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# **Software Requirements and Design Document**

**for**

**Society360**

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**Wednesday 27<sup>th</sup> November 2024**

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# 1. Introduction

## 1.1 Purpose

*The product is designed to digitalize the management of a city. The product allows residents as well as administrators to manage the city digitally. Residents are able to request services such as recreation, healthcare or any other public service whereas the admins are able to handle those requests and schedule any infrastructure maintenances if needed.*

## 1.2 Product Scope

*The product is designed at the city level. It focuses on how a city can be managed digitally. It aims to help society become digital and provide a one-window system where all residents can access any required service*

## 1.3 Title

*Society360*

## 1.4 Objectives

- *Provide a single platform which would help residents to access all the services in a city pr society*
- *Allow residents to report any problems they face.*
- *Make the management of a city or society easy by providing a digital platform.*

## 1.5 Problem Statement

*Managing cities and societies is a huge task especially for large countries. There are a ton of different services that can be required by the residents, and they can face a variety of different problems. For large populations, it becomes even more complicated. Therefore, Society360 comes into play providing a single platform for both residents and admins to be able to live in and manage the city or society efficiently.*

# 2. Overall Description

## 2.1 Product Perspective

*This product is a stand-alone product which has no supersystems or subsystems. It may be worked on and improved in future what no supersystem or subsystem will be added. So this product is stand-alone and fulfills a defined set of purposes.*

## 2.2 Product Functions

- *The product is designed to provide a platform for making city or society management easy.*
- *There are two types of users: admins or residents*
- *Residents are also to request any services or report any problems*
- *Admins can handle those requests and problems, where they can either approve, reject or ignore them.*
- *The residents can vote digitally on the city or society initiatives they prefer should be worked on*

## 2.3 List of Use Cases

- *Register Property*
- *Request Public Service*
- *Digital Voting*
- *Reserve Recreation Facility*
- *Report Crime or Incident*
- *Submit Public Feedback*
- *Pay Utility Bill*
- *Acquire Business License*
- *Manage Institutes*
- *Manage Healthcare*
- *Schedule Infrastructure Maintenance*

## 2.4 Extended Use Cases

### Use Case Name: Reserve a Recreation Facility

- Scope: Recreation Management System
- Level: User goal
- Primary Actor: Resident
- Stakeholders and Interests:
  - o Resident: Wants to reserve the facility for personal or community use.
  - o Recreation Administrator: Wants to ensure facility is booked fairly and is maintained properly.
- Preconditions:
  - o The recreation facility must be available for booking.
  - o Resident must be logged in.
- Postconditions:
  - o Success: Reservation is successfully made and confirmed.
  - o Failure: Reservation is not made due to unavailable facility or system error.
- Main Success Scenario:
  1. Resident logs into the system.
  2. Resident selects the facility and desired date.
  3. System checks availability.
  4. System confirms availability.
  5. Resident submits the reservation request.
  6. System notifies the Recreation Administrator.

7. Recreation Admin approves the request.
8. Resident receives confirmation of the reservation.
  - Extensions:
  - 3a. Facility is already booked.
  - - 3a1. System informs resident and suggests alternative dates.
  - 3b. Resident is not eligible to reserve.
  - - 3b1. System denies booking and displays reason

#### **Use Case Name: Register Property**

- Scope: Property Management System
- Level: User goal
- Primary Actor: Resident
- Stakeholders and Interests:
  - o Admin: Wants accurate records of properties.
  - o Resident: Wants to register property for legal and regulatory reasons.
    - Preconditions:
  - o Resident must provide all necessary property details.
    - Postconditions:
  - o Success: Property is successfully registered and confirmed.
  - o Failure: Property is not registered due to missing or incorrect details.
    - Main Success Scenario:
      1. Admin logs into the system.
      2. Admin submits the property details.
      3. System verifies the details.
      4. System registers the property.
      5. Resident is notified of successful registration.
      6. System updates the property database.
        - Extensions:
        - 3a. Property details are incomplete.
          - - 3a1. System requests missing details.
        - 3b. Property already registered.
          - - 3b1. System notifies the Resident of existing registration

#### **Use Case Name: Schedule Infrastructure Maintenance**

- Scope: City Maintenance Management System
- Level: User goal
- Primary Actor: Administrator
- Stakeholders and Interests:
  - o Administrator: Wants to schedule maintenance for infrastructure upkeep.
  - Resident: Expects minimum disruption during maintenance.
    - Preconditions:

- o Maintenance needs have been identified.
  - Postconditions:
  - Success: Maintenance is scheduled and communicated to residents.
  - Failure: Maintenance is not scheduled due to conflicts or errors.
  - Main Success Scenario:
- 1. Admin logs into the system.
- 2. Admin selects the infrastructure to be maintained.
- 3. Admin selects a time slot.
- 4. System checks for conflicts with other services.
- 5. System schedules the maintenance.
- 6. System notifies affected residents.
  - Extensions:
  - 2a. Conflicting maintenance schedule.
  - - 2a1. System suggests alternative times.
  - 4a. Maintenance is delayed.
  - - 4a1. System notifies residents of new schedule.

**Use Case Name: Submit Public Feedback**

- Scope: Public Feedback System
  - Level: User goal
  - Primary Actor: Resident
  - Stakeholders and Interests:
- o Resident: Wants their feedback to be heard by authorities.
  - o Administrator: Wants to collect and analyze public feedback to improve services.
    - Preconditions:
  - o The resident must be logged into the system.
    - Postconditions:
  - o Success: Feedback is submitted and reviewed by Admin.
  - o Failure: Feedback submission fails due to system error or incomplete form
    - Main Success Scenario:
  - 1. Resident logs into the system.
  - 2. Resident selects the "Submit Feedback" option.
  - 3. Resident completes the feedback form.
  - 4. System verifies the information.
  - 5. System submits the feedback.
  - 6. Admin receives and reviews the feedback.
  - 7. System confirms feedback submission to the Resident.
    - Extensions:
    - 3a. Incomplete feedback form.
    - - 3a1. System prompts Resident to complete missing fields

**Use Case Name: Pay Utility Bills**

Scope : Utility Billing System

Level : User goal

Primary Actor: Resident

Stakeholders and Interests:

- Resident: Wants to pay utility bills promptly.
- Admin: Wants to receive and process payments..

Preconditions:

- Bill must be available in the system. Resident must have sufficient funds.

Postconditions:

- Utility bill is paid, and payment is recorded..

Main Success Scenario:

1. Resident logs into the system.
2. Resident views outstanding utility bills.
3. Resident selects a bill and makes payment.
4. System processes payment.
5. Resident receives payment confirmation.
6. Admin records payment in the system.

