Technical Report of the Course Unit Project: Fundamentals of Software Development

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Group: 2
Class: 1DD

Abstract: This report presents a detailed overview of the design phase of the second iteration of the StepUp software project, developed using the C++ object-oriented programming language. The aim of this document is to define the logical and physical architecture of the system, organize the code structure and present the main design decisions using UML diagrams. Applying software architecture principles and design patterns, this report aims to guide the implementation process, ensuring modularity, ease of maintenance and clarity. Drawing up this type of report is important to ensure that everyone involved in the project is on the same page during the implementation and management of the software.

1 Introduction

The aim of this software project is to develop an application for managing a shoe store, called StepUp, which will have customers, suppliers and a manager. Both the customers and the manager will have access to the functionalities previously defined for each user profile.

The application will allow customers to view available products and add items to their cart without having to create an account. However, in order to finalize a purchase, they will need to register and log in to the application. Customers will also be able to consult the history of their previous orders.

The manager will be responsible for administering the store, being able to place orders with suppliers, add, delete and edit products, control stock and keep track of orders placed by customers.
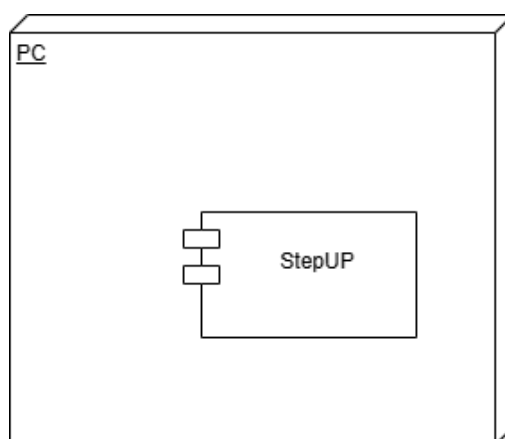
2 Design: Physical Architecture

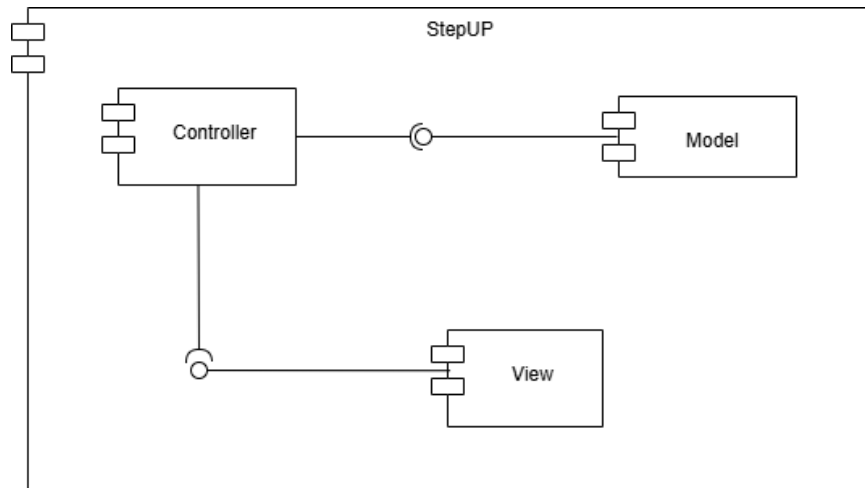*Figure 1 - Physical Architecture Diagram*

3 Design: Logical Architecture

Figure 2 - Logical Architecture Diagram
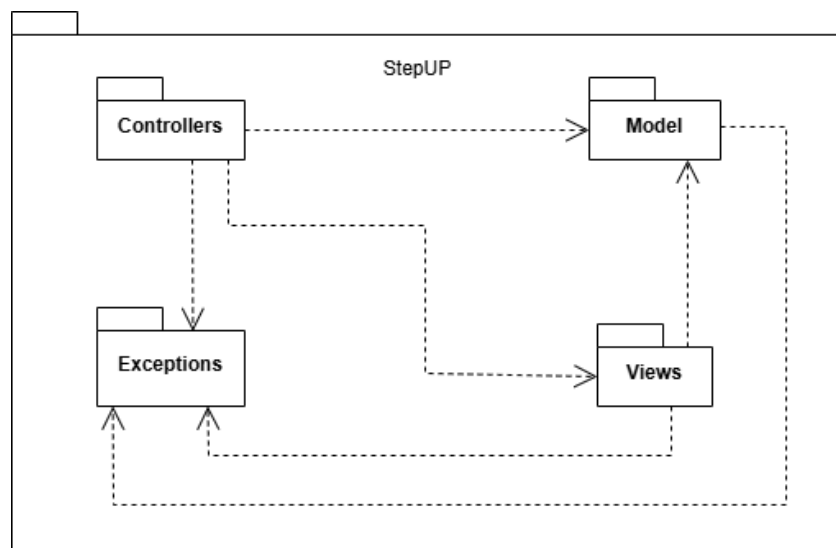
4 Design: Code Organization

Figure 3 - Code organization

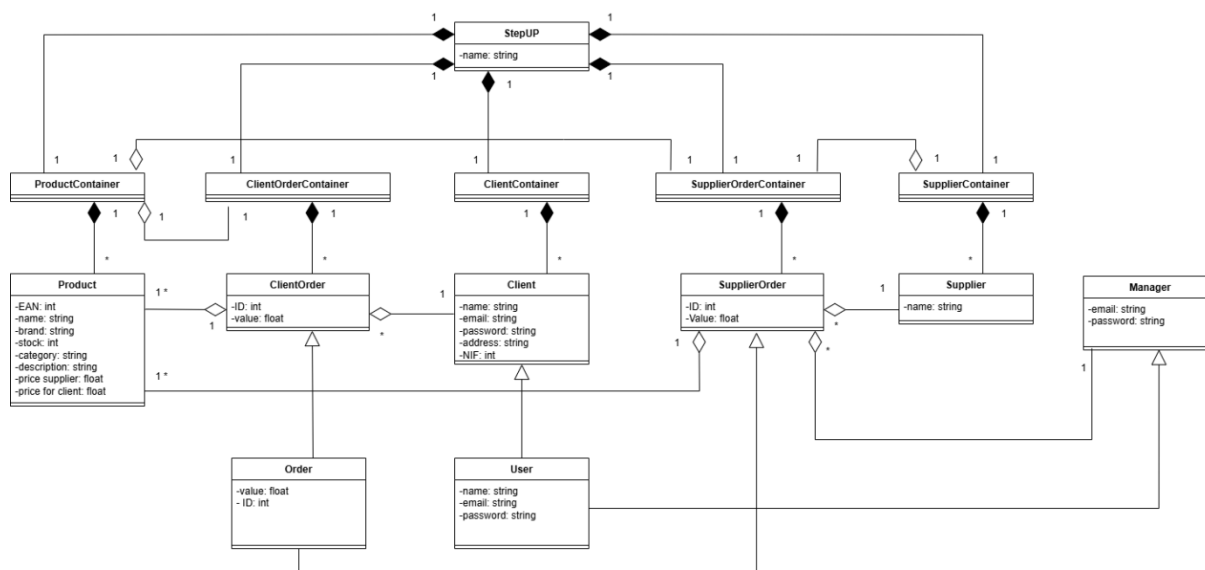## 5 Design: Model Class Diagram

Figure 4 - Model Class Diagram

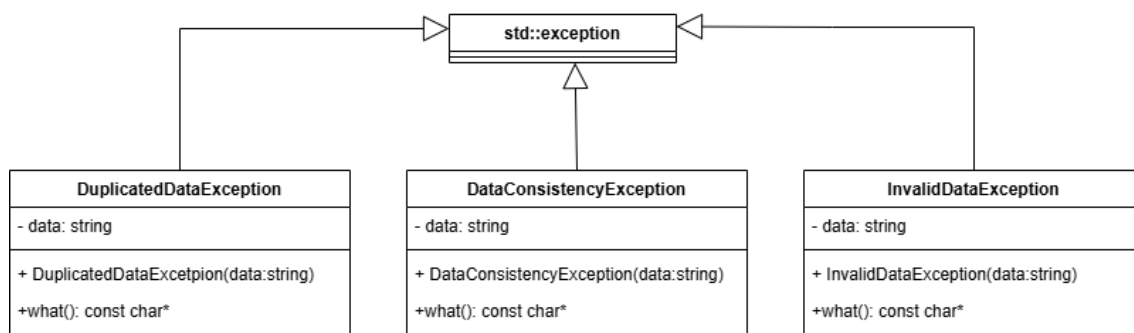## 6 Design: Exceptions Class Diagram

Figure 5 - Exceptions Class Diagram
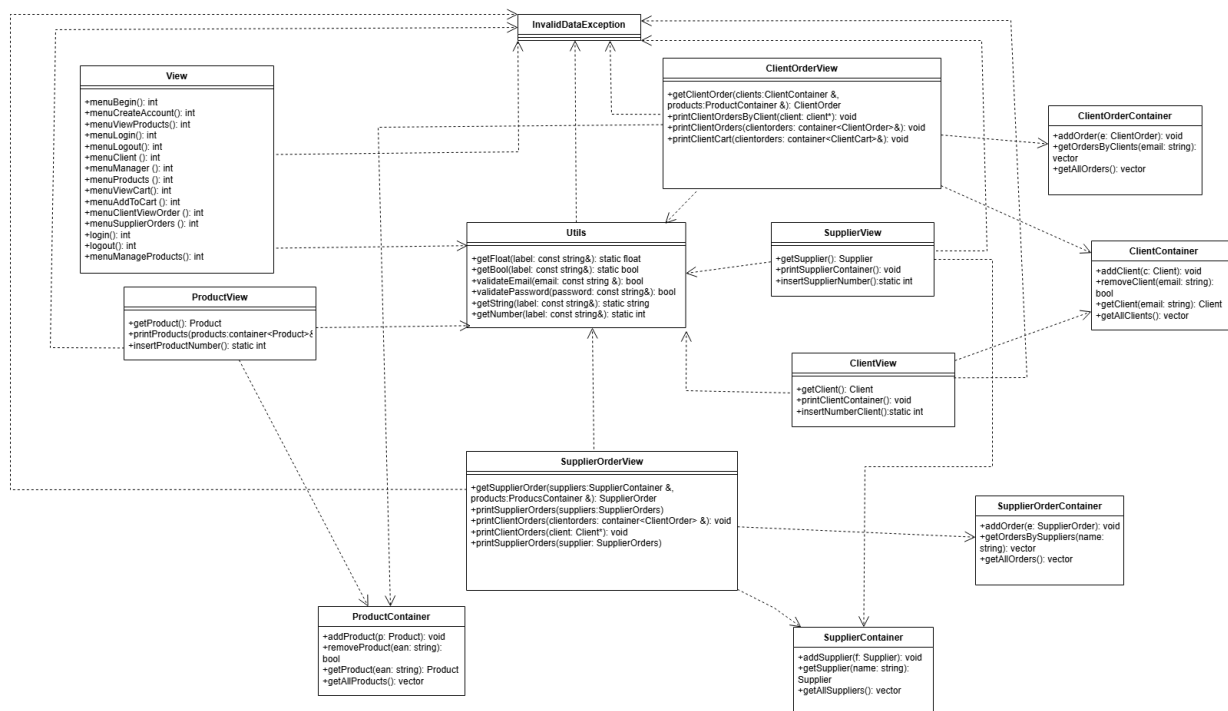
7 Design: Views Class Diagram

