PUCIT
Punjab University College of Information Technology

Second Deliverable for Object Oriented Approach

Local Transport Guide

Supervisor: Sir Fareed ul Hassan Baig

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1 Introduction

This deliverable is all about the use case modeling and software design. In the previous deliverable, analysis of the system is completed. So, we understand the current situation of the problem domain. Now we are ready to strive for a solution for the problem domain by using object-oriented approach. Following artifacts are included in this deliverable.

1. Use case description
2. Use case diagram refined
3. Domain Model
4. Sequence Diagram
5. Collaboration Diagram
6. Operation Contracts
7. Design Class Diagram
8. Data Model

Now we discuss these artifacts one by one as follows:

1.1 Usecase Description

This section captures the detailed functionality of the use cases. Descriptions of all use cases are written down.

1.1.1. UC_Passenger_Login

Brief Description

This use case is started by the actor passenger. It provides the capability to the passenger who wants log in to the system to use the system.

Preconditions

Connected to Internet

Registered User

Basic Flow

He/She will connect to the internet

He/She will install application

Open the application

Login into the system

Alternate Flows

User does not enter all necessary and valid details (1AF-1)

User has not registered himself (2AF-2)

Post Condition

User will be logged in to the system

1.1.2. UC_Request_for_Reistration

Brief Description

This use case is started by the actor passenger. It provides the capability to the passengers who want to input required information needed by the system

Preconditions

Connected to internet

Has required information according to registration criteria

Basic Flow

He/She will connect to the internet

He/She will install application

Open the application

Sign up in the application (See 4AF-1)

Input all necessary details (Registration Verification use case will be done as an inclusion)

Alternate Flows

User already has an account to login (1AF-1)

Post Condition

User has been registered into the system

1.1.3. UC_Verify

Brief Description

This use case is started by the actor Passenger. When the user inputted required information needed for registration. The code will be send to the user via SMS or email.

Preconditions

Request for registration

Has required information according to registration criteria

Basic Flow

According to criteria, verification will be done.

If a criterion is phone number then code will be send to user via SMS.

If a criterion is email then code will be send to user via email.

Alternate Flows

User enter phone number which is already registered

User enter email which is already registered

Post Condition

User will get verification status

1.1.4. UC_View_Profile

Brief Description

This use case is started by the actor Voter/User. It provides the capability to the user to view his/her account details whenever he/she wants.

Preconditions

Has an account

Logged In

Basic Flow

User goes to view profile screen

Alternate Flows

Update Profile (5AF-1)

Post Condition

User will see his profile details

1.1.5. UC_Update_Profile

Brief Description

This use case is started by the actor Passenger. It provides the capability to the user to update his/her account details whenever he/she wants.

Preconditions

Has an account

Logged In

Basic Flow

User goes to update profile screen

Update his profile as required

Alternate Flows

View Profile (4AF-1)

Post Condition

User has updated profile details

1.1.6. UC_Change_Username

Brief Description

This use case is started by the actor passenger. It provides the capability to the user to change his/her username whenever he/she wants.

Preconditions

Has an account

Logged In

Basic Flow

User goes to update profile screen

User enter the new username

User enter the password

User press update button to update the changes

Alternate Flows

Username already changed (6AF-1)

Change password (7AF-2)

Post Condition

User has changed his username

1.1.7. UC_Change_Password

Brief Description

This use case is started by the actor passenger. It provides the capability to the user to change his/her password whenever he/she wants.

Preconditions

Has an account

Logged In

Basic Flow

User goes to update profile screen

User enter the old password

User enter the new password

User enter the new password again for conformation

Alternate Flows

Password already changed (7AF-1)

Change Username (6AF-2)

Post Condition

User has changed his password

1.1.8. UC_Search_Route

Brief Description

This use case is started by the actor passenger. It provides the capability to the user to enter initial and final location and search for routes

Preconditions

Has active internet connection

Logged In

Basic Flow

User goes to search profile screen

User enter initial location

User enter final location

User set preference

Alternate Flows

None

Post Condition

User will see listed routes

1.1.9. UC_Select_Routes

Brief Description

This use case is started by the actor passenger. It provides the capability to the user to select the desired path from all listed path

Precondition

Has searched the routes

Basic Flow

User searches for the routes

Select desired route

Alternate Flows

None

Post Condition

Selected path will be shown

1.1.10. UC_Give_Feedback

Brief Description

This use case is started by the actor passenger. It provides the capability to the user to give his/her feedback or report complains.

Preconditions

Has latest version of application

Basic Flow

User goes to the feedback screen

User writes his feedback or complains

User submits feedback or complains

Alternate Flows

Post Condition

Feedback will be submitted

Complain has been submitted

1.1.11. UC_Suggest_Routes

Brief Description

This use case is started by the actor passenger. It provides the capability to the user to suggest new routes to admin which are not the part of system

Preconditions

Has the latest version of application

Basic Flow

User goes suggest routes screen

User selects the automobile

User provide route of that automobile

Alternate Flows

Post Condition

Suggested routes has been submitted

1.1.12. UC_View_History

Brief Description

This use case is started by the actor Voter/User. It provides the capability to the user to view his/her previously searched routes whenever he/she wants.

Preconditions

Has an account

Logged In

Has searched for routes

Basic Flow

User goes to view history screen

Alternate Flows

None

Post Condition

User will see his profile details

1.1.13. UC_Admin_Login

Brief Description

This use case is started by the actor admin. It provides the capability to the user to log in to the system to use system

Preconditions

Has an active internet connection

Has the web portal of the system

Basic Flow

User connects to internet

User opens the web portal

User enter his credentials

Alternate Flows

User already logged in

Post Condition

User has logged in to the system

1.1.14. UC_Manage_Routes

Brief Description

This use case is started by the actor admin. It provides the capability to the user manage and change routes.

Preconditions

Logged In

Basic Flow

User log in

Make required changes

Alternate Flows

None

Post Condition

Routes has been updated

1.1.15. UC_Add_Route

Brief Description

This use case is started by the actor Admin. It provides the capability to the user to add new routes to the system

Preconditions

Logged In

Has authenticated routes

Basic Flow

User log in

Add routes to the system

Alternate Flows

Route already presents (15AF-1)

Update route (16AF-2)

Post Condition

New route has been entered

1.1.16. UC_Update_Routes

Brief Description

This use case is started by the actor admin. It provides the capability to the user to make changes in already present routes

Preconditions

Logged In

Has authenticated routes

Basic Flow

User login

Update the route

Alternate Flows

No route available (15AF-1)

Route already updated

Post Condition

Route has been updated

1.1.17.   UC_Delete_Routes

Brief Description

This use case is started by the actor admin. It provides the capability to the user to delete routes which are not functional any more

Preconditions

Logged In

Has authenticated routes information

Basic Flow

User login

Delete routes

Alternate Flows

Route already deleted

Post Condition

Routes has been updated

1.1.18.   UC_View_Suggested_Routes

Brief Description

This use case is started by the actor admin. It provides the capability to the user to view all the routes suggest by the passenger

Preconditions

Logged In

Basic Flow

User login

Open view suggested route screen

Alternate Flows

No suggestion available

Post Condition

User verifies routes and makes changes to routes

1.1.19.   UC_View_Feedback

Brief Description

This use case is started by the actor admin. It provides the capability to the user to view feedback/complain submitted by passenger

Preconditions

Logged In

Basic Flow

User log in

User views all feedback and complains

Alternate Flows

No feedback given

Post Condition

Admin changes the system according to feedback if necessary

1.1.20.   UC_Manage_Vehicle

Brief Description

This use case is started by the actor admin. It provides the capability to the user manage vehicles.

Preconditions

Logged In

Basic Flow

User log in

Make required changes

Alternate Flows

None

Post Condition

Routes changed

1.1.21.   UC_Add_Vehicle

Brief Description

This use case is started by the actor admin. It provides the capability to the user to add vehicle to the system

Preconditions

Logged In

Has authenticated vehicle information

Basic Flow

User login

Add vehicle

Alternate Flows

Vehicle already exist

Post Condition

Vehicle added

1.1.22.   UC_Remove_Vehicle

Brief Description

This use case is started by the actor admin. It provides the capability to the user to remove vehicle which are not functional any more

Preconditions

Logged In

Has authenticated vehicle information

Basic Flow

User login

Delete vehicle

Alternate Flows

Vehicle already deleted

Post Condition

Vehicle deleted

1.1.23. UC_Update_Vehicle

Brief Description

This use case is started by the actor admin. It provides the capability to the user to delete routes which are not functional any more

Preconditions

Logged In

Has authenticated vehicle information

Basic Flow

User login

Update vehicle

Alternate Flows

No vehicle found

Vehicle already updated

Post Condition

Vehicle has been updated

1.2 Usecase Diagram (refined and updated)
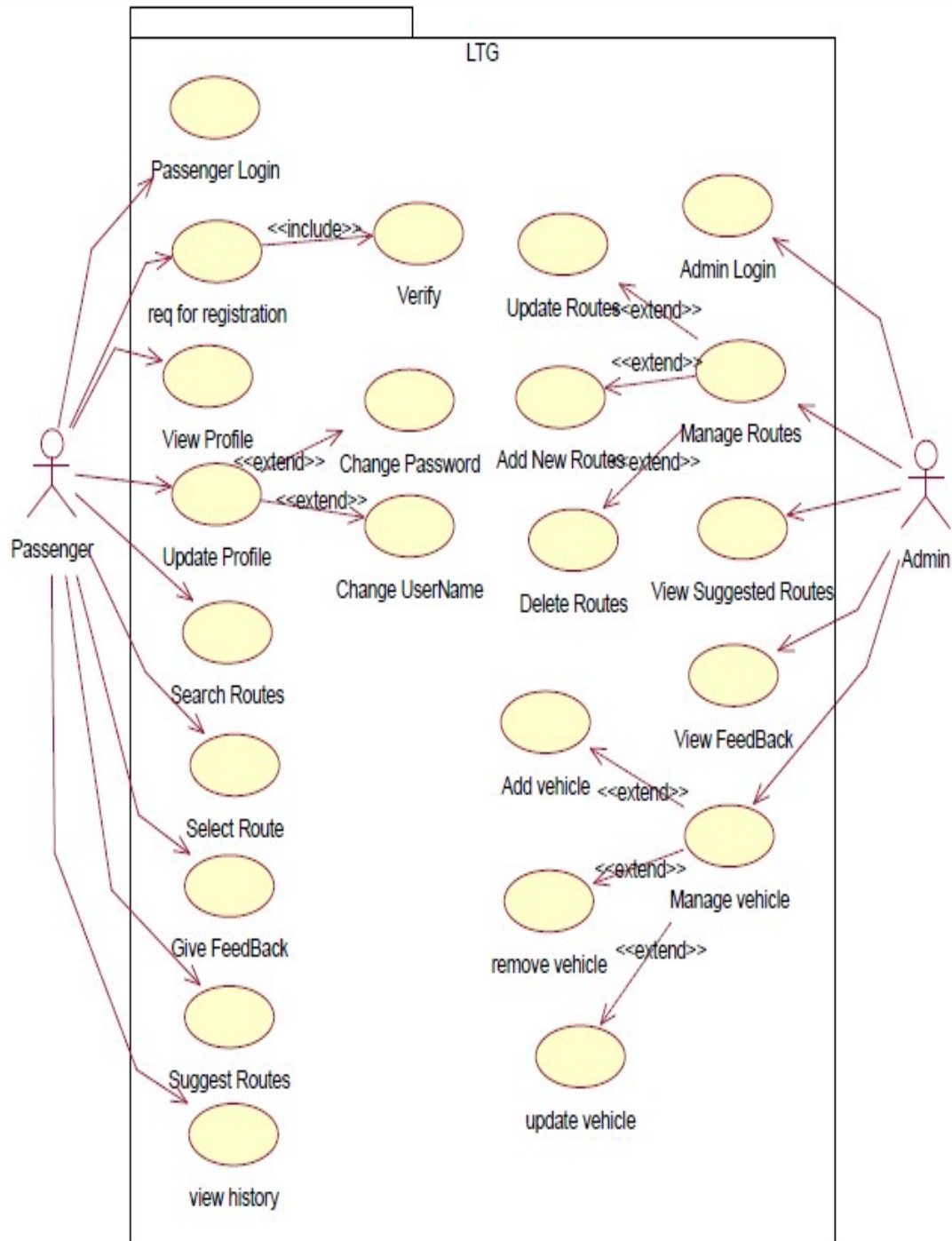
1.3 Domain Model

Entity Relationship Diagram Example (UML Notation)

