Carpool Clan - Deliverable #3

SE 3A04: Software Design II – Large System Design

Tutorial Number: T02

Group Number: G3

Group Members:

- Mya Hussain
- Moamen Ahmed
- Jinal Kasturiarachchi
- Nivetha Kuruparan
- Aadil Rehan

IMPORTANT NOTES

- You do NOT need to provide a text explanation of each diagram; the diagram should speak for itself
- Please document any non-standard notations that you may have used
  - *Rule of Thumb*: if you feel there is any doubt surrounding the meaning of your notations, document them
- Some diagrams may be difficult to fit into one page
  - It is OK if the text is small but please ensure that it is readable when printed
  - If you need to break a diagram onto multiple pages, please adopt a system of doing so and throughly explain how it can be reconnected from one page to the next; if you are unsure about this, please ask me
- Please submit the latest version of Deliverable 1 and Deliverable 2 with Deliverable 3
  - They do not have to be a freshly printed versions; the latest marked versions are OK
- If you do NOT have a Division of Labour sheet, your deliverable will NOT be marked

1 Introduction

The SRS for a mobile taxi-sharing application aims to provide a convenient way for customers to arrange taxi carpools in order to minimize the cost of a trip. The application is being developed for the local taxi company, CarpoolClan, to attract more customers and increase revenue in the long term.

1.1 Purpose

The purpose of the SRS is to serve as a basis for communication between the developers and stakeholders to ensure that all parties have a clear understanding of the application's functionality, features, and technical requirements. The SRS will serve as a blueprint for the developers and acts as a reference throughout the process and testing phases, making sure that the final product meets the customer's needs and expectations.

The intended audience for SRS is the stakeholders involved in the development and implementation of the mobile taxi-sharing application, including:

1. Developers: The developers, software architects, and engineers who will be responsible for designing, building, and testing the app.
2. Customers: The customers who will be using the application to arrange taxi carpools, including information about destinations, taxi IDs, and estimated fares.
3. Project Manager: The person responsible for overseeing the process, ensuring the project stays on schedule.
4. Taxi Company: The local taxi company that has commissioned the development of the application and will be using it to attract more customers and increase revenue.
5. Investors: Anyone who has provided financial support for the project and wants to understand the requirements for the application.

1.2 System Description

A mobile taxi carpool application for the local taxi firm, CarpoolClan, is being developed. The app aims to offer an affordable and straightforward solution for customers to arrange shared taxi rides. It will incorporate several software components, including online mapping, carpooling features, and secure data encryption to protect user privacy. The app will provide many benefits, such as increased efficiency, a user-friendly interface, cost savings, reduced environmental impact, and improved customer satisfaction.

The application will enable users to create accounts and select their preferred co-riders. All information will be protected with AES encryption. Users can both request and offer ride-sharing services, with the option to choose from a range of potential routes. The app includes the MixMaster feature, allowing for music to be queued during the ride, as well as the WeatherWizard feature, enabling adjustments to the taxi's air conditioning. The main aims of the app are to satisfy customer expectations and needs, and to provide a secure platform for the storage and transmission of sensitive data.

1.3 Overview

The SRS document contains the following state charts for controller classes:

- Encryption Controller
- Account Management Controller
- Session Controller
- Dispatcher Controller

- Trip Duration
- WeatherWizard Controller
- MixMaster Controller

The SRS document contains sequence diagrams for the following use cases:

- Create user profile
- Login
- Delete profile
- Edit profile
- Request Taxi Carpool
- Ride Pickup
- Ride Drop-Off
- Offer Taxi Carpool
- Add a Song to Playlist
- Remove a Song from Playlist
- Edit AC
- Open/Close Window

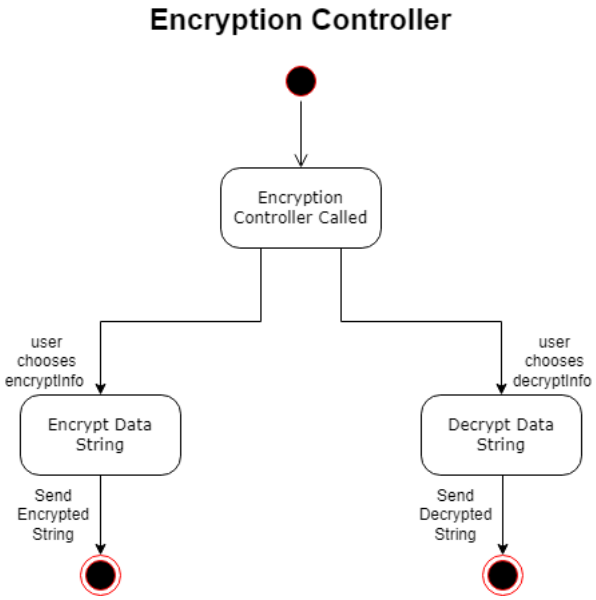
All charts are organized in sequential order.

The SRS document contains an overall detailed class diagram. This diagram provides a thorough breakdown of the system's boundary, identity, and control classes, and how they all interact in the system.

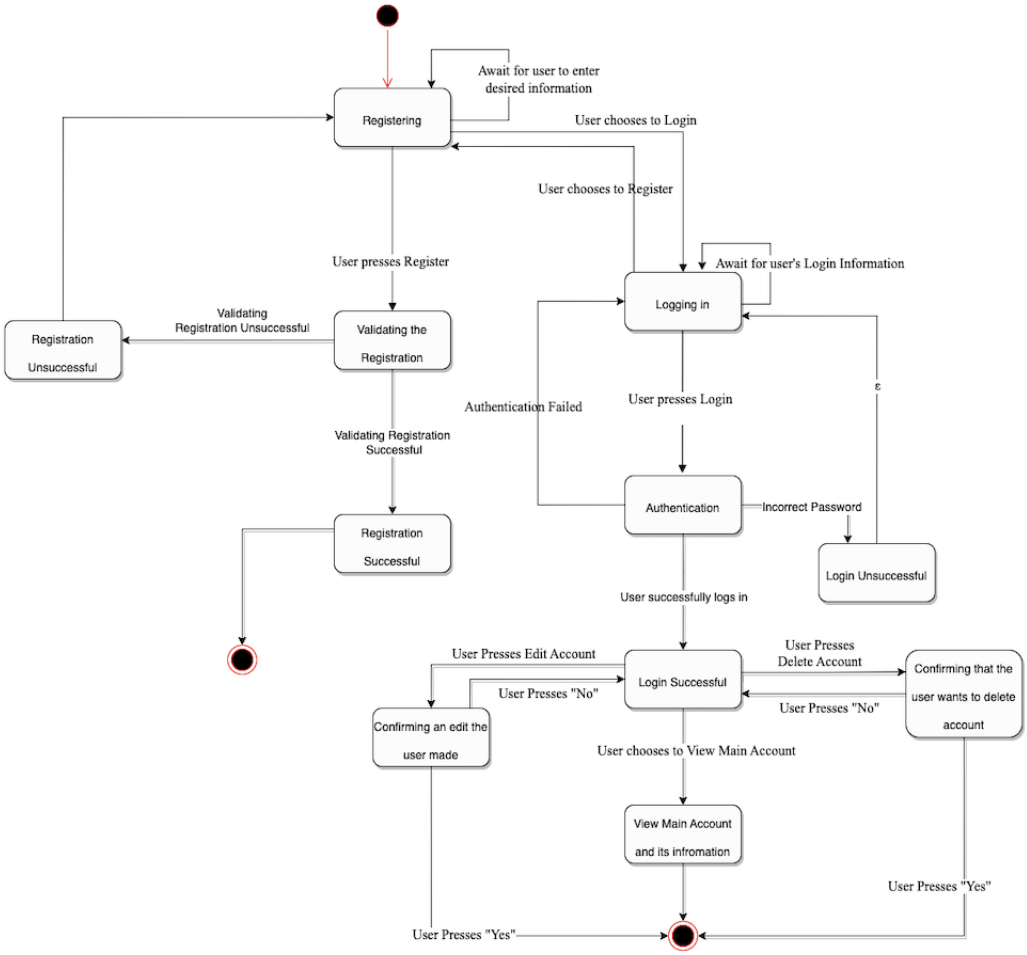
All images were handed in on avenue for reference in a folder, to be used if diagrams are not clearly visible on this document.

