

# Deliverable #3 Template

SE 3A04: Software Design II – Large System Design

March 24, 2024

**Tutorial Number:** T03

**Group Number:** G8

**Group Members:**

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- Daniel David Franze-Da Silva
- Rosa Chen
- Aidan Edward Froggatt
- Edward Gao

# **1 Introduction**

## **1.1 Purpose**

The purpose of this document is to provide further information about the software architecture of the secure chat application, including state chart diagrams, sequence diagrams, and a detailed class diagram. The intended audience for this document is internal stakeholders involved in the development and management of the software project. This includes project managers, developers, domain experts, and team members/investors.

Deliverable 1 and 2 should be read prior to this document. Additionally, technical knowledge may be beneficial for reading the contents of the document.

## **1.2 System Description**

An overview of the system description can be found in deliverable 2. This document acts as an extension of deliverable 2, providing more context in form of state charts, sequence diagrams, and a detailed class diagram. As described in deliverable 2 the secure chat application system is designed to fit a PAC architecture style with repository sub systems. The overall system will complete agent authentication using Kerberos and encrypt communications with AES encryption protocol.

## **1.3 Overview**

The document contains detailed diagrams illustrating various aspects of the system architecture. Section 2 presents state chart diagrams for controller classes, Section 3 provides sequence diagrams for each use case, and Section 4 offers a detailed class diagram showcasing the relationships between different classes within the secure chat application. The document is organized into sections based on the type of diagram presented. Each section is dedicated to a specific type of diagram, making it easy for readers to locate and reference the information they need. Additionally, non-standard notations used in the diagrams are documented for clarity, ensuring that readers can interpret the diagrams accurately.

