

# Deliverable #3 Template

SE 3A04: Software Design II – Large System Design

**Tutorial Number:** T03

**Group Number:** G07

**Group Members:**

- Farid Bastoros
- Neha Bhatla
- Omar Alam
- Luka Mahrt-Smith
- Aidan Lao

## 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 thoroughly 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

## 1.1 Purpose

This document outlines key aspects of the Mushroom Identification App’s architecture, featuring state chart diagrams, sequence diagrams, and a comprehensive class diagram. It is designed for internal Shroomify stakeholders, including but not limited to project managers, developers, domain experts, and investors. Please ensure that Shroomify Deliverable 1 and Deliverable 2 are reviewed before Deliverable 3, as they provide essential context. Additionally, technical knowledge may help in better understanding this document.

## 1.2 System Description

The Mushroom Identification App is a mobile platform that processes user-provided text and image inputs to accurately identify mushroom species. The system employs a hybrid decision forum architecture, where multiple expert modules—including an LLM-based text identifier, a macro-image identification engine (Plant.id API), and a micro-image analysis module (Micro API)—collaborate to determine the most accurate classification. The decision forum integrates insights from these modules, iteratively refining the identification process, while a repository component efficiently manages user inputs, past identifications, and expert analysis results for future reference.

This document builds on the foundational system description provided in Deliverable 2, expanding the technical details through state charts, sequence diagrams, and a comprehensive class diagram. These artifacts offer deeper insights into the system’s data flow, processing logic, and user interactions, illustrating how user inputs progress through various system components—from input validation to expert analysis and final result generation. Additionally, this document clarifies how user accounts, identification history, and species database contributions integrate into the broader system. Through these design elements, we establish a clear roadmap for the system’s implementation and behavior.

## 1.3 Overview

This document provides a structured analysis and design of the Mushroom Identification App, focusing on State Chart Diagrams, Sequence Diagrams, and a detailed Class Diagram. It expands upon the foundational concepts introduced in Deliverables 1 and 2, ensuring a comprehensive understanding of the system’s behavior, interactions, and internal structure.

Section 2 presents State Chart Diagrams, defining the behavior of key controller classes, particularly those handling user management and mushroom identification workflows. These diagrams illustrate the different states that system entities transition between and the conditions that trigger these transitions. Section 3 provides Sequence Diagrams, visually representing the interaction flow between system components during key use cases such as mushroom identification, account registration, and database contribution. These diagrams capture step-by-step interactions between users, expert modules, and the system’s processing units. Section 4 contains the Class Diagram, outlining the structure of the system’s core classes, their attributes, relationships, and methods. This diagram clarifies class responsibilities, making it easier to understand how data is managed and processed within the system.

Together, these sections form a comprehensive guide to understanding the Mushroom Identification App’s state management, process flow, and class relationships, providing essential details for implementation and further development.

## 2 State Charts for Controller Classes

State chart diagrams are provided as SVG files and may be zoomed into to reveal more detail.

