Public Utility Vehicle Franchise Management System for Land Transportation Franchising and Regulatory Board - Regional Office 1

A Project Documentation

Presented to the Faculty of Information Technology

Saint Louis College

City of San Fernando, La Union

In Partial Fulfillment of the Requirement for the Course

IT 122 - Capstone Project 1

Submitted By:

GALLERO, Jordan G.

LOBENDINO, Jeuffer Mar A.

PEÑALES, Vonh Renuel L.

SABADO, Darylle May A.

VILLANUEVA, Marc Adriane M.

Submitted To:

Ms. Kathleen Maria V. Dioquino

June 2024

Chapter 1

INTRODUCTION

Company Profile

Land Transportation Franchising and Regulatory Board - Region 1 in San Fernando, La Union is a regional office of the LTFRB responsible for overseeing land transportation operations within the Region 1 area, which includes the provinces of Ilocos Norte, Ilocos Sur, La Union, and Pangasinan.

Land Transportation Franchising & Regulatory Board (LTFRB) ensures that the commuting public is provided with adequate, safe, convenient, environment-friendly, and dependable public land transportation services at reasonable rates. The LTFRB envisions a future where world-class land transportation services play a pivotal role in the overall development of the country. These services contribute to the enhancement of the socio-economic status of all stakeholders involved, while simultaneously promoting the welfare of the general public. LTFRB mandates to promulgate, administer, enforce, and monitor compliance of policies, laws, and regulations of public land transportation services.

Situation Analysis

In today's era, the need for technology to digitize processes has become increasingly apparent. Technology allows for greater efficiency, accuracy, and accessibility in various aspects of life. From businesses to healthcare, education to government services, the digitization of processes has proven to streamline operations and improve user experience. By integrating technology into manual processes, organizations can automate repetitive tasks, reduce human error, and improve overall productivity. This can lead to cost savings, faster turnaround times, and better utilization of resources.

In the USA, vehicle franchise management systems exist, but they differ from government-issued public transportation franchises like those overseen by the LTFRB in the Philippines. Many USA vehicle franchise opportunities lie within the service sector, offering established brand names and operational frameworks to franchisees. Franchises in the USA focus on providing specific services for vehicles. Examples include Fix Auto (collision repair), Auto Butler (mobile detailing), and Caliber Collision Centers (collision repair). USA franchise management system is a comprehensive platform designed to support franchise owners in managing their operations efficiently. It encompasses various aspects such as inventory management, customer relations, financial reporting, and managing their operations efficiently. It encompasses various managing their operations efficiently. It encompasses various aspects

such as inventory management, customer relations, financial reporting, and operational workflows. The system aims to streamline processes, enhance productivity, and maintain consistent standards across all franchise locations (Cochinwala, 2023).

The tricycle transportation system in Binan City, Philippines, managed by the Binan Tricycle Franchising and Regulatory Board (BTFRB), operates with manual processes, leading to inefficiencies and difficulties in monitoring franchise statuses and violations. With over 4,450 registered tricycle franchises and an average daily clientele of 30 operators, there is a clear need for modernization. Developing a web-based management system with SMS and email notification capabilities presents an opportunity to streamline processes, improve data integrity, and enhance customer service. By automating record-keeping and renewal processes, the proposed system aims to reduce wait times and improve overall compliance with regulations, benefiting both BTFRB staff and tricycle operators. In summary, this project addresses critical challenges in tricycle management, aligning with the city's goal of efficient and effective transportation services (Himo et al.,2022).

Currently, Land Transportation Franchising and Regulatory Boards - Regional Office 1 do not have a digitalized system for processing their franchise services. The agency follows their existing citizen’s charter regarding the manual process of managing franchise applications of

clients. For example, when acquiring a new certificate of public convenience, the operator is required to comply with the needed requirements. The client will then put it in a folder which will be passed to the technical department of the agency. The technical department will be validating if there is a missing requirement/document. If none, the technical department will send the folder to the legal side for the next process. Most of the folders are sorted out using a shelf with different labels (for hearing, incomplete requirements, to be sent to the central office, etc).

In the province of La Union, The Office of the Provincial Governor - Information and Communication Technology Unit (OPG-ICTU) conducted three end-users training vis-a-vis three new in-house developed systems for the Provincial Government of La Union (PGLU) as part of the first 100-days commitment of the Governor Raphaelle Veronica “Rafy” Ortega-David's commitment for her P.U.S.O. Agenda.

The first system is the Document Tracking System designed to track, file, retrieve, and monitor documents such as memorandums, communication letters, and financial documents. On September 29, 2022, ICTU held end-user training for the aforementioned system on the 4th Floor, LUPOS Building, Barangay Sevilla, San Fernando City, and La Union. On October 10, the launching of the said system commenced.(Ebreo, 2022)

Conceptual Framework

Land Transportation Franchising and Regulatory Board 2020 Citizen's Charter (2nd Edition) was drafted based on the existing LTFRB Citizen's Charter as required under Republic Act No. 9485 otherwise known as the Anti-Red Tape Act, in consultation with LTFRB employees and stakeholders; and previous LTFRB Memorandum Circulars, Office Orders, Resolutions and other issuances have provisions contrary to or inconsistent with the provisions and requirements of the 2017 LTFRB Citizen's Charter.

Information System (IS) Success Model (2003) was authored by Delone and McLean. The framework is a popular methodology for assessing how well information systems (IS) are performing inside businesses. According to the paradigm, IS success is a multifaceted concept made up of six dimensions: individual impact, organizational impact, system quality, information quality, use, and user satisfaction. The researcher will employ DeLone and McLean IS Success Model (2003) to evaluate and enhance the quality and effectiveness of the PUV franchise management system in managing client’s application forms.

Integrating constructs of the technology acceptance model and total quality management to improve document management performance. A study about the acceptance of technology in document management. The study results agree on emerging technology to

document management using various gathering methods like individual interviews, focus group discussions, and questionnaires from a total of 186 respondents. The study talks about how the attitude of the users towards the document management system, its Perceived Cost, Perceived ease of use, Perceived Usefulness, Satisfaction and Enjoyment, their Response on Subjective Norms, Response on Behavioral Control, Response on Perceived Security, Assessing Perceived Risk, Perceived Compatibility, Individual Mobility, and Response to Personal Innovativeness. In Summary, the respondents embraced the emerging technology on a daily basis to increase efficiency by using Document Management Systems.

Problem Definition

The researchers proposed a Public Utility Vehicle Franchise Monitoring and Management System for Land Transportation Franchising and Regulatory Board to solve existing problems faced by technical side employees and legal side employees.

The problems encountered are:

1. **Difficulty in Document Validation -** Reviewing documents if they are incomplete takes too much time due to documents being stored in a physical storage, manually rummaging through a mound of files results in delays in document validation.

2. **Data storage inefficiency -** All the data in regard to public utility vehicle franchises is currently stored in physical documents and files, making it difficult to access and manage the information efficiently.
3. **Difficulty in monitoring violations of PUV operators -** PUV operators who violate the rules may not receive the appropriate punishment because data and document recording are done manually. This could lead to unreported infractions, which would allow PUV operators with infractions to pass.
4. **Time-consuming in searching and sorting of documents based on status -** Due to manual process in recording of documents and information of the clients, delays are to be expected on searching, for thousands of data are stored in a storage room or cabinet. It creates confusion and is time consuming when specific data are needed. Thus, creating inconvenience to the office and to the one who needs the document.

Objectives of the Study

The primary objective of this project is to develop a Public Utility Vehicle Franchise Monitoring and Management System for Land Transportation Franchising and Regulatory Board.