usman | November 28, 2019
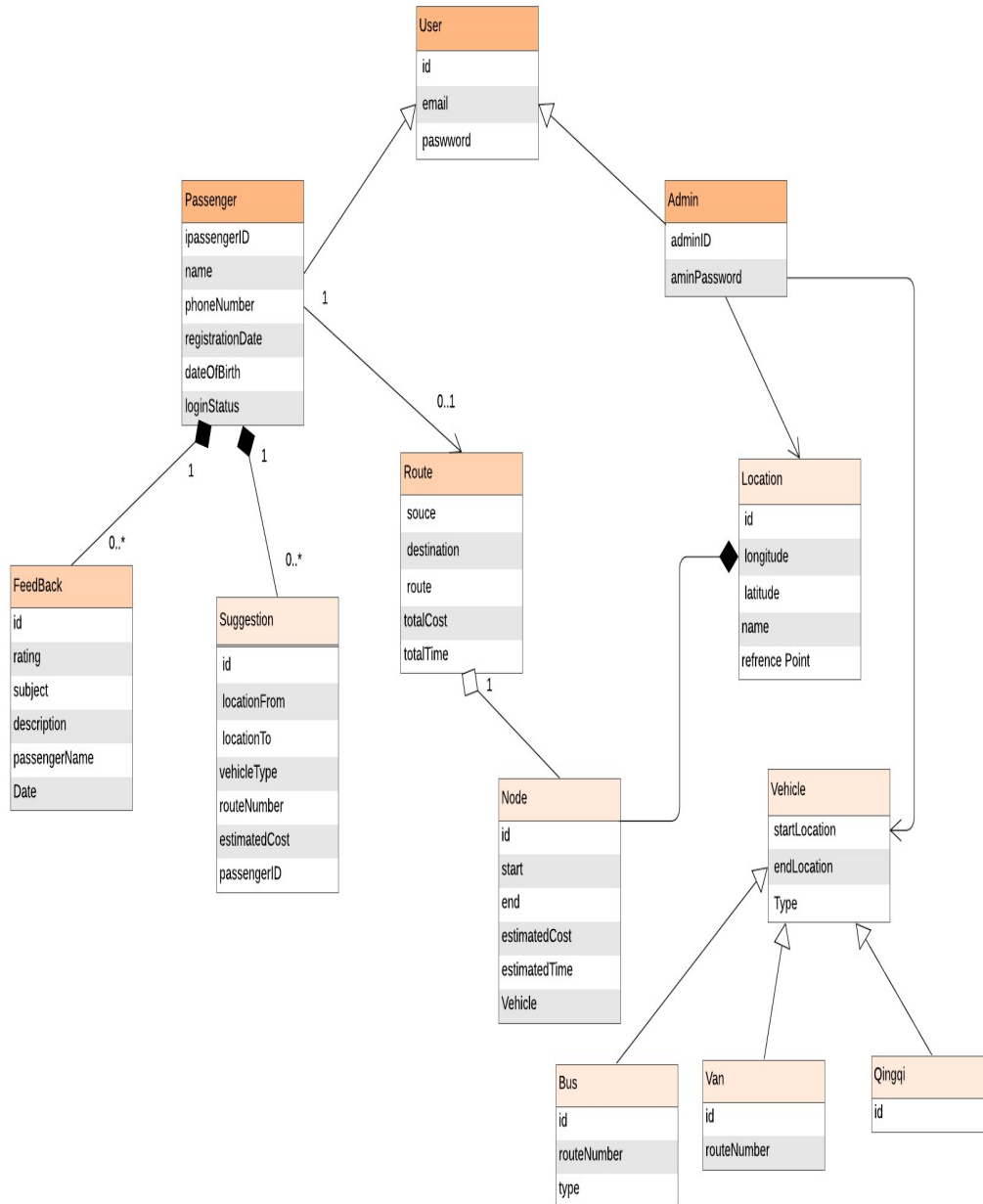
1.4 Sequence Diagram

a) Register User
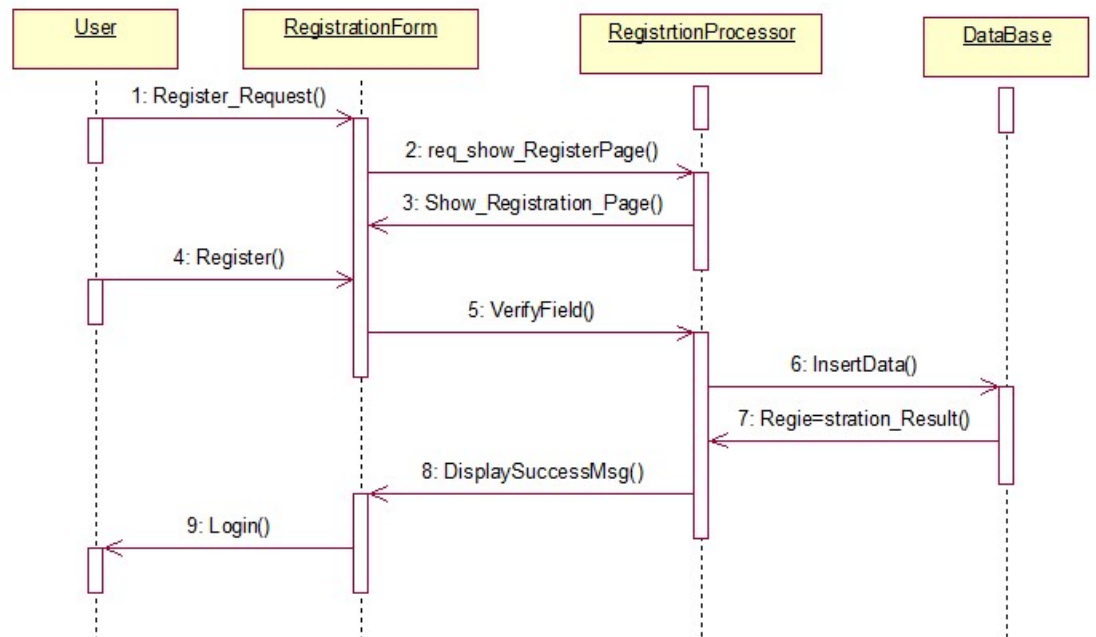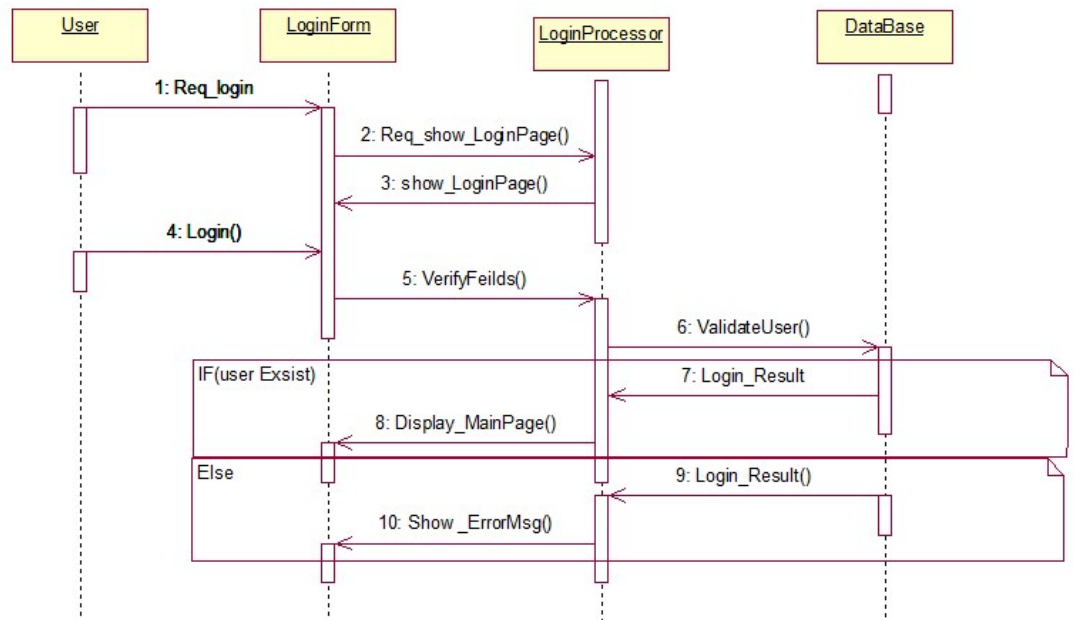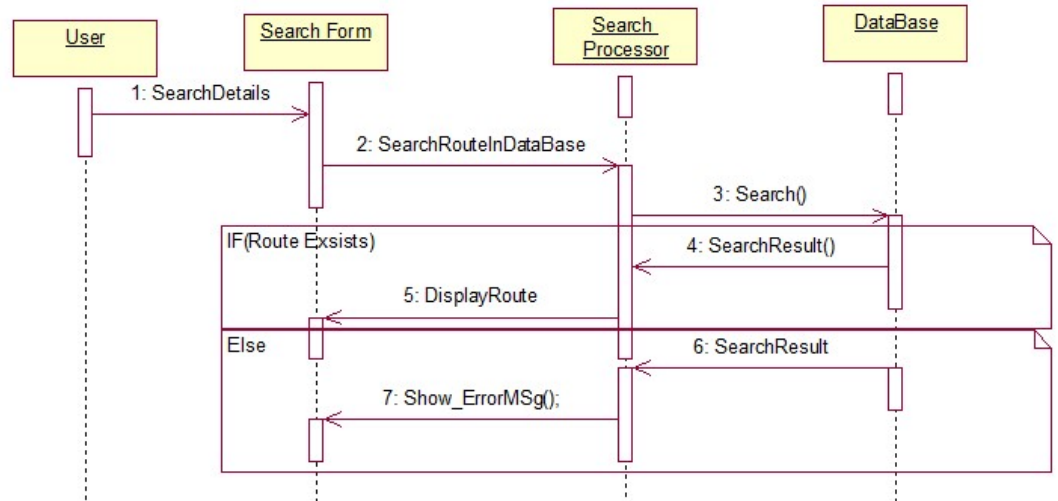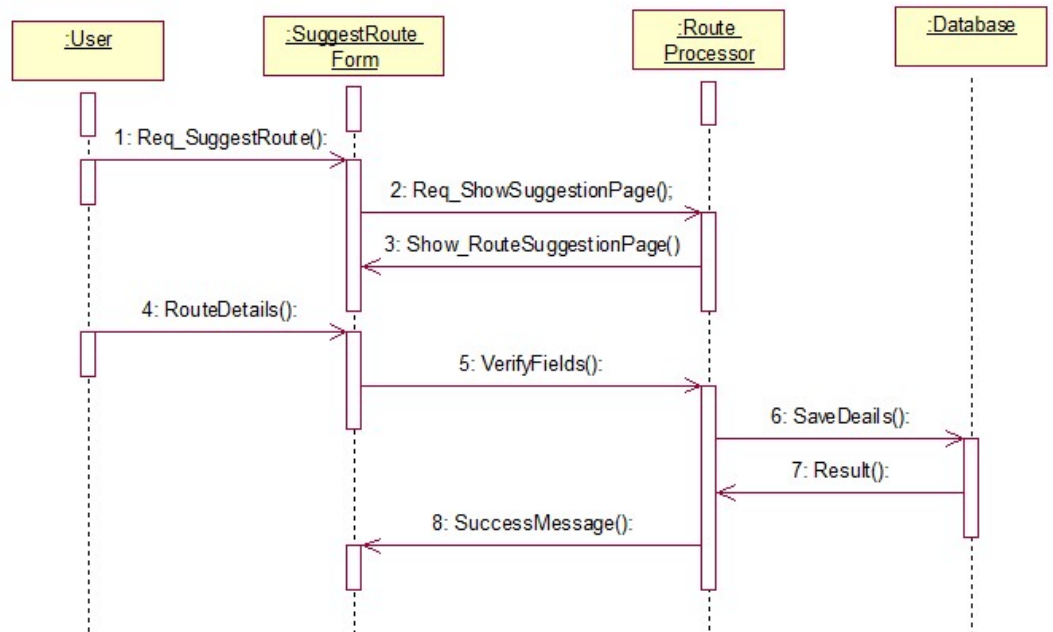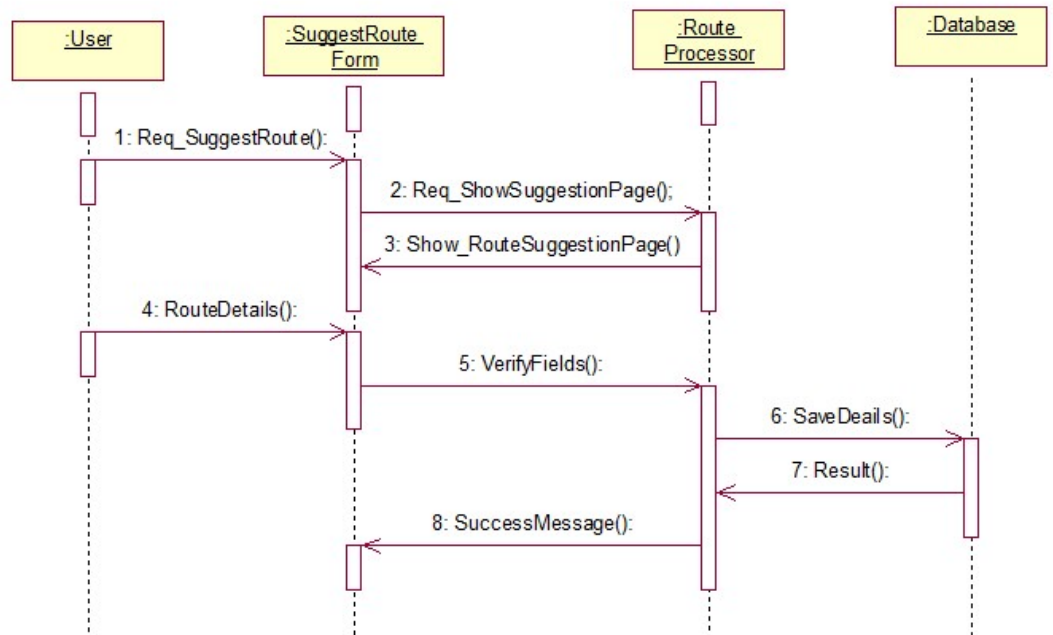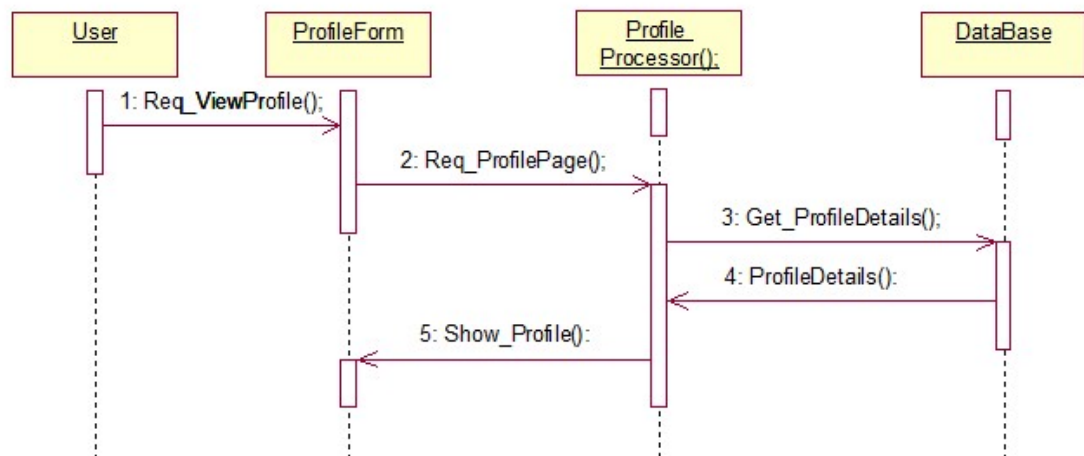
b) Login