Extensions:

1. Insufficient funds.
2. System notifies Resident of payment failure.

### **Use Case Name: Acquire Business License**

Scope: System Level Scope

Level: User goal

Primary Actor : Business Owner

Stakeholders and Interests:

- Business Owner: Wants smooth and successful approval of the business license
- Administrator: Wants fast and efficient processing in providing business licenses

Preconditions: The administrator is authorized and verified. And the business owner is verified

Postconditions: The business license has been successfully approved and acquired

Main Success Scenario:

1. The business owner opens license application form and enters all the required details
2. System processes the application and puts it on waiting-approval list
3. Administrator logs into the system and opens business license applications
4. Administrator approves the application and provides license to the business owner

Extensions:

- The admin rejects the business application

- The business owner is unable to submit the application due to system error

**Use Case Name: Request New Public Service**

Scope: System Level Score

Level: User goal

Primary Actor : Resident

Stakeholders and Interests:

- Resident: Needs fast provision of a new service
- Administrator: Needs to ensure that every service request is entertained on time

Preconditions: The Services admin is authorized and is approved

Postconditions: The requested service has been successfully provided to the resident

Main Success Scenario:

1. The resident accesses the services portal  
makes a service request
2. The system processes the request and adds  
it to the service requests list
3. The services admin logs into the system  
and checks for service requests
4. The services admin contacts the service  
provider and assigns him the service request

Extensions

- The resident is unable to request the service due to system error

**Use Case Name: Digital Voting for City Initiatives**

Scope: System

Level: User goal

Primary Actor: Resident

Stakeholders and Interests:

- Resident: Votes on which City initiatives should be taken
- Electoral Head: Ensures that the voting is conducted smoothly
- City Manager: Wants public feedback on which initiatives should be taken for the city

Preconditions: All the voters are registered city residents. And the Electoral Head is unbiased

Postconditions: The voting has been conducted smoothly and a fair result on which initiatives should be taken has been obtained

Main Success Scenario:

1. The city manager drafts a list of different  
city initiatives
2. The city manager organizes the voting and  
appoints an electoral head
3. The electoral head obtains a list of all  
registered voters



4. The electoral head setups up and opens portal for digital voting
6. After the voting ends, the system counts votes and displays result to the electoral head
5. The residents vote for their desired initiatives
7. The electoral head announces the results of the elections to the public and forwards them to the city manager

Extensions:

- The voting is rigged by the electoral head
- The voting system breaks and people are unable to vote

### **Use Case Name: Report Traffic Incident**

Scope: System

Level: User goal

Primary Actor: Administrator

Stakeholders and Interests:

- Administrator: Wants that the incident is handled correctly
- Resident: Wants accurate and timely reporting of the traffic incident
- Safety Worker: Provides help in resolving the traffic incident

Preconditions: The resident and the admin are registered

Postconditions: The traffic incident has been handled correctly

Main Success Scenario:

1. The resident logs into the portal and initiates traffic incident reporting
2. The resident provides the details of the traffic incident
3. The system processes the details and sends them to the administrator
4. The administrator views the traffic incident reports.
5. The administrator appoints safety workers to resolve the traffic incident
6. The safety workers reach on-site and handle the traffic incident

Extension:

- There are no available safety workers, so the traffic incident remains unsolved
- There is some misreporting in the traffic incident so it is not handled correctly
- The resident is unable to report the traffic incident due to system issues

### **Use Case Name: Manage Institutions**

Scope: System

Level: User goal

Primary Actor: Administrator

Stakeholders and Interests:

- Admin: Ensure smooth running and maintenance of all educational institutions
- Students: Good teaching staff and on-time curriculum completion
- Teachers: administration of institutions

Preconditions: The administrator is registered

Postconditions: Smooth management of all educational institutions

Main Success Scenario:

1. The admin logs into the system and checks for any issues reported
2. The admin forwards any complaints or issues reported to the appropriate departments for resolution
3. The departments appoint staff members to address different issues
4. The staff members investigate and work on the reported issues

Extension:

- The institutions are unable to report the issues due to system errors
- There is misreporting of certain issues which leads to them not being handled correctly

### **Use Case Name: Manage Healthcare**

Scope: System

Level: User goal

Primary Actor: Administrator

Stakeholders and Interests:

- Admin: Ensure smooth running and maintenance of all healthcare centers
- Doctors: Expect effective and smooth management of all healthcare centers
- Patients: Want fast and efficient healthcare services

Preconditions: The admin is authorized, and the healthcare center is approved

Postconditions: All the healthcare centers are being managed effectively

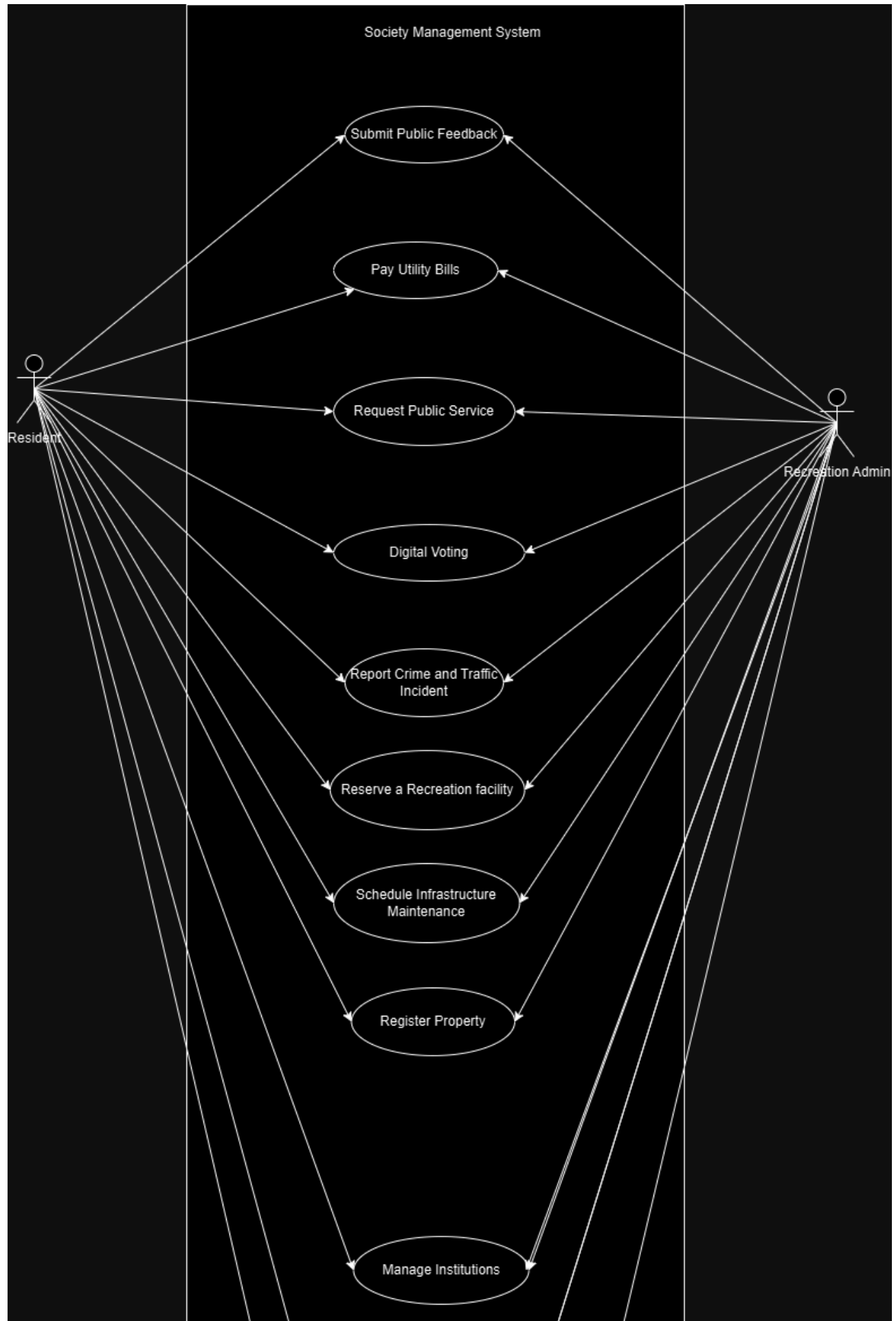
Main Success Scenario:

1. The admin logs into the system and checks for any issues reported
2. The admin forwards any complaints or issues reported to the appropriate departments for resolution
3. The departments appoint staff members to address different issues
4. The staff members investigate and work on the reported issues

Extension:

- The healthcare centers are unable to report the issues due to system errors
- There is misreporting of certain issues which leads to them not being handled correctly

## **2.5 Use Case Diagram**



### **3. Other Nonfunctional Requirements**

#### **3.1 Performance Requirements**

*There are no special performance requirements. The product is able execute on the most basic of systems since the product does not require much computational power*

#### **3.2 Safety Requirements**

*There are no safety requirements*

#### **3.3 Security Requirements**

*The product is secure and built on a robust system which ensures that all the data is secure and there is no chances of data corruption or data loss.*

#### **3.4 Software Quality Attributes**

*The product is robust and well-tested. The product offers ease of use over easy of learning. Despite that the product is complicated to learn, it is even easier to use, because of its simple UI and well-structured user-experience. Because of a lack of instructions in the product on how to use it, there may arise some difficulties in its usage. Proper error handling has been implemented so the product is robust.*

#### **3.5 Business Rules**

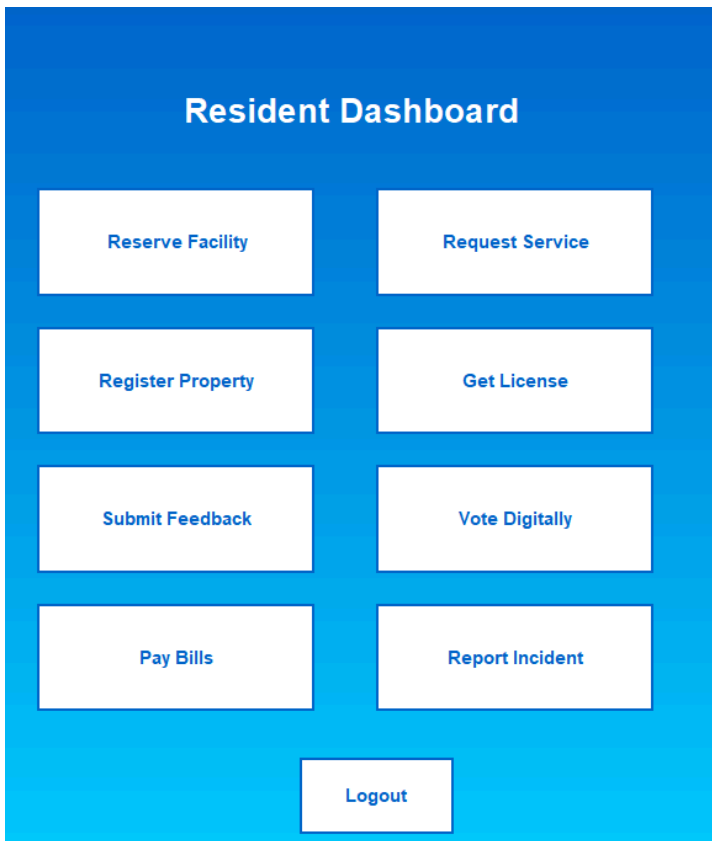
*There are no specific business rules. The program is executable on any operating system that runs normally under normal circumstances.*

#### **3.6 Operating Environment**

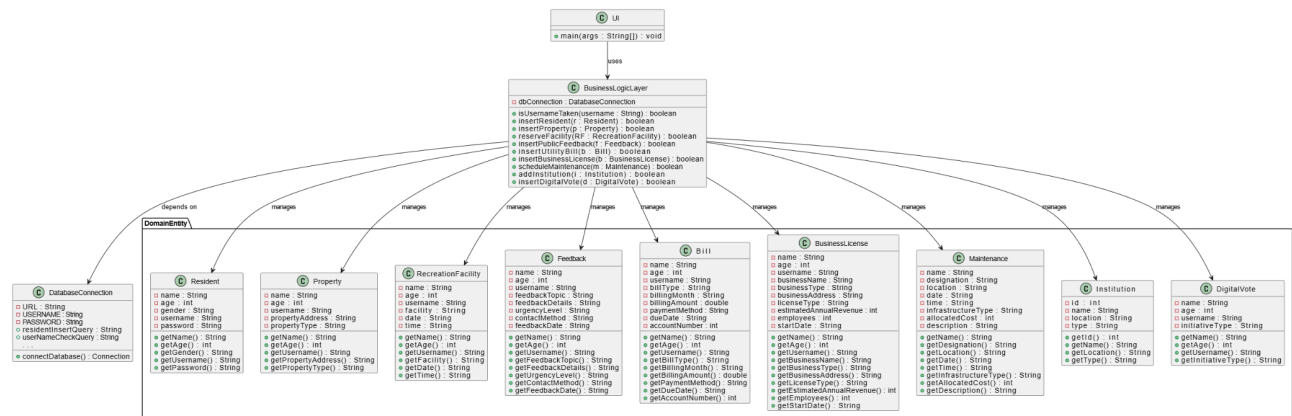
*The project is created in Java using the Swing library and MySQL database is used. Since Java and MySQL are supported by all operating systems, the product can operate successfully in all normal environments.*