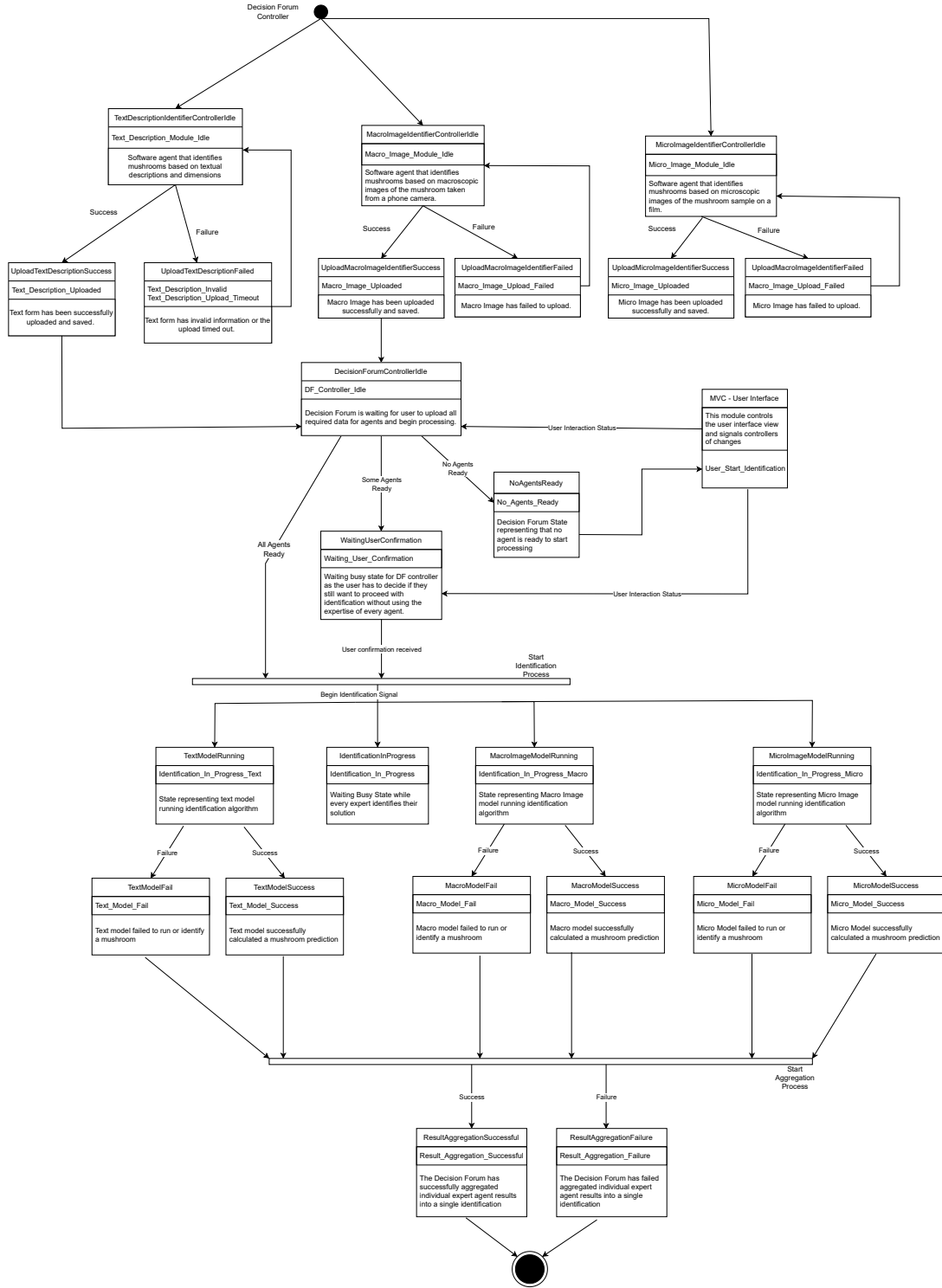


Figure 1: State Chart Diagram for the Decision Forum Controller

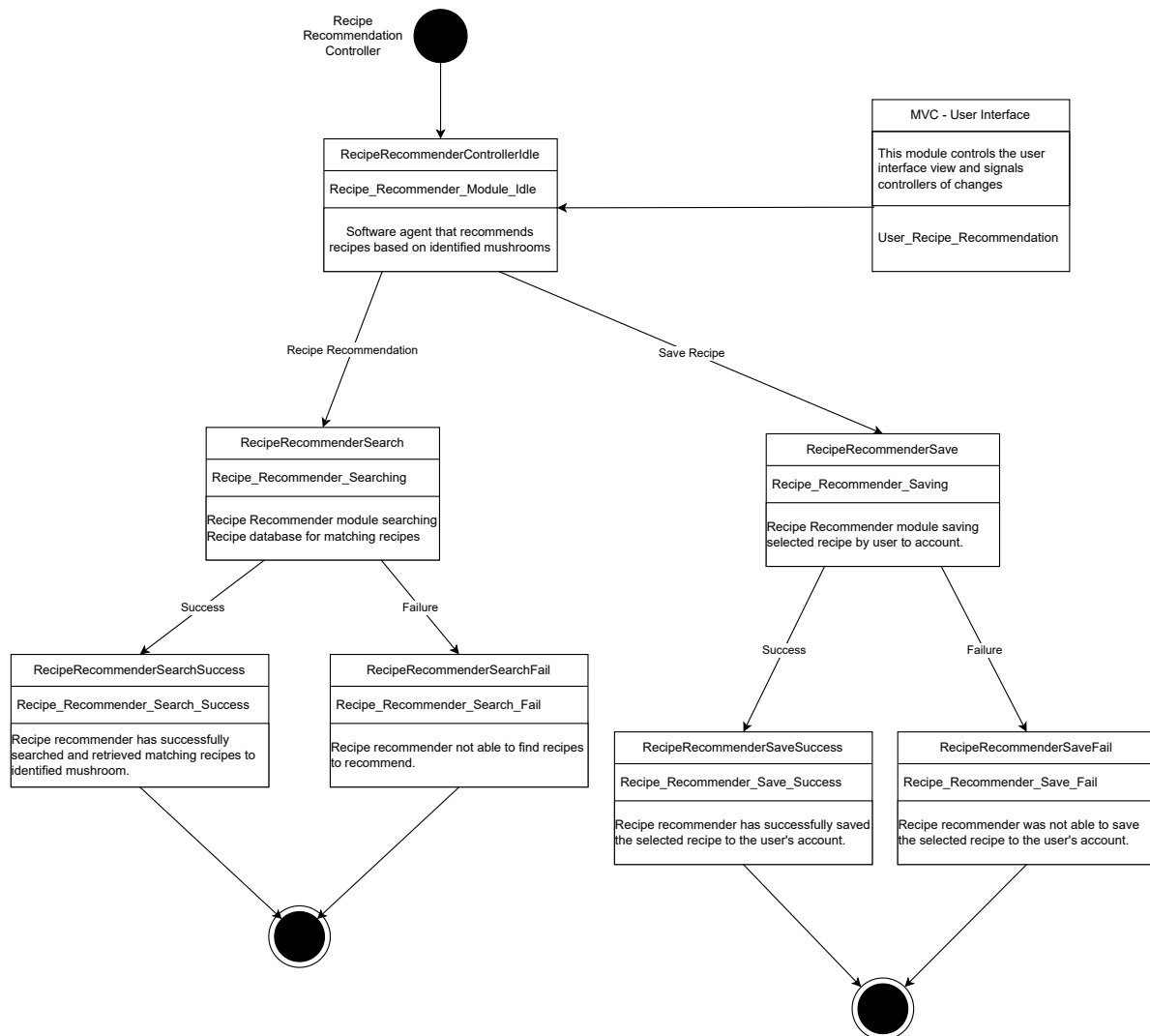


Figure 2: State Chart Diagram for the Recipe Recommendation Controller

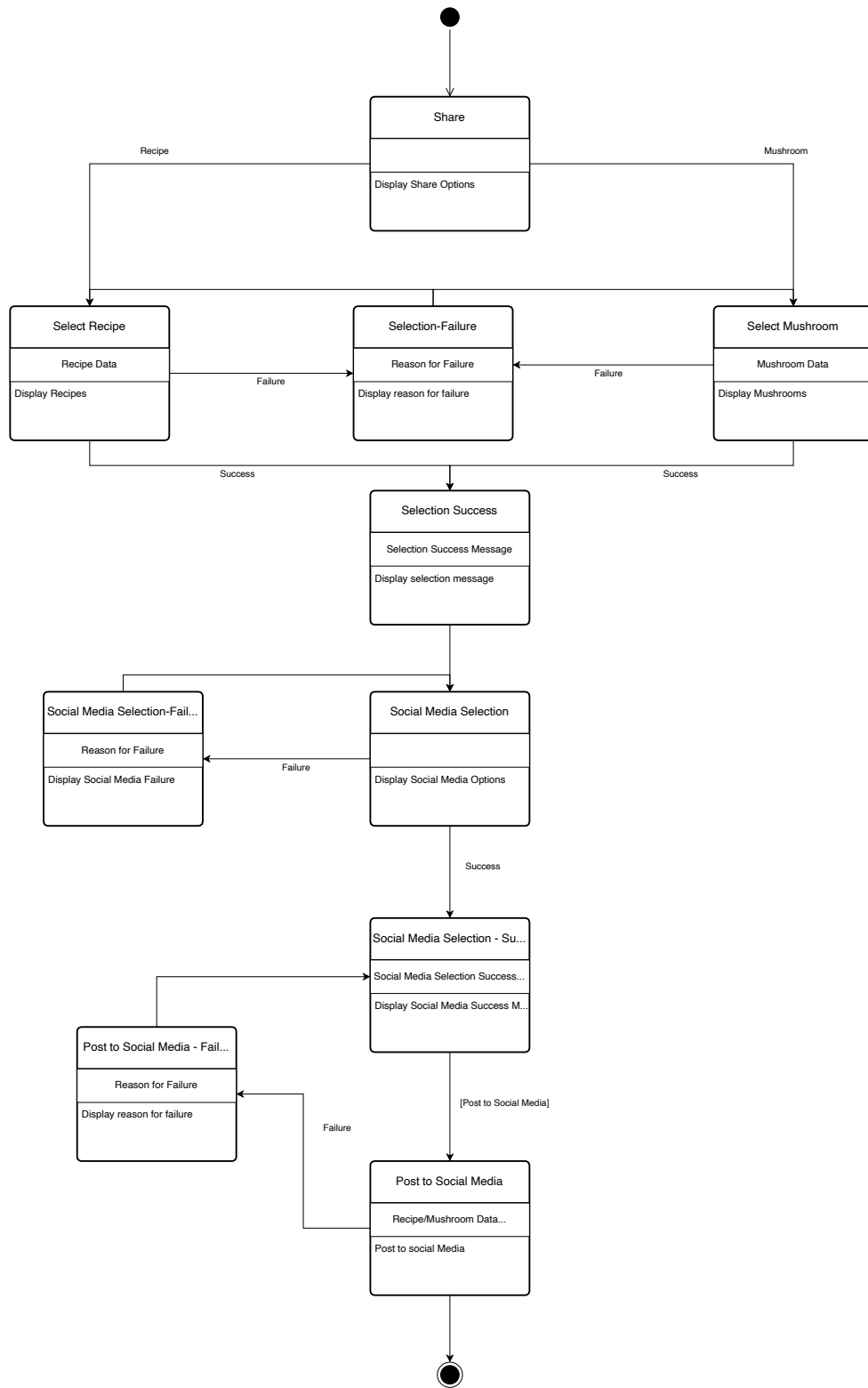


Figure 3: State Chart Diagram for the Social Media Manager Controller

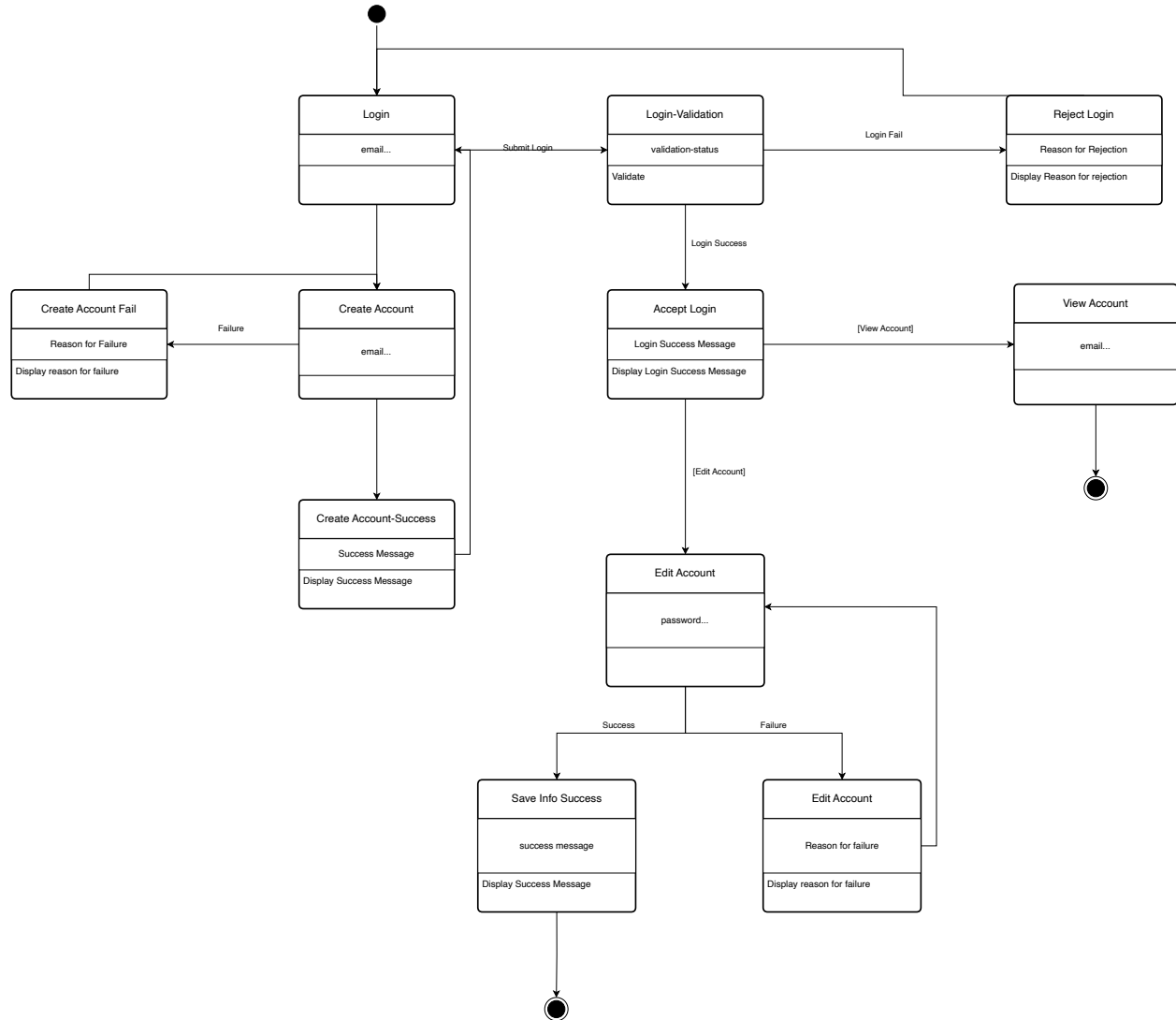