Specifically, the study aims to:

1. Develop a system that takes clients' information and documents in a form to be reviewed if all documents and data are clear and complete. If incomplete, the system will label the document as incomplete.
2. Develop a system with a normalized database for public utility vehicle franchise information. Database contains tables for storing information such as public utility vehicle details, operator information, franchise information, route details and compliance records.
3. Develop a system that displays PUV operator infractions, the time the infraction occurred, and the appropriate time for the operator to file an appeal. If violations have occurred, the renewal of the franchise will not proceed.
4. Develop a system with real-time monitoring feature that will allow the Land Transportation Franchising and Regulatory Board to track the status of each public utility vehicle franchise in real time. This feature could include status and

renewal processes, and automated notifications for pending or expired franchises.

Project Description

The proposed Public Utility Vehicle Franchise Monitoring and Management System establishes a computerized system for the Land Transportation Franchising and Regulatory Board to improve the franchising process for PUVs.

In the proposed system, there are three users namely; Admin, Technical section, Legal section. The Admin needs an account to access the system. The Admin generally executes all features of the system: (1) Manage Users which the admin can add, edit, and view for a user. In this feature, the admin can choose to add, edit, and view for an admin and employee. (2) Manage Role which the admin can add, edit, and view for a role. (3) Manage Department which the admin can add, edit, and view for a profile. (4) Manage Applicant documents in which the admin can add documents submitted by applicants as part of their franchise application, edit document status (if complete or not), and view specific documents. The addition of documents through scanner. (5) Manage Hearing in which the admin can add, edit hearing details, and view for specific hearings based on different criteria, such as hearing dates, applicant/operator names, or hearing outcomes. The admin can also

archive hearings. (6) Manage PUV which the admin can add, edit, and view specific PUV. (7) Manage PUV Violation in which the admin can add, edit, and view a vehicle violation.(8) Utilities which the admin can manage profiles, services, document types, application statuses, hearing statuses, activity log and perform backup and restore operations. (10) Reporting and Analytics which the admin can generate reports summarizing the status of franchise applications, document monitoring activities, and hearing processes.

As for the technical section, it can only access some of the features with limitations. The employee is also required to login. (1) Manage Applicant documents in which the employee can add documents submitted by applicants as part of their franchise application, update document status (if complete or not), and view specific documents.(2) View PUV which the employee can view specific PUV. (3) View PUV Violation in which the employee can view a specific vehicle violation. (4) Report and Analytics in which the employee can also generate reports based on specific parameters.

As for the legal section, it can only access some of the features with limitations. The employee is also required to login. (1) View Applicant documents in which the employee can view a specific applicant document. (2) Manage Hearing in which the employee can add, update hearing details, and search for specific hearings based on different

criteria, such as hearing dates, applicant names, or hearing outcomes. (3) View PUV which the employee can view specific PUV. (4) View PUV Violation in which the employee can view a specific vehicle violation. (5) Report and Analytics in which the employee can also generate reports based on specific parameters.

Hardware and Software Requirements

Hardware Requirements

Hardware	**Server**	**Client**
Processor	At least i3 Processor Speed 3.5 GHz	At least Pentium 4 Processor Speed 3.5 GHz
RAM	At least 8 GB	At least 4 GB
Hard Drive	At least 1 TB	At least 500 GB
Scanner	Printer with Document Scanner	

Software Requirements

Software	**Server**	**Client**

Operating System	At least Windows Server 2016	At least Windows 10
Web Browser	Google Chrome	Google Chrome
Database Software	MySQL	
Database Server	XAMPP	

Limitation of the Study

1. The system is not mobile responsive.
2. The system only manages the PUV of LTFRB - Regional Office 1.

Chapter 2

DATA GATHERING METHODS

Research Design

Descriptive and developmental research designs were utilized in conducting this study. Descriptive research allows for a wide range of data collection methods, including surveys, observational studies, case studies, and focus groups, making it a flexible and versatile research method. The information gathered through descriptive research can serve as a baseline for future research and provide a foundation for further studies (Sirisilla, 2023).

According to Richey (1994, as cited in Tolentino, 2023), developmental research is defined as "a systematic study of designing, developing, and evaluating instructional programs, processes, and products that must meet criteria of internal consistency and effectiveness. In addition, it is a way to establish new procedures, techniques, and tools based upon a methodical analysis of specific cases".

Primary Sources of Data

Interview

Information was gathered through the use of an interview. The

researchers conducted an initial interview with the Land Transportation Franchising and Regulatory Board - Region 1. The interview was conducted face-to-face on the 2nd of February, 2024, and 23rd of May, 2024 to which the Head of the Legal Section was informed about the purpose of the study, ensuring confidentiality, and maintaining anonymity of the interview. The interview was beneficial to the researchers which serves as their guide in developing the proposed system.

Documentary Analysis

The Legal Section Head of Land Transportation Franchising and Regulatory Board of Region 1 provided a Citizen's Charter. The Citizen's charter is a statement of promises given by a government agency to people or client groups regarding the services that they offer. It contains information such as the process of renewing the franchise of PUV, Application for franchising, Registration of PUV, etc. The provided Citizen's charter is used by the researchers to analyze the process of registration and renewal of PUV in technical section and in legal section.

Questionnaire

Information was collected through the use of a questionnaire. The researchers sent a questionnaire through email that was provided by

Atty. Mark Anthony Espenilla of the Land Transportation Franchising and Regulatory Board (LTFRB) - Regional Office No. I. The questionnaire was sent and retrieved via email on May 1, 2024. The questionnaire that was retrieved is used by the researchers to understand about the current situation of the office.

Secondary Sources of Data

Internet

Government websites, blogs, online articles, and other online resources contributed to the gathering of various information for this research.