#### **3.7 User Interfaces**

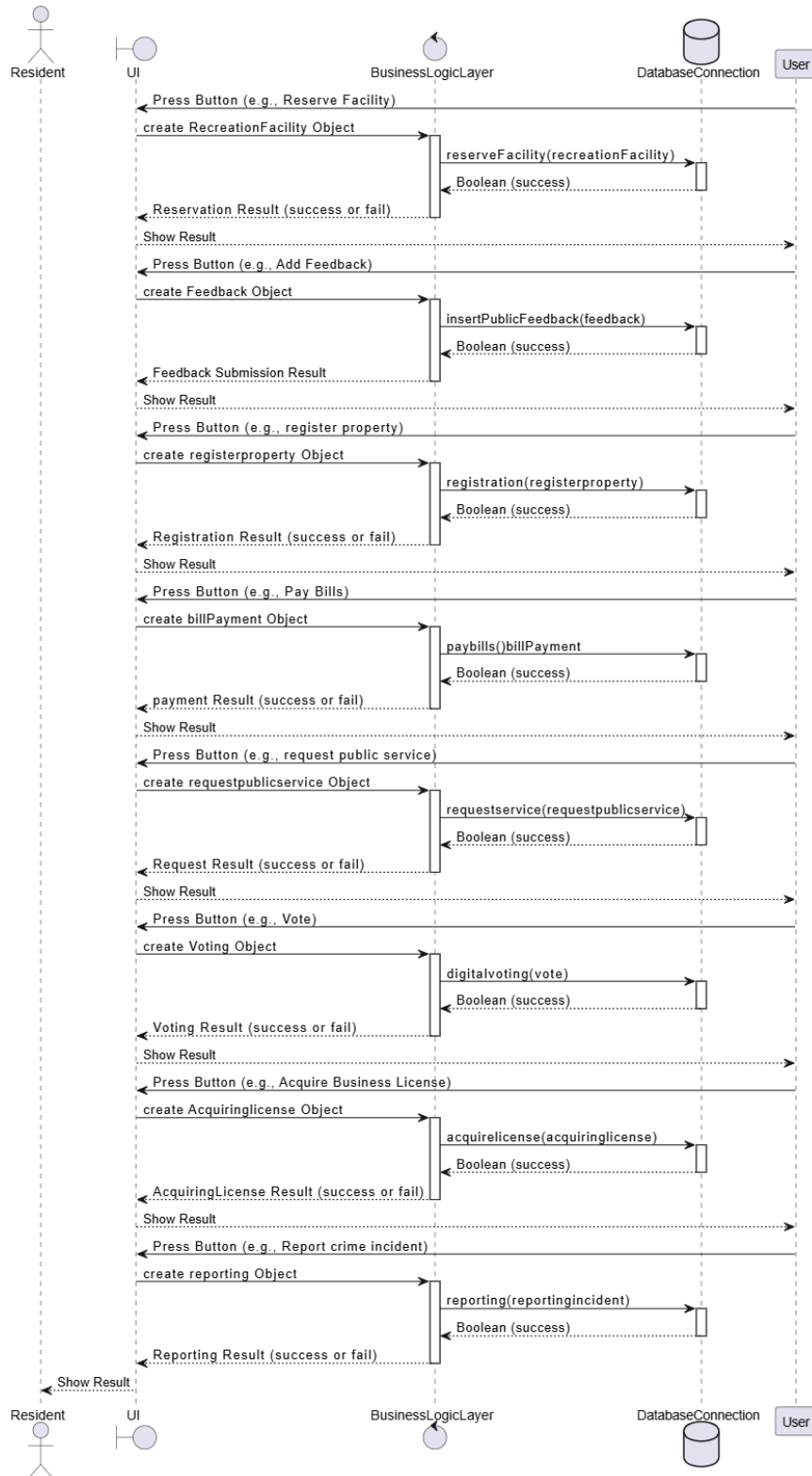
*The product uses friendly and simple user interfaces. The UI components used include buttons, forms and lists. Below are some of the UI screens of the product:*