c) Search

d) Select routes

e) Suggest routes

f) View Profile

g) Update profile

h) View History

i) **Admin login**

j) **Add route**

k) Remove route

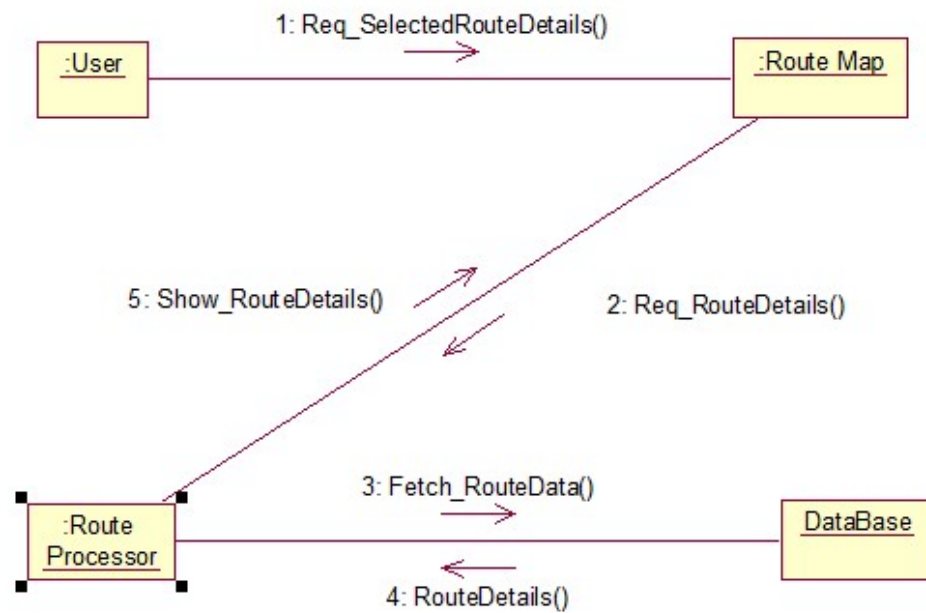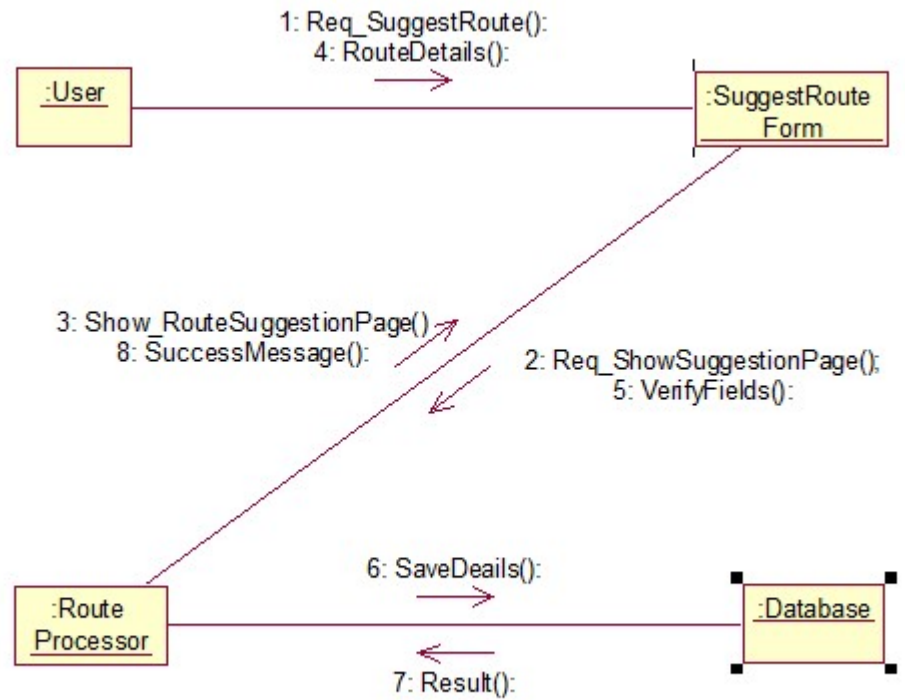
l) Update route

