Dhaka Bus System

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A project submitted in partial fulfillment of the requirement for the degree of Bachelor of Science in Software Engineering

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Fall – 2019

Approval

This **Project** titled "**Dhaka Bus System**", submitted by **Golam Sorwar**, **ID: 161-35-1453** to the Department of Software Engineering, Daffodil International University has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc in Software Engineering and approved as to its style and contents.

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Project Declaration

This **Project** titled **"Dhaka Bus System"** is done under the supervisor of Sheikh Shah Mohammad Motiur Rahman, lecturer, Department of Software Engineering, Daffodil International University.

I declare that is my original work for the degree of B.Sc in Software Engineering and that neither the whole work nor any part has been submitted for another degree in this or any other university.

12.12.19

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Acknowledgement

First, we express our heartiest thanks and thankfulness to Almighty Allah for His heavenly blessing makes us possible to complete this project successfully.

I am very blessed as I have successfully reached the final semester. From the very beginning of my university life, I have learned a lot about software engineering from my course teachers. Moreover, they teach us morality and manners.

I am also so grateful to my supervisor **Sheikh Shah Mohammad Motiur Rahman** for allowing me to work with this project. Sir always supports me to make these project (Dhaka Bus System) successful

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ABSTRACT

"Dhaka Bus System" is a smart web based application for Bus Company to give insert information about bus. It will assist in managing for helpline service and support. There is a number of Bus Company in our country. This application will create opportunity to keep all the bus information and check. This web application will save information and ophill data. This web application is very easy to find bus location. We used Laravel, Laravel Liveware (PHP framework), HTML, CSS, and Bootstrap for this website. We also used Client side scripting language: JavaScript to make it more user friendly.

Chapter 1
Introduction

1.1 Project Overview

DHAKA BUS SYSTEM is a web application. It's maintained the whole Dhaka city by a company. This web application is managed by admin who is bus owner only they cannot handle the user field. When a bus owner information is input then he can handle driver, checker, verifier, editor. Users is also can change their information and they can add checkers, driver information, bus information, verifying. Admin or the owner can add, edit and delete everything they want like checker, checker location, checker assign, driver, driver assign, tax token,fitnesscertificate, routepermit. Admin and the owner of bus company can verify the information of fitness certificate, tax token, driving license. If admin or owner is not in the dashboard, they assign an editor who can update or edit bus information, driver information, checker information. In this web application, assigned checker can managed ophil system. It means when a bus goes through the bus stand the checker will give information that how many general people are seated and how many students on the bus. So that the owner and admin can overview the passenger. When a driver starts driving a bus at that time on the web in driver information and bus information can see at the same place. So that admin or owner can see which a driver is driving and which bus is dispatched. Admin or the owner can see about how many driver salaries, fine and rent is auto generated by ophil system for each stand. In the ophil system is also auto generate a monthly report. So, admin or owner can see the monthly report for each month. Here, admin or owner can track the bus. So, they can get information about which driver is driving and which bus in the road by clicking bus track option.

1.2 Project Purpose

"DHAKA BUS SYSTEM" is a web application which is developed to make a platform for bus owner.It mainly focuses on Ophil system which is auto generate a report where an admin or owner can see a monthly report. Ophil system is managed by a checker that is assigning by owner or admin. Here admin or owner can track bus. So, they can easily monitor the bus and when a driver is driving a bus, they know about everything like driver information and bus information. Government agents or BTRA or an institution can verify the information about tax token, route permit, fitness certificate, driver information. When an admin or owner wants to see driver salaries and fine, they can find it in the account page. So, admin or bus owners can get full information about bus system.

1.2.1 Background

"DHAKA BUS SYSTEM" where the bus owner can get genuine information. Here the owner can communicate with everyone who involves with bus company. When a bus is dispatch from the stand then owner can get information about the bus and the driver who is involved. Checker is inputting the information about the bus and the specific passenger who and how many so owners can get the full information. Ophil system can give them a monthly report. So, they will know about the bus information.

1.2.2 Benefits & Beneficiaries

Our applications (Dhaka Bus System) would be beneficial for some point of view. Now, I am mentioning those below:

- Web based system make to easy access in anywhere for authorized person.
- Role based user in our system.
- Protected url, csrf-token, middleware secures our whole web application.
- Admin and bus owner dashboard to analysis Account, Passenger, User. Monitoring checker activity and view all bus location.
- Admin and bus owner manage lots of thing like checker, location, driver, assign, accounts.
- Any user easily update own profile and change password.
- Admin and bus owner easily manage full account system and download monthly report.
- This application helps drivers to findlocation and assign bus information.
- Checker accesssecure ophil system.
- Verified driver, tax token,fitness certificate, route permit information.

1.2.3 Goals

Every Project must have a specific goal. The main goals of my project are to develop web-based Dhaka Bus System. As more than 95% of users of smartphones are using Android operating based mobile devices, any smartphone user anywhere to access our system. Dhaka Bus System company can maintain whole system. And we really believe in quality products.

1.3 Stakeholders

There are six types of stakeholders in our “Dhaka Bus System”.

- Admin
- Bus Owner
- Editor
- Verifier
- Checkers
- Drivers

Now, I will write a brief description of stakeholders.

Admin: In this web application, the main bus company owner is admin. So, they can manage the whole web application.
Bus owner: In the bus company, there are many kinds of bus who give rent their own bus. They can also manage the web application.
Editor: An editor who can update or edit bus information, driver information, checker information.
Verifier: An institution or Government agent or BTRA can verifier tax token, driver information, route permit, fitness certificate.
Checker: checker only can manage the ophil system for each bus stand.
Driver: A company is assigning the driver who can drive the bus. He is an only driving bus.

1.4 Proposed System Model

Before going to develop a system, it is very important to have a system model. This model will be clarifiedDhaka Bus System proposed system in brief.

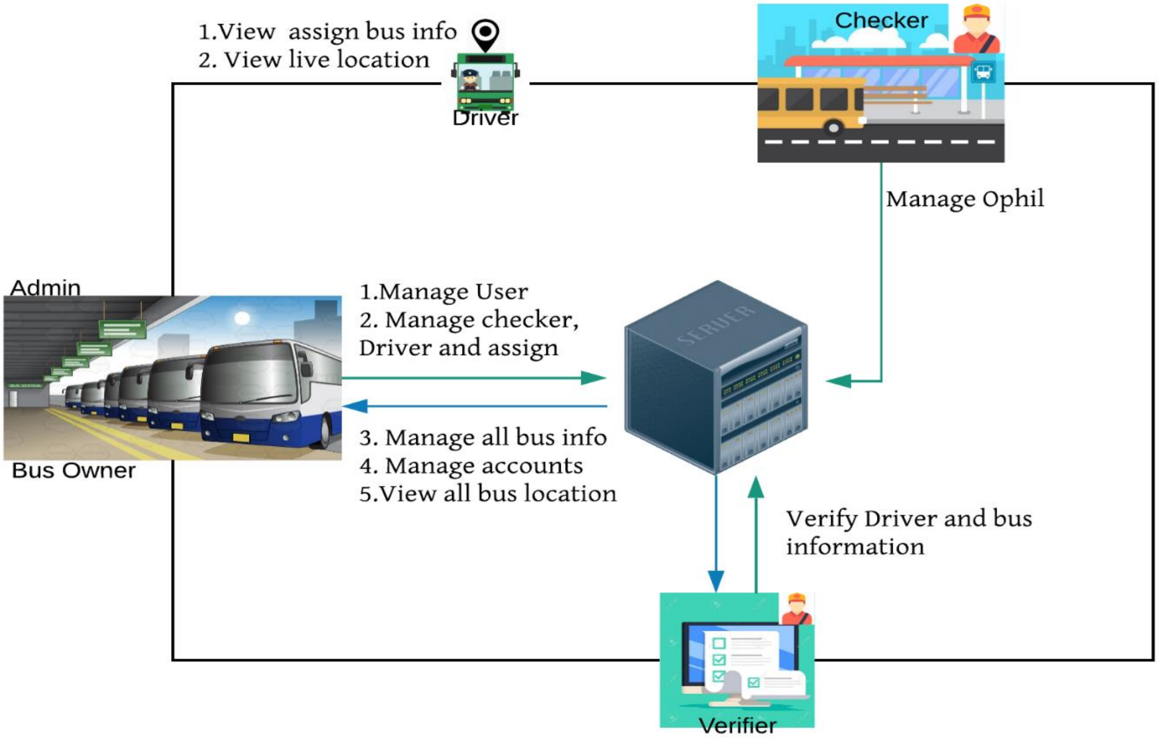


Figure 1.1: Proposed System Model

1.5 Project Schedule

We need to ready a scheduling plan to complete the project on time. It also refers to make communication with what task needs to get done within time frame.

1.5.1 Gantt Chart

Gantt chart is mainly production control tools. It remained us to complete our assigned tasks within a certain period of time. For developing software, it is mostly used. Now I will show a Gantt chart for our project.

Activities		W 1	W 2	W 3	W 4	W 5	W 6	W 7	W 8	W 9	W 10	W 11	W 12	W 13	W 14	W 15	W 16
Planning	Ideas	🟩															
	Problem identification	🟩	🟦														
	Proposal planning	🟩	🟩														
Requirements	Requirement specification		🟩														
	Requirement analysis		🟩	🟦	🟦												
QA-1	Quality assurance			🟩													
System design	Sketching				🟩	🟦											
	Design specification				🟩	🟦											
	Database design				🟩		🟩										
Implementation-1	Ophil system				🟩	🟩	🟩	🟩	🟦								
QA – 2	Test cases			🟩			🟩	🟩	🟩	🟦							
Implementation-2	Impose case & demerits									🟩	🟩	🟩			🟩		
Testing	Unit testing				🟦		🟦						🟩	🟩		🟦	
	Blackbox testing													🟦	🟩	🟩	
Delivery	Software release																🟩
Scheduled time				🟩													
Buffered time				🟦													

Figure 1.2: Gantt Chart

1.5.2 Release Plan or Milestone

The release plan or milestones are given below:

Activities	Duration in week	Total week
Brainstorming	Week 1	1
Problem identification	Week 1, Week 2	2
Requirement specification	Week 2	1
Requirement analysis	Week 2, Week 3, Week 4	3
Sketching	Week 4, Week 5	2
Design specification	Week 5, Week 5	2
Database design	Week 4, Week 6	2
Ophil system	Week 4, Week 5, Week 6, Week 7, Week 8	5
Quality assurance	Week 3	1
Test case	Week 3, Week 6, Week 7, Week 8, Week 9	5
Impose case & demerits	Week 9, Week 10, Week 11, Week 14	4
Unit testing	Week 3, Week 6, Week 7, Week 8, Week 9	5
Black-box testing	Week 13, Week 14, Week 15	3
Software release	Week 16	1

Chapter 2
Software Requirement Specification

2.1Functional Requirements

Functional requirements refer to the functions that are mandatory to the system. Functional requirements must be able to perform on the software system. Every system must have some functional requirements. Now, we are going to mention functional requirements associating with our project.

2.1.1 Admin can insert user

Requirements 1	Admin can insert user
Description	Admin can add different types of users like admin, driver, bus owner, checker, editor. These different users will operate our system.Another user can't add, edit or delete any user information.
Stakeholders	Admin

2.1.2 Admin canupdate user

Requirements 2	Admin can update user
Description	Admin can update different types of users like admin, driver, bus owner, checker, editor. These different users will operate our system.
Stakeholders	Admin

2.1.3 Admin can insert checker info

Requirements 3	Admin can insert checker info
Description	Admin needs to add checker information to our application so that this information list would be able to help checker assign.
Stakeholders	Admin, Bus owner

2.1.4 Admin can update checker info

Requirements 4	Admin can update checker info
Description	Admin needs to updatevalid checker information to our application so that this information list would be able to help checker assign.
Stakeholders	Admin, Bus owner and Editor

2.1.5 Admin can insert checker location

Requirements 5	Admin can insert checker location
Description	Admin needs to add checker location information to our application so that this information list would be able to help checker assign.
Stakeholders	Admin, Bus owner

2.1.6 Admin can update checker location

Requirements 6	Admin can update checker location
Description	Admin needs to update checker location information to our application so that this information list would be able to help checker assign.
Stakeholders	Admin, Bus owner and Editor

2.1.7Bus owner can checker assign

Requirements 7	Bus owner can checker assign
Description	Bus owner checker assign to select checker name, location and position.Then press the checker assign button and view new checker assign info.
Stakeholders	Admin, Bus owner

2.1.8Bus owner update checker assign

Requirements 8	Bus owner update checker assign
Description	Bus owner can view checker assign list to press edit button then available list to select all required fields then press the assign update button and view updated checker assign info list.
Stakeholders	Admin, Bus owner

2.1.9Bus owner can insert driver

Requirements 9	Bus owner can insert driver
Description	Bus owner needs to add his/her driver information to our application so that verifier would be able to verify that information.
Stakeholders	Admin, Bus owner

2.1.10Bus owner update driver

Requirements 10	Bus owner update driver
Description	Bus owner needs to update his/her driver update information to our application so that verifier would be able to verify that updated information.
Stakeholders	Admin, Bus owner and Editor

2.1.11 Bus owner can assign driver

Requirements 11	Bus owner can assign driver
Description	Bus owner driver assign to select driver name and bus registration number.Then press the driver assign button and view new driver assign info.
Stakeholders	Admin, Bus owner

2.1.12Bus owner can update assign driver

Requirements 12	Bus owner can update assign driver
Description	Bus owner can view driver assign list to press edit button then available list to select driver name and bus registration number then press the assign update button and view updated assign info list.
Stakeholders	Admin, Bus owner

2.1.13Bus owner can view all bus location

Requirements 13	Bus owner can view all bus location
Description	Bus owner can view current active all buses location with driver name, driving license no, bus registration number information can't edit or delete any of this.
Stakeholders	Admin, Bus owner

2.1.14 Bus owner can generate total cost list

Requirements 14	Bus owner can generate total cost list
Description	The bus Owner can view all information lists. Then Bus Owner can, select bus number and check in add button who information is connected to his daily total cost list and finally, press the submit button to generate total cost list.
Stakeholders	Admin, Bus owner

2.1.15User can update own profile

Requirements 15	User can update own profile
Description	User they need to update their profile. For updating own profile, they need to log in to the system.
Stakeholders	Admin, Bus owner, Driver, Checker, Verifier, Editor

2.1.16 Checker can manage ophil system

Requirements 16	Checker can manage ophil system
Description	Checker can view bus reg number list from assign location. That location to checker manage ophil system.
Stakeholders	Checker

2.1.17 Driver can viewbus information

Requirements 17	Driver can view bus information
Description	Driver only can view this assign bus information can't edit or delete any of this.
Stakeholders	Driver

2.2 Data Requirements

For defining data requirements, we need to create the model. For our application maximum data would be loaded from remote user. And for that purpose, we need to focus on some major points. Such as:

- Types of entity of the system
- Route data locations
- Capacity and resources of the data requirements
- Data source sequence
- Data availability schedules

- Quantity of data
- Availability of data

2.3 Performance Requirements

It is very important to maintain performancerequirements of any software system. To ensure performance, we need to maintain some steps. Now, I will explain some perspective by which we are going to enhance the performance of our project.

2.3.1 Speed & Latency Requirements

Speed and latency requirements must be ensured while retrieving data from the live/cloud server.

SLR-1	Input data validation must be faster.
Description	When authorized user to add any information, then all information validation results must show within two seconds.
Stakeholders	Admin, Bus owner, Checker and Editor

SLR-2	Index page search result must be faster.
Description	When authorized users search for any information, then the search result must show within seconds.
Stakeholders	Admin, Bus owner and Editor

2.3.2 Precision & Accuracy Requirements

Results that is to be shown to the end-user need to be accurate. Because, wrong information might be ruined the whole business process.

PAR-1	Search result must be accurate.
Description	When authorized users search for any information, then the search results must be shown according to the input value.
Stakeholders	Admin, Bus owner and Editor

2.3.3 Capacity Requirements

The developed system by us must be capable to handle user data, provide accurate information, handling database, manage http/https request etc.

CR-1	The system will handle thousands of data.
Description	The system needs to handle data on thousands of data every moment.
Stakeholders	All authorized users

2.4 Dependability Requirements

The term dependability is controlled based on four dimensions. Such as

- Availability
- Reliability
- Safety
- Security

If we want to say that our application system is dependable then it must fulfill the four dimensions. But there are other tasks. Like there is no way to make mistakes or our system should have the ability to detect and then remove errors. Besides that, it is also very important to limit the damage which might be caused by system failure.

2.4.1Reliability &Availability Requirements

Now, I will mention requirements that are related to reliability and availability.

RAR-1	The system must be available on 24 X 7
Description	• Our system must be available all day long, every day in a week. • The system must be web based and can access anywhere in any place.
Stakeholders	All authorized users

2.4.2Robustness or Fault-Tolerance Requirements

To ensure robustness and fault-tolerance facilities to the end users, it is urgent to ensure 0% crush. Moreover, it must show accurate results.

RFT-1	The system handles all user access without system errors
Description	Thousands of users might hit our application system at a time. All their requests must be handled without any fault
Stakeholders	All authorized users

2.4.3Safety-Critical Requirements

There are no safety-critical requirements in our project.

2.5Maintainability and Supportability Requirements

It is very important to provide after service or support to the end-users.

2.5.1Maintainability Requirements

MR-1	System helps to update user profile
Description	It is very important to update security system by sudden time period
Stakeholders	Authorized users

MR-2	System helps to user change password
Description	It is very important to update security system by sudden time period
Stakeholders	Authorized users

2.5.2Supportability Requirements

Supportability requirements may have connected to some extends. Like:

- Testability
- Extensibility
- Adaptability

- Maintainability
- Compatibility
- Configurability
- Serviceability

Our application meets all of the above requirements connected to supportability

2.5.3Adaptability Requirements

There are no adaptability requirements in our project.

2.6Security Requirements

Making web applicationsecurity as a requirement is very important. Software security requirements should be its functional requirement. Software security enforces security of an application system. Functionality related to software security can either be directly tested or audited. Some security related requirements are given below:

- Signing multiple users in one platform.
- Get accesses according to logged in user.
- Signing out as an admin, bus owner, checker, verifier and driver.
- Handling hashed password.

2.6.1Access Requirements

For accessing to our application system, there remains some authentication and authorization techniques. And whole module of our system will provide it. Now I will provide an explanation below.

EUR-1	Application provides security mechanism.
Description	Every module is designed in such a way that it only gives access to the authorized and authenticated users.
Stakeholders	Admin, Bus owner and Checker

2.6.2Integrity Requirements

Integrity requirements refer to a security system which ensures an expectation of data quality. It also ensures that all data of the system would never be exposed to the malicious modification or accidental destruction. For that reason, we will store our user passwords as encrypted format which is impossible to decrypt. It is also called hashed password.

2.6.3Privacy Requirements

It is very important to ensureusers privacy of the system. Privacy requirements enhances to protect stakeholder’s privacy. In this way, all data or a partial part of data are going to be disclosed according to system’s privacy policy. To ensure privacy, the central database should be protected by the anonymous. Users are permitted to get access to those data which are being associated by them which can be ensured by the user log in system.

2.7Usability and Human-Interaction Requirements

The main target of developing any system is to make the system user friendly and easy to usable for the end users.

2.7.1Ease of Use Requirements

Our web application is easy to use and also easily understandable.

EUR-1	Application must be usable for the end users.
Description	This web application is enough usable to the bus owner and checker by which they can operate this system easily.
Stakeholders	Admin, Bus owner and Checker

2.7.2Personalization and Internationalization Requirements

There are not any personalization and internationalization requirements for our system. This maiden version of our application is only be operated by Bangladesh.

2.7.3Understandability and Politeness Requirements

It is already said that the web application which we are going to develop, is understandable enough, system provides hints to users whether any error occurred or wrong. By reading those errors users can be able to operate the system easily.

2.7.4Accessibility Requirements

There are no accessibility requirements associated to our system yet.

2.7.5User Documentation Requirements

Documentation are mainly two types. One is internal documentation which is generally written by the application engineers. It is prepared to make development life cycle easier for the system engineers or system analysts.

UDR-1	The system engineer documentation.
Description	To develop our application named Dhaka bus system, firstly we have to make a system analysis team as well as documentation team.
Stakeholders	System analysts or software developers.

2.7.6Training Requirements

Training requirement involved in after service of any application. It is very necessary to properly train up end users to the system so that they would be capable to operate easily. After launching the full package to the market, firstly we provide training to the different end users like admin, bus owner, editor, verifier, drivers and checker.

2.8Look and Feel Requirements

Look and feel requirements mainly refers how the system will look like and how the user interface or graphical user interface of our system will display to the user.

2.8.1Appearance Requirements

Admin, Bus owner and Checker user must know which input fields are required and which are not. For that reason, we will use label for all input field. Input fields may be text type, select, option, radio, checkbox, etc.

AR-1	Labels of mandatory fields must be bold.
Description	The mandatory field's label must be bold and all input fields must have placeholder to make it easier for the users.
Stakeholders	Admin, Bus owner and Checker

2.8.2Style Requirements

After keeping all contents, it is very essential to load cssstylesheet to the application. It is said that we are going to develop our system on the web platform. Style makes the system lucrative.

SR-1	The outlook must be controllable using stylesheet file.
Description	For web application stylesheet files is CSS. So, all stylesheets must be controllable by the CSS file.
Stakeholders	Web developer

2.9Operational and Environmental Requirements

Operational and environmental requirement refers to the capabilities, performance measurements, process, measurements of effectiveness, measurements of performance, measures of sustainability, measurements of technical performances etc.

2.9.1Expected Physical Environment

There are no expected physical requirements for our system.

2.9.2Requirements for Interfacing with Adjacent Systems

There are no requirements for interfacing with adjacent system for our system.

2.9.3Release Requirements

There are no release requirements for our system.

2.10.Legal Requirements

Legal requirements mainly mention the terms and conditions for privacy and policy of any organizations. The terms and condition of our application is that, no third-party software without cloud is allowed to engage to use our data for their business purpose.

2.10.1 Compliance Requirements

There are no compliance requirements for our system.

2.10.2 Standards Requirements

There are no compliance requirements for our system.

Chapter 3
Requirement Analysis

3.1 Use case Diagram

We have used use case diagram, there are six actors. Every actor plays different role. This diagram will clarify our system in brief.

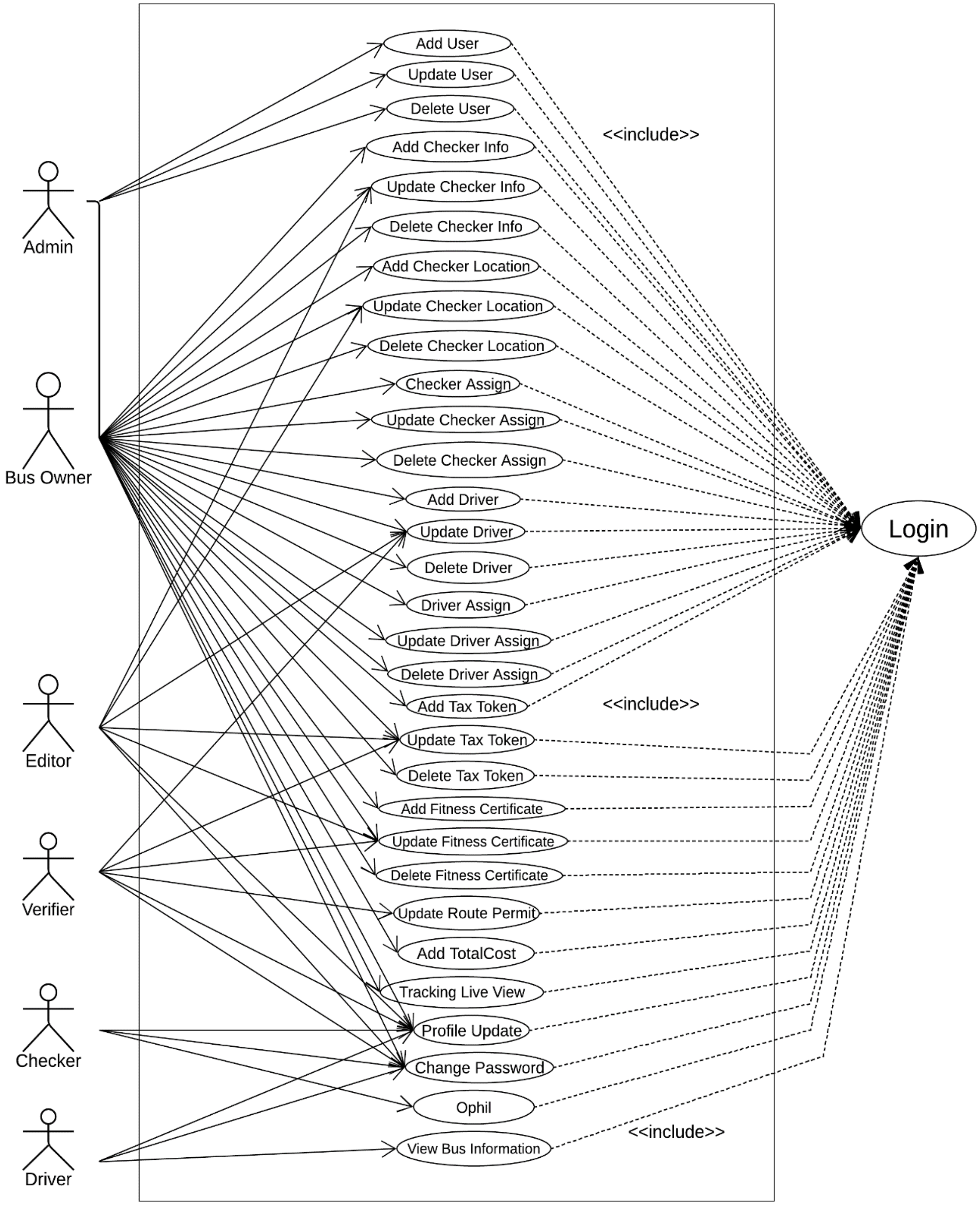


Figure 3.1: Use Case diagram forDhaka Bus System

3.1.1 Admin Add User

Use Case Title	Admin Add User
Goal	To get access for use a new system.
Preconditions	Admin is at the add user option.
Success End Condition	User is added.
Failure End Condition	User is not added.
Primary Actors: **Secondary Actors:**	Admin, Bus Owner
Trigger	Admin click on Save button after input all fields.
Description / Main Success Scenario	• Admin enter user information. • System verifies and logs Admin in to the system. • Admin selects add user option. • System confirms user added.
Alternative Flows	• Password must be 6 character. • Unique username or already find.
Quality Requirements	N/A

3.1.2 Admin Update User

Use Case Title	Admin Update User
Goal	Admin update user details.
Preconditions	User exists on the system.
Success End Condition	User Information is updated.
Failure End Condition	The system shows an error message.
Primary Actors: **Secondary Actors:**	Admin, Bus Owner
Trigger	Admin click on Update button after edit all fields.
Description / Main Success Scenario	• Admin checks all the previously filled data. • Admin retrieve the user data which is meant to update. • Admin updated the selected user data.
Alternative Flows	There is no such User data.
Quality Requirements	N/A

3.1.3 Admin Delete User

Use Case Title	Admin Delete User
Goal	Admin deletes user details.
Preconditions	User details must exist.
Success End Condition	User Information is deleted.
Failure End Condition	The system shows an error message.
Primary Actors: **Secondary Actors:**	Admin, Bus Owner
Trigger	Admin click on Delete button.
Description / Main Success Scenario	• Admin navigates to Users. • Admin clicks on Delete button. • The system requires a confirmation message. • Admin confirms by clicking on Delete button.
Alternative Flows	• There is no such User data. • There might be no Delete button.
Quality Requirements	N/A

3.1.4Admin Add Checker Info

Use Case Title	Admin Add Checker Information
Goal	Admin add checker info to the system.
Preconditions	Checker information must exist.
Success End Condition	Checker information is added.
Failure End Condition	Checker information is not added.
Primary Actors: **Secondary Actors:**	Admin, Bus Owner
Trigger	Admin click on Save Checker Info button.
Description / Main Success Scenario	• Admin navigates to Checker. • Admin selects Checker Info. • Admin Fills up all the given fields. • Admin clicks on Save Button.
Alternative Flows	Checker information might be incomplete.
Quality Requirements	N/A

3.1.5Admin Update Checker Info

Use Case Title	Admin Update Checker Information.
Goal	Admin update checker information.
Preconditions	Checker information must exist in the system.
Success End Condition	Admin updates checker information successfully.
Failure End Condition	The system shows an error message.
Primary Actors: **Secondary Actors:**	Admin, Bus Owner
Trigger	Admin clicks on Checker Update button.
Description / Main Success Scenario	• Admin checks all the previously filled data. • Admin retrieve the checker info which is meant to update. • Admin updated the selected checker information.
Alternative Flows	There is no such checker information.
Quality Requirements	N/A

3.1.6Admin Delete Checker Info

Use Case Title	Admin Delete checker information
Goal	Admin deletes checker from checker information list.
Preconditions	Checker information must exist.
Success End Condition	Admin deleted checker information successfully.
Failure End Condition	The system shows an error message.
Primary Actors: **Secondary Actors:**	Admin, Bus Owner
Trigger	Admin clicks on Delete Checker button.
Description / Main Success Scenario	• Admin navigates to Checker. • Admin selects Checker Info. • Admin clicks on Delete button. • The system requires a confirmation message. • Admin confirms by clicking on Delete button
Alternative Flows	There might be no Button for delete.
Quality Requirements	N/A

3.1.7Admin Add Checker Location

Use Case Title	Admin Add Checker Location
Goal	Admin add location name to the system.
Preconditions	Admin must on checker location option.
Success End Condition	Location is added to checker location.
Failure End Condition	Location is not added.
Primary Actors: **Secondary Actors:**	Admin, Bus Owner
Trigger	Admin click on Save Checker Location button.
Description / Main Success Scenario	• Admin navigates to Checker. • Admin selects Checker location. • Admin Fills up all the given fields. • Admin clicks on Save Button.
Alternative Flows	Checker location might be incomplete.
Quality Requirements	N/A

3.1.8Admin Update Checker Location

Use Case Title	Admin Update Checker Location.
Goal	Admin update location name.
Preconditions	Location name must exist in the system.
Success End Condition	Admin updates checker location successfully.
Failure End Condition	The system shows an error message.
Primary Actors: **Secondary Actors:**	Admin, Bus Owner
Trigger	Admin clicks on Checker Update button.
Description / Main Success Scenario	Admin checks all the previously filled data. Admin retrieve the checker information which is meant to update. Admin updated the selected checker location.
Alternative Flows	There is no such checker location.
Quality Requirements	N/A

3.1.9Admin Delete Checker Location

Use Case Title	Admin Delete checker Location
Goal	Admin deletes location from checker location list.
Preconditions	Checker location must exist.
Success End Condition	Admin deleted checker location successfully.
Failure End Condition	The system shows an error message.
Primary Actors: **Secondary Actors:**	Admin, Bus Owner
Trigger	Admin clicks on Delete Checker button.
Description / Main Success Scenario	• Admin navigates to Checkers. • Admin selects Checker Location. • Admin clicks on Delete button. • The system requires a confirmation message. • Admin confirms by clicking on Delete button
Alternative Flows	There might be no Button for delete.
Quality Requirements	N/A

3.1.10Bus OwnerChecker Assign

Use Case Title	Bus OwnerChecker Assign
Goal	Bus Owner Assign checker information to Driver.
Preconditions	Driver must be authenticated.
Success End Condition	Driver get bus related all information.
Failure End Condition	Driver can’t get bus information details.
Primary Actors: **Secondary Actors:**	Admin, Bus Owner
Trigger	Bus Owner clicks on checker assign.
Description / Main Success Scenario	• Bus Owner navigates to Checkers. • Bus Owner Selects Checker Assign. • Bus Owner Fills up all the given fields. • Bus Owner confirms by clicking on Assign Update button.
Alternative Flows	There is no field for checker name.
Quality Requirements	N/A

3.1.11Bus Owner Update Checker Assign

Use Case Title	Bus OwnerUpdate Checker Assign.
Goal	Bus Owner Update Checker Name.
Preconditions	The system must exist checker assign information.
Success End Condition	Bus Owner Updated Checker Assign Successfully.
Failure End Condition	The system shows an error message.
Primary Actors: **Secondary Actors:**	Admin, Bus Owner
Trigger	Bus Owner clicks on Update Checker button.
Description / Main Success Scenario	• Bus Owner navigates to Checkers. • Bus Owner Selects Checker Assign. • Bus Owner checks all the previously filled data. • Bus Owner confirms by clicking on Checker Assign button.
Alternative Flows	There is no checker information.
Quality Requirements	N/A

3.1.12Bus Owner Delete Checker Assign

Use Case Title	Bus OwnerDelete checker assign.
Goal	Deletes checker name from checker list.
Preconditions	The system must exist checker assign information.
Success End Condition	Deleted Checker Assign Successfully.
Failure End Condition	The system shows an error message.
Primary Actors: **Secondary Actors:**	Admin, Bus Owner
Trigger	Bus Owner clicks on Delete Button.
Description / Main Success Scenario	• Bus Owner navigates to Checkers. • Bus Owner selects Checker Assign. • Bus Owner clicks on Delete button. • The system requires a confirmation message. • Bus Owner confirms by clicking on Delete button.
Alternative Flows	There might be no Button for delete.
Quality Requirements	N/A

3.1.13Bus Owner Add Driver

Use Case Title	Bus OwnerAdd Driver.
Goal	Bus Owner save Driver information to the system.
Preconditions	Driver information must exist.
Success End Condition	Driver information is added.
Failure End Condition	Driver information is not added.
Primary Actors: **Secondary Actors:**	Admin, Bus Owner
Trigger	Bus Driver clicks on Save Driver Info Button.
Description / Main Success Scenario	Bus Owner navigates to Driver. The system displays Add driver info fields. Bus Owner fills up all the fields. Bus Owner clicks on Save Driver info.
Alternative Flows	The system might be no option for driver fields.
Quality Requirements	N/A

3.1.14Bus Owner Update Driver

Use Case Title	Bus OwnerUpdate User
Goal	Driver Information Updated.
Preconditions	Driver Information must be filled previously.
Success End Condition	Driver Information Updated Successfully.
Failure End Condition	The System Shows an error Message.
Primary Actors: **Secondary Actors:**	Admin, Bus Owner, Verifier
Trigger	Bus Owner clicks on Update driver Info button.
Description / Main Success Scenario	• Bus Owner navigates to Driver. • The system displays All driver info. • Bus Owner click on edit option. • Bus Owner updates necessary fields.
Alternative Flows	The system might be no option for edit driver information.
Quality Requirements	N/A

3.1.15Bus Owner Delete Driver

Use Case Title	Bus OwnerDelete Driver.
Goal	Delete Driver information.
Preconditions	Driver information must exist.
Success End Condition	Driver information deleted successful.
Failure End Condition	Driver information not deleted.
Primary Actors: **Secondary Actors:**	Admin, Bus Owner
Trigger	Bus Owner Clicks on Delete Button.
Description / Main Success Scenario	• Bus Owner navigates to Drivers. • Bus Owner clicks on Delete button. • The system requires a confirmation message. • Bus Owner confirms by clicking on Delete button.
Alternative Flows	There might be no Button for delete.
Quality Requirements	N/A

3.1.16Bus Owner Driver Assign

Use Case Title	Bus OwnerDriver Assign.
Goal	Bus Owner add driver name to the system.
Preconditions	Driver must be authenticated.
Success End Condition	Bus Owner Driver Assign Successfully.
Failure End Condition	Bus Owner Driver Assign not successful.
Primary Actors: **Secondary Actors:**	Admin, Bus Owner
Trigger	Bus Owner clicks on Assign driver Button
Description / Main Success Scenario	• Bus Owner navigates to Drivers Assign. • Bus Owner fills up all the fields. • Bus Owner clicks on Driver Assign Button.
Alternative Flows	The system might be has no Drivers Assign option.
Quality Requirements	N/A

3.1.17Bus Owner Update Driver Assign

Use Case Title	Bus OwnerUpdate Driver Assign.
Goal	Bus Owner Updated driver and bus registration number information.
Preconditions	Driver and Bus Information must be filled previously.
Success End Condition	Bus Owner Updated driver and bus registration number information successfully.
Failure End Condition	Bus Owner Updated driver and bus registration number information not successful.
Primary Actors: **Secondary Actors:**	Admin, Bus Owner
Trigger	Bus Owner Clicks on Assign Update button.
Description / Main Success Scenario	• Bus Owner navigates to Drivers Assign. • The system displays Drivers Assign Information. • Bus Owner edits necessary fields. • Bus Owner clicks on Assign Update Button.
Alternative Flows	The system might be no Update Button.
Quality Requirements	N/A

3.1.18Bus Owner Delete Driver Assign

Use Case Title	Bus OwnerDelete Driver Assign.
Goal	Delete Driver and Bus Registration Information.
Preconditions	The system must exist Driver assign information.
Success End Condition	Bus Owner Deleted Driver Assign successfully.
Failure End Condition	Bus Owner Deleted Driver Assign not successful.
Primary Actors: **Secondary Actors:**	Admin, Bus Owner
Trigger	Bus Owner Clicks on Delete button.
Description / Main Success Scenario	• Bus Owner navigates to Drivers Assign. • Bus Owner selects. • The system requires a confirmation message. • Bus Owner confirms by clicking on Delete button.
Alternative Flows	There might be no Button for delete.
Quality Requirements	N/A

3.1.19Bus Owner Add Tax Token

Use Case Title	Bus OwnerAdd Tax Token.
Goal	To get access Road Permission.
Preconditions	Tax Token information fields must exist.
Success End Condition	Bus Owner Added Tax Token Successfully.
Failure End Condition	Bus Owner Added Tax Token not Successful.
Primary Actors: **Secondary Actors:**	Admin, Bus Owner
Trigger	Bus Owner clicks on Save Tax Token button.
Description / Main Success Scenario	• Bus Owner navigates to Bus Information. • Bus Owner selects Tax Token. • Bus Owner fills up all the given fields. • Bus Owner clicks on Save Tax Token button.
Alternative Flows	The system has no Tax Token Button.
Quality Requirements	N/A