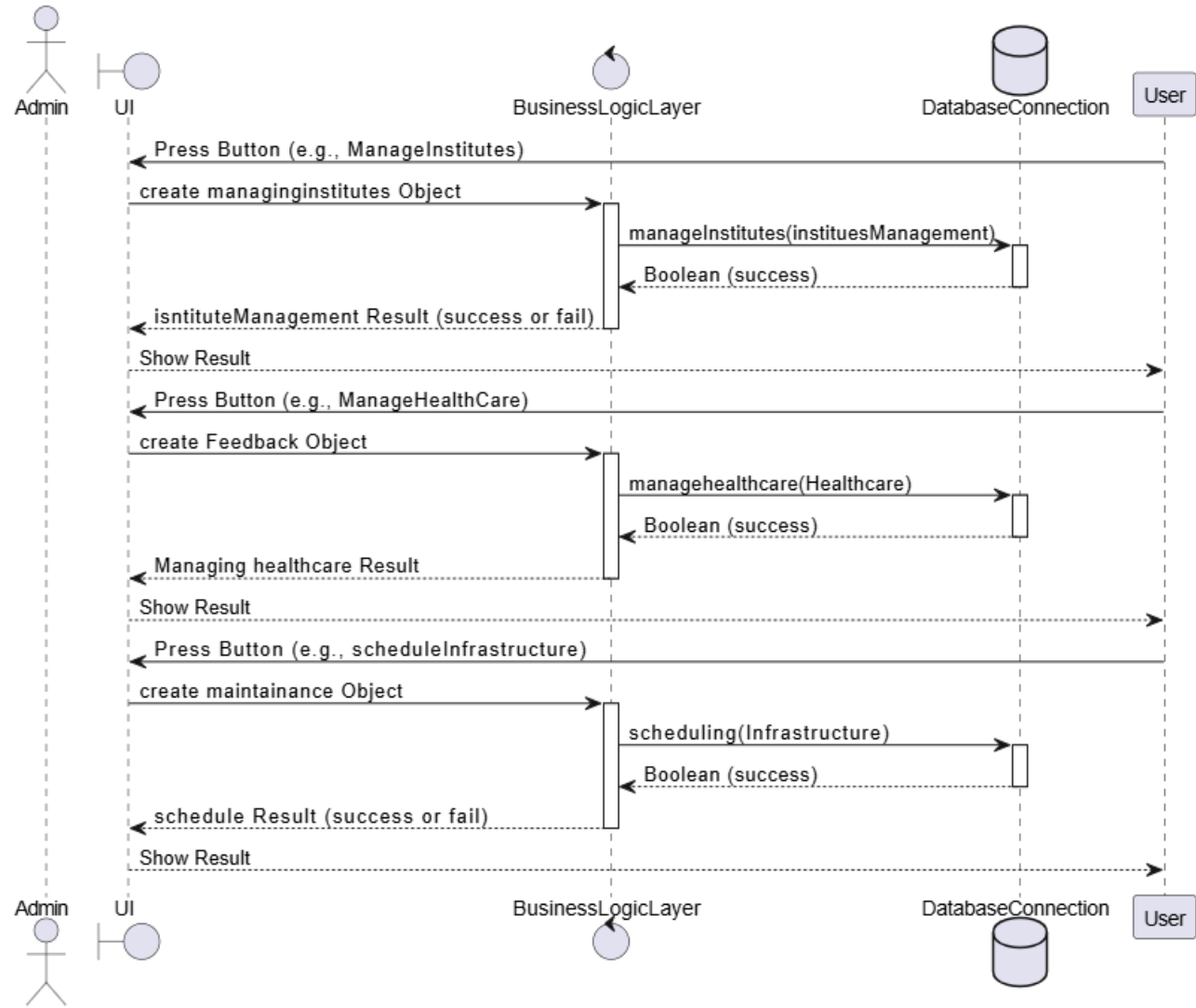


## 4. Class Diagram



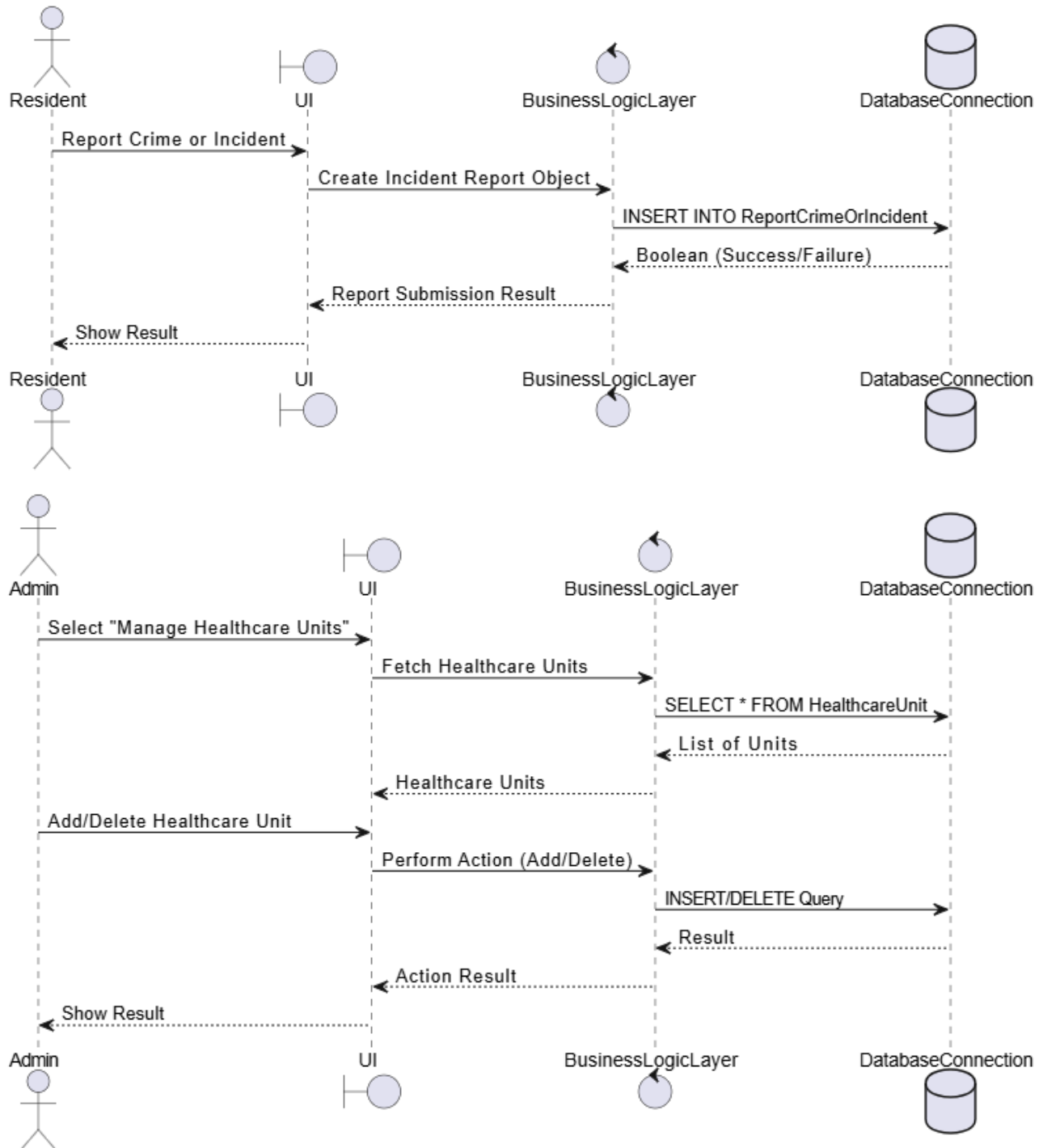
## 5. System Sequence Diagram