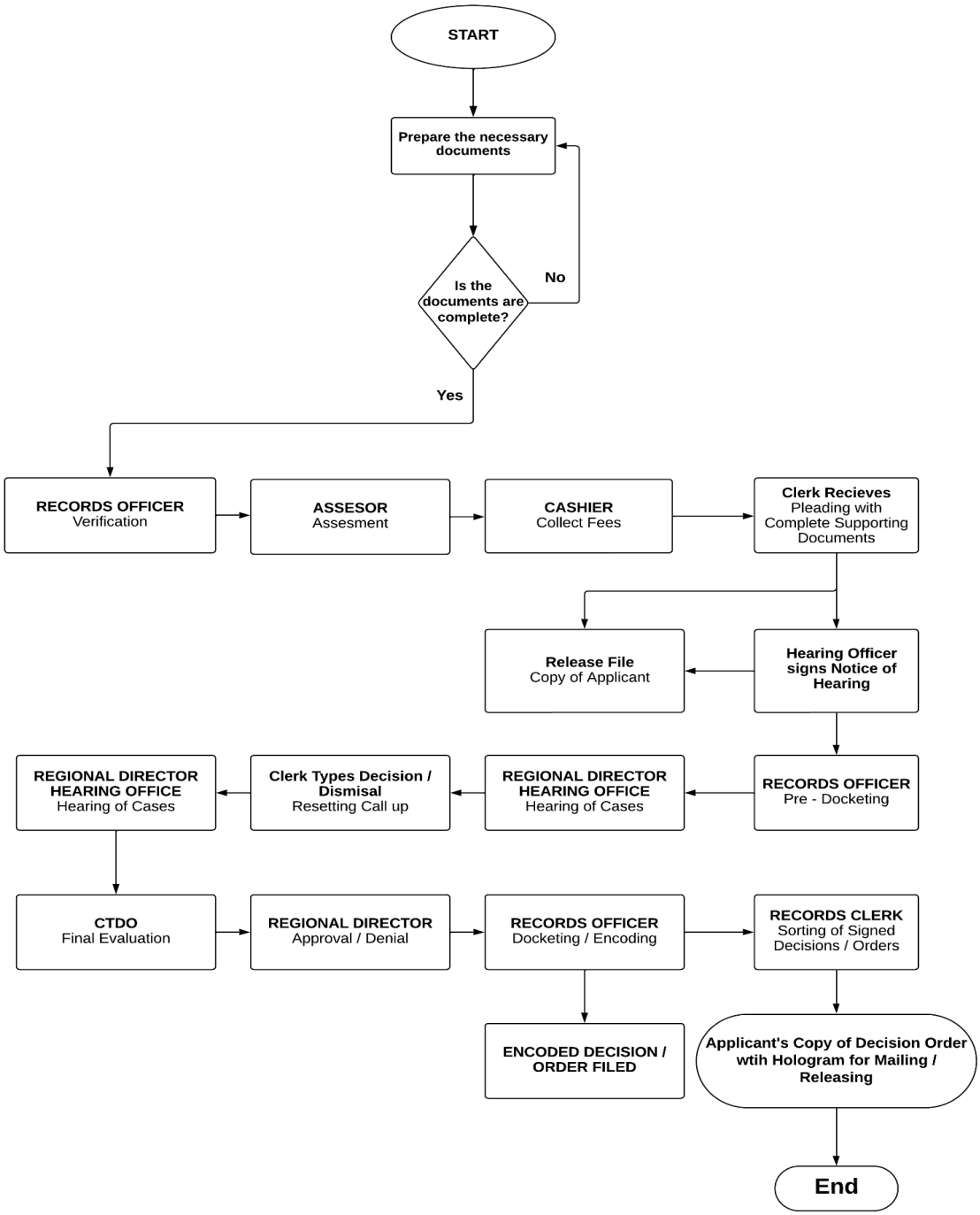
Unpublished Materials

The researchers utilized unpublished materials such as capstone projects and previous research manuscripts related to the study as a reference to gain additional insights and relevant information.