2 State Charts for Controller Classes

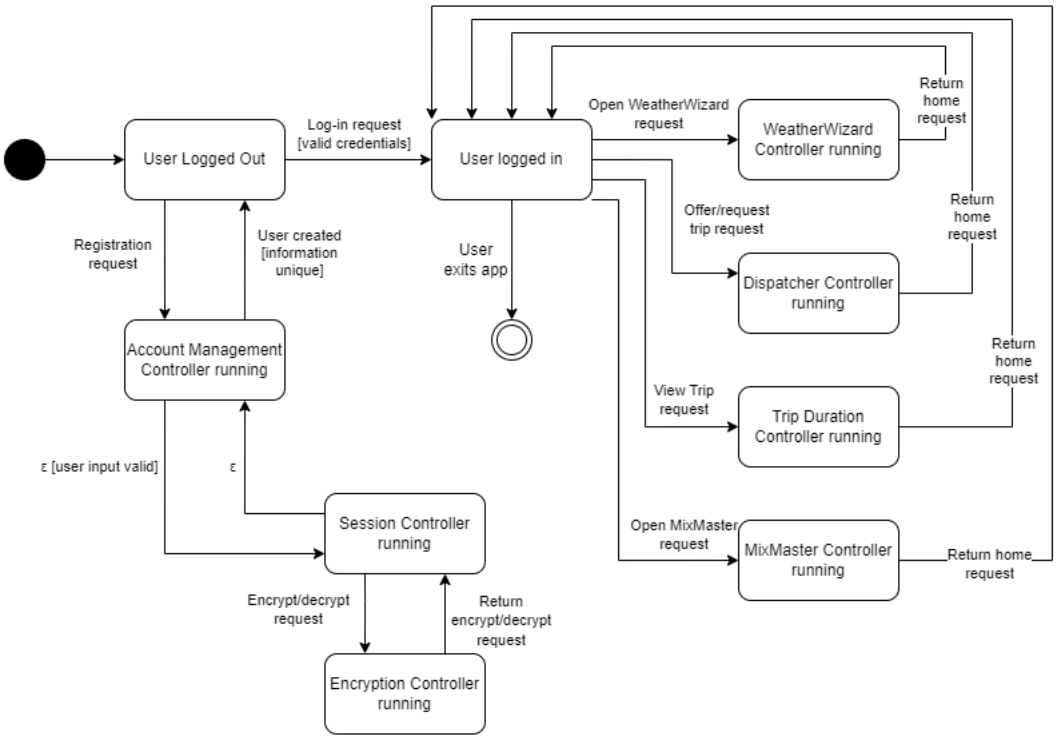
This section should provide a state chart for each controller class for your application.