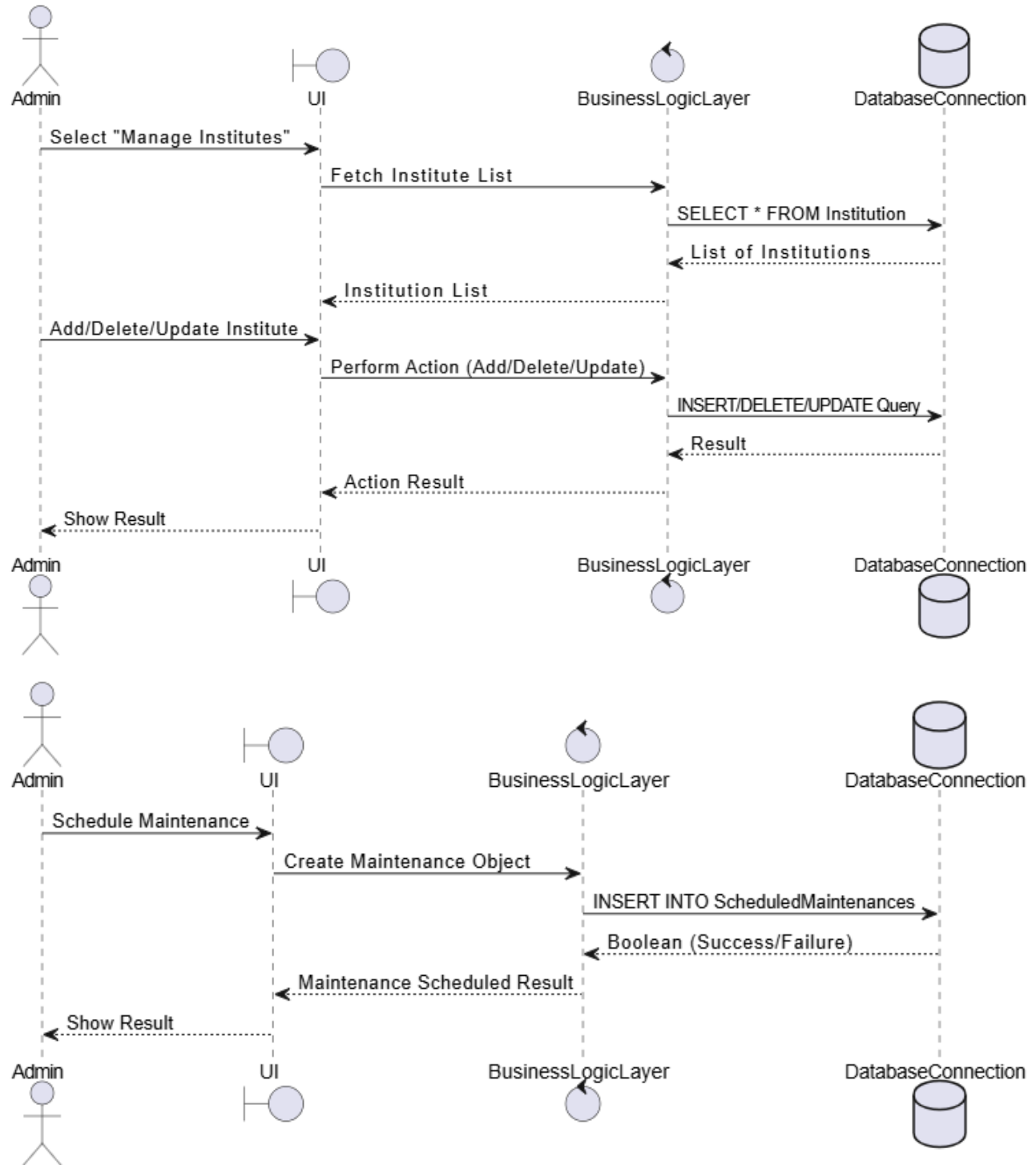


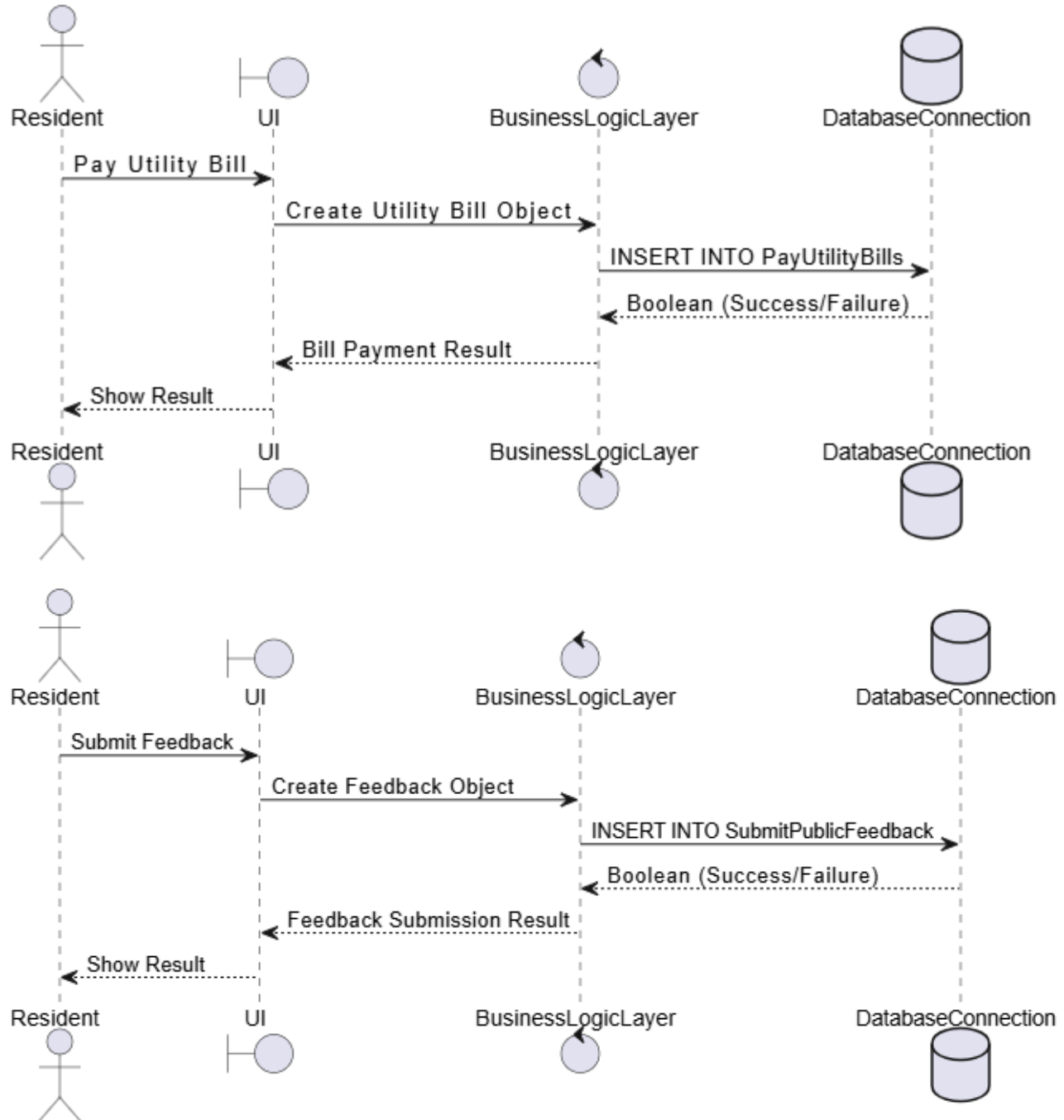


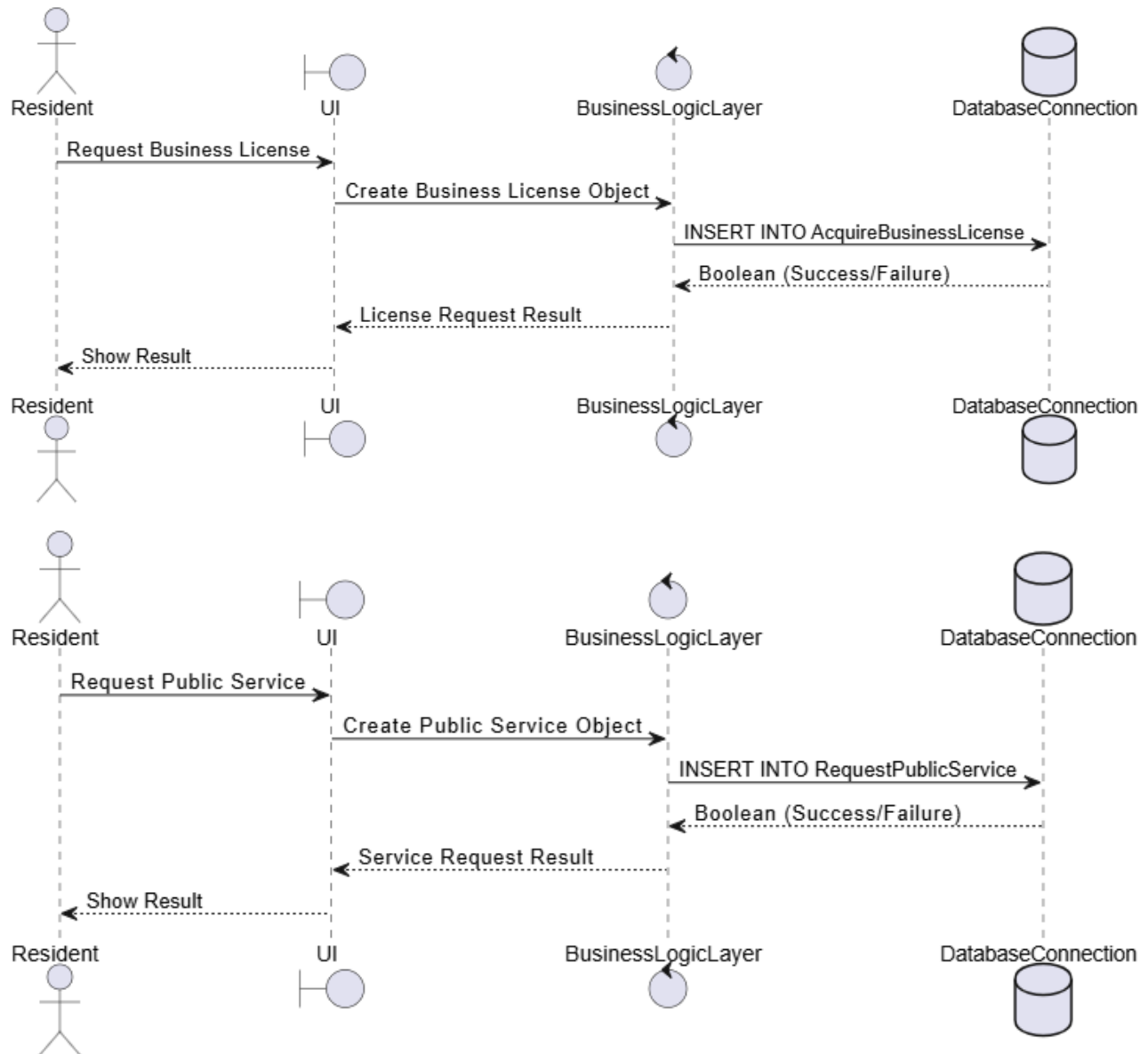


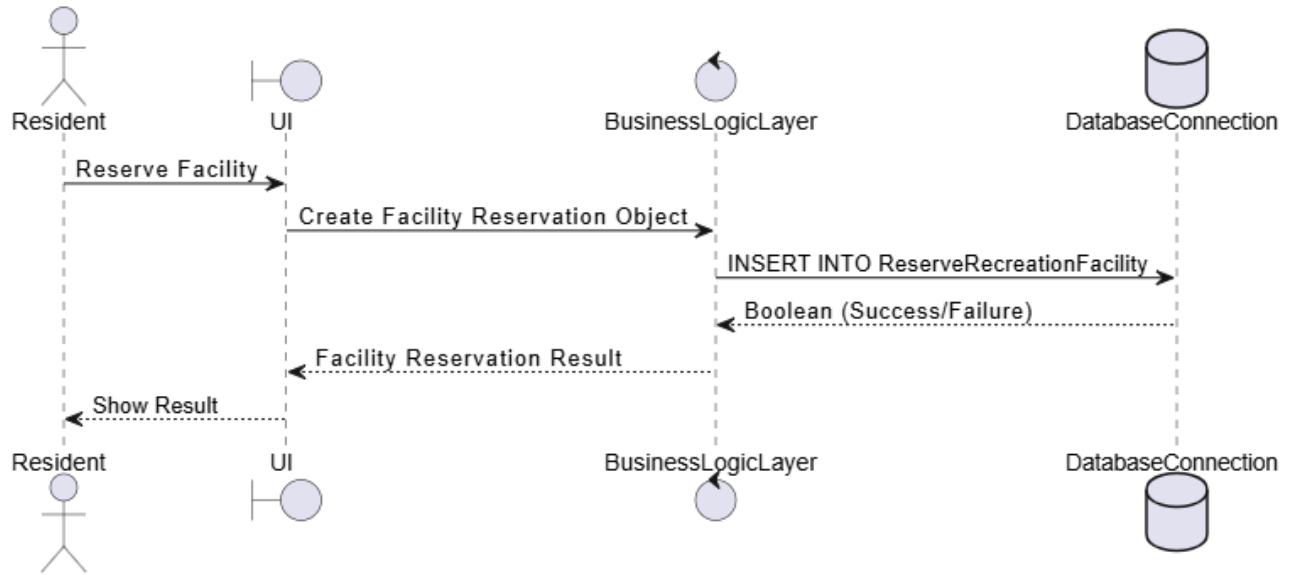