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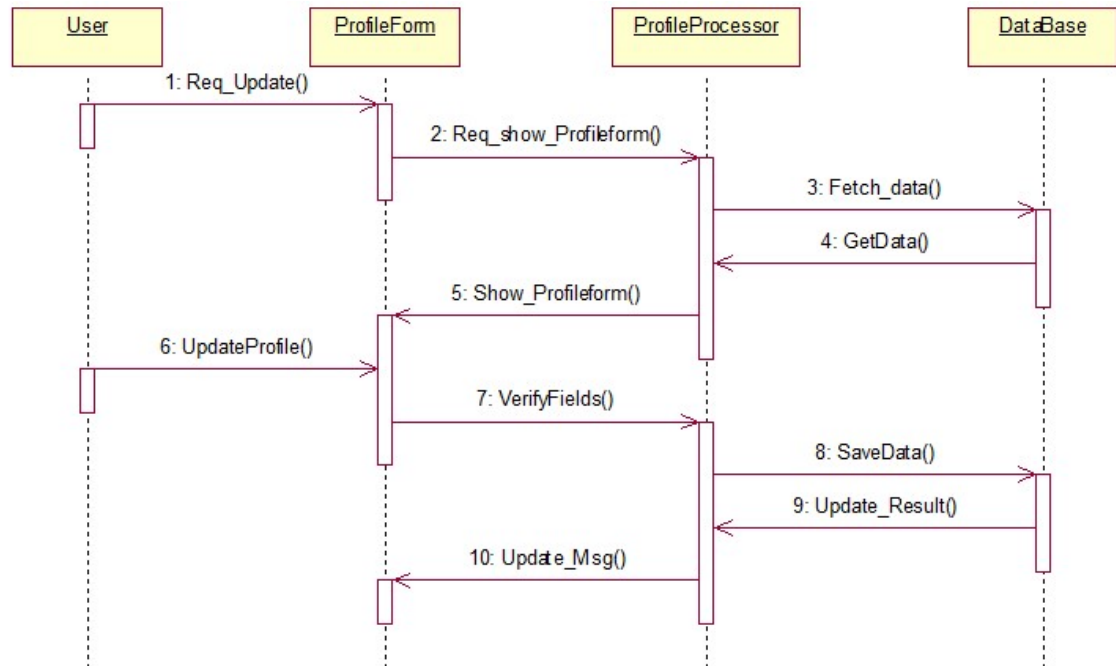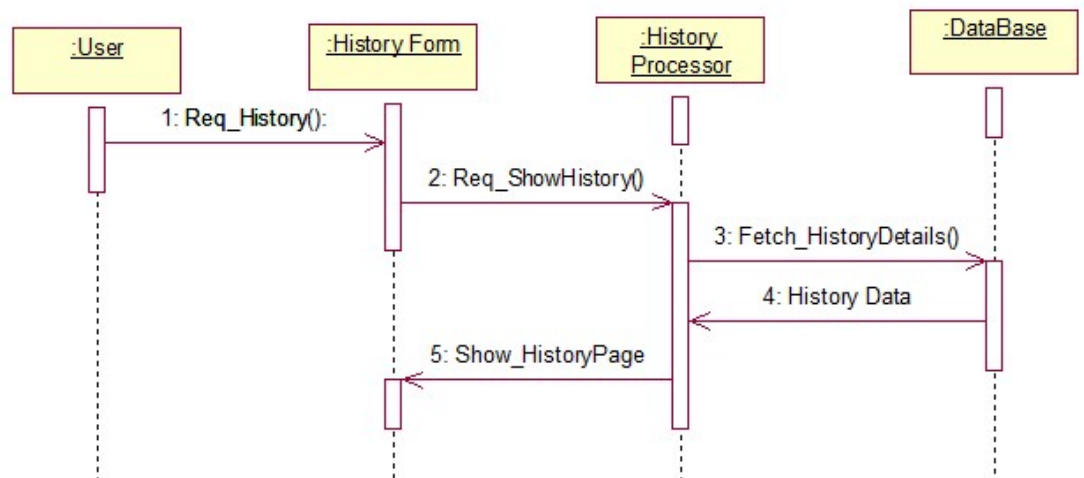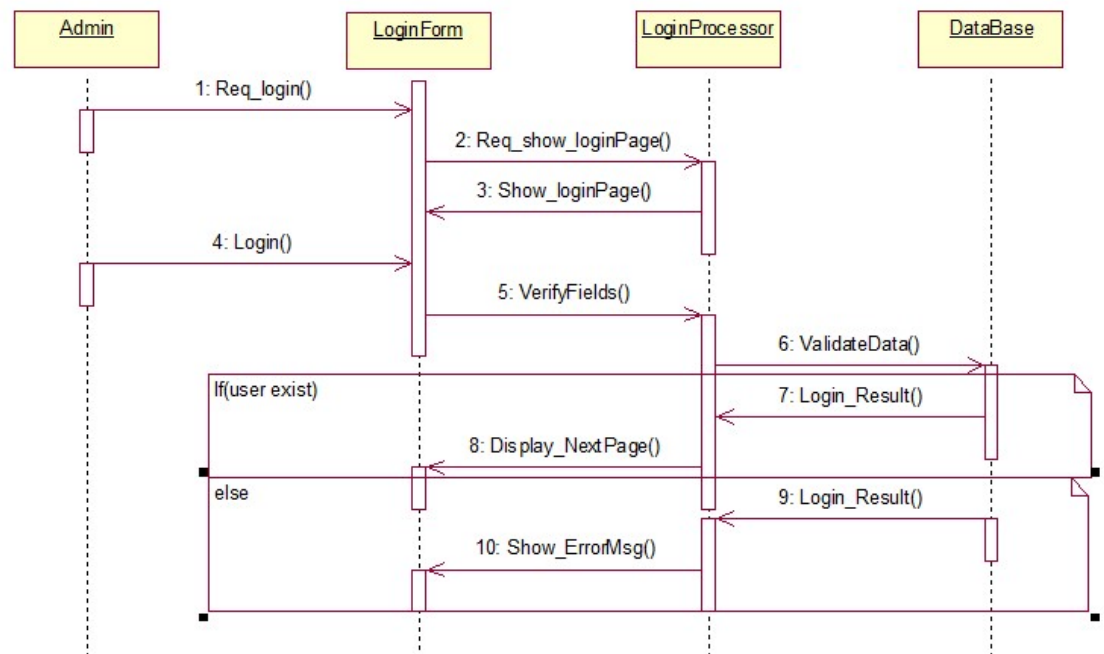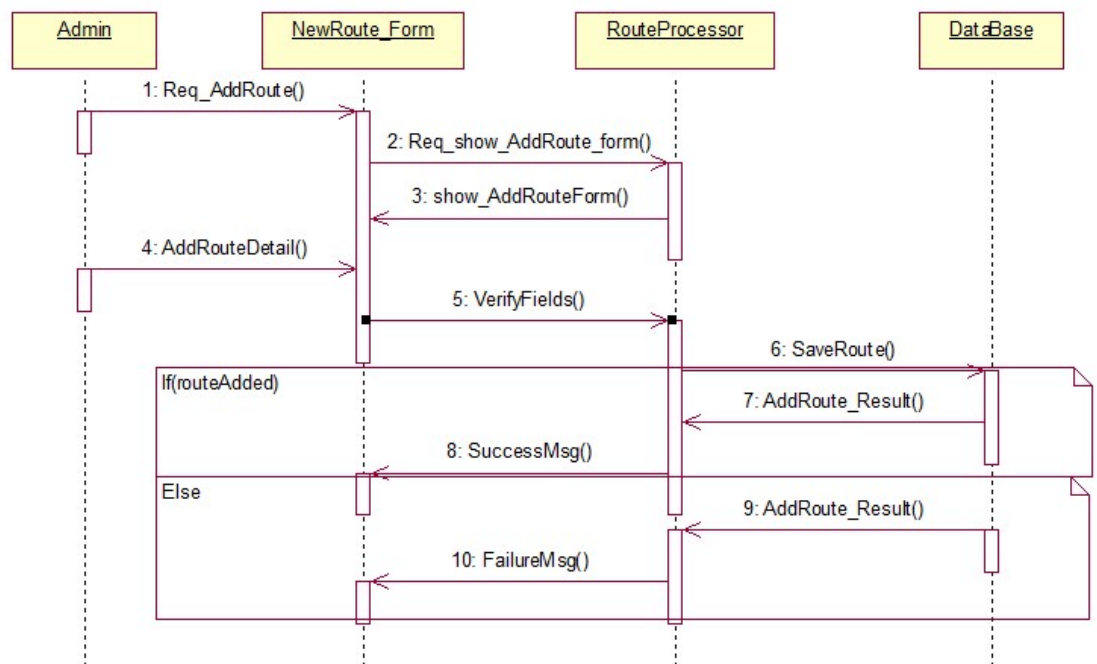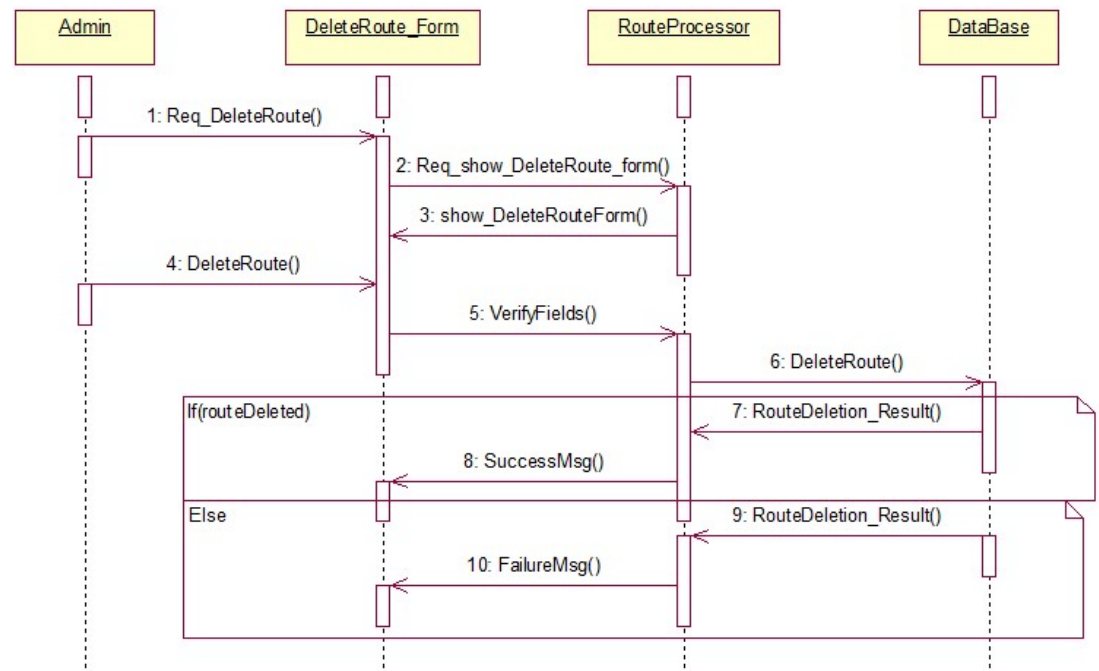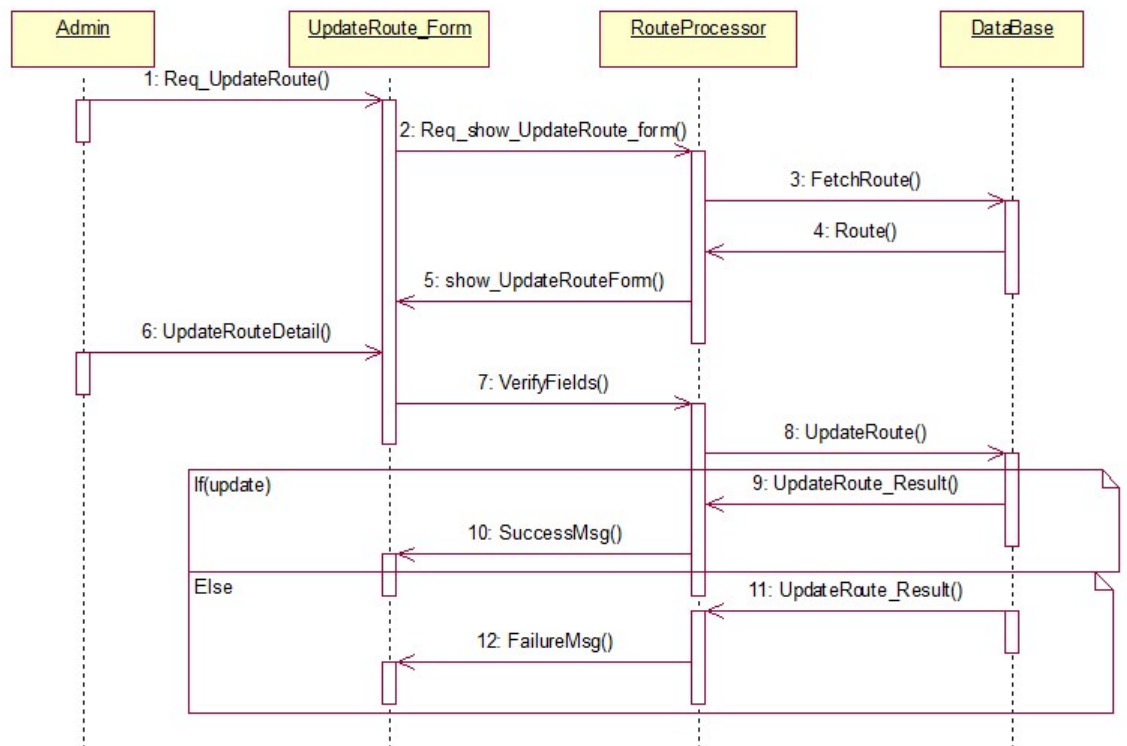
m) Add vehicle
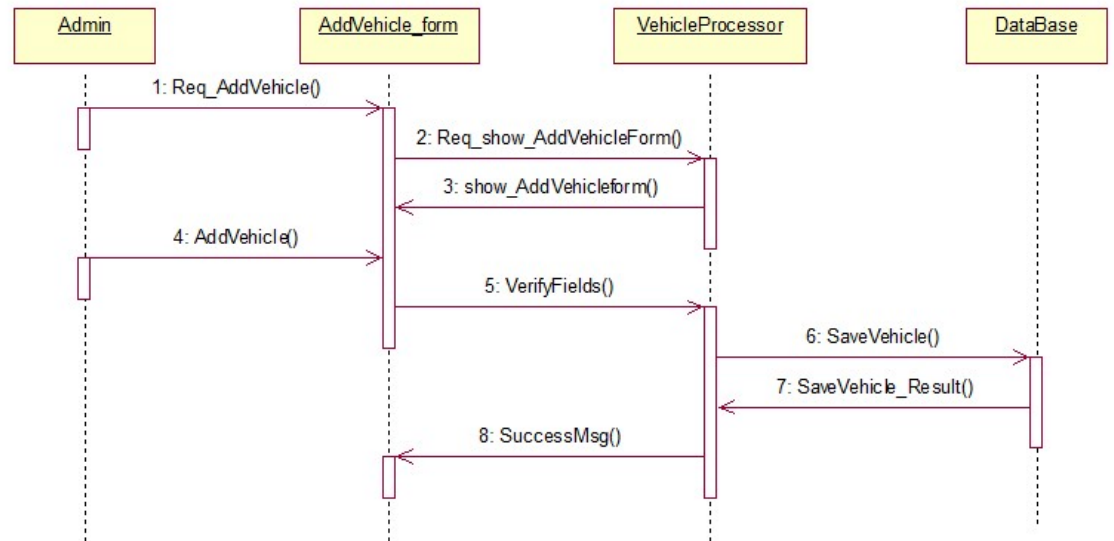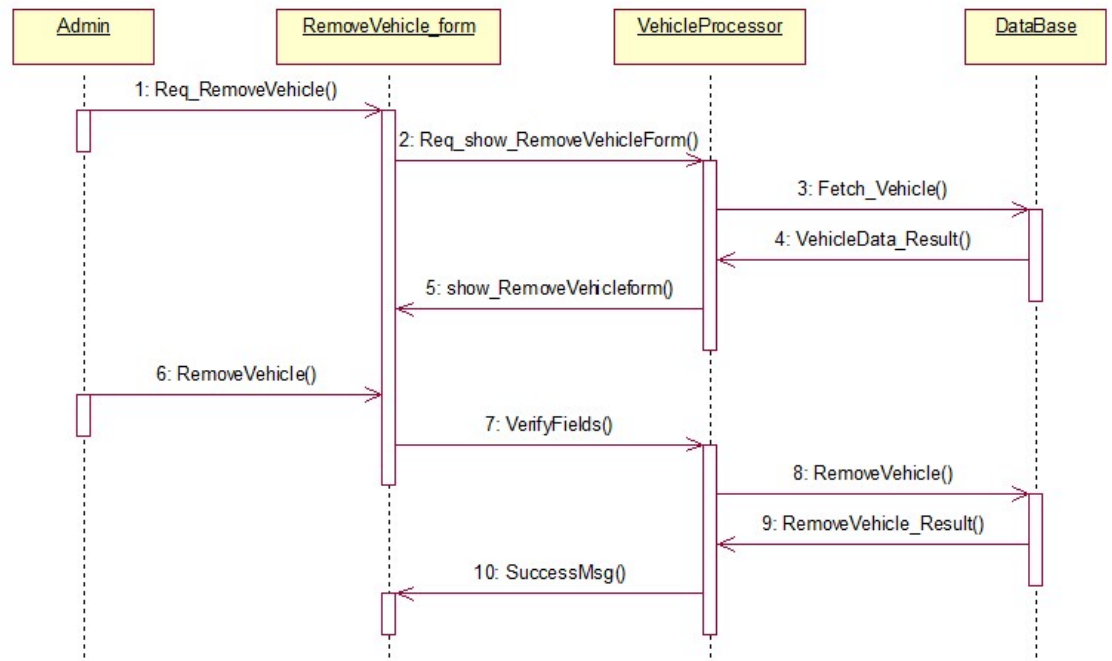
n) Remove vehicle