Figure 4: State Chart Diagram for the Account Manager Controller

### 3 Sequence Diagrams

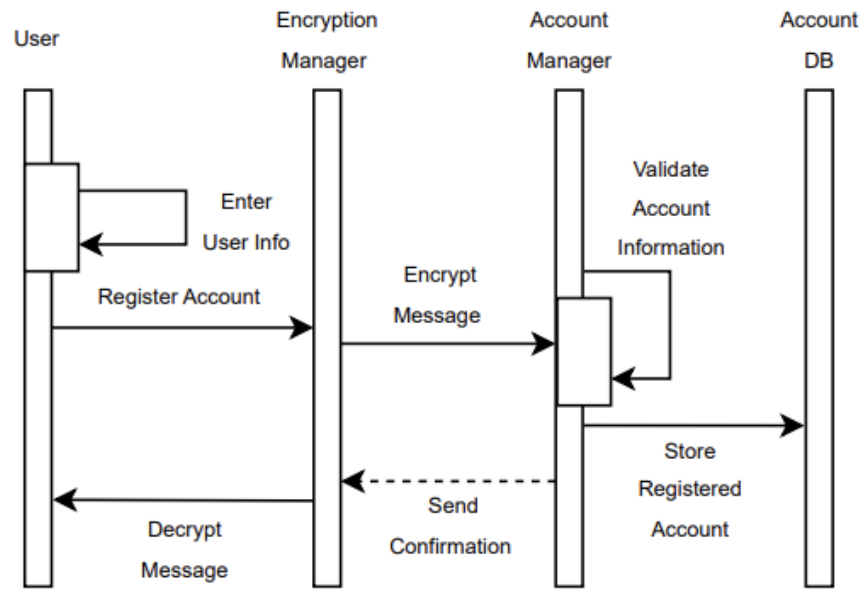


Figure 5: Sequence Diagram for Account Registration

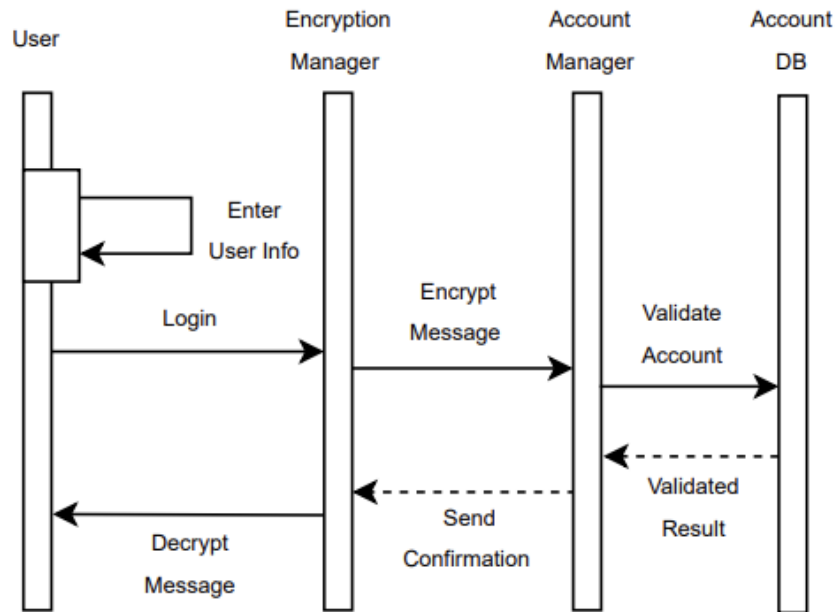


Figure 6: Sequence Diagram for Login

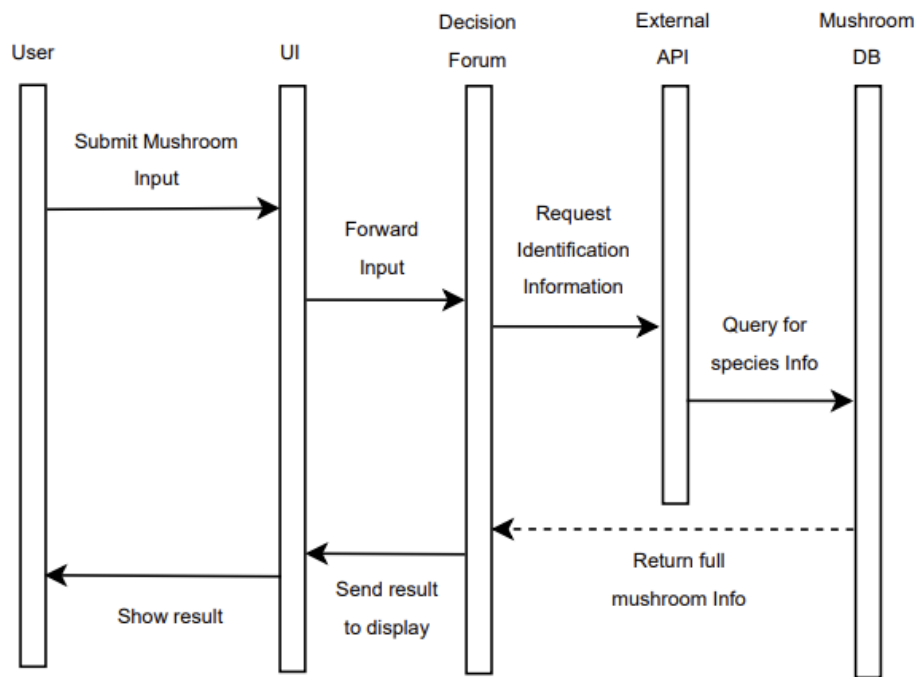


Figure 7: Sequence Diagram for Identify Mushroom