## 6. Sequence Diagram

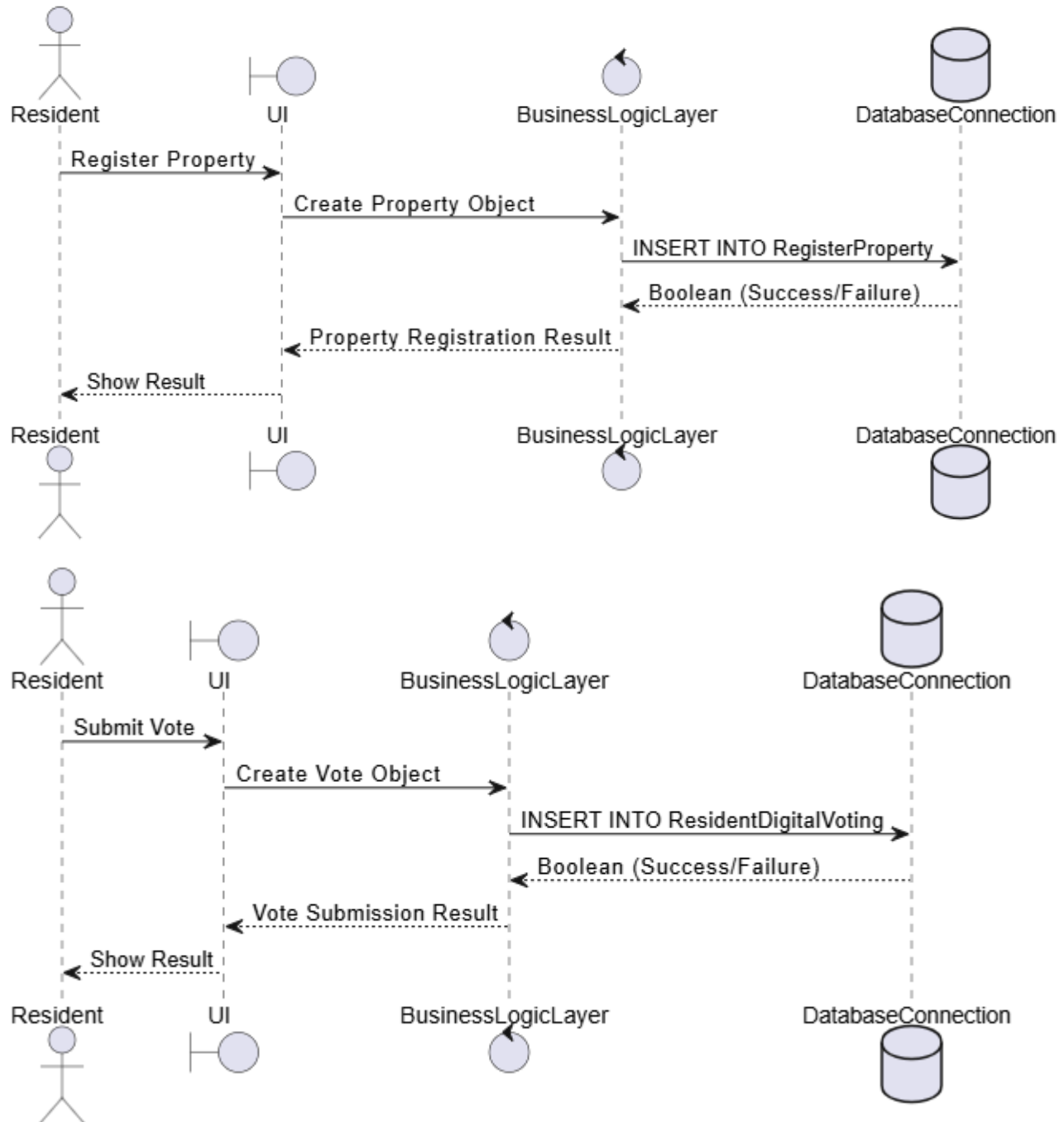




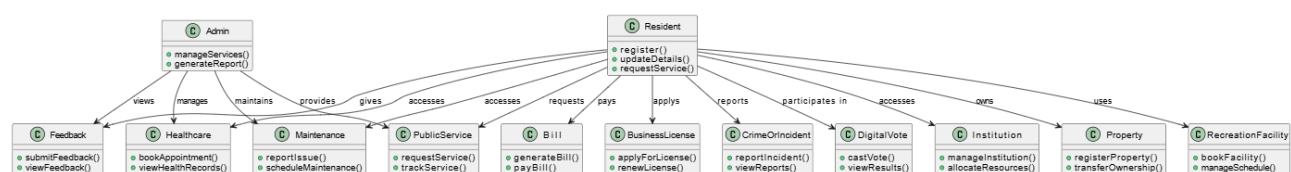




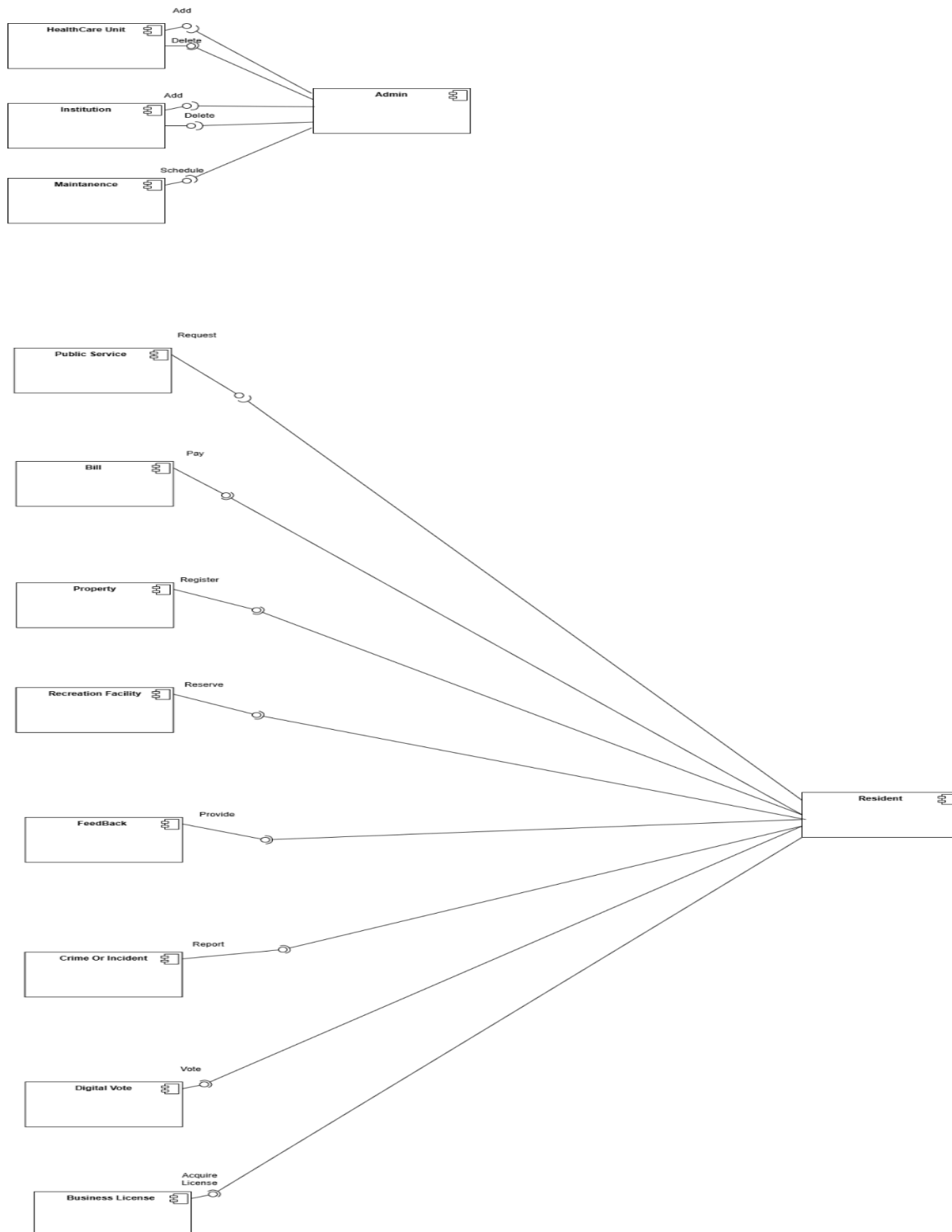