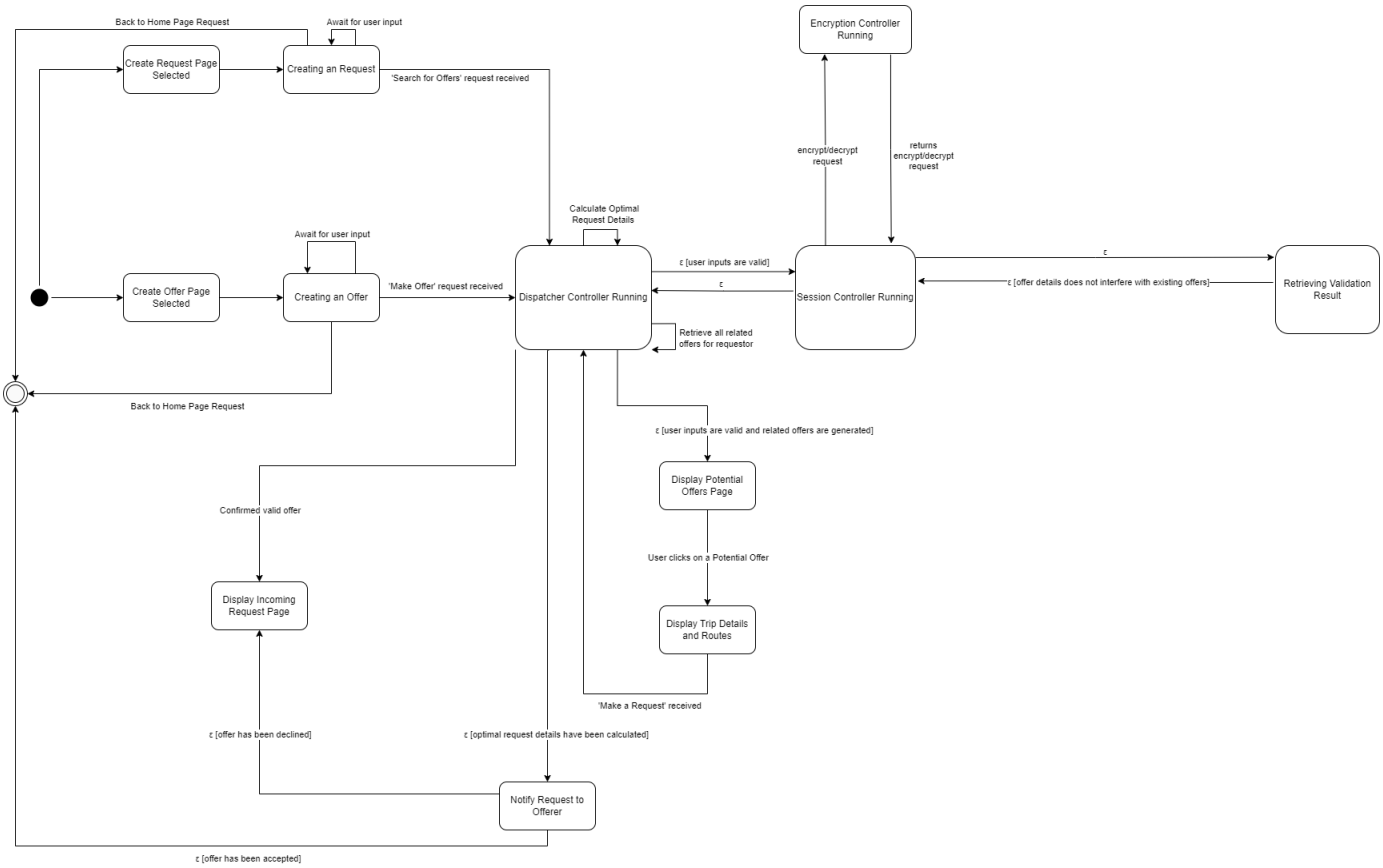
Account Management Controller



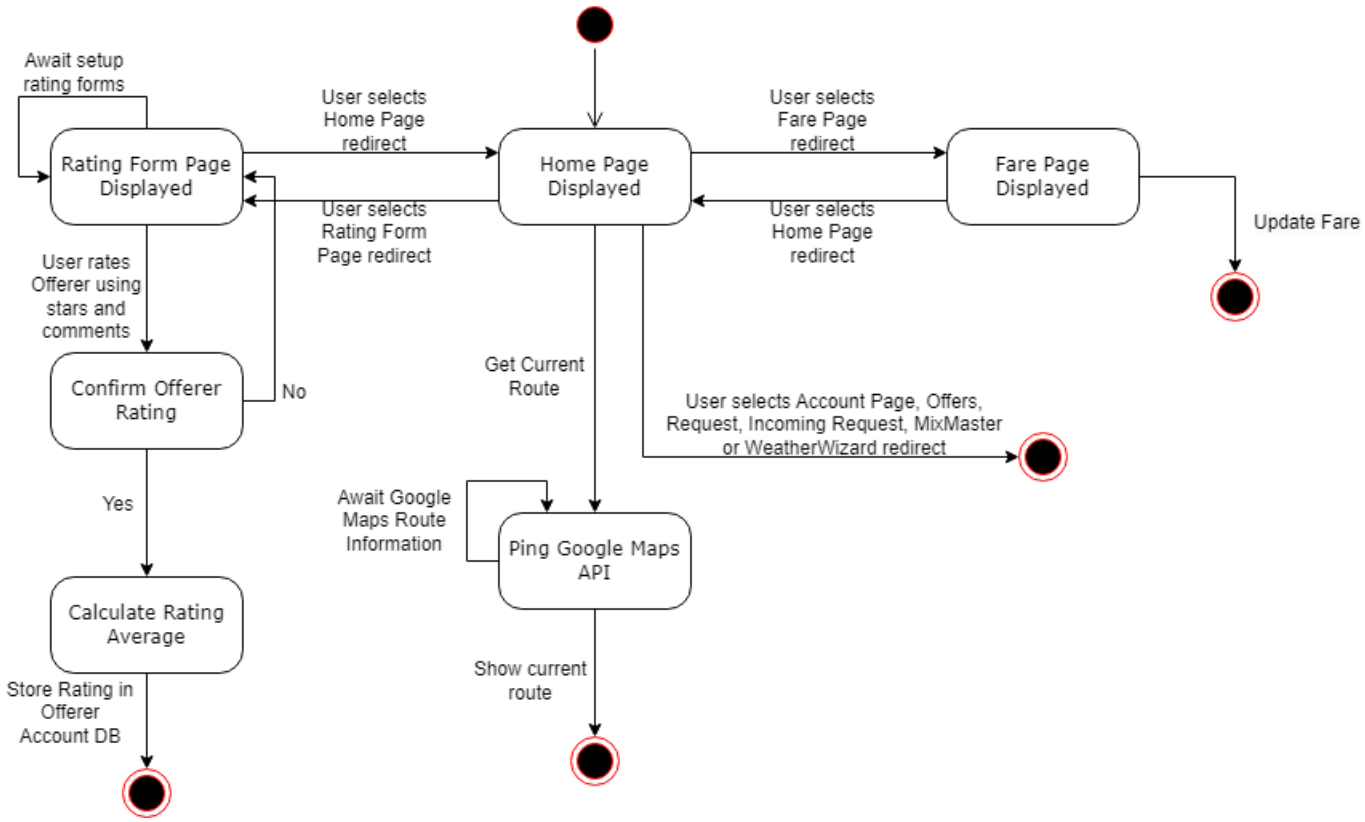
Session Controller State Chart



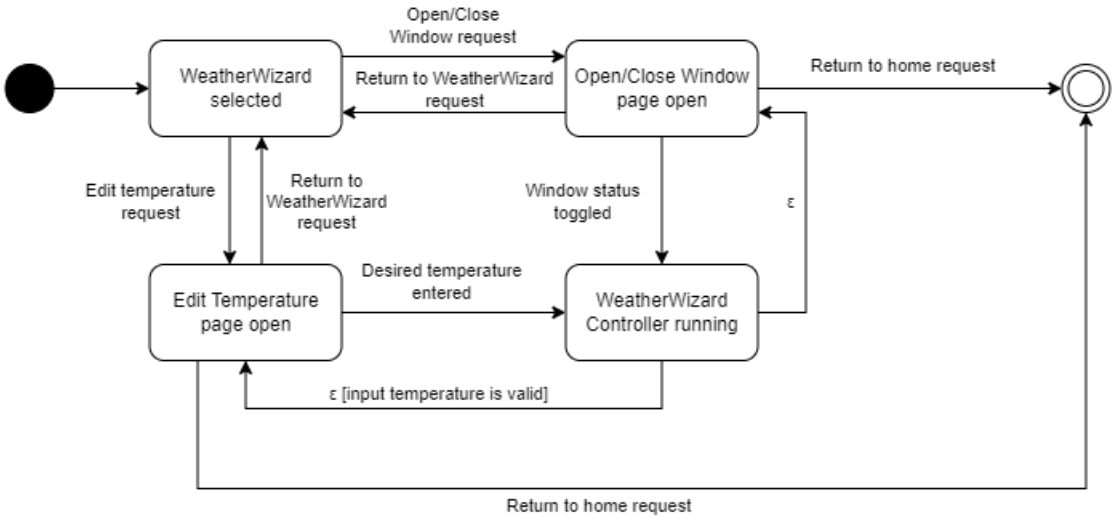
Dispatcher Controller State Chart



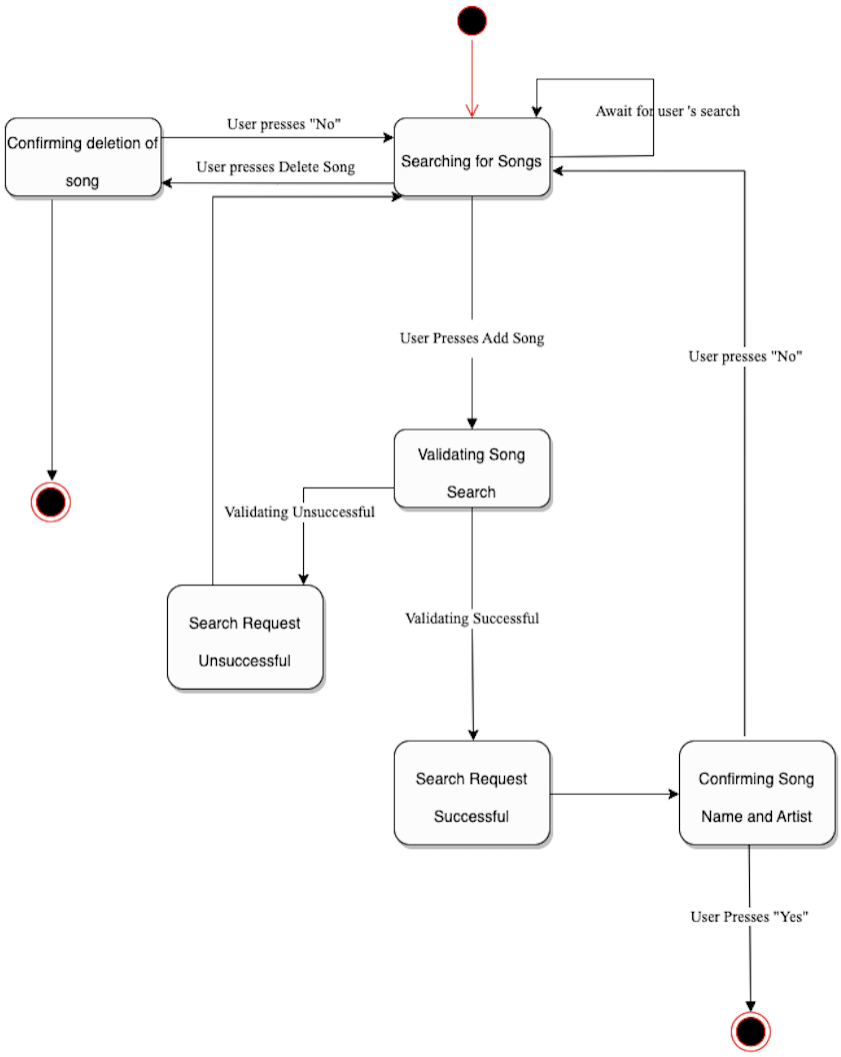