## 2 State Charts for Controller Classes

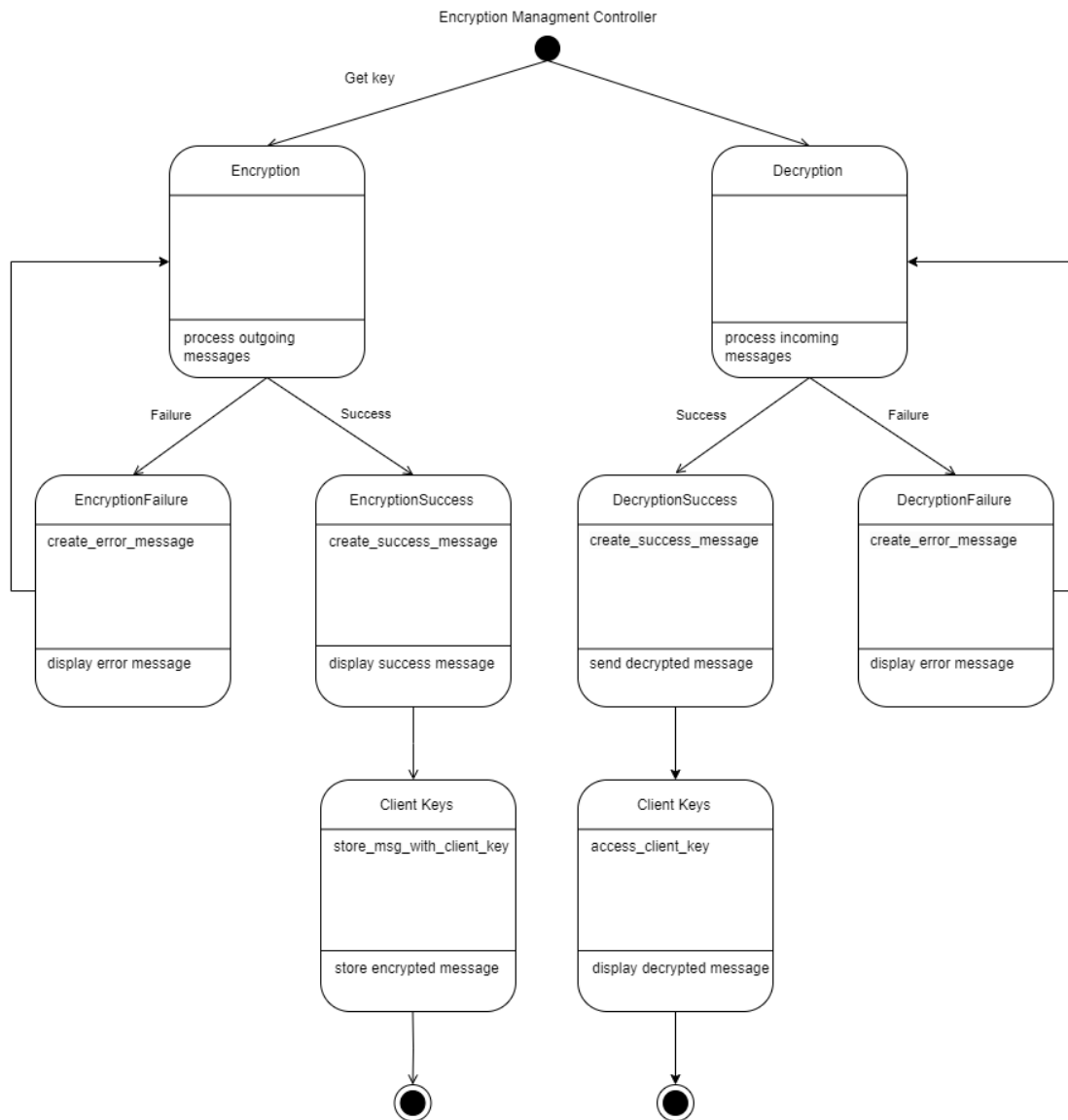


Figure 1. State Chart for Encryption Management Controller

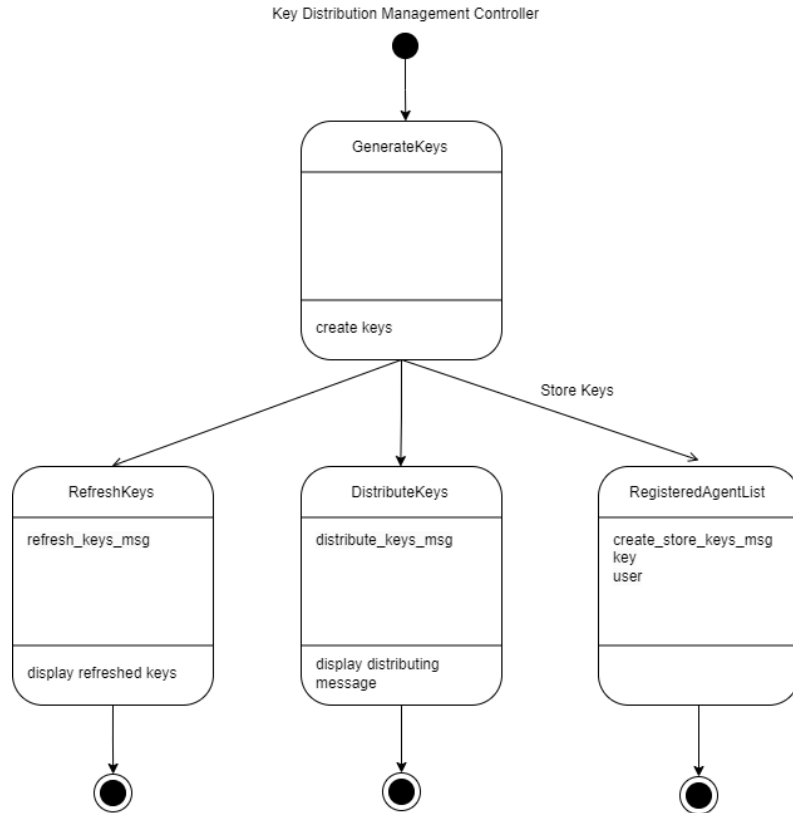


Figure 2. State Chart for KDC Management Controller

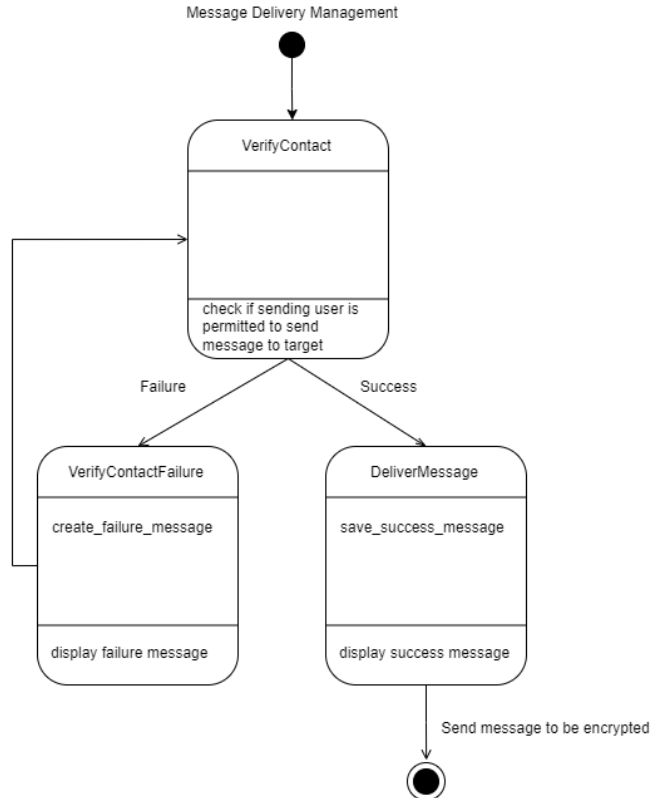


Figure 3. State Chart for Message Delivery Management Controller

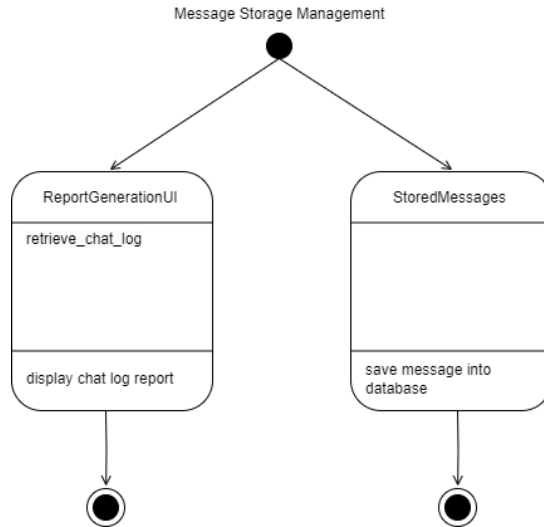


Figure 4. State Chart for Message Storage Management Controller

