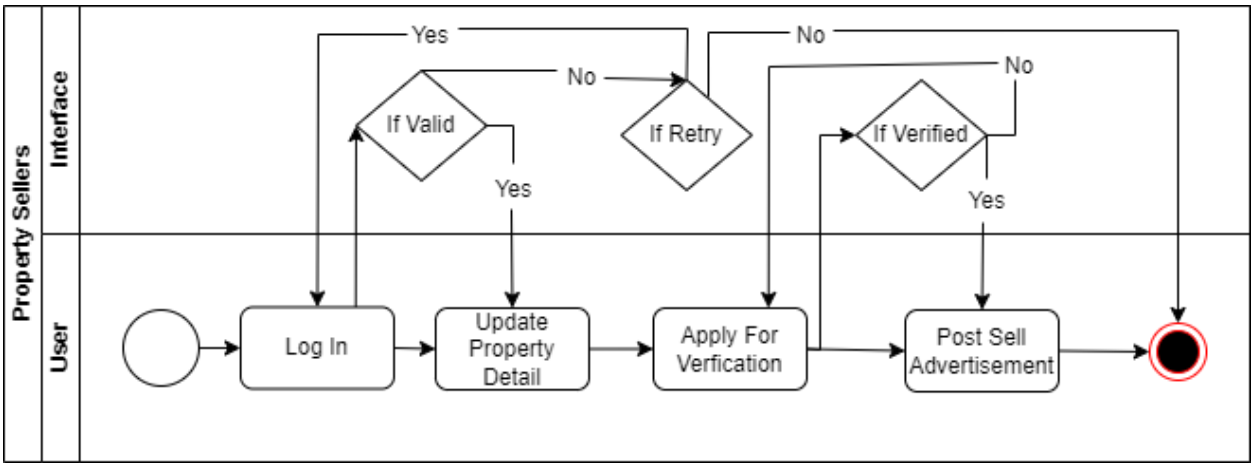
Activity Diagram for Tenant:



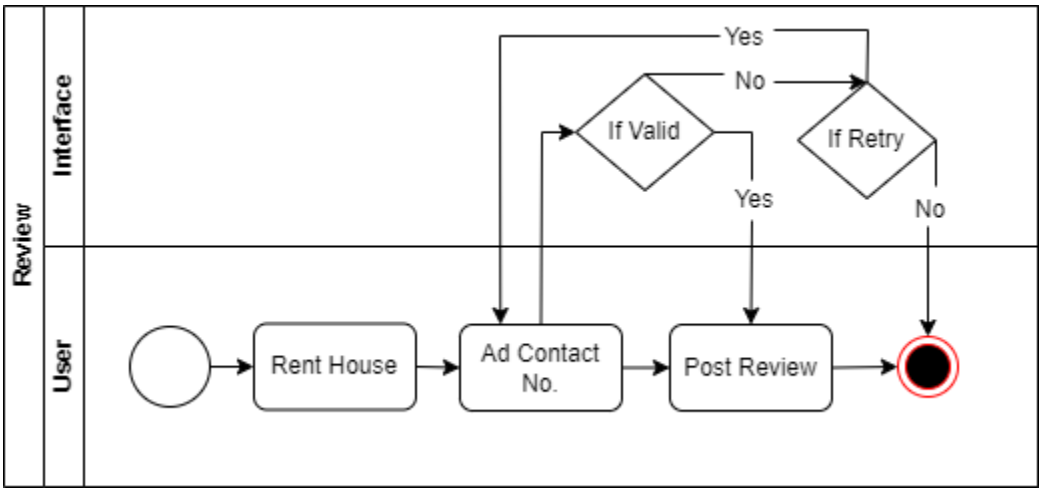
Activity Diagram for Property Owners:



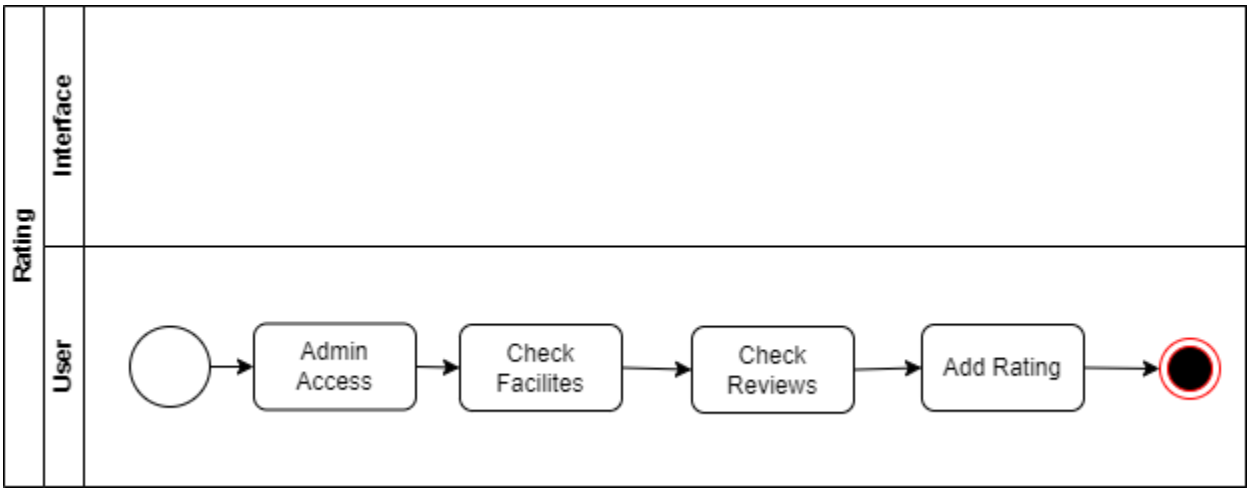
Activity Diagram for Property Sellers:



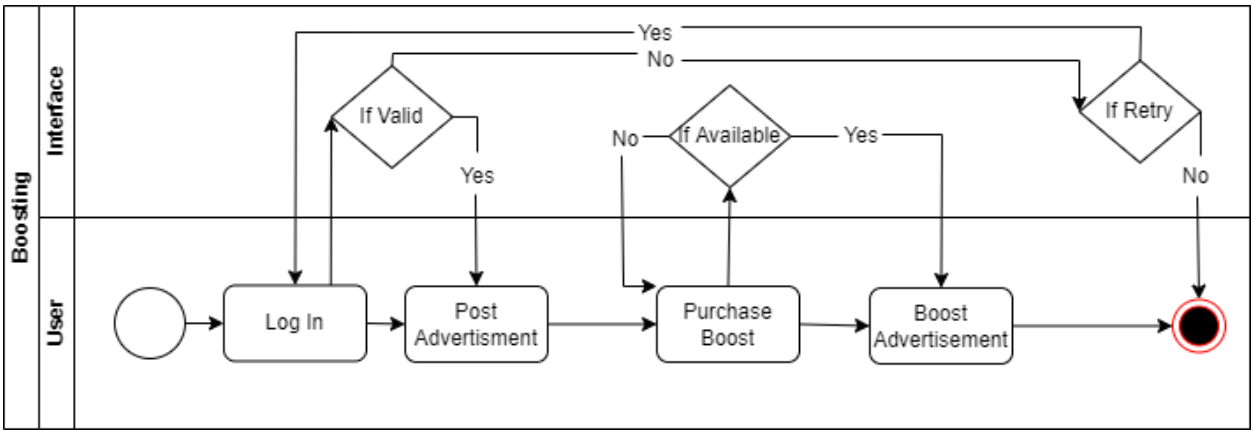
Activity Diagram for Review System:



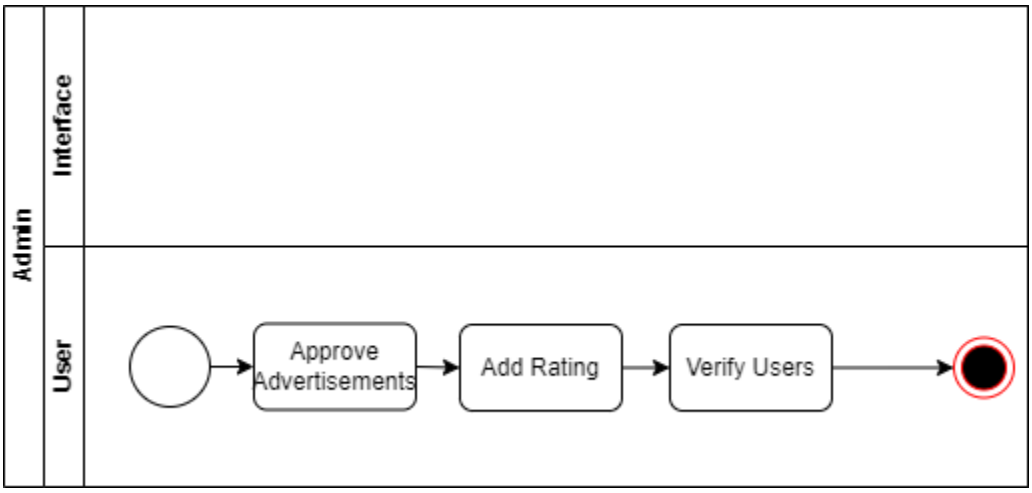
Activity Diagram for Rating System:



Activity Diagram for Boosting:



Activity Diagram for Admin:



Chapter 5: Class Based Models

5.1 Class Diagram

Class and CRC Diagrams:

Home Rental System:

Our system will let users search for places to rent and allow premium partners to sell/ advertise their property for rent.

Our system will have to types of primary users.

1. Tenant
2. House Owners

Identifying Analysis Classes

Analysis classes can be identified by parsing noun and noun phrases. Then they need to be classified by general classification and selection criteria.

General classification:

1. External entities
2. Things
3. Occurrence or events
4. Roles
5. Organizational units
6. Places
7. Structures

Selection criteria:

1. Retained information
2. Needed services
3. Multiple attributes
4. Common attributes
5. Common operations
6. Essential requirements

Potential Classes	**General Classification**	**Selection Criteria**	**Accepted/Rejected**
User	Roles	2,3,4,5,6	Accepted
Email			
Passwords			
Customers	External Entities	1,3,4,6	Accepted
Advertisements	Structures	1,2,3,6	Accepted
Property	Places	1,2	Accepted

Accepted Classes:

1. User
2. Customers
3. Advertisements
4. Property

Attribute Identifications:

Class Name	Attributes
User	Email Password
Customers	Types of Customers Contact Information Email
Advertisements	Description Facilities Price
Property	Availability Cost Location Legal Status

Method Identification:

Verb identification:

Verb	Remark
Sign up	Yes
Authentication	Yes
Log in	Yes
Advertise	Yes
Buy	Yes
Sell	Yes
Take	Out of Scope
Randomize	Out of Scope
Modify	Yes
Mention	Out of Scope

Methods:

Class name	Methods
User	setEmail() setPassword() signUp() verify() login() advertise()
Customers	setEmail() getEmail() setNumber() getNumber() searchAd() setAd()
Advertisements	setContact() setDetails() getReview() getRatings()
Property	setPrice() getPrice() setInfo() getInfo()

Class Cards:

Users	
Email Password Authentication	setEmail() setPassword() signUp() verify() login() advertise()

Customers	
Search Advertisement Post Advertisement Set Contact Email	setEmail() getEmail() setNumber() getNumber() searchAd() setAd()

Advertisement	
Description Contact Info Features	setContact() setDetails() getReview() getRatings()

Property	
Details Price Legal Information	setPrice() getPrice() setInfo() getInfo()

Class Responsibility Collaboration (CRC) Diagram:

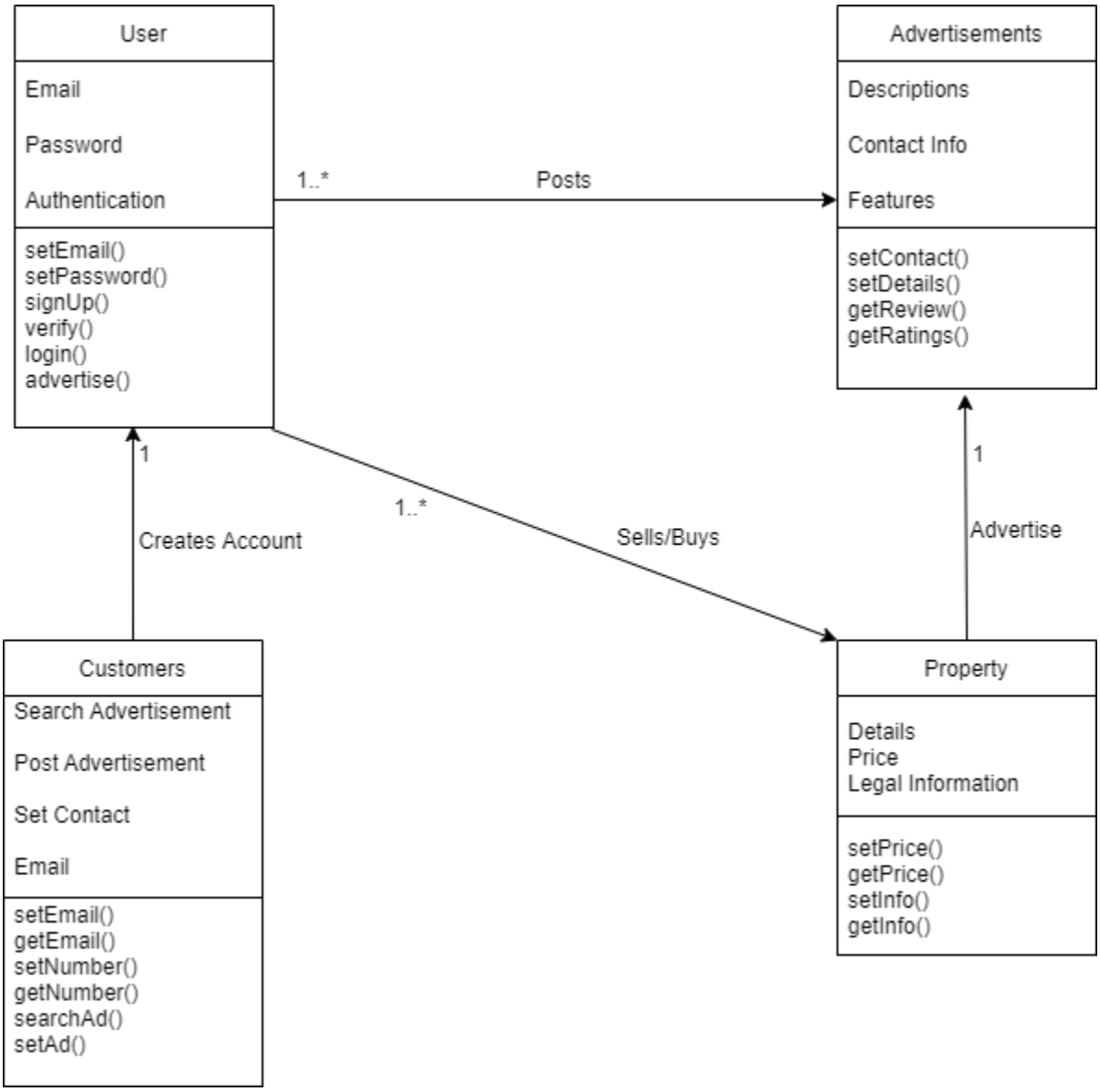