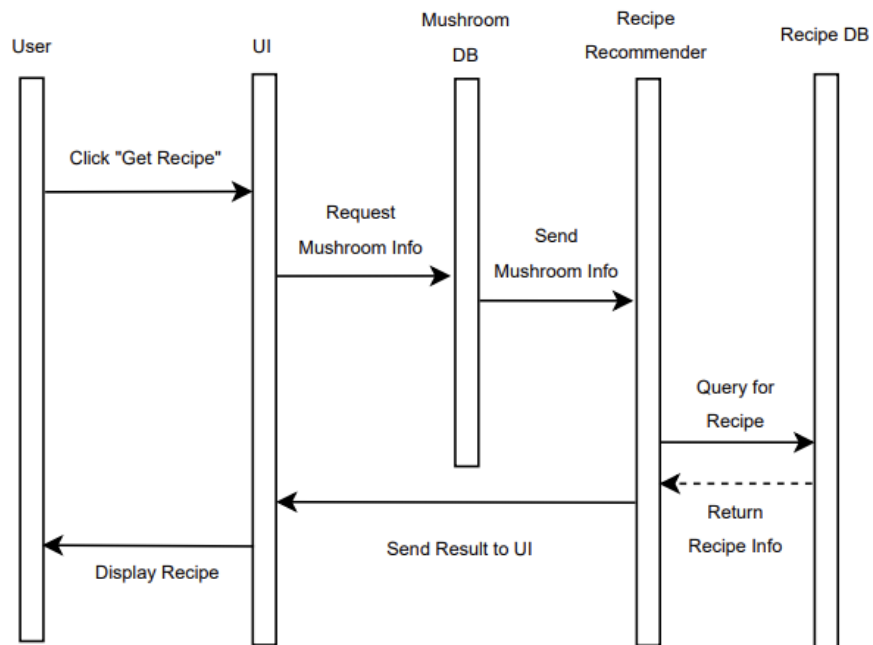


Figure 8: Sequence Diagram for Get Recipe



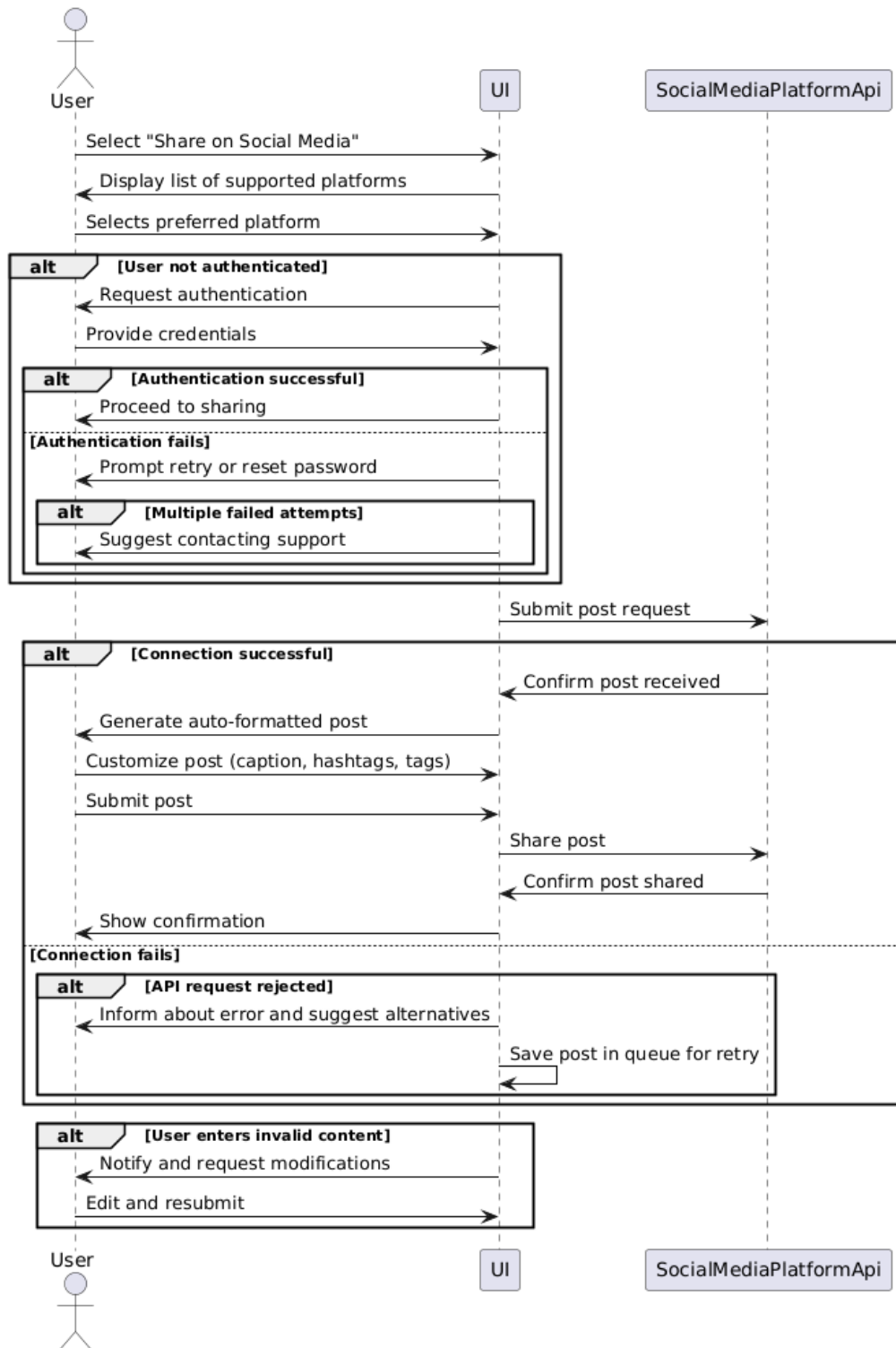


Figure 9: Sequence Diagram for Share to Social Media

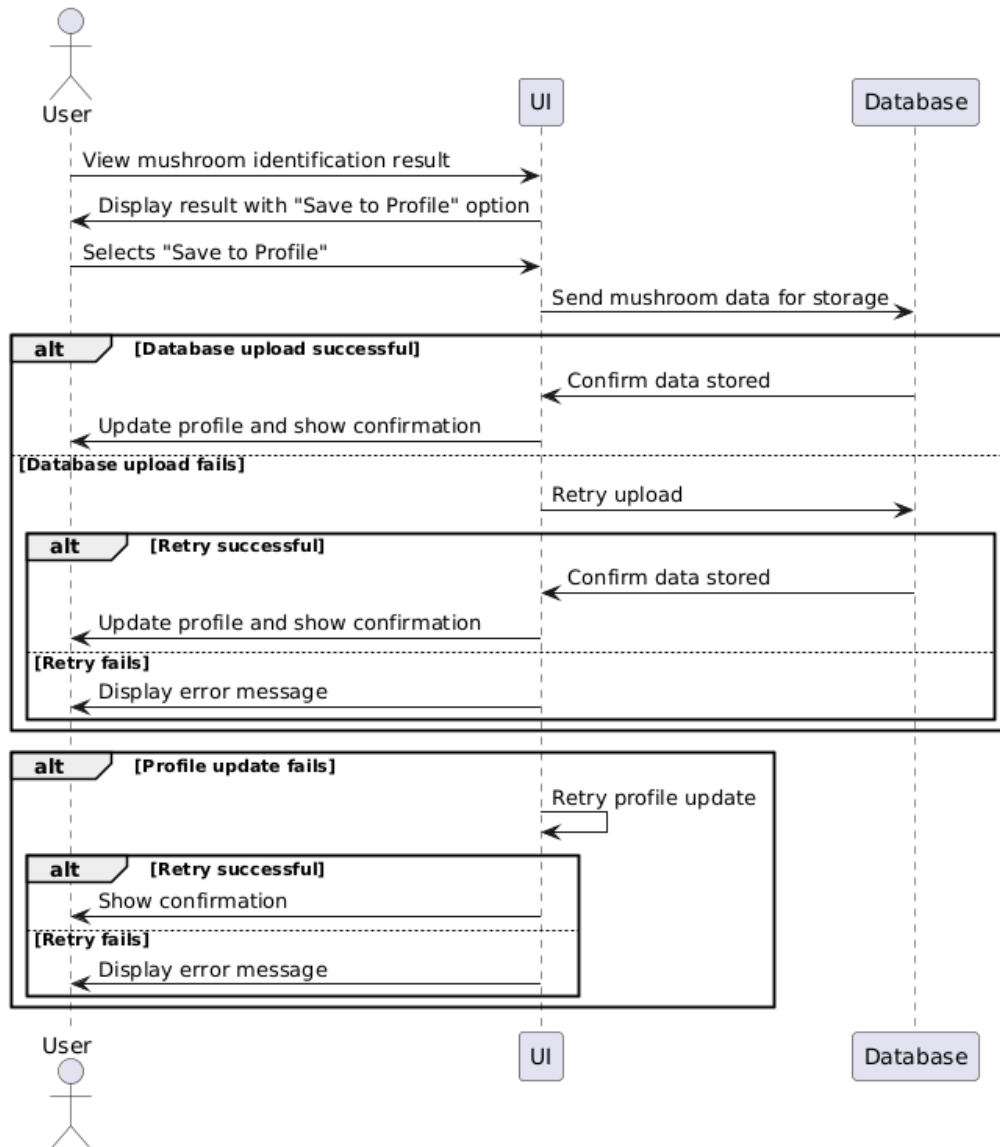


Figure 10: Sequence Diagram for Save Mushroom

## 4 Detailed Class Diagram

The diagrams is provided as SVG file and may be zoomed into to reveal more detail.