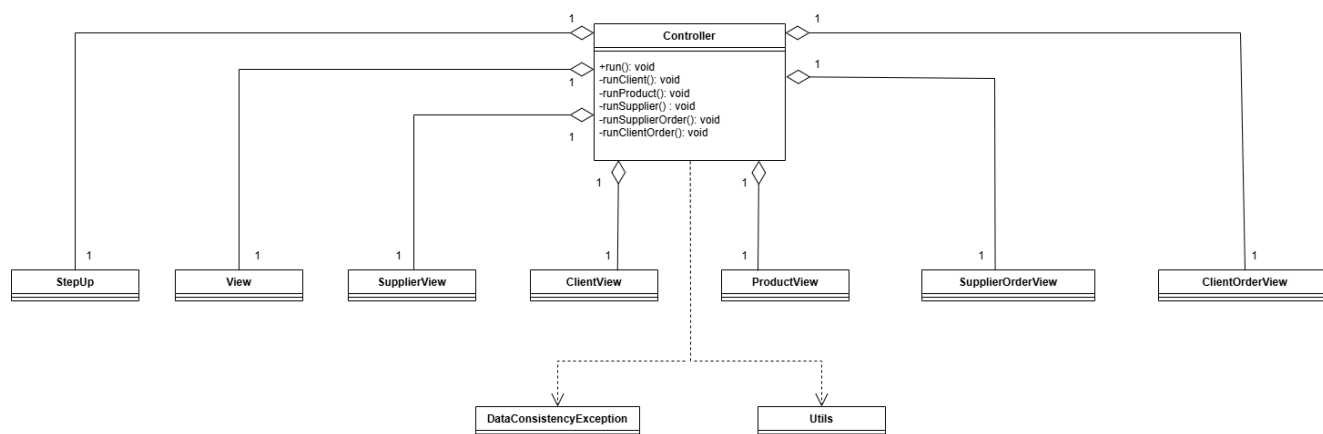*Figure 6 - View Class diagram*

8 Design: Controllers Class Diagram

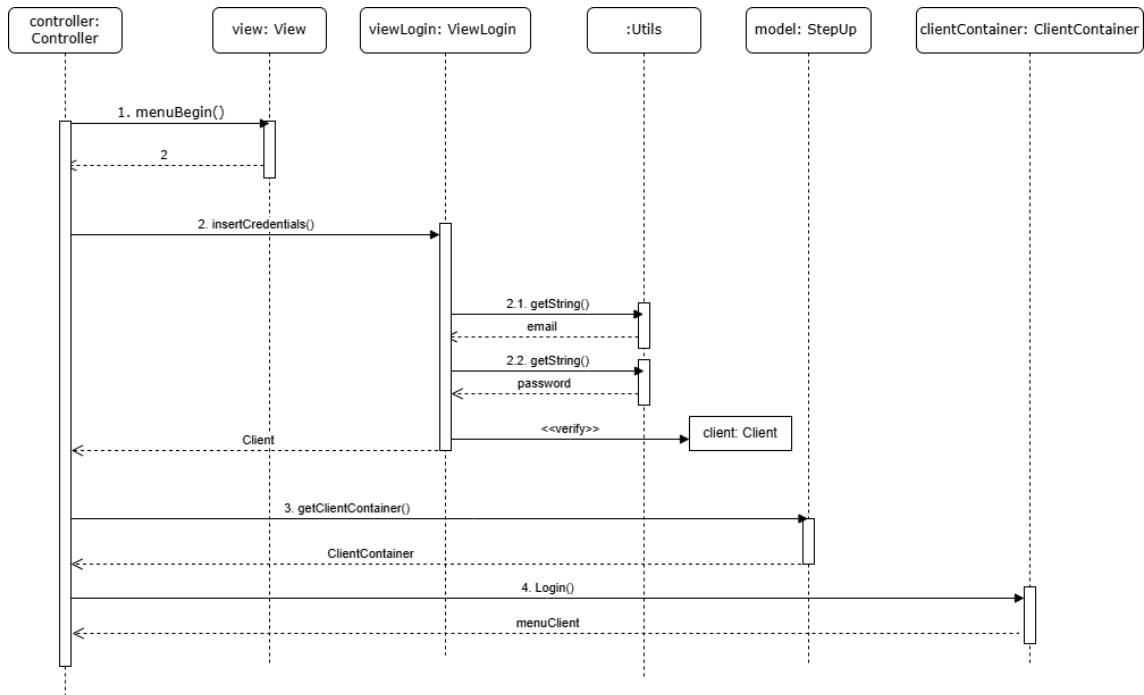*Figure 7 - Controllers Class Diagram*

9 Use Cases

9.1 UC1 Client – Login

Figure 8 - UC1 Client - Login

9.2 UC2 Client – View product
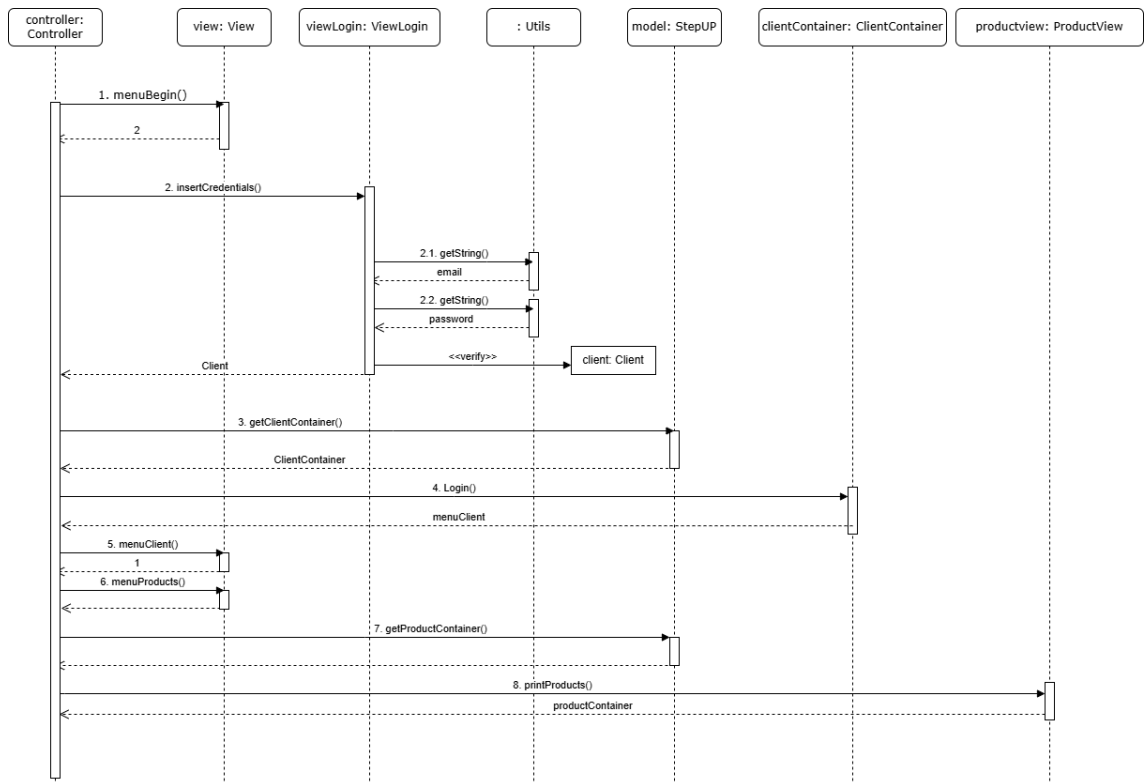
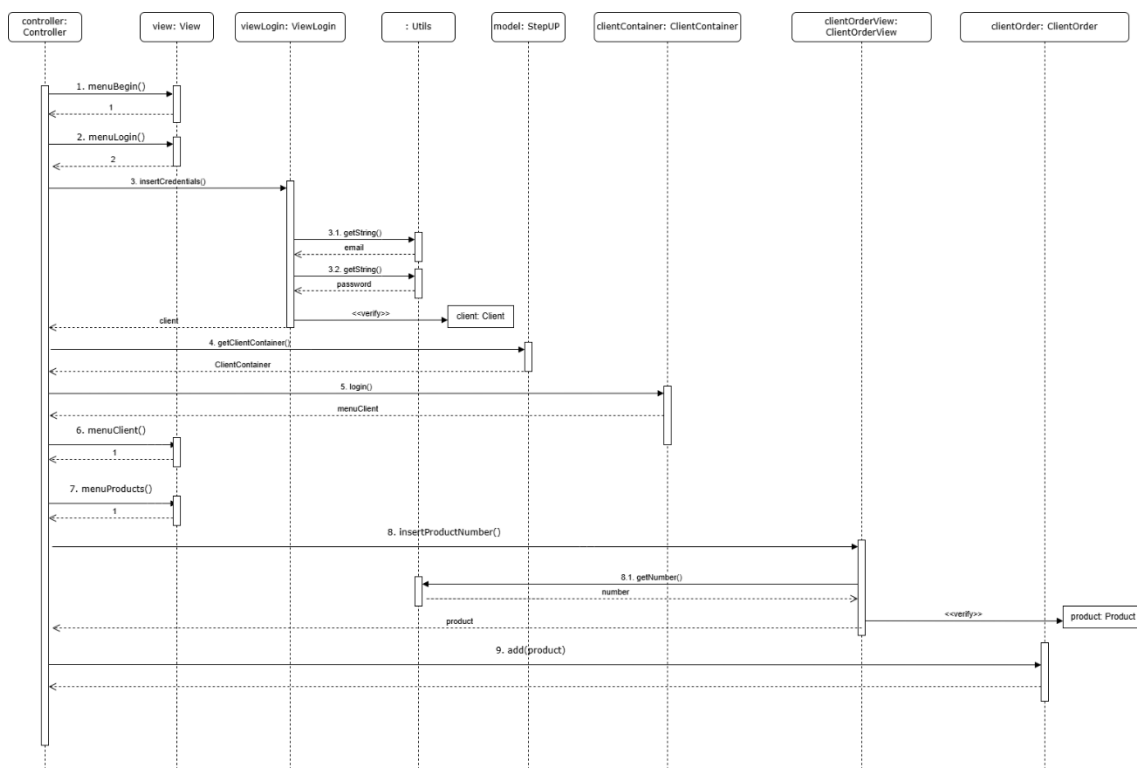*Figure 9 - UC2 Client - View product*

