

fsoft2025_1DA_2: Iteration 2 - Technical Report

Physical Architecture, Logical Architecture, Code Organization, Use Cases, Class Diagrams (Model, Exceptions, Views, Controller)

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Abstract. In this technical report, the reader will be informed about the application's updated Use Case (UC) diagram, the detailed software design (including deployment and component diagrams), the package/module organization, class diagrams (Model, Exceptions, Views and Controllers), annotated system sequence diagrams (SSD) for key use cases and the user-interface-to-controller mappings.

Key words: Business, C++, IPP, ISEP, Order Manager, Fleet Manager, Deployment diagram, Component diagram, Module diagram, Software Development, Command-line Interface

1 Introduction

The present document delineates the progress made during FleetManager's second iteration, building upon the foundational structure established in the first iteration. In these past weeks, we focused on the organization features of the application's architecture and base code, such as: detailed software architecture through a deployment diagram (Physical Architecture) and a component diagram (Logical Architecture), presents the package/module organization (Code Organization) reflecting our code structure, provides comprehensive class diagrams (Model, Exceptions, Views and Controllers). Alongside significant updates to the UC diagram.

The UC diagram was submitted to a revision for a better reflection of the FleetManager's system requirements. Consequently, this revision led to the incorporation of new use cases in different existing actors and a new actor with its new use cases. The new actor was named "Order Manager":

- Order Manager: Responsible for managing orders related to trips. Functionalities associated with this role include adding order, remove order, complete order, list uncompleted and completed orders, list orders of a specific client.

The refinements to the UC diagram guarantee alignment between the system's design and the required functionalities for efficient fleet management. The implementation of the Order Manager role specifically ensures the crucial aspect of order maintenance and servicing within the FleetManager's ecosystem.

2 Use Case Diagram - Updated

The Use Case Diagram has been updated since the last iteration. We've added more UCs and another actor, "Order Manager".