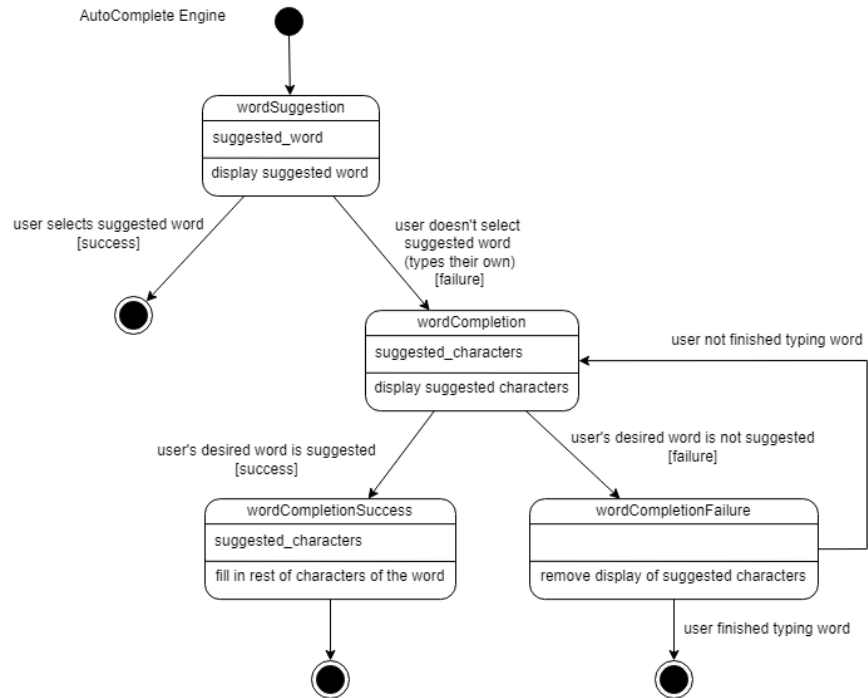
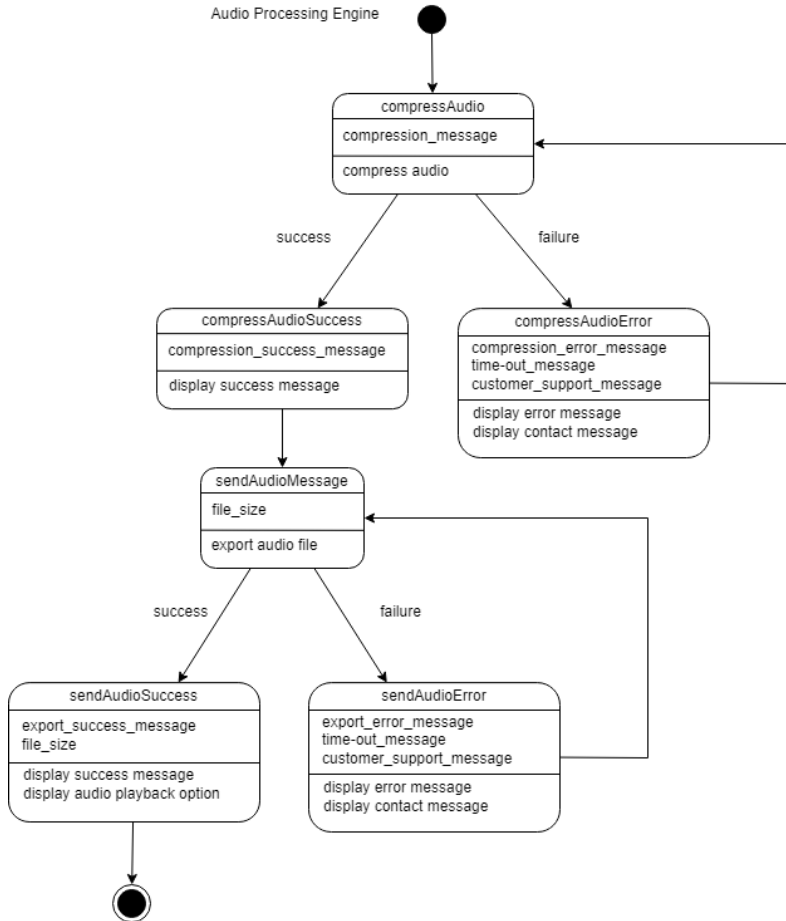
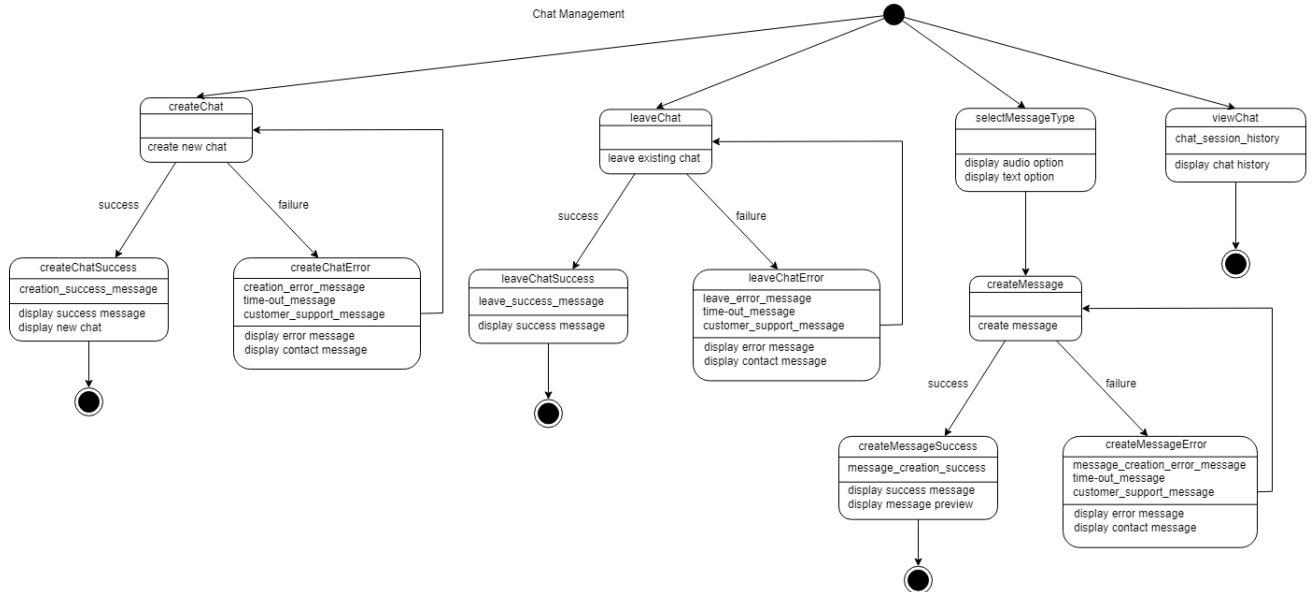


Figure 5. State Chart for AutoComplete Engine Controller



**Figure 6. State Chart for Audio Processing Engine Controller**



**Figure 7. State Chart for Chat Management Controller**

The enlarged overall Chat Management Controller state chart is shown in Figure 5.1 and Figure 5.2.

