

Software Design Specification

Group 7

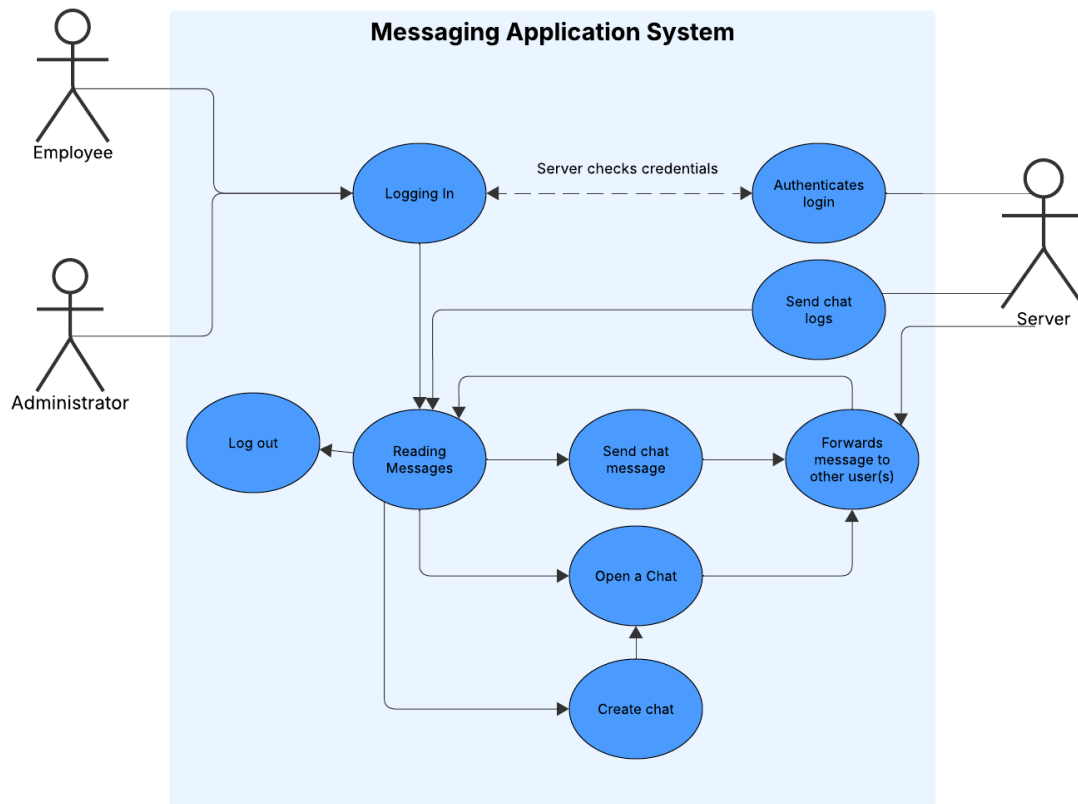
Revision History

Date	Revision	Description	Author
3/13/2025	1.0	Initial Version	Josiah
3/18/2025	1.1	Imported unformatted use cases	Jacob
3/18/2025	1.2	Made a list of new classes/attributes/methods to put in the new class diagram	Adam
3/20/2025	1.3	Added Figma Design	Kamari
3/20/2025	1.3.1	Formatted Use Cases, Table of Contents, and Revision History	Josiah
3/24/2025	1.4	Made and added Class Diagram V2	Adam
4/04/2025	1.5	Made and added V3 Class Diagrams	Adam
4/05/2025	1.6	Added and edited some use cases	Anna
4/08/2025	1.6.1	Further edited Use Cases	Josiah
4/08/2025	1.7	Add an overview for V4 of class diagrams	Adam
4/08/2025	1.8	Imported use case diagram	Anna
4/08/2025	1.9	Added V5 class diagrams	Adam
4/09/2025	1.9.1	Added Use Case 3 and Slightly Changed GUI Concept	Kamari
4/09/2025	1.9.2	Added Sequence Diagram for Use Case 5	Adam
4/10/2025	1.9.3	Added Sequence Diagram for Use Case 1 and formatted document.	Josiah
4/10/2025	1.9.4	Added Sequence Diagram for Use Case 2 and updated Use Case Diagram	Anna
4/10/2025	1.9.5	Formatted the Class Diagrams Section	Adam
4/10/2025	1.9.6	Added Gantt Chart	Josiah