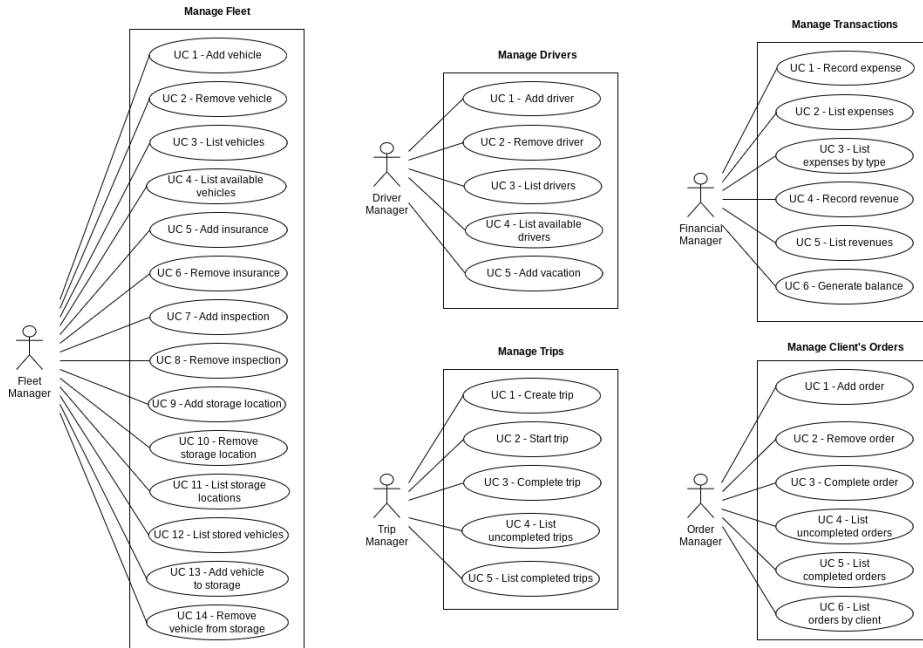


Fig. 1: FleetManager's Use Case Diagram Updated

3 Physical Architecture

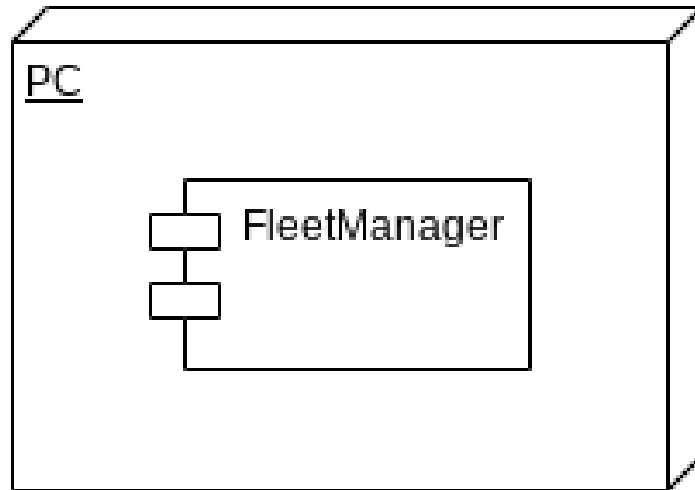


Fig. 2: FleetManager's Physical Architecture

4 Logical Architecture

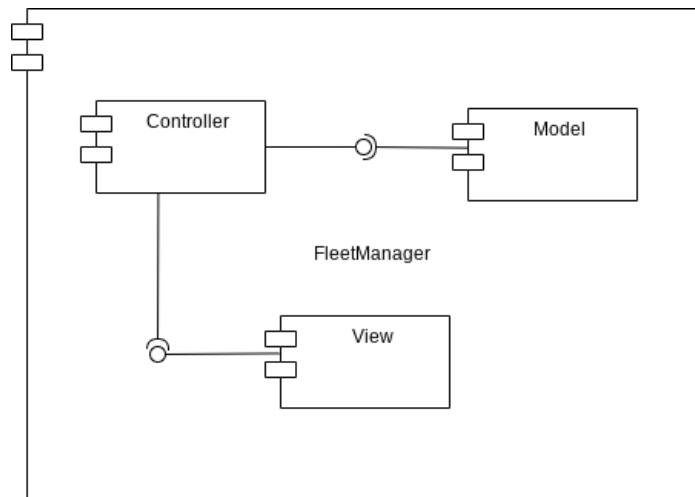


Fig. 3: FleetManager's Logical Architecture

5 Code Organization

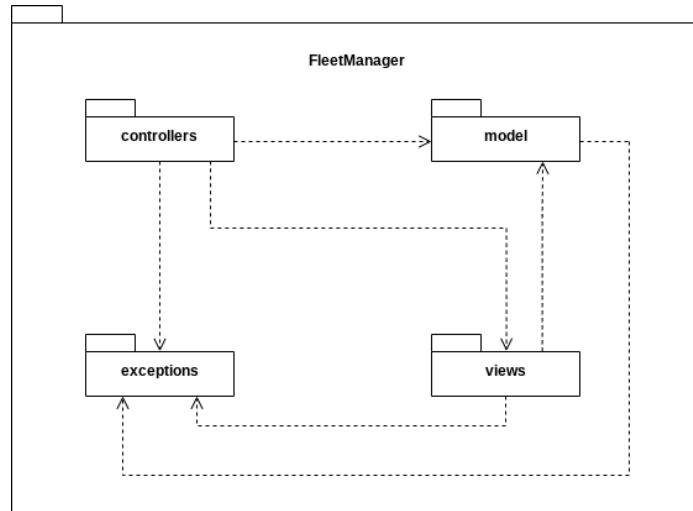


Fig. 4: FleetManager’s Code Organization

6 Model Class Diagram

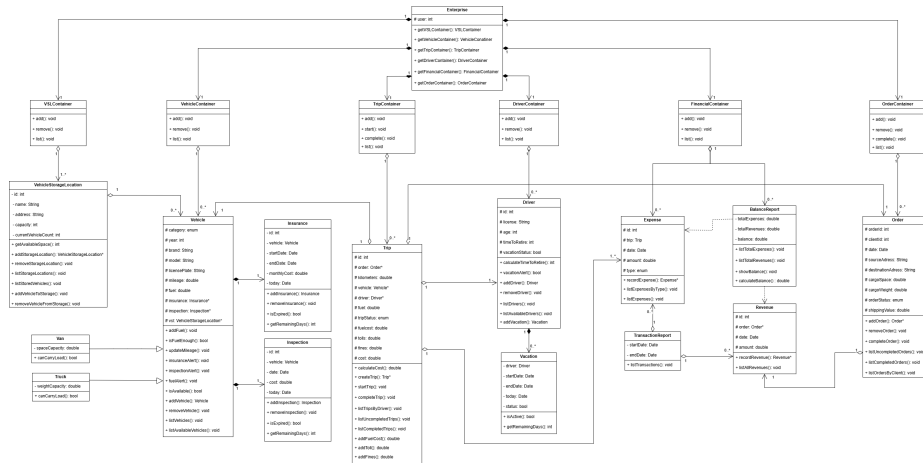


Fig. 5: FleetManager’s Model Class Diagram

9 Controllers Class Diagram

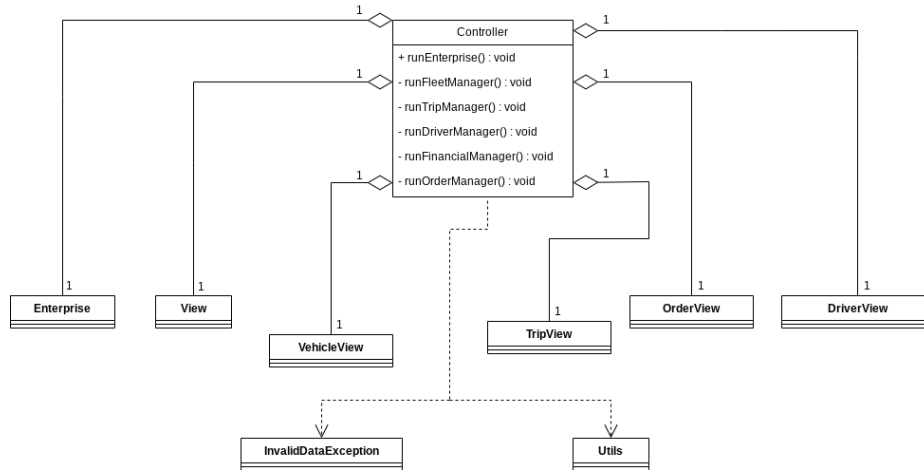


Fig. 8: FleetManager's Controllers Class Diagram

10 Actor: Fleet Manager

10.1 SSD: UC 1 - Add Vehicle

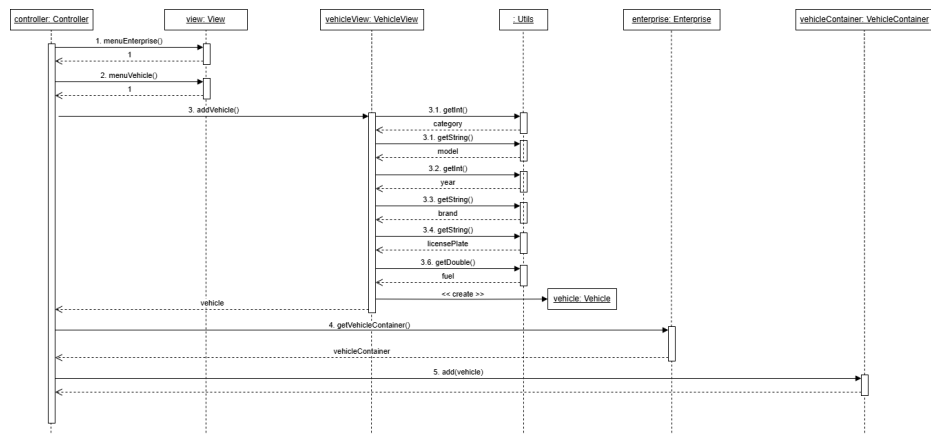