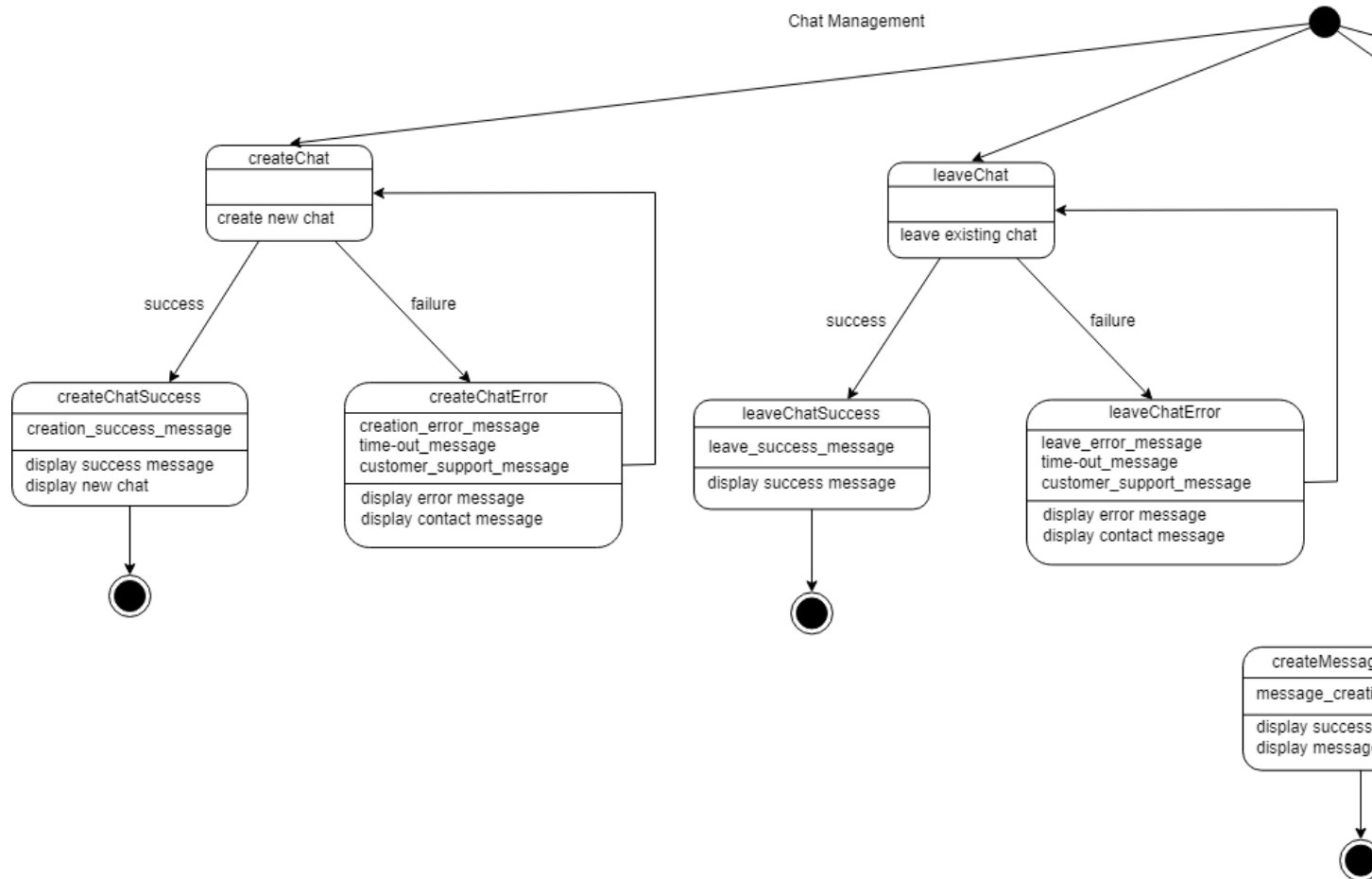


Figure 7.1. Enlarged State Chart for Chat Management Controller (Left Side)

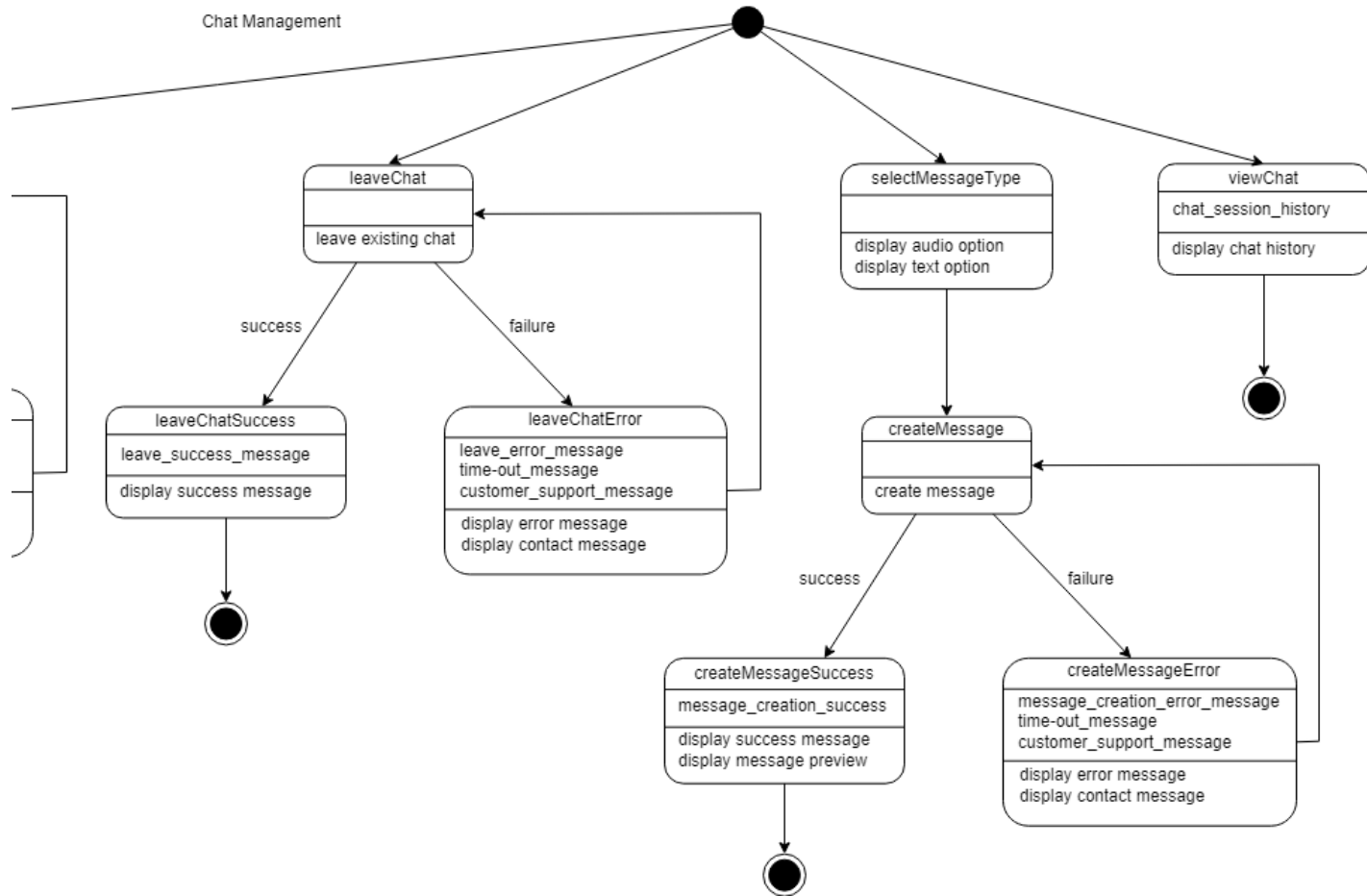


Figure 7.2. Enlarged State Chart for Chat Management Controller (Right Side)