Trip Duration Controller



WeatherWizard Controller State Chart



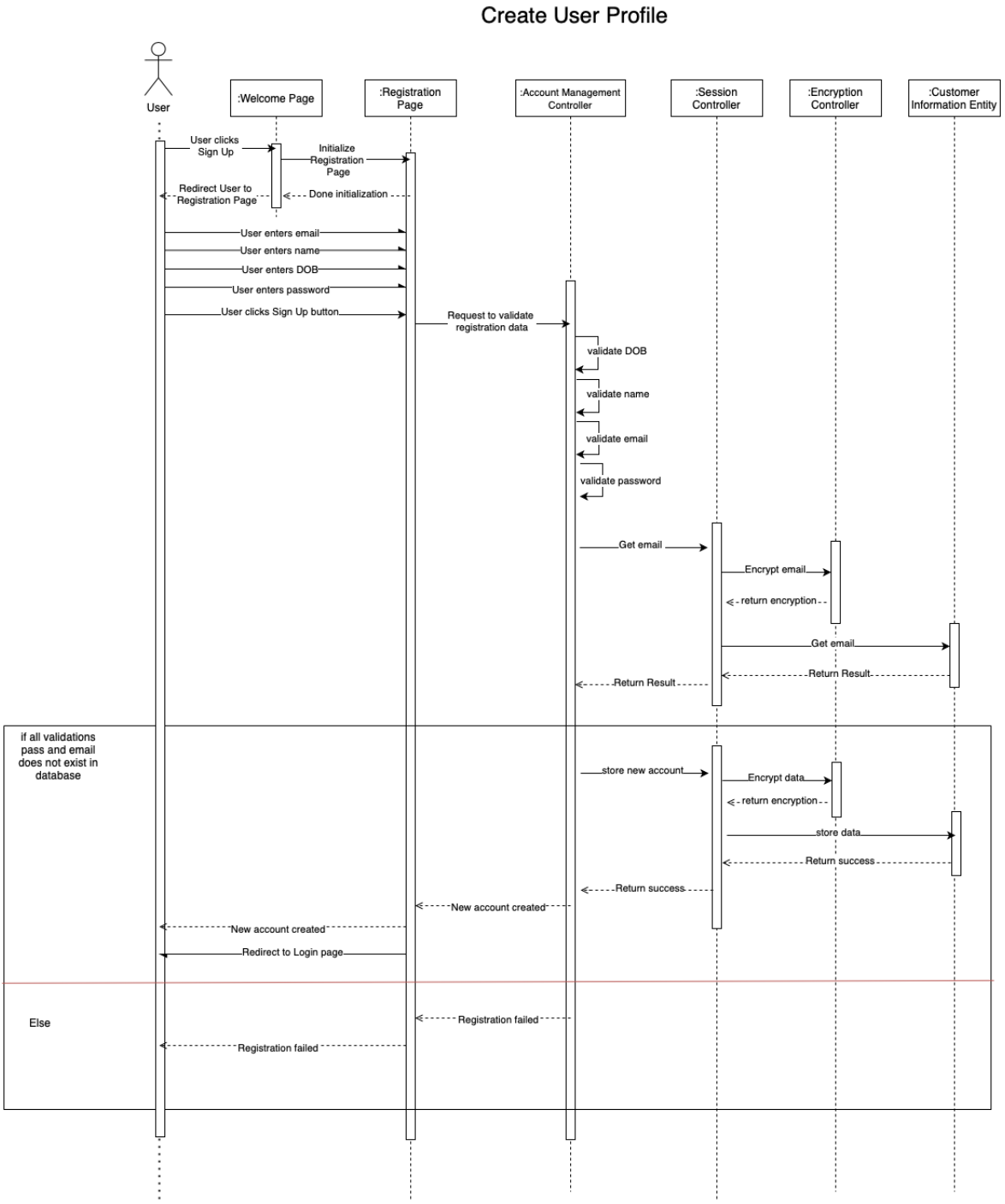
MixMaster Controller



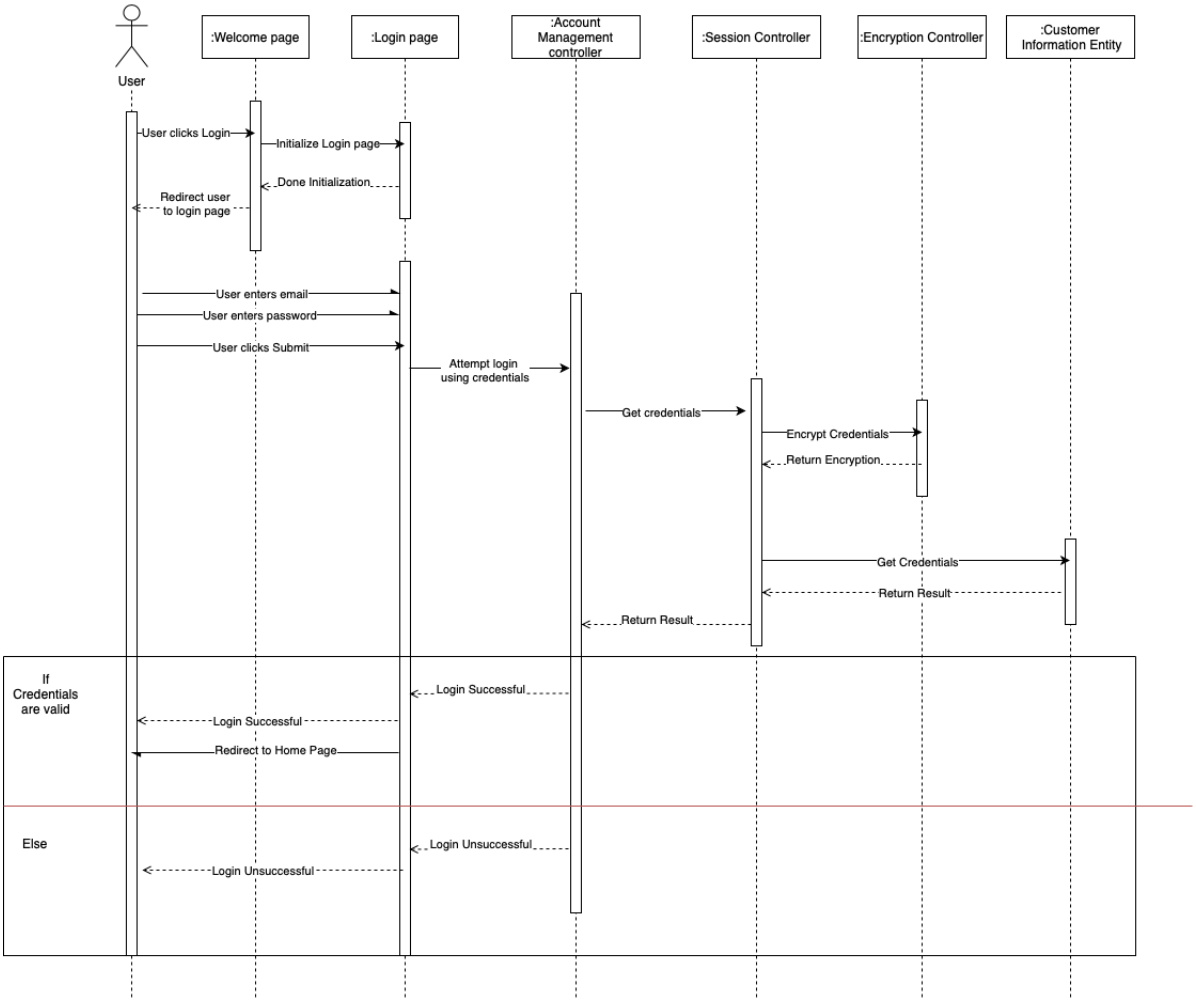
3 Sequence Diagrams

This section should provide a sequence diagram for each use case of your application.