Fig. 9: Fleet Manager's UC 1

10.2 SSD: UC 2 - Remove Vehicle

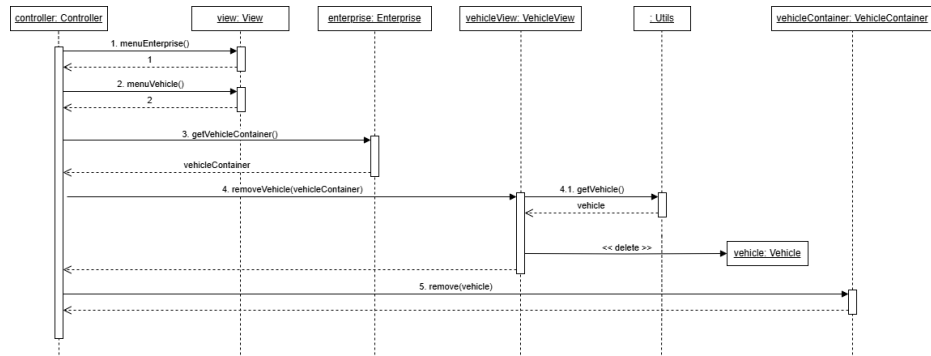


Fig. 10: Fleet Manager's UC 2

10.3 SSD: UC 3 - List Vehicles

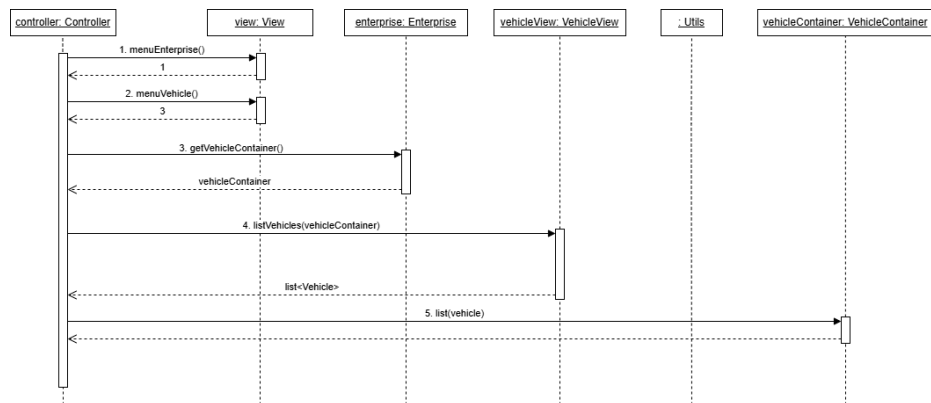


Fig. 11: Fleet Manager's UC 3

10.4 SSD: UC 4 - List Available Vehicles

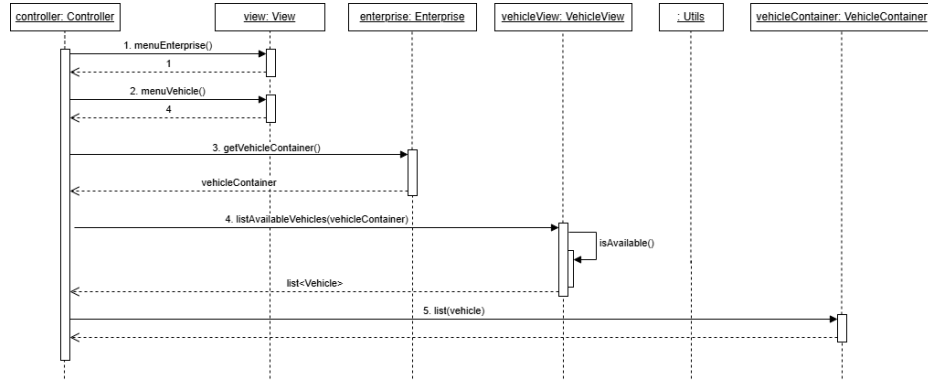


Fig. 12: Fleet Manager's UC 4

10.5 SSD: UC 5 - Add Insurance

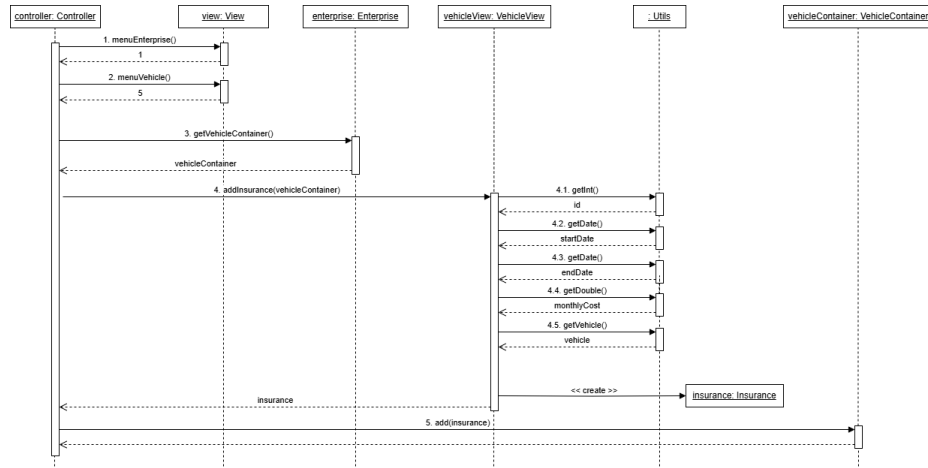


Fig. 13: Fleet Manager's UC 5

10.6 SSD: UC 6 - Remove Insurance

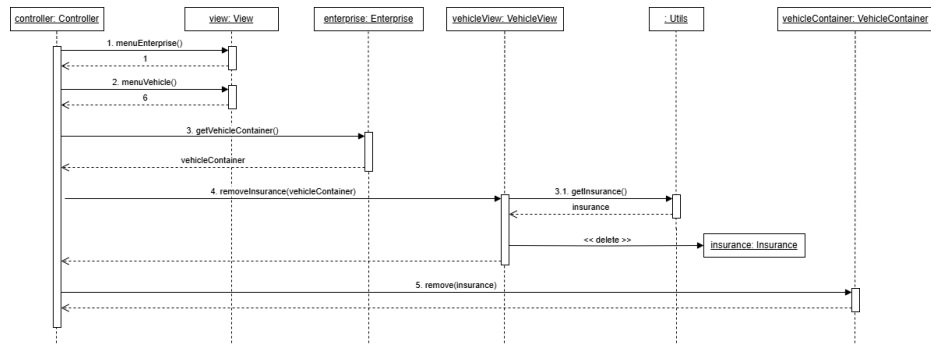


Fig. 14: Fleet Manager's UC 6

10.7 SSD: UC 7 - Add Inspection

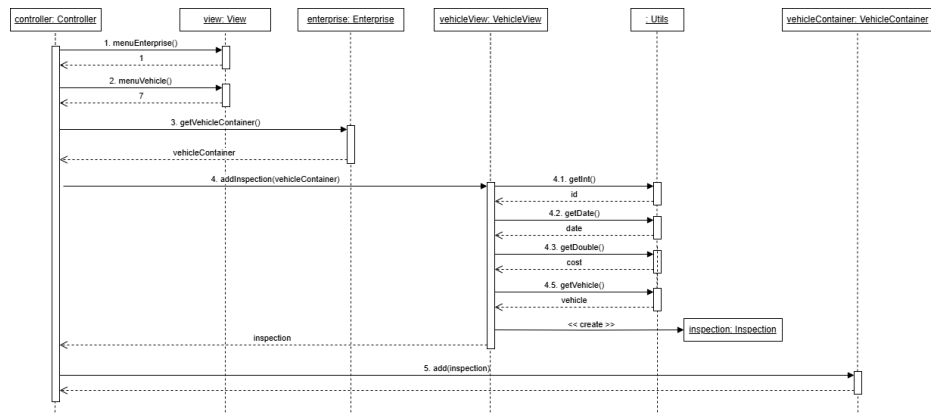


Fig. 15: Fleet Manager's UC 7

10.8 SSD: UC 8 - Remove Inspection