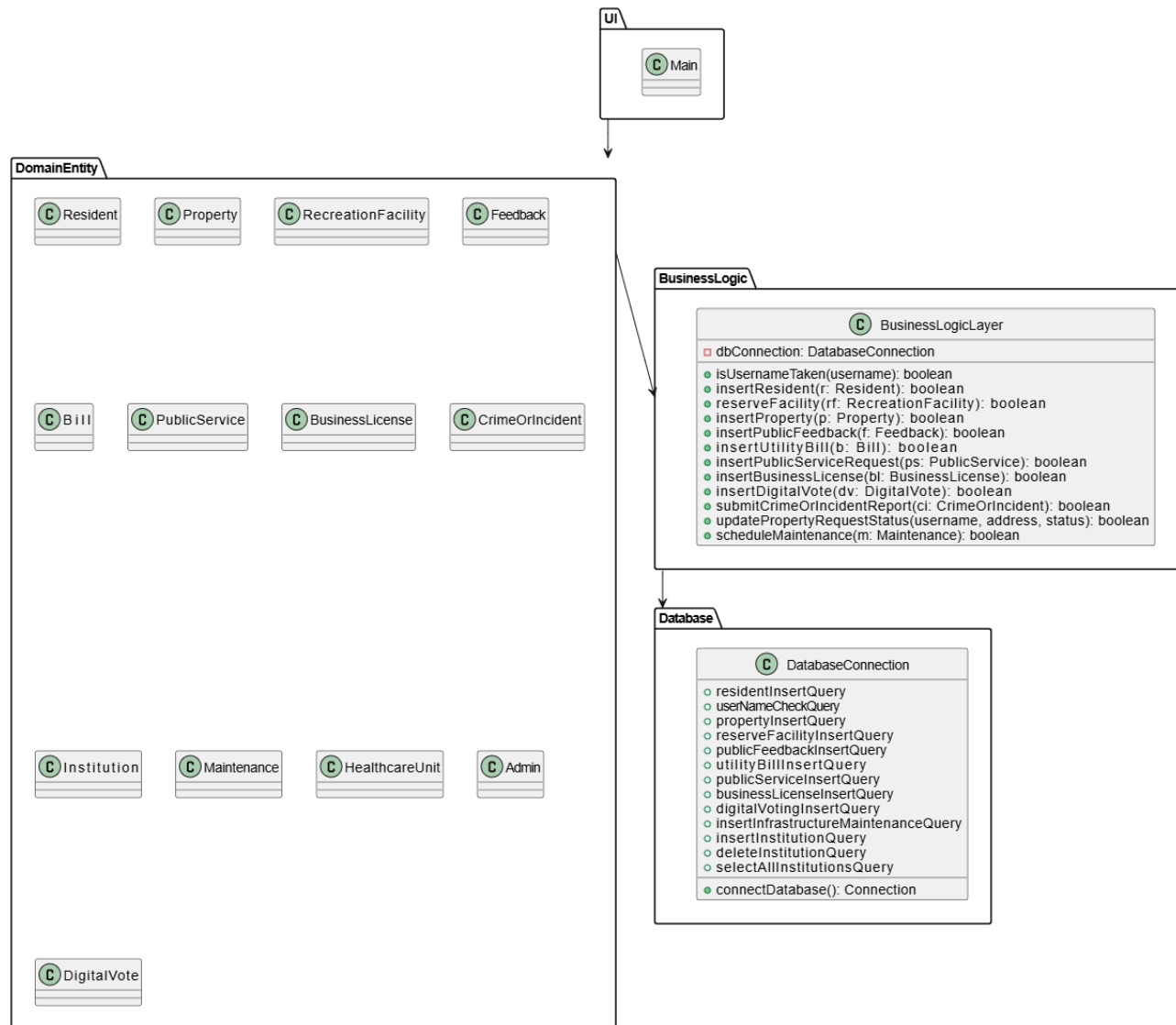
## 7. Domain Model



## 8. Component Diagram



## 9. Package Diagram





## 10. Deployment Diagram