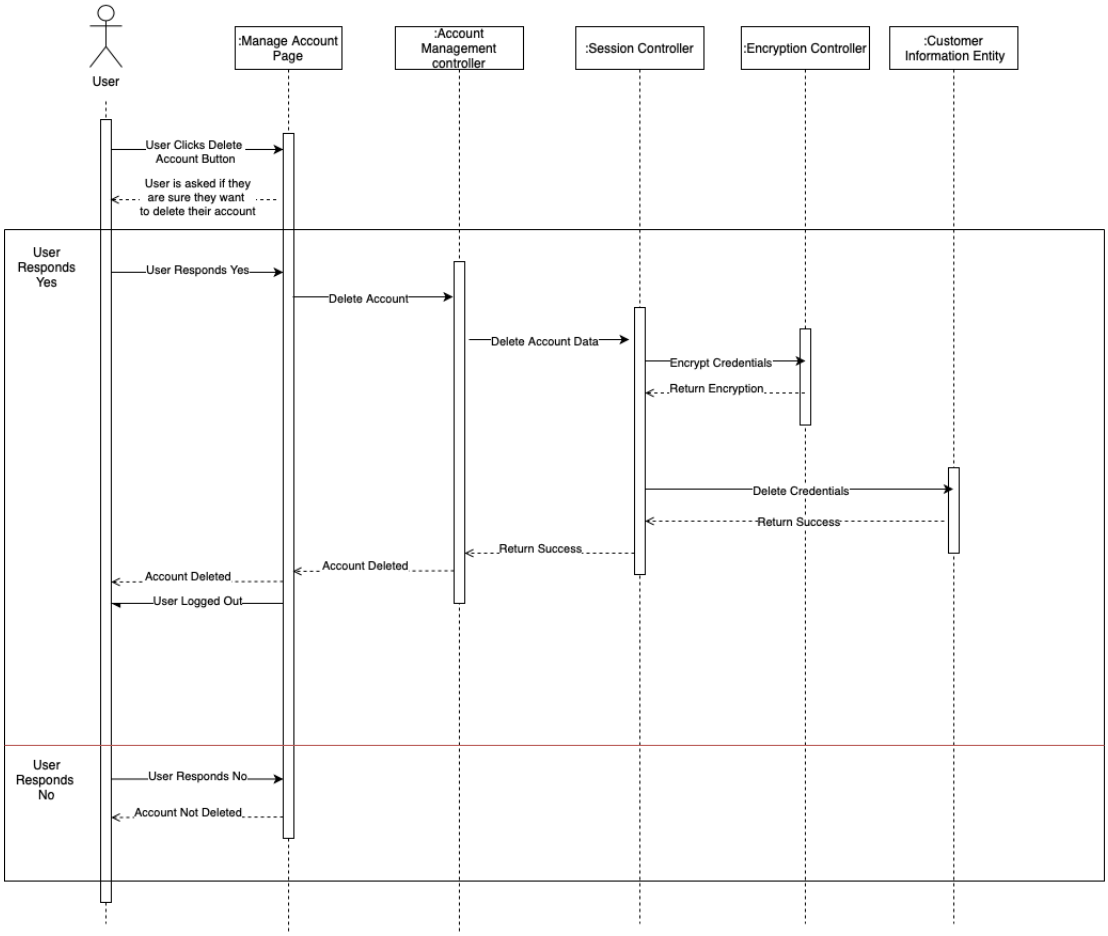
The Use cases are as follows

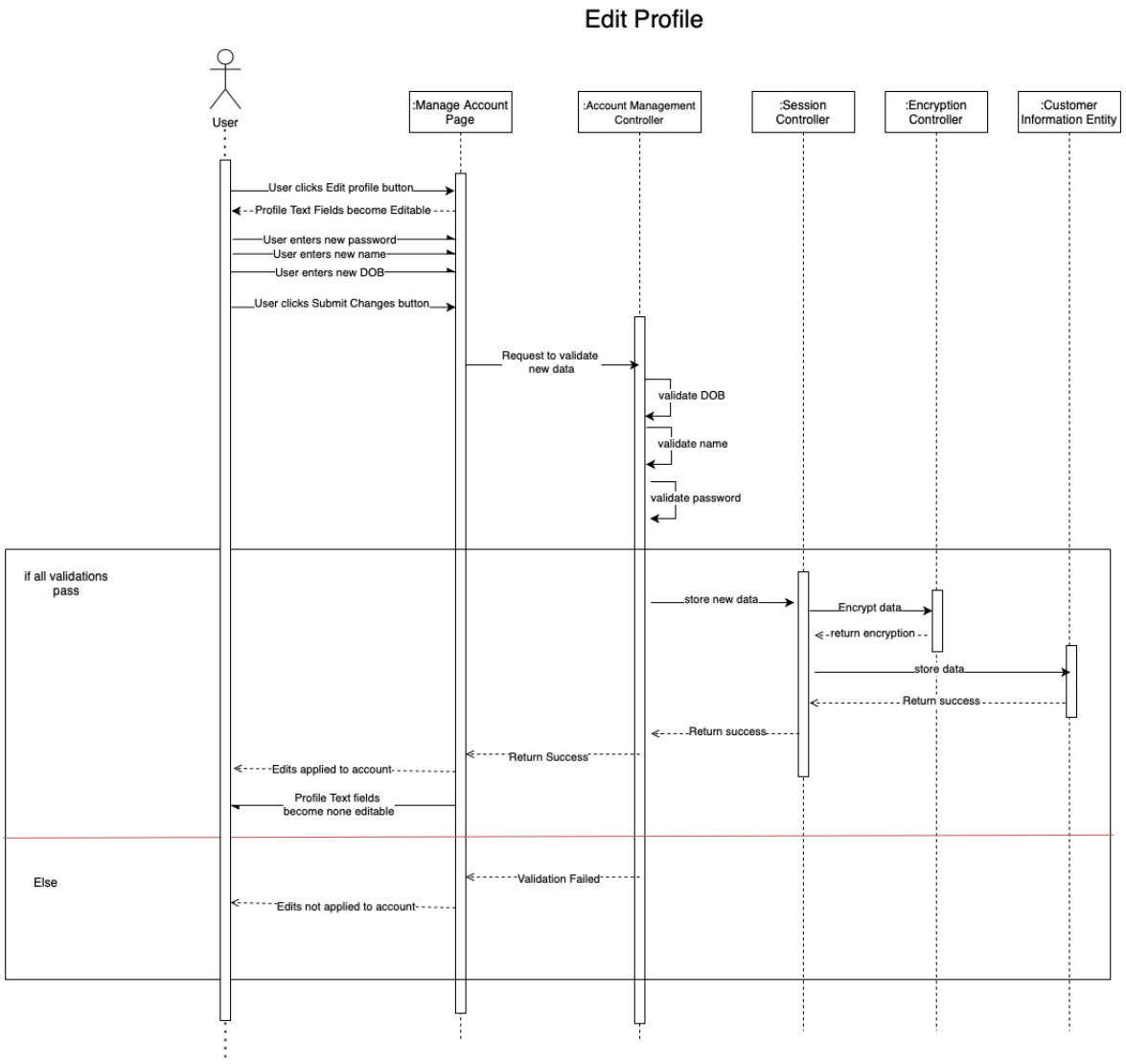


Login

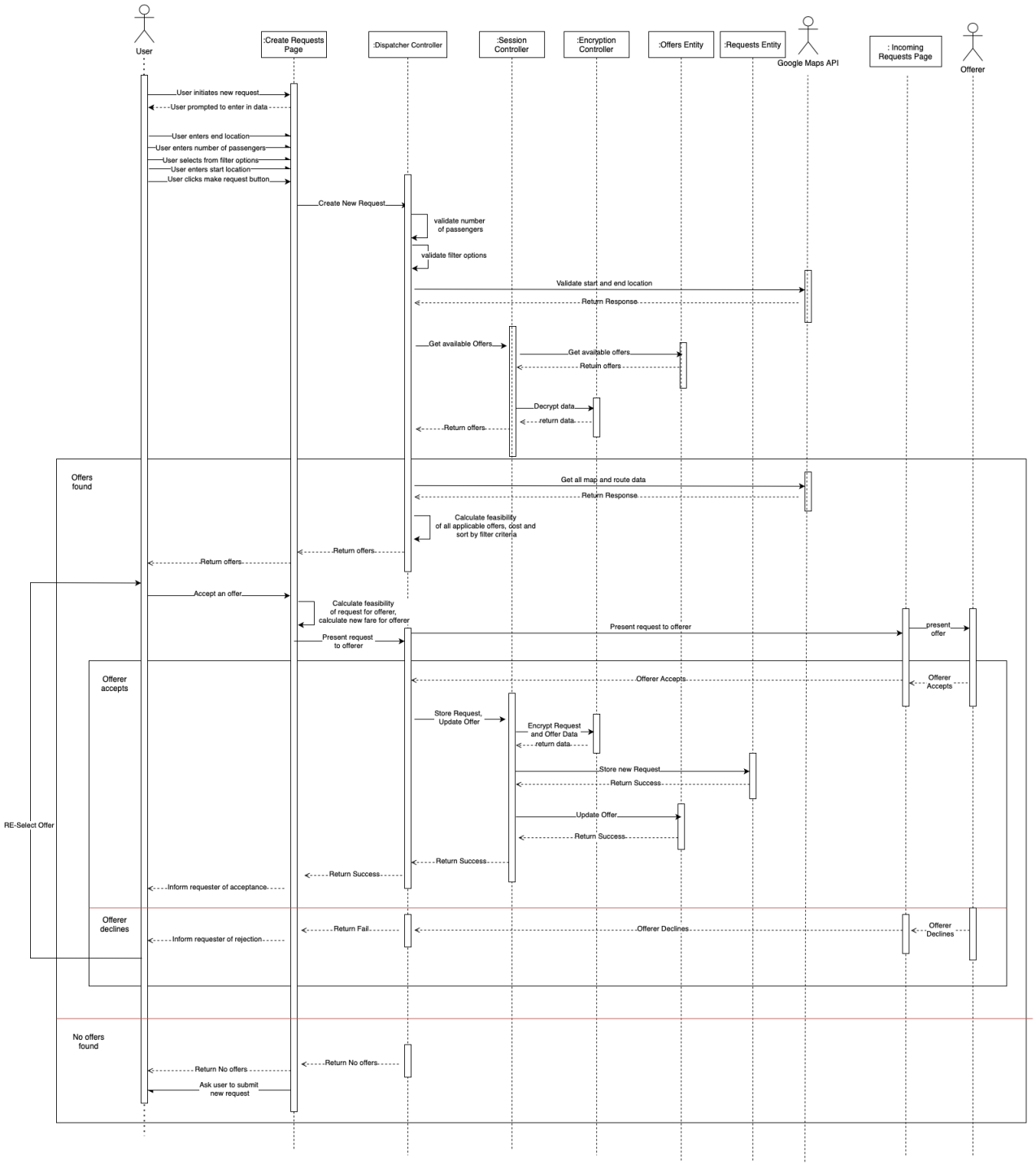

User
:Welcome page
:Login page
:Account Management controller
:Session Controller
:Encryption Controller
:Customer Information Entity
User clicks Login
Initialize Login page
Done Initialization
Redirect user to login page
User enters email
User enters password
User clicks Submit
Attempt login using credentials
Get credentials
Encrypt Credentials
Return Encryption
Get Credentials
Return Result
Return Result
If Credentials are valid
Login Successful
Login Successful
Redirect to Home Page
Else
Login Unsuccessful
Login Unsuccessful