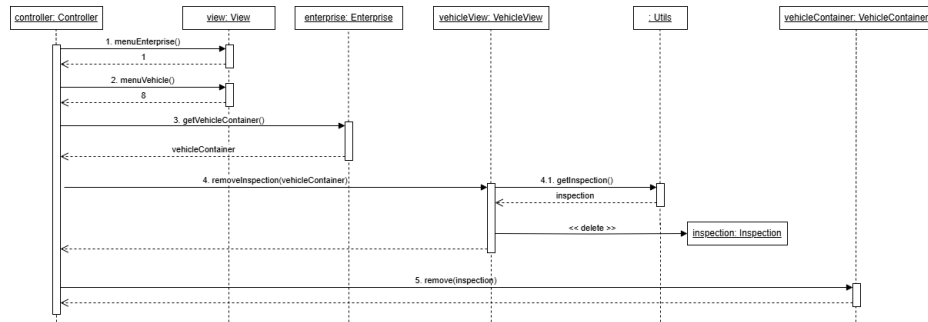


Fig. 16: Fleet Manager's UC 8

10.9 SSD: UC 9 - Add Storage Location

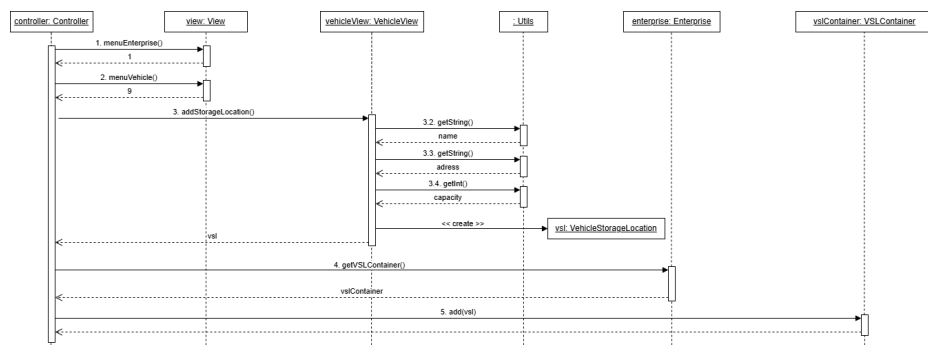


Fig. 17: Fleet Manager's UC 9

10.10 SSD: UC 10 - Remove Storage Location

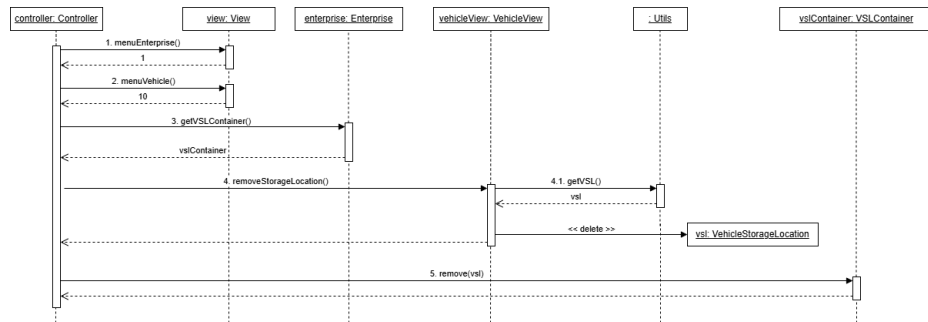


Fig. 18: Fleet Manager's UC 10

10.11 SSD: UC 11 - List Storage Locations

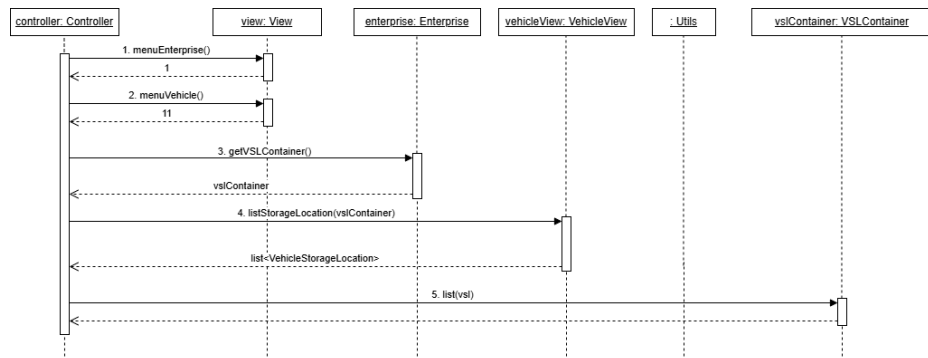


Fig. 19: Fleet Manager's UC 11

10.12 SSD: UC 12 - List Stored Vehicles

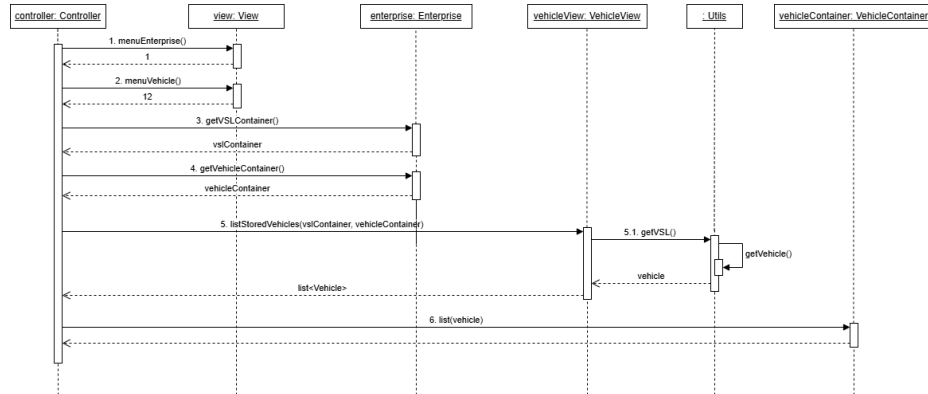


Fig. 20: Fleet Manager's UC 12

10.13 SSD: UC 13 - Add Vehicle To Storage

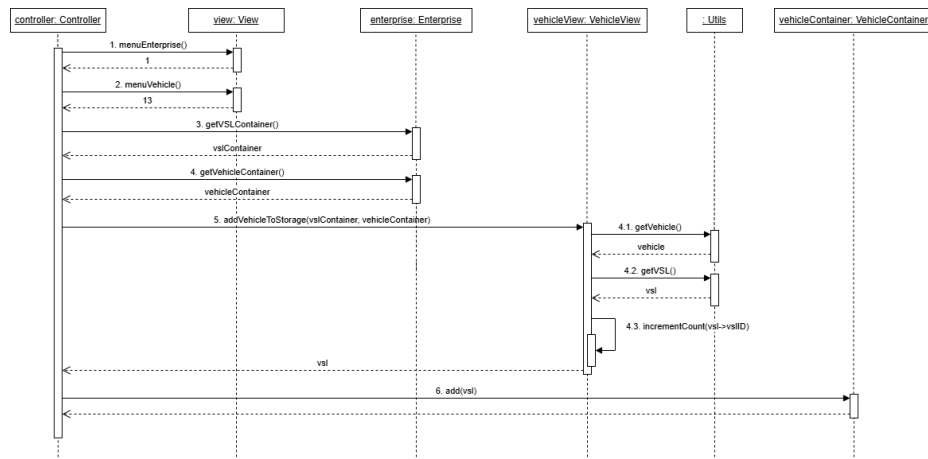


Fig. 21: Fleet Manager's UC 13

10.14 SSD: UC 14 - Remove Vehicle From Storage

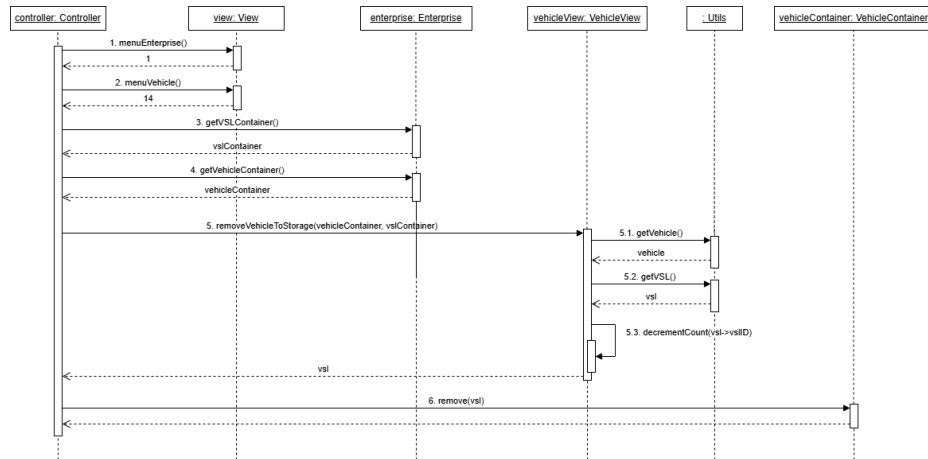