o) Update vehicle
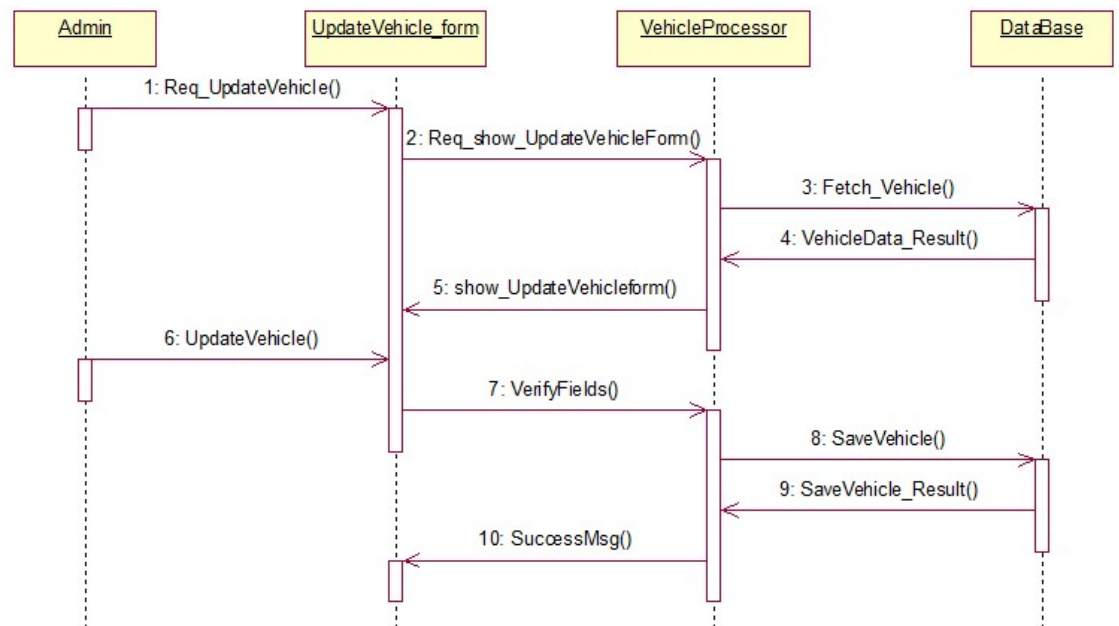
p) View suggested routes
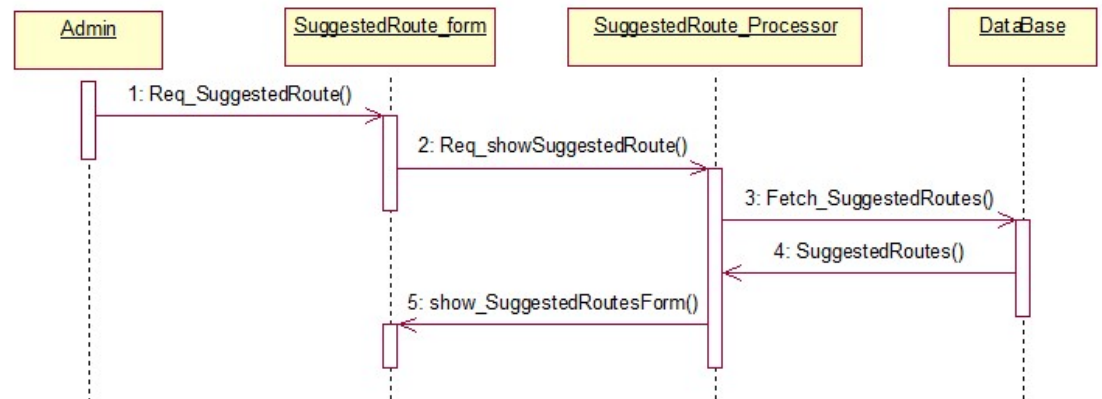
q) View feedback
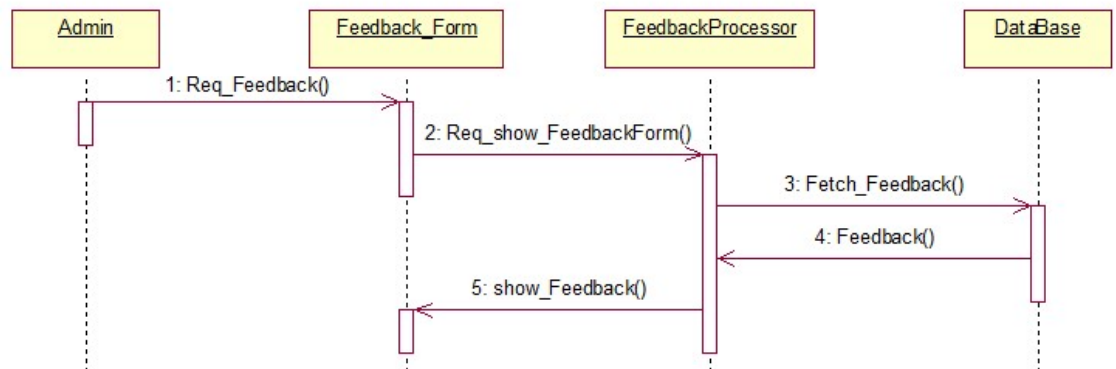
1.5 Collaboration Diagram