3.1.20 Update Tax Token

Use Case Title	Bus OwnerUpdate Tax Token.
Goal	To keep Up to date Tax Token information.
Preconditions	Tax Token information must filled previously.
Success End Condition	Bus Owner Updated Tax Token Successfully.
Failure End Condition	Bus Owner Updated Tax Token not Successful.
Primary Actors: **Secondary Actors:**	Admin, Bus Owner, Verifier
Trigger	Bus Owner clicks on Update Tax Token button.
Description / Main Success Scenario	• Bus Owner navigates to Bus Information. • The system displays Tax Token Information. • Bus Owner edits necessary fields. • Bus Owner clicks on Update Tax Token Button
Alternative Flows	The system has no Tax Token Information
Quality Requirements	N/A

3.1.21Bus Owner Delete Tax Token

Use Case Title	Bus OwnerDelete Tax Token.
Goal	Delete Tax Token.
Preconditions	Tax Token information must exist.
Success End Condition	Bus Owner Delete Tax Token successfully.
Failure End Condition	Bus Owner Delete Tax Token not successful.
Primary Actors: **Secondary Actors:**	Admin, Bus Owner
Trigger	Bus Owner Clicks on Delete button.
Description / Main Success Scenario	• Bus Owner navigates to Bus Information. • Bus Owner selects delete button. • The system requires a confirmation message. • Bus Owner confirms by clicking on Delete button.
Alternative Flows	There might be no Button for delete.
Quality Requirements	N/A

3.1.22Bus Owner Add Fitness Certificate

Use Case Title	Bus OwnerAdd Fitness Certificate.
Goal	To Check Bus Fitness Certificate.
Preconditions	Bus fitness certificate information must exist.
Success End Condition	Bus Owner Add Fitness Certificate Successfully.
Failure End Condition	Bus Owner Add Fitness Certificate not Successful.
Primary Actors: **Secondary Actors:**	Admin, Bus Owner
Trigger	Bus Owner Clicks on Save Fitness Certificate button.
Description / Main Success Scenario	• Bus Owner navigates to Bus Information. • Bus Owner selects Fitness Certificate. • Bus Owner fills up all the given fields. • Bus Owner clicks on Save Fitness Certificate button.
Alternative Flows	The system has no Certificate Button.
Quality Requirements	N/A

3.1.23Bus Owner Update Fitness Certificate

Use Case Title	Bus OwnerUpdate Fitness Certificate.
Goal	To updated Bus fitness information.
Preconditions	Fitness information must filled previously.
Success End Condition	Bus Owner Updated Fitness Certificate Successfully.
Failure End Condition	Bus Owner Updated Fitness Certificate not Successful.
Primary Actors: **Secondary Actors:**	Admin, Bus Owner, Verifier
Trigger	Bus Owner Clicks on Update Fitness button.
Description / Main Success Scenario	• Bus Owner navigates to Bus Information. • The system displays Fitness Certificate Information. • Bus Owner edits necessary fields. • Bus Owner clicks on Update Fitness Button
Alternative Flows	The system might be has no Update button.
Quality Requirements	N/A

3.1.24Bus Owner Delete Fitness Certificate

Use Case Title	Bus OwnerDelete Fitness Certificate.
Goal	Delete Fitness Certificate.
Preconditions	Bus fitness information must exist.
Success End Condition	Bus Owner Deleted Fitness Certificate Successfully.
Failure End Condition	Bus Owner Deleted Fitness Certificate Not Successful.
Primary Actors: **Secondary Actors:**	Admin, Bus Owner
Trigger	Bus Owner Clicks on Delete button.
Description / Main Success Scenario	• Bus Owner navigates to Fitness Certificate. • Bus Owner selects delete button. • The system requires a confirmation message. • Bus Owner confirms by clicking on Delete button
Alternative Flows	There might be no option for delete.
Quality Requirements	N/A

3.1.25VerifierUpdateRoute Permit

Use Case Title	Verifier Update Route Permit.
Goal	To verify particular route permission to the driver.
Preconditions	Verifier has to know information on route permission.
Success End Condition	Verifier Updated Route Permit Successfully.
Failure End Condition	Verifier Updated Route Permit Not Successful.
Primary Actors: **Secondary Actors:**	Verifier
Trigger	Verifier Clicks on Verify Toggle Button.
Description / Main Success Scenario	• Verifier navigates to Fitness Certificate. • Verifier selects Route Permit. • Verifier edits necessary fields. • Verifier confirms by clicking on Update button.
Alternative Flows	The system has no Route Permit Option.
Quality Requirements	N/A

3.1.26Bus Owner Add Total Cost

Use Case Title	Bus OwnerAdd Total Cost.
Goal	To calculated total expenses for management the system.
Preconditions	Bus Owner must have daily cost related information.
Success End Condition	Bus Owner Added Total Cost Successfully.
Failure End Condition	Bus Owner Added Total Cost Not Successful.
Primary Actors: **Secondary Actors:**	Admin, Bus Owner
Trigger	Clicks on Submit Button.
Description / Main Success Scenario	• Bus Owner navigates to Accounts. • Bus Owner filled all the cost information fields Bus Number wise.
Alternative Flows	The system might be has no submit button.
Quality Requirements	N/A

3.1.27Bus Owner Tracking Live View

Use Case Title	Bus OwnerTracking Live View.
Goal	To see where the bus is going.
Preconditions	Familiar with Google Mapping Option.
Success End Condition	Bus Owner Tracking Live View Successfully.
Failure End Condition	Bus Owner Tracking Live View Not Successful.
Primary Actors: **Secondary Actors:**	Admin, Bus Owner
Trigger	Bus Owner use Google Map.
Description / Main Success Scenario	• Bus Owner navigates to Bus Tracking. • The Systems shows All Bus location line.
Alternative Flows	The systems has no tracking option.
Quality Requirements	N/A

3.1.28Profile Update

Use Case Title	Profile Update
Goal	To Updated Current information.
Preconditions	Profile information must be filled previously.
Success End Condition	Profile Updated successfully.
Failure End Condition	Profile Updated not successful.
Primary Actors: **Secondary Actors:**	Admin, Bus Owner, Editor, Driver, Verifier, Checker
Trigger	Clicks on Save Button.
Description / Main Success Scenario	• Navigates to Profile. • Edits necessary fields for updated.
Alternative Flows	The system might has no Save Button.
Quality Requirements	N/A

3.1.29Change Password

Use Case Title	Change Password.
Goal	To prevents constant access.
Preconditions	Must Have an account.
Success End Condition	Password changed successfully.
Failure End Condition	Password changed not successful.
Primary Actors: **Secondary Actors:**	Admin, Bus Owner, Editor, Driver, Verifier, Checker
Trigger	Clicks on Reset Password Button.
Description / Main Success Scenario	• Navigates to Profile. • Clicks on edit Account. • Reset Password. • Clicks on Reset Password Button.
Alternative Flows	The systems has no edit Account option.
Quality Requirements	N/A

3.1.30Checker Ophil

Use Case Title	Checker Ophil System.
Goal	To check number of passengers in bus.
Preconditions	Forms for filled must be available.
Success End Condition	Checker check Ophil System.
Failure End Condition	Checker check Ophil System.
Primary Actors: **Secondary Actors:**	Checker
Trigger	Checker clicks on Ophil System Button.
Description / Main Success Scenario	• Checker navigates to Ophil System. • Selects Bus Number. • Input fields information.
Alternative Flows	No Ophil system exists.
Quality Requirements	N/A

3.1.31Driver View Bus Information

Use Case Title	DriverView Bus Information.
Goal	To Know the route permit, schedules, vehicles and passengers in bus.
Preconditions	Bus Information have exists.
Success End Condition	Driver View Bus Information Successfully.
Failure End Condition	Driver View Bus Information Not Successful.
Primary Actors: **Secondary Actors:**	Driver
Trigger	Driver Clicks on Bus Information.
Description / Main Success Scenario	• Driver navigates to Bus Information. • Driver Select bus Tax Token, Fitness Certificate, Route Permit.
Alternative Flows	The system has no Bus Information.
Quality Requirements	N/A

3.2 Activity Diagram

We have prepared activity diagram according to our use case. These activity diagrams are properly referring the flow of the individual conditions of our project.

3.2.1 Add User

First admin need to log in when admin successfully logged in then go to user option and click add user after that admin will providing the information and click save button.

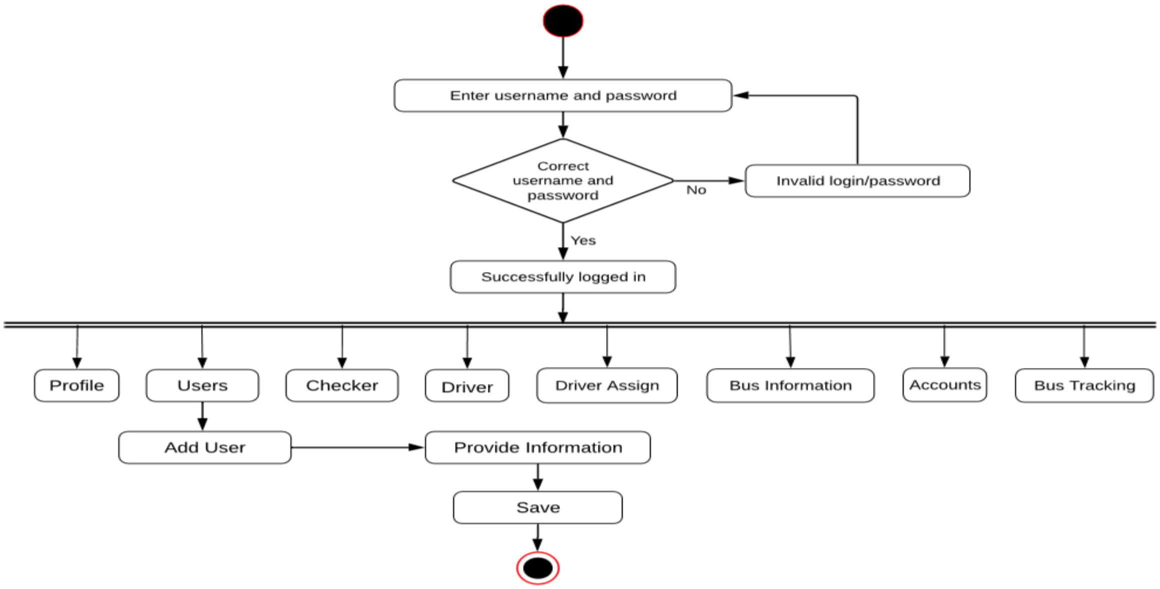


Figure 3.2: Add User

3.2.2 Update User

First admin need to log in when admin successfully logged in then go to users and click user list and then click edit. After that admin provide correct information and click update button.

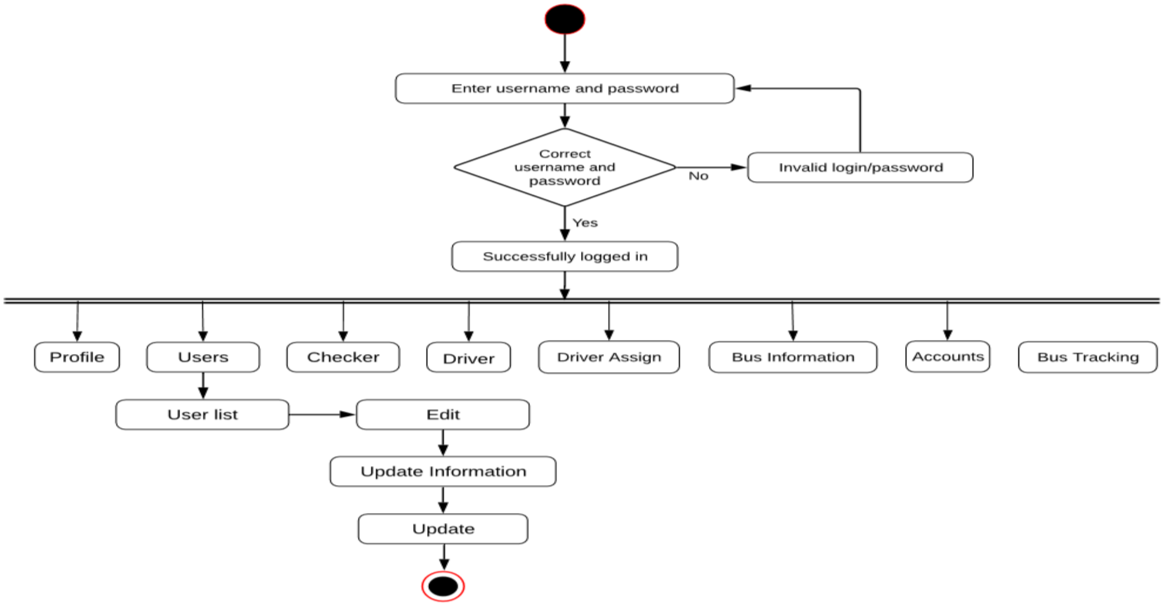


Figure 3.3: Update User

3.2.3Delete User

First admin need to log in when admin successfully logged in then go to user list and click delete button and get confirmation if click close then go user list if click delete the user information will be deleted.

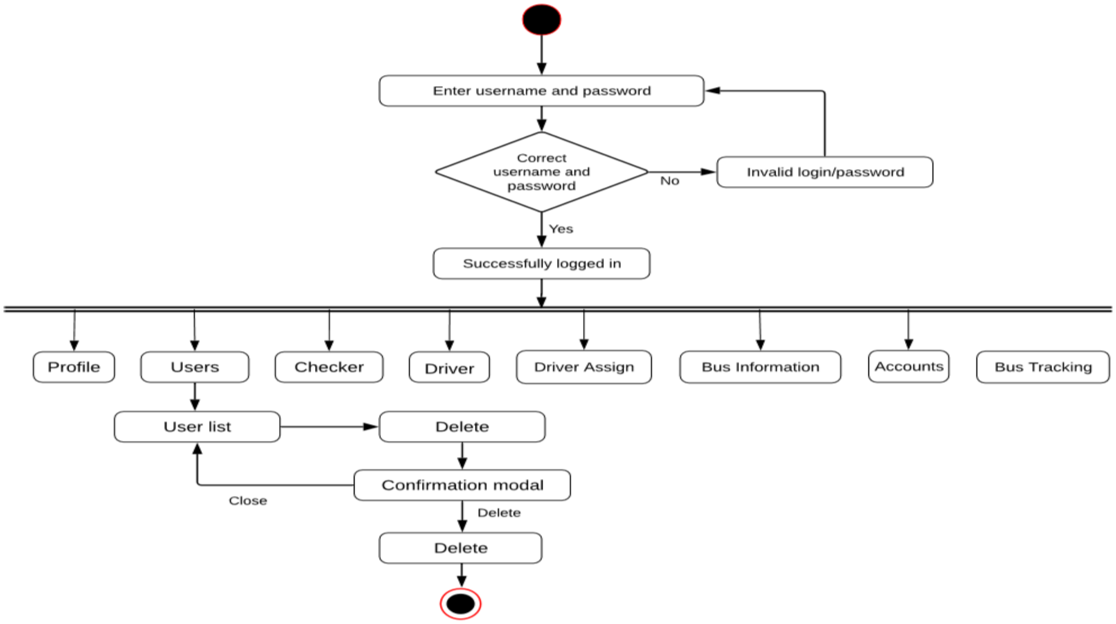


Figure 3.4: Delete User

3.2.4 Add Checker Info

First admin need to log in when admin successfully logged in then go to checker option if input any checker first go to checker info and click add checker info then provide information and press save button.

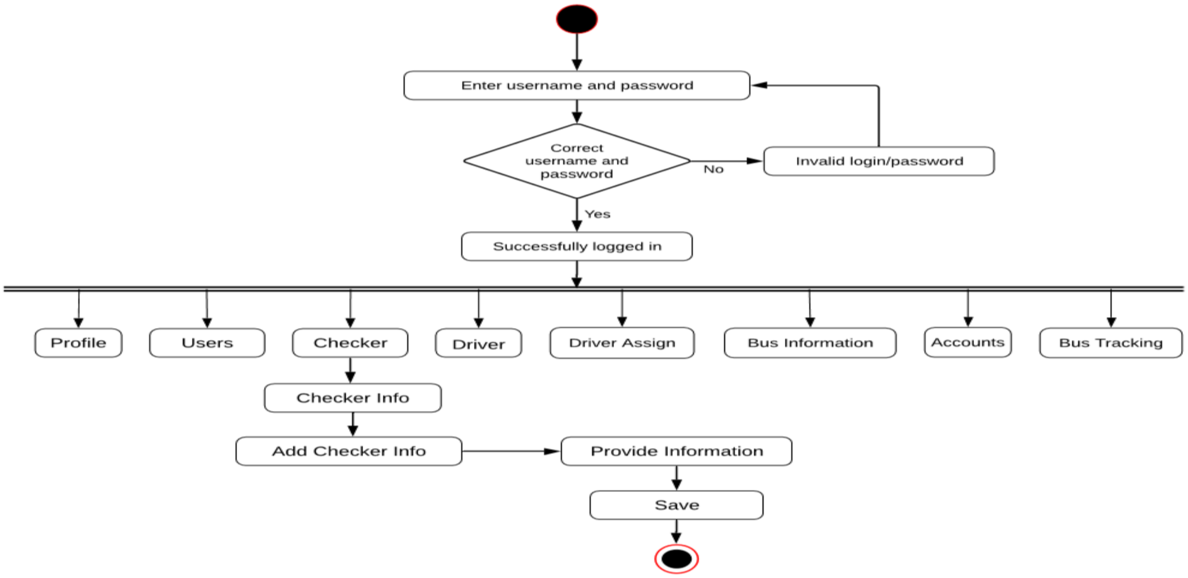


Figure 3.5: Add Checker Info

3.2.5 Update Checker Info

Admin need to log in when admin successfully logged in then go to checker and click checker info to checker info list then click edit button after that admin provide new information and press update.

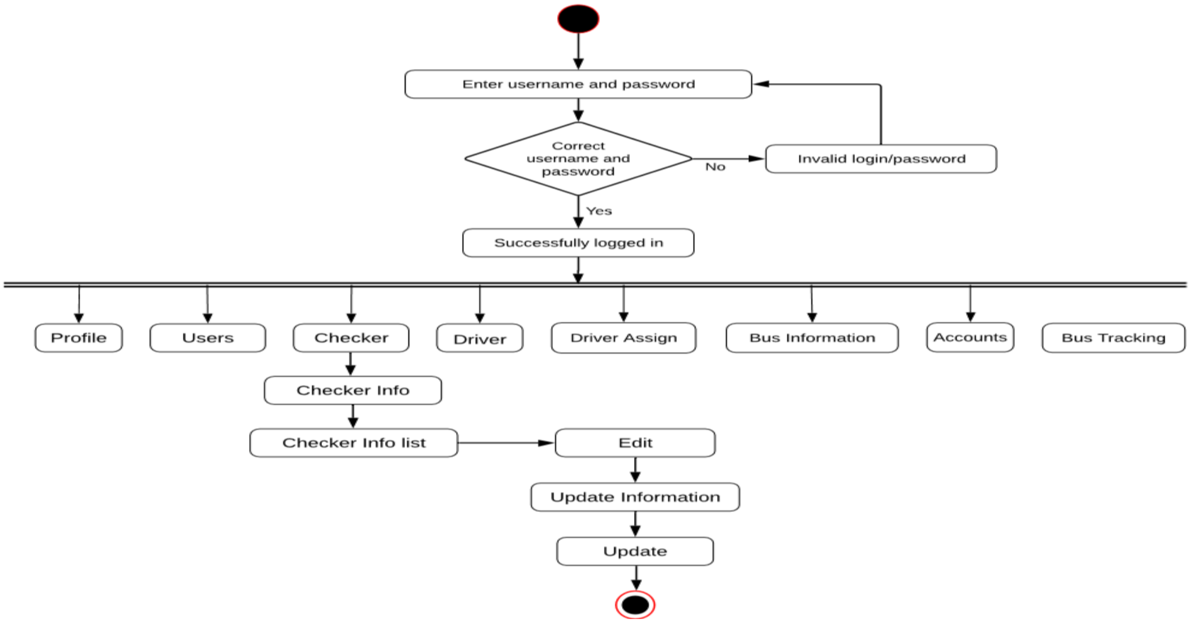


Figure 3.6: Update Checker Info

3.2.6 Delete Checker Info

First admin need to log in when admin successfully logged in then go to checker after that checker info to checker info list and click delete button then get a confirmation for delete. If click close button, then go checker info list or if click delete button then the information will be deleted.

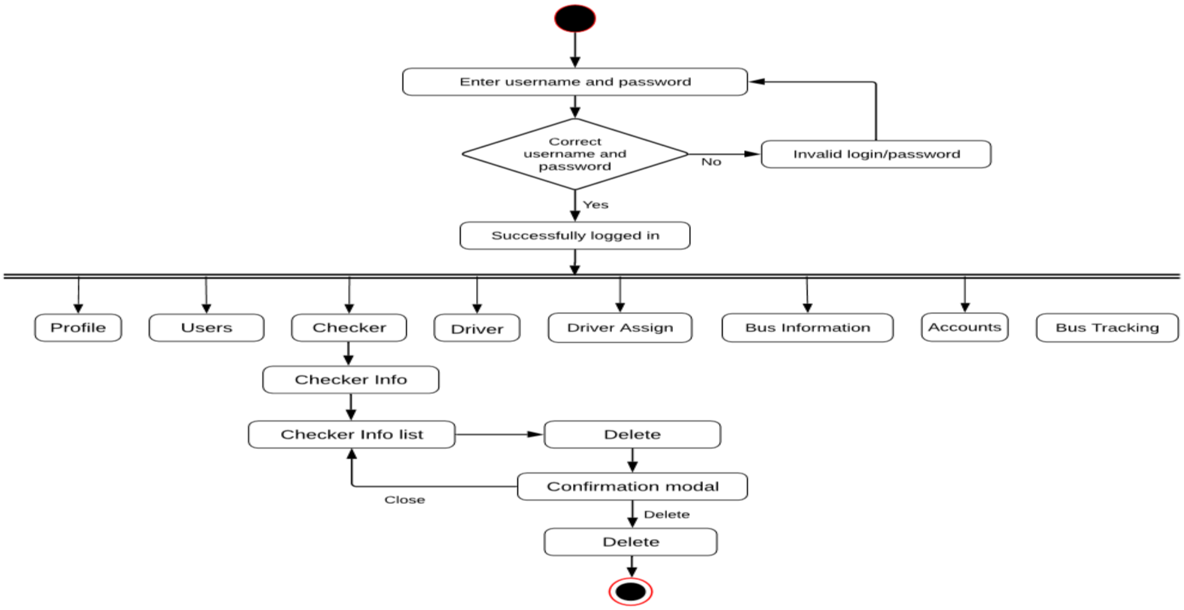


Figure 3.7: Delete Checker Info

3.2.7 Add Checker Location

First admin need to log in when admin successfully logged in then go into checker to checker location after that add checker location and provide location name and press save button.

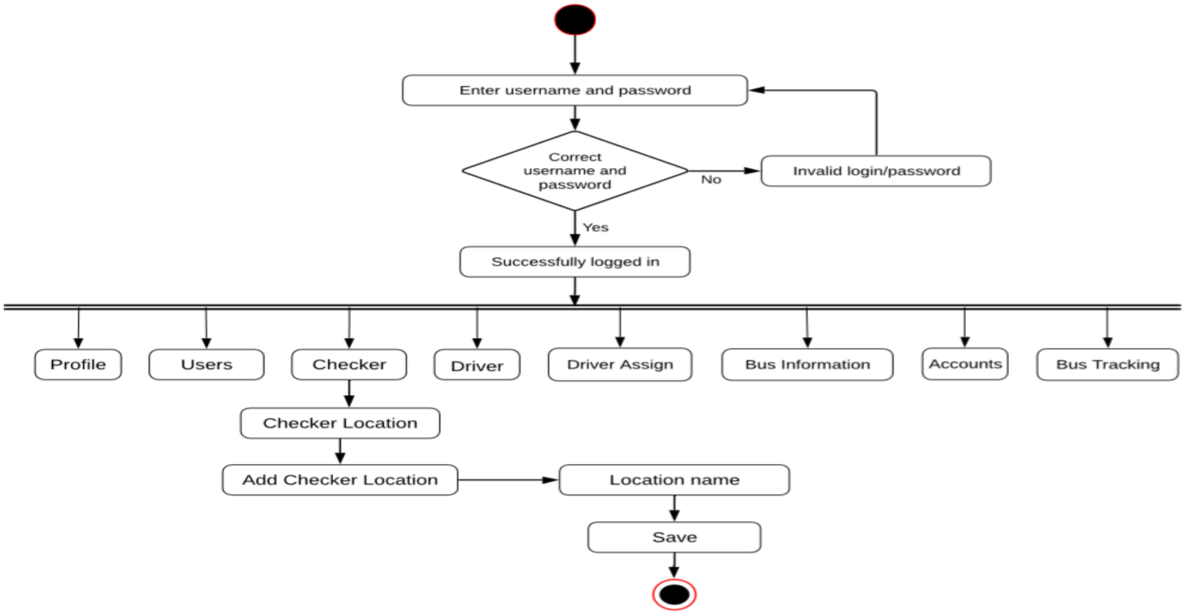


Figure 3.8: Add Checker Location

3.2.8 Update Checker Location

First admin need to log in when admin successfully logged in then checker to checker location list and then click edit button after that provide new location name and click update.

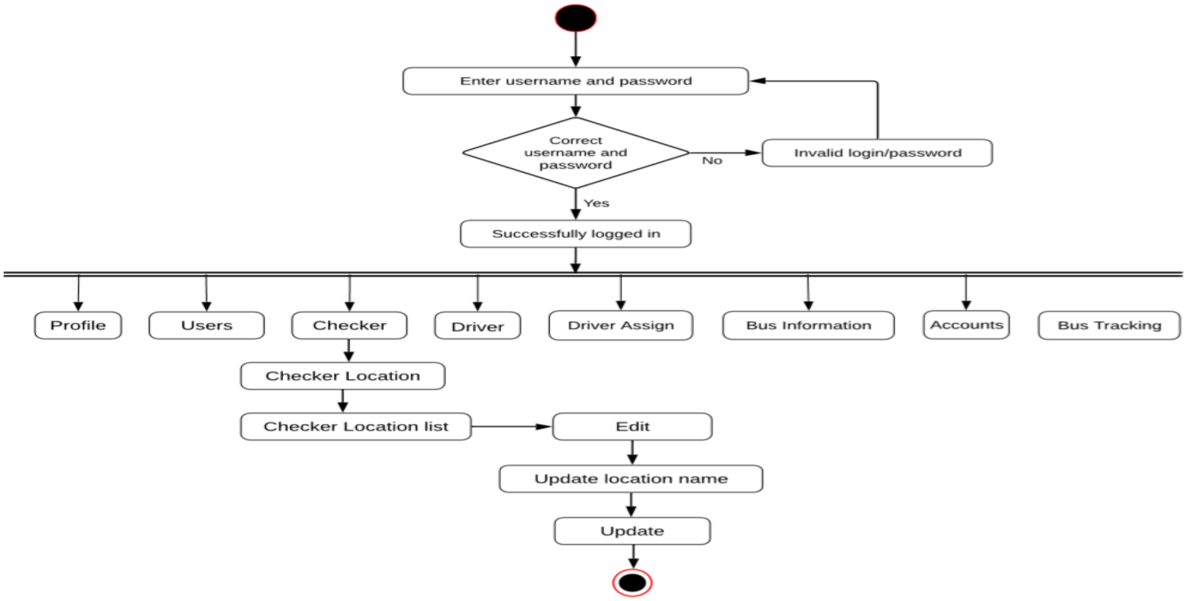


Figure 3.9: Update Checker Location

3.2.9 Delete Checker Location

Admin need to log in when admin successfully logged in then checker to checker location list, click delete button and get confirmation if click close then go checker location list or if click delete then it successfully delete.

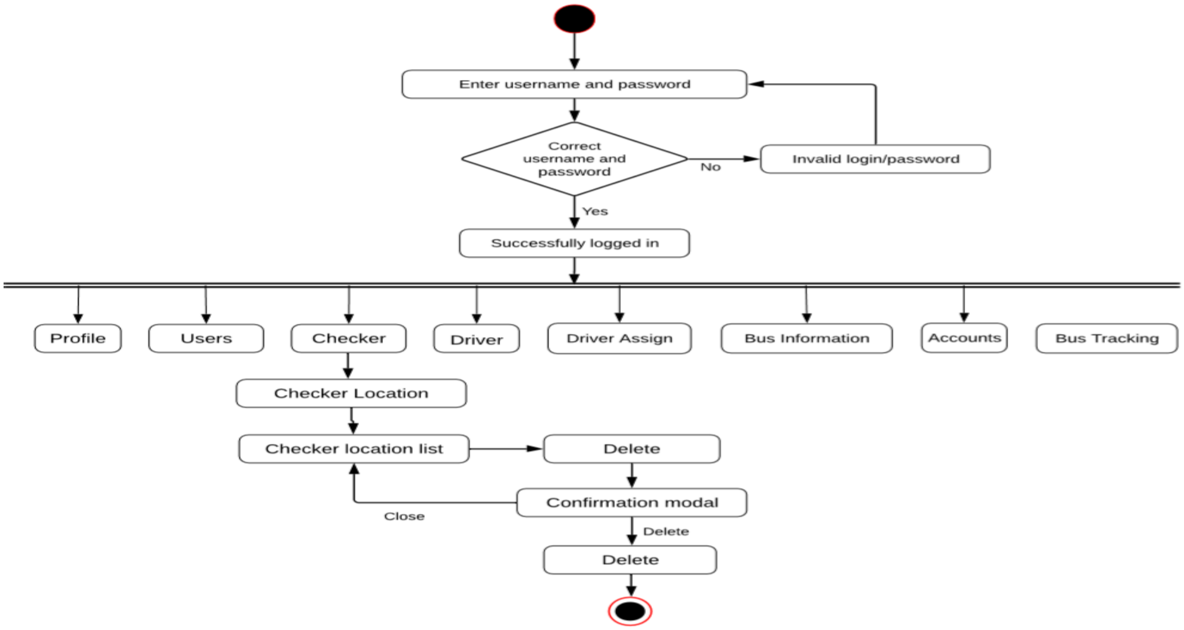


Figure 3.10: Delete Checker Location

3.2.10 Checker Assign

Admin need to log in when admin successfully logged in then checker to checker location list, click delete button and get confirmation if click close then go checker location list or if click delete then it successfully delete.

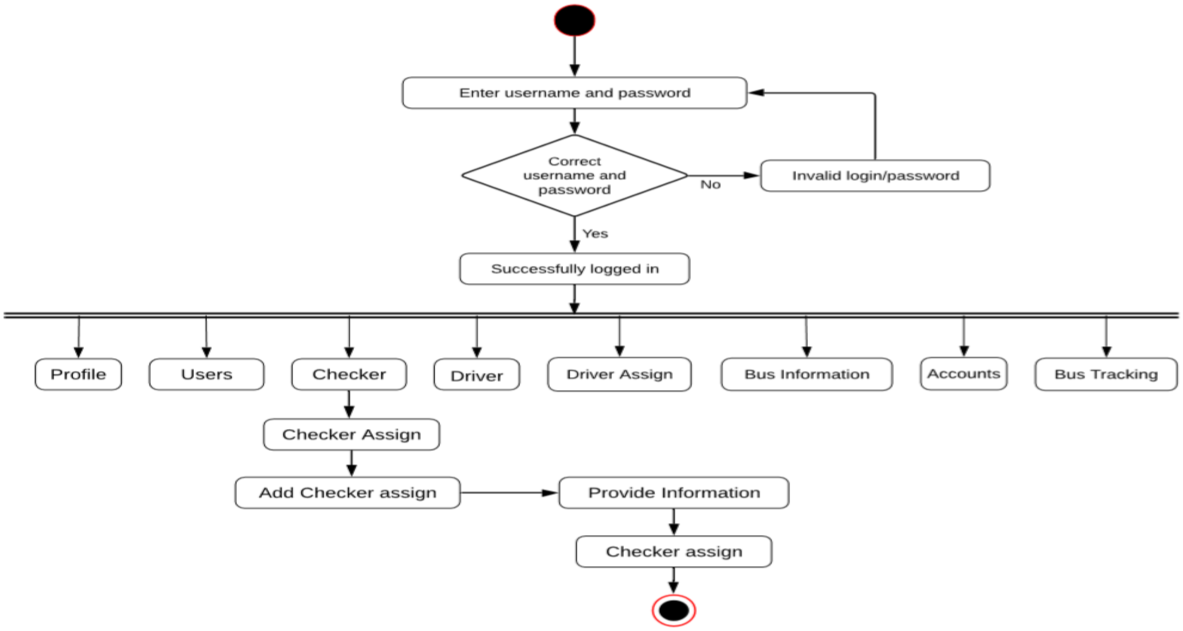


Figure 3.11: Checker Assign

3.2.11 Update Checker Assign

Admin need to log in when admin successfully logged in then go checker to checker assign list after that edit and provide new information lastly click update button.

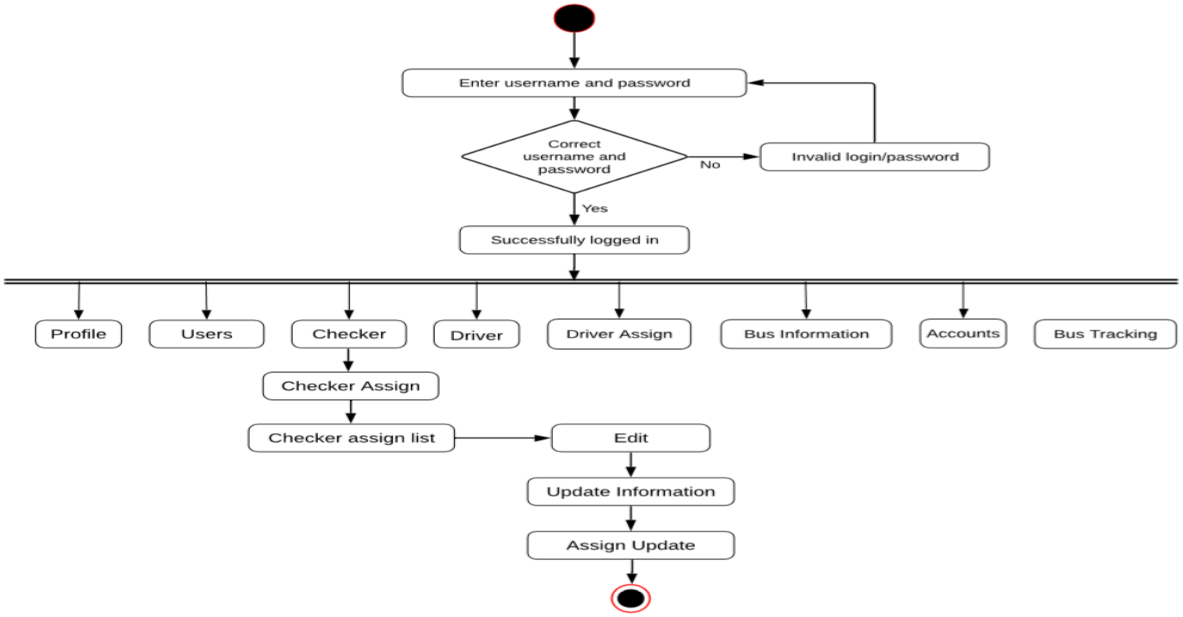


Figure 3.12: Update Checker Assign

3.2.12 Delete Checker Assign

Admin need to log in when admin successfully logged in then go checker to checker assign list and click delete then get a confirmation if close then go checker assign list or click delete then information will be deleted.

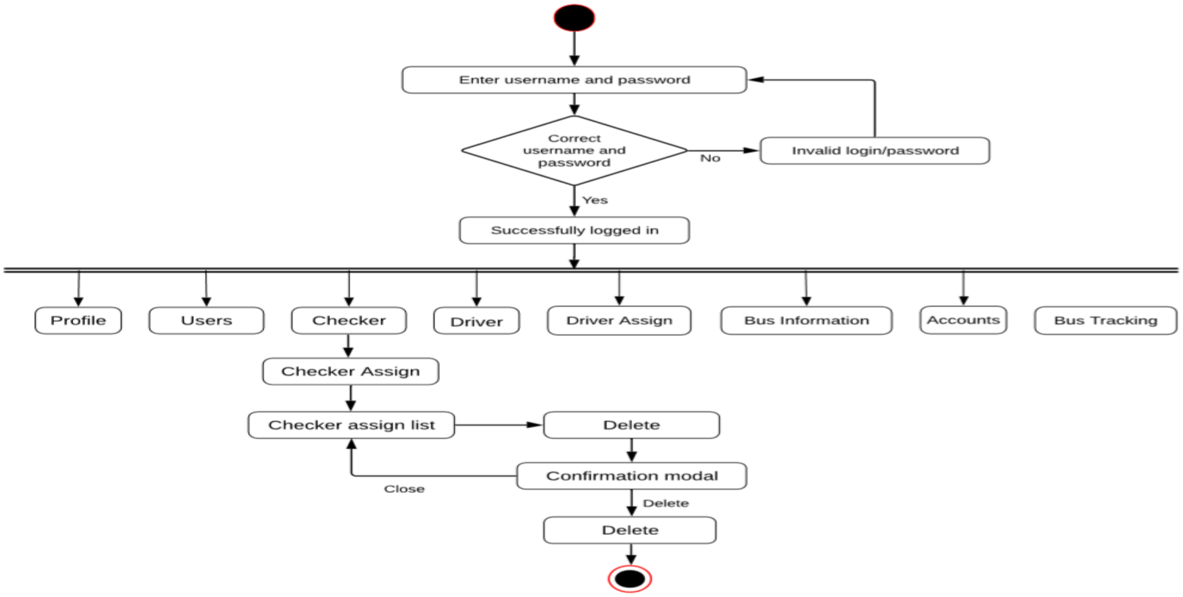


Figure 3.13: Delete Checker Assign

3.2.13 Add Driver

Admin need to log in when admin successfully logged in then go driver option to add driver then provide valid information and click save.