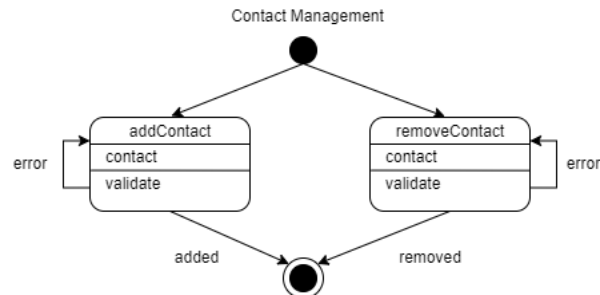


Figure 8. State Chart for Contact Management

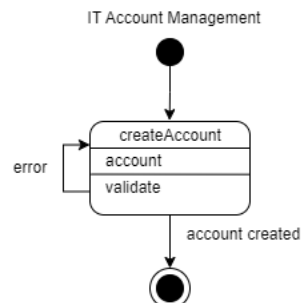


Figure 9. State Chart for IT Account Management



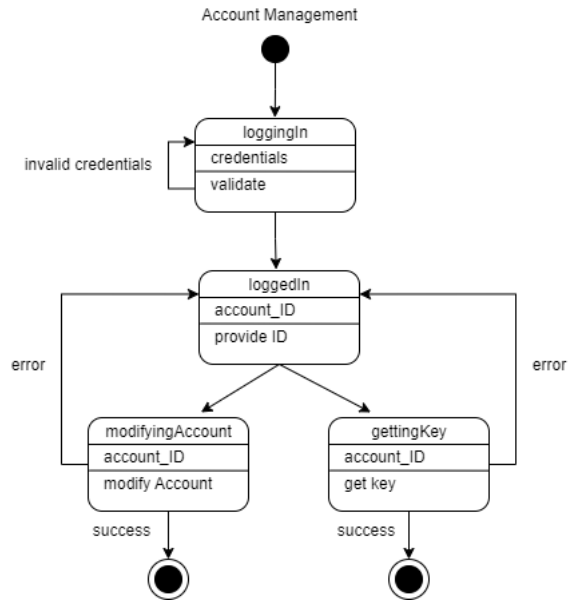


Figure 10. State Chart for Account Management

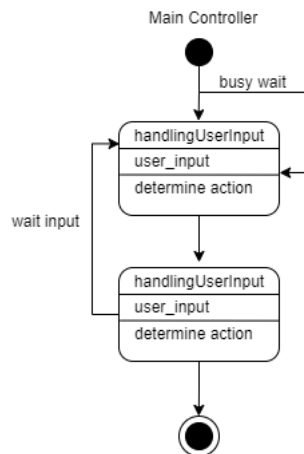


Figure 11. State Chart for Main Controller

### 3 Sequence Diagrams

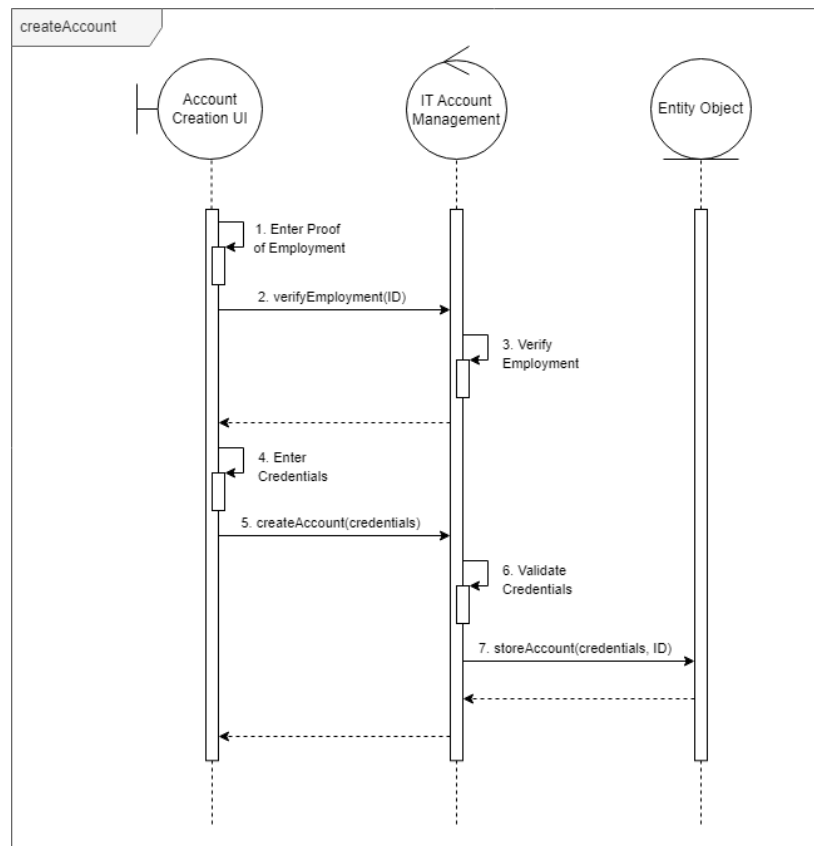