Fig. 22: Fleet Manager's UC 14

11 Actor: Driver Manager

11.1 SSD: UC 1 - Add Driver

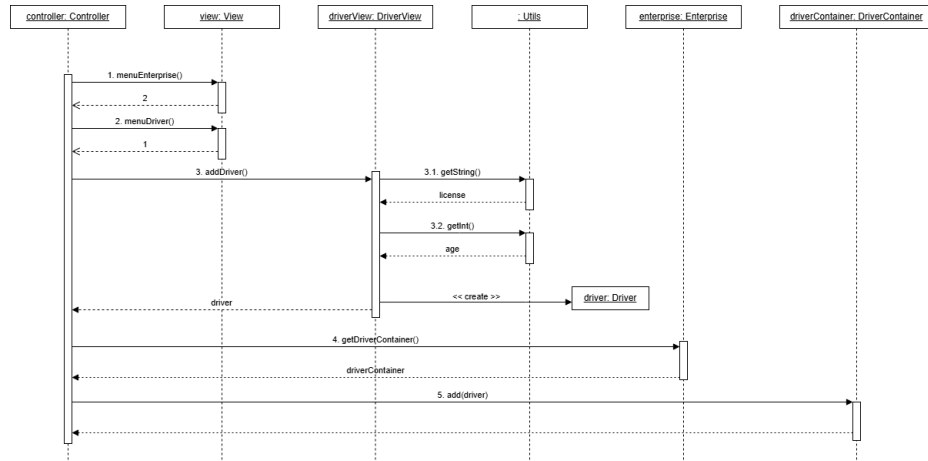


Fig. 23: Driver Manager's UC 1

11.2 SSD: UC 2 - Remove Driver

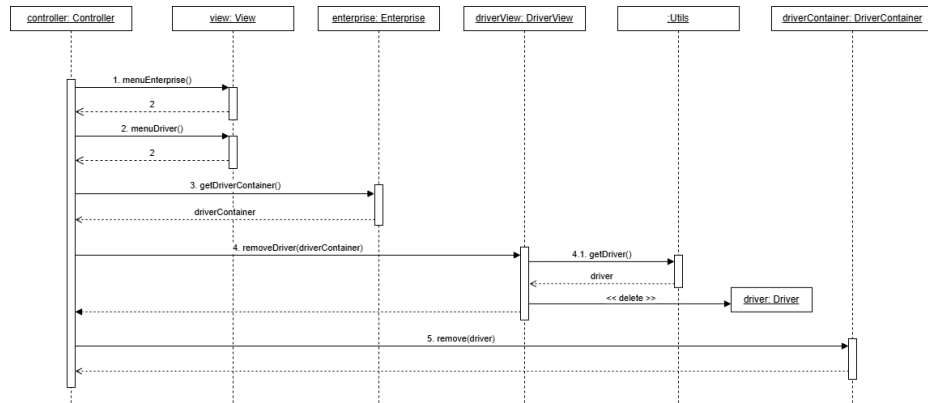


Fig. 24: Driver Manager's UC 2

11.3 SSD: UC 3 - List Drivers

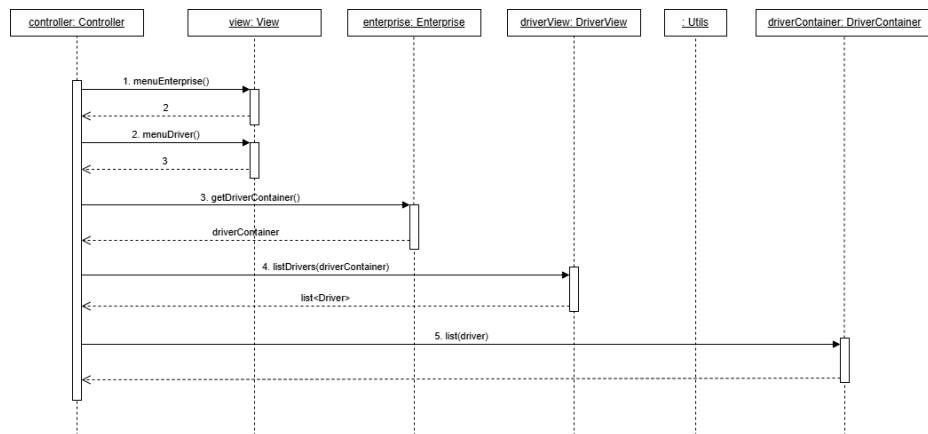


Fig. 25: Driver Manager's UC 3

11.4 SSD: UC 4 - List Available Drivers

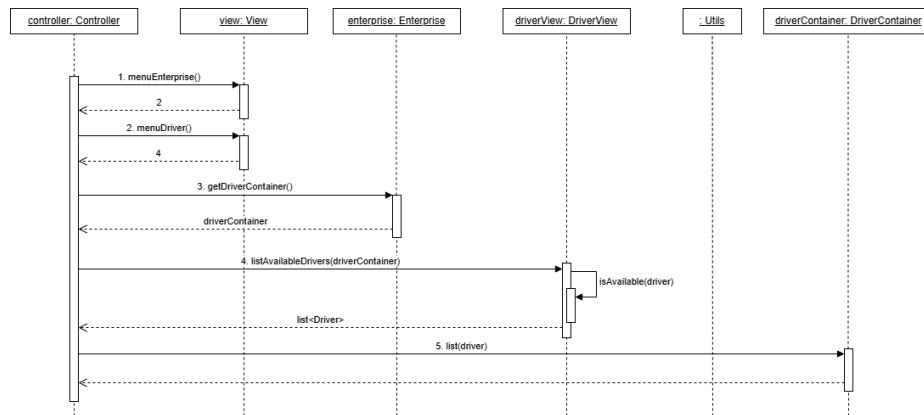


Fig. 26: Driver Manager's UC 4

11.5 SSD: UC 5 - Add Vacation

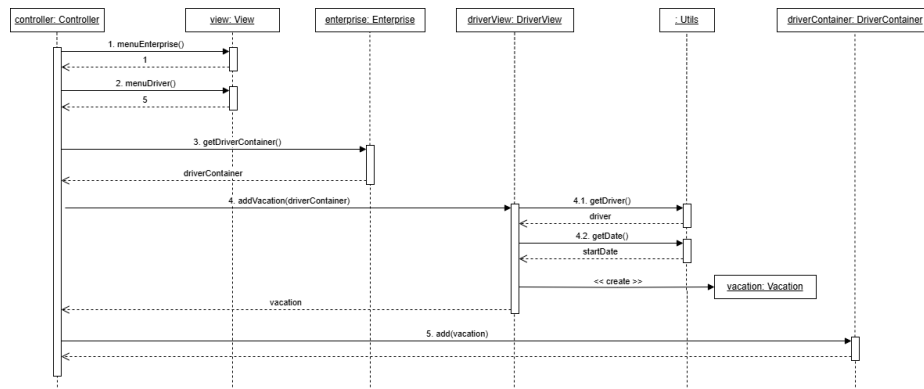


Fig. 27: Driver Manager's UC 5

12 Actor: Trip Manager

12.1 SSD: UC 1 - Create Trip

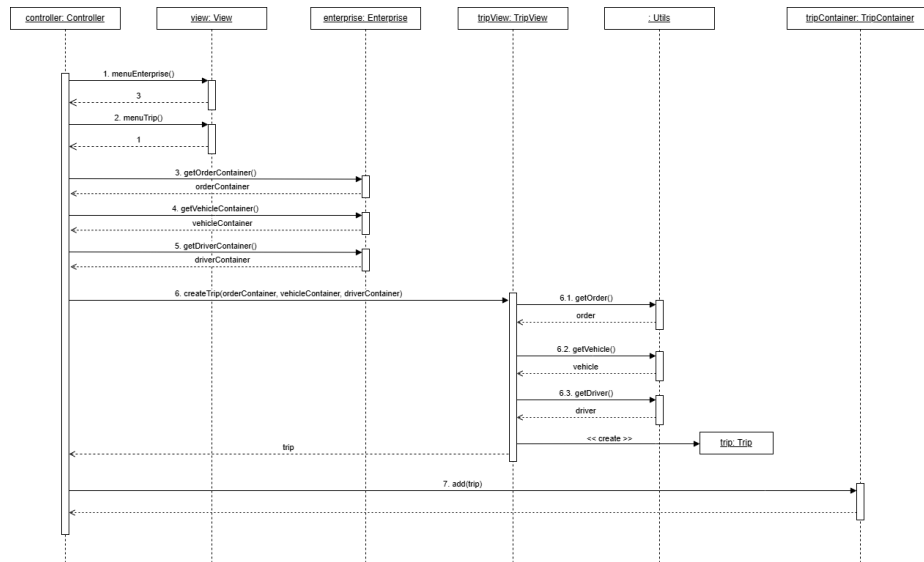


Fig. 28: Trip Manager's UC 1

12.2 SSD: UC 2 - Start Trip