Delete Account

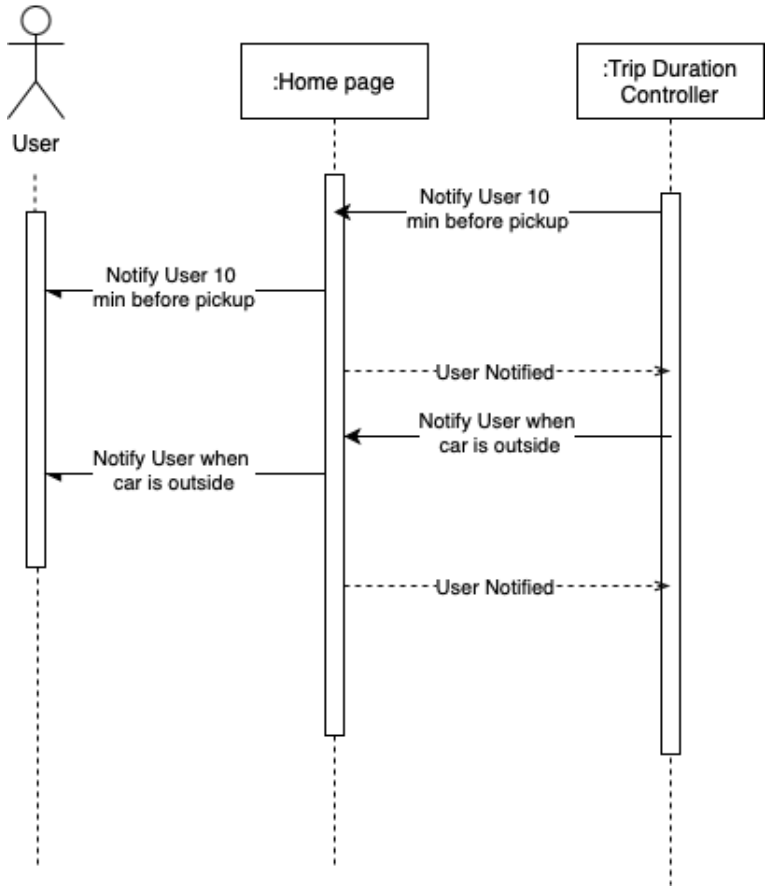



Edit Profile
User
:Manage Account Page
:Account Management Controller
:Session Controller
:Encryption Controller
:Customer Information Entity
User clicks Edit profile button
Profile Text Fields become Editable
User enters new password
User enters new name
User enters new DOB
User clicks Submit Changes button
Request to validate new data
validate DOB
validate name
validate password
if all validations pass
store new data
Encrypt data
return encryption
store data
Return success
Return success
Return Success
Edits applied to account
Profile Text fields become none editable
Else
Validation Failed
Edits not applied to account