Figure 12. Sequence Diagram for Create an Account

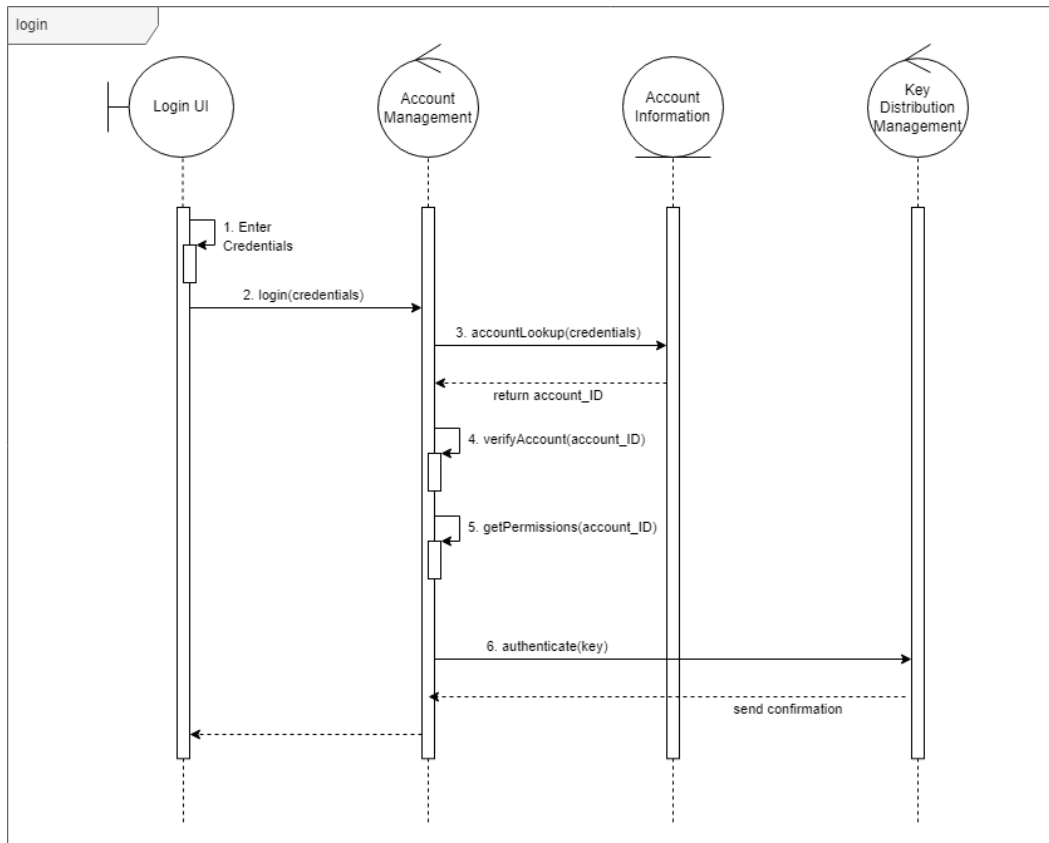


Figure 13. Sequence Diagram for Login to Account

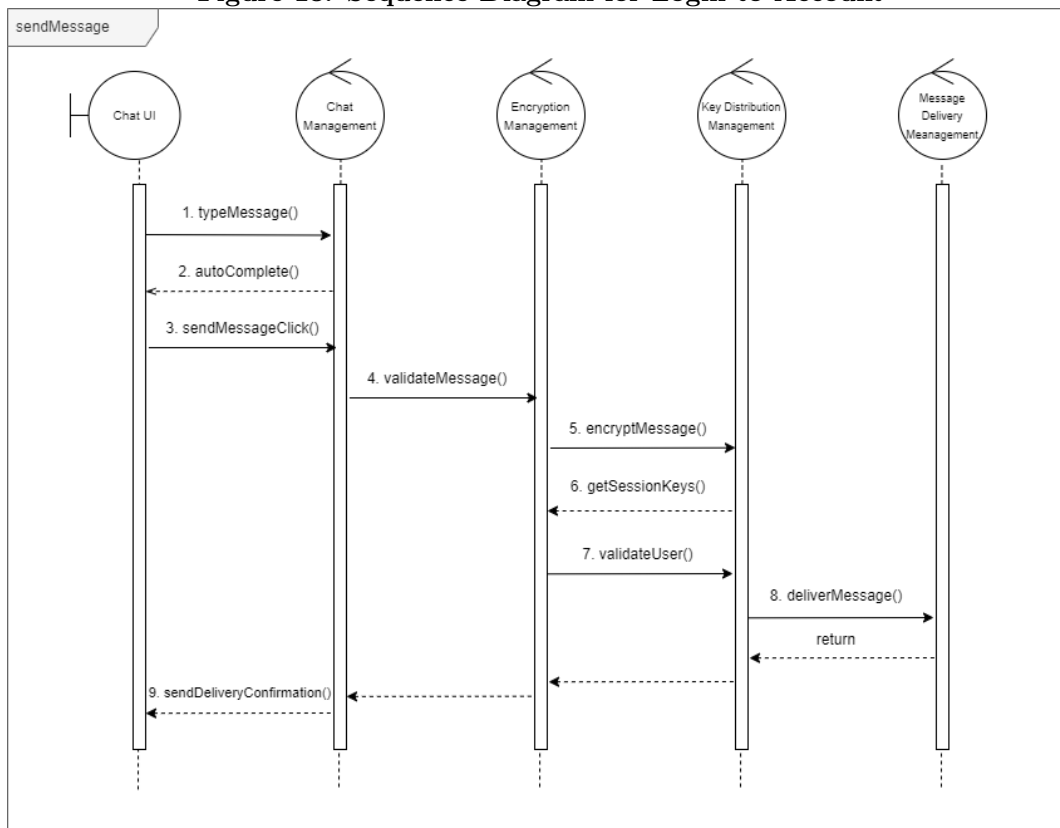


Figure 14. Sequence Diagram for Send a Message

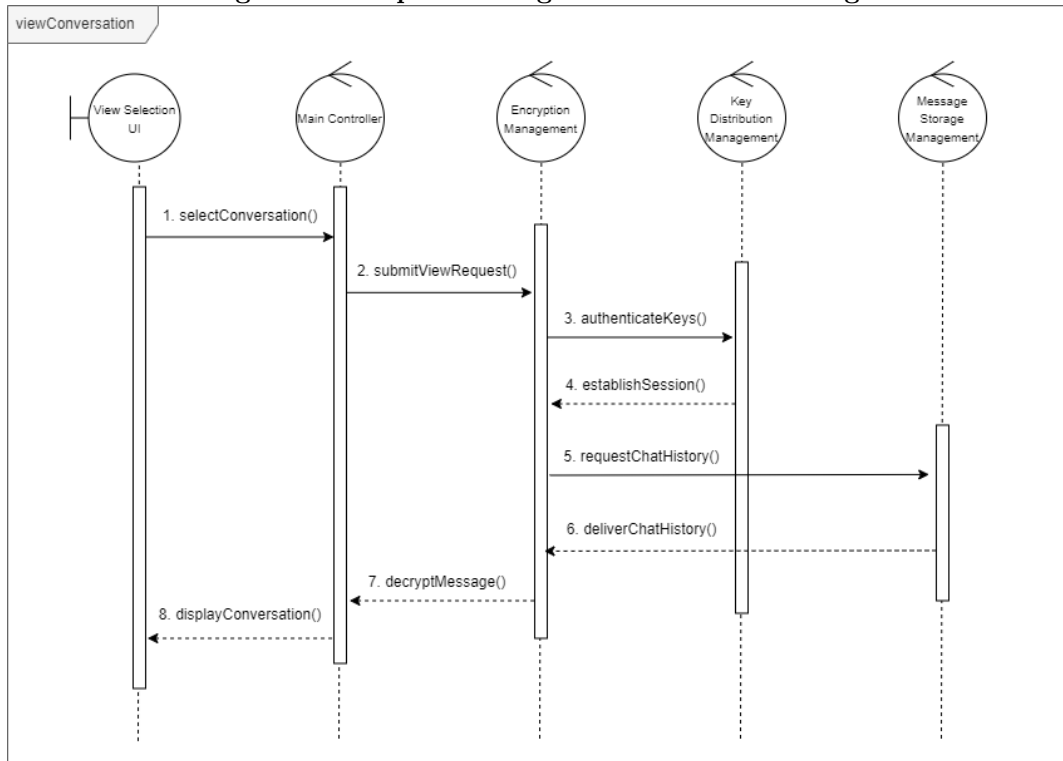


Figure 15. Sequence Diagram for View a Conversation

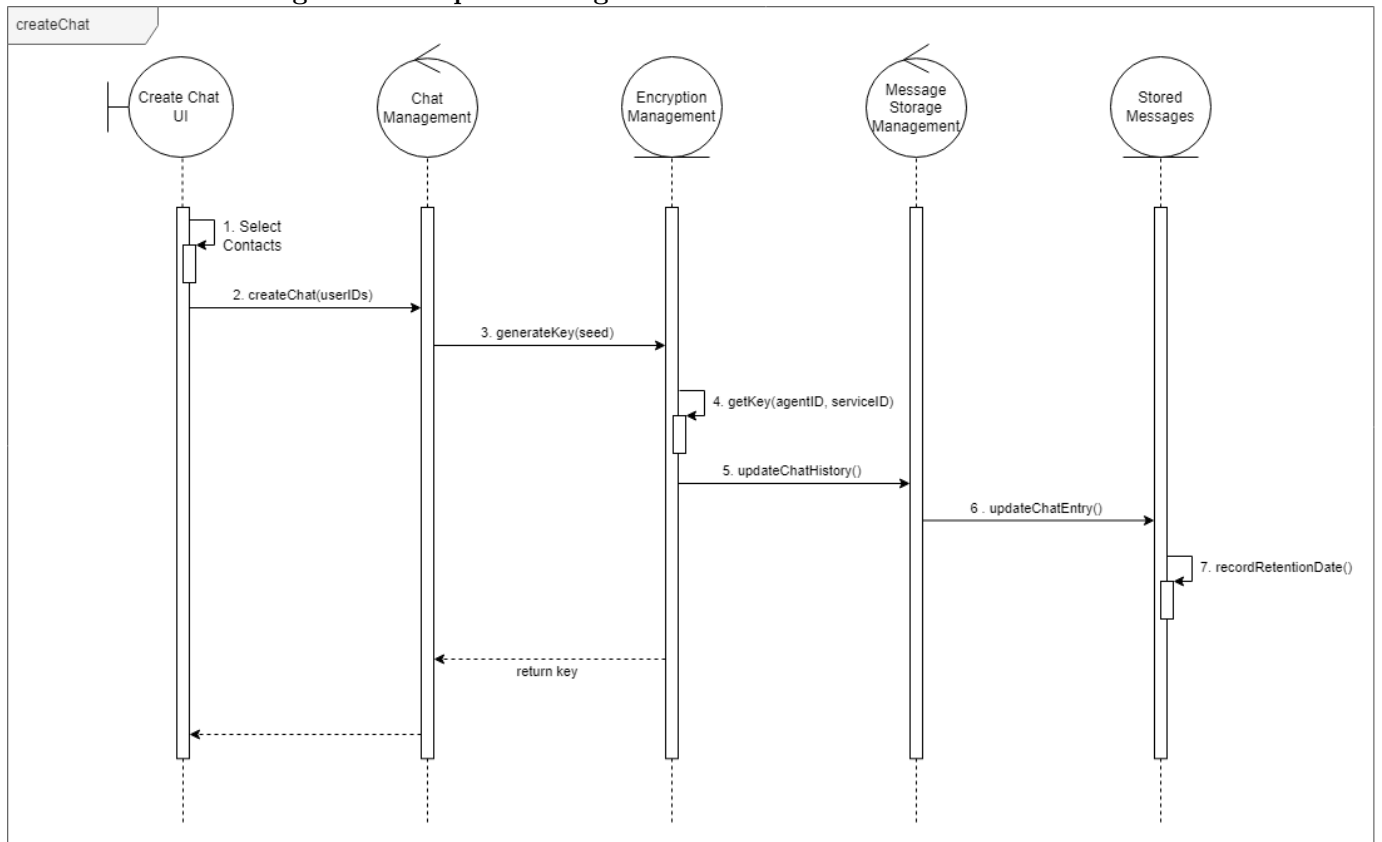