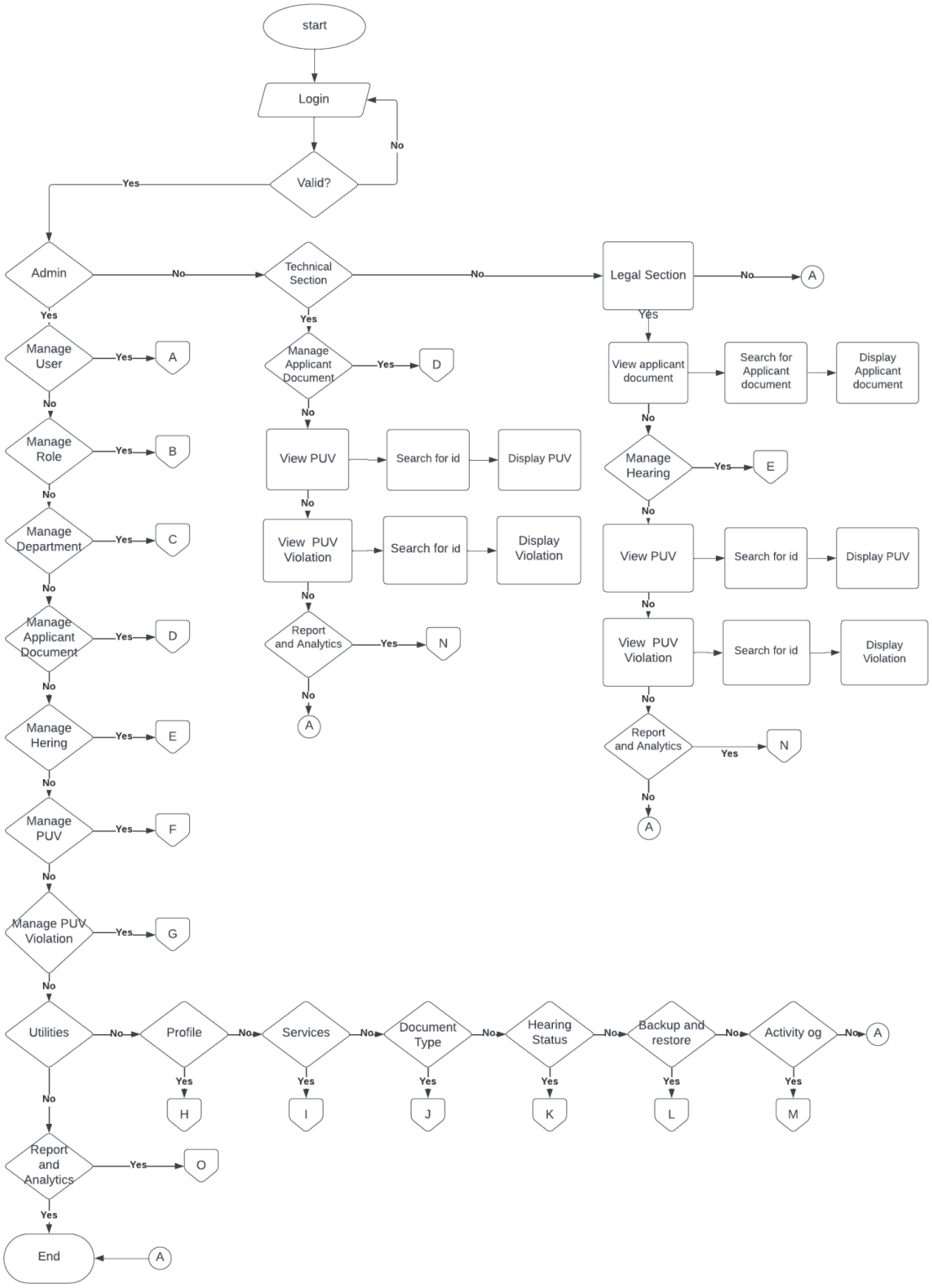
Chapter 3

SYSTEM MODELS

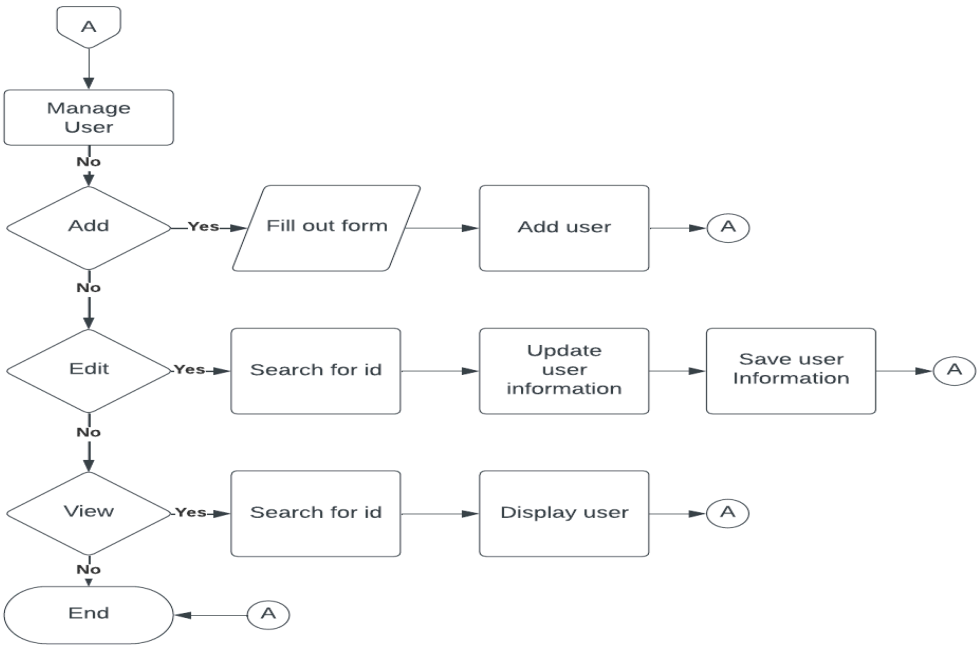
Existing Process Flowchart



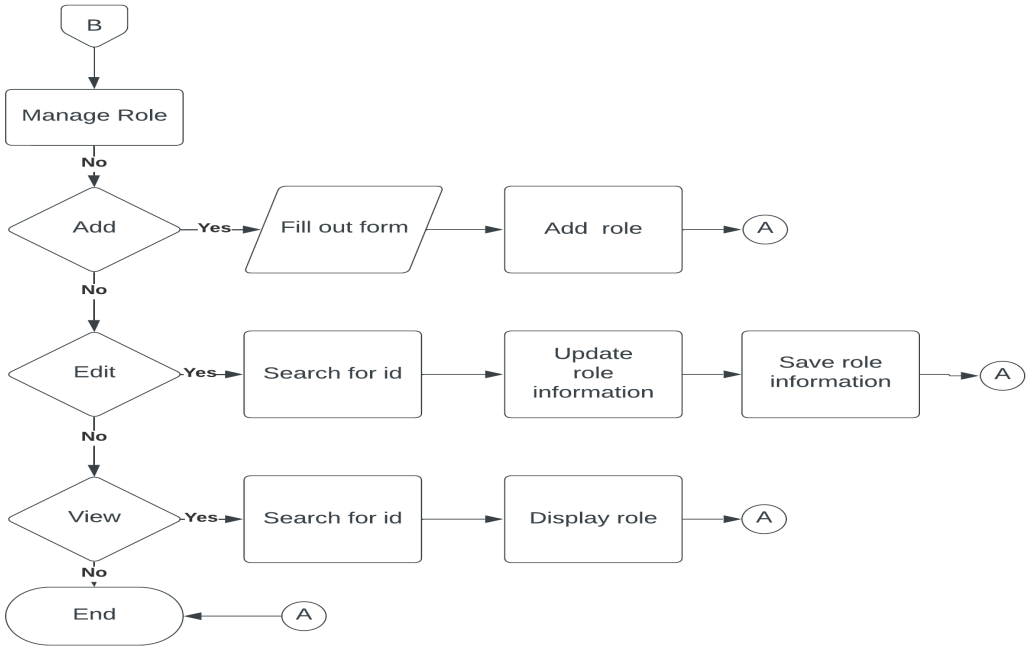
Proposed Process Flowchart



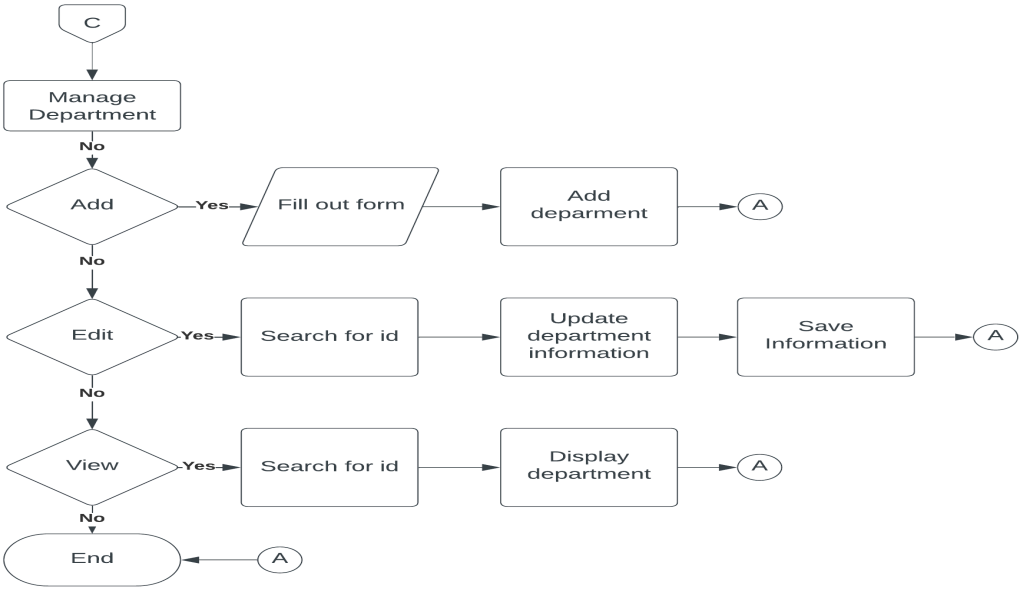
Manage User



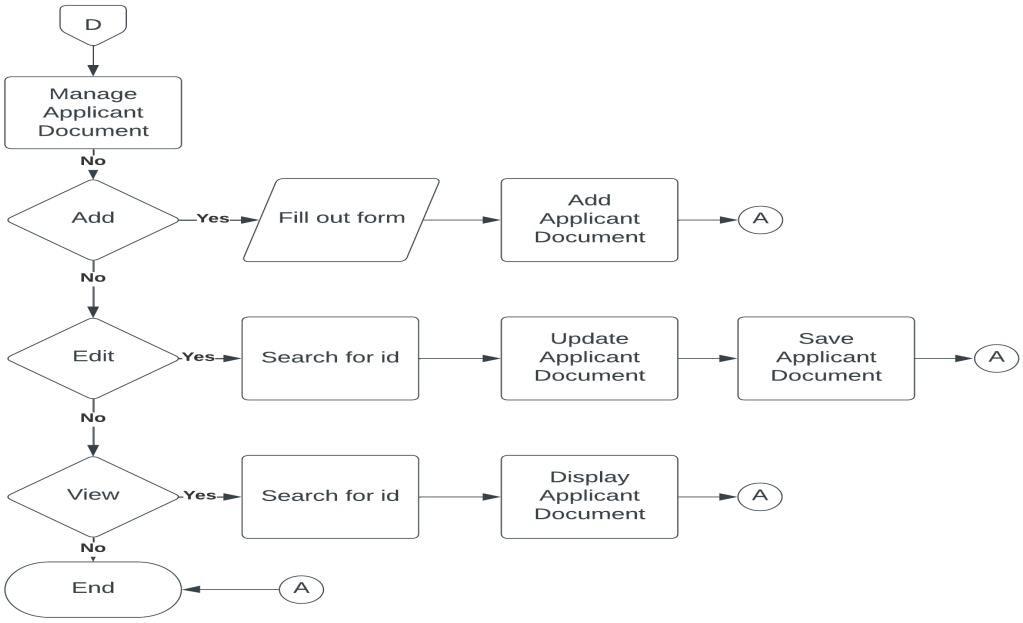
Manage Role



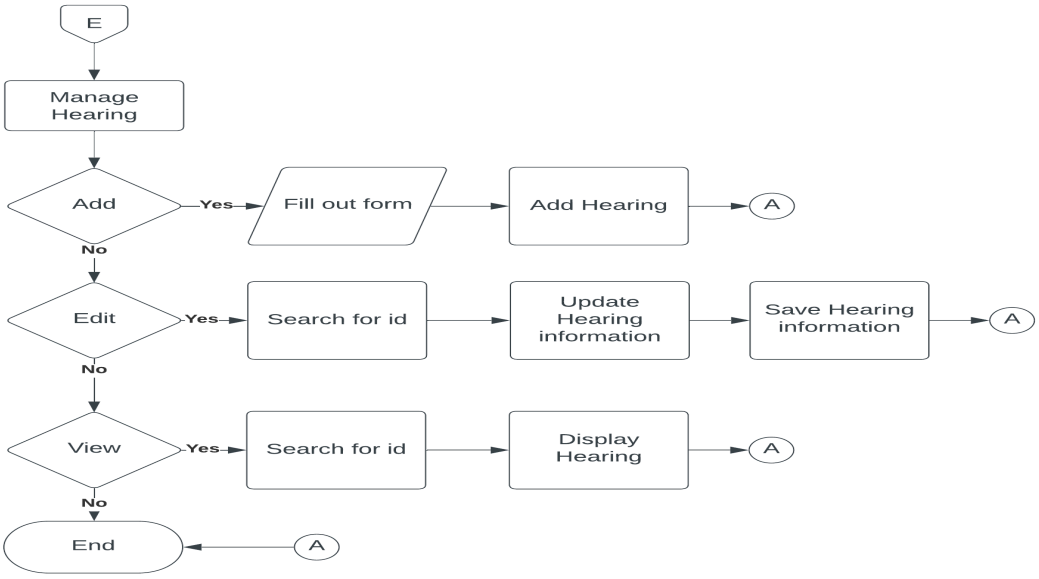
Manage Department



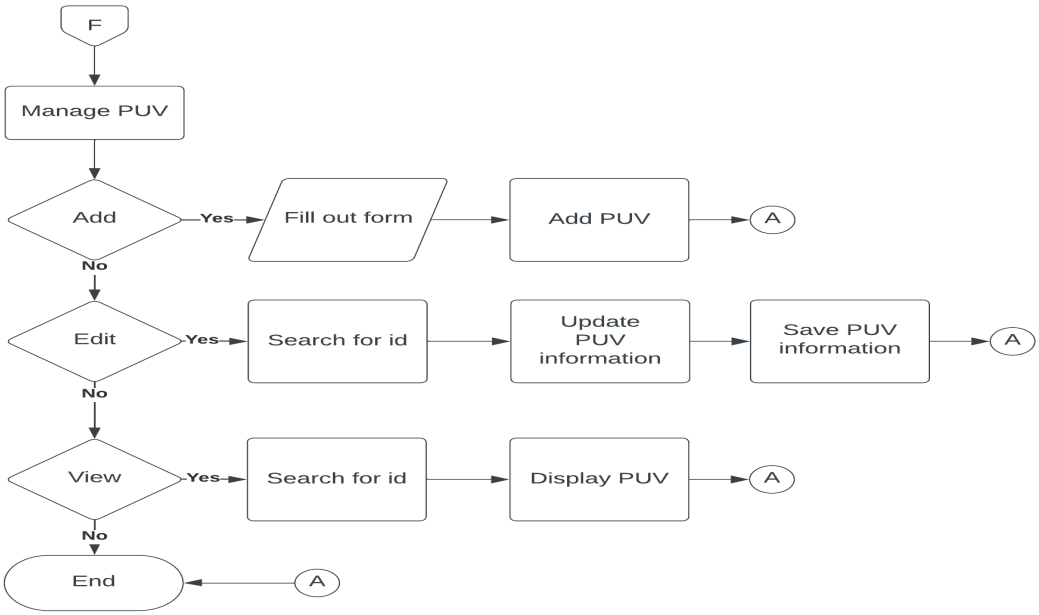
Manage Applicant Document



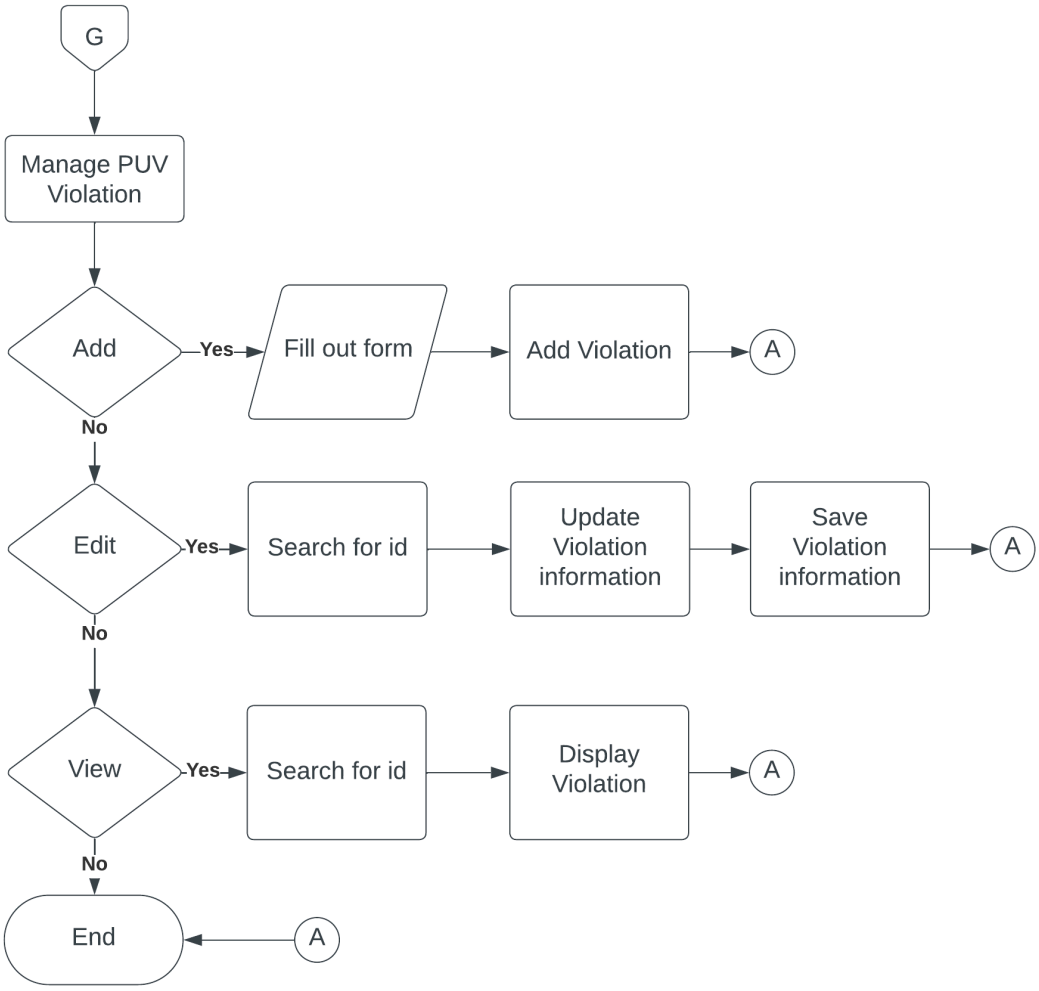
Manage Hearing



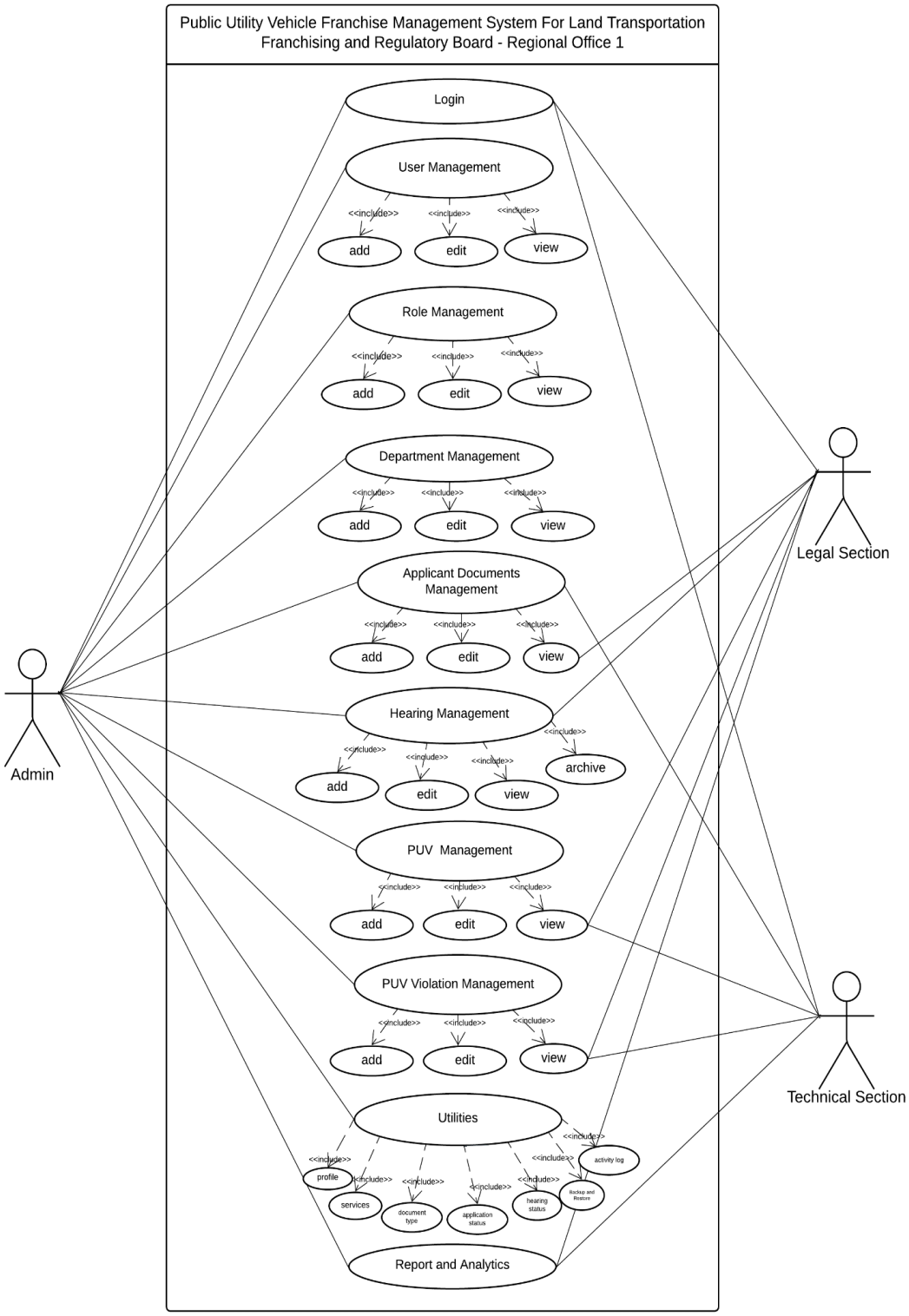
Manage PUV



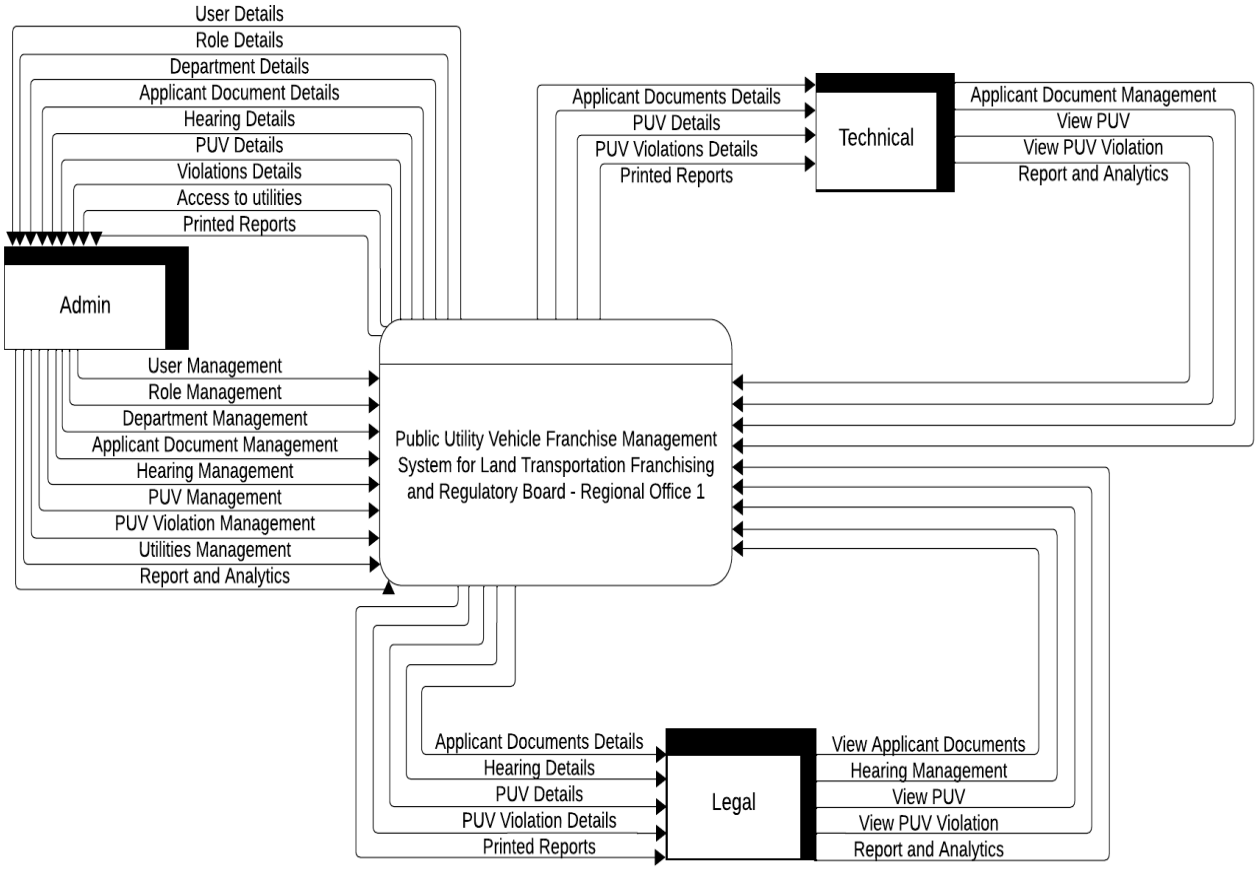
Manage PUV Violation



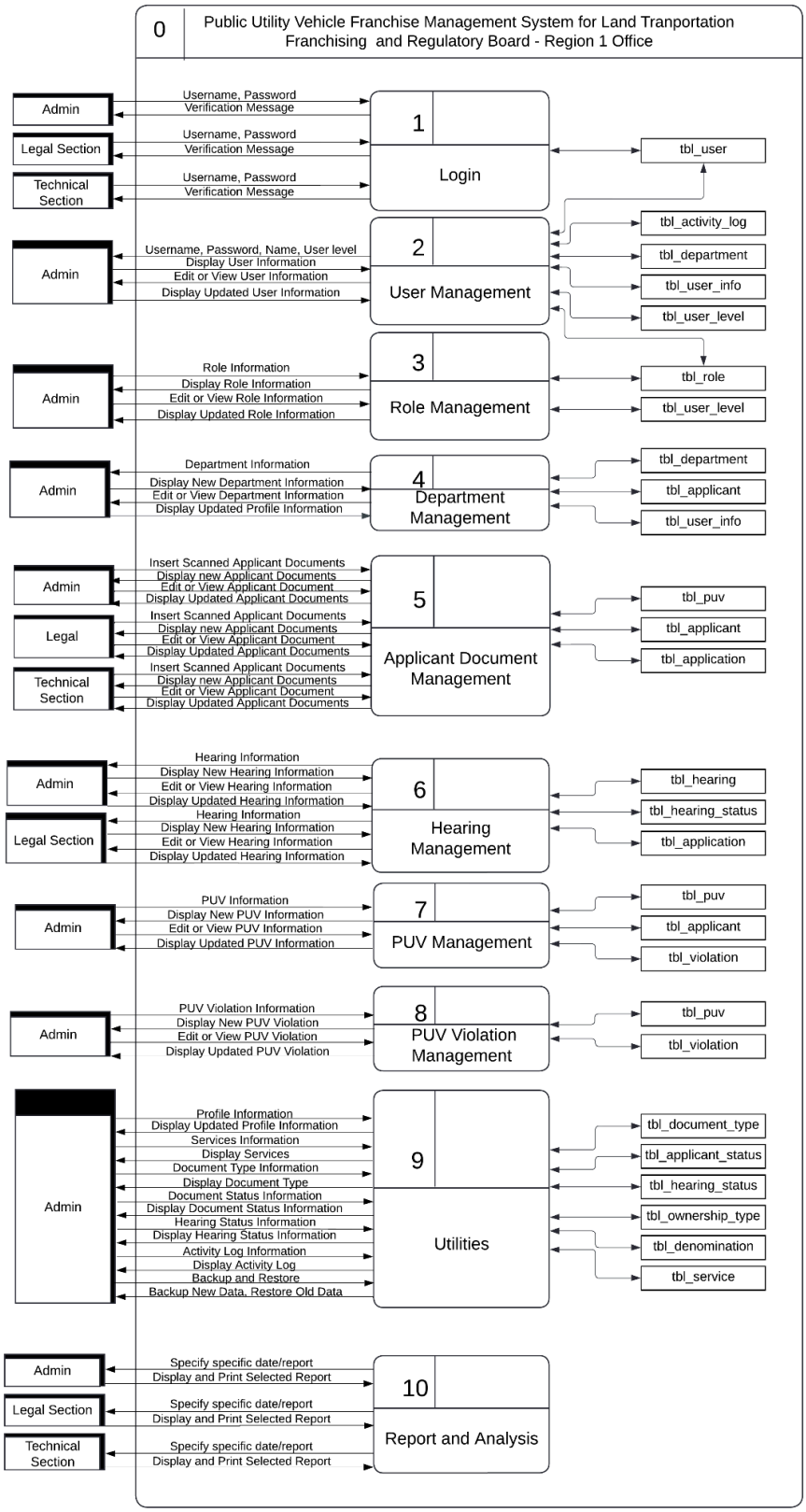
Use case Diagram



Context Diagram



Top Level Diagram



Input-Process-Output Diagram

Login

Input	Process	Output
Username, password	Validate the username and password Invalid username and password	Access to dashboard Access Denied

Add user

Input	Process	Output
Username Password Name User level	Check if password and confirmed password matched Validate user information Save new user account	Display added new user account information