a) Register User
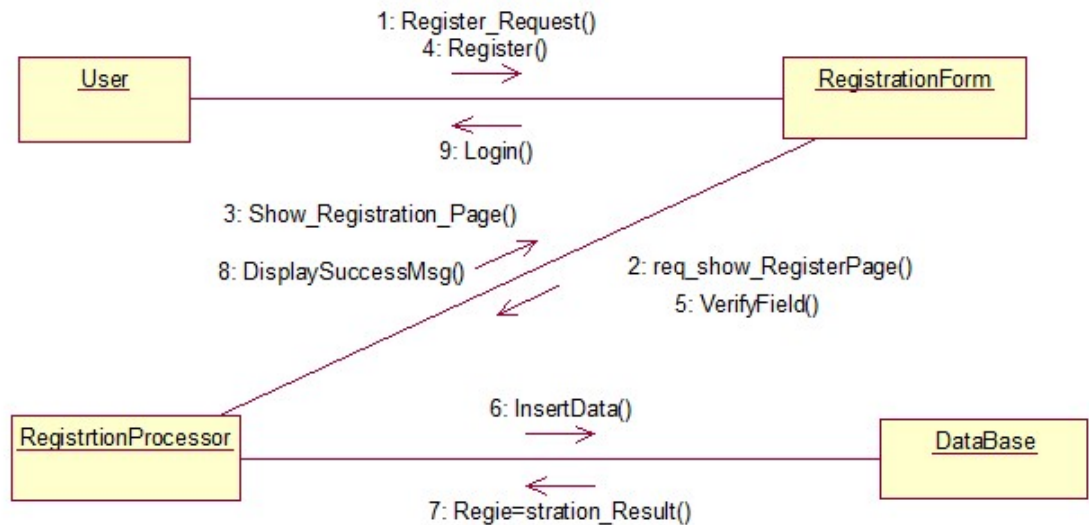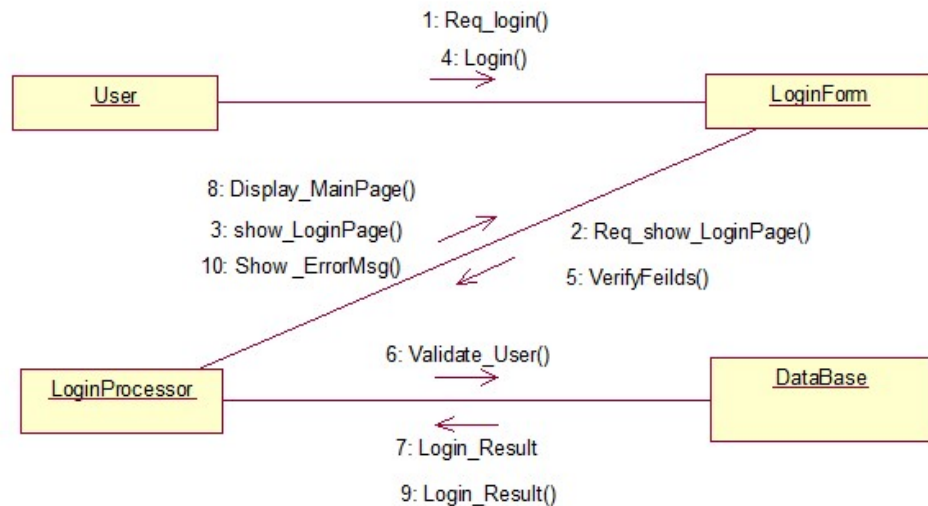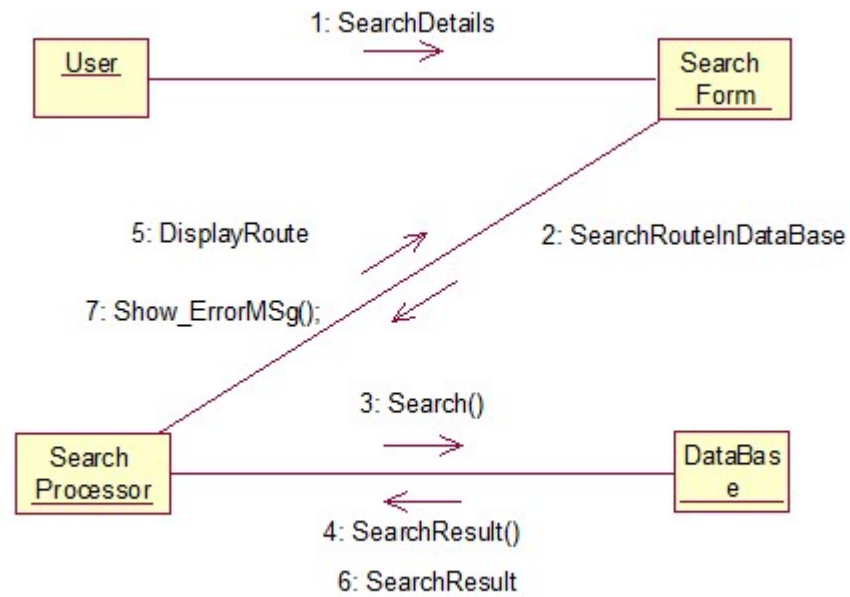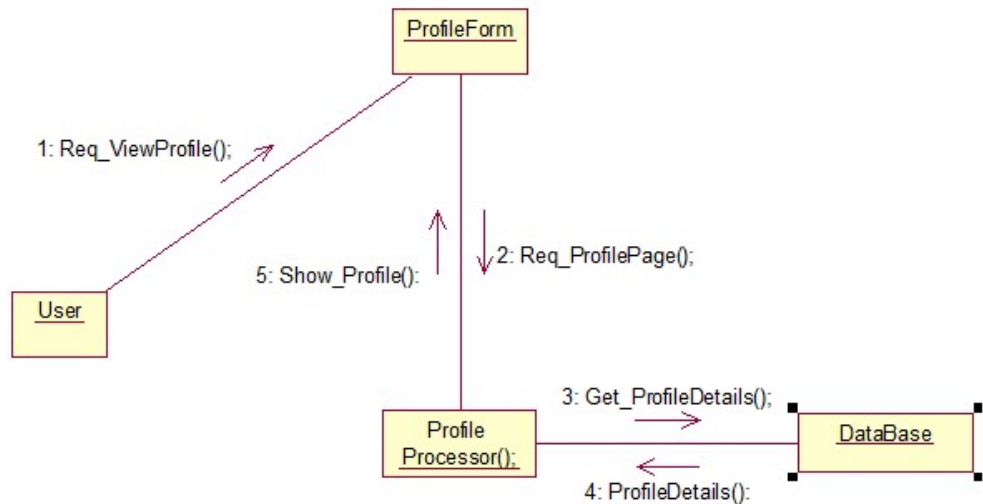
b) Login

c) Search

d) Select routes

e) Suggest routes

f) View profile

g) Update profile
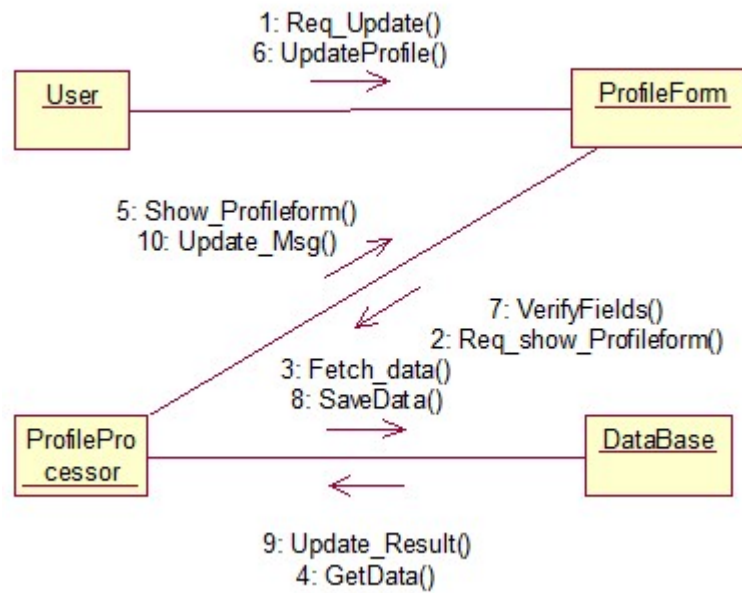
h) View history
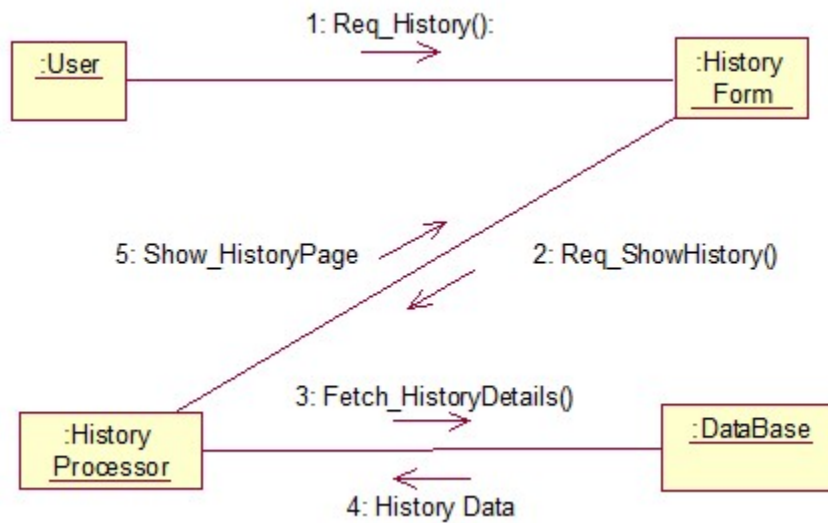
i) Admin login
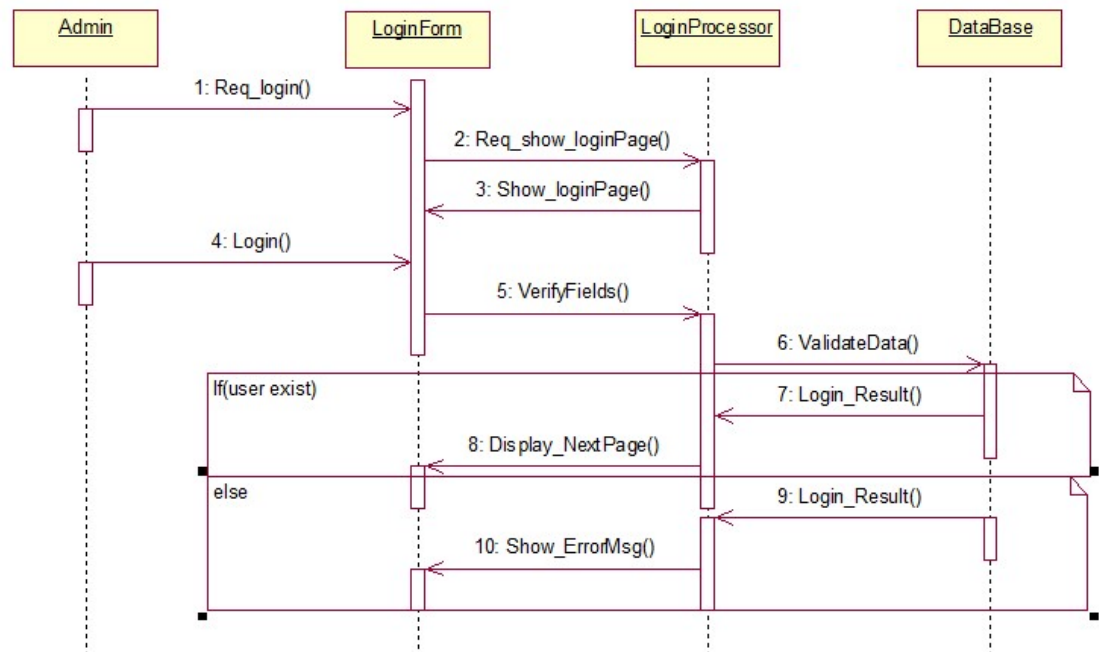
j) Add route
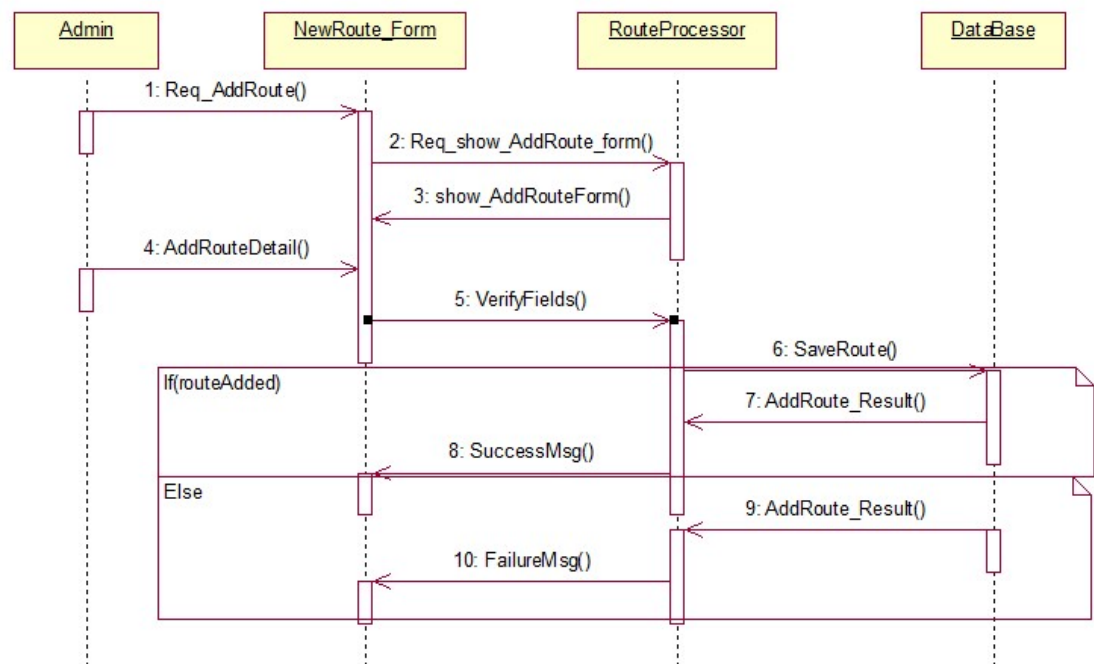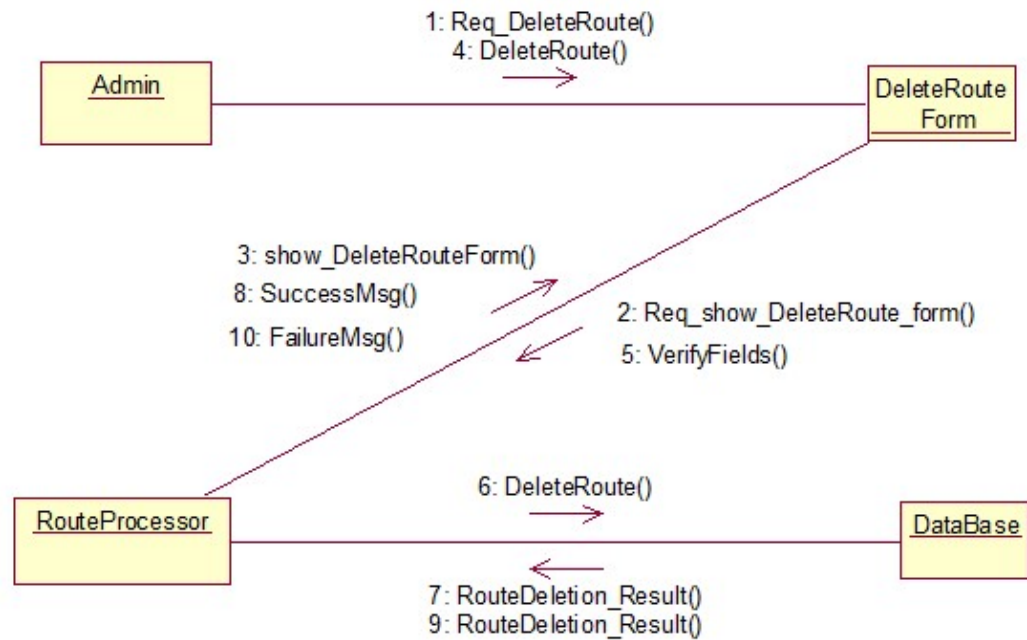
k) Remove route