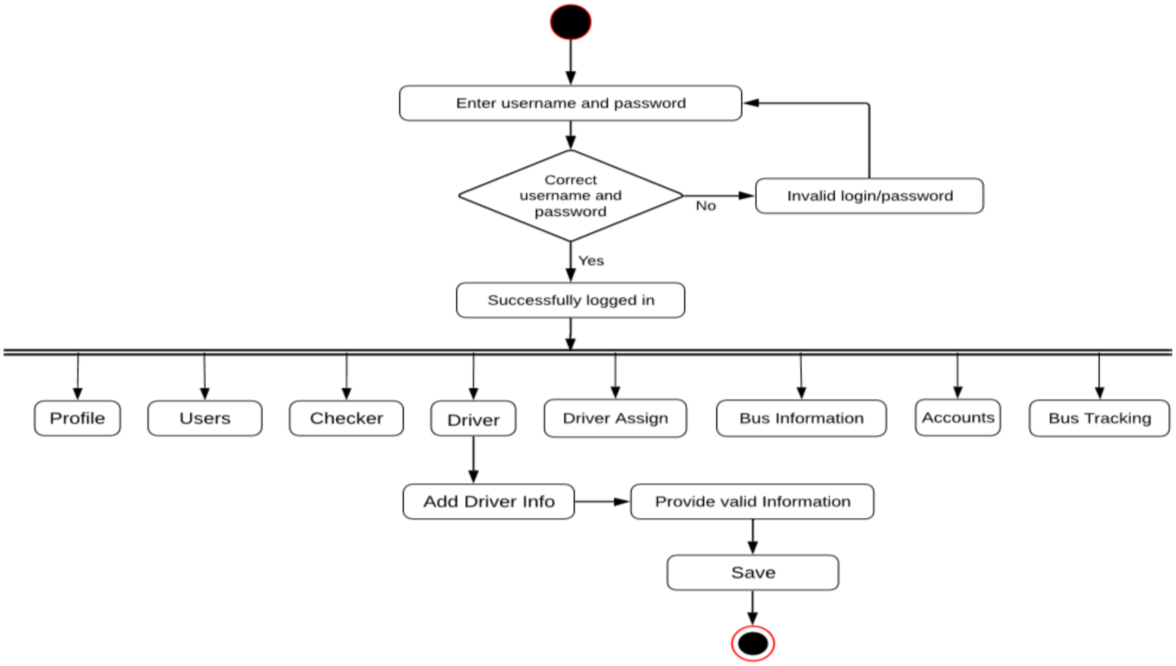


Figure 3.14: Add Driver

3.2.14 Update Driver

Admin need to log in when admin successfully logged in then go driver to driver info list then click edit and update information and click update.

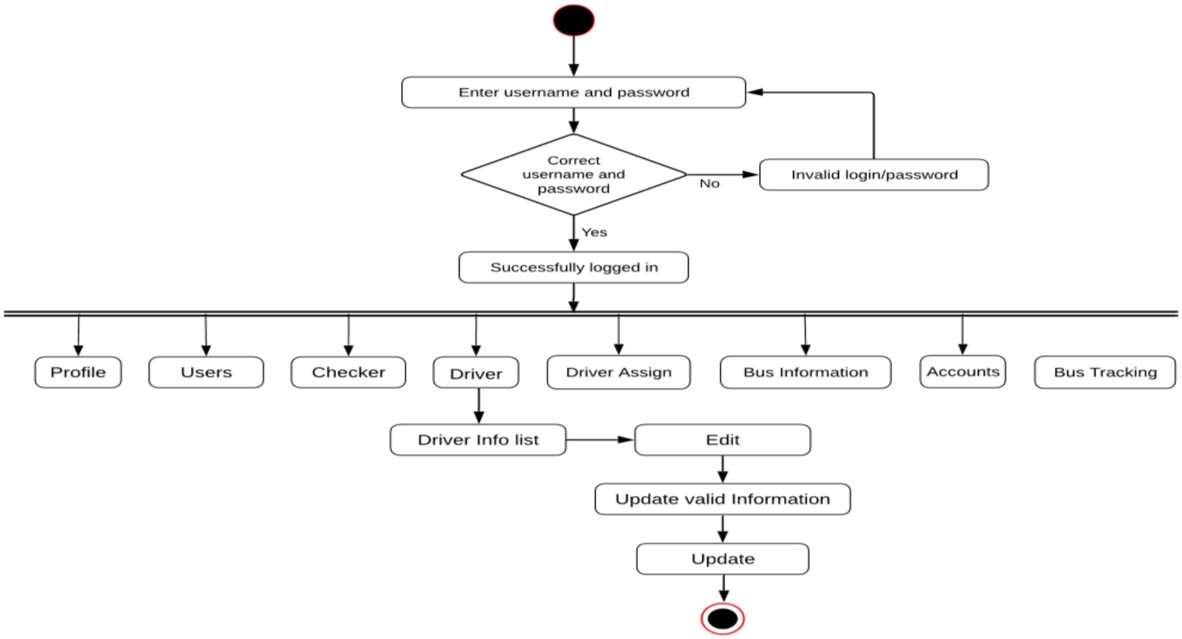


Figure 3.15: Update Driver

3.2.15 Delete Driver

Admin need to log in when admin successfully logged in then go driver to driver info list and click delete button get a confirmation if close then go driver info list or if delete then information is deleted.

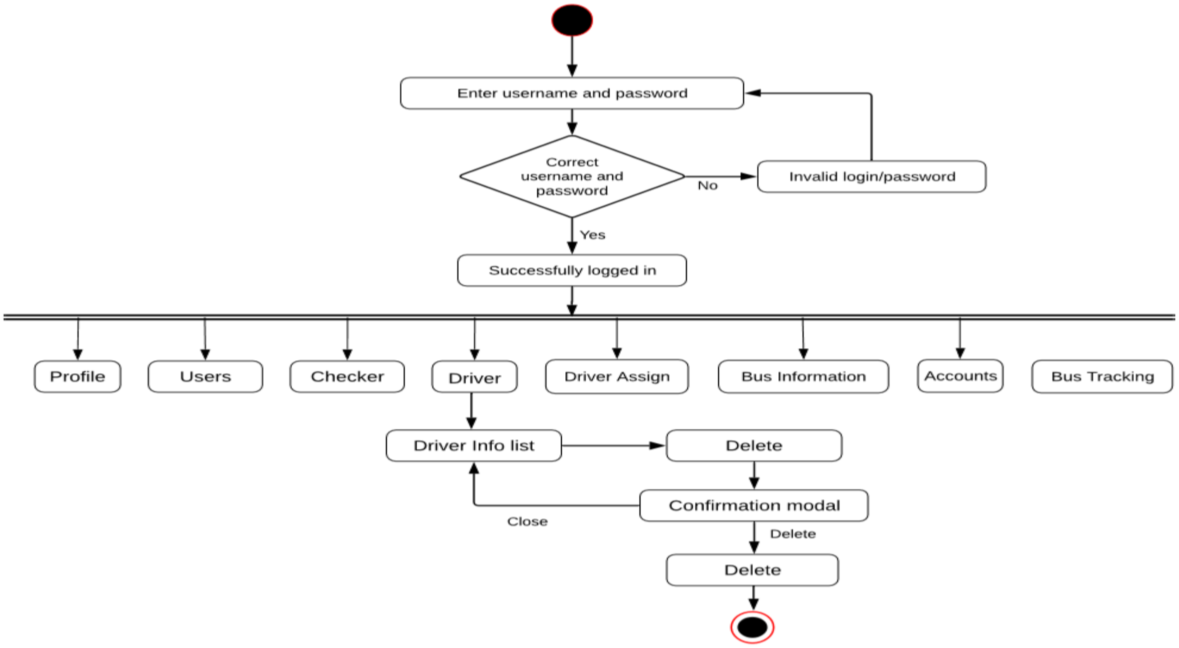


Figure 3.16: Delete Driver

3.2.16 Driver Assign

Admin need to log in when admin successfully logged in then go driver to add driver assign and provide information after click driver assign button.

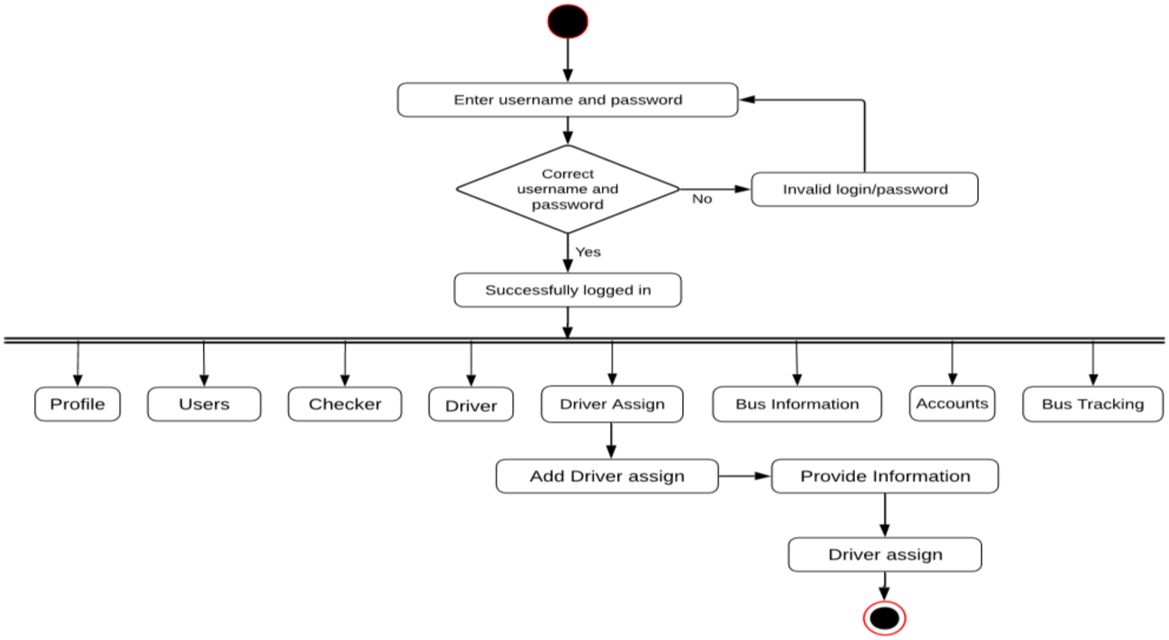


Figure 3.17: Driver Assign

3.2.17 Update Driver Assign

Admin need to log in when admin successfully logged in then go driver to driver assign list and click edit then provide information and lastly click update button.

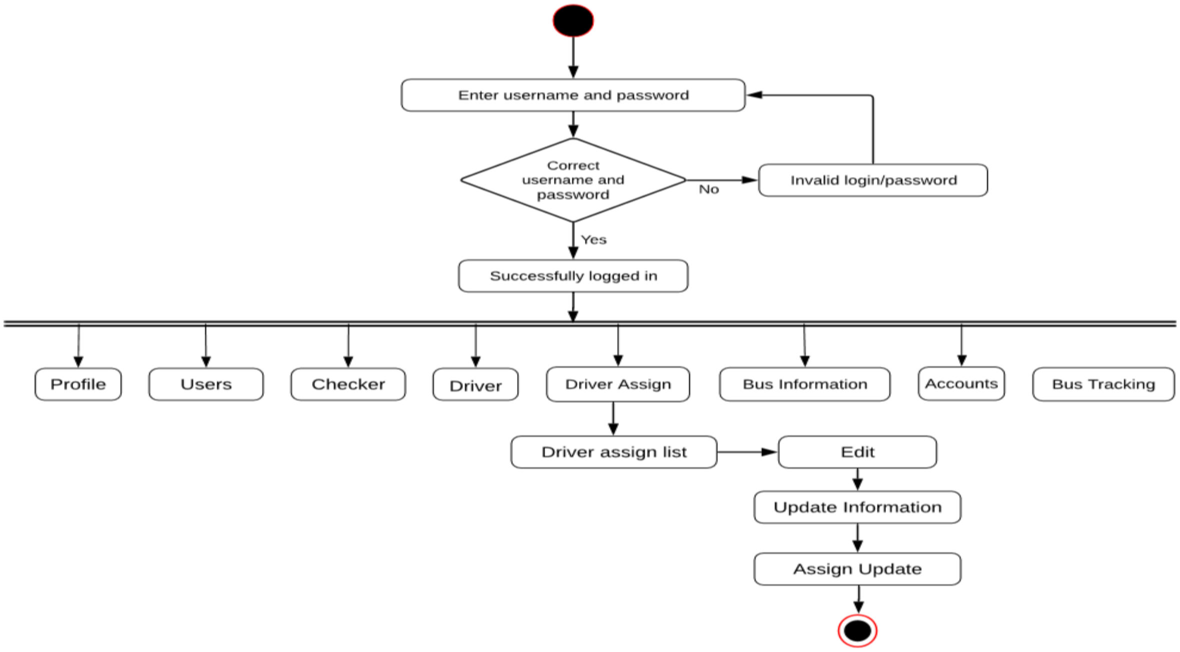


Figure 3.18: UpdateDriver Assign

3.2.18 Delete Driver Assign

Admin need to log in when admin successfully logged in then go driver assign to driver assign list after click delete then get a confirmation if close then go driver assign list or if delete then it will be deleted.

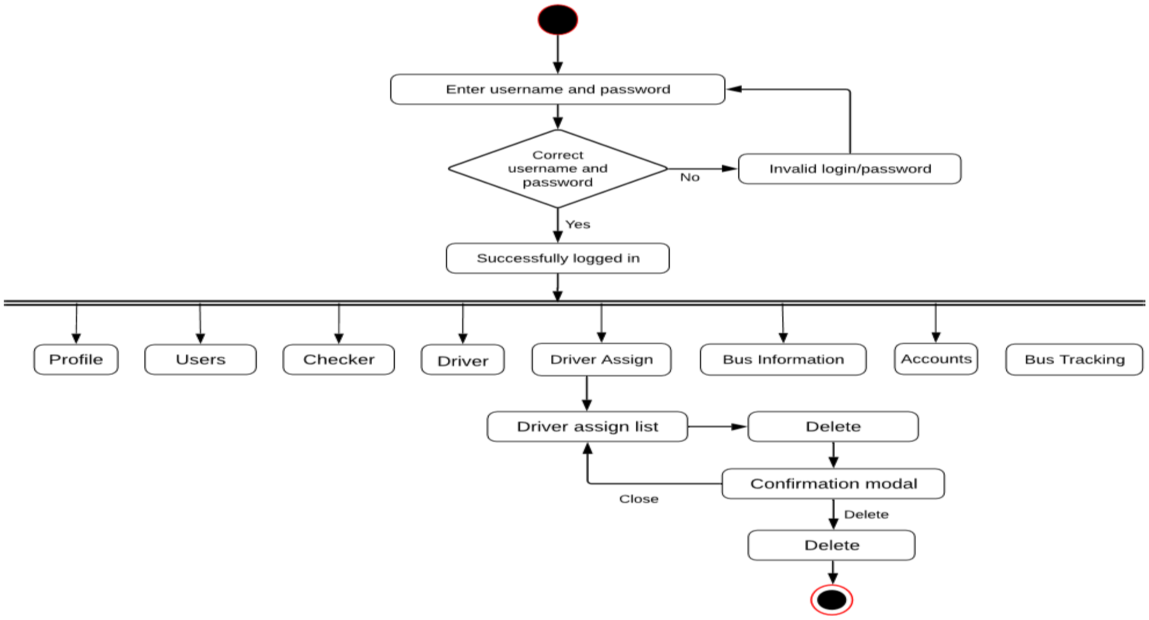


Figure 3.19: Delete Driver Assign

3.2.19 Add Tax Token

Admin need to log in when admin successfully logged in then go bus information to tax token and click add tax token after admin provide information then click save.

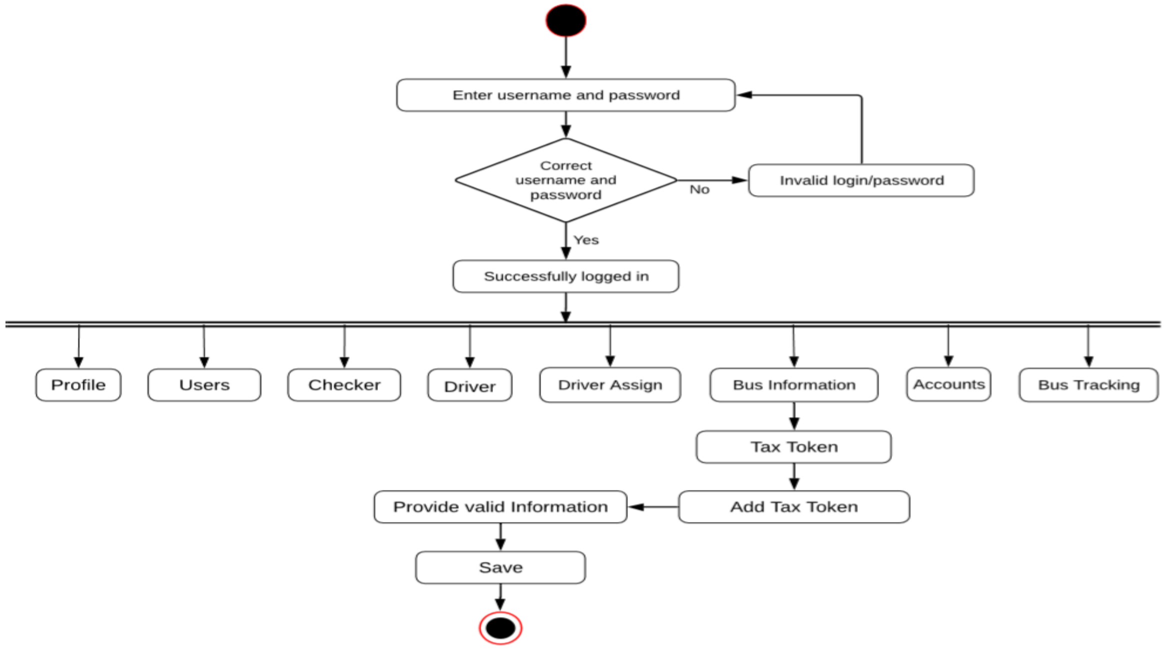


Figure 3.20: Add Tax Token

3.2.20 Update Tax Token

Admin need to log in when admin successfully logged in then go bus information to tax token after that click tax token info list option then click edit and provide information lastly click update button.

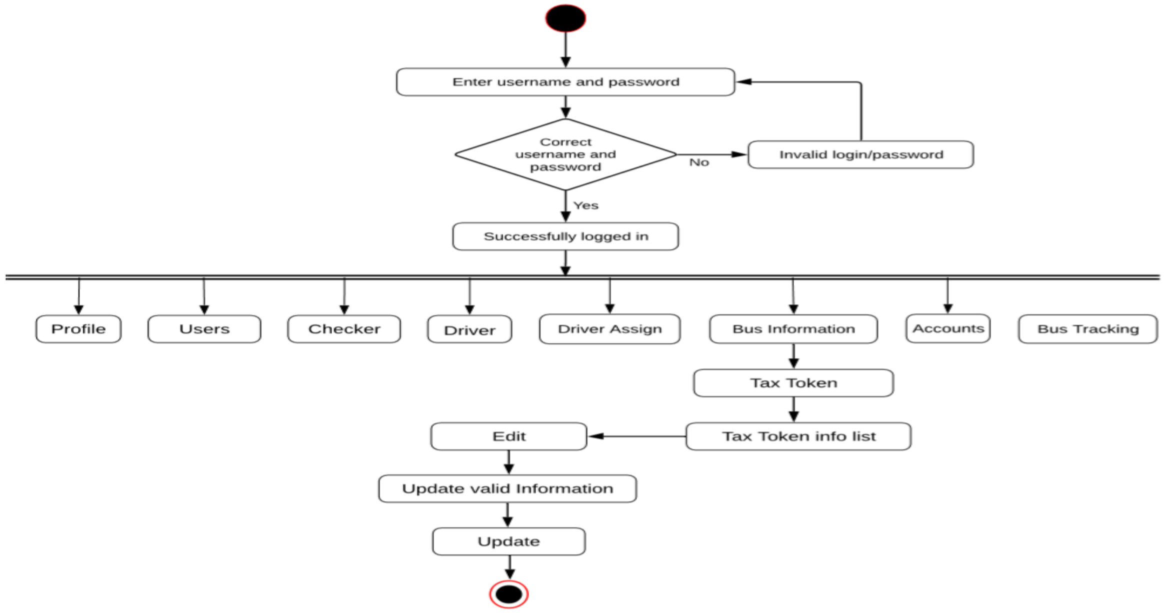


Figure 3.21: Update Tax Token

3.2.21 Delete Tax Token

Admin need to log in when admin successfully logged in then go bus information to tax token after tax token list then click delete then get a confirmation if close then go tax token info list or if delete then it ends.

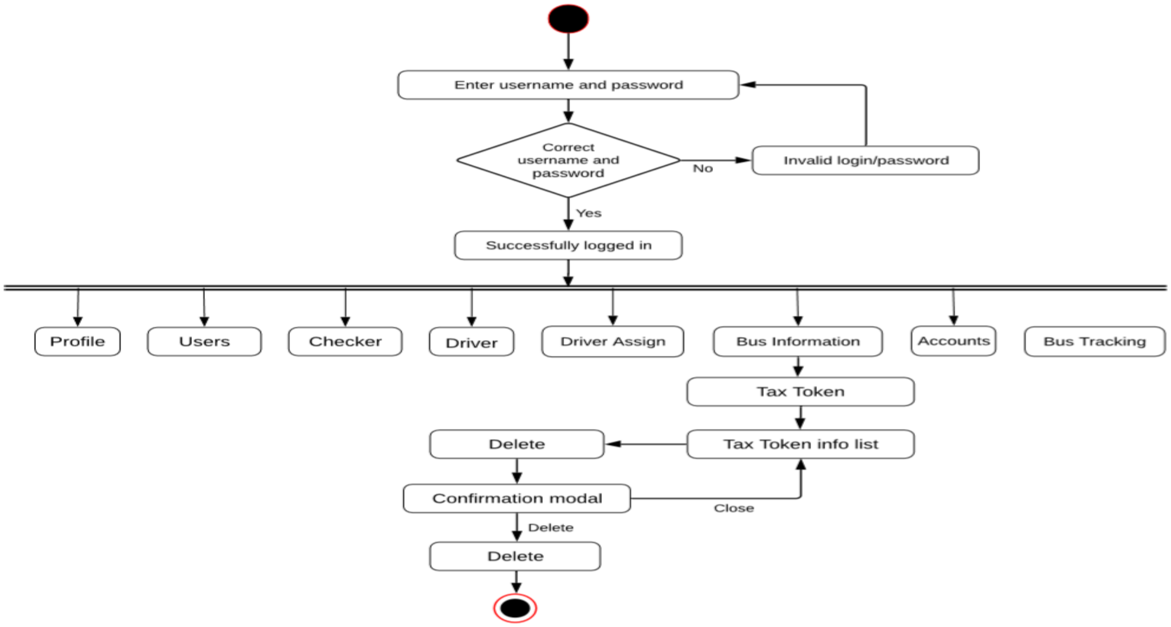


Figure 3.22: Delete Tax Token

3.2.22 Add Fitness Certificate

Admin need to log in when admin successfully logged in then go bus information to fitness certificate after click add button then provide information and click save button.

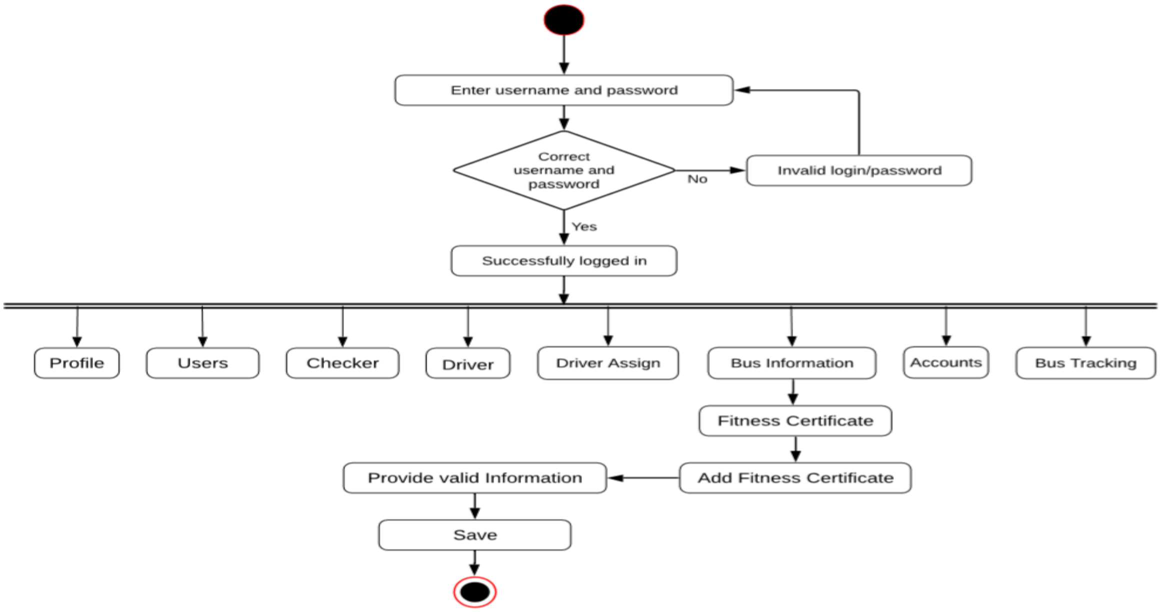


Figure 3.23: Add Fitness Certificate

3.2.23 Update Fitness Certificate

Admin need to log in when admin successfully logged in then go bus information to fitness certificate and go fitness certificate info list then click edit and provide information lastly click update button.

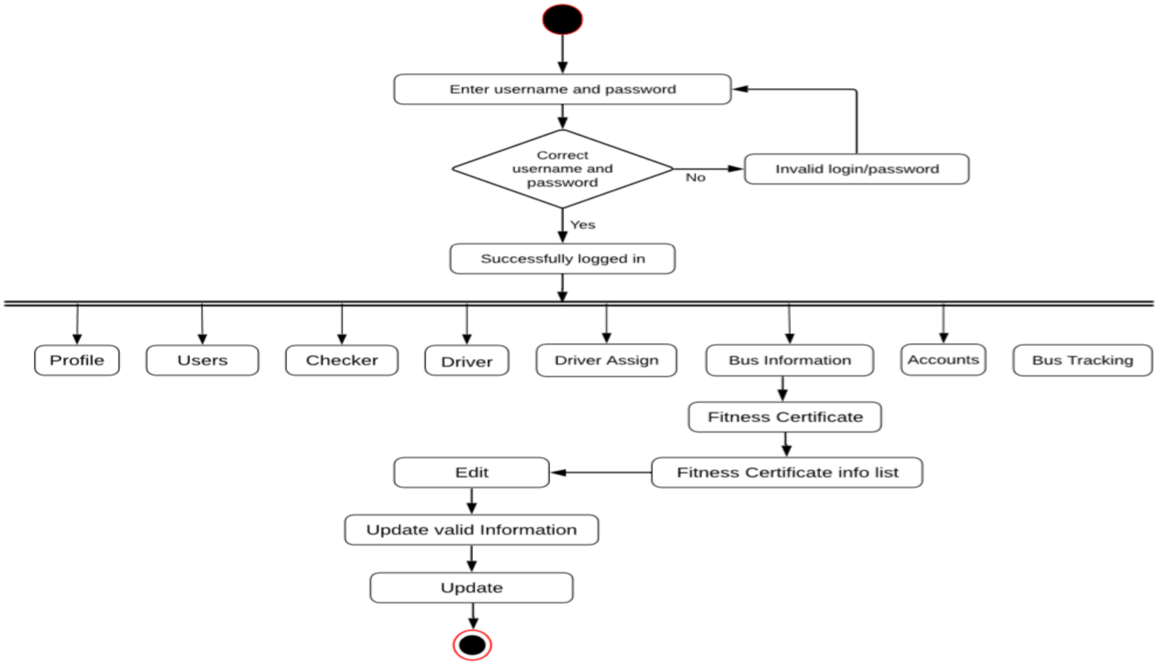


Figure 3.24: Update Fitness Certificate

3.2.24 Delete Fitness Certificate

Admin need to log in when admin successfully logged in then go bus information to fitness certificate info list and click delete then get confirmation if click close then go to fitness certificate info list or if click delete then it will be deleted.

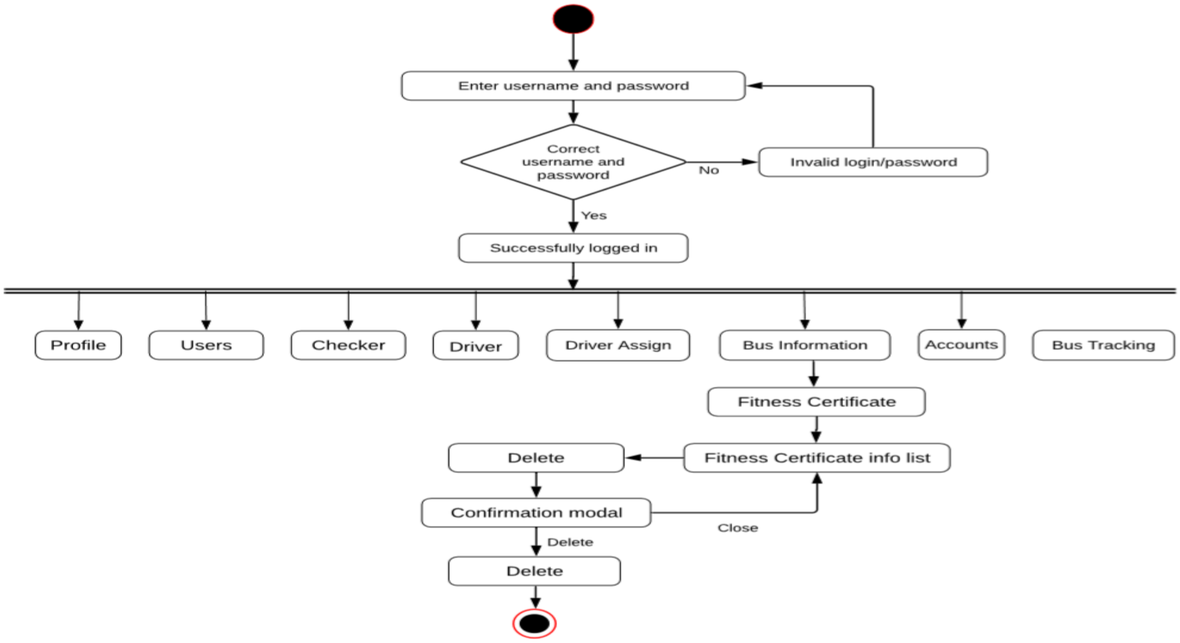


Figure 3.25: Delete Fitness Certificate

3.2.25 Update Route Permit

Admin need to log in when admin successfully logged in then go bus information to route permit option after route permit info list then provide information and click update button.

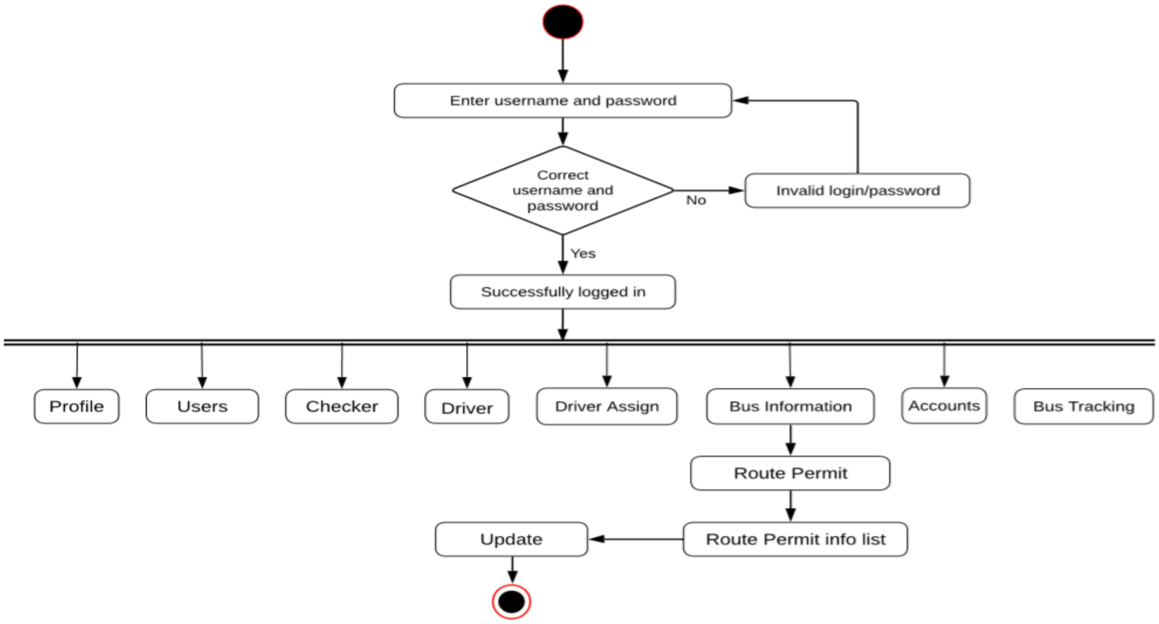


Figure 3.26: Update Route Permit

3.2.26 Add Total Cost

Admin need to log in when admin successfully logged in then go accounts option then select bus number, add fine and salary then click submit button.

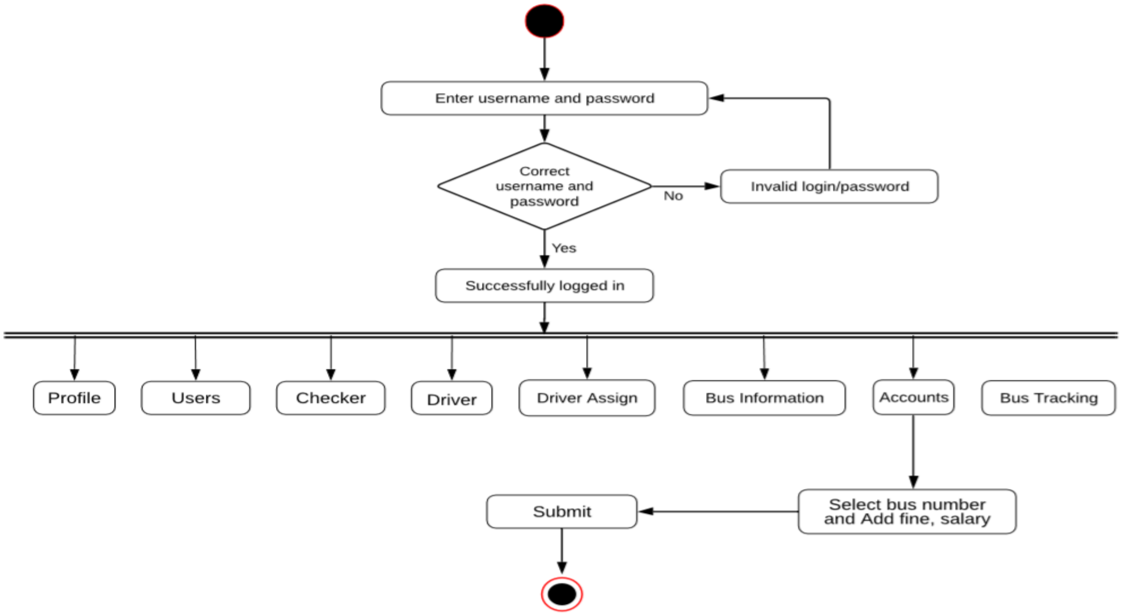


Figure 3.27: Add Total Cost

3.2.27 Tracking Live View

Admin need to log in when admin successfully logged in then go bus tracking option then click view all bus location.

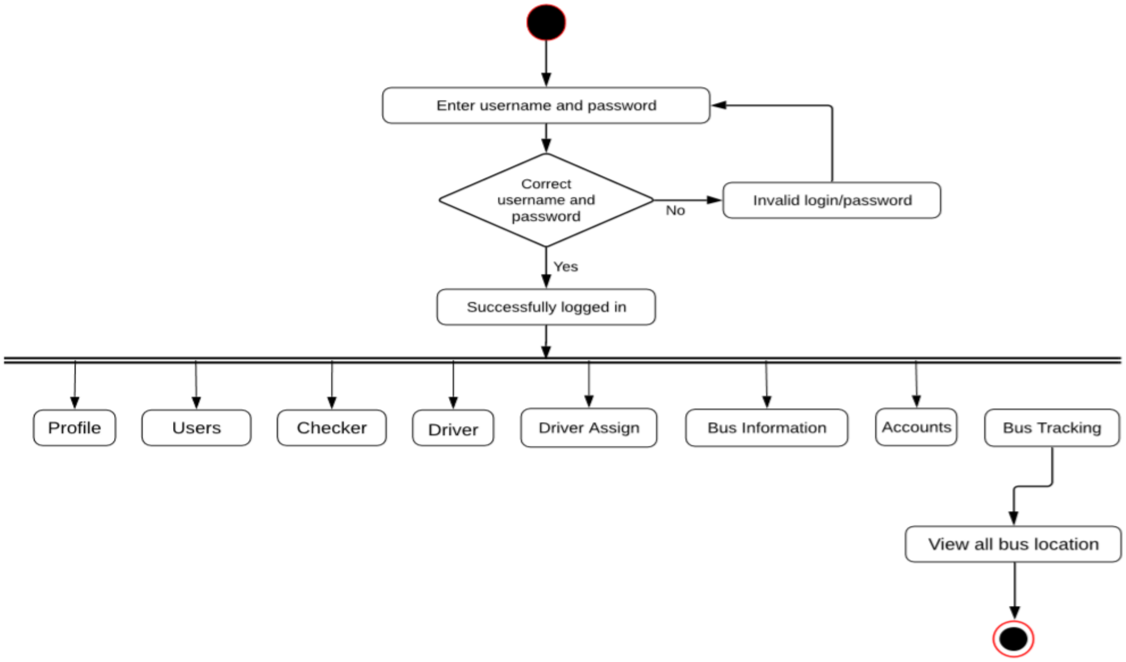


Figure 3.28: Tracking Live View

3.2.28 Profile Update

Admin need to log in when admin successfully logged in then go profile and click edit after that provide new information and click update button for update information.