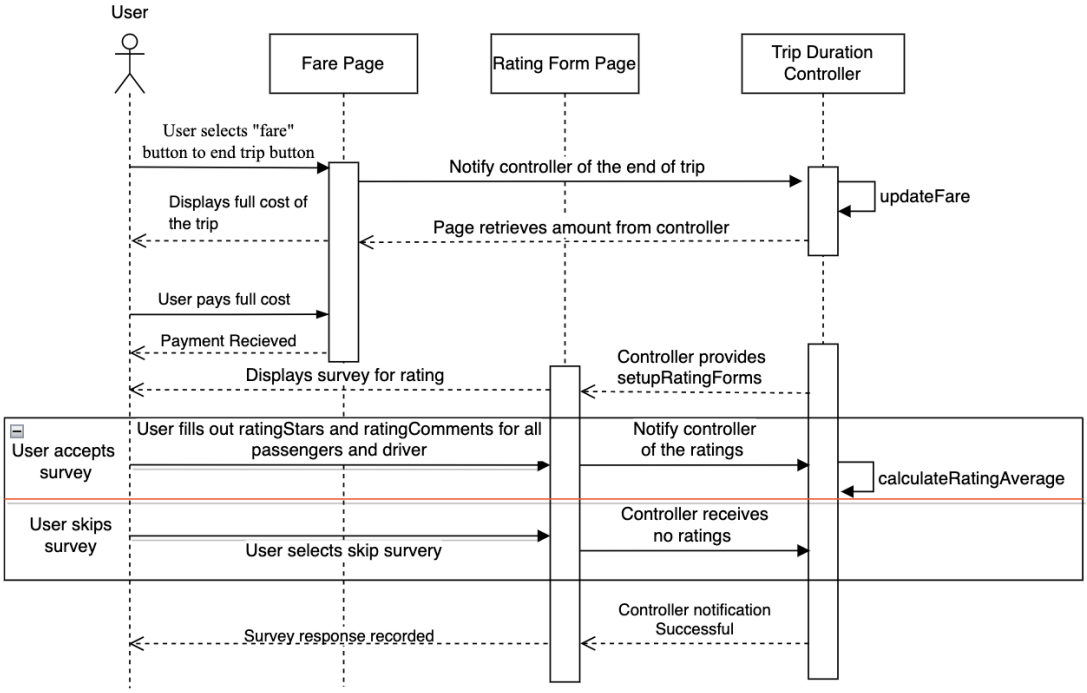
Request Taxi Carpool



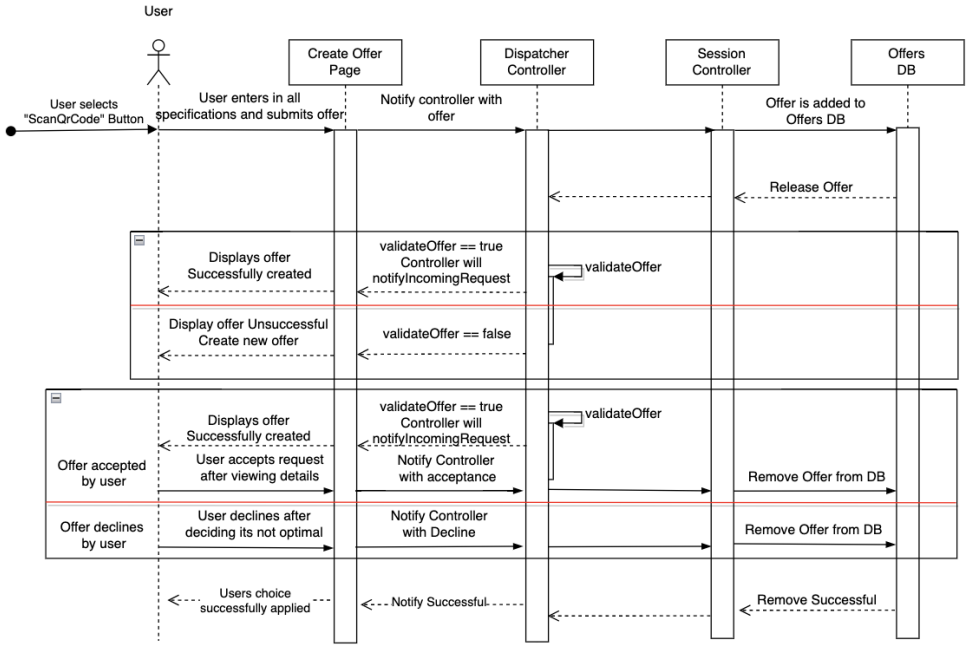
Ride pickup


User
:Home page
:Trip Duration Controller
Notify User 10 min before pickup
Notify User 10 min before pickup
User Notified
Notify User when car is outside
Notify User when car is outside
User Notified