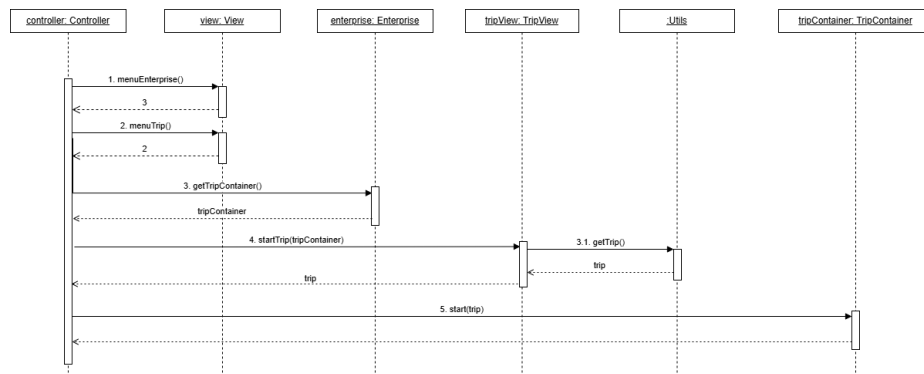


Fig. 29: Trip Manager's UC 2

12.3 SSD: UC 3 - Complete Trip

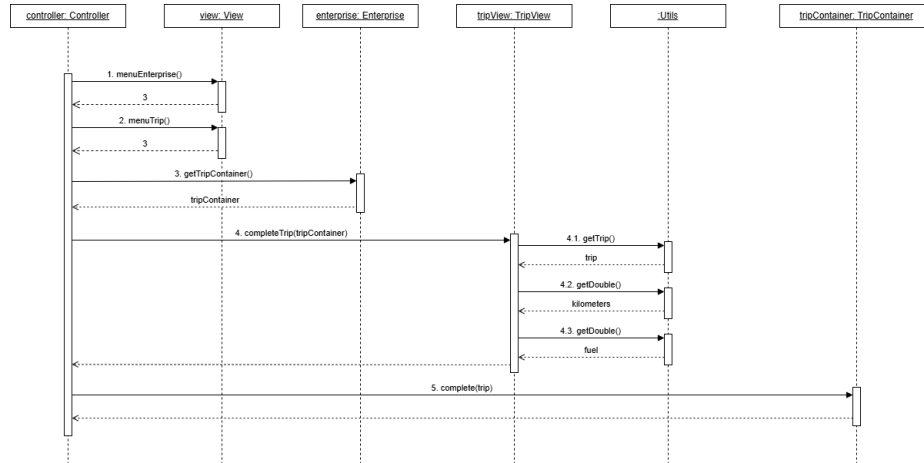


Fig. 30: Trip Manager's UC 3

12.4 SSD: UC 4 - List Uncompleted Trips

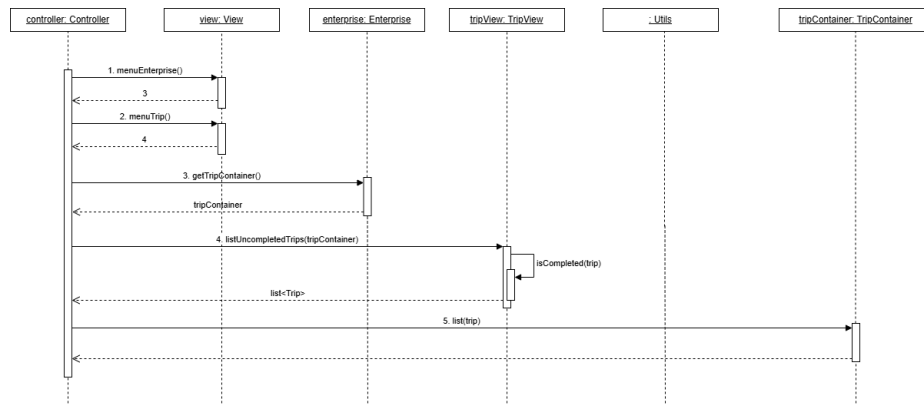


Fig. 31: Trip Manager's UC 4

12.5 SSD: UC 5 - List Completed Trips

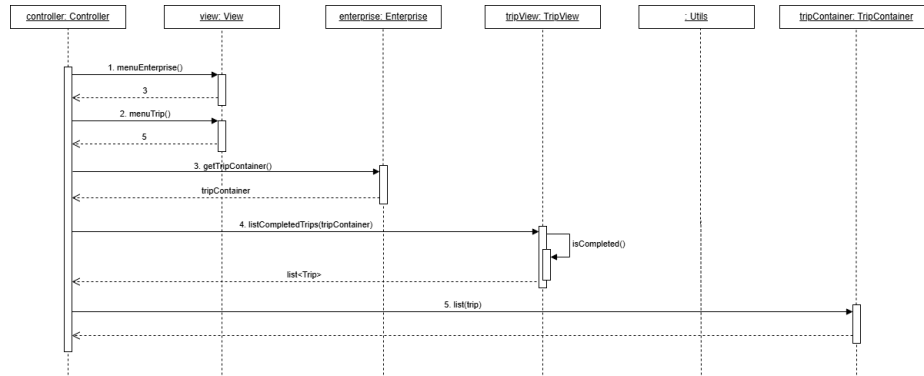


Fig. 32: Trip Manager's UC 5

13 Actor: Financial Manager

13.1 SSD: UC 1 - Record Expense

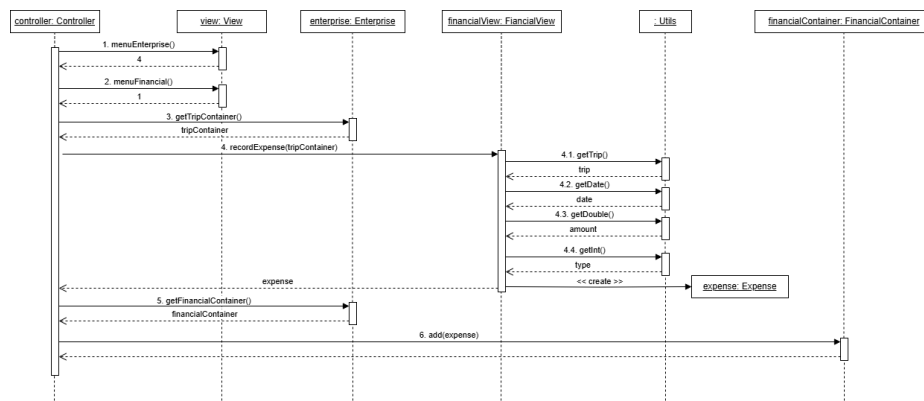


Fig. 33: Financial Manager's UC 1

13.2 SSD: UC 2 - List Expenses

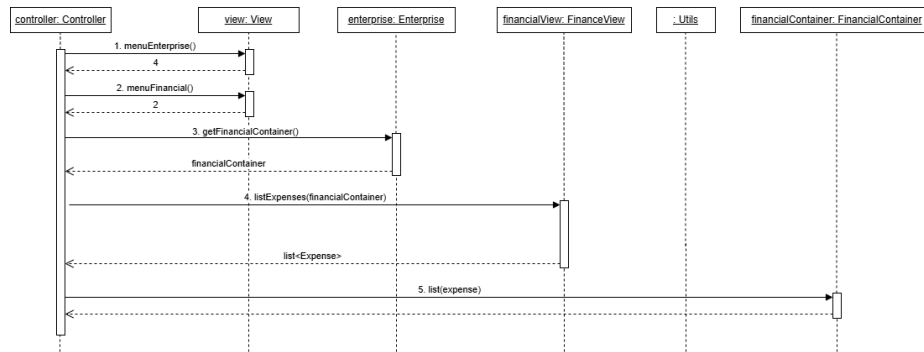


Fig. 34: Financial Manager's UC 2

13.3 SSD: UC 3 - List Expenses By Type

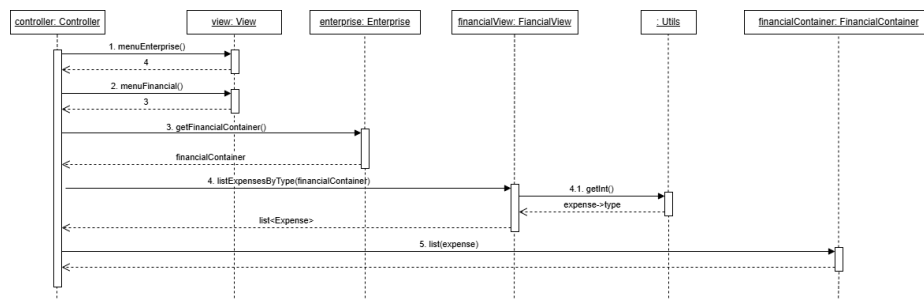