9.3 UC3 Client – Add to cart

Figure 10 - UC3 Client - Add to cart

9.4 UC4 Client – Delete from cart
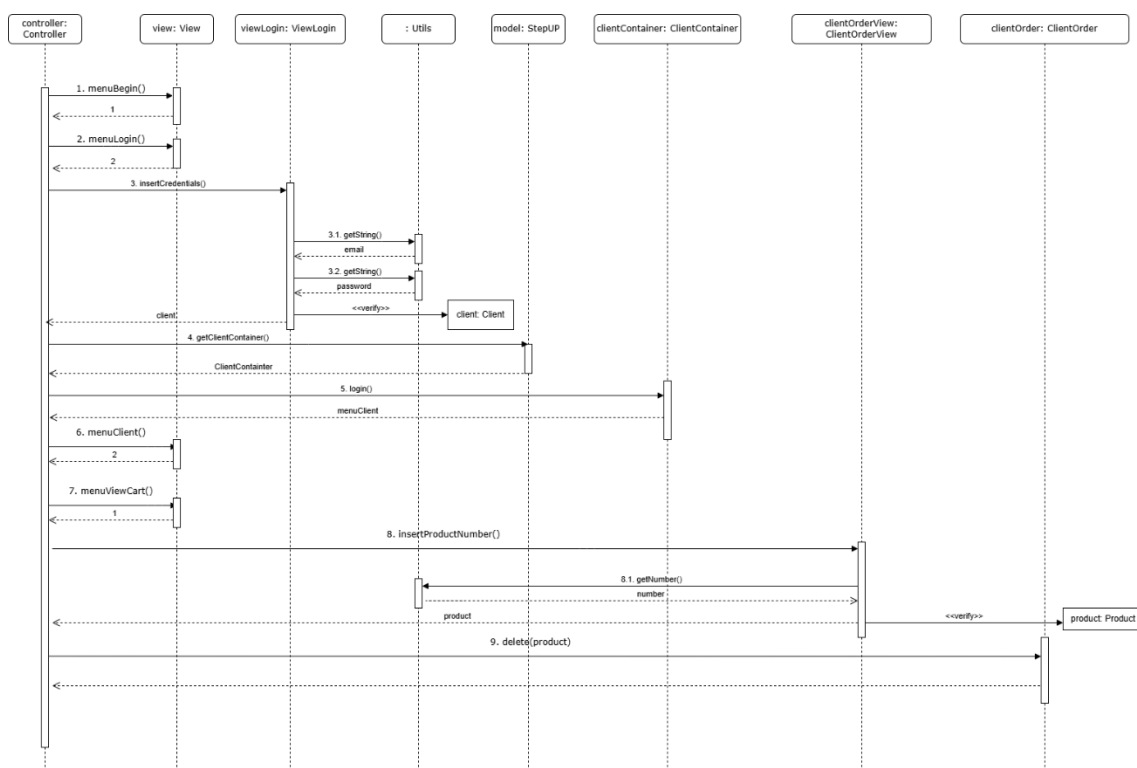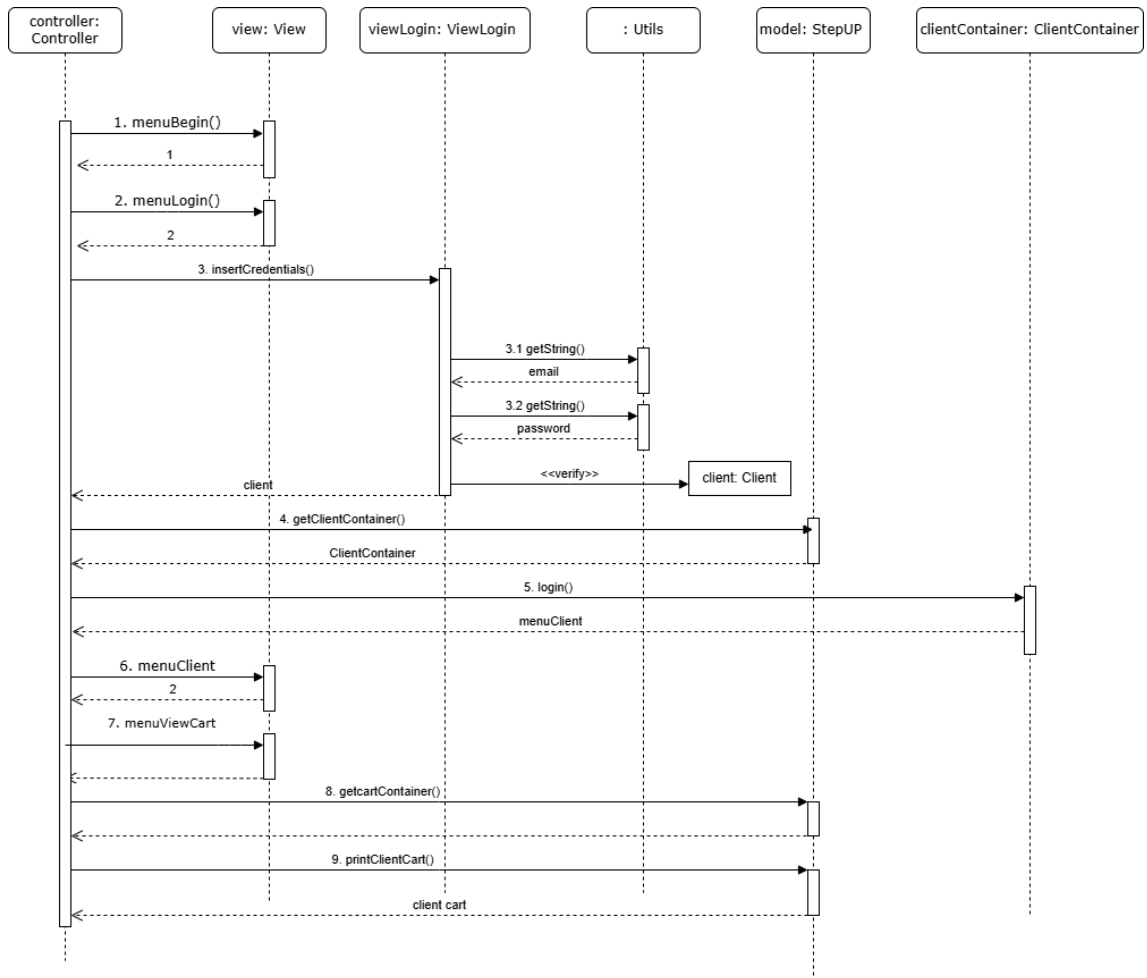

Figure 11 - UC4 Client - Delete from cart

9.5 UC5 Client – View cart

Figure 12 - UC5 Client - View cart
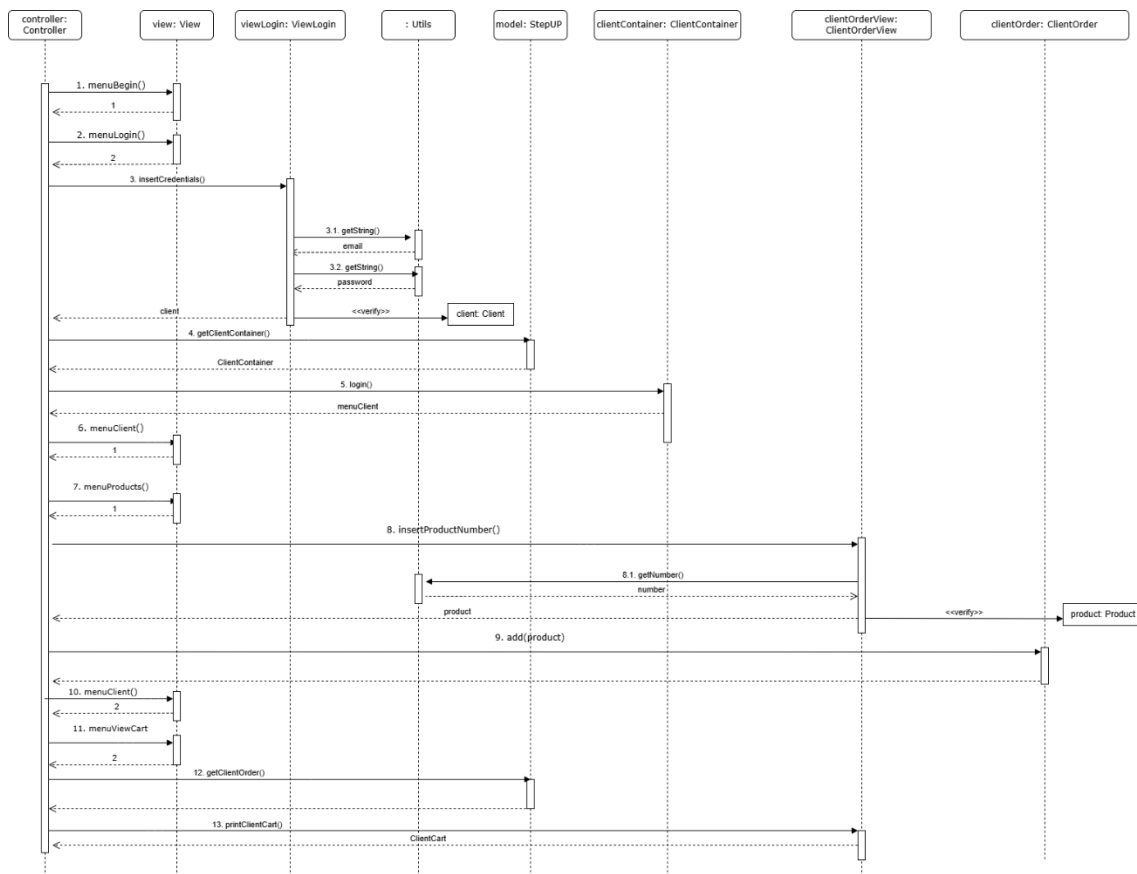
9.6 UC6 Client – Complete order