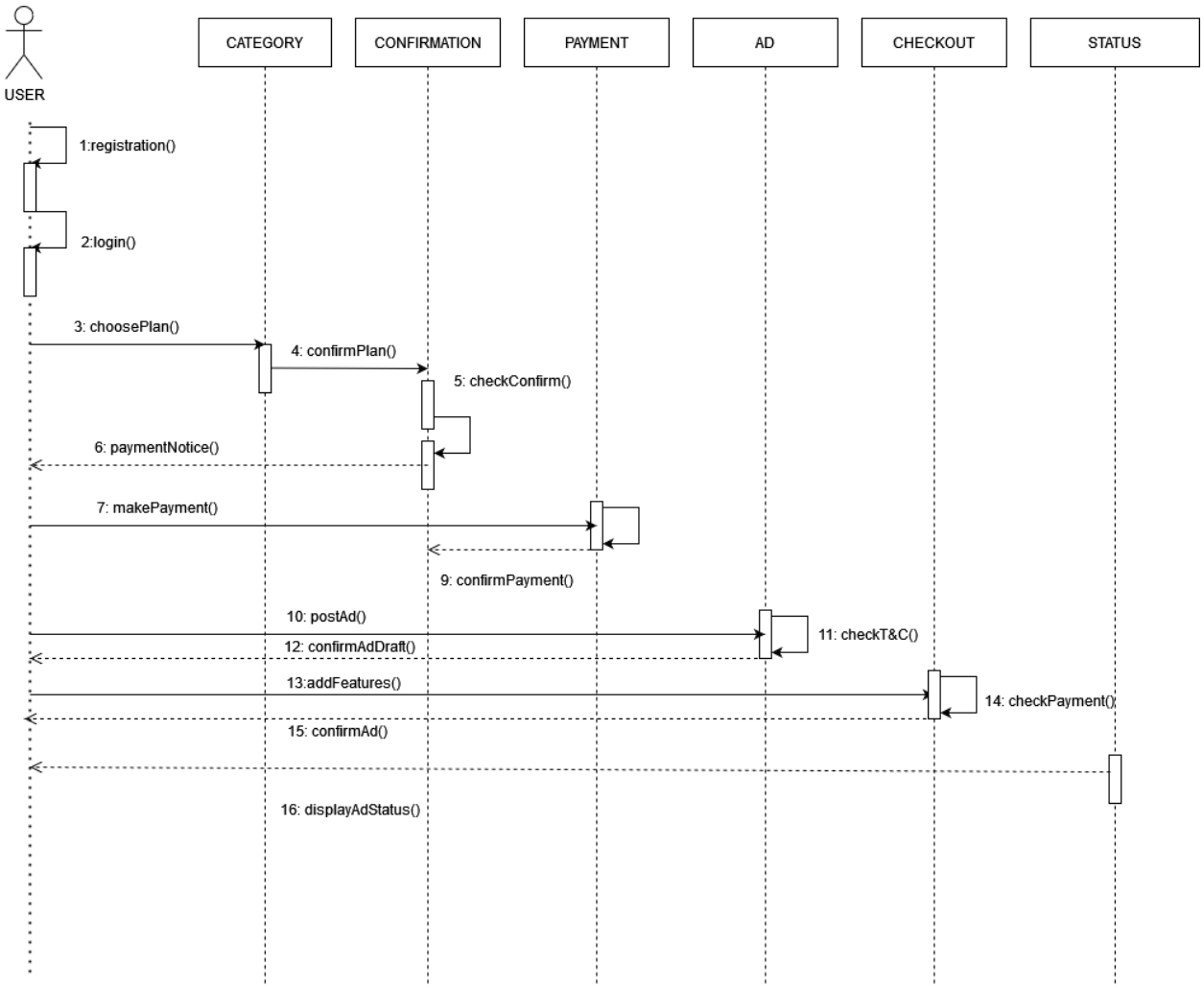