Figure 16. Sequence Diagram for Create Chat

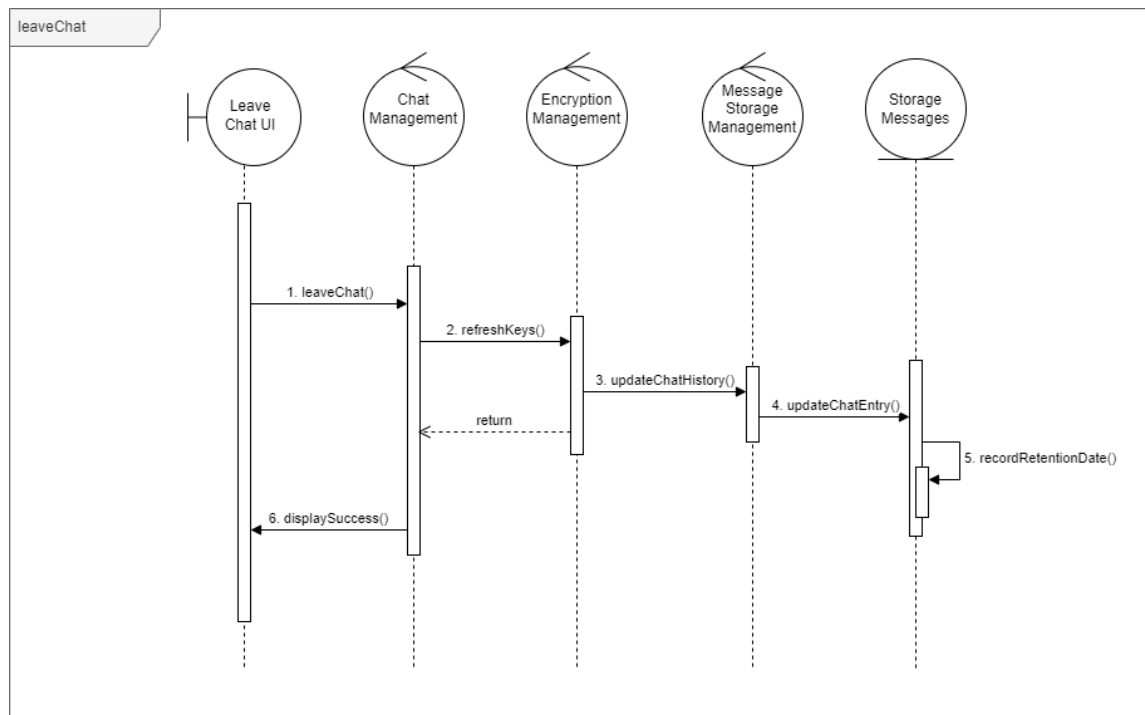


Figure 17. Sequence Diagram for Leave Chat

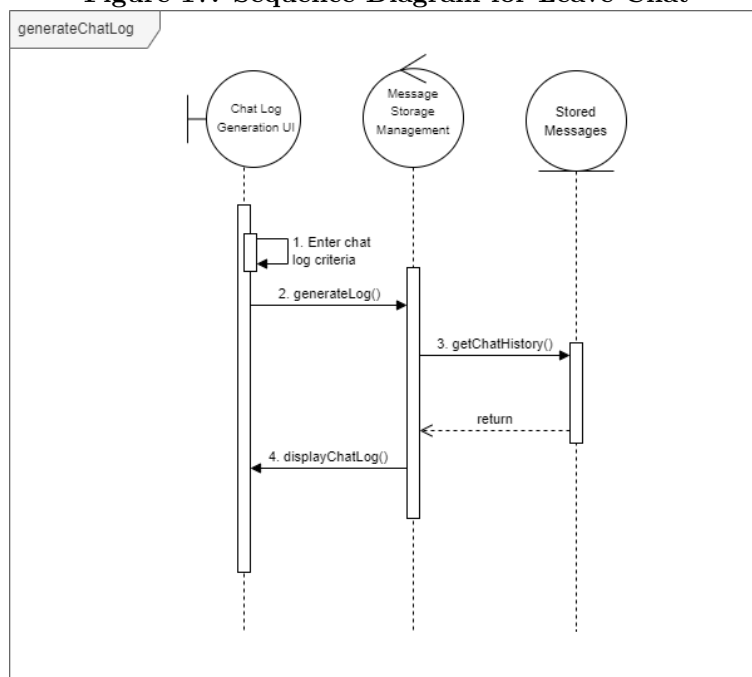


Figure 18. Sequence Diagram for Generate Chat Log

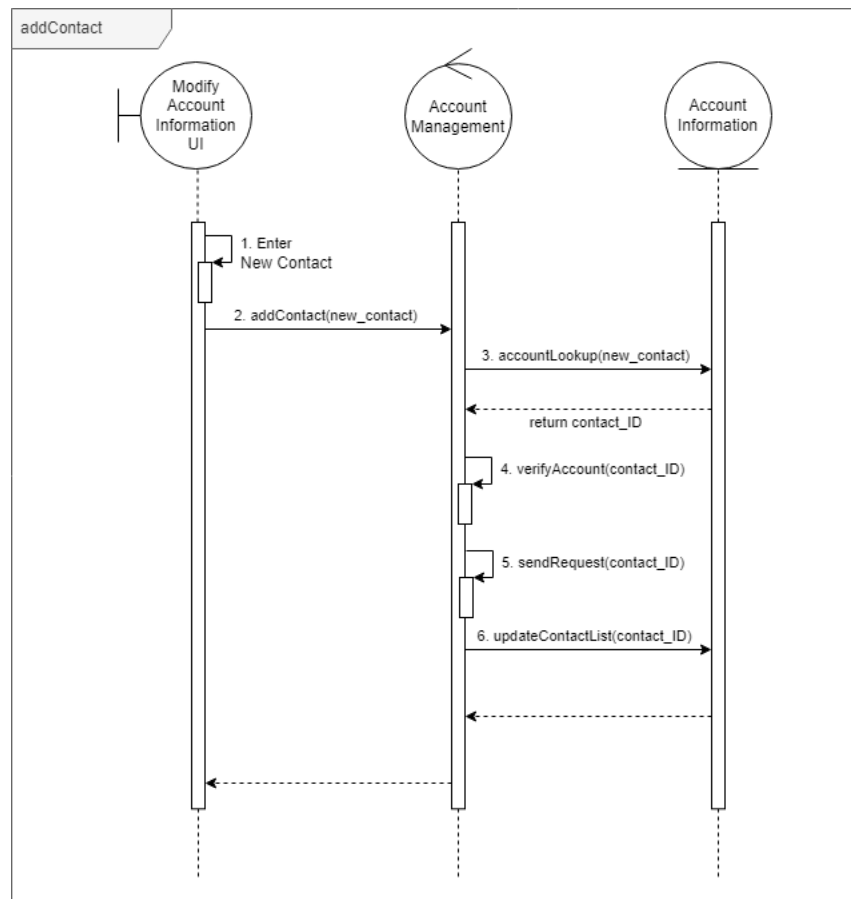


Figure 19. Sequence Diagram for Add a Contact

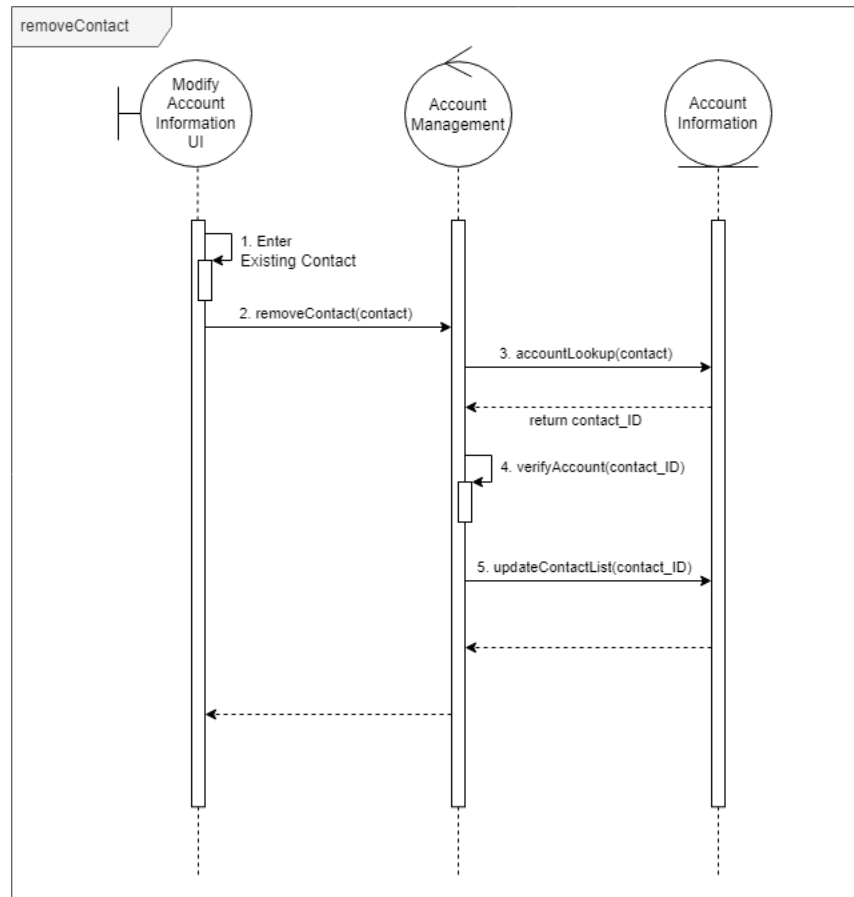
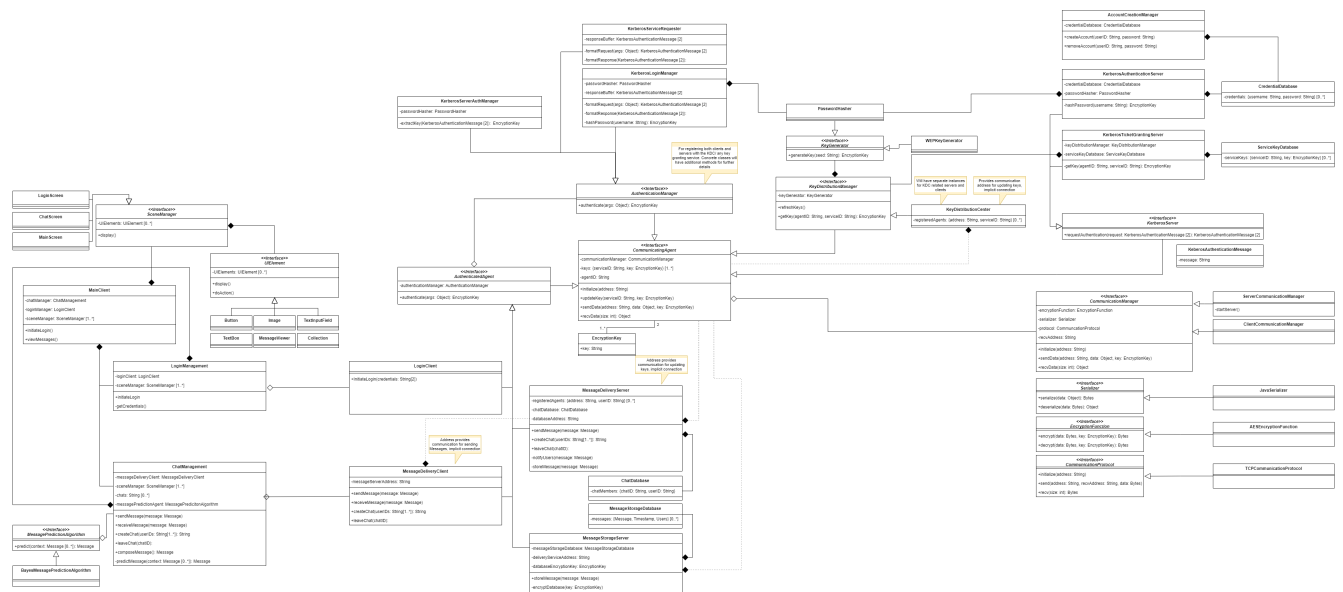