Edit/View User

Input	Process	Output
Username Password User level Search user	Update existing details Validate user details Save new user information Click view button	Display updated user information Display existing user information

Add Role

Input	Process	Output
Role information	Add role information Validate role information Save new role	Display added new role

Edit/View Role

Input	Process	Output
Role information	Update existing role Validate role information Save new role	Display updated role information
Search for role	Click view button	Display existing role information

Add Department

Input	Process	Output
Department information	Add department information Validate department information Save new department	Display added new department

Edit/View Department

Input	Process	Output
Department information	Update existing department Validate department information Save new department	Display updated department information
Search for department	Click view button	Display existing department information

Add Applicant Documents (via scanning)

Input	Process	Output
Applicant Documents	Scan and add applicant document Validate scanned applicant document Save new applicant document	Display added new applicant document

Edit/View Applicant Documents

Input	Process	Output
Applicant Document information	Update existing applicant document Validate applicant document information Save new applicant document	Display updated applicant document
Search for applicant document	Click view button	Display existing applicant document

Add Hearing

Input	Process	Output
Hearing information	Add hearing information Validate hearing information Save new hearing	Display added new hearing information

Edit/View Hearing

Input	Process	Output
Hearing information	Update existing hearing information Validate hearing information Save new hearing	Display updated hearing information
Search for hearing information	Click view button	Display existing hearing information

Archive Hearing

Input	Process	Output