Figure: CRC Diagram of a House Rental System

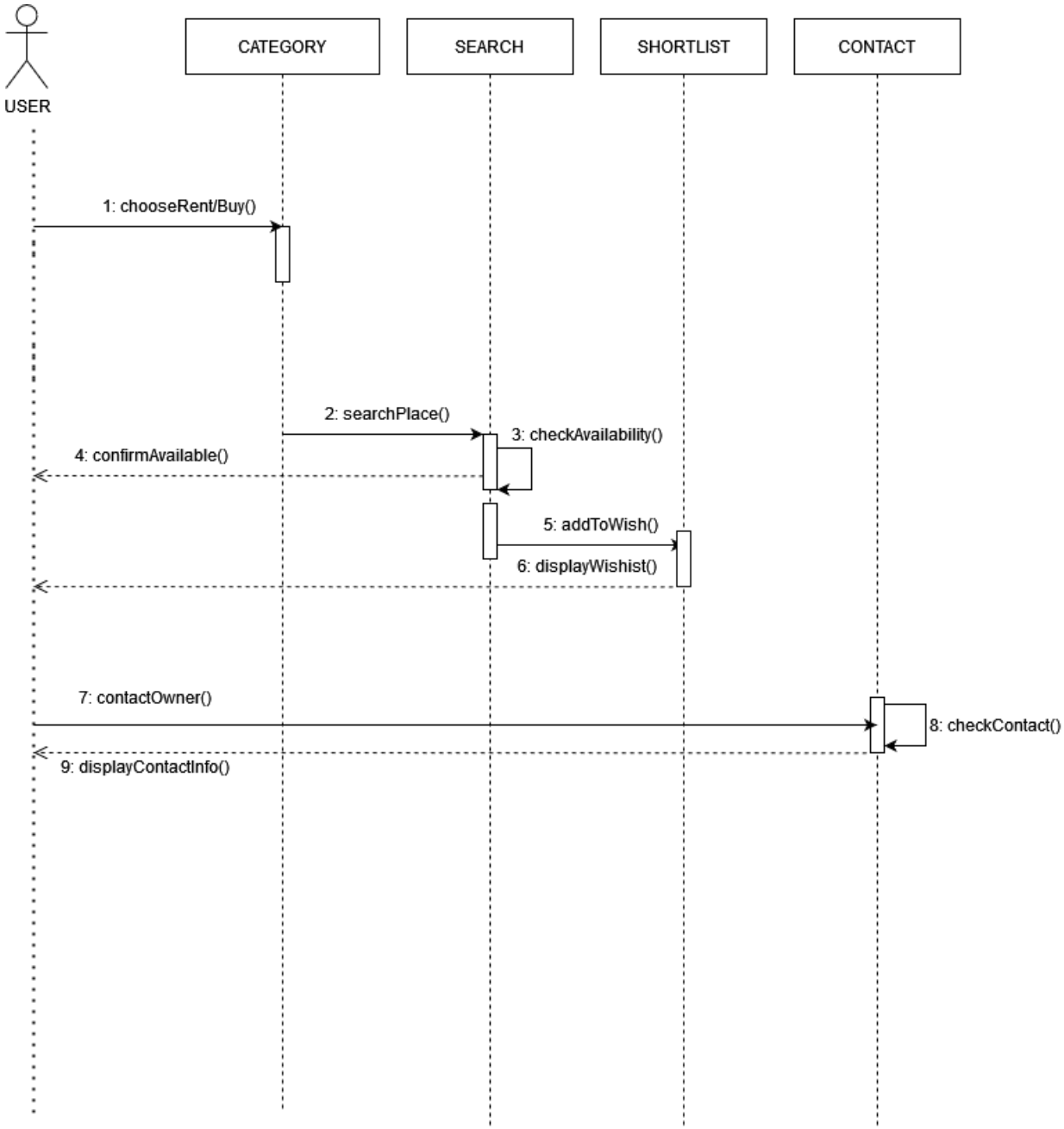
Chapter 6: Behavioral Model

6.1 Sequence Diagram

Sequence Diagram for House Owners:



Sequence Diagram for Tenants:



Conclusion

I am pleased to submit the final SRS report on Online House Rental System. From this, the readers obtain a clear view about functions and infrastructure of our project. This SRS document can be used effectively to maintain software development cycle. It will be very easy to conduct the whole project using this SRS. Hopefully, this document helps as a reference for future developers. We have tried our best to remove all dependencies and make effective and fully designed SRS. I believe that reader will find it in order.

Appendix

References

References: 1. Pressman, Roger S. Software Engineering: A Practitioner's Approach (7th ed.). Boston, Mass: McGraw-Hill. ISBN 0-07-285318-2.