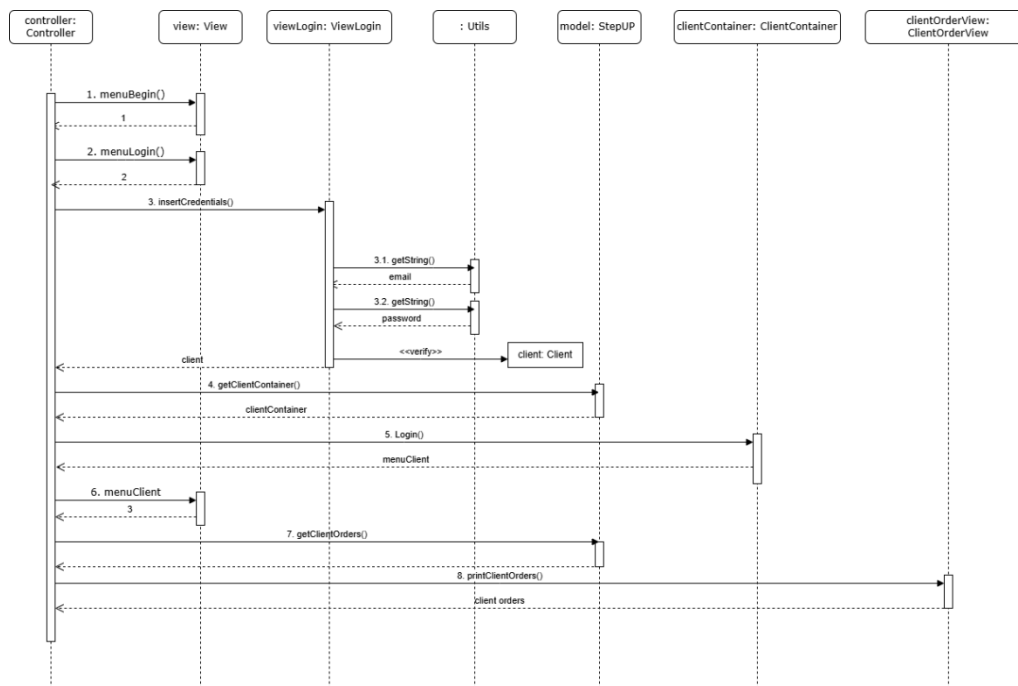*Figure 13 - UC6 Client - Complete order*

9.7 UC7 Client – View order

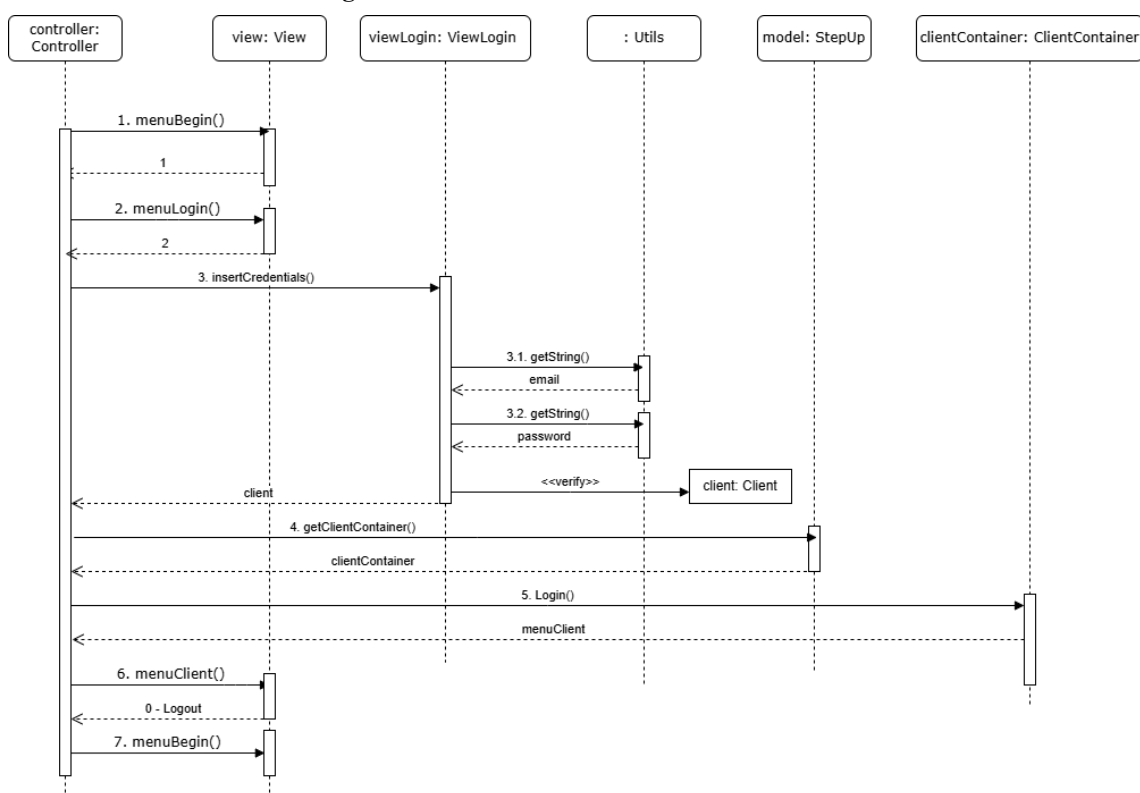*Figure 14 - UC7 Client - View order*

9.8 UC8 Client – Logout

Figure 15 - UC8 Client - Logout
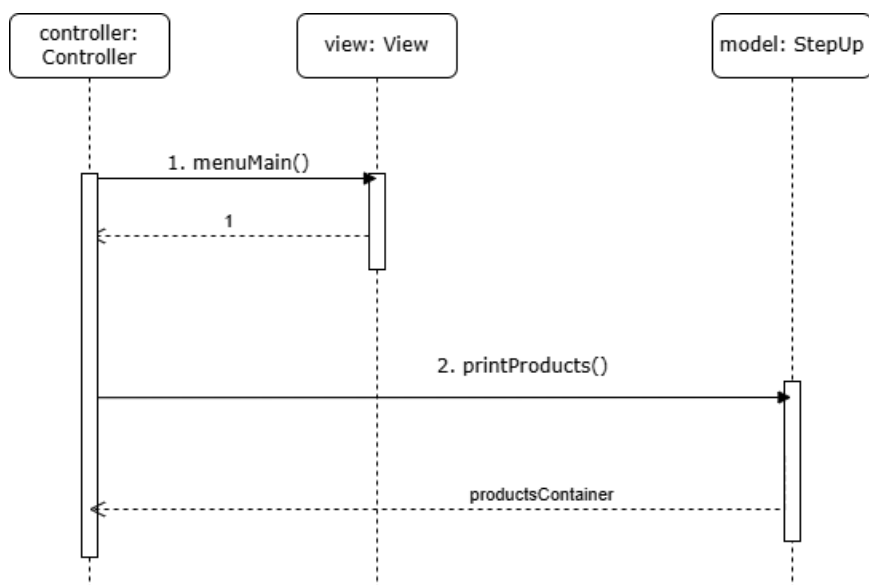
9.9 UC1 Client not logged in – View product