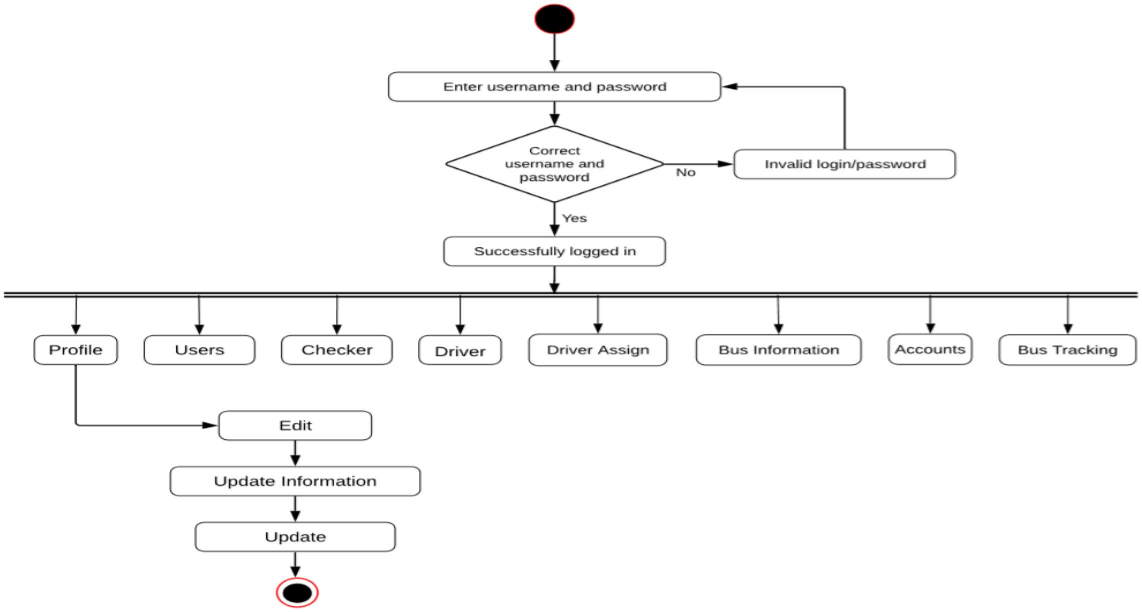


Figure 3.29: Profile Update

3.2.29 Change Password

Admin need to log in when admin successfully logged in then go profile and click change password and provide new password after that click reset password.

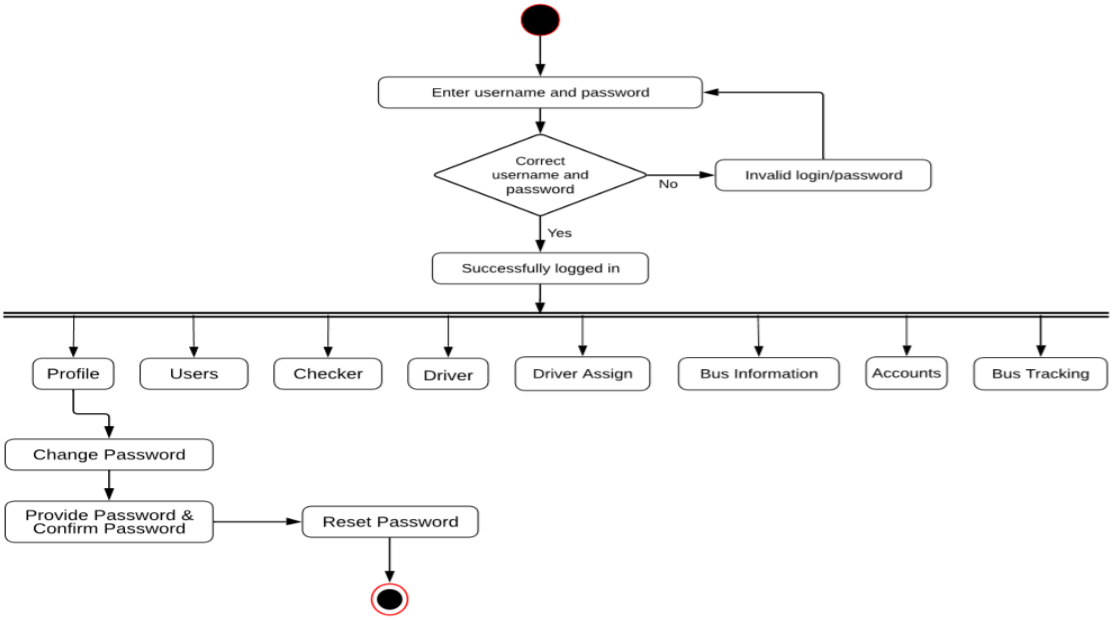


Figure 3.30: Change Password

3.2.30 Ophil

Admin need to log in when admin successfully logged in then go ophill system option and select bus number and add passenger, student then click submit button for get the information.

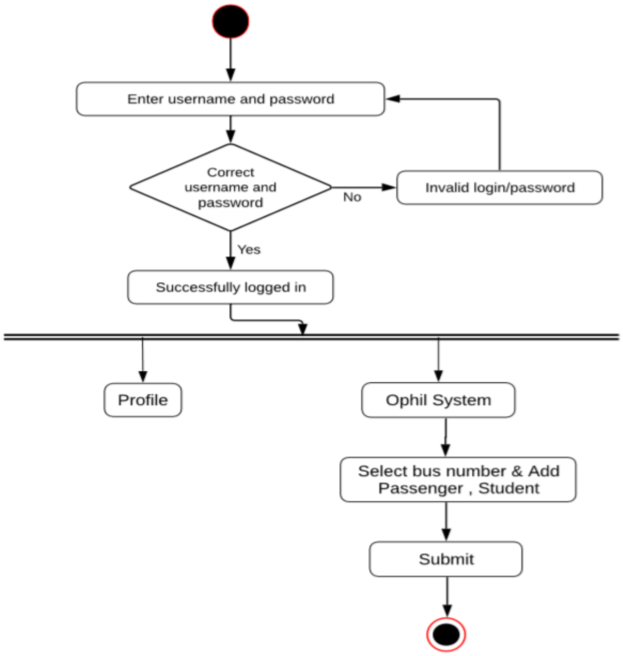

Enter username and password
Correct username and password
No
Invalid login/password
Yes
Successfully logged in
Profile
Ophil System
Select bus number & Add Passenger , Student
Submit

Figure 3.31: Ophil

3.2.31 View Bus Information

Admin need to log in when admin successfully logged in then go bus information and click view bus information and get the all thing he wants.

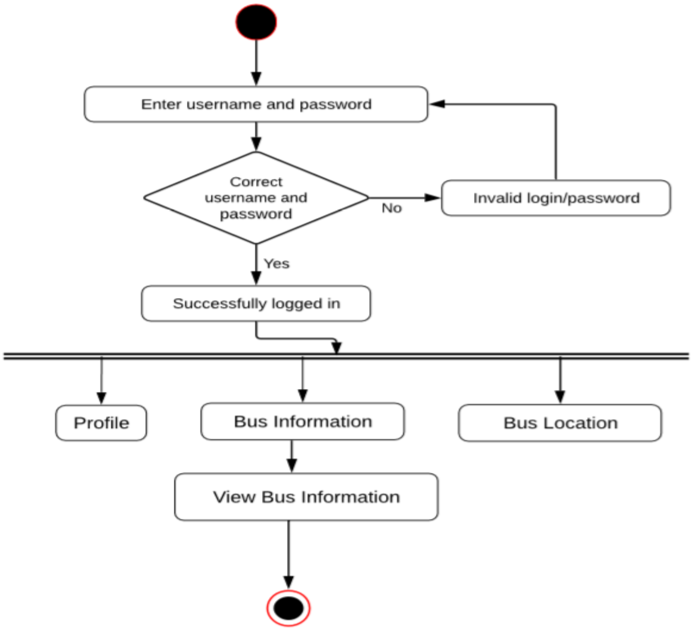


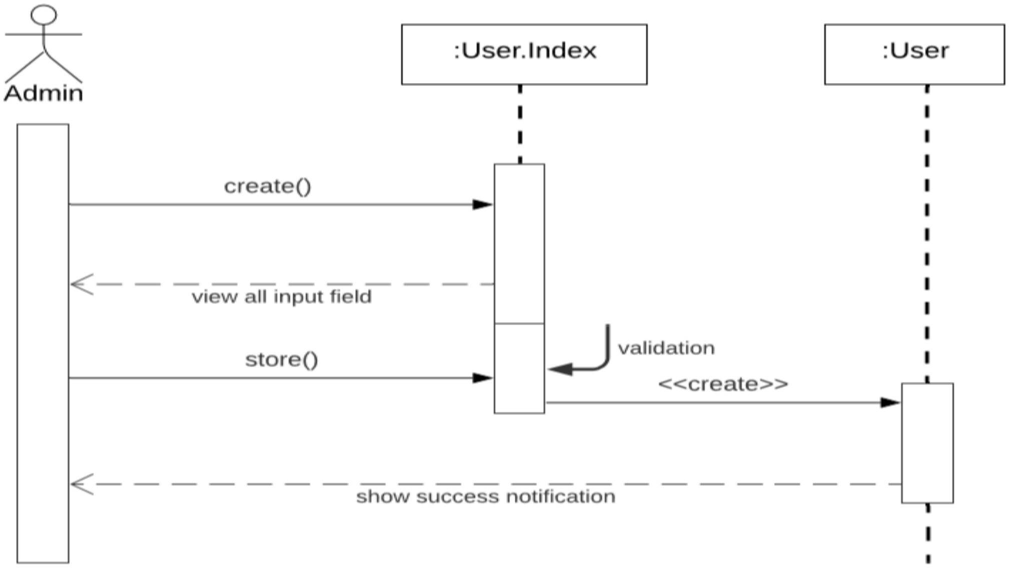
Figure 3.32: View Bus Information

3.3 Sequence Diagrams

Mainly sequence diagrams understand how the data will be followed in any application. Now we are going to show sequence diagrams.

3.3.1 Add User

Admin login first with proper username and password. Then admin will add user with user'sinformation. Then admin will get a success notification.



sity

Figure 3.33: Sequence Diagram for Add User

3.3.2 Update User

Admin login first with proper username and password. Then they will update user info from user info list. Then admin will get a success notification after this work.

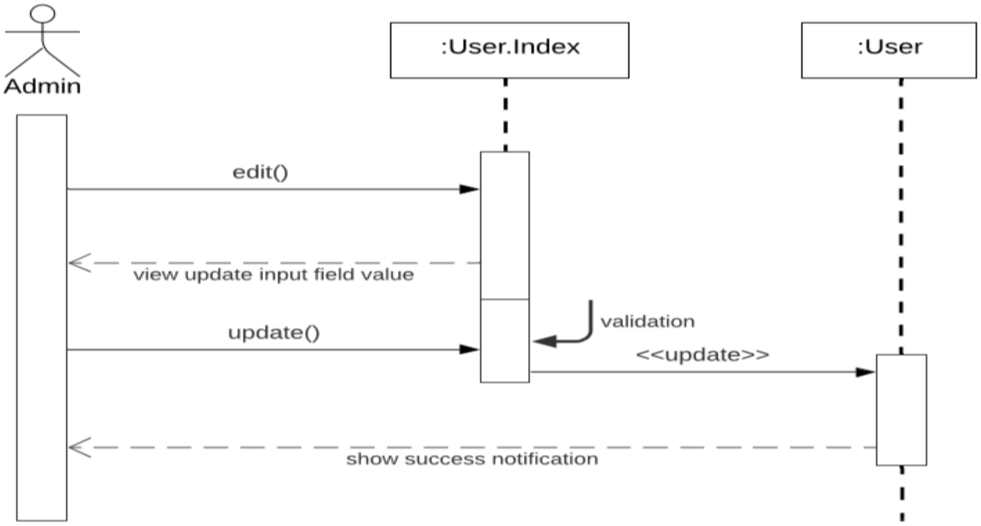


Figure 3.34: Sequence Diagram for Update User

3.3.3 Delete User

Admin login first with proper username and password. Then admin will delete user from user list,then confirmation modal to confirm user delete or not. Admin will get ainfo notification after delete user.

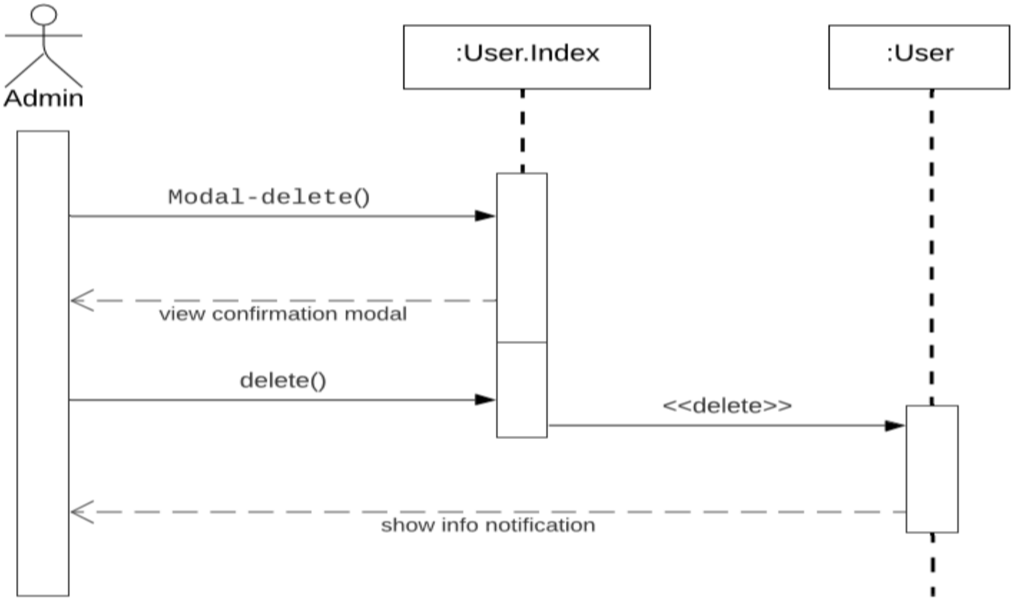


Figure 3.35: Sequence Diagram for Delete User

3.3.4 Add Checker Info

Admin or bus owner login first with proper username and password. Then they will add checker with checker information. They will get a success notification after this work.

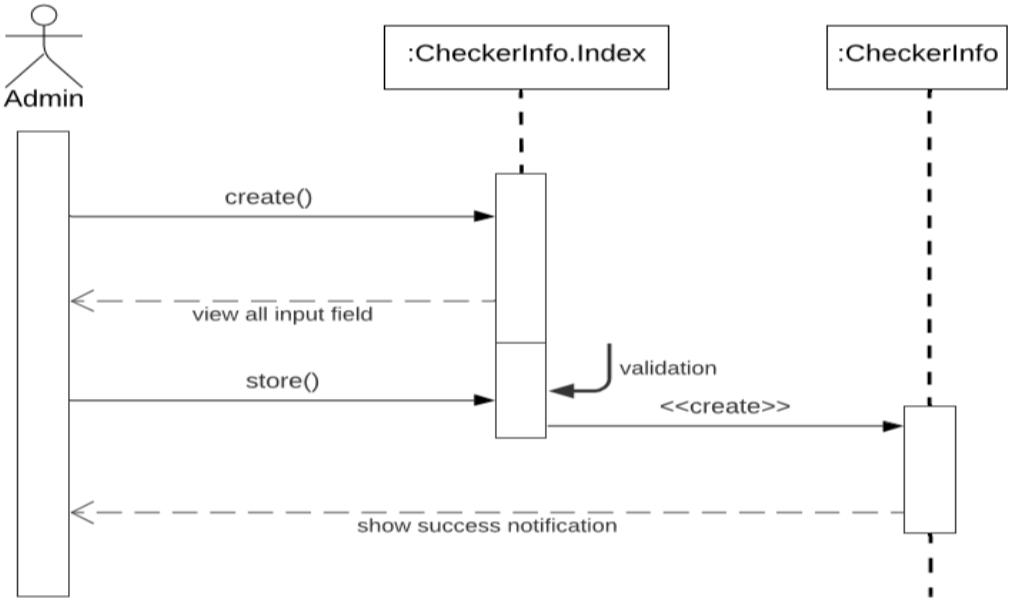


Figure 3.36: Sequence Diagram for Add Checker Info

3.3.5 Update Checker Info

Admin or bus owner or editor login first with proper username and password. Then they will update checker information from checker information list. Then admin will get a success notification after this work.

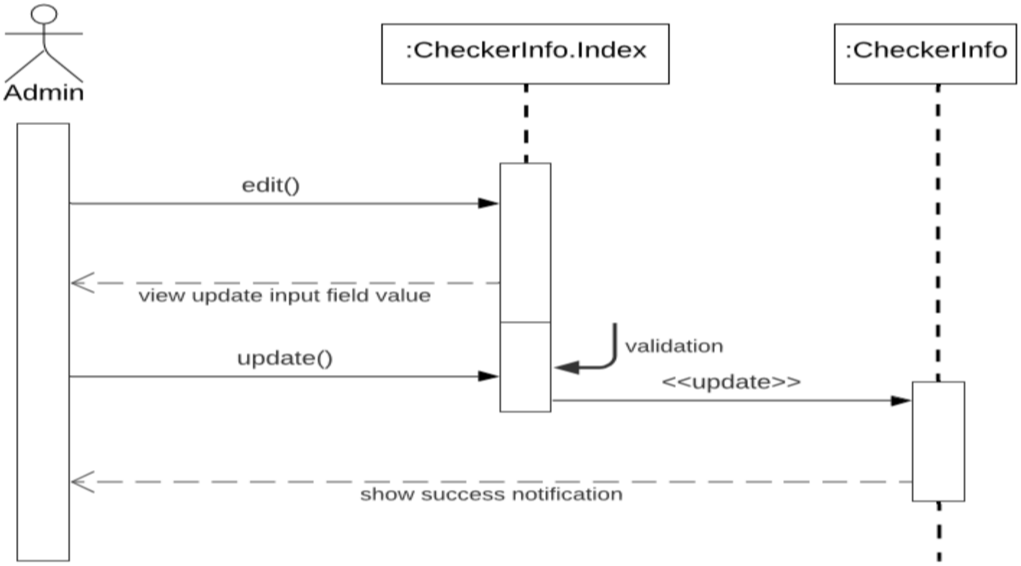


Figure 3.37: Sequence Diagram for Update Checker Info

3.3.6 Delete Checker Info

Admin or bus owner login first with proper username and password. Then admin will delete checker information from checker information list,then confirmation modal to confirm checker information delete or not. Admin will get a info notification after delete checker information.

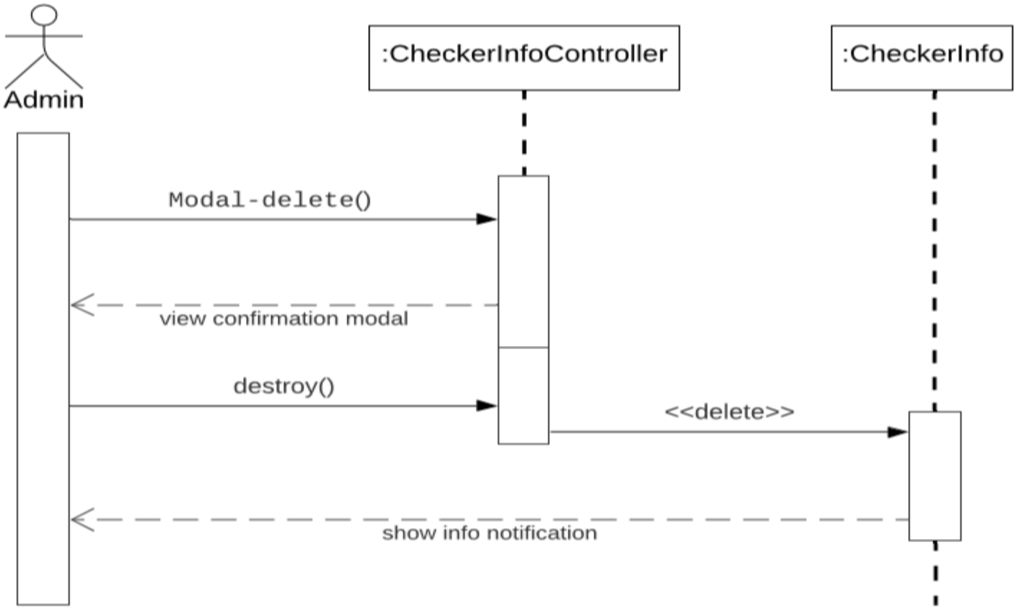


Figure 3.38: Sequence Diagram for Delete Checker Info

3.3.7 Add Checker Location

Admin or bus owner login first with proper username and password. Then they will add checker location with checker location name. They will get a success notification after this work.

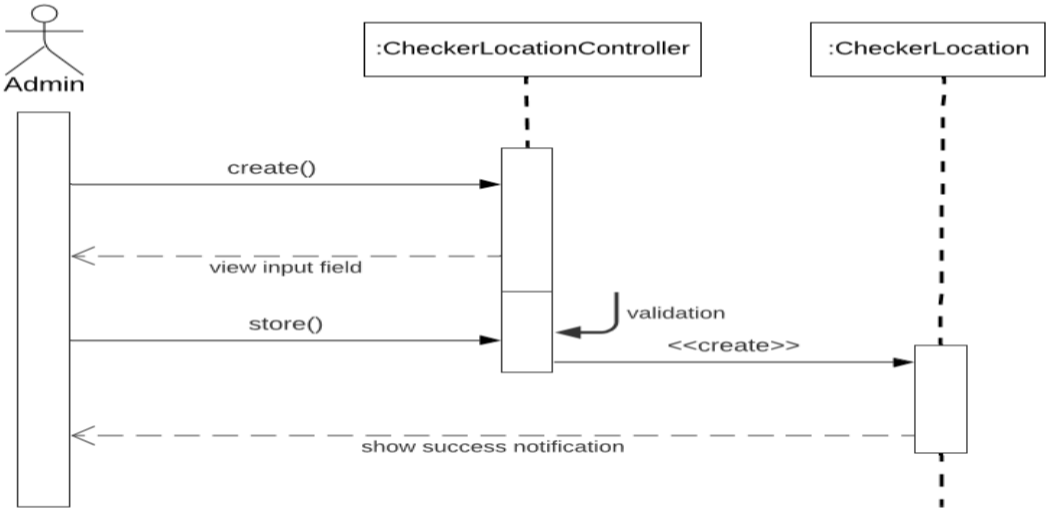


Figure 3.39: Sequence Diagram for Add Checker Location

3.3.8 Update Checker Location

Admin or bus owner or editor login first with proper username and password. Then they will update checker location from checker location list. Then admin will get a success notification after this work.

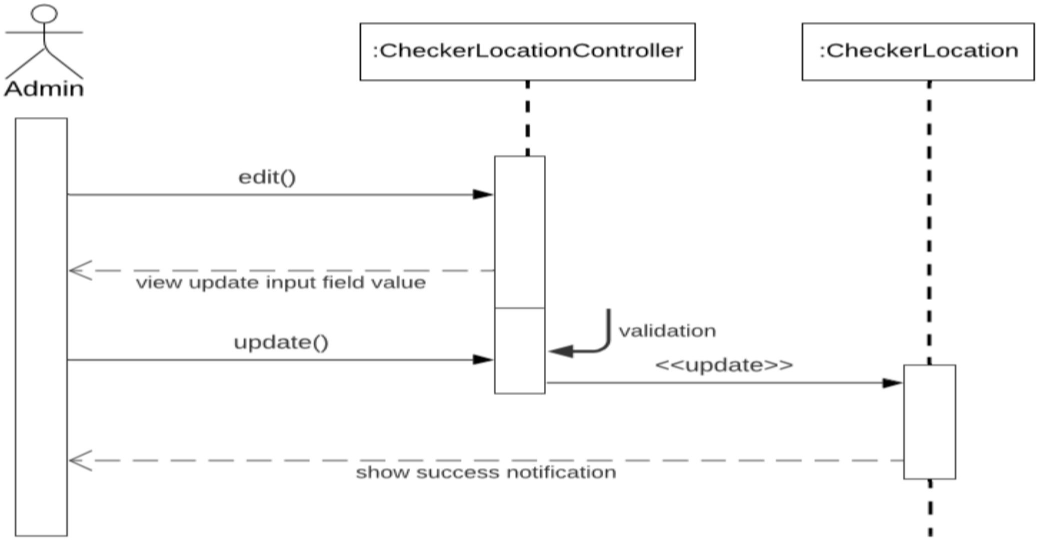

Admin
:CheckerLocationController
:CheckerLocation
edit()
view update input field value
validation
update()
<<update>>
show success notification

Figure 3.40: Sequence Diagram for Update Checker Location

3.3.9 Delete Checker Location

Admin or bus owner login first with proper username and password. Then admin will delete checker location from checker location list, then confirmation modal to confirm checker location delete or not. Admin will get a info notification after delete checker location.

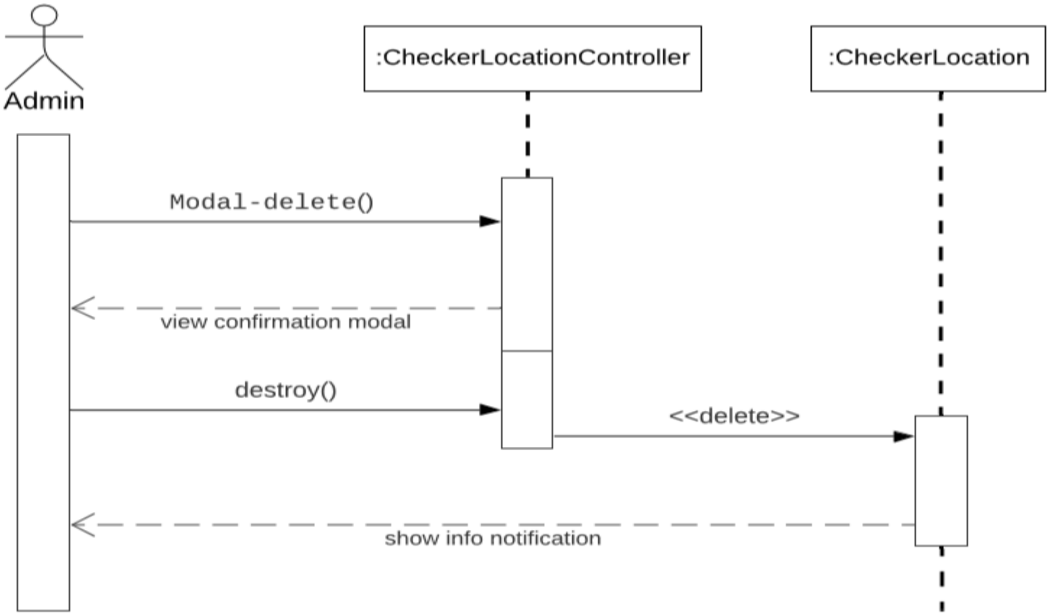


Figure 3.41: Sequence Diagram for Delete Checker Location

3.3.10 Checker Assign

Admin or bus owner login first with proper username and password. Then they will assign checker. They will get a success notification after this work.

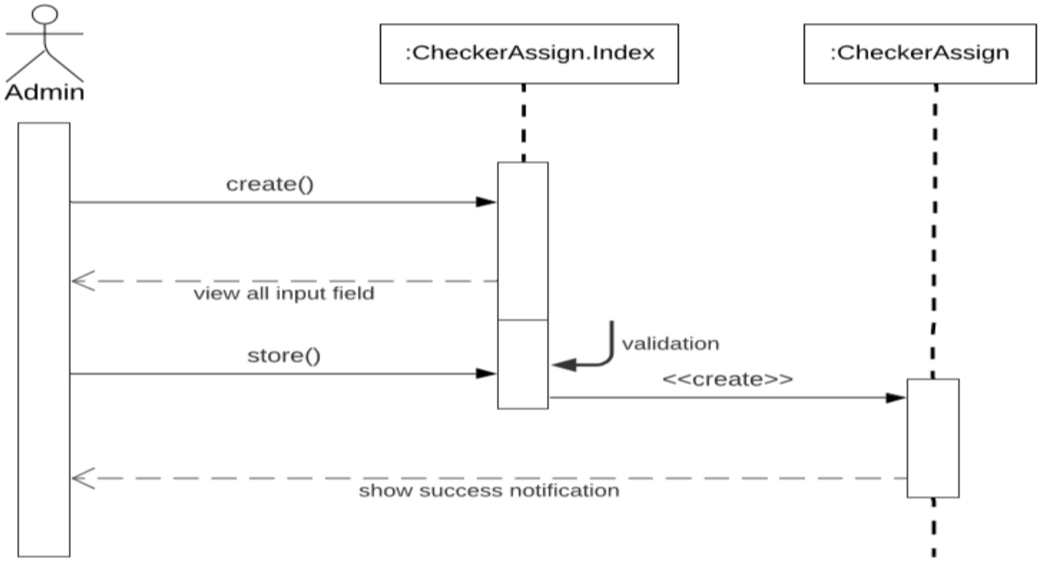


Figure 3.42: Sequence Diagram for Checker Assign

3.3.11 Update Checker Assign

Admin or bus owner login first with proper username and password. Then they will available information to update assign checker. They will get a success notification after this work.

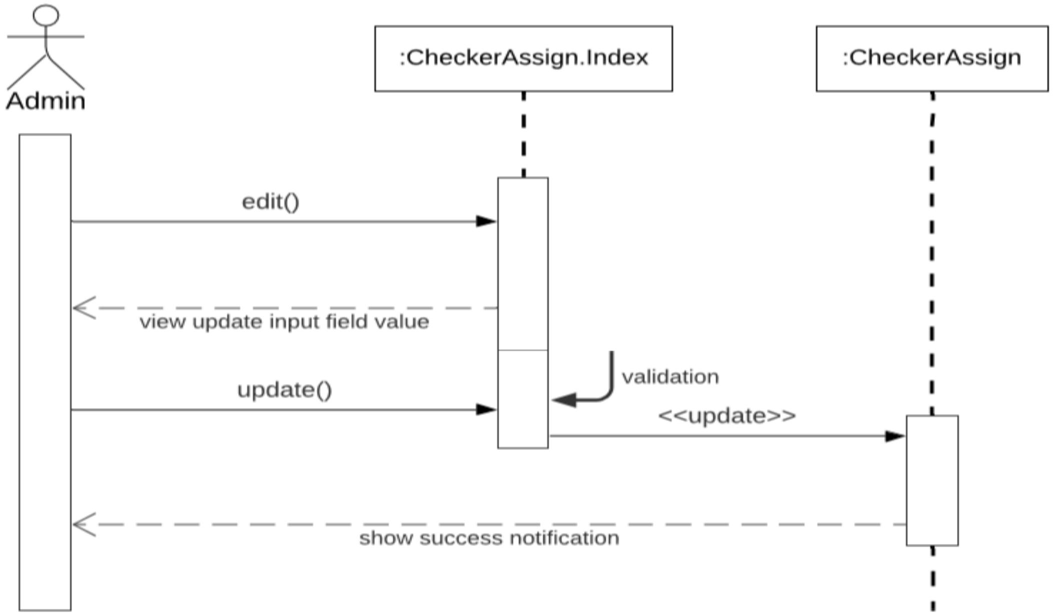


Figure 3.43: Sequence Diagram for Update Checker Assign

3.3.12 Delete Checker Assign

Admin or bus owner login first with proper username and password. Then admin will delete checker assign from checker assign list, then confirmation modal to confirm checker assign delete or not. Admin will get a info notification after delete checker assign.

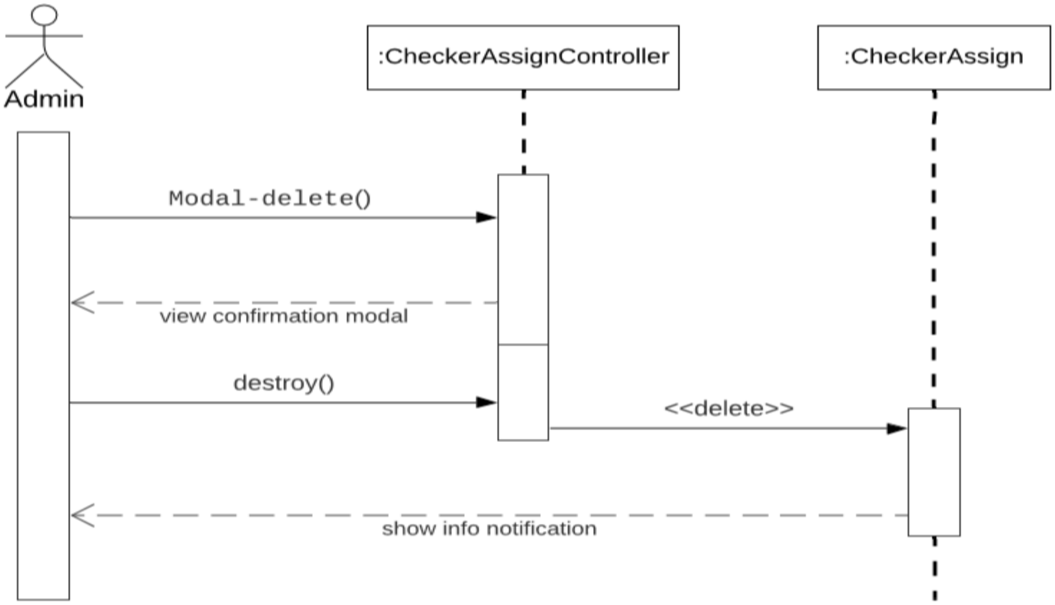


Figure 3.44: Sequence Diagram for Delete Checker Assign

3.3.13 Add Driver

Admin or bus owner login first with proper username and password. Then they will add driver with driverinformation. They will get a success notification after this work.

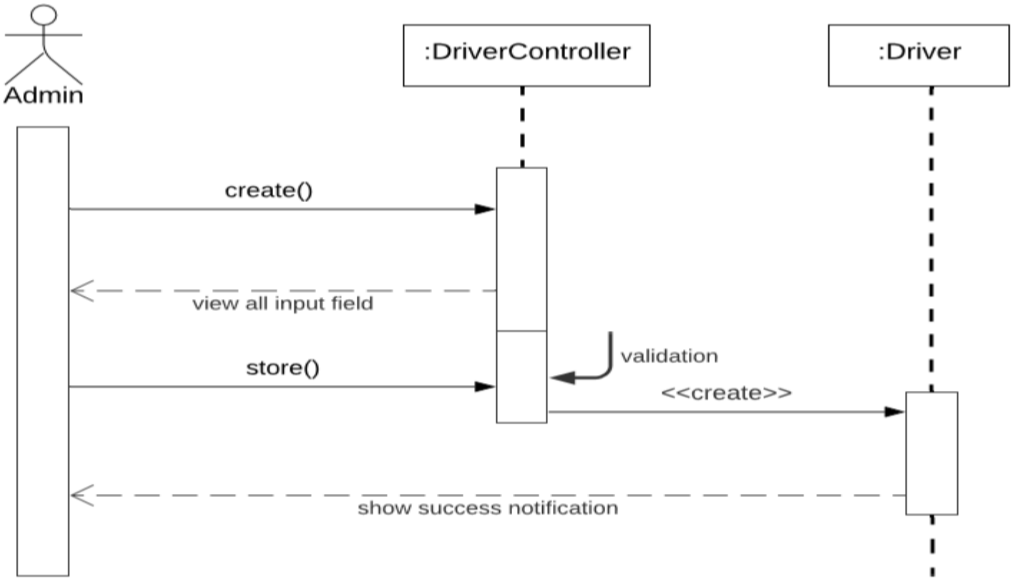


Figure 3.45: Sequence Diagram for Add Driver

3.3.14 Update Driver

Admin or bus owner or editor login first with proper username and password. Then they will update driver information from driver information list. They will get a success notification after this work.

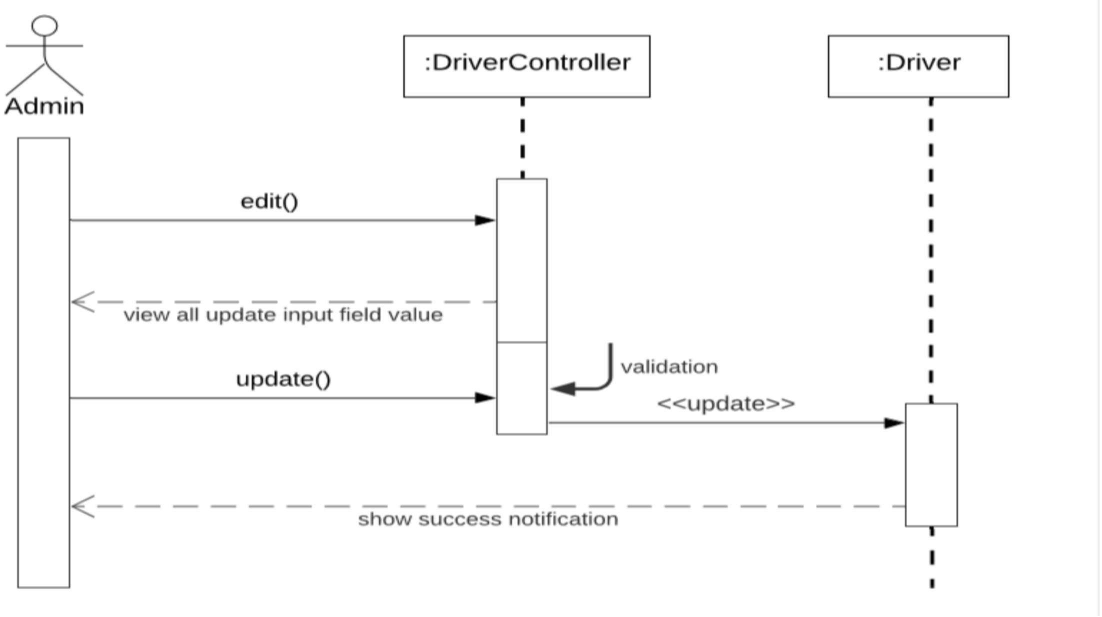


Figure 3.46: Sequence Diagram for Update Driver

3.3.15 Delete Driver

Admin or bus owner login first with proper username and password. Then admin will delete driver information from driver information list, then confirmation modal to confirm driver information delete or not. Admin will get a info notification after delete driver information.