l) Update route
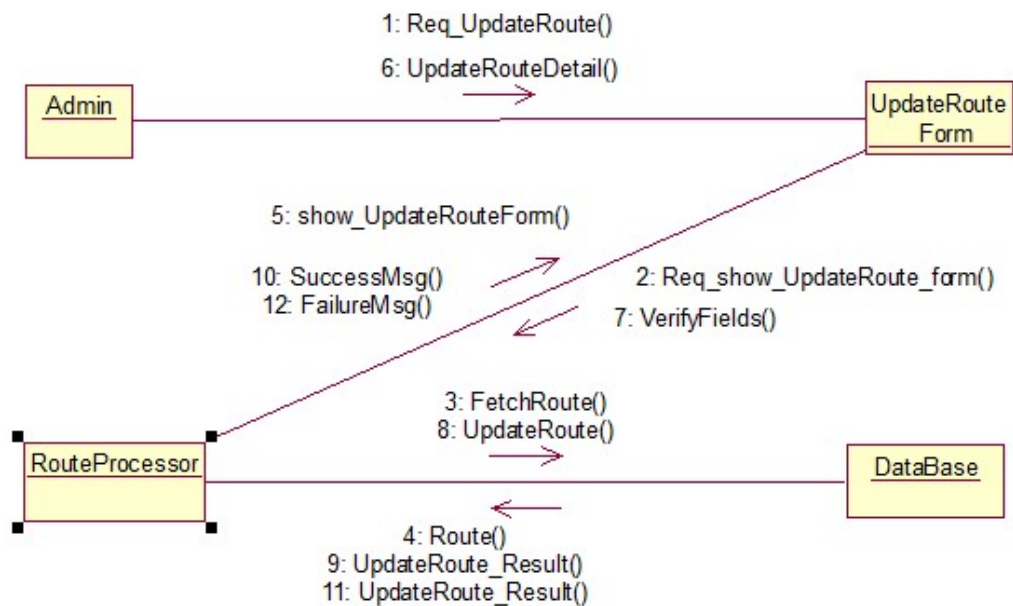
m) Add vehicle
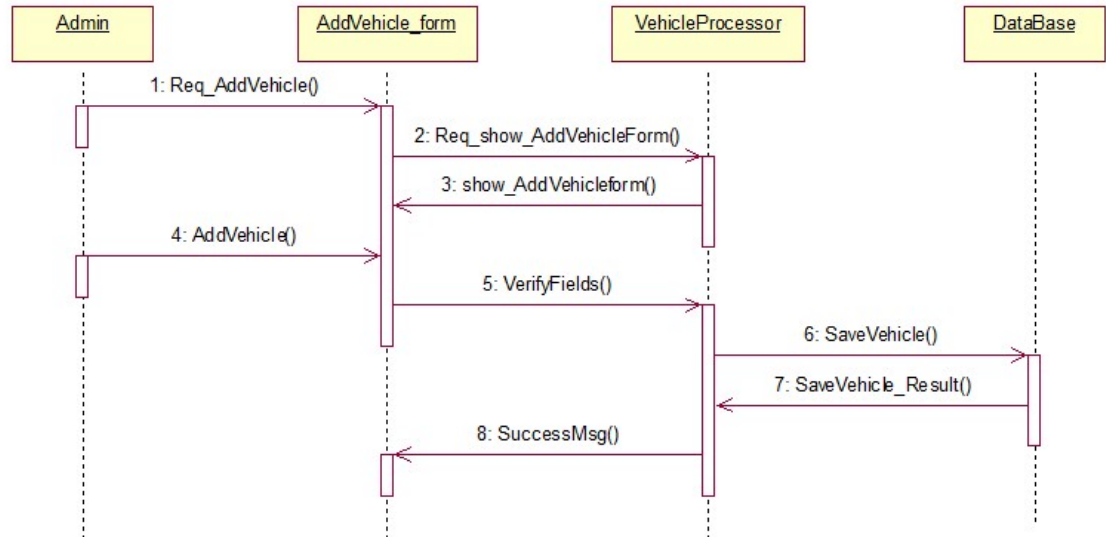
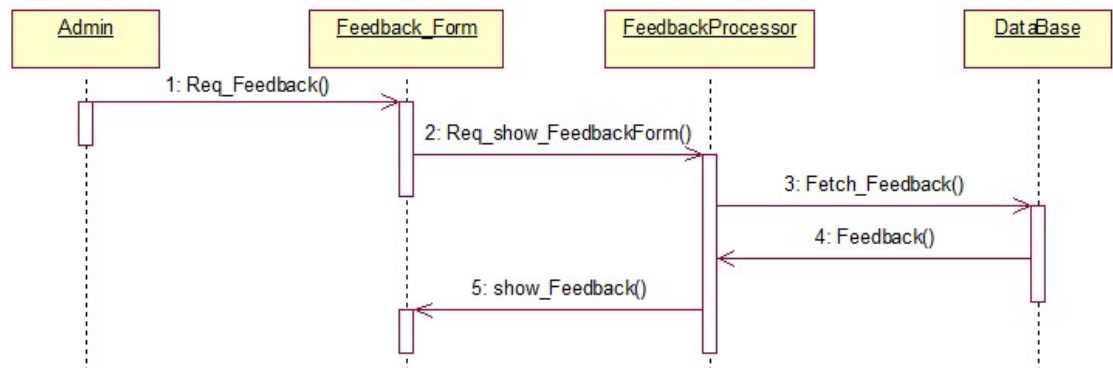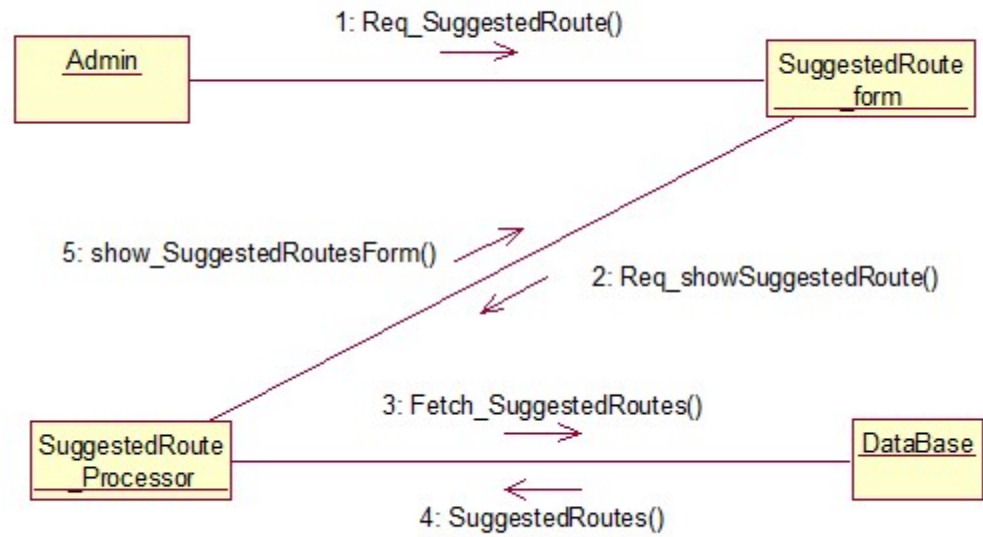### n) Remove vehicle
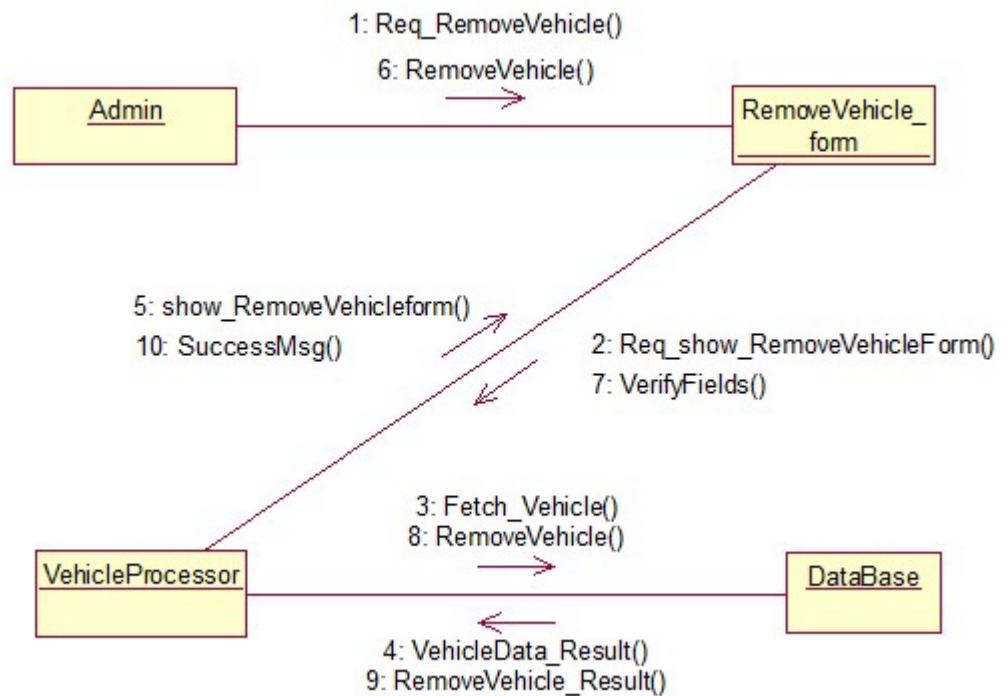
o) Update vehicle
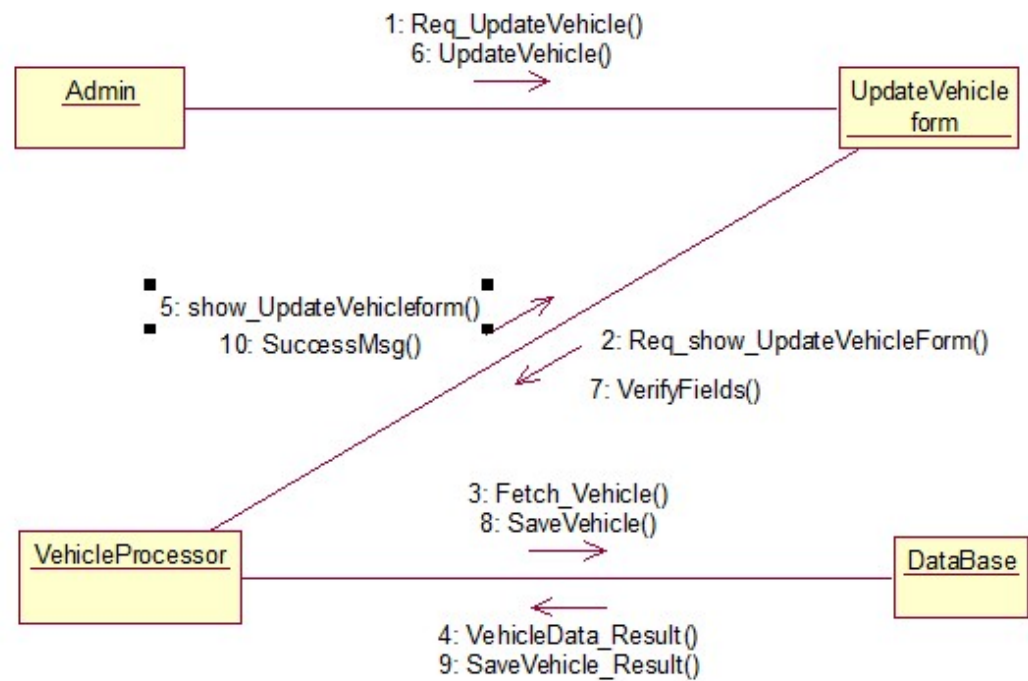
p) View feedbacks