Figure 16 - UC1 Client not logged in - View product
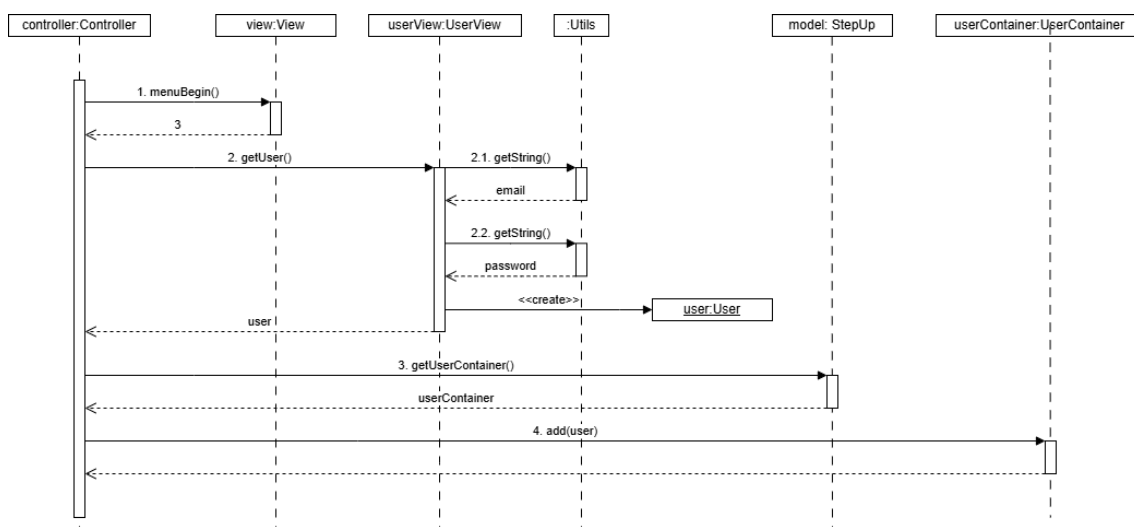
9.10 UC2 Client not logged in – Create account

Figure 17 - UC2 Client not logged in - Create account
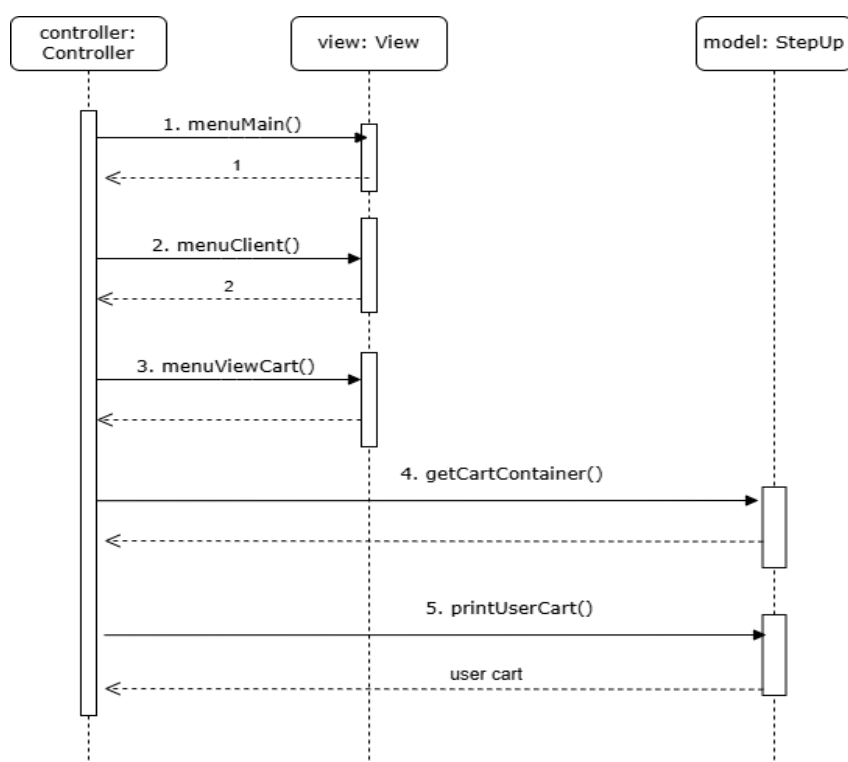
9.11 UC3 Client not logged in – View cart

Figure 18 - UC3 Client not logged in - View cart

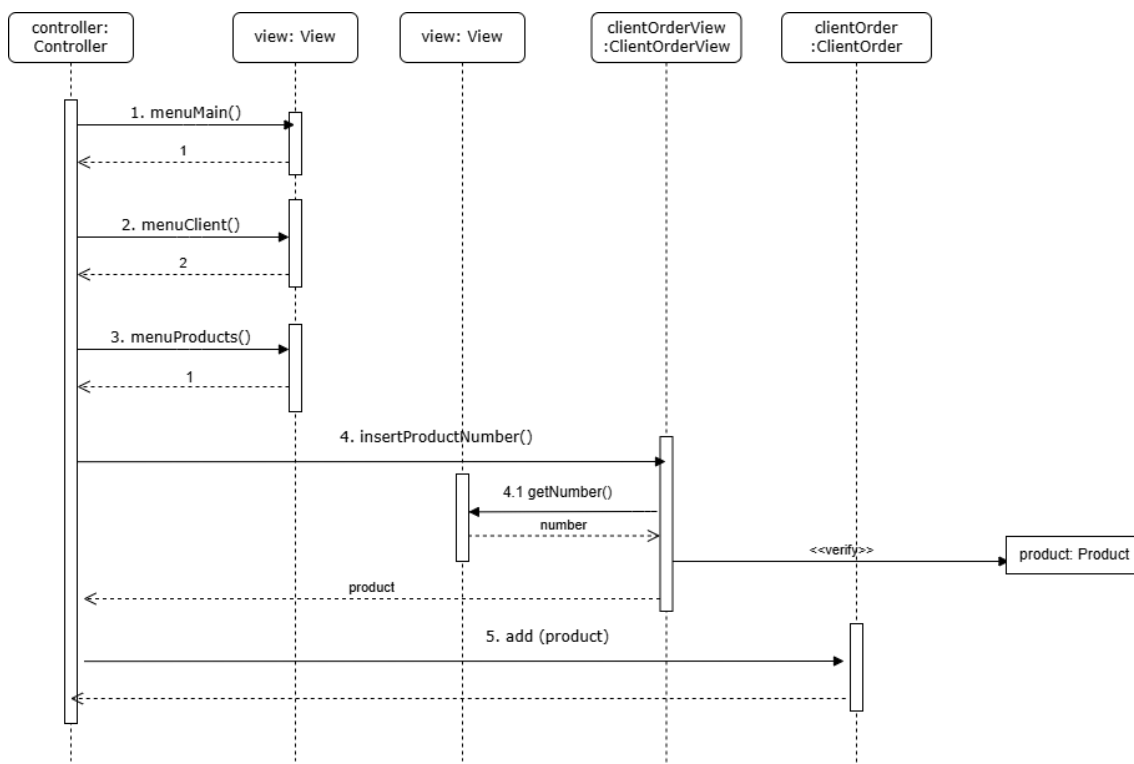## 9.12 UC4 Client not logged in – Add to cart

Figure 19 - UC4 Client not logged in - Add to cart
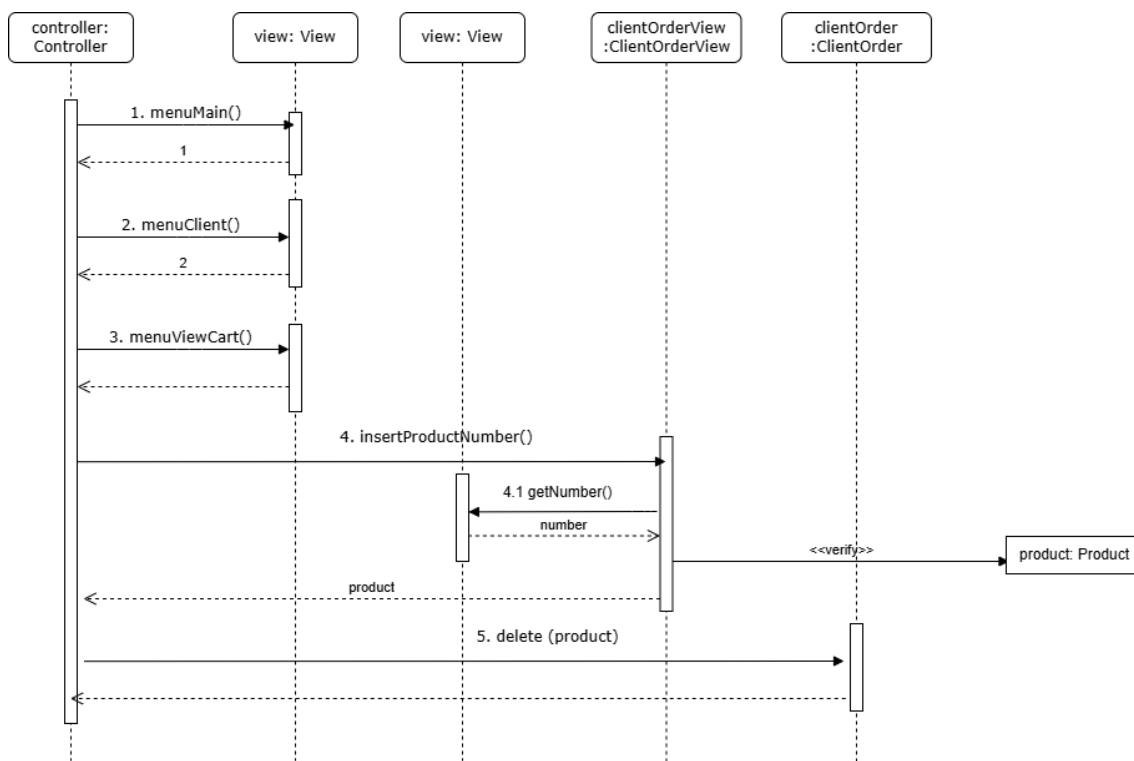
9.13 UC5 Client not logged in – Delete from cart