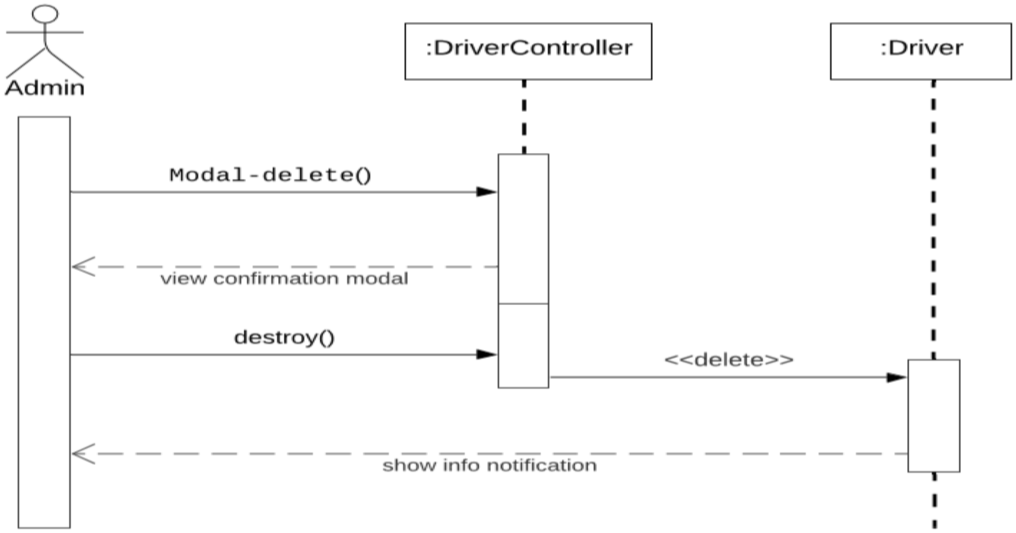


Figure 3.47: Sequence Diagram for Delete Driver

3.3.16 Driver Assign

Admin or bus owner login first with proper username and password. Then they will assign driver. They will get a success notification after this work.

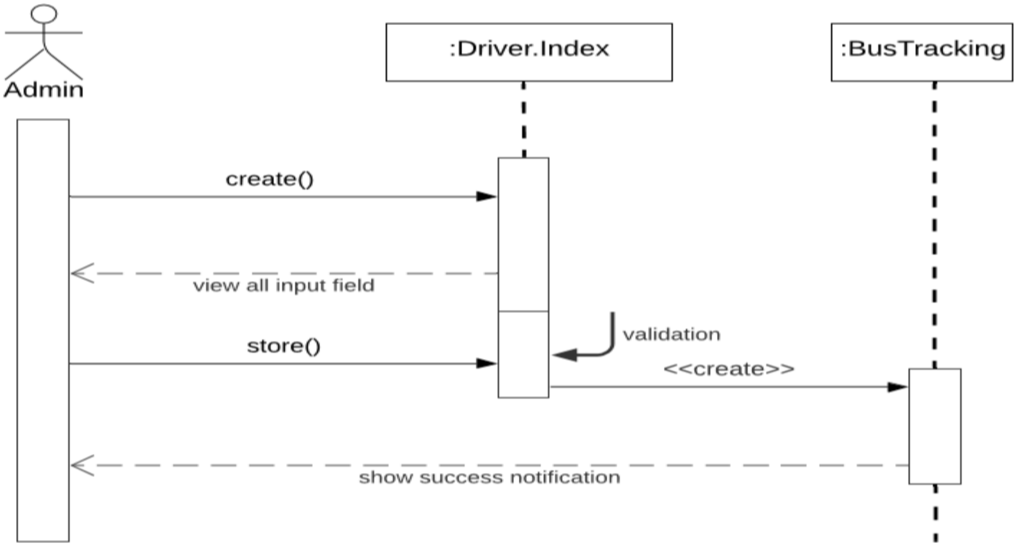


Figure 3.48: Sequence Diagram for Driver Assign

3.3.17 Update Driver Assign

Admin or bus owner login first with proper username and password. Then they will available information to update assign driver. They will get a success notification after this work

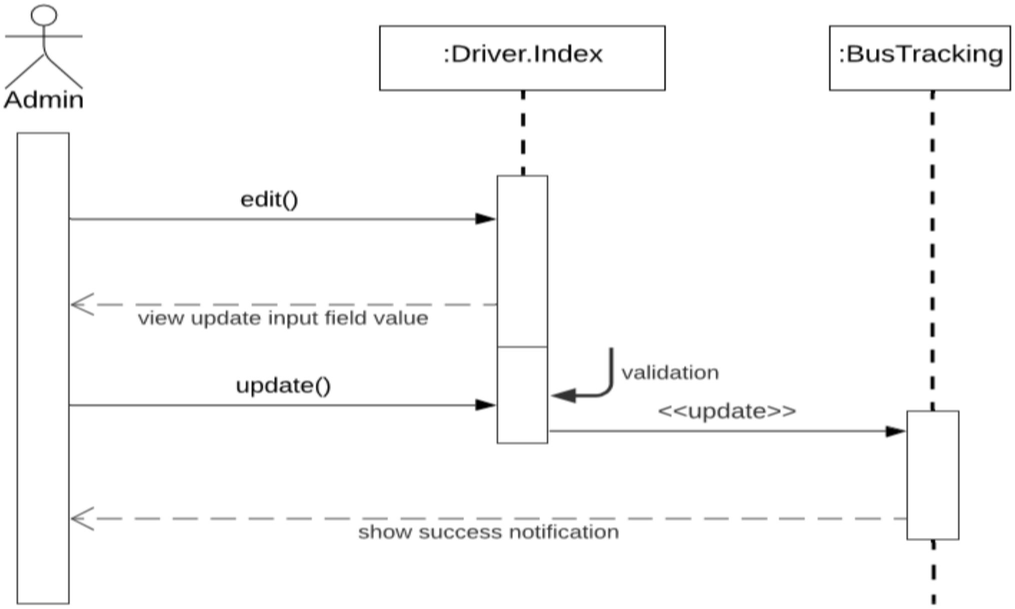


Figure 3.49: Sequence Diagram for Update Driver Assign

3.3.18 Delete Driver Assign

Admin or bus owner login first with proper username and password. Then admin will delete driver assign from driver assign list, then confirmation modal to confirm driver assign delete or not. Admin will get a info notification after delete driver assign.

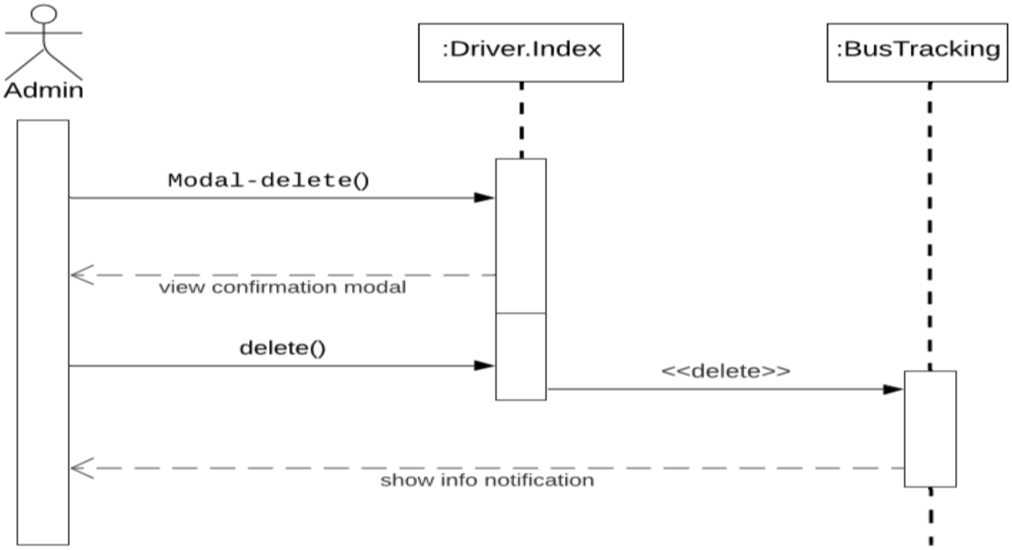


Figure 3.50: Sequence Diagram for Delete Driver Assign

3.3.19 Add Tax Token

Admin or bus owner login first with proper username and password. Then they will add tax token information. They will get a success notification after this work.

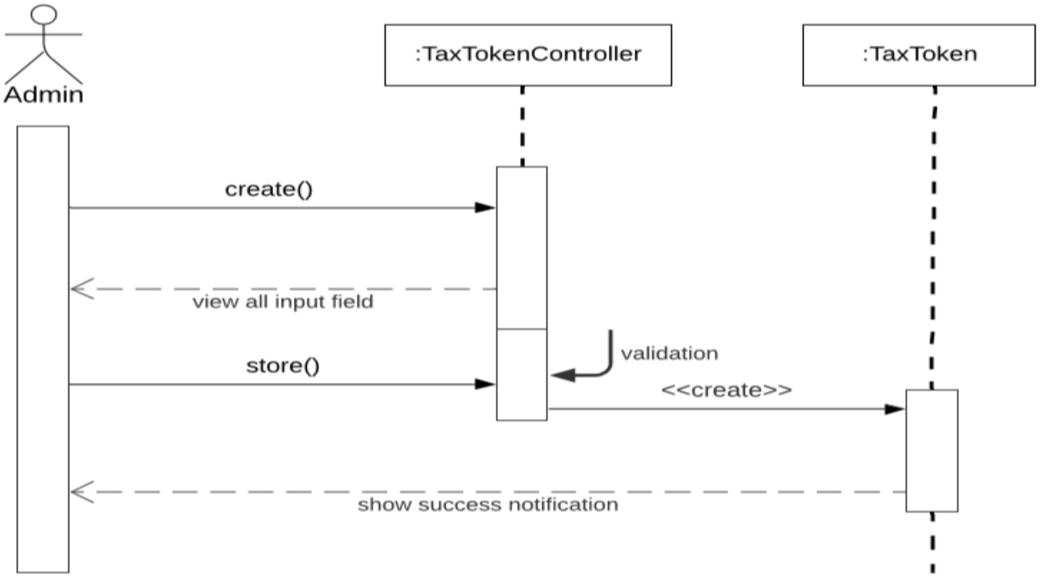


Figure 3.51: Sequence Diagram for Add Tax Token

3.3.20 Update Tax Token

Admin or bus owner or editor or verifier login first with proper username and password. Then they will update tax token information from tax token information list. They will get a success notification after this work.

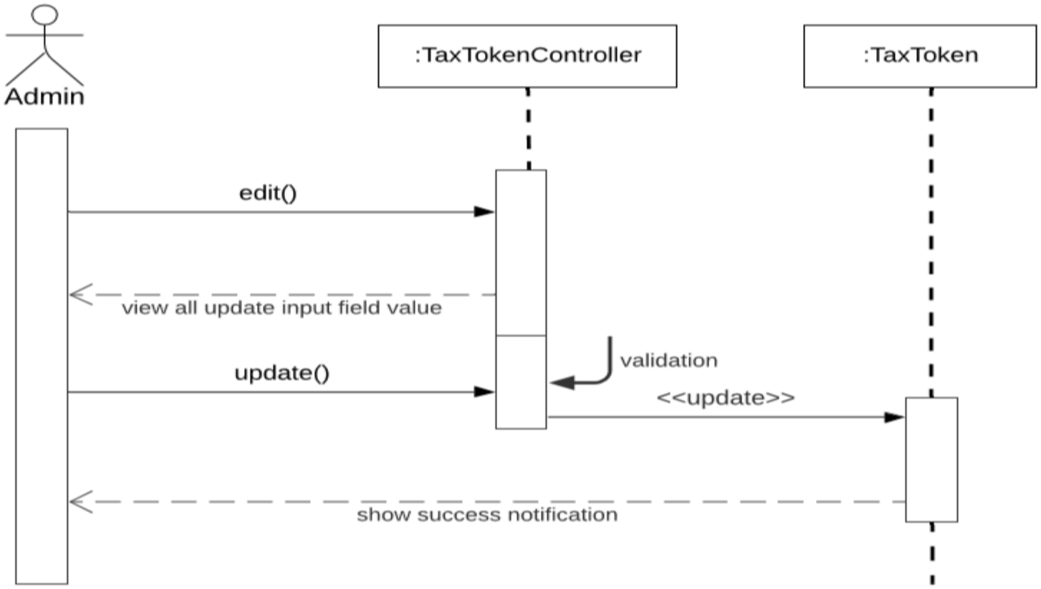


Figure 3.52: Sequence Diagram for Update Tax Token

3.3.21 Delete Tax Token

Admin or bus owner login first with proper username and password. Then admin will delete tax token information from tax token information list, then confirmation modal to confirm tax token information delete or not. Admin will get a info notification after delete tax token information.

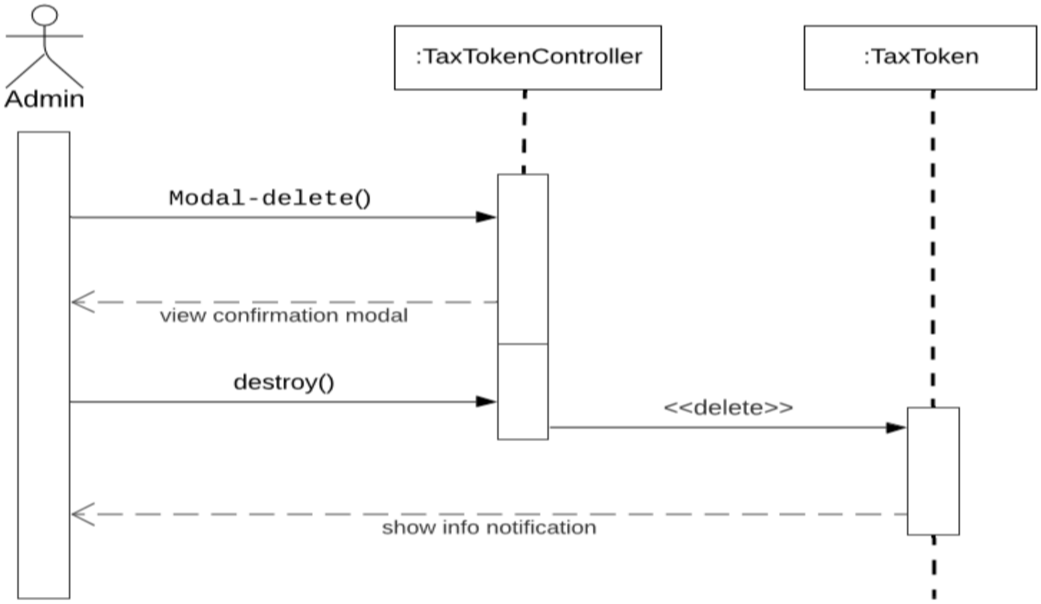


Figure 3.53: Sequence Diagram for Delete Tax Token

3.3.22 Add Fitness Certificate

Admin or bus owner login first with proper username and password. Then they will add fitness certificate information. They will get a success notification after this work.

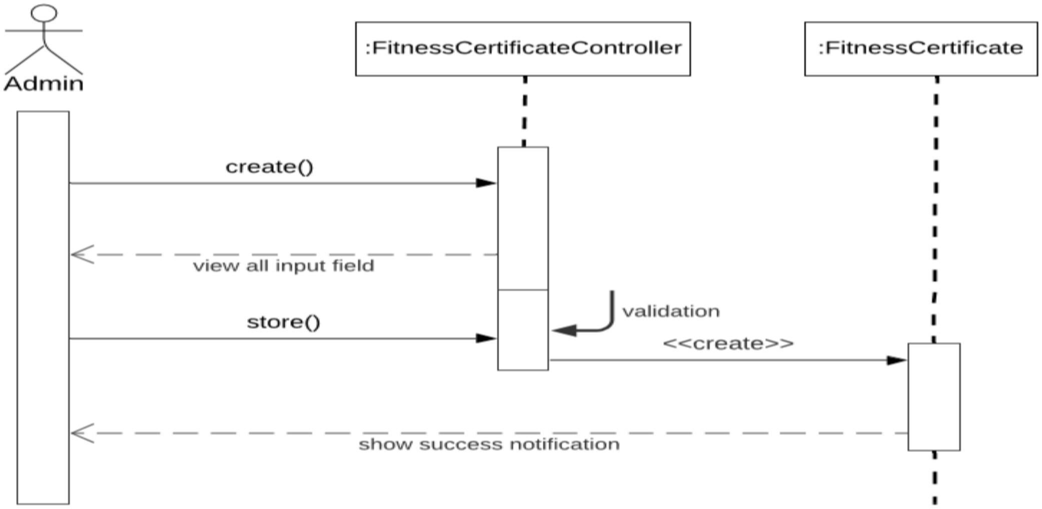


Figure 3.54: Sequence Diagram for Add Fitness Certificate

3.3.23 Update Fitness Certificate

Admin or bus owner or editor or verifier login first with proper username and password. Then they will update fitness certificate information from fitness certificate information list. They will get a success notification after this work.

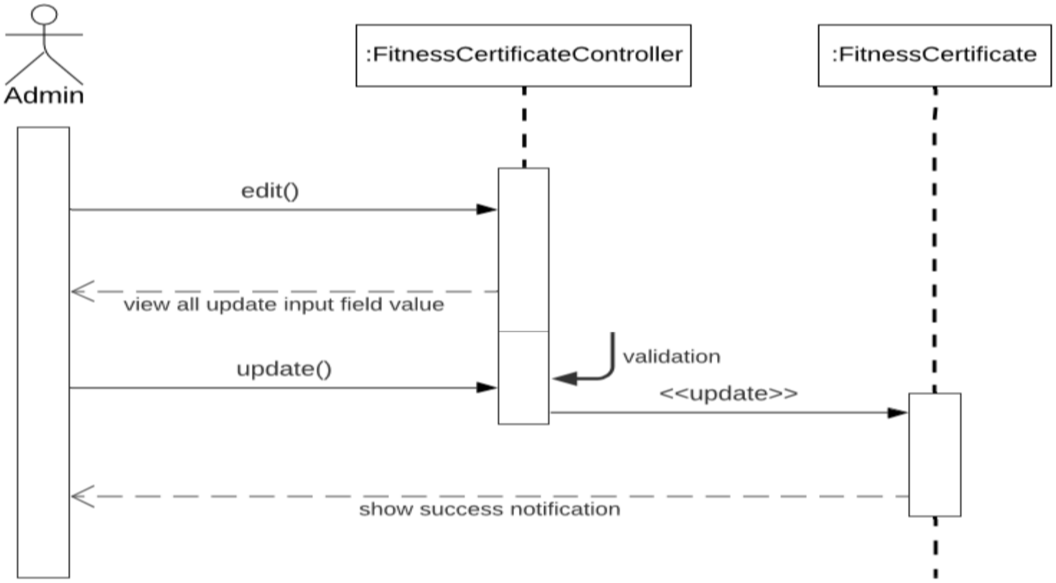

Admin
:FitnessCertificateController
:FitnessCertificate
edit()
view all update input field value
validation
update()
<<update>>
show success notification

Figure 3.55: Sequence Diagram for Update Fitness Certificate

3.3.24 Delete Fitness Certificate

Admin or bus owner login first with proper username and password. Then admin will delete Fitness Certificate information from fitness certificate information list, then confirmation modal to confirm fitness certificate information delete or not. Admin will get a info notification after delete tax fitness certificate.

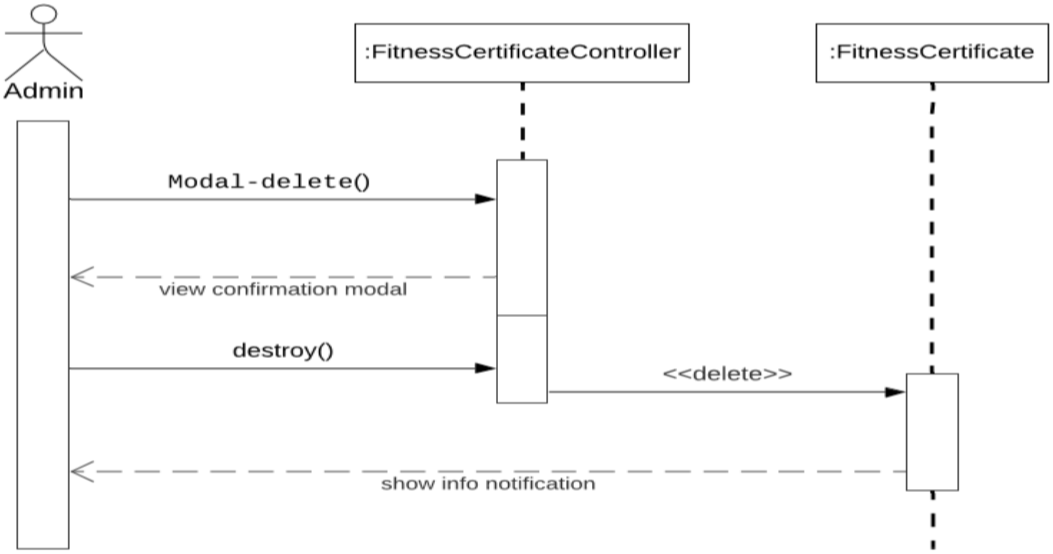


Figure 3.56: Sequence Diagram for Delete Fitness Certificate

3.3.25 Update Route Permit

Verifier login first with proper username and password. Then he will verify/updateroutepermit information. He will get a success notification after this work.

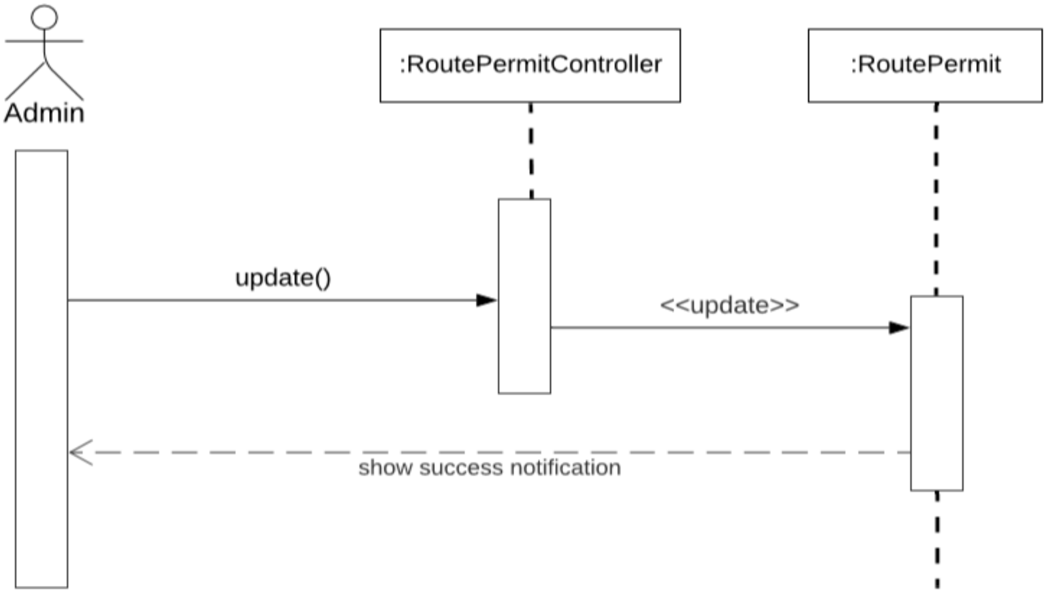


Figure 3.57: Sequence Diagram for Update Route Permit

3.3.26 Add Total Cost

Admin or bus owner login first with proper username and password. Then they will select bus number and add fine, salary, others, finally press submit button and create daily total cost. They will get a success notification after this work.

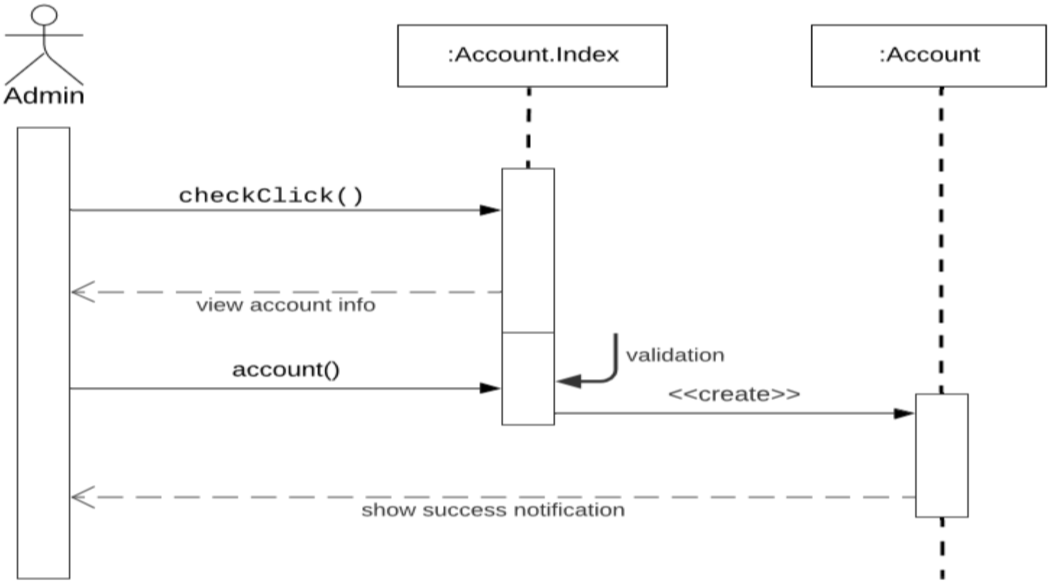


Figure 3.58: Sequence Diagram for Add Total Cost

3.3.27 Tracking Live View

Admin or bus owner login first with proper username and password. Admin or bus owner press bus tracking button. Then show the all bus location with valid driver name, driving license no, bus registration number.

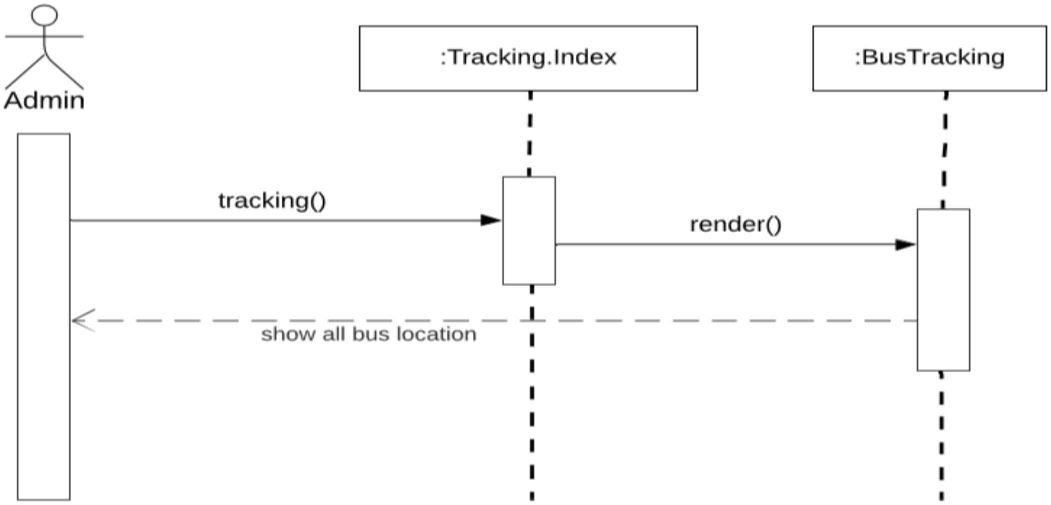


Figure 3.59: Sequence Diagram for Tracking Live View

3.3.28 Profile Update

Admin or bus owner or editor or verifier or driver or checker login first with proper username and password. Then press edit button and update profile. They will get a success notification after profile update.

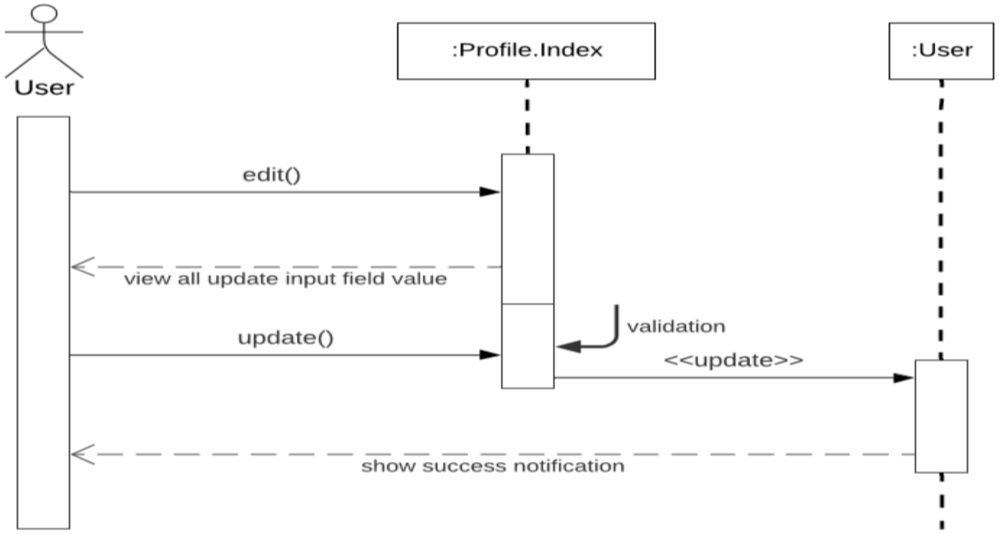


Figure 3.60: Sequence Diagram for Profile Update

3.3.29 Change Password

Admin or bus owner or editor or verifier or driver or checker login first with proper username and password. Then they will change their passwordfrom profile part. They will get a success notification after change password.

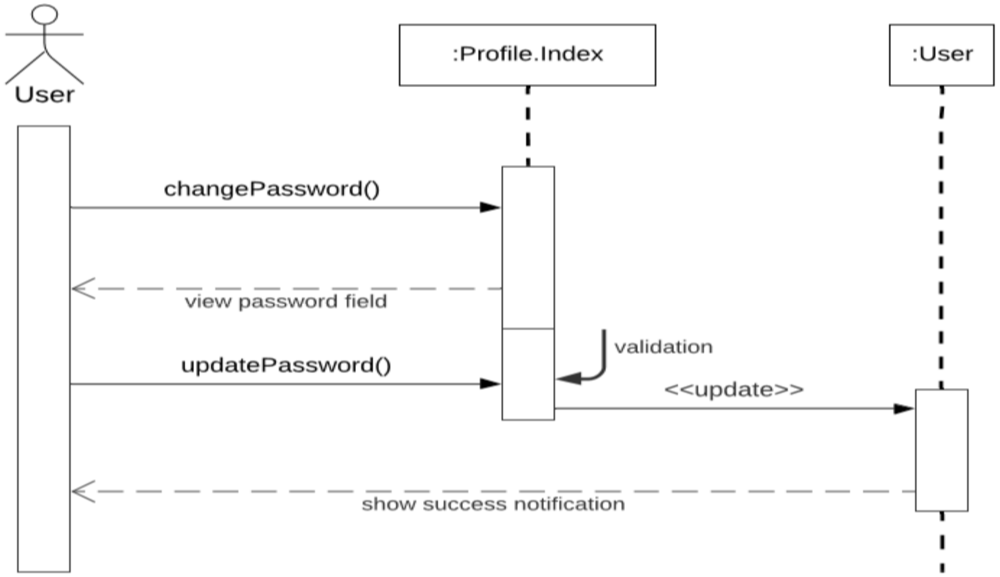


Figure 3.61: Sequence Diagram for Change Password

3.3.30 Ophil

Checker login first with proper username and password. Then checker will select ophil system button, select bus number and provide passenger, student number then click submit button. Then checker will get ophil information list after submitting new information.

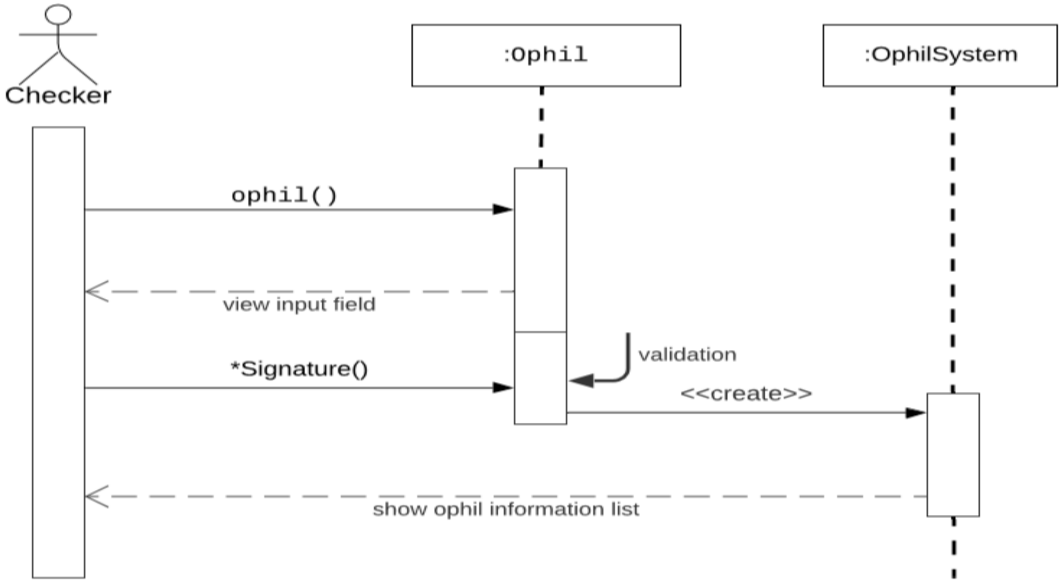


Figure 3.62: Sequence Diagram for Ophil

3.3.31 View Bus Information

Driver login first with proper username and password. Driver press bus information button. Then driver can view bus information and driving license.

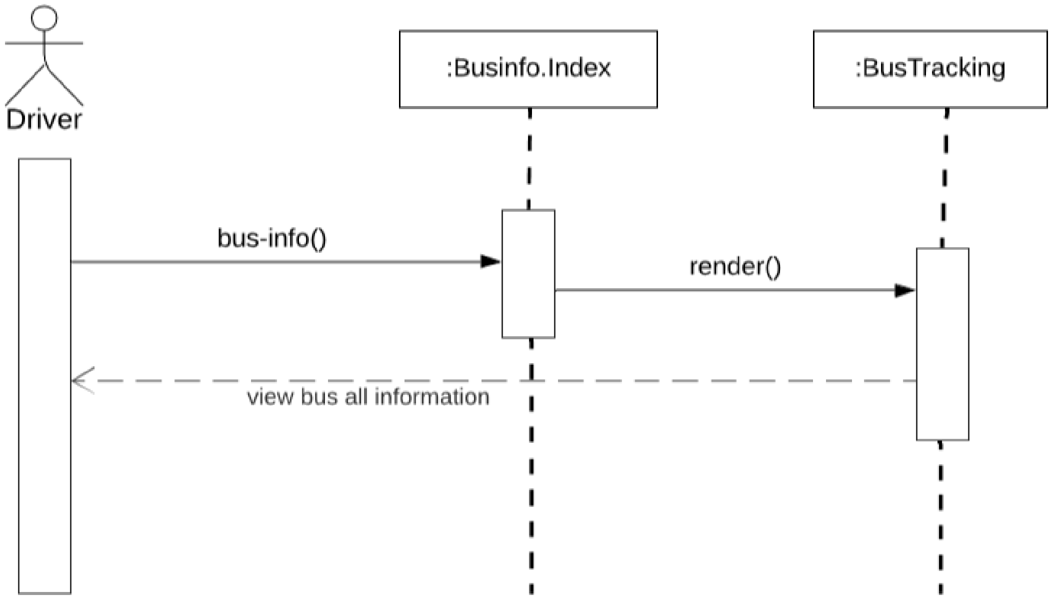


Figure 3.63: Sequence Diagram for View Bus Information

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Chapter 4
System Design Specification

4.1 Development tools and technology

Developing software tools are must be needed. There are many different kinds of tools for developing software in different language. The software developer chooses the comfortable tools which they can comfort to work. For my project development in Laravel and Laravel-livewire framework, I use sublime text and Visual Studio Code.

4.1.1 User interface technology

First of all, after landing any application, interface of that software appears to the user. So, the importance of user interface is very high. For success of any software application, a good-looking user interface plays a vital role. User interface includes using good image, stylesheets, scripting etc.

4.1.1.1 CSS framework or Bootstrap

Bootstrap is a free and open-source responsive front-end CSS framework. It contains HTML, CSS and JavaScript-based design templates for forms, buttons, navigation and other interface components. This CSS framework support every browser like Google Chrome, Safari, Mozilla Firebox etc.

4.1.1.2 Programming language

For developing any web application system minimum two programming language is essential. In my application, there are two different programming language is used. Back-end programming language php framework Laravel and full-stack framework Livewire. Both are open source language.