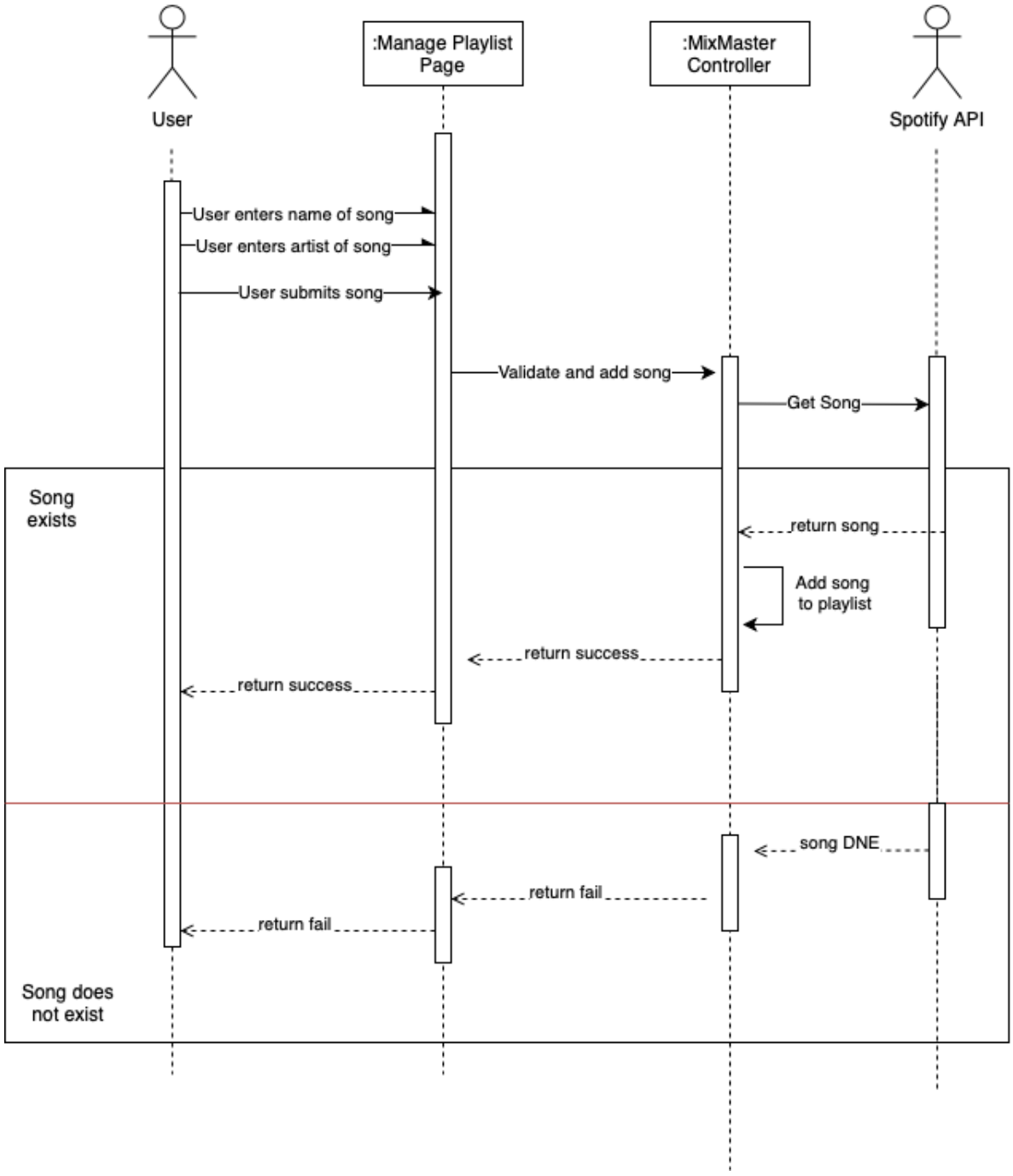
Ride Drop-off Use Case



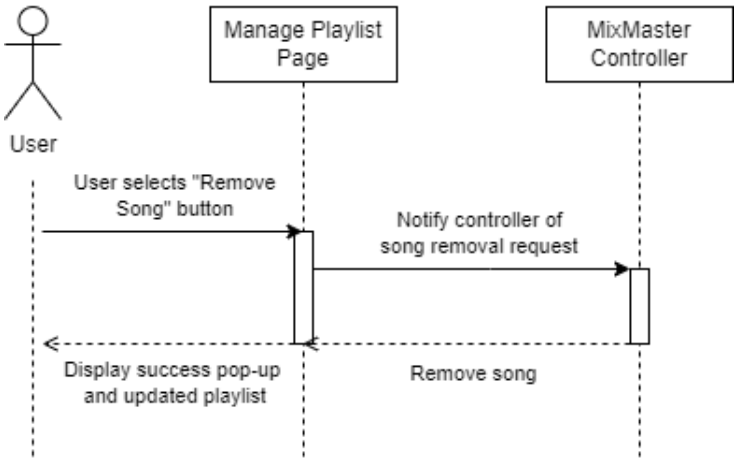
Offer Taxi Carpool UseCase



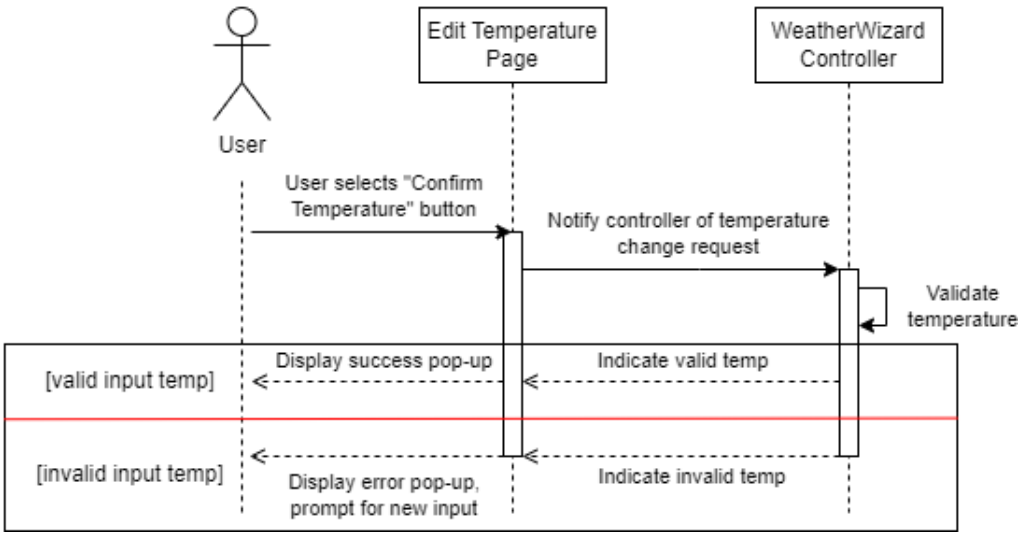
Add song to playlist



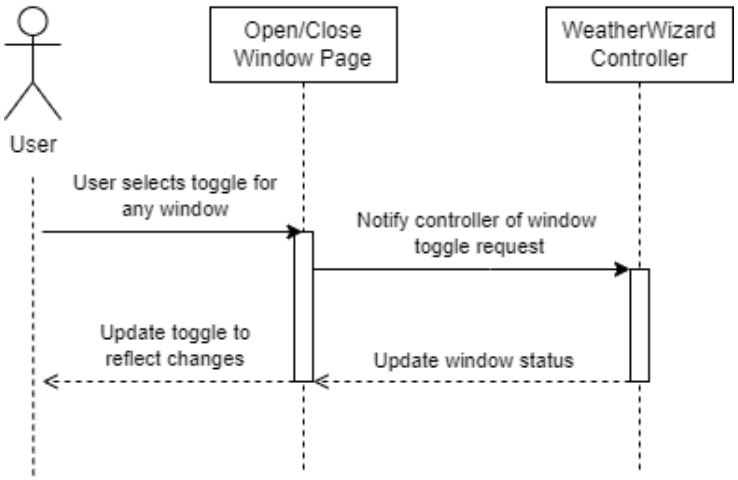
Remove a Song from Playlist Use Case



Edit AC Use Case

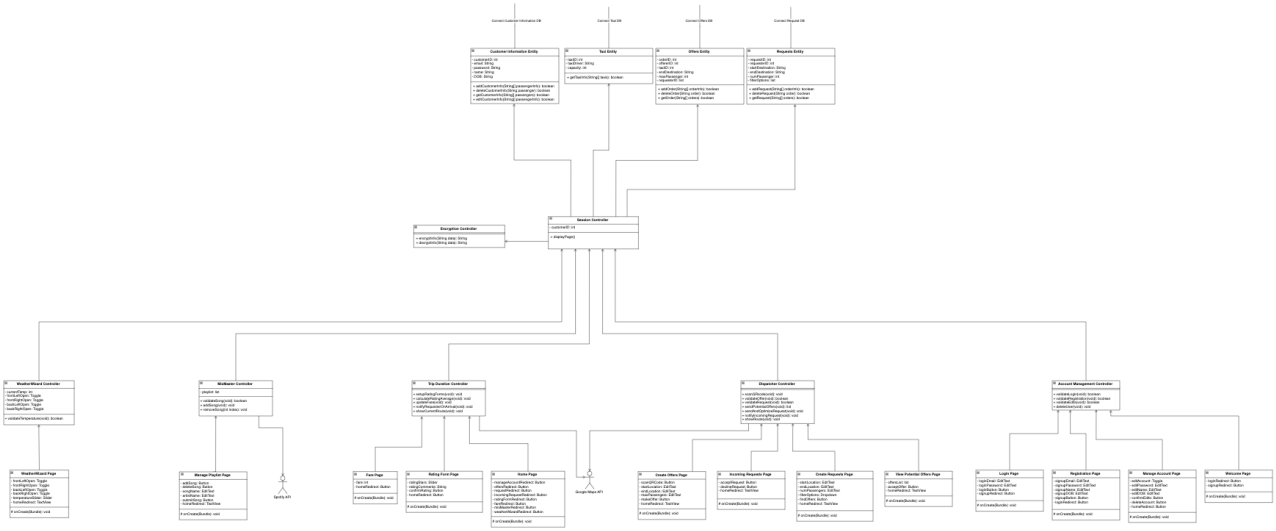


Open/Close Window Use Case



4 Detailed Class Diagram

This section should provide a detailed class diagram for your application.



A Division of Labour

Include a Division of Labour sheet that indicates the contributions of each team member. This sheet must be signed by all team members.

- **Moamen**

  Q2(State Charts):

  - Account Controller
  - MixMaster Controller

  Q3(Sequence Diagrams):

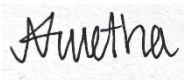
  - Ride Drop-off
  - Offer Taxi Carpool

- **Nivetha**

  Q4(Class Diagram)

  Q2(State Charts):

  - Dispatcher Controller



- **Jinal**

  Q2(State Charts):

  - Session Controller
  - WeatherWizard Controller
  - Dispatcher Controller

  Q3(Sequence Diagrams):

  - Remove a Song from Playlist
  - Edit AC
  - Open/Close Window

- **Mya**

  Q1

  Q3(Sequence Diagrams):

  - Create user profile
  - Login
  - Delete account
  - Edit Profile
  - Request Taxi carpool
  - Add music to playlist

- **Aadil**

  Q1

  Q2(State Charts):

  - Encryption Controller
  - Trip Duration Controller

  Q3(Sequence Diagrams):

  - Ride Pickup

- Everyone contributed a fair amount of work. Jinal, Mya, and Nivetha all collaborated and met together to discuss the detailed class diagram and talk about the interactions. Moamen and Aadil collaborated and worked on Q2 and Q3 while adding input throughout Q4.