Figure 20 - UC5 Client not logged in - Delete from cart
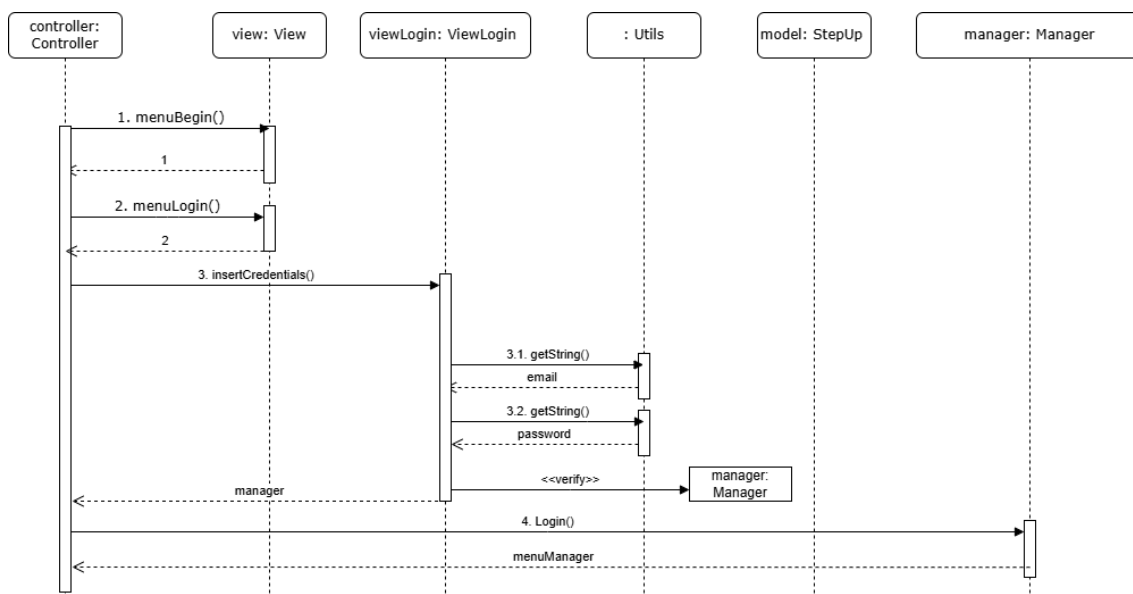
9.14 UC1 Manager – Login

Figure 21 - UC1 Manager - Login

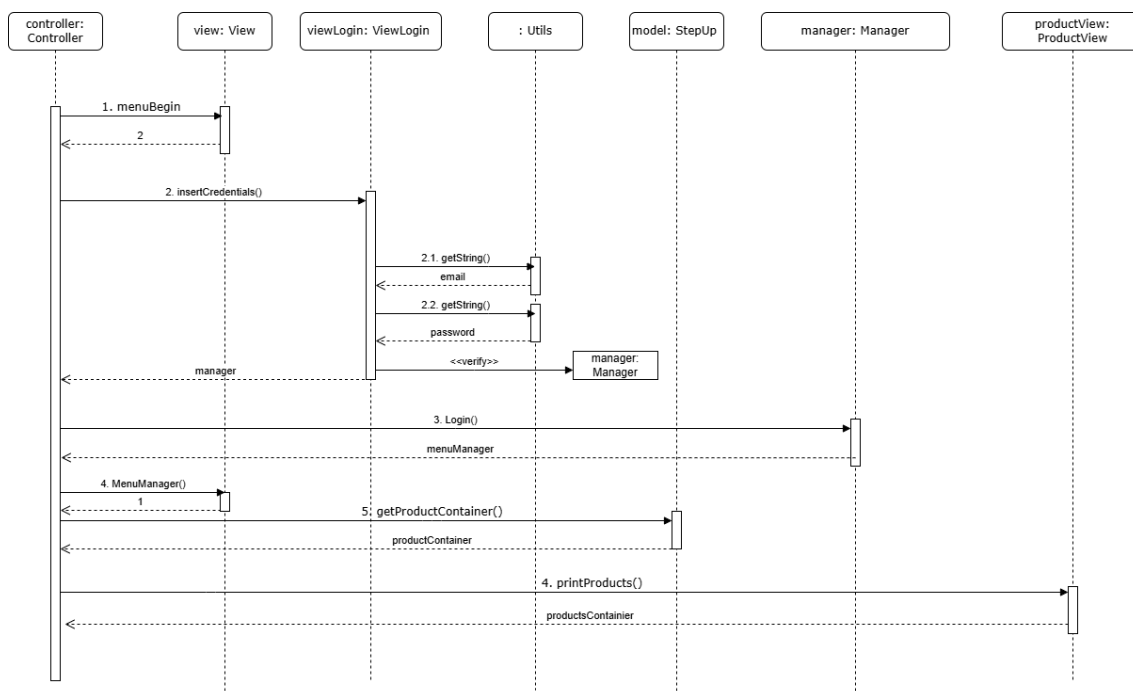## 9.15 UC2 Manager – View product

Figure 22 - UC2 Manager - View product
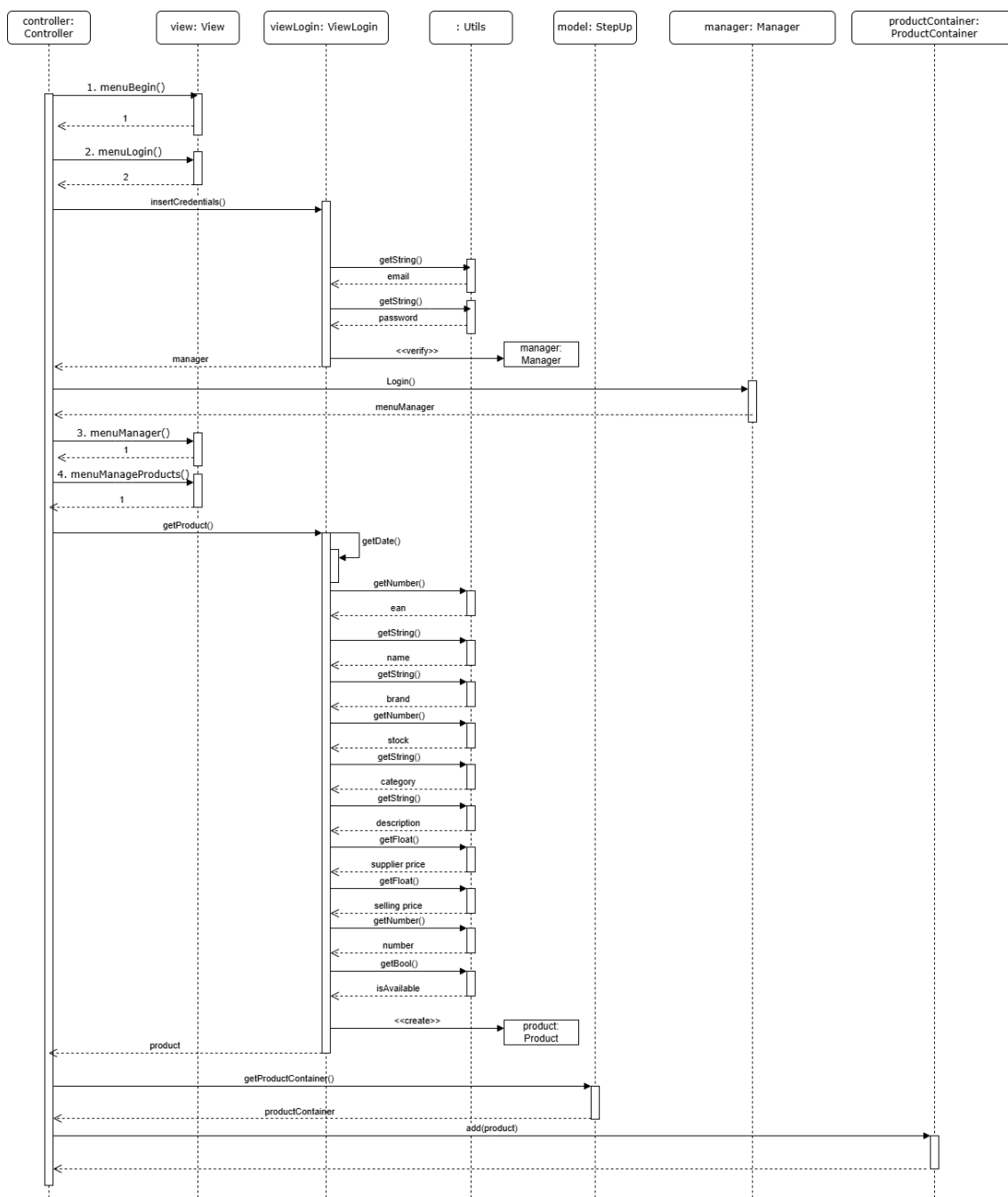
9.16 UC3 Manager – Add product