q) View suggested routes

1.6 Operation Contracts

1. **Name:** Register User

   Responsibilities: Register a user to application

   Cross References: Register User

   Exceptions: Internet connection lost, user already has an account

   Preconditions: User does not have an account on application

   Postconditions: User should be successfully registered to application

2. **Name:** Login

   Responsibilities: Login a user to application

   Cross References: Login User

   Exceptions: Internet connection lost, user does not have an account

   Preconditions: User has an account on application

   Postconditions: User should be successfully logged in to application

3. **Name:** Search Route

   Responsibilities: User can search for his desired route

   Cross References: Search Route

   Exceptions: Internet connection lost, user entered an invalid location, GPS not working

   Preconditions: User must give a source location and a destination location

   Postconditions: User should be shown multiple, possible routes according his locations

4. **Name:** Select Route

   Responsibilities: User can view a complete route

Cross References: Select Route

Exceptions: None

Preconditions: User has searched for routes

Postconditions: User should be displayed a single complete route

5. **Name:** Suggest Route

   Responsibilities: Suggest the admin to add a new route

   Cross References: Suggest Route

   Exceptions: Internet connection lost

   Preconditions: User must have an account on application

   Postconditions: Route should be added to suggestions for approval of admin

6. **Name:** View Profile

   Responsibilities: User can view his profile

   Cross References: View Profile

   Exceptions: Internet connection lost, user does not have an account

   Preconditions: User must have an account on application

   Postconditions: User should be displayed his information

7. **Name:** View History

   Responsibilities: User can view his previous searched routes

   Cross References: View History

   Exceptions: Internet connection lost

   Preconditions: User has an account on application

   Postconditions: User should be displayed all of his previous searched routes

8. **Name:** Add Route

Responsibilities: Admin should add a new route to application

Cross References: Add Route

Exceptions: Internet connection lost

Preconditions: Route being add does not exists already in database

Postconditions: Route should be added to database hence available for user

9. **Name:** Update Route

   Responsibilities: Admin should update an existing route to application

   Cross References: Update Route

   Exceptions: Internet connection lost

   Preconditions: Route being update exists in database

   Postconditions: Route should be updated to database

10. **Name:** Delete Route

    Responsibilities: Admin should delete an existing route to application

    Cross References: Delete Route

    Exceptions: Internet connection lost

    Preconditions: Route being delete exists in database

    Postconditions: Route should be deleted from database

11. **Name:** View Suggestions

    Responsibilities: Admin can view suggested routes by users

    Cross References: View Suggestions

    Exceptions: Internet connection lost

    Preconditions: None

    Postconditions: Admin can approve/disapprove suggested routes

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12. **Name:** View Feedbacks

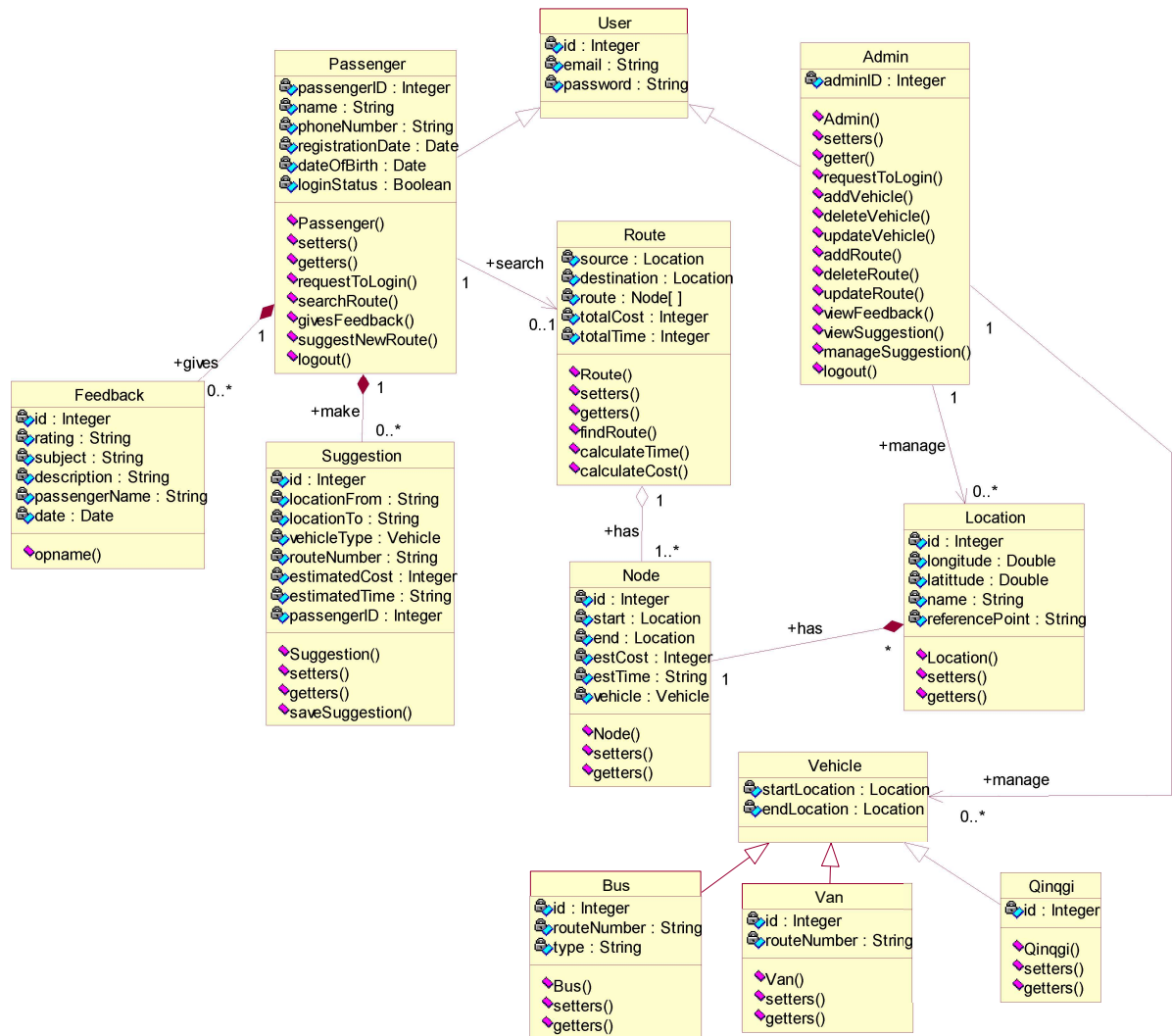**Responsibilities:** Admin can view feedbacks from users

Cross References: View Feedbacks

Exceptions: Internet connection lost

Preconditions: None

Postconditions: None

1.7 Design Class Diagram

1.7 Data Model

Data Diagram fyp(Crow's Foot)

usman | November 28, 2019