Fig. 35: Financial Manager's UC 3

13.4 SSD: UC 4 - Record Revenue

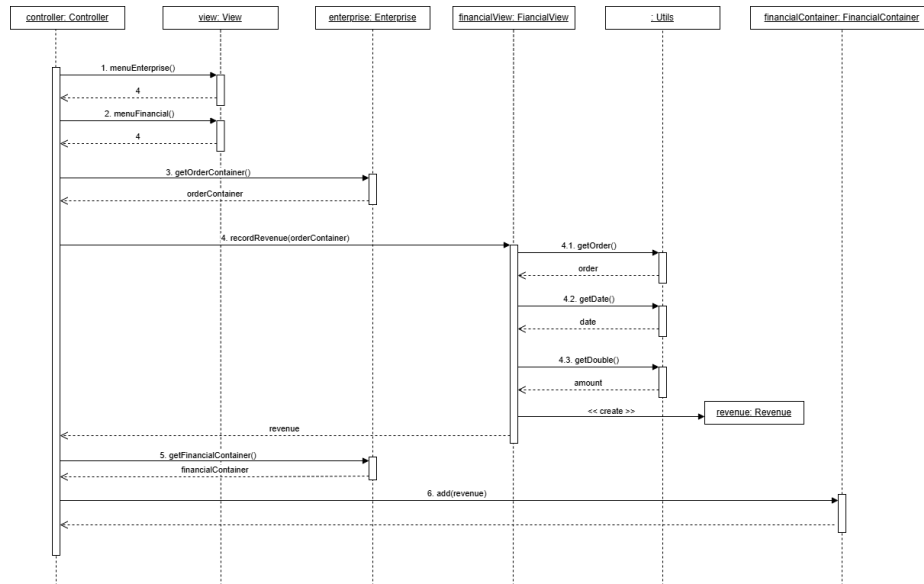


Fig. 36: Financial Manager's UC 4

13.5 SSD: UC 5 - List Revenues

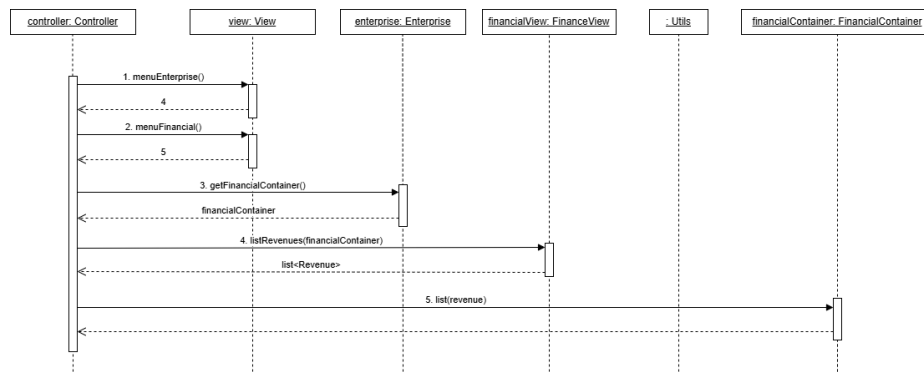


Fig. 37: Financial Manager's UC 5

13.6 SSD: UC 6 - Show Balance

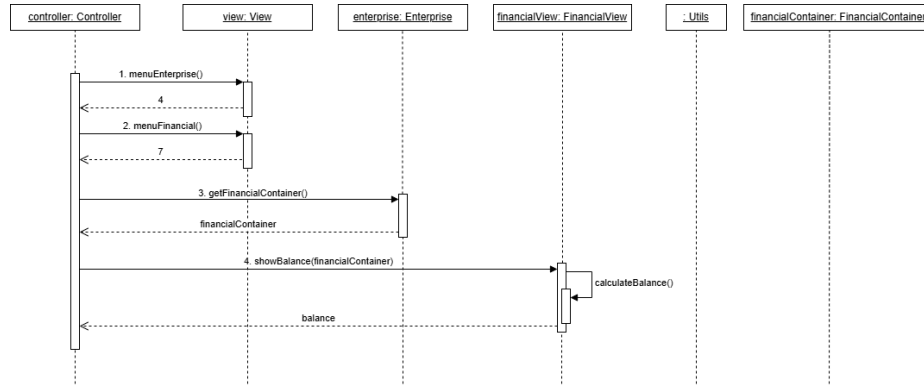


Fig. 38: Financial Manager's UC 6

14 Actor: Order Manager

14.1 SSD: UC 1 - Add Order

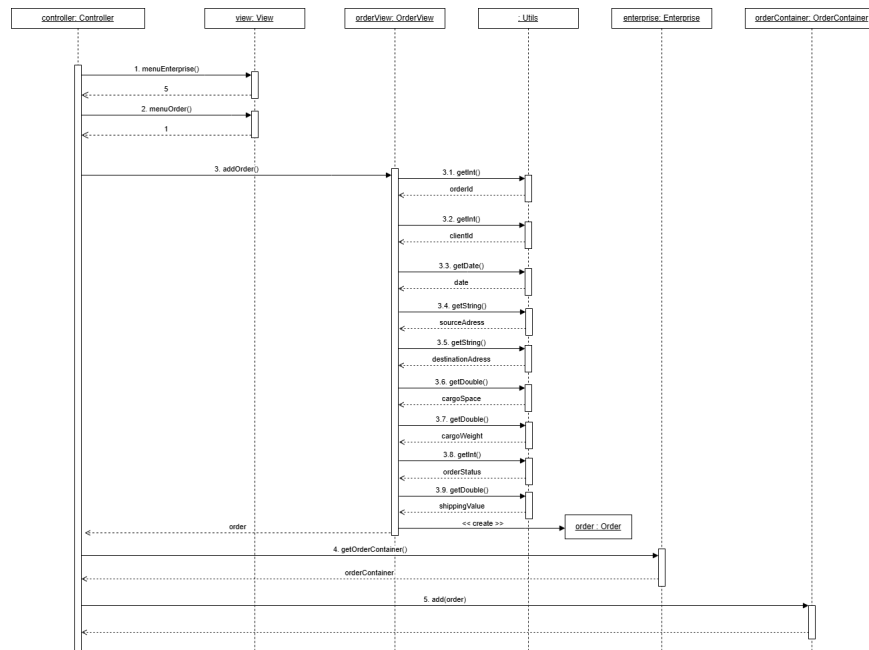


Fig. 39: Order Manager's UC 1

14.2 SSD: UC 2 - Remove Order

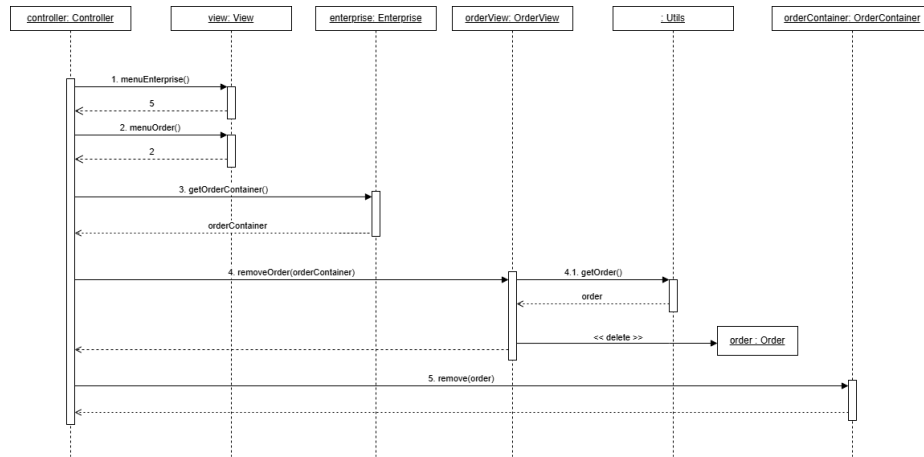


Fig. 40: Order Manager's UC 2

14.3 SSD: UC 3 - Complete Order

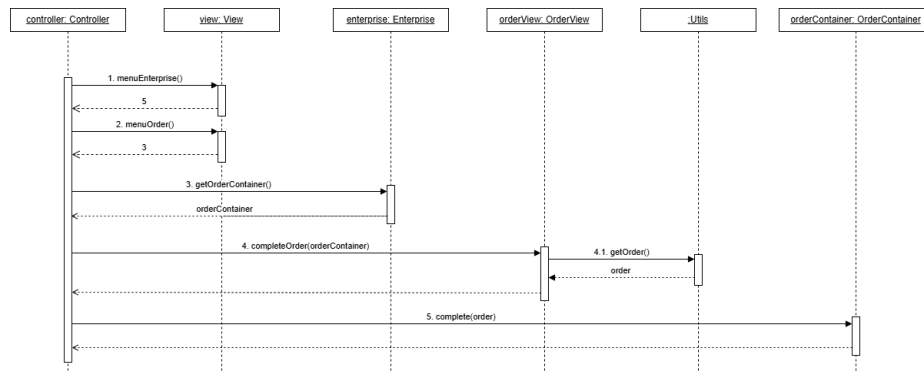


Fig. 41: Order Manager's UC 3

14.4 SSD: UC 4 - List Uncompleted Orders