Hearing documents	Archive hearing documents Validate archive information Save new archive documents	Display archived hearing documents

Add PUV

Input	Process	Output
PUV information	Add PUV information Validate PUV information Save new PUV information	Display added PUV information

Edit/View PUV

Input	Process	Output
PUV information	Update existing PUV violation information Validate PUV violation information Save new PUV violation information	Display updated PUV violation information
Search for PUV information	Click view button	Display existing PUV

Add PUV Violation

Input	Process	Output
PUV Violation information	Add violation information Validate violation information Save new violation information	Display added violation information

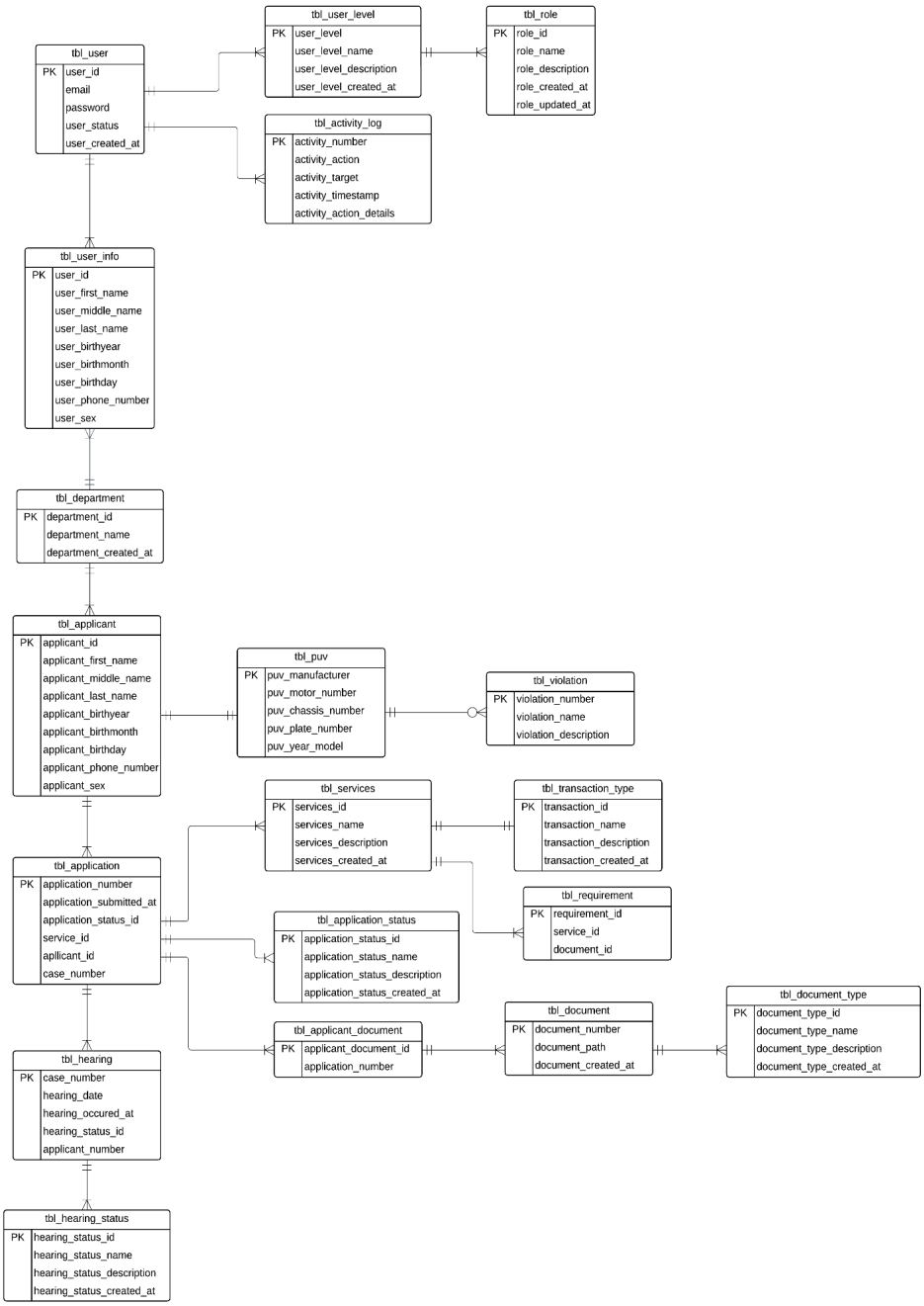
Edit/View PUV Violation

Input	Process	Output
PUV Violation information Search for PUV violation	Update existing violation information Validate violation information Save new violation information Click view button	Display updated violation information Display existing violation