4.1.2 Implemented tools and platform

There are some tools and technologies that need to be used for developing software. It is very important to determine which tools and platforms are the best matches for my requirements. After making a proper decision, one needs to start using them.

4.1.2.1 Integrated development environment

In my application developing time used two tools. One Sublime Text 3 and Visual Studio Code. Both are faster secure and that is provide lots of snippets.

4.1.2.2 Database server

For developing our whole project, we have used TablePlus. It is also very easy to use. Query, edit and manage our databases easily. It’s also provided inline edit, advanced filters, export & import database. TablePlus faster and secure.

4.2 Class Diagram

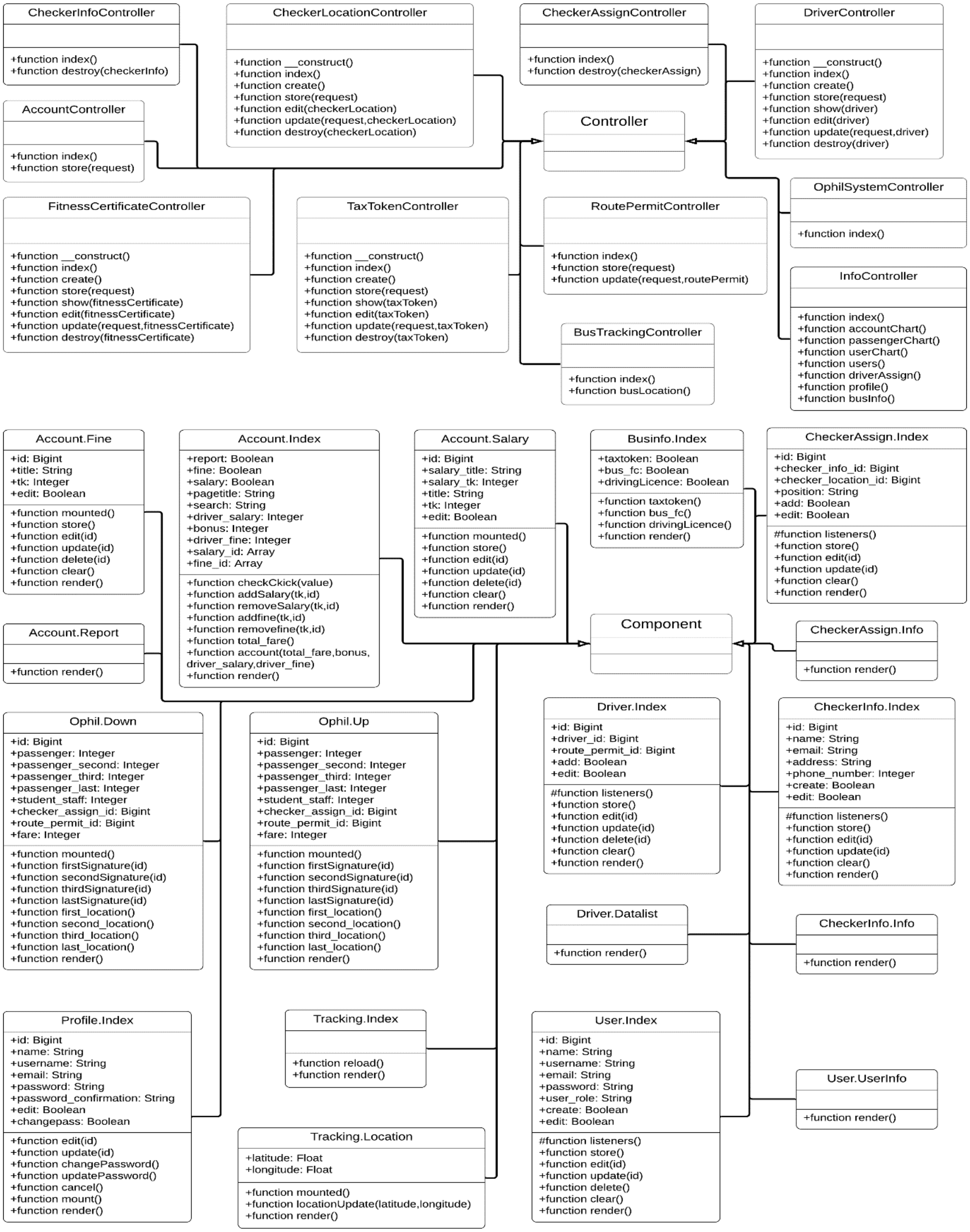

Figure 4.1: Class Diagram

4.3 Database Design Diagram

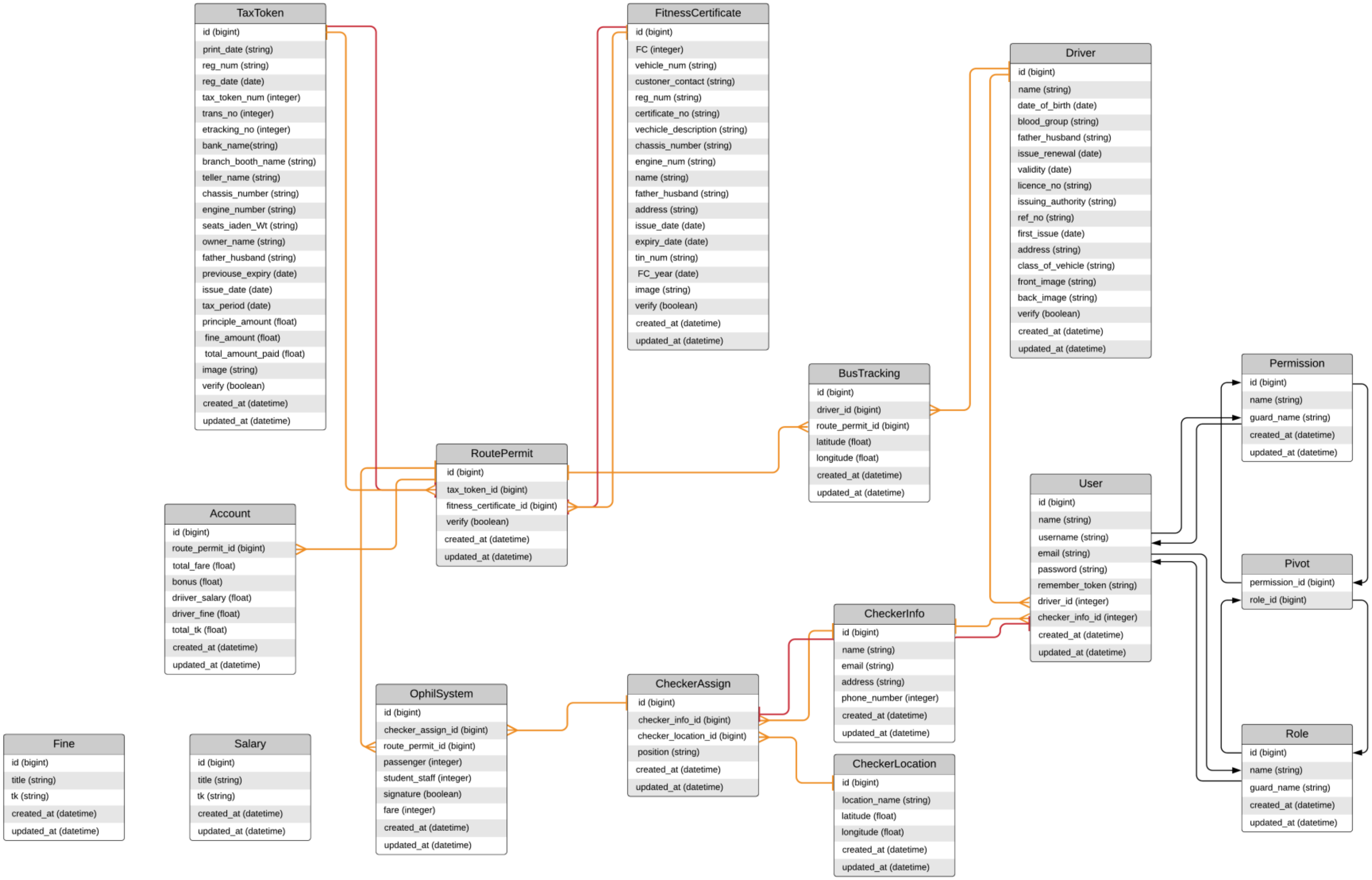

Figure 4.2: Database Diagram

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Chapter 5
System Test

5.1 Testing Features

Feature testing can be considered as making change to add or modify the new functionality to the existing project. Almost every feature and functionality have different characteristics. Those are designed to make the web application more useful, reliable, effective and secure.

5.1.1 Features to be tested

Features	**Priority**	**Description**
Login	2	User must be authenticated by login
Logout	1	Session must be flush after logout
Insert user data	3	User data must be inserted properly
Insert checker data	2	Checker data must be inserted properly
Checker assign	3	Bus owner must be assigned the checker proper location
Insert driver info	2	Driver info must be inserted properly
Driver assign	3	Diver must be assigned only be the bus owner by their registration number.
Insert tax token	2	Vehicle data must be inserted properly
Insert fitness certificate	2	Vehicle data must be inserted properly
Ophil	3	Checker must be insert data in ophil system
Verify driver info	3	Verify those drivers that are valid/invalid
Verify route permit info	3	Verify those route permits that are valid/invalid

Here, 1 = Low Priority, 2 = Medium Priority, 3 = High Priority

5.2 Testing Strategies

To simplify the process of testing a software application, team of testers plans a test strategy, which defines the testing approach that will be used to test the software. Different kinds of testing strategies can be performed according to the type of application system that needs to be tested.

5.2.1 Test approach

There are two basic classes of software testing blackbox and white box testing. For now, you just need to understand the difference between the two classes, clarified by the definition below:

- Black box testing is testing that ignores the internal mechanism of a system or element and focuses solely on the outputs generated in response to selected inputs field and execution conditions.
- White box testing is testing that takes into account the internal mechanism of a system.

5.2.1.1 Black Box Testing

Black Box Testing treats an application as a black box and only looks at the outputs that are produced by specific inputs into the application. The black box tester does not need to understand why the code does what it does, and they should not have access to theapplication source code. Requirements are used to determine the correct outputs of black box testing, and these test cases are used to validate that the right software is being built.

5.2.1.2 Boundary Value Analysis

Boundary value analysis is a name of software testing by which input data can be included within a boundary range. Following this strategy, test engineers firstly define the boundary value. After that, they take a specific boundary and then write the test cases that will be go through the application for testing purposes. After completing those tasks, testers use test cases to test application.

5.2.1.3 White Box Testing

White Box Testing is defined as the testing of a software solution internal structure and coding. In this type of testing, code is visible to the tester. It focuses primarily on verifying the flow of inputs and outputs through the application, improving design and usability, strengthening security. White box testing is also known as Clear Box testing, Open Box testing, Structural testing, and Code-Based testing. It is usually performed by developers.Testers can also predict the output of every test case for white box testing. White box testing can be classified into some levels. Such as **Unit Testing**, **Integration Testing**.

5.2.2 Pass / Fail Criteria

Pass or fail criteria will be set by the tester engineers. They will prepare the pass / fail criteria on the basis of which input data are worked and which are not works well. Those data that are worked well will considered as pass criteria. And rest of input data will be considered as fail criteria.Now Given below the pass / fail criteria.

- System crash will not be considered as pass case.
- If any criteria pass 100% times, then it will be considered as pass criteria only.
- If data can’t be displayed to the application properly, then it is also to be considered as fail criteria.

5.2.3 Testing Schedule

Test Phase	**Time**
Testing plan create	1 week
Unit testing	During development time
Component test	During development time
Integration testing	1 week
Testing user interfaces	1 week
Load testing	1 week
Performance testing	5 day
Accessibility testing	3 day

5.2.4 Traceability Matrix

Project Manager			**Business Analyst Lead**		
QA Lead			**Target Implementation Date**		
BR#	**Functionality / Activity**	**Requirement Description**	**Use Case Reference**	**Test Case Reference**	**Comments**
BR-1	Functional	Add user	Use case 3.1.1	Test case 5.6.2	
BR-2	Functional	Add checker info	Use case 3.1.4	Test case 5.6.3	
BR-3	Functional	Checker assign	Use case 3.1.10	Test case 5.6.4	
BR-4	Functional	Add driver info	Use case 3.1.13	Test case 5.6.5	
BR-5	Functional	Driver assign	Use case 3.1.16	Test case 5.6.6	
BR-6	Functional	Add tax token	Use case 3.1.19	Test case 5.6.7	
BR-7	Functional	Add fitness certificate	Use case 3.1.22	Test case 5.6.8	
BR-8	Functional	Ophil	Use case 3.1.30	Test case 5.6.9	
BR-9	Functional	Verify driver info	Use case 3.1.14	Test case 5.6.10	
BR-10	Functional	Verify route permit info	Use case 3.1.25	Test case 5.6.11	

5.3 Testing Environment

Testing environment means to prepare the environment with hardware and software so that test engineers can be able to execute test cases as required. Testing environment, some key area needs to setup.Given below:

- Test data
- Web server
- Database server
- Front and Back end running environment
- Network
- Browser
- System and application

5.4 Test Cases

A test case refers to some rules and regulations by which it can be determined whether a system can be able to meet the works or requirements under test cases properly. We know, there is a chance to have some fault or break holes in any application. This is very common scenario. Those issues are solved usually by software testing approaches. But if we don’t care about those issues, then the full application development might be ruined. So proper testing must be needed. For testing our web application, I have prepared some test cases. Now, I am going to provide them.

5.4.1 Log In

<table>
<tr><td colspan="3"><b>Test case #1</b></td><td colspan="3"><b>Test case name:</b>Log In</td></tr>
<tr><td colspan="3"><b>System:</b> Dhaka Bus System</td><td colspan="3"><b>Subsystem:</b> N/A</td></tr>
<tr><td colspan="3"><b>Designed By:</b> Golam Sorwar</td><td colspan="3"><b>Designed Date:</b> 08-Oct-2019</td></tr>
<tr><td colspan="3"><b>Executed by:</b></td><td colspan="3"><b>Executed Date:</b></td></tr>
<tr><td colspan="6"><b>Short description:</b>Application will check the user authentication and authorization</td></tr>
<tr><td colspan="6"><b>Pre-conditions:</b>
• Users are always redirected to the login page whether they have not authenticated by our application while entering into the profile.</td></tr>
<tr><td><b>Serial</b></td><td><b>Username</b></td><td><b>Password</b></td><td><b>Expected result</b></td><td><b>Pass/Fail</b></td><td><b>Comment</b></td></tr>
<tr><td>1</td><td>admin</td><td>123456</td><td>These credentials do not match our records.</td><td></td><td></td></tr>
<tr><td>2</td><td></td><td></td><td>The username and password field is required</td><td></td><td></td></tr>
<tr><td>3</td><td>sorwar</td><td>123456</td><td>User successfully login to the application and redirected to the profile</td><td></td><td></td></tr>
<tr><td colspan="6"><b>Post-conditions:</b>Users including admin, bus owner, checker, driver, editor will successfully login to the application.</td></tr>
</table>

5.4.2 Add user

<table>
<tr><td colspan="3"><b>Test case #2</b></td><td colspan="2"><b>Test case name:</b> Add user</td></tr>
<tr><td colspan="3"><b>System:</b> Dhaka Bus System</td><td colspan="2"><b>Subsystem:</b> N/A</td></tr>
<tr><td colspan="3"><b>Designed By:</b> Golam Sorwar</td><td colspan="2"><b>Designed Date:</b> 08-Oct-2019</td></tr>
<tr><td colspan="3"><b>Executed by:</b></td><td colspan="2"><b>Executed Date:</b></td></tr>
<tr><td colspan="5"><b>Short description:</b>Add users valid information</td></tr>
<tr><td colspan="5"><b>Pre-conditions:</b>
• User must be authenticated by our application.</td></tr>
<tr><td><b>Serial</b></td><td><b>Action</b></td><td><b>Response</b></td><td><b>Pass/Fail</b></td><td><b>Comment</b></td></tr>
<tr><td>1</td><td>All input field data is not provided</td><td>All field is required</td><td></td><td></td></tr>
<tr><td>2</td><td>Data provided properly</td><td>Added New User</td><td></td><td></td></tr>
<tr><td colspan="5"><b>Post-conditions:</b>After providing user data to the application, check the user information is save or not. And check new user account should ready.</td></tr>
</table>

5.4.3 Add checker info

<table>
<tr><td colspan="3"><b>Test case #3</b></td><td colspan="2"><b>Test case name:</b>Add checker info</td></tr>
<tr><td colspan="3"><b>System:</b> Dhaka Bus System</td><td colspan="2"><b>Subsystem:</b> N/A</td></tr>
<tr><td colspan="3"><b>Designed By:</b> Golam Sorwar</td><td colspan="2"><b>Designed Date:</b> 08-Oct-2019</td></tr>
<tr><td colspan="3"><b>Executed by:</b></td><td colspan="2"><b>Executed Date:</b></td></tr>
<tr><td colspan="5"><b>Short description:</b>Admin or bus owner add checker info for ophil system.</td></tr>
<tr><td colspan="5"><b>Pre-conditions:</b>
• User must be authenticated by our application.
• User type must be admin, bus owner.</td></tr>
<tr><td><b>Serial</b></td><td><b>Action</b></td><td><b>Response</b></td><td><b>Pass/Fail</b></td><td><b>Comment</b></td></tr>
<tr><td>1</td><td>All input field data is not provided</td><td>All field is required</td><td></td><td></td></tr>
<tr><td>2</td><td>Data provided properly</td><td>Added New Checker-Info</td><td></td><td></td></tr>
<tr><td colspan="5"><b>Post-conditions:</b>After providing checker info data to the application, check the checkerinformation is save or not. And check the data is correct.</td></tr>
</table>

5.4.4 Checker assign

Test case #4	**Test case name:**Checker assign
System: Dhaka Bus System	**Subsystem:** N/A
Designed By: Golam Sorwar	**Designed Date:** 08-Oct-2019
Executed by:	**Executed Date:**

Short description: Bus owner or admin may assign a checker for his fixed location.

Pre-conditions:

- User must be authenticated by our application.
- User type must be admin, bus owner.

Serial	Action	Response	Pass/Fail	Comment
1	Checker name, location or position data is not provided	The checker name, location and position field is required		
2	Owner assign checker with a location	New Checker-Assign		

Post-conditions: After assign checker, he will provide service as per their agreement between bus owner / admin and checker.

5.4.5Add driver info

Test case #5	**Test case name:**Add driver info
System: Dhaka Bus System	**Subsystem:** N/A
Designed By: Golam Sorwar	**Designed Date:** 08-Oct-2019
Executed by:	**Executed Date:**

Short description: Admin or bus owner add bus info to our application.

Pre-conditions:

- User must be authenticated by our application.
- User type must be admin, bus owner.

Serial	Action	Response	Pass/Fail	Comment
1	All input field data is not provided	All field is required		
2	Data provided properly	Added New Driver Info		

Post-conditions: After providing driver info data to the application, check the driver information is save or not. And check the data is correct.

5.4.6 Driver assign

Test case #6		**Test case name:**Driver assign		
System: Dhaka Bus System		**Subsystem:** N/A		
Designed By: Golam Sorwar		**Designed Date:** 08-Oct-2019		
Executed by:		**Executed Date:**		
Short description: Bus owner or admin may assign a driver for his registered vehicle.				
Pre-conditions: • User must be authenticated by our application. • User type must be admin, bus owner.				
Serial	**Action**	**Response**	**Pass/Fail**	**Comment**
1	Driver name and Bus reg number is not provided	The driver name and Bus reg number field is required		
2	Owner assign driver with a bus	New Driver-Assign		
Post-conditions: After assign driver, he will provide service as per their agreement between bus owner / admin and driver.				

5.4.7 Add tax token

Test case #7		**Test case name:** Add tax token		
System: Dhaka Bus System		**Subsystem:** N/A		
Designed By: Golam Sorwar		**Designed Date:** 08-Oct-2019		
Executed by:		**Executed Date:**		
Short description: Admin or bus owner add tax token info to our application.				
Pre-conditions: • User must be authenticated by our application. • User type must be admin, bus owner.				
Serial	**Action**	**Response**	**Pass/Fail**	**Comment**
1	All input field data is not provided	All field is required		
2	Data provided properly	Added New Tax-Token Info		
Post-conditions: After providing tax token data to the application, check the tax token information is save or not.				

5.4.8Add fitness certificate

Test case #8	**Test case name:**Add fitness certificate
System: Dhaka Bus System	**Subsystem:** N/A
Designed By: Golam Sorwar	**Designed Date:** 08-Oct-2019
Executed by:	**Executed Date:**
Short description: Admin or bus owner add fitness certificate info to our application.	

Pre-conditions:

- User must be authenticated by our application.
- User type must be admin, bus owner.

Serial	**Action**	**Response**	**Pass/Fail**	**Comment**
1	All input field data is not provided	All field is required		
2	Data provided properly	Added New fitness certificate Info		

Post-conditions: After providing fitness certificate data to the application, check the fitness certificate information is save or not.

5.4.9Ophil

Test case #9	**Test case name:**Ophil
System: Dhaka Bus System	**Subsystem:** N/A
Designed By: Golam Sorwar	**Designed Date:** 08-Oct-2019
Executed by:	**Executed Date:**
Short description: Checker add passenger number/student number to our application	

Pre-conditions:

- User must be authenticated by our application.
- Checker must be checkreg bus number
- User type must be checker.

Serial	**Action**	**Response**	**Pass/Fail**	**Comment**
1	Checker add passenger number with a reg bus number	Show Ophil information		
2	Passenger number, bus reg number is not provided	Select Bus Number		

Post-conditions: After providing passenger count number to the application, checker check the ophil passenger/student count number is save or not. Admin or owner ophil to create daily total cost accounts.

5.4.10Verify driver info

Test case #10			**Test case name:**Verify driver info	
System: Dhaka Bus System			**Subsystem:** N/A	
Designed By: Golam Sorwar			**Designed Date:** 08-Oct-2019	
Executed by:			**Executed Date:**	
Short description: Verifier will verify driver info after receiving new driver information.				
Pre-conditions: • User must be authenticated by our application. • User type must be verifier.				
Serial	**Action**	**Response**	**Pass/Fail**	**Comment**
1	Verify valid	Driver Info Valid		
2	Verify invalid	Driver Info Invalid		
Post-conditions: Bus owner / admin check the driver information is valid or invalid.				

5.4.11Verify route permit info

Test case #11			**Test case name:**Verify route permit info	
System: Dhaka Bus System			**Subsystem:** N/A	
Designed By: Golam Sorwar			**Designed Date:** 08-Oct-2019	
Executed by:			**Executed Date:**	
Short description: Verifier will verify route permit information after receiving new route permit information.				
Pre-conditions: • User must be authenticated by our application. • User type must be verifier.				
Serial	**Action**	**Response**	**Pass/Fail**	**Comment**
1	Verify valid	Route Permit Valid		
2	Verify invalid	Route Permit Invalid		
Post-conditions: Bus owner / admin check the route permit information is Pending, valid or invalid.				

Chapter 6
User Manual

6.1 Login Page

Users need to login to our application for using this application. But before that, they need to be authenticated by our application. First of all, they need to enter the login page and fill up the required information. After that they will get access. Now I will provide the screenshot of login page below.

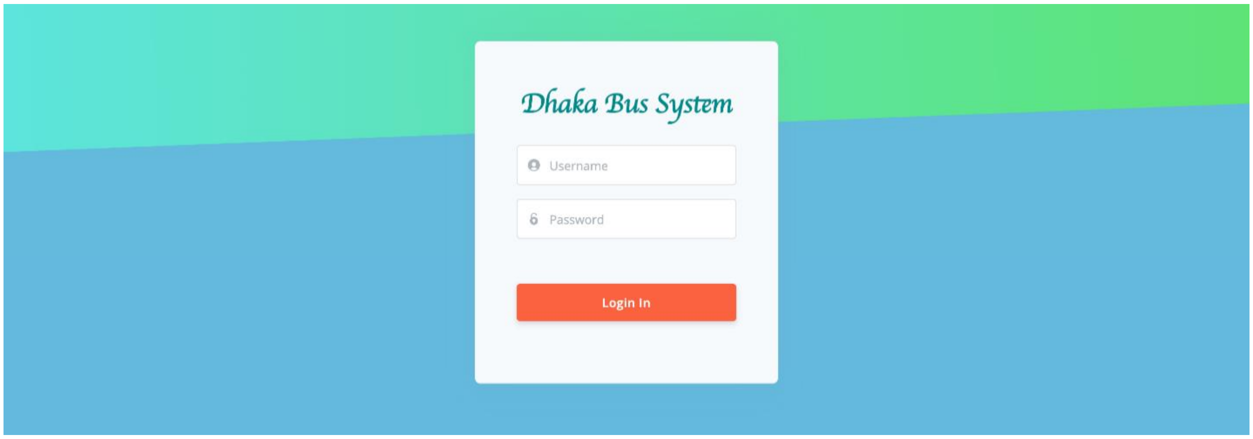
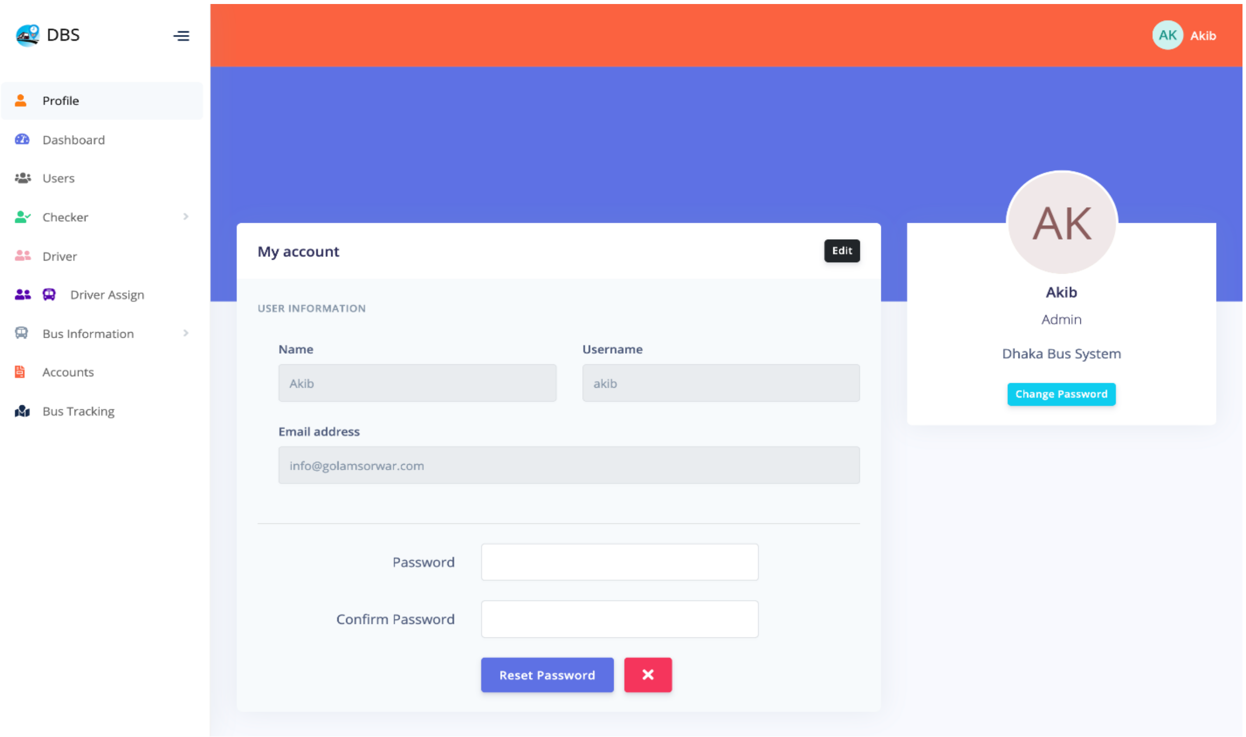


Figure 6.1: login

6.2 UserProfile

Users like admin, bus owner, driver, checker can be able to view their profile also.User can edit information and change password. Now I will give the screenshot of user profile below.



My account

USER INFORMATION

Name: Akib

Username: akib

Email address: info@golamsorwar.com

Password

Confirm Password

Akib

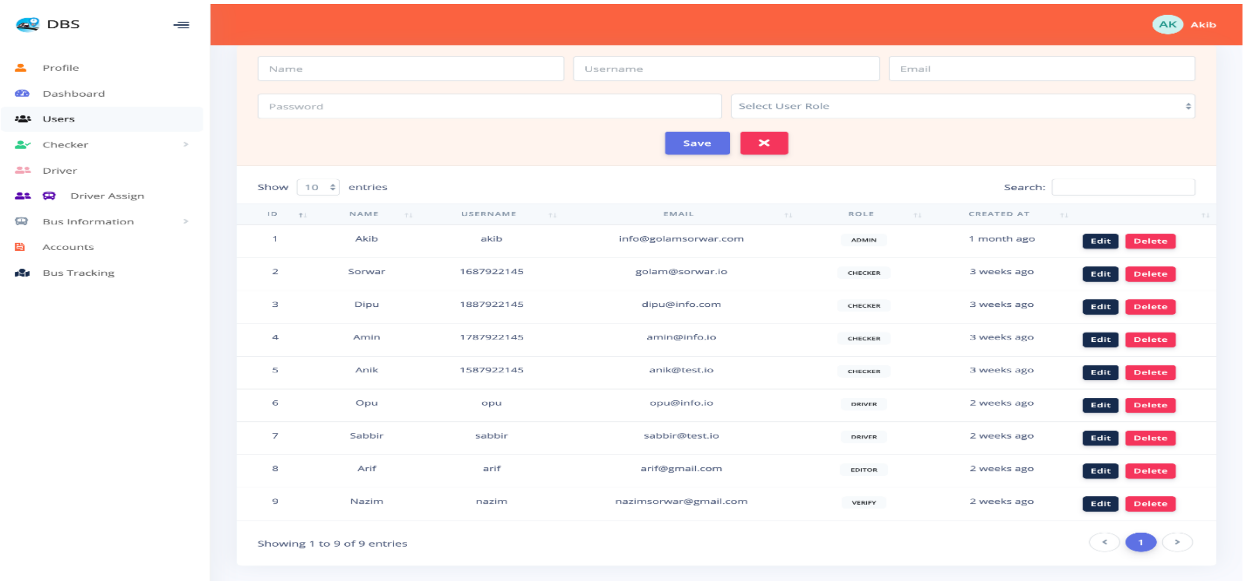
Admin

Dhaka Bus System

Figure 6.2: Profile

6.3 Add User

When admin want to add a user so, admin need click to user option then provide valid information. Lastly admin have to click save button. So, add that user information.



Name | Username | Email

Password | Select User Role

Show 10 entries

Search:

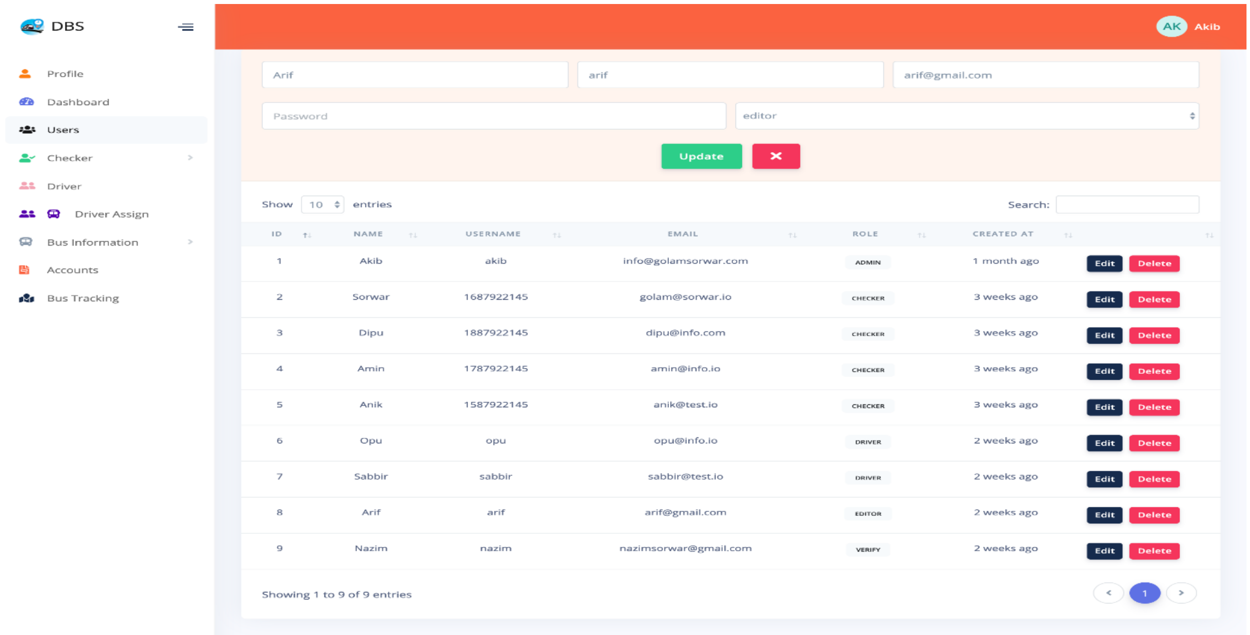
ID	NAME	USERNAME	EMAIL	ROLE	CREATED AT	
1	Akib	akib	info@golamsorwar.com	ADMIN	1 month ago	Edit Delete
2	Sorwar	1687922145	golam@sorwar.io	CHECKER	3 weeks ago	Edit Delete
3	Dipu	1887922145	dipu@info.com	CHECKER	3 weeks ago	Edit Delete
4	Amin	1787922145	amin@info.io	CHECKER	3 weeks ago	Edit Delete
5	Anik	1587922145	anik@test.io	CHECKER	3 weeks ago	Edit Delete
6	Opu	opu	opu@info.io	DRIVER	2 weeks ago	Edit Delete
7	Sabbir	sabbir	sabbir@test.io	DRIVER	2 weeks ago	Edit Delete
8	Arif	arif	arif@gmail.com	EDITOR	2 weeks ago	Edit Delete
9	Nazim	nazim	nazimsorwar@gmail.com	VERIFY	2 weeks ago	Edit Delete

Showing 1 to 9 of 9 entries

Figure 6.3: Add User

6.4 Update User

If any user wants to change information so, admin can update their information. Admin have to click user update option then provide correct information then admin click update button.



Arif | arif | arif@gmail.com

Password | editor

Show 10 entries

Search:

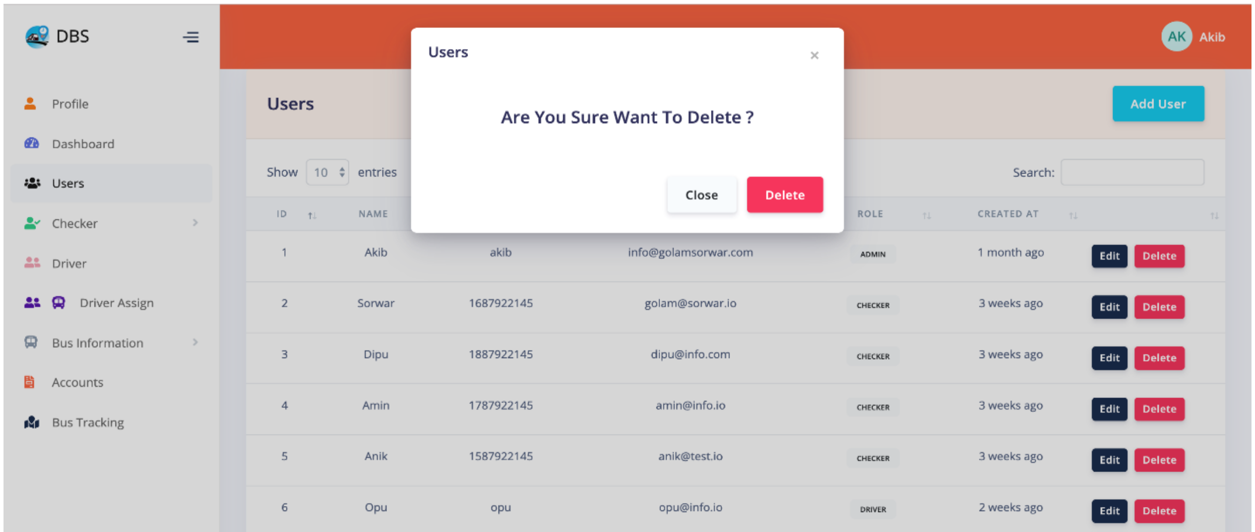
ID	NAME	USERNAME	EMAIL	ROLE	CREATED AT	
1	Akib	akib	info@golamsorwar.com	ADMIN	1 month ago	Edit Delete
2	Sorwar	1687922145	golam@sorwar.io	CHECKER	3 weeks ago	Edit Delete
3	Dipu	1887922145	dipu@info.com	CHECKER	3 weeks ago	Edit Delete
4	Amin	1787922145	amin@info.io	CHECKER	3 weeks ago	Edit Delete
5	Anik	1587922145	anik@test.io	CHECKER	3 weeks ago	Edit Delete
6	Opu	opu	opu@info.io	DRIVER	2 weeks ago	Edit Delete
7	Sabbir	sabbir	sabbir@test.io	DRIVER	2 weeks ago	Edit Delete
8	Arif	arif	arif@gmail.com	EDITOR	2 weeks ago	Edit Delete
9	Nazim	nazim	nazimsorwar@gmail.com	VERIFY	2 weeks ago	Edit Delete

Showing 1 to 9 of 9 entries

Figure 6.4: Update user

6.5 Delete User

If any user wants to disclose their information admin can delete that user information. So, firstly admin click user option and then click delete button. So, user information will be deleted.



Users

Are You Sure Want To Delete ?