Figure 23 - UC3 Manager - Add product

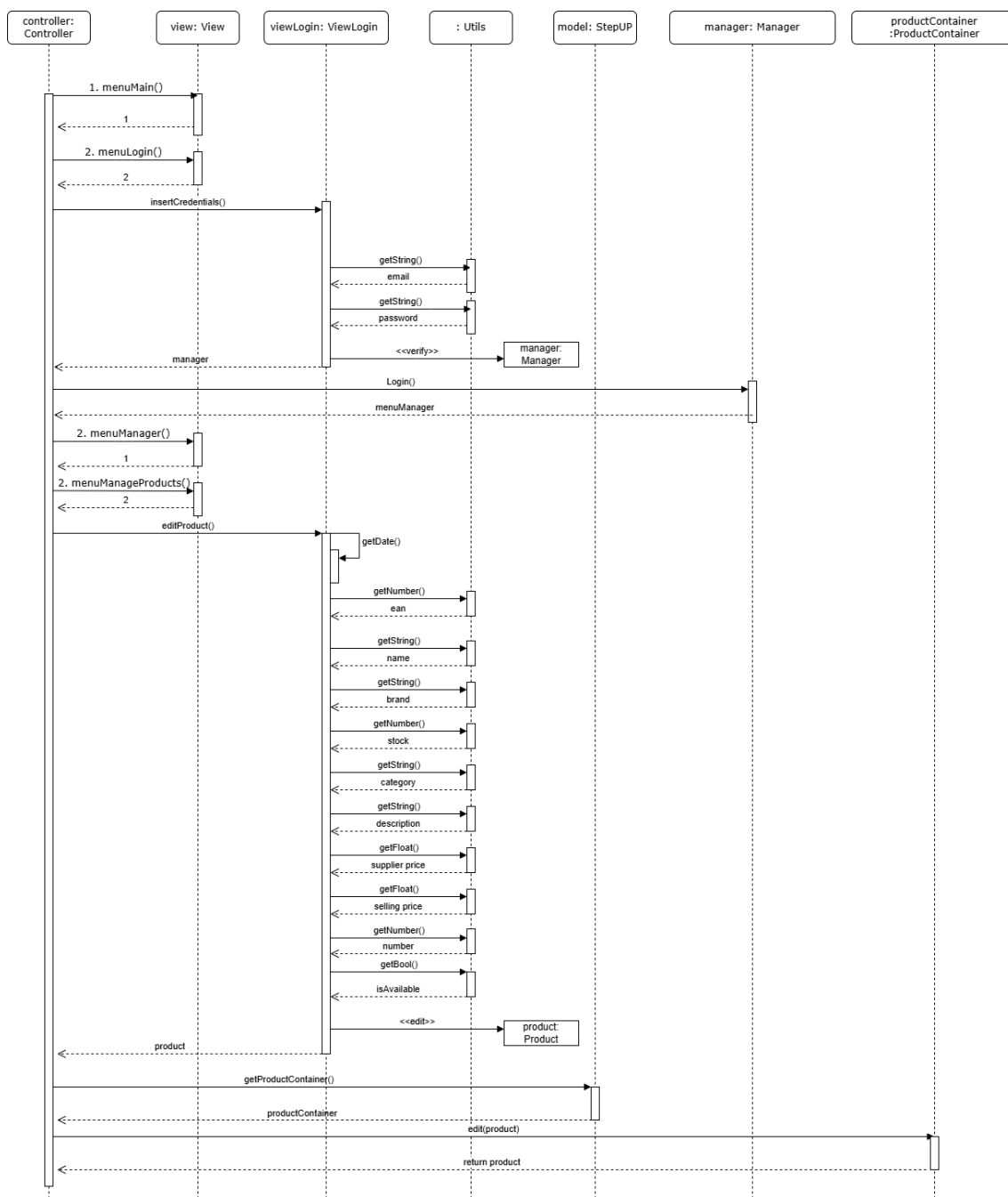## 9.17 UC4 Manager – Edit product

Figure 24 - UC4 Manager - Edit product

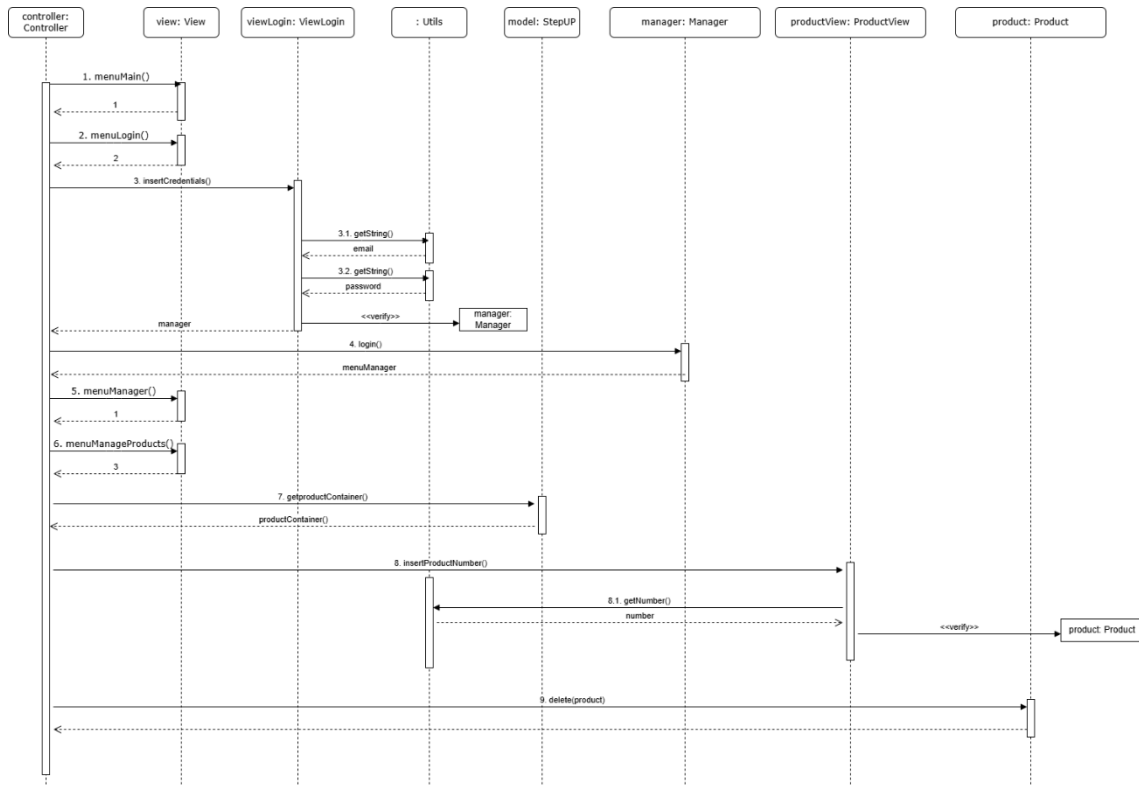## 9.18 UC5 Manager – Delete product

Figure 25 - UC5 Manager - Delete product

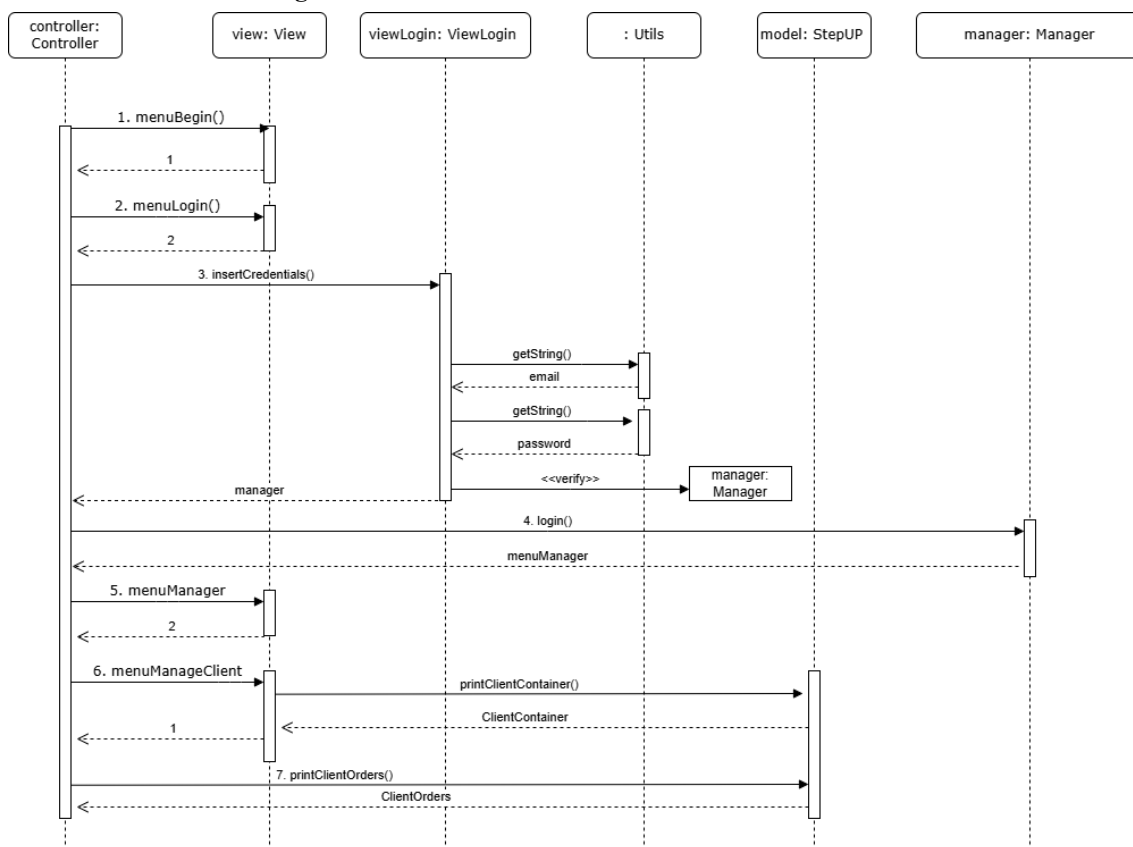## 9.19 UC6 Manager – View client orders

Figure 26 - UC6 Manager - View Client orders
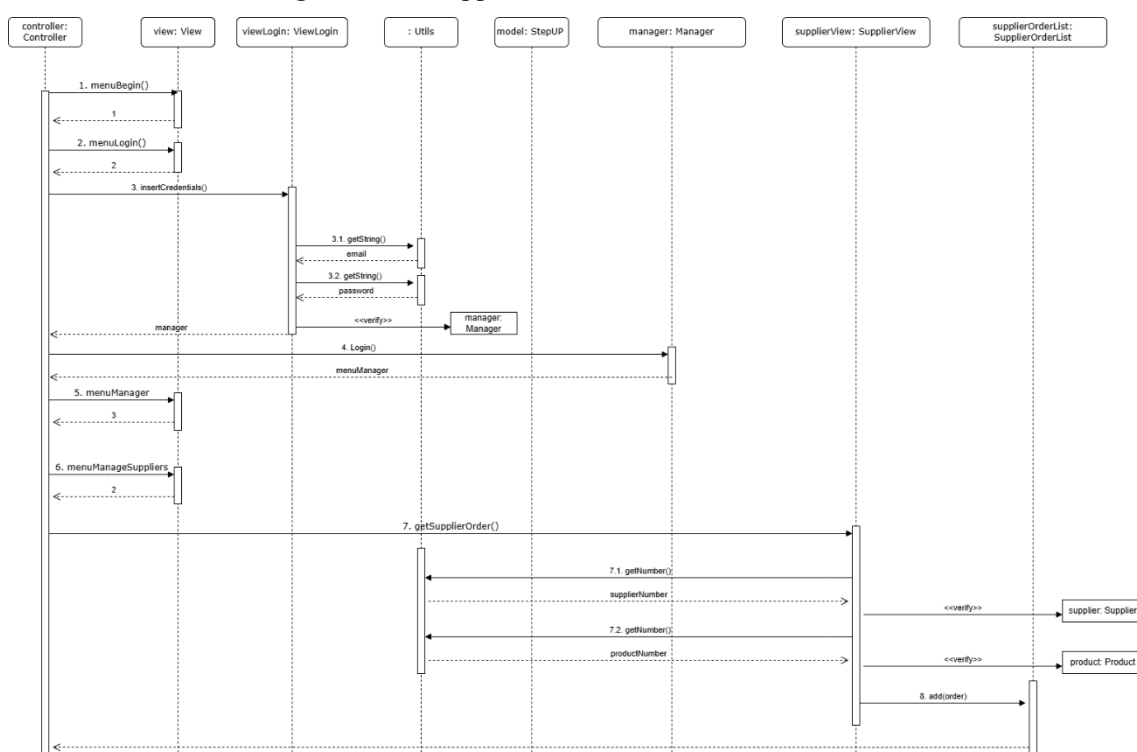
9.20 UC7 Manager – Order supplier