Report And Analytics

Input	Process	Output
Specify Parameter	Validate report	Generate report

Entity-Relationship Diagram



Relational Database Schema

tbl_user {user_id, email, password, user_status, user_created_at, user_level}

tbl_user_info {user_id, user_first_name, user_middle_name, user_last_name, user_birthyear, user_birthmonth, user_birthday, user_phone_number, user_sex}

tbl_user_level {user_level, user_level_name, user_level_description, user_level_created_at}

tbl_roles {role_id, role_name, role_description, role_created_at, role_updated_at, user_level}

tbl_depatment {department_id, department_name, department_created_at}

tbl_application_status {application_status_id, application_status_name, application_status_description, application_status_created_at }

tbl_services {service_id, service_name, service_description, service_created_at, transaction_id}

tbl_transaction_type {transaciton_id, transaction_name, transaction_ description, transaction_created_at}

tbl_hearing_status {hearing_status_id, hearing_status_name, hearing_status_description, hearing_status_created_at}

tbl_requirement {requirement_id, service_id, document_id}

tbl_activity_log {activity_number, activity_action, activity_target, activity_timestamp, activity_action_details, user_id}

tbl_applicant {applicant_id, applicant_first_name, applicant_middle_name, applicant_last_name, applicant_birthyear, applicant_birthmonth, applicant_birthday, applicant_phone_number, applicant_sex }

tbl_application {application_number, application_submitted_at-application_status_id, service_id, applicant_id, case_number}

tbl_applicant_document {applicant_document_id, applicant_id, document_type_id}

tbl_document {document_number, document_path, document_created_at, applicant_document_id}

tbl_document_type {document_type_id, document_type_name, document_type_ description, document_type_created_at}

tbl_hearing {case_number, hearing_date, hearing_occured_at, hearing_status_id, application_number}

tbl_puv {puv_manufacturer, puv_motor_number, puv_chassis_number, puv_plate_number, puv_year_model}

tbl_violation {violation_number, violation_name, violation_description}

tbl_puv_violates_violation {violation_number, puv_plate_number, violation_status}

Logical Data Structure

tbl_user

Field Name	**Data Type**
user_id	CHAR
email	VARCHAR
password	VARCHAR
user_status	CHAR
user_created_at	TIMESTAMP
user_level	CHAR

tbl_user_info

Field Name	**Data Type**
user_id	CHAR
user_first_name	VARCHAR
user_middle_name	VARCHAR
user_last_name	VARCHAR
user_birthyear	YEAR
user_birthmonth	VARCHAR
user_birthday	VARCHAR
user_phone_number	VARCHAR
user_sex	ENUM(‘M’,’F’)

tbl_user_level

Field Name	Data Type
user_level	TINYINT
user_level_name	VARCHAR
user_level_description	TEXT
user_level_created_at	TIMESTAMP

tbl_role

Field Name	Data Type
role_id	TINYINT
role_name	VARCHAR
role_description	TEXT
role_created_at	TIMESTAMP
role_updated_at	TIMESTAMP
user_level	TINYINT

tbl_department

Field Name	Data Type
department_id	CHAR
department_name	VARCHAR
department_created_at	TIMESTAMP

tbl_application_status

Field Name	Data Type
application_status_id	CHAR
application_status_name	VARCHAR
application_status_description	TEXT
application_status_created_at	TIMESTAMP

tbl_service

Field Name	Data Type
service_id	TINYINT
service_name	VARCHAR
service_description	TEXT
service_created_at	TIMESTAMP
transaction_id	TINYINT

tbl_transaction_type

Field Name	Data Type
transaction_type_id	TINYINT
transaction_type_name	VARCHAR
transaction_type_description	TEXT
transaction_type__created_at	TIMESTAMP

tbl_hearing_status

Field Name	Data Type
hearing_status_id	CHAR
hearing_status_name	VARCHAR
hearing_status_description	TEXT
hearing_status_created_at	TIMESTAMP

tbl_requirement

Field Name	Data Type
requirement_id	TINYINT
service_id	TINYINT
document_id	TINYINT

tbl_activity_log

Field Name	Data Type
activity_number	TINYINT
activity_action	VARCHAR
activity_target	VARCHAR
activity_timestamp	TIMESTAMP
activity_action_details	VARCHAR
user_id	CHAR

tbl_applicant

Field Name	**Data Type**
applicant_id	CHAR
applicant_first_name	VARCHAR
applicant_middle_name	VARCHAR
applicant_last_name	VARCHAR
applicant_birthyear	YEAR
applicant_birthmonth	VARCHAR
applicant_birthday	VARCHAR
applicant_phone_number	VARCHAR
applicant_sex	ENUM

tbl_application

Field Name	**Data Type**
application_number	CHAR
application_submitted_at	TIMESTAMP
application_status_id	CHAR
service_id	TINYINT
applicant_id	CHAR
case_number	CHAR

tbl_applicant_document

Field Name	Data Type
applicant_document_id	TINYINT
applicant_id	CHAR
document_type_id	TINYINT

tbl_document

Field Name	Data Type
document_number	TINYINT
document_path	VARCHAR
document_created_at	TIMESTAMP
applicant_document_id	TINYINT

tbl_document_type

Field Name	Data Type
document_type_id	TINYINT
document_type_name	VARCHAR
document_type_description	TEXT
document_type_created_at	TIMESTAMP

tbl_hearing

Field Name	Data Type
case_number	TINYINT
hearing_date	TIMESTAMP
hearing_occured_at	TIMESTAMP
hearing_status_id	TINYINT
application_number	TINYINT

tbl_puv

Field Name	Data Type
puv_manufacturer	VARCHAR(20)
puv_motor_number	VARCHAR(20)
puv_chassis_number	VARCHAR(20)
puv_plate_number	VARCHAR(20)
puv_year_model	YEAR(4)

tbl_violation

Field Name	Data Type
violation_number	VARCHAR(12)
violation_name	VARCHAR(255)
violation_description	TEXT

tbl_puv_violates_violation

Field Name	**Data Type**
violation_number	VARCHAR(12)
puv_plate_number	VARCHAR(12)
violation_status	CHAR(1)

Chapter 4

SCREENSHOTS

Login

System Admin Dashboard

User Management

Role Management

Department Management

REFERENCES

Citizen's Charter. (2019, August 13). https://ltfrb.gov.ph/2019-citizens-charter/

Cochinwala, K. (2023, December 1). INDUSTRY SPOTLIGHT: FRANCHISED AUTOMOTIVE SERVICES SECTOR REMAIN STABLE. IFA.https://www.franchise.org/franchise-information/franchising-world/industry-spotlight-franchised-automotive-services-sector

Ebreo, A. (2022, October 7).PGLU Accelerates Digital Transformation. launion.gov. https://launion.gov.ph/%F0%9D%97%A3%F0%9D%97%9A%F0%9D%97%9F%F0%9D%97%A8-%F0%9D%97%94%F0%9D%97%B0%F0%9D%97%B0%F0%9D%97%B2%F0%9D%97%B9%F0%9D%97%B2%F0%9D%97%BF%F0%9D%97%AE%F0%9D%98%81%F0%9D%97%B2%F0%9D%98%80-%F0%9D%97%97/

Naido, S. (2023, September 3) *Integrating constructs of the technology acceptance model and total quality management to improve document management performance.* https://jibi.aspur.rs/archive/v1/n3/1.pdf

Sirisilla, S. (2023, February 20). *Bridging the Gap: Overcome these 7 flaws in descriptive research design. Enago Academy*. https://www.enago.com/academy/descriptive-research-design/

The Anti-Red Tape Act of 2007 (2007, February 19). *An Act to Improve Efficiency in the Delivery of Government Service to the Public by Reducing Bureaucratic Red Tape.* https://www.officialgazette.gov.ph/downloads/2007/06jun/20070602-RA-9485-GMA.pdf

Tolentino, R. (2023, April 26). Supervised Industrial Training Online Monitoring System with Short Message Service (SMS) Notification. https://deliverypdf.ssrn.com/delivery.php?ID=903006029020070064113008121072105029024042049020026087093011114026067012125088115112098012030034041017014086089099112120119018040081009023072024124024101110089097029084016037117089120068091030123120100108125080031118025067064099105072028090105084120082&EXT=pdf&INDEX=TRUE

Priscilia & Sumar(2023, July 17). Online Food Delivery System Success Model: The Role of Brand Image in Customer Response. https://jurnal.ibik.ac.id/index.php/jimkes/article/view/2151/1354