Figure 20. Sequence Diagram for Remove a Contact

## 4 Detailed Class Diagram



### Figure 21.1 Detailed Class Diagram



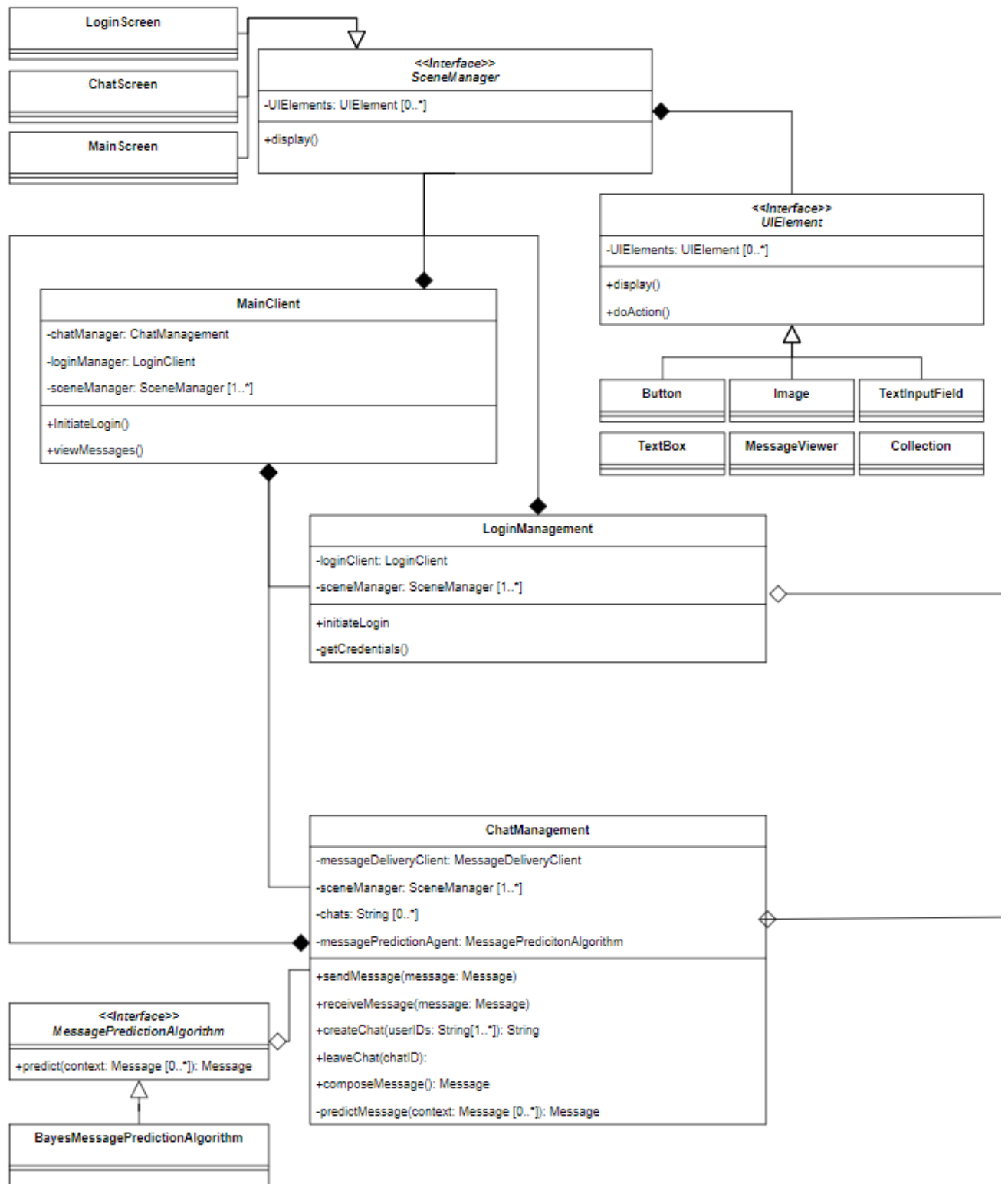


Figure 21.2 Enhanced Detailed Class Diagram

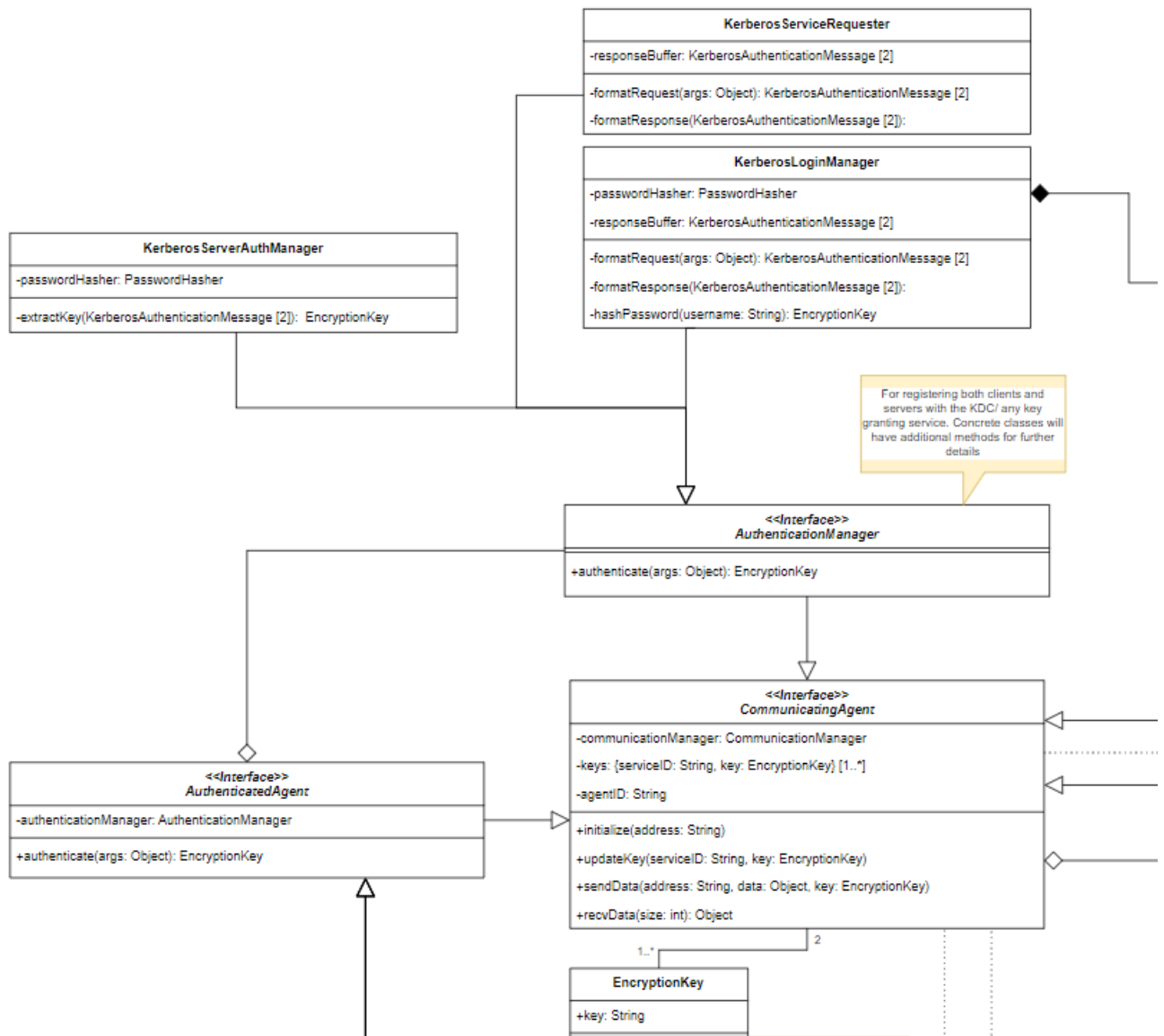


Figure 21.3 Enhanced Detailed Class Diagram

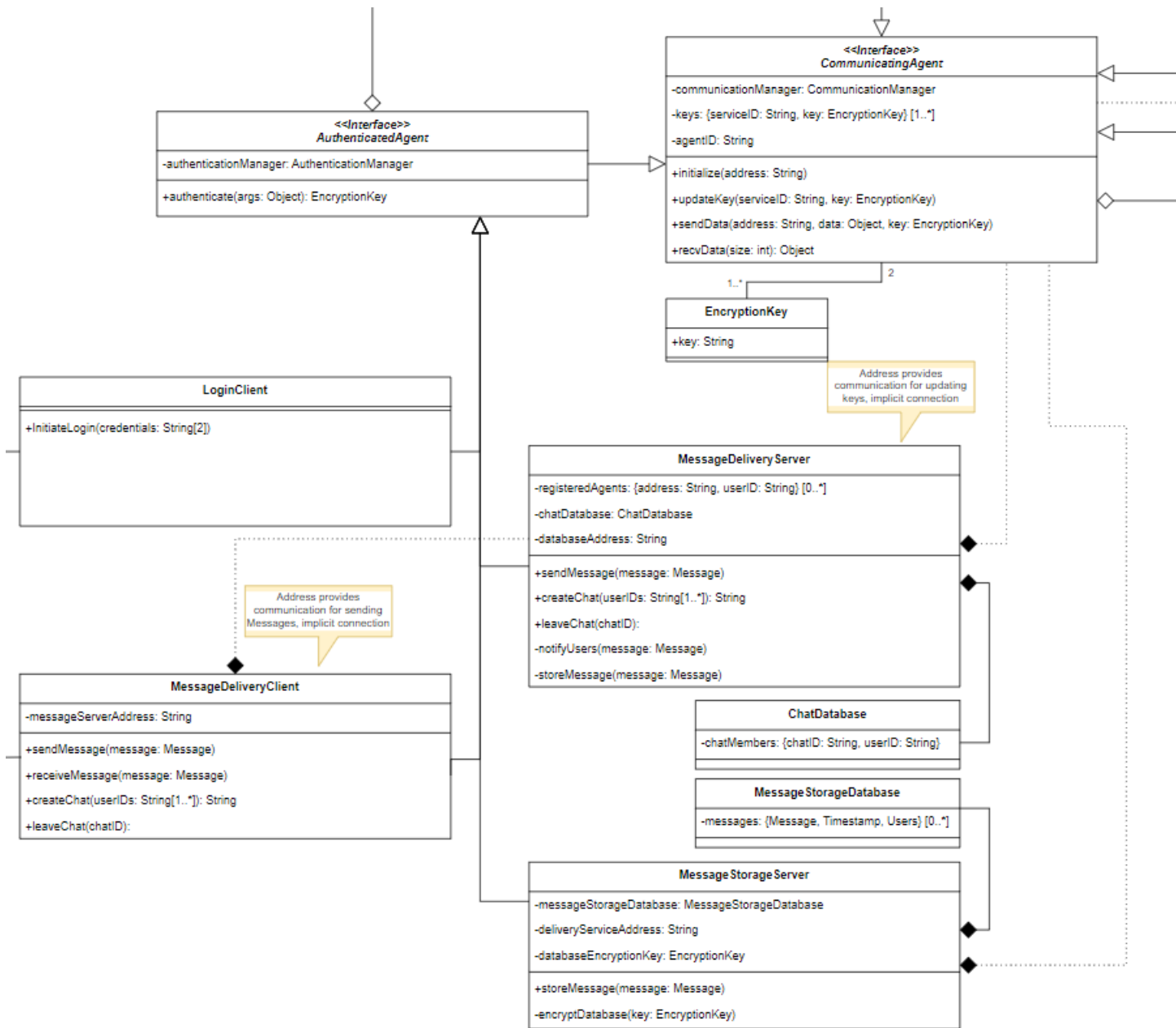


Figure 21.4 Enhanced Detailed Class Diagram



## 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.

Section	Team Member	Delivered on	Reviewed by	Reviewed on
1.1	Aidan	2024-03-24	Kyle, Daniel	2024-03-22
1.2	Aidan	2024-03-24	Kyle, Daniel	2024-03-22
1.3	Aidan	2024-03-24	Kyle, Daniel	2024-03-22
2 - State Charts (SC)	Edward, Daniel, Rosa	2024-03-24	Daniel	2024-03-24
IT Account Management SC	Edward, Rosa	2024-03-24	Daniel	2024-03-24
Account Management SC	Edward, Rosa	2024-03-24	Daniel	2024-03-24
Main Controller SC	Edward, Rosa	2024-03-24	Daniel	2024-03-24
Contact Management SC	Edward, Rosa	2024-03-24	Daniel	2024-03-24
Chat Management SC	Daniel	2024-03-22	Daniel	2024-03-24
Auto-Complete Engine SC	Daniel	2024-03-20	Daniel	2024-03-24
Audio Processing Engine SC	Daniel	2024-03-20	Daniel	2024-03-24
Encryption Management SC	Rosa	2024-03-20	Daniel	2024-03-24
Key Distribution Management SC	Rosa	2024-03-20	Daniel	2024-03-24
Message Delivery Management SC	Rosa	2024-03-20	Daniel	2024-03-24
Message Storage Management SC	Rosa	2024-03-20	Daniel	2024-03-24
3 - Sequence Diagrams (SD)	Daniel, Rosa, Aidan	2024-03-24	Daniel	2024-03-24
Leave Chat SD	Aidan	2024-03-23	Daniel	2024-03-24
Generate Chat Log SD	Aidan	2024-03-23	Daniel	2024-03-24
Create Account SD	Daniel	2024-03-24	Daniel	2024-03-24
Login to Account SD	Daniel	2024-03-24	Daniel	2024-03-24
Create Chat SD	Daniel	2024-03-24	Daniel	2024-03-24
Send Message SD	Rosa	2024-03-24	Daniel	2024-03-24
View Conversation SD	Rosa	2024-03-24	Daniel	2024-03-24
Add Contact SD	Daniel	2024-03-24	Daniel	2024-03-24
Remove Contact SD	Daniel	2024-03-24	Daniel	2024-03-24
4	Kyle	2024-03-22	Daniel	2024-03-24

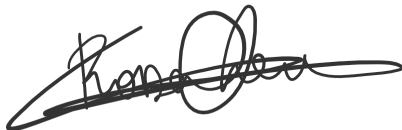
We certify the above information is correct and complete.



Kyle Jordan Ball McMaster



Daniel David Franze-Da Silva



Rosa Chen



Aidan Edward Froggatt



Edward Gao