Users

Show 10 entries

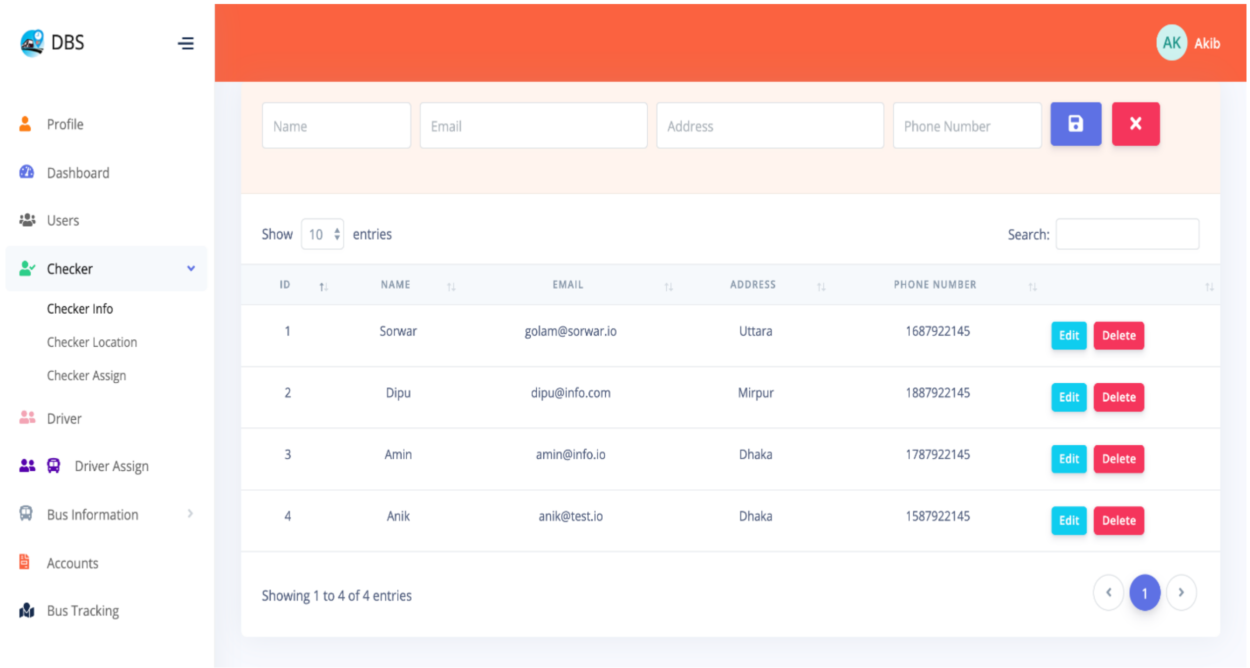
Search:

ID	NAME	USERNAME	EMAIL	ROLE	CREATED AT	
1	Akib	akib	info@golamsorwar.com	ADMIN	1 month ago	Edit Delete
2	Sorwar	1687922145	golam@sorwar.io	CHECKER	3 weeks ago	Edit Delete
3	Dipu	1887922145	dipu@info.com	CHECKER	3 weeks ago	Edit Delete
4	Amin	1787922145	amin@info.io	CHECKER	3 weeks ago	Edit Delete
5	Anik	1587922145	anik@test.io	CHECKER	3 weeks ago	Edit Delete
6	Opu	opu	opu@info.io	DRIVER	2 weeks ago	Edit Delete

Figure 6.5: Delete user

6.6 Add Checker Info

First admin click checker option then click checker info. So, admin will be providing the valid information. Then click the save button.



Show 10 entries Search:

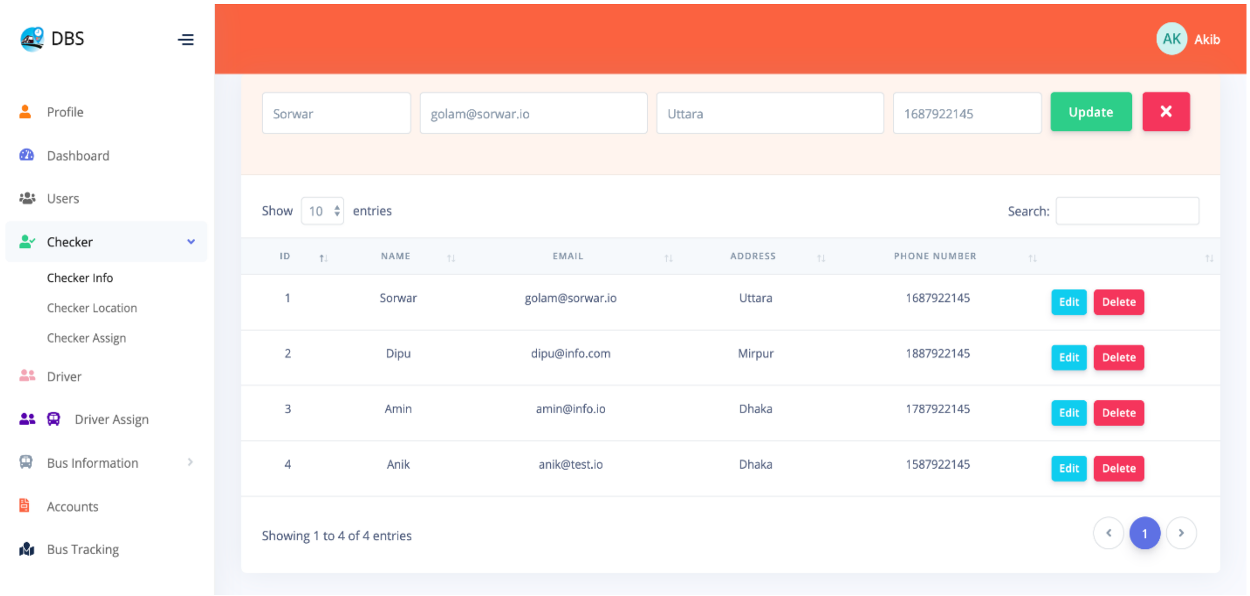
ID	NAME	EMAIL	ADDRESS	PHONE NUMBER	
1	Sorwar	golam@sorwar.io	Uttara	1687922145	Edit Delete
2	Dipu	dipu@info.com	Mirpur	1887922145	Edit Delete
3	Amin	amin@info.io	Dhaka	1787922145	Edit Delete
4	Anik	anik@test.io	Dhaka	1587922145	Edit Delete

Showing 1 to 4 of 4 entries

Figure 6.6: Add Checker Info

6.7 Update Checker Info

Admin click checker info so that admin update checker information. When admin will be provided information then click update button. So, that checker will be updated.



Sorwar | golam@sorwar.io | Uttara | 1687922145

Show 10 entries Search:

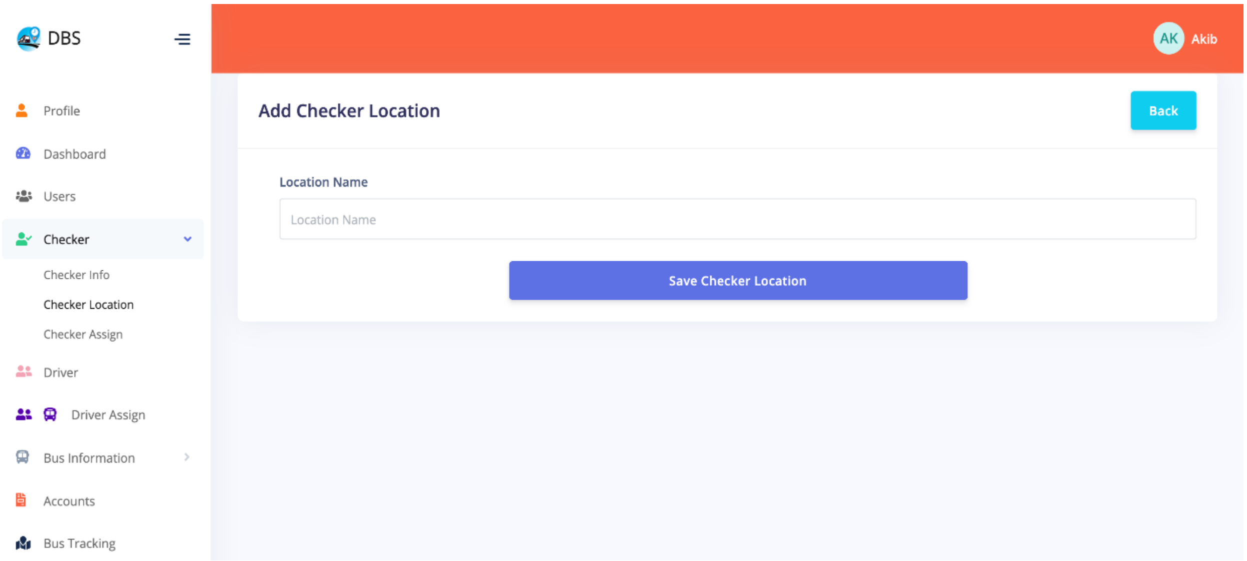
ID	NAME	EMAIL	ADDRESS	PHONE NUMBER	
1	Sorwar	golam@sorwar.io	Uttara	1687922145	Edit Delete
2	Dipu	dipu@info.com	Mirpur	1887922145	Edit Delete
3	Amin	amin@info.io	Dhaka	1787922145	Edit Delete
4	Anik	anik@test.io	Dhaka	1587922145	Edit Delete

Showing 1 to 4 of 4 entries

Figure 6.7: Update Checker Info

6.8 Add Checker Location

Admin click checker location then provide the location and click save checker location. Then location will be updated.



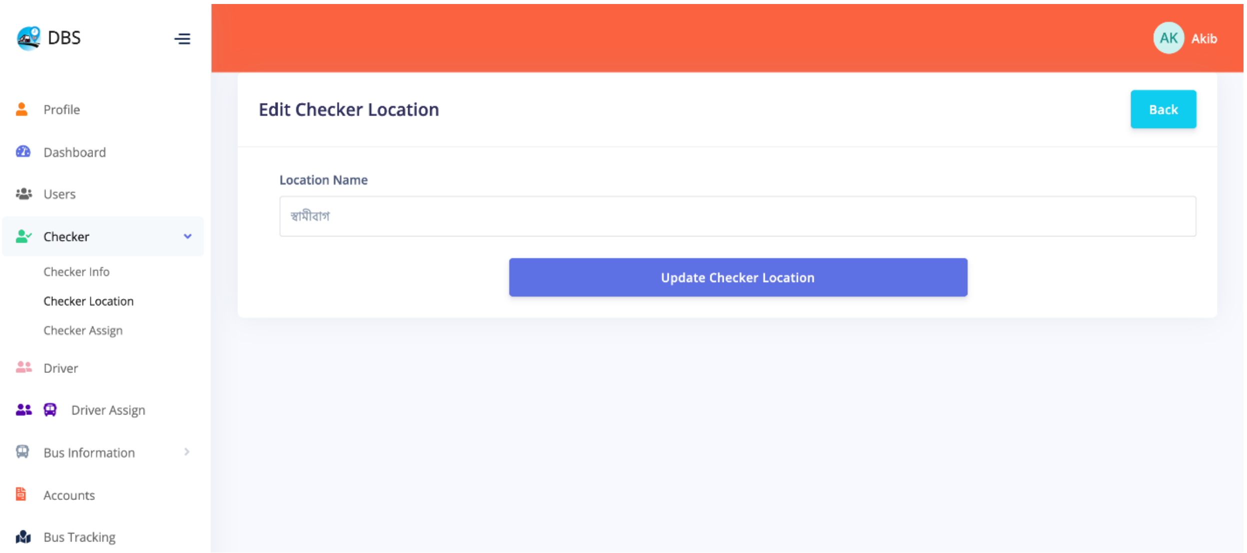
Add Checker Location

Location Name: Location Name

Figure 6.8: Add Checker Location

6.9 Update Checker Location

When someone want to change location then they give the location information to the admin then admin will be updated the location. Firstly, click checker location and provide new location and click update location.



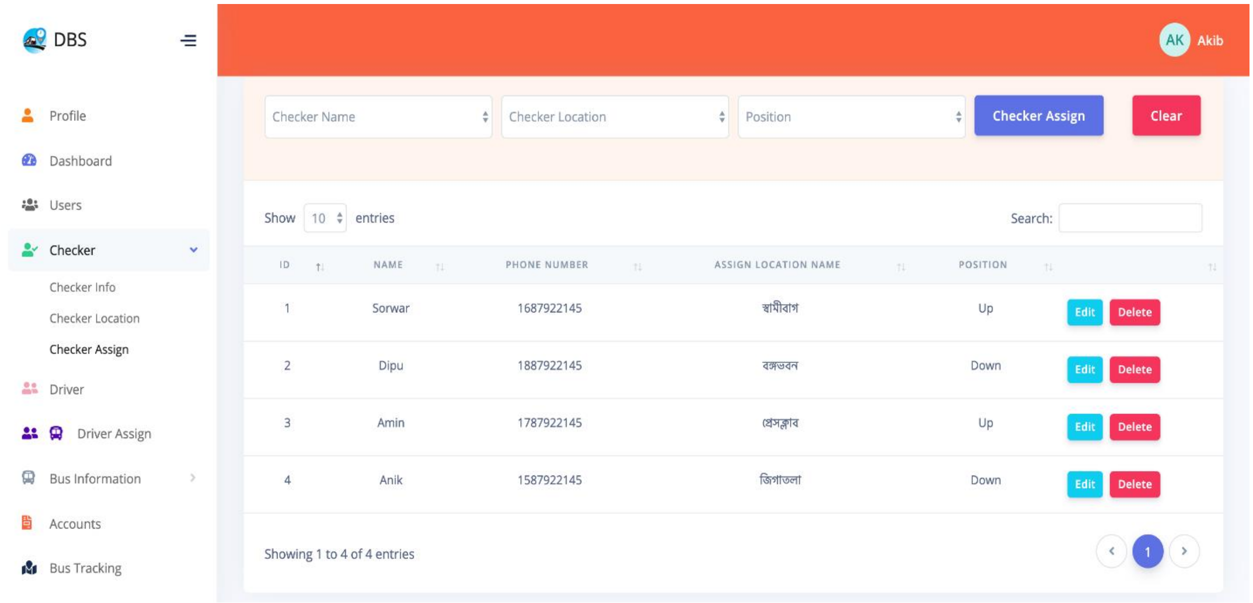
Edit Checker Location

Location Name: স্বামীবাগ

Figure 6.9: Update Checker Location

6.10 Checker Assign

When someone want to change location then they give the location information to the admin then admin will be updated the location. Firstly, click checker location and provide new location and click update location.



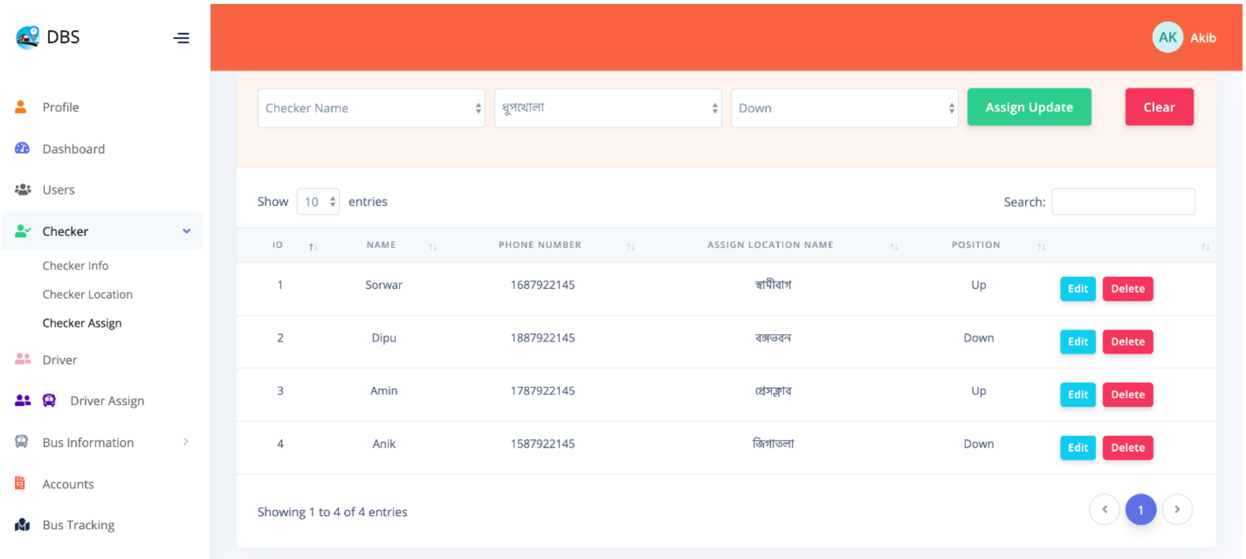
ID	NAME	PHONE NUMBER	ASSIGN LOCATION NAME	POSITION	
1	Sorwar	1687922145	স্বামীবাগ	Up	Edit Delete
2	Dipu	1887922145	বঙ্গভবন	Down	Edit Delete
3	Amin	1787922145	প্রেসক্লাব	Up	Edit Delete
4	Anik	1587922145	জিগাতলা	Down	Edit Delete

Showing 1 to 4 of 4 entries

Figure 6.10: Checker Assign

6.11 Checker Assign Update

Firstly, admin have to click checker option then click checker assign after that click edit button so that admin can update information. When admin provided the information then click update assign.



Checker Name | ধুপখোলা | Down

Show 10 entries

Search:

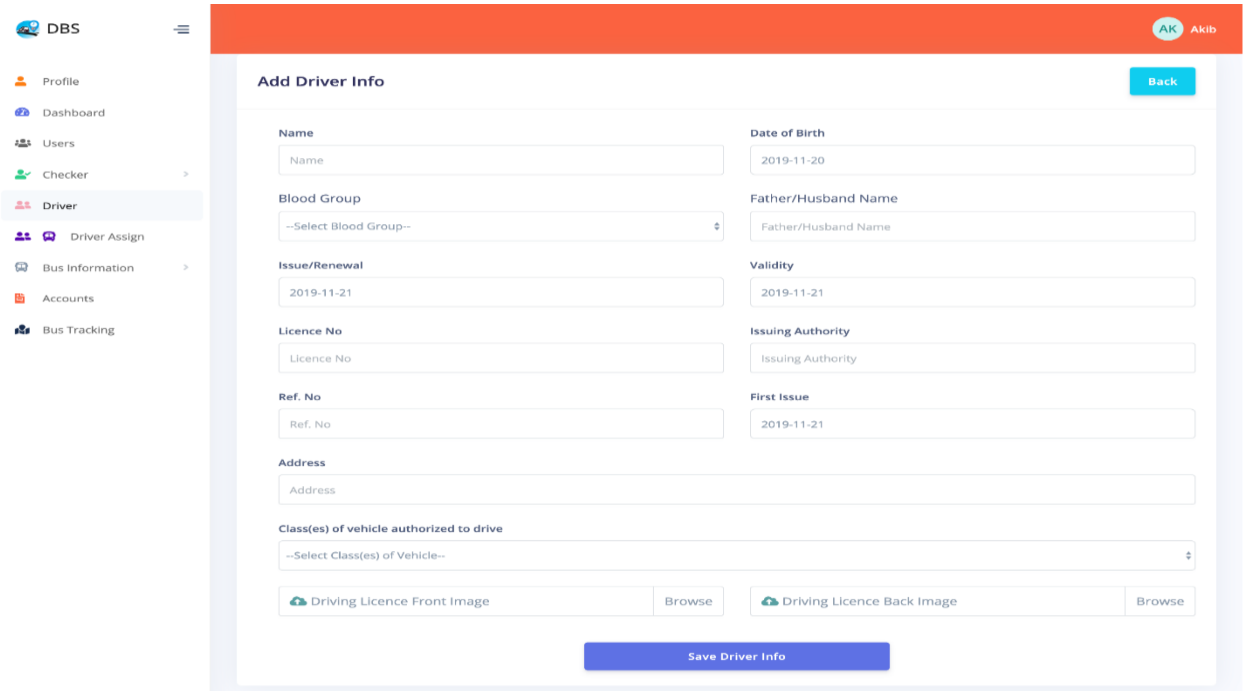
ID	NAME	PHONE NUMBER	ASSIGN LOCATION NAME	POSITION	
1	Sorwar	1687922145	স্বামীবাগ	Up	Edit Delete
2	Dipu	1887922145	বঙ্গভবন	Down	Edit Delete
3	Amin	1787922145	প্রেসক্লাব	Up	Edit Delete
4	Anik	1587922145	জিগাতলা	Down	Edit Delete

Showing 1 to 4 of 4 entries

Figure 6.11: Checker Assign Update

6.12 Add Driver Info

At first admin have to click driver option. So, then admin will be providing all information after that click save driver info button. Then it is saved in the server.



Add Driver Info

Name: Name

Date of Birth: 2019-11-20

Blood Group: --Select Blood Group--

Father/Husband Name: Father/Husband Name

Issue/Renewal: 2019-11-21

Validity: 2019-11-21

Licence No: Licence No

Issuing Authority: Issuing Authority

Ref. No: Ref. No

First Issue: 2019-11-21

Address: Address

Class(es) of vehicle authorized to drive: --Select Class(es) of Vehicle--

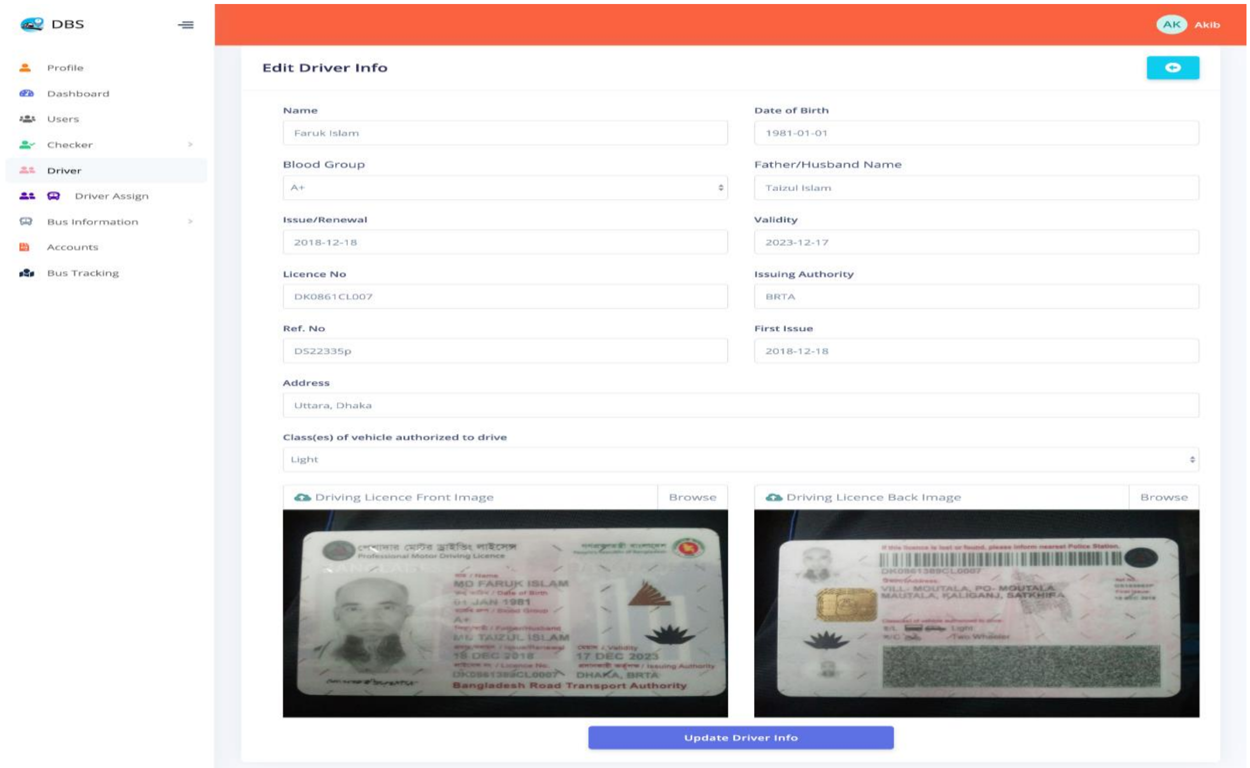
Driving Licence Front Image

Driving Licence Back Image

Figure 6.12: Add Driver Info

6.13 Update Driver Info

When a driver wants to change information then admin clicking update button. Then admin will be providing the information what a driver wanted to change then click update button. The information will be updated.



Edit Driver Info

Name: Faruk Islam

Date of Birth: 1981-01-01

Blood Group: A+

Father/Husband Name: Taizul Islam

Issue/Renewal: 2018-12-18

Validity: 2023-12-17

Licence No: DK0861CL007

Issuing Authority: BRTA

Ref. No: D522335p

First Issue: 2018-12-18

Address: Uttara, Dhaka

Class(es) of vehicle authorized to drive: Light

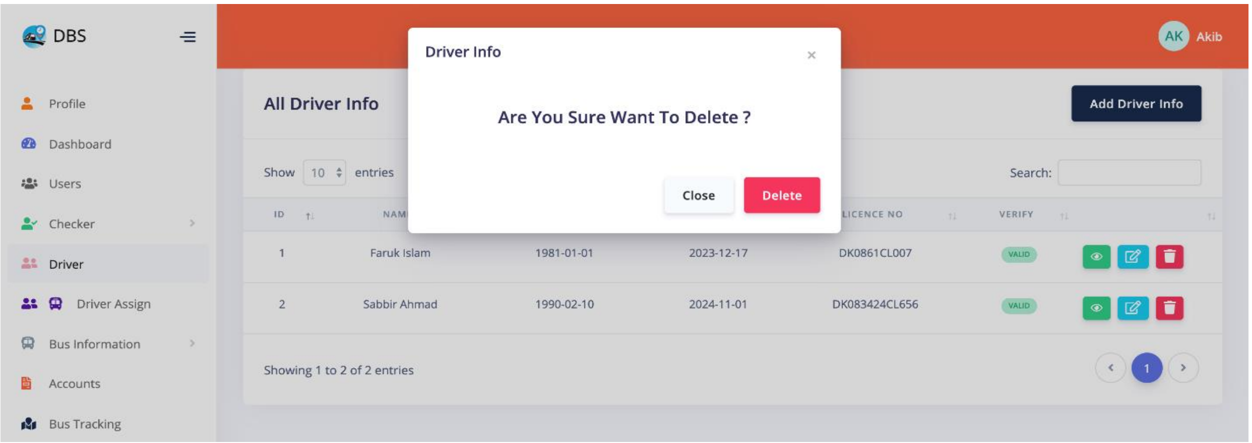
Driving Licence Front Image

Driving Licence Back Image

Figure 6.13: Update Driver Info

6.14Delete Driver Info

If any driver is disclosed information, so that admin can change by clicking delete button and delete the information.



All Driver Info

Show 10 entries

Search:

ID	NAM			LICENCE NO	VERIFY	
1	Faruk Islam	1981-01-01	2023-12-17	DK0861CL007	VALID	
2	Sabbir Ahmad	1990-02-10	2024-11-01	DK083424CL656	VALID	

Showing 1 to 2 of 2 entries

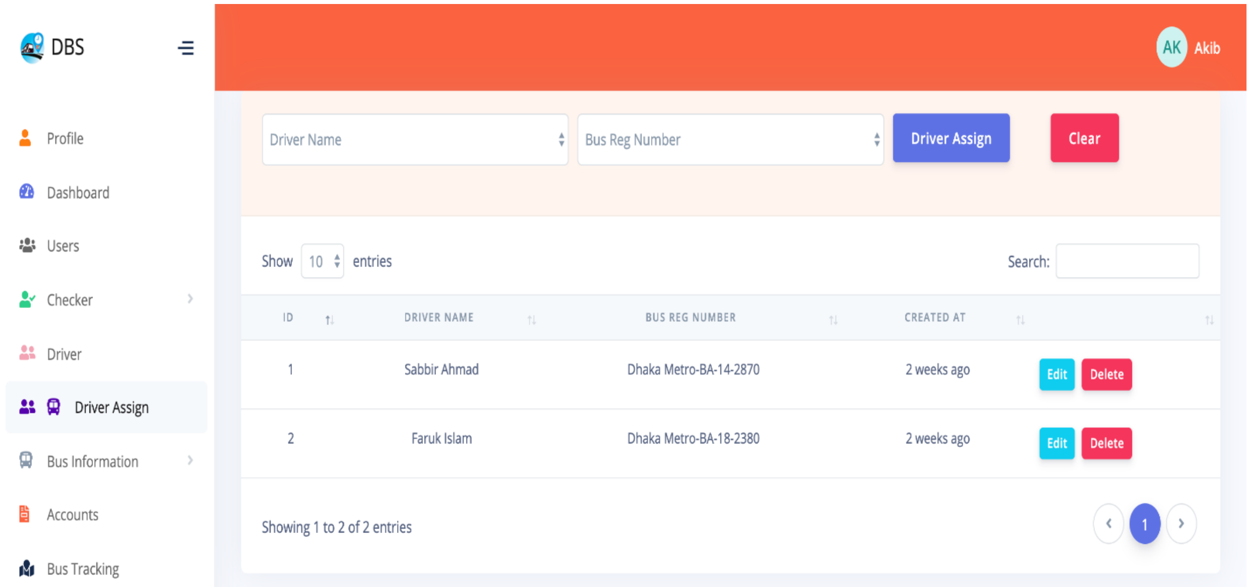
Driver Info

Are You Sure Want To Delete ?

Figure 6.14: Add Driver Info

6.15 Driver Assign

Admin can assign driver by clicking driver assign and provide the information. When fill up the information then click driver assign button.



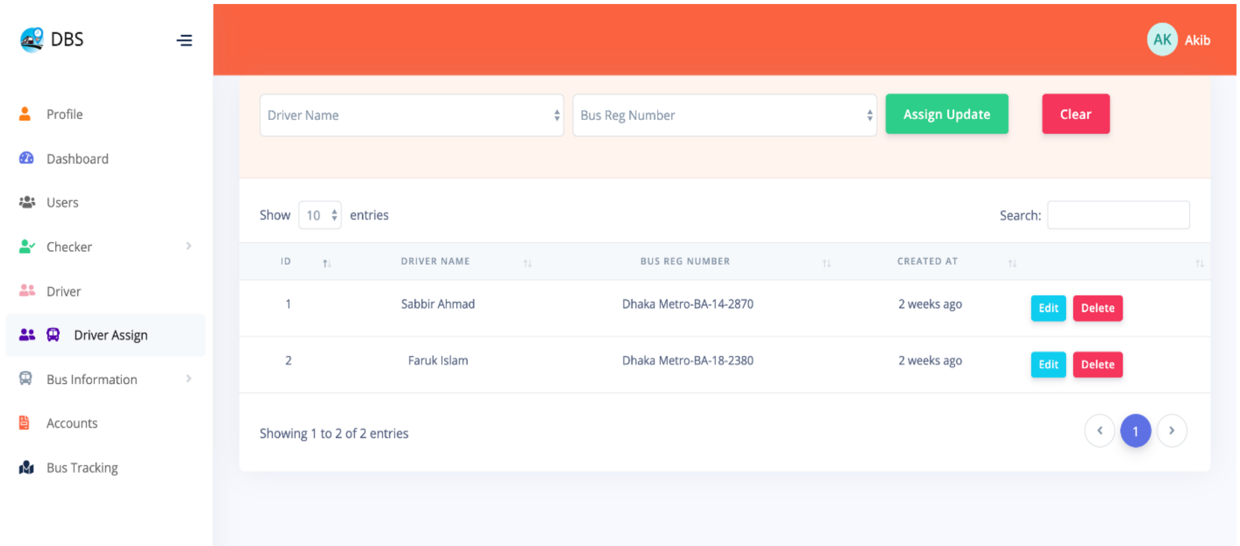
ID	DRIVER NAME	BUS REG NUMBER	CREATED AT	
1	Sabbir Ahmad	Dhaka Metro-BA-14-2870	2 weeks ago	Edit Delete
2	Faruk Islam	Dhaka Metro-BA-18-2380	2 weeks ago	Edit Delete

Showing 1 to 2 of 2 entries

Figure 6.15: Driver Assign

6.16: Driver Assign Update

If any driver wants to update the information so that admin have to click edit button and provide the information and then click assign update button.



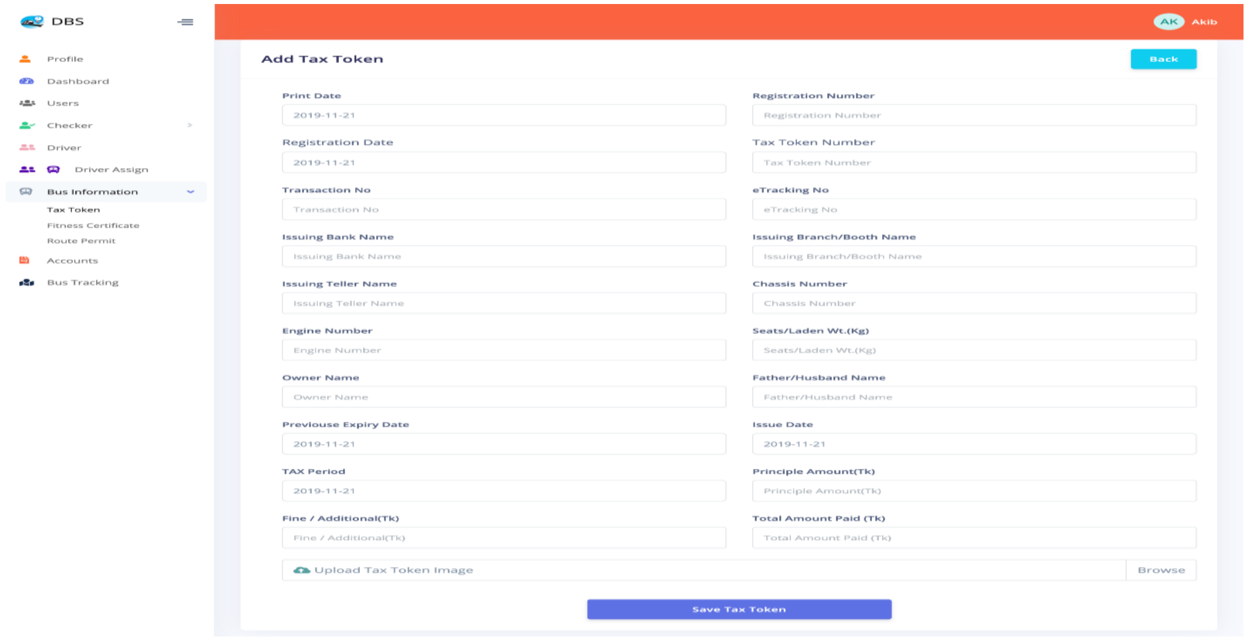
ID	DRIVER NAME	BUS REG NUMBER	CREATED AT	
1	Sabbir Ahmad	Dhaka Metro-BA-14-2870	2 weeks ago	Edit Delete
2	Faruk Islam	Dhaka Metro-BA-18-2380	2 weeks ago	Edit Delete

Showing 1 to 2 of 2 entries

Figure 6.16: Driver Assign Update

6.17 Add tax Token

Admin have to click bus information then click tax token after that admin will be providing the valid information. When fill up the information then click save tax token.



Add Tax Token

Print Date	Registration Number
2019-11-21	Registration Number
Registration Date	Tax Token Number
2019-11-21	Tax Token Number
Transaction No	eTracking No
Transaction No	eTracking No
Issuing Bank Name	Issuing Branch/Booth Name
Issuing Bank Name	Issuing Branch/Booth Name
Issuing Teller Name	Chassis Number
Issuing Teller Name	Chassis Number
Engine Number	Seats/Laden Wt.(Kg)
Engine Number	Seats/Laden Wt.(Kg)
Owner Name	Father/Husband Name
Owner Name	Father/Husband Name
Previouse Expiry Date	Issue Date
2019-11-21	2019-11-21
TAX Period	Principle Amount(Tk)
2019-11-21	Principle Amount(Tk)
Fine / Additional(Tk)	Total Amount Paid (Tk)
Fine / Additional(Tk)	Total Amount Paid (Tk)

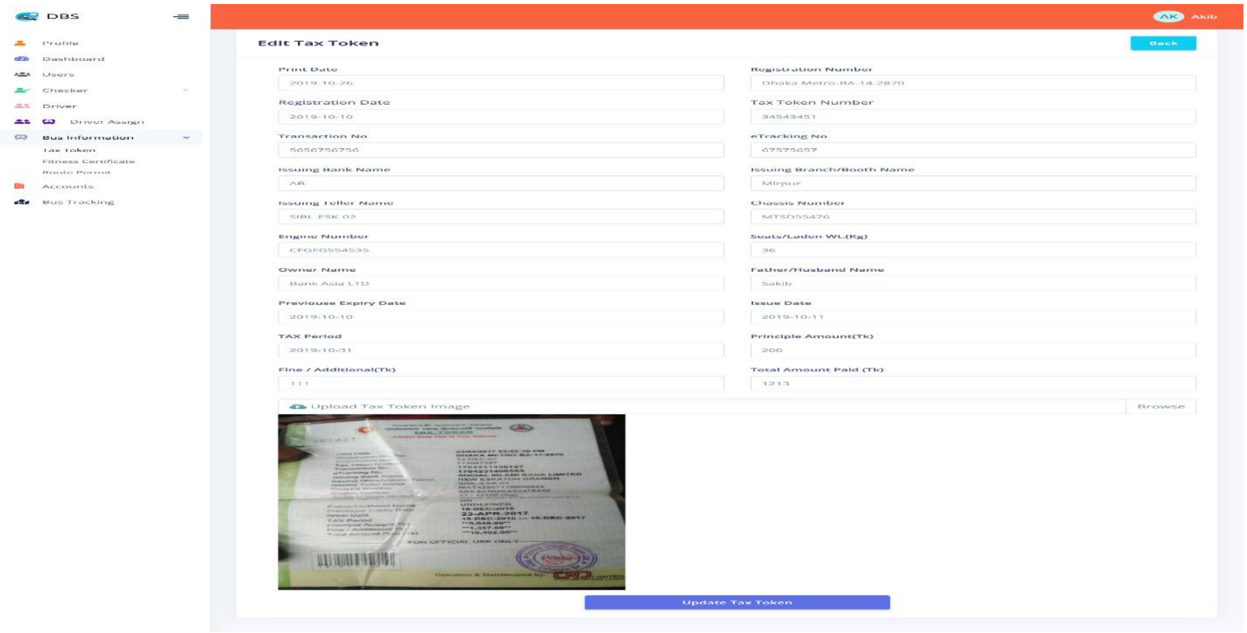
Upload Tax Token Image | Browse

Save Tax Token

Figure 6.17: Add Tax Token

6.18 Update Tax Token

If anyone wants to update the information so that admin have to click edit button and provide the details and click update tax token.