Figure 27 - UC7 Manager - Order supplier
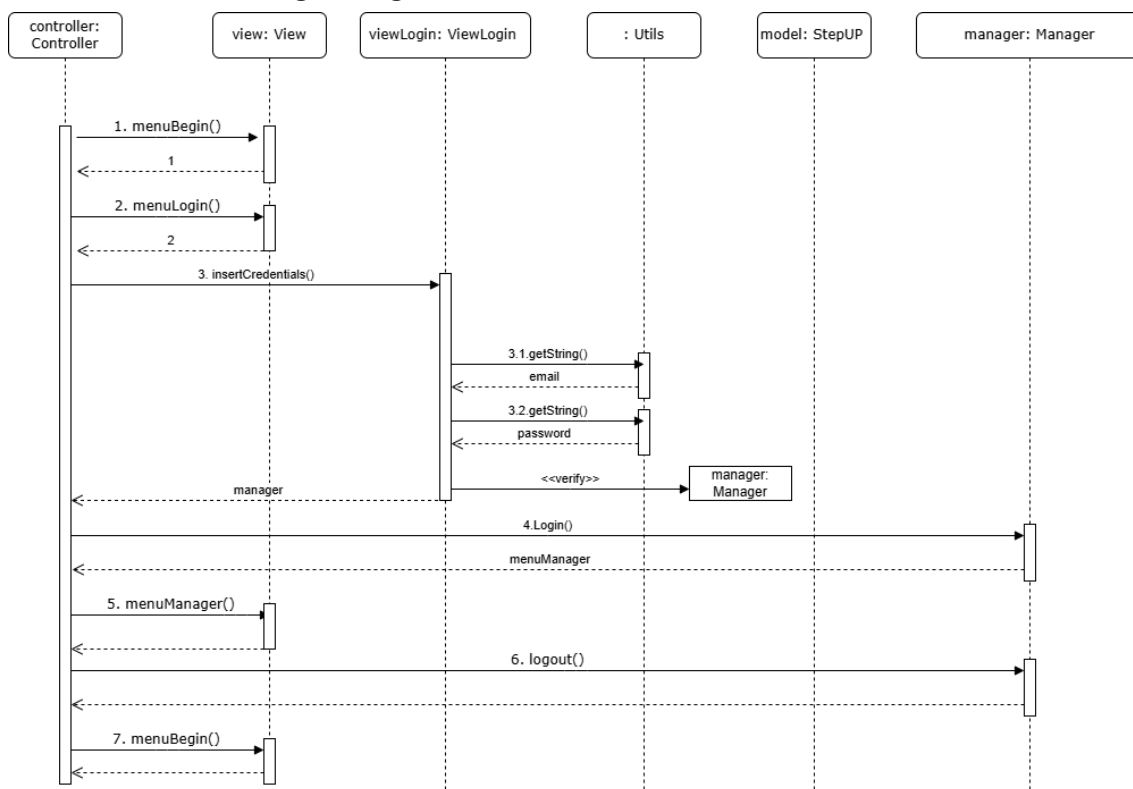
9.21 UC8 Manager – Logout

Figure 28 - UC8 Manager - Logout

10 User Interface

Depending on the account that is logged in, the user interface will display a different tree of menus.
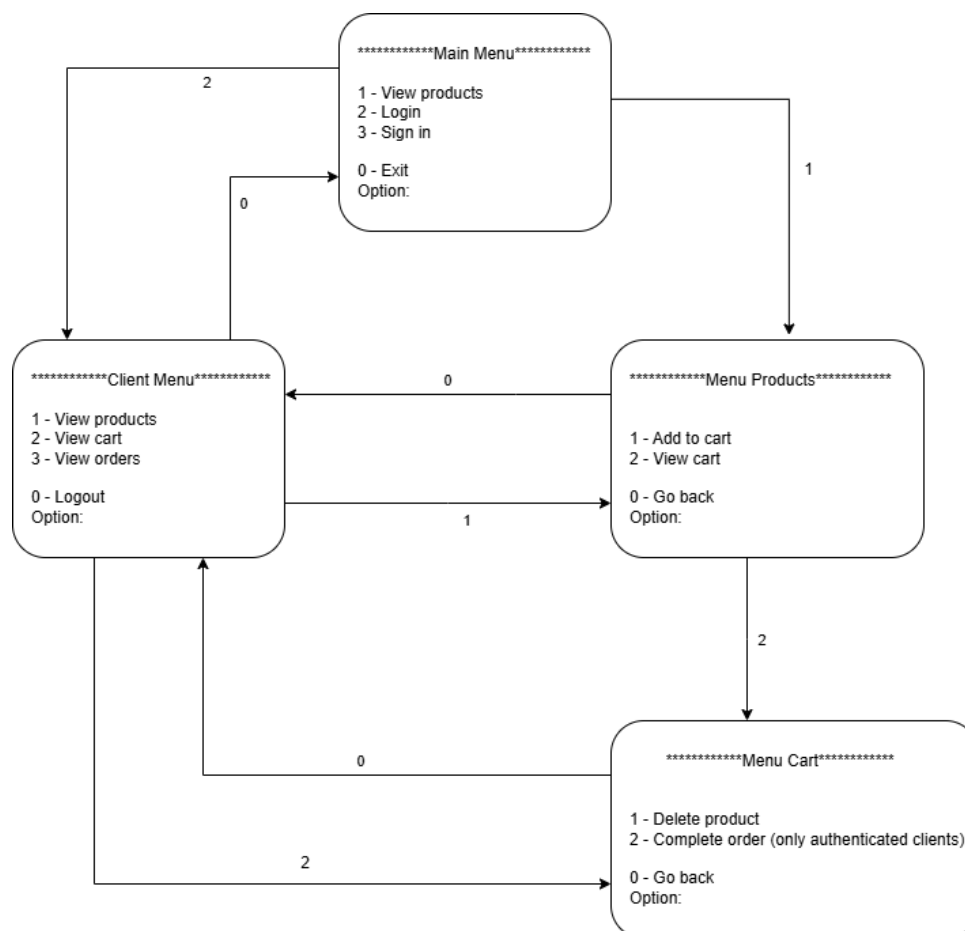
10.1 Client User Interface
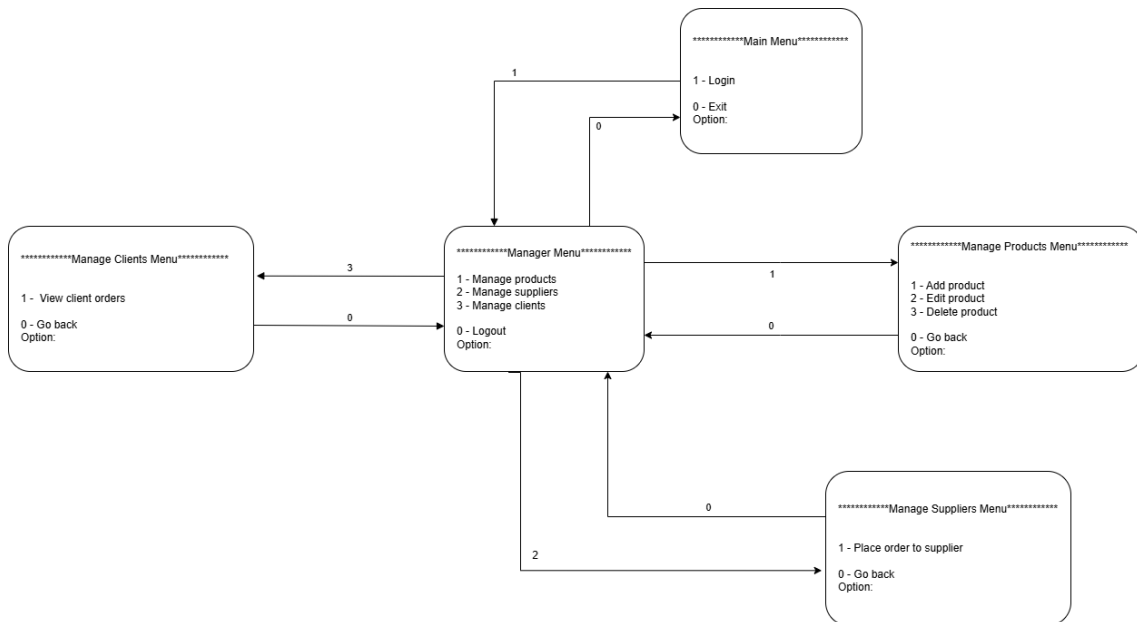

Figure 29 - Client User Interface

10.2 Manager User Interface

Figure 30 - Manager User Interface