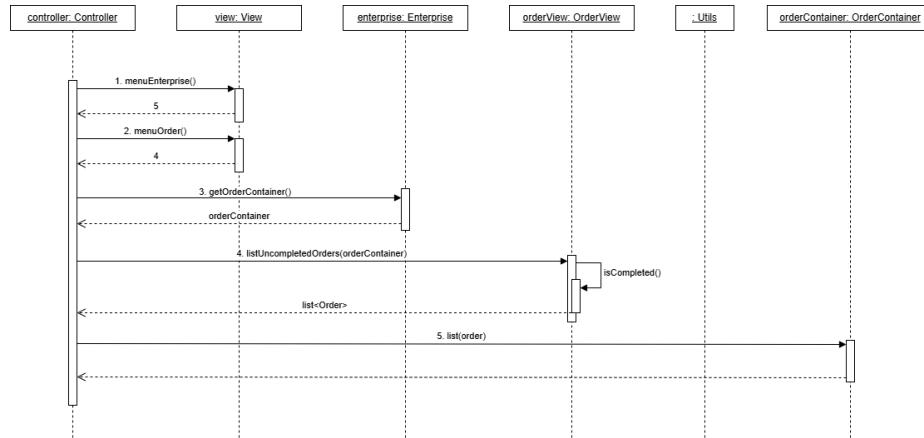


Fig. 42: Order Manager's UC 4

14.5 SSD: UC 5 - List Completed Orders

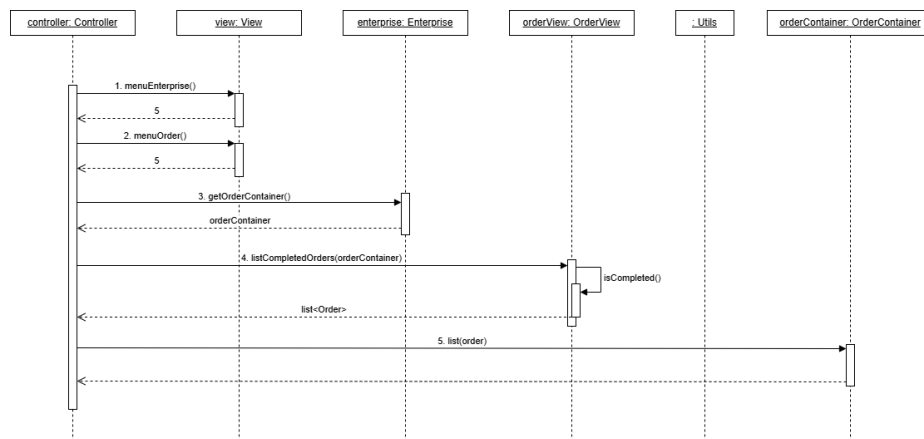


Fig. 43: Order Manager's UC 5

14.6 SSD: UC 6 - List Orders By Client

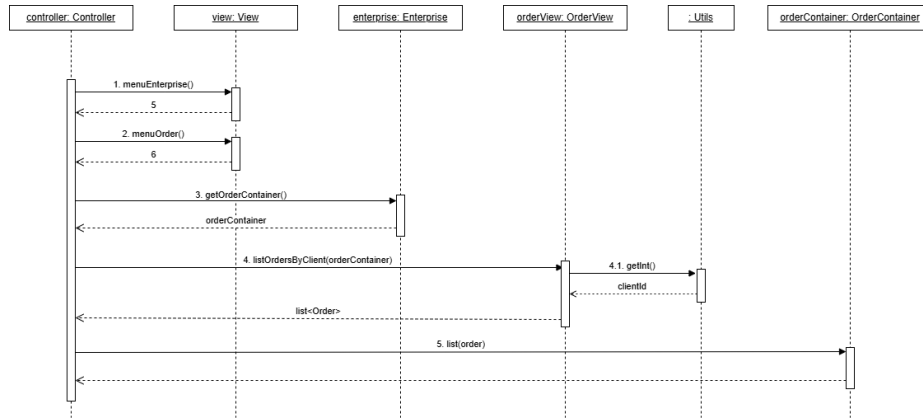


Fig. 44: Order Manager's UC 6

15 User Interface

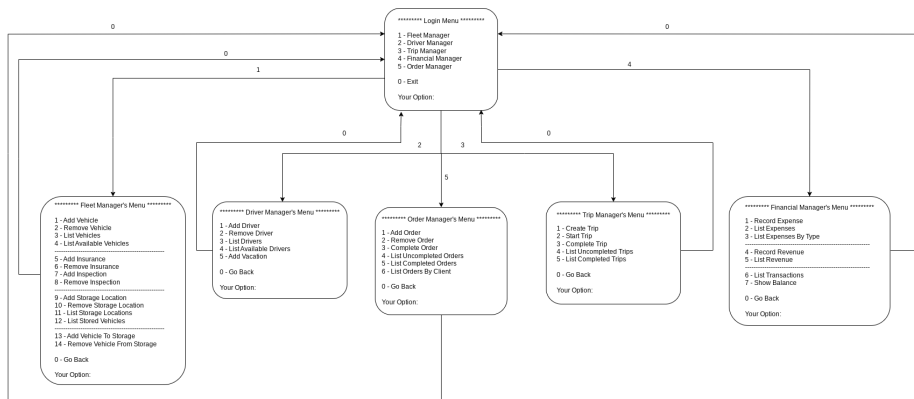


Fig. 45: FleetManager's User Interface

The "Fleet Manager's Menu" may seem quite big, the reader may consider it to have too many options in just one menu. It's true, however, we've decided not to split the menu so it takes less effort to the user. We believe, over time, the user will prefer to have the menu as it's laid out, other than have the menu split into three different ones.