Edit Tax Token

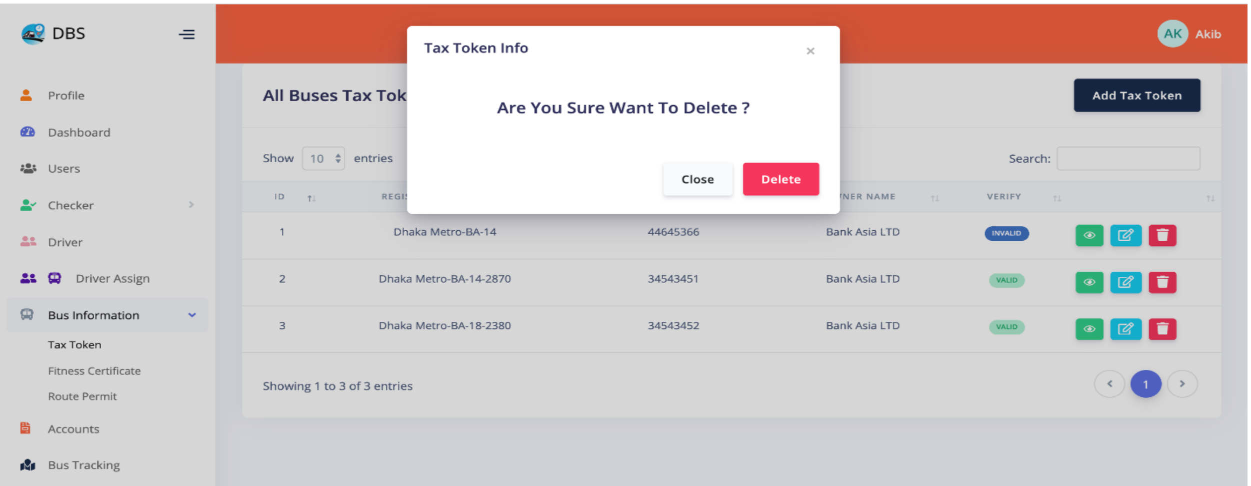
Print Date	Registration Number
2019-10-26	Dhaka Metro-BA-14-2870
Registration Date	Tax Token Number
2019-10-10	34543451
Transaction No	eTracking No
5656756756	67575657
Issuing Bank Name	Issuing Branch/Booth Name
AB	Mirpur
Issuing Teller Name	Chassis Number
SIBL ESK 02	MTSD55476
Engine Number	Seats/Laden Wt.(Kg)
CFGFG554535	36
Owner Name	Father/Husband Name
Bank Asia LTD	Sakib
Previouse Expiry Date	Issue Date
2019-10-10	2019-10-11
TAX Period	Principle Amount(Tk)
2019-10-31	200
Fine / Additional(Tk)	Total Amount Paid (Tk)
111	1213

Upload Tax Token Image

Figure 6.18: Update Tax Token

6.19 Delete Tax Token

Firstly, admin click the delete button and get a message then confirm the delete button. So that information will be deleted.



Tax Token Info

Are You Sure Want To Delete ?

All Buses Tax Tok

Show 10 entries

Search:

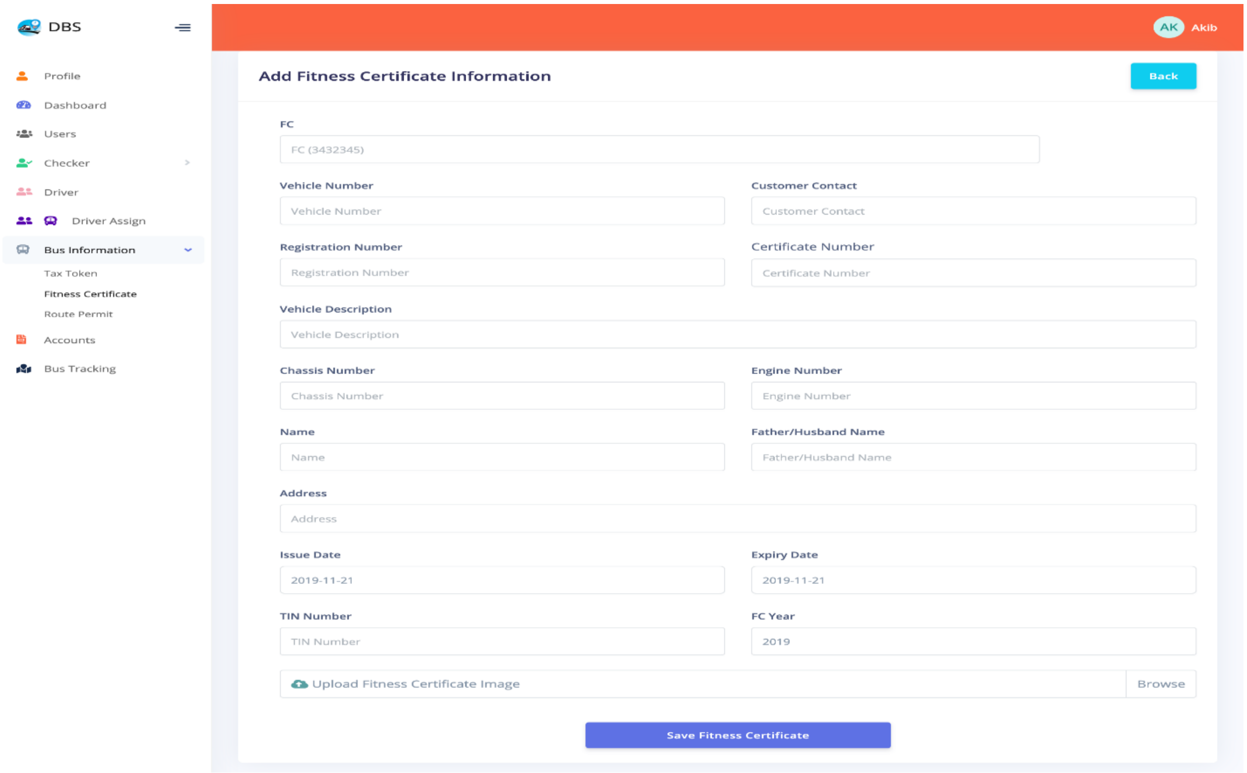
ID	REGI		NER NAME	VERIFY
1	Dhaka Metro-BA-14	44645366	Bank Asia LTD	INVALID
2	Dhaka Metro-BA-14-2870	34543451	Bank Asia LTD	VALID
3	Dhaka Metro-BA-18-2380	34543452	Bank Asia LTD	VALID

Showing 1 to 3 of 3 entries

Figure 6.19: Delete Tax Token

6.20 Add Fitness Certificate

Clicking the fitness certificate option then will providing the information and click the save fitness information. And then it will be saved.



Add Fitness Certificate Information

FC: FC (3432345)

Vehicle Number: Vehicle Number

Customer Contact: Customer Contact

Registration Number: Registration Number

Certificate Number: Certificate Number

Vehicle Description: Vehicle Description

Chassis Number: Chassis Number

Engine Number: Engine Number

Name: Name

Father/Husband Name: Father/Husband Name

Address: Address

Issue Date: 2019-11-21

Expiry Date: 2019-11-21

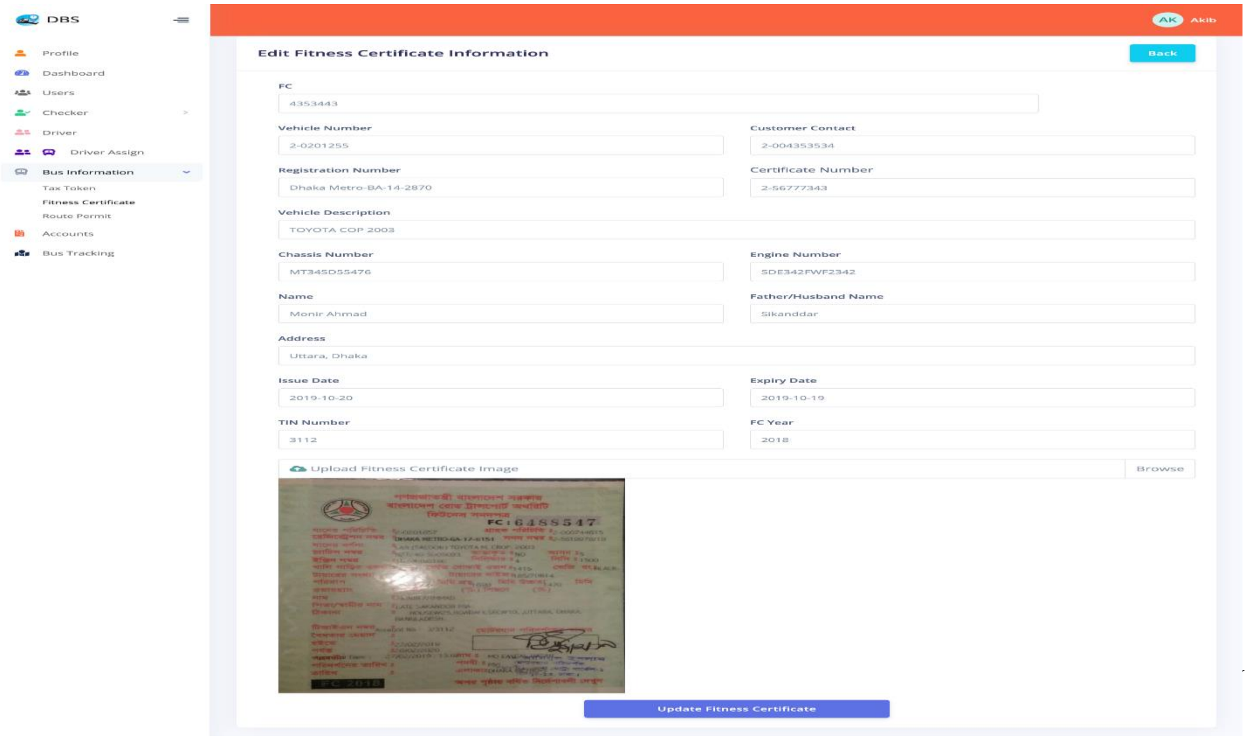
TIN Number: TIN Number

FC Year: 2019

Figure 6.20: Add Fitness Certificate

6.21 Update Fitness Certificate

Clicking edit button then admin can update fitness certificate. After that admin will be clicked update button.



Edit Fitness Certificate Information

FC: 4353443

Vehicle Number: 2-0201255

Customer Contact: 2-004353534

Registration Number: Dhaka Metro-BA-14-2870

Certificate Number: 2-56777343

Vehicle Description: TOYOTA COP 2003

Chassis Number: MT345D55476

Engine Number: SDE342FWF2342

Name: Monir Ahmad

Father/Husband Name: Sikanddar

Address: Uttara, Dhaka

Issue Date: 2019-10-20

Expiry Date: 2019-10-19

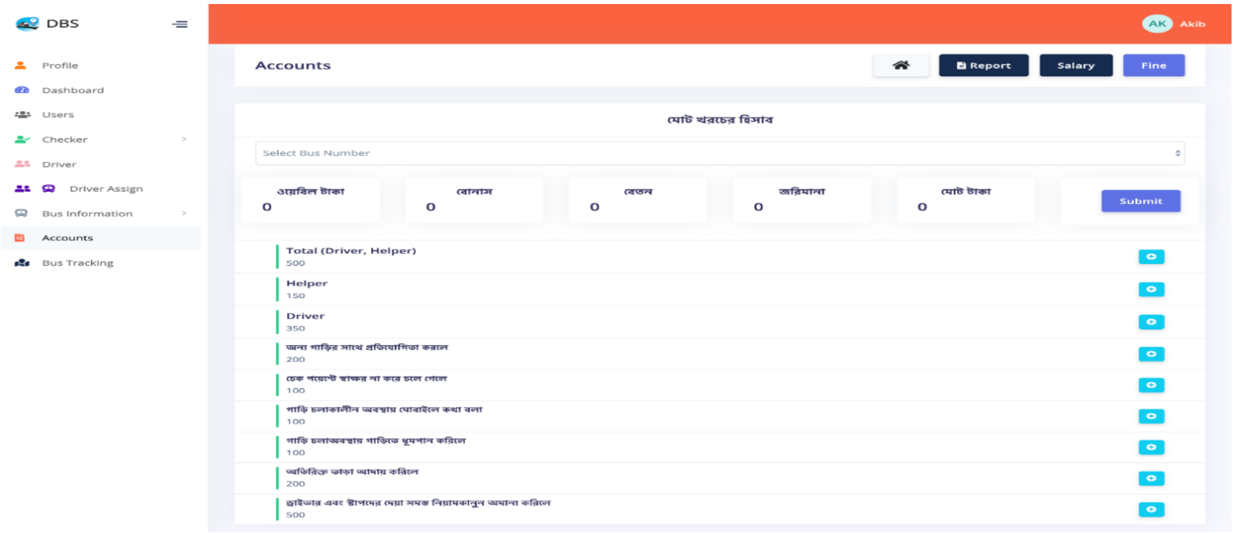
TIN Number: 3112

FC Year: 2018

Figure 6.21: Update Fitness Certificate

6.22 Accounts

When admin click account button then he/she select the bus number from list and submit the information. And click submit button then information will be saved.



Accounts

মোট খরচের হিসাব

Select Bus Number

ওয়েবিল টাকা	বোনাস	বেতন	জরিমানা	মোট টাকা
0	0	0	0	0

Total (Driver, Helper)
500

Helper
150

Driver
350

অন্য গাড়ির সাথে প্রতিযোগিতা করলে
200

চেক পয়েন্টে স্বাক্ষর না করে চলে গেলে
100

গাড়ি চলাকালীন অবস্থায় মোবাইলে কথা বলা
100

গাড়ি চলাঅবস্থায় গাড়িতে ধূমপান করিলে
100

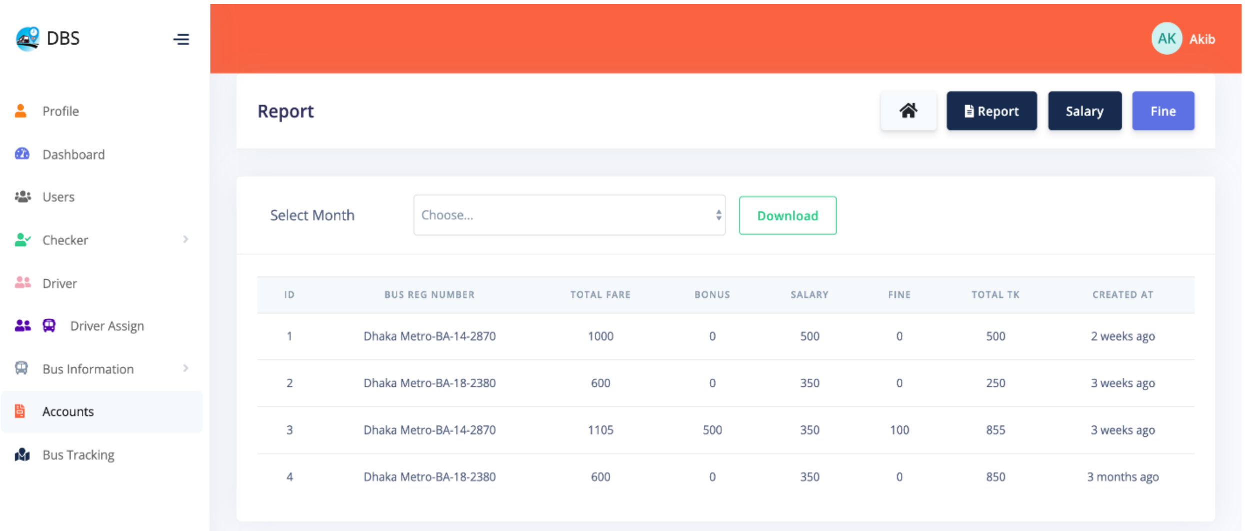
অতিরিক্ত ভাড়া আদায় করিলে
200

ড্রাইভার এবং ষ্টাপদের দেয়া সমস্ত নিয়ামকানুন অমান্য করিলে
500

Figure 6.22: Accounts

6.23 Report

Click account and then report button, so that admin can download the monthly report for a bus.



Report

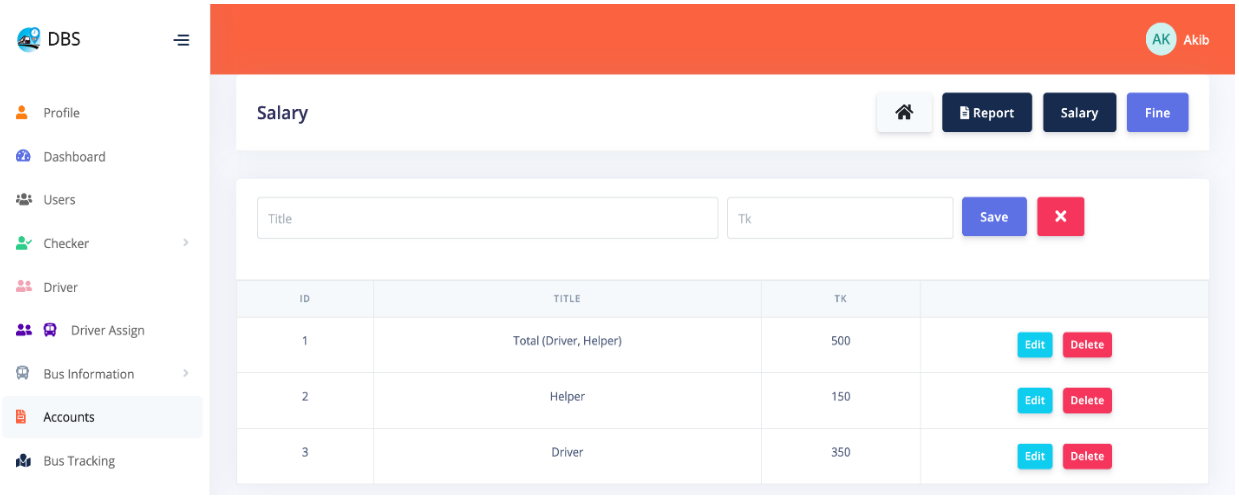
Select Month: Choose...

ID	BUS REG NUMBER	TOTAL FARE	BONUS	SALARY	FINE	TOTAL TK	CREATED AT
1	Dhaka Metro-BA-14-2870	1000	0	500	0	500	2 weeks ago
2	Dhaka Metro-BA-18-2380	600	0	350	0	250	3 weeks ago
3	Dhaka Metro-BA-14-2870	1105	500	350	100	855	3 weeks ago
4	Dhaka Metro-BA-18-2380	600	0	350	0	850	3 months ago

Figure 6.23: Report

6.24 Salary

When admin want to see salary of driver so that admin have to click salary button. So that admin can manage the salary.

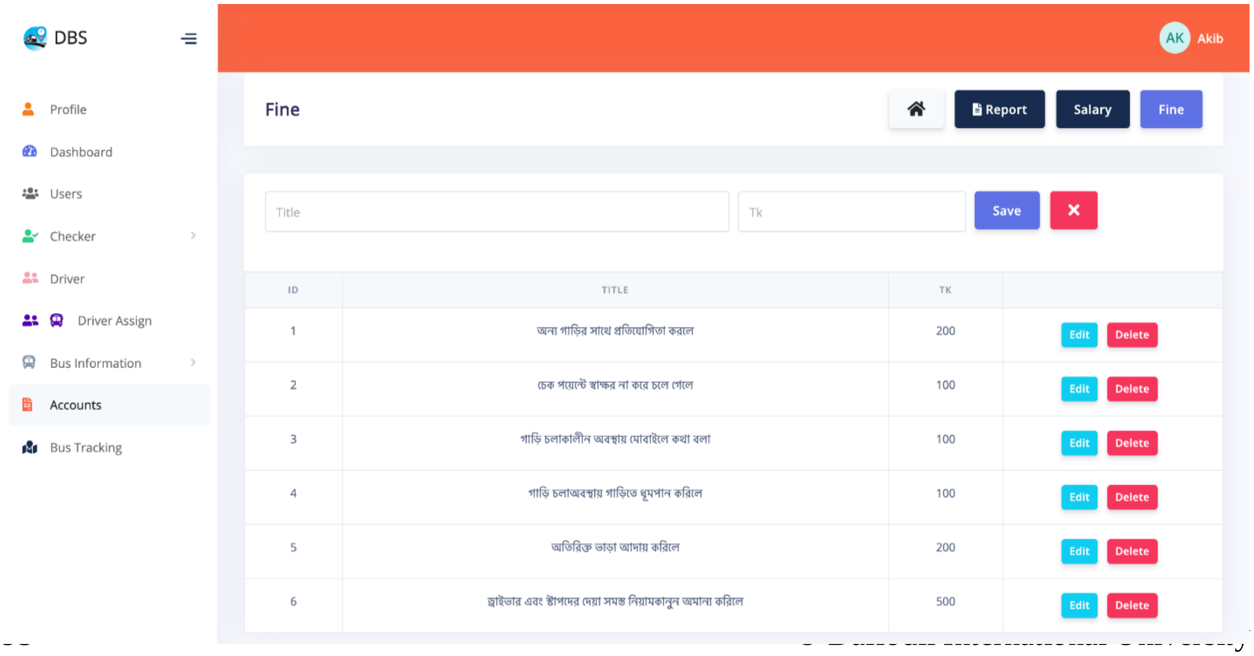


ID	TITLE	TK	
1	Total (Driver, Helper)	500	Edit Delete
2	Helper	150	Edit Delete
3	Driver	350	Edit Delete

Figure 6.24: Salary

6.25 Fine

Admin can also see the fine of an driver. So that admin clicks the fine button and admin can manage the fine information.

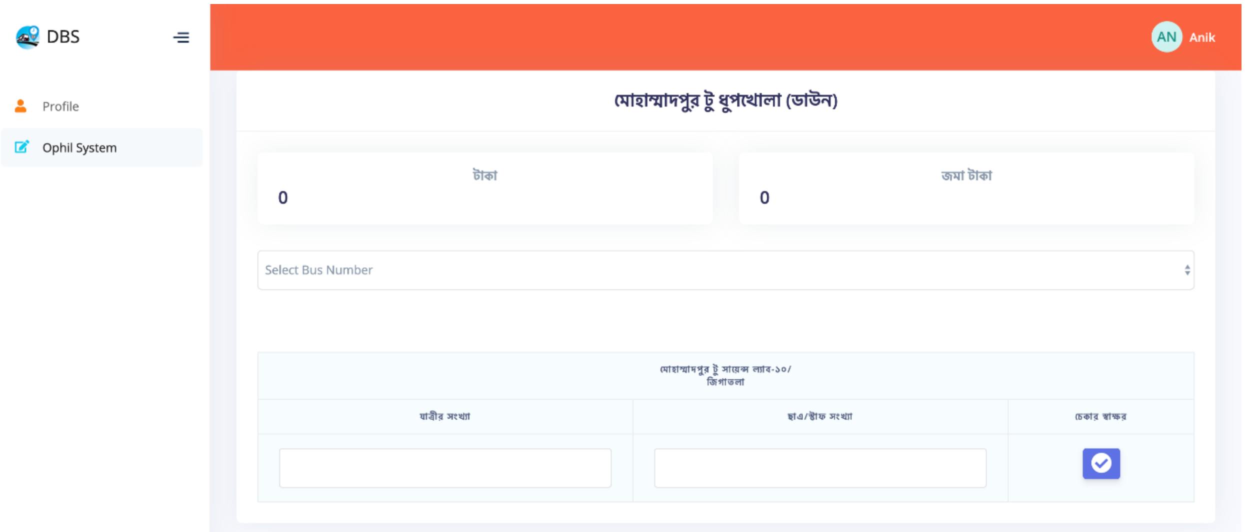


ID	TITLE	TK	
1	অন্য গাড়ির সাথে প্রতিযোগিতা করলে	200	Edit Delete
2	চেক পয়েন্টে স্বাক্ষর না করে চলে গেলে	100	Edit Delete
3	গাড়ি চলাকালীন অবস্থায় মোবাইলে কথা বলা	100	Edit Delete
4	গাড়ি চলাঅবস্থায় গাড়িতে ধূমপান করিলে	100	Edit Delete
5	অতিরিক্ত ভাড়া আদায় করিলে	200	Edit Delete
6	ড্রাইভার এবং ষ্টাপদের দেয়া সমস্ত নিয়মকানুন অমান্য করিলে	500	Edit Delete

Figure 6.25: Fine

6.26 Ophil System

Checker have to click ophil system option and select bus number, then checker provide passenger and student number and save information.So that admin can view ophil system information.



মোহাম্মাদপুর টু ধুপখোলা (ডাউন)

টাকা
0

জমা টাকা
0

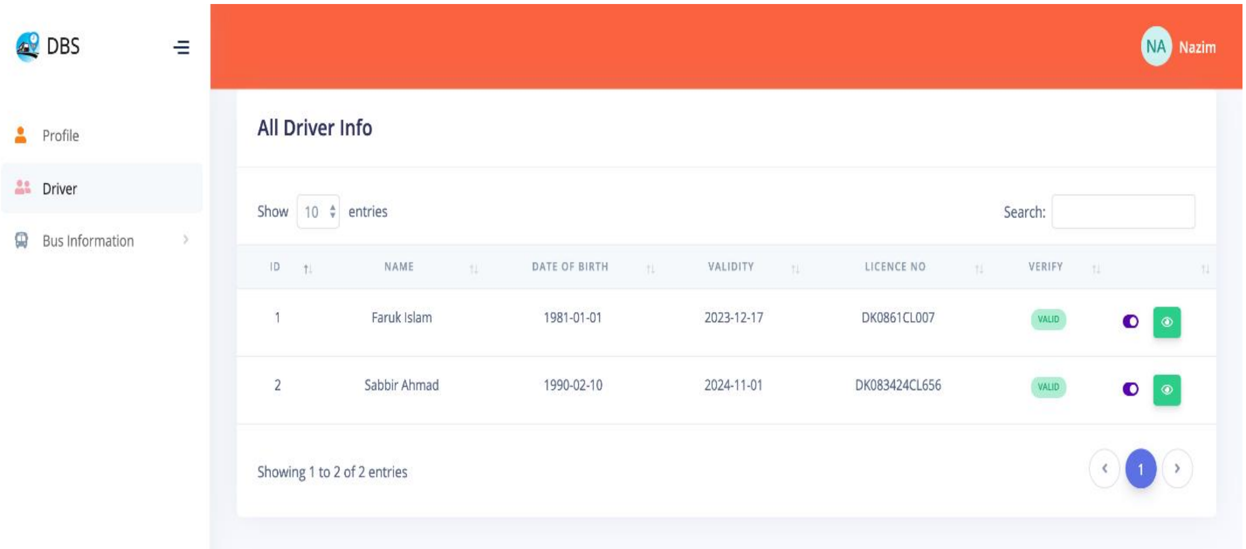
Select Bus Number

মোহাম্মাদপুর টু সায়েন্স ল্যাব-১০/ জিগাতলা		
যাত্রীর সংখ্যা	ছাত্র/ষ্টাফ সংখ্যা	চেকার স্বাক্ষর
		✓

Figure 6.26: Ophil System

6.27 Verify Driver Info

When verifier click driver option and click verify toggle button so that driver information will be verified.



All Driver Info

Show 10 entries

Search:

ID	NAME	DATE OF BIRTH	VALIDITY	LICENCE NO	VERIFY	
1	Faruk Islam	1981-01-01	2023-12-17	DK0861CL007	VALID	● 👁
2	Sabbir Ahmad	1990-02-10	2024-11-01	DK083424CL656	VALID	● 👁

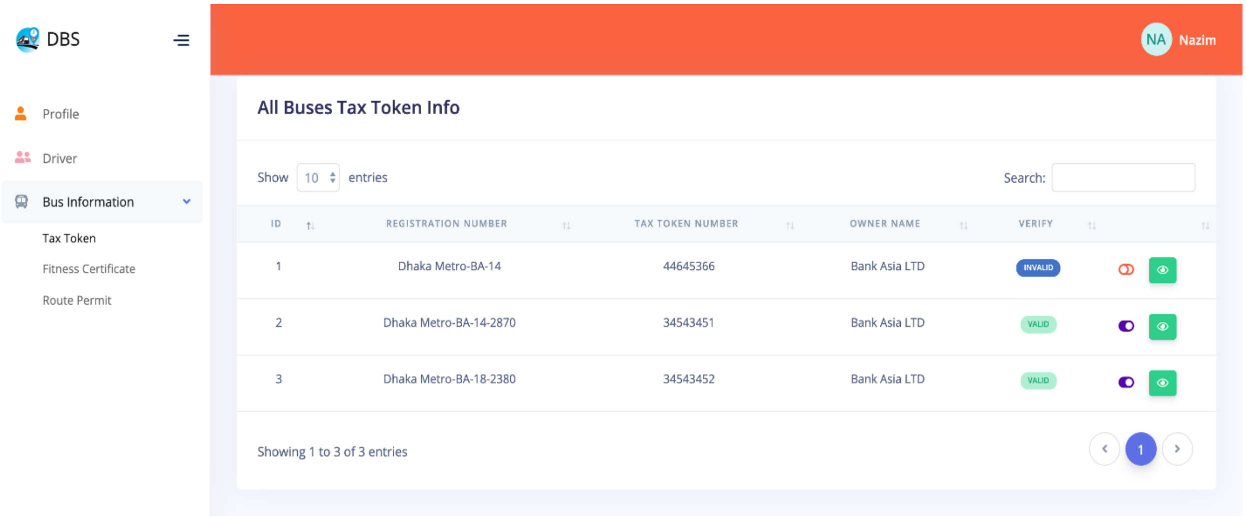
Showing 1 to 2 of 2 entries

‹ 1 ›

Figure 6.27: Verify Driver Info

6.28 Verify Tax Token Info

When verifier click bus information option and click tax token after that click verify toggle button so that tax token information will be verified.



All Buses Tax Token Info

Show 10 entries Search:

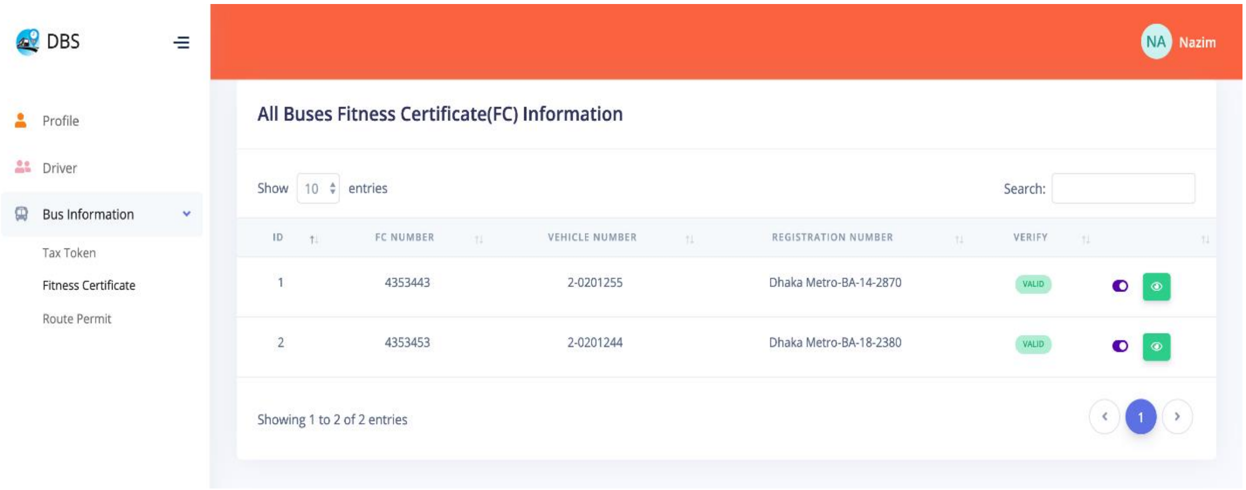
ID	REGISTRATION NUMBER	TAX TOKEN NUMBER	OWNER NAME	VERIFY	
1	Dhaka Metro-BA-14	44645366	Bank Asia LTD	INVALID	
2	Dhaka Metro-BA-14-2870	34543451	Bank Asia LTD	VALID	
3	Dhaka Metro-BA-18-2380	34543452	Bank Asia LTD	VALID	

Showing 1 to 3 of 3 entries

Figure 6.28: Verify Tax Token Info

6.29 Verify Fitness Certificate Information

When verifier click bus information option and click fitness certificate after that click verify toggle button so that fitness certificate information will be verified.



All Buses Fitness Certificate(FC) Information

Show 10 entries Search:

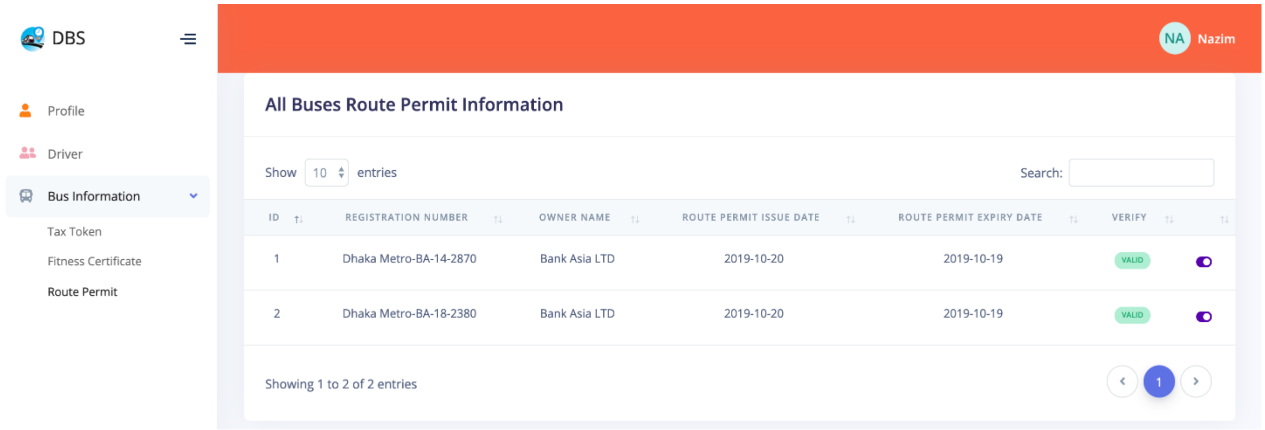
ID	FC NUMBER	VEHICLE NUMBER	REGISTRATION NUMBER	VERIFY	
1	4353443	2-0201255	Dhaka Metro-BA-14-2870	VALID	
2	4353453	2-0201244	Dhaka Metro-BA-18-2380	VALID	

Showing 1 to 2 of 2 entries

Figure 6.29: Verify Fitness Certificate Information

6.30 Verify Route Permit Information

When verifier click bus information option and click route permit after that click verify toggle button so that route permit information will be verified.



All Buses Route Permit Information

Show 10 entries

Search:

ID	REGISTRATION NUMBER	OWNER NAME	ROUTE PERMIT ISSUE DATE	ROUTE PERMIT EXPIRY DATE	VERIFY	
1	Dhaka Metro-BA-14-2870	Bank Asia LTD	2019-10-20	2019-10-19	VALID	●
2	Dhaka Metro-BA-18-2380	Bank Asia LTD	2019-10-20	2019-10-19	VALID	●

Showing 1 to 2 of 2 entries

Figure 6.30: Verify Route Permit Information

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Chapter 7
Conclusion

7.1 Project Summary

“DHAKA BUS SYSTEM” is a web application system. In my system, I provide a role system for specific stakeholders. I am providing a most important thing is Verify the bus information, driver information, fitness certificate, tax token and route permit. Checker who input data which is the number of passengers. Ophil system is auto generating a total cost report. Bus is tracked by tracking system for the user. If anyone wants to check bus information who already drive that bus, they can see when driver is driving the bus. Here, every verify things can verify by the Government agent or BTRA.

7.2 Limitations

For developing time, I have faced some limitations in this project.

- Free Google Map API some time ajax http request problem and high load time.
- Only web version now available.
- All asset files production mode not available
- Any Payment method (BKash, Rocket etc.) not used in our system.

7.3 Obstacles and Achievements

I believe that if there are not any defenses to developing a project, then there doesn’t have any challenges. Because we know, challenge gives us the opportunity to prove ourselves. Obstacles, challenges and achievements are like a path to success. By developing this project, I have learned Object-relational mapping, clean code, how to maintain code quality, advanced database design, and many things.

7.4Future Scope

- To make the system easily maintainable so that any users of the system can handle the system satisfactorily with ease and convenience.
- To design the system such that in the future it can be used as a subsystem.
- To ensure the reliability of this system, hardware or software failure, action can be taken.So necessary software backup should be taken safely.
- To make the system more dynamic fare and checker location for ophil system and account system.

7.5References

In my project effectual those resources help me. I will mention those references. The reference name below.

- Laravel, Available at <https://laravel.com/docs/6.x>
- Livewire, Available at <https://laravel-livewire.com/docs/>
- Stack overflow, Available at <https://stackoverflow.com/>
- Laravel-dompdf, Available at <https://github.com/barryvdh/laravel-dompdf>
- Laravel-permission, Available at <https://github.com/spatie/laravel-permission>
- Sublime Text, Available at <https://www.sublimetext.com/3>
- TablePlus, Available at <https://tableplus.com/>
- Creative-Tim, Available at <https://www.creative-tim.com/>