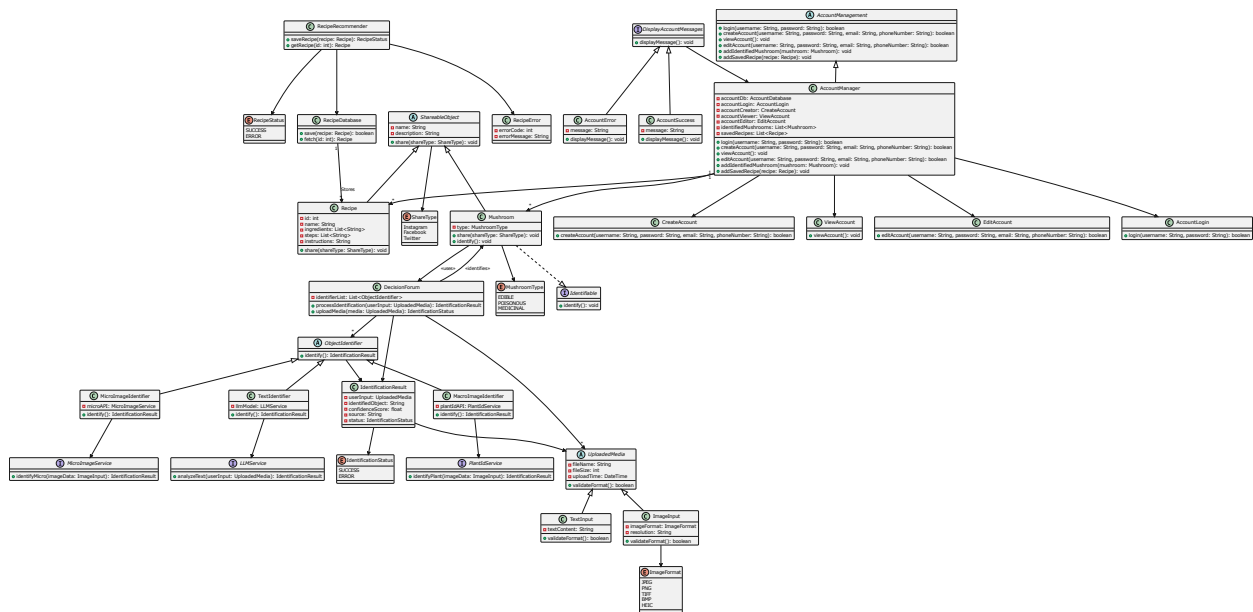


Figure 11: Detailed Class Diagram

## A Division of Labour

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

- Farid Bastoros:
  - Section 4 - Completed Detailed Class Diagram
  - Section 1.1 - Reviewed and updated Purpose
  - Section 1.2 - Reviewed and updated System Description
  - Section 1.3 - Reviewed and updated Overview
  - Section 2 - Added 2 State Chart Diagrams to the document (Account Manager & Social Media Manager)
  - Modified Deliverable 2 with Fixes including:
    - \* Updated CRC Card for Account Manager
    - \* Updated CRC Card for Mushroom Manager
    - \* Updated CRC Card for Social Media Manager
    - \* Updated CRC Card for Recipe Recommender
    - \* Updated CRC Card for Decision Fourm
    - \* Updated CRC Card for Text Description Identifier
    - \* Updated CRC Card for Macro Image Identifier
    - \* Updated CRC Card for Micro Image Identifier
  - Compiled the Final documents



- Neha Bhatla:
  - Section 1.2 - Completed System Description
  - Section 1.3 - Completed Overview
  - Section 3 - Sequence Diagrams for Register Account, Login, Identify Mushroom, and Get Recipe.



- Omar Alam:
  - State chart diagrams for the Decision Forum Controller and Recipe Recommendation Controller.
  - Latex formatting and editing.



- Luka Mahrt-Smith:
  - State chart diagrams for Account Controller and Social Media Controller.



- Aidan Lao:
  - Section 1.1 - Purpose
  - Section 3 - Sequence Diagrams for Save Mushroom and Share to Social Media