Table Of Contents

Revision History	1
Table Of Contents	3
UML Case Diagram	4
Use Case Specification	5
Use Case 1: User Logs In	5
Use Case 2: User Sends a Message	6
Use Case 3: User Opens a Chat With Other Users	7
Use Case 4: User Creates Chat With Other Users	8
Use Case 5: User Logs Out	9
UML Class Diagrams	10
Overview:	10
Core Client-Server-Database:	11
Client-Server:	12
Database:	13
Client:	14
UML Sequence Diagrams	15
Use Case 1: User Logs In	15
Use Case 2: Sending a Message	16
Use Case 3: Opening New Chat	17
Use Case 4: User Creates Chat with Other Users	18
Use Case 5: User Logs Out	19
GUI Concept Diagram	20
Gantt Chart	21

UML Case Diagram



Use Case Specification

Use Case 1: User Logs In

Relevant Requirements:

3.1.2.3 - 3.1.2.5, 3.1.3.1 - 3.1.3.2, 3.2.1, 3.3.2, 4.1, 4.2.1, 4.3.3 - 4.3.4

Primary Actor: User

PreCondition: User is not logged in

PostCondition: User is logged in and can start seeing chats

Basic Flow of Main Scenario:

1. User enters username
2. User enters password
3. User clicks login button
4. Client sends login request to server
5. Server checks database for login information
6. Server finds valid login information
7. Server sends login confirmation to client
8. Client window updated to message board

Alternative Flow: User Fails to Log In

1. User enters name
2. User enters password
3. Client sends login request to server
4. Server checks database for login information
5. Server can't find matching login information
6. Server sends login invalid confirmation to client
7. Client informs user login unsuccessful
8. Client can try to login again

Exceptions:

- Login Credentials Invalid
- Request timed out

Related Use Cases:

2, 3, 4, 5

Use Case 2: User Sends a Message

Relevant Requirements:

3.1.1.2, 3.1.2.2, 3.1.3.1, 3.1.3.3. - 3.1.3.6, 3.1.4.2 - 3.1.4.3, 3.2.2, 3.3.1, 3.3.4, 4.1.4, 4.2.1, 4.3.1. - 4.3.2.

Primary Actor: User

PreCondition: User hasn't sent their message yet

PostCondition: User sends their message for all to see

Basic Flow of Main Scenario:

1. User types in message
2. User clicks send button
3. Client sends message to server
4. Server receives the message
5. Server updates the chat log with new message
6. Server sends new chat log back to client
7. Client receives chat log
8. Client displays chat log for user

Alternate Flow: Network Failure

1. User types in message
2. User clicks send button
3. Client fails to connect to server
4. Message is marked as "failed to send"
5. User can try to resend message

Exceptions:

- Server takes too long to process message

Related Use Cases:

1, 3, 4, 5

Use Case 3: User Opens a Chat With Other Users

Relevant Requirements:

3.1.2.1, 3.1.3.1, 3.1.3.3, 3.1.3.6, 3.1.4.2 - 3.1.4.3, 3.2.2, 3.3.4,

Primary Actor: User

PreCondition: User is about to open the chat and is in a different chat

PostCondition: Chat is opened and user is ready to type

Basic Flow of Main Scenario:

1. User clicks chat icon
2. Client updates UI with up to date clicked on chat

Exceptions:

- None

Related Use Cases:

1, 2, 4, 5

Use Case 4: User Creates Chat With Other Users

Relevant Requirements: 3.1.1, 3.1.2.5, 3.1.2.2, 3.1.2.1, 3.1.3.5, 3.1.3.4, 3.1.3.3, 3.1.3.1, 3.2.2.1, 3.3.4, 3.3.3, 3.3.1.

Primary Actor: User

PreCondition: User hasn't created group chat

PostCondition: User has created group chat and users can start chatting

Basic Flow of Main Scenario:

1. User Clicks create new group chat
2. User searches for new users with search feature
3. User adds new users into group chat
4. User clicks enter
5. Client finds that this chat does not exist
6. Client sends open chat request with these users
7. Server creates new log file
8. Server sends back new log file to client
9. Client updates UI with new window

Alternate Flow:

1. User Clicks create new group chat
2. User searches for new users with search feature
3. User adds new users into group chat
4. User clicks enter
5. Client finds that chat already exists
6. Client informs user that chat exists
7. Client updates UI with new window

Exceptions:

- Server times out
- Chat already exists

Related Use Cases:

1, 2, 3, 5

Use Case 5: User Logs Out

Relevant Requirements:

3.1.2.6, 3.1.3.1, 3.2.2.2, 4.1.2, 4.1.4, 4.2.1, 4.3.4

Primary Actor: User

PreCondition: User is logged in

PostCondition: User is logged out

Basic Flow of Main Scenario:

1. User presses logout button
2. Client sends logout request to the server
3. Server receives request
4. Server logs client out
5. Server sends success message back to client
6. Client is sent back to login screen

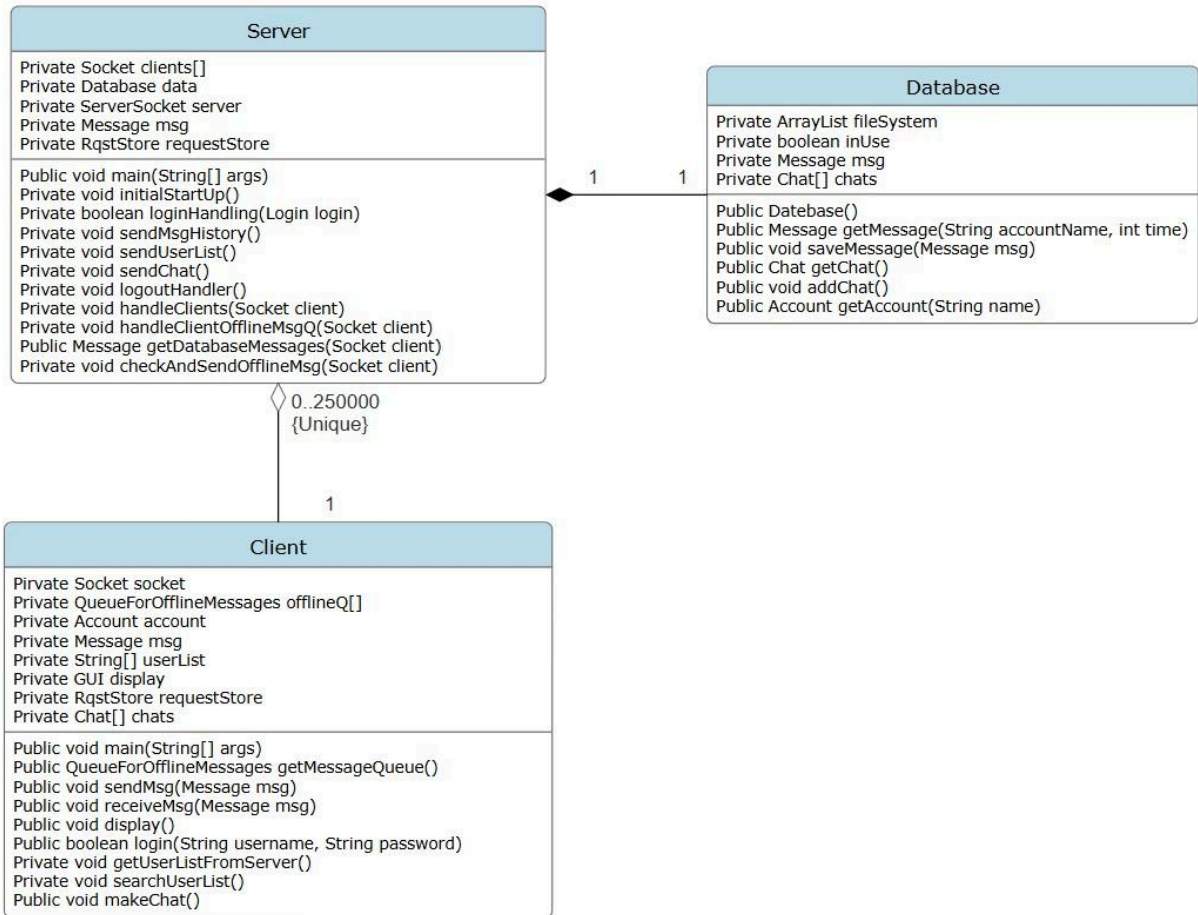
Exceptions:

- Request fails to send
- Server times out

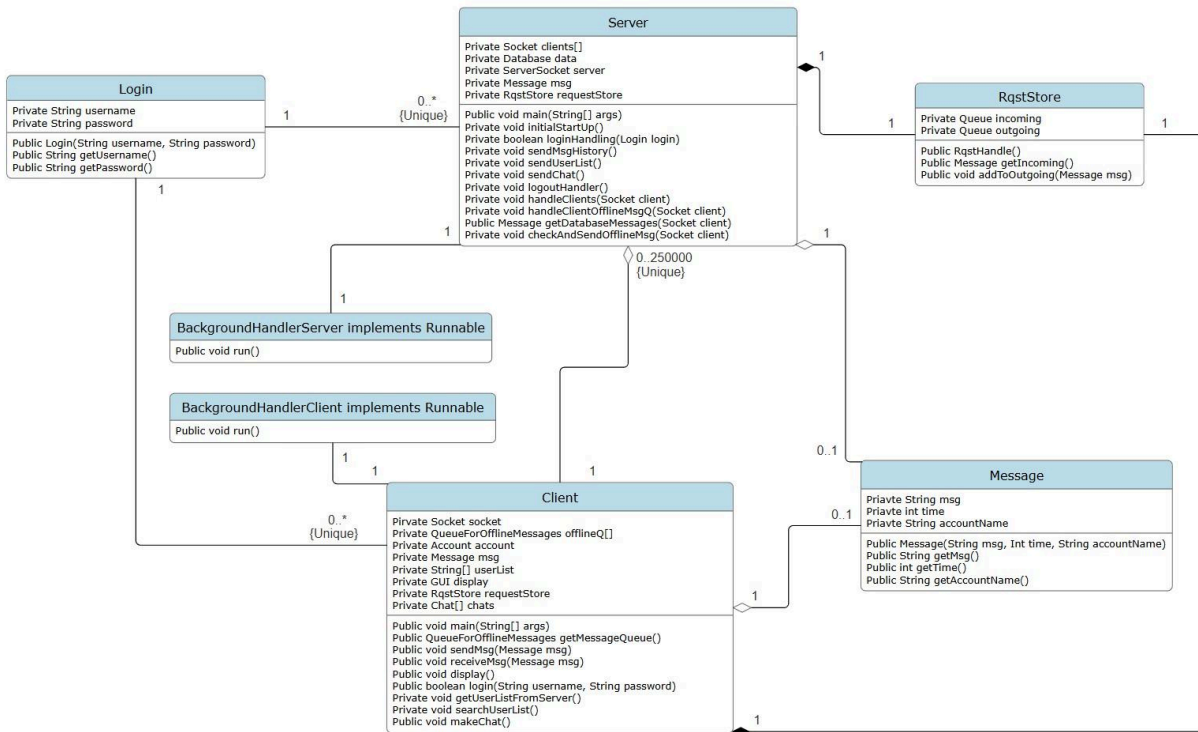
Related Use Cases:

1, 2, 3, 4

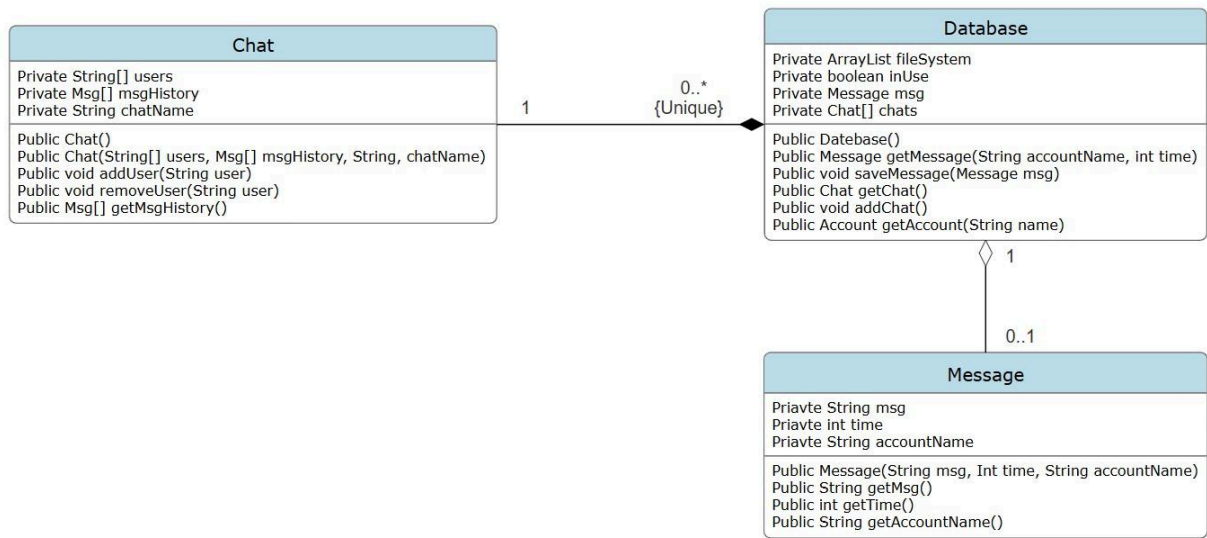
Core Client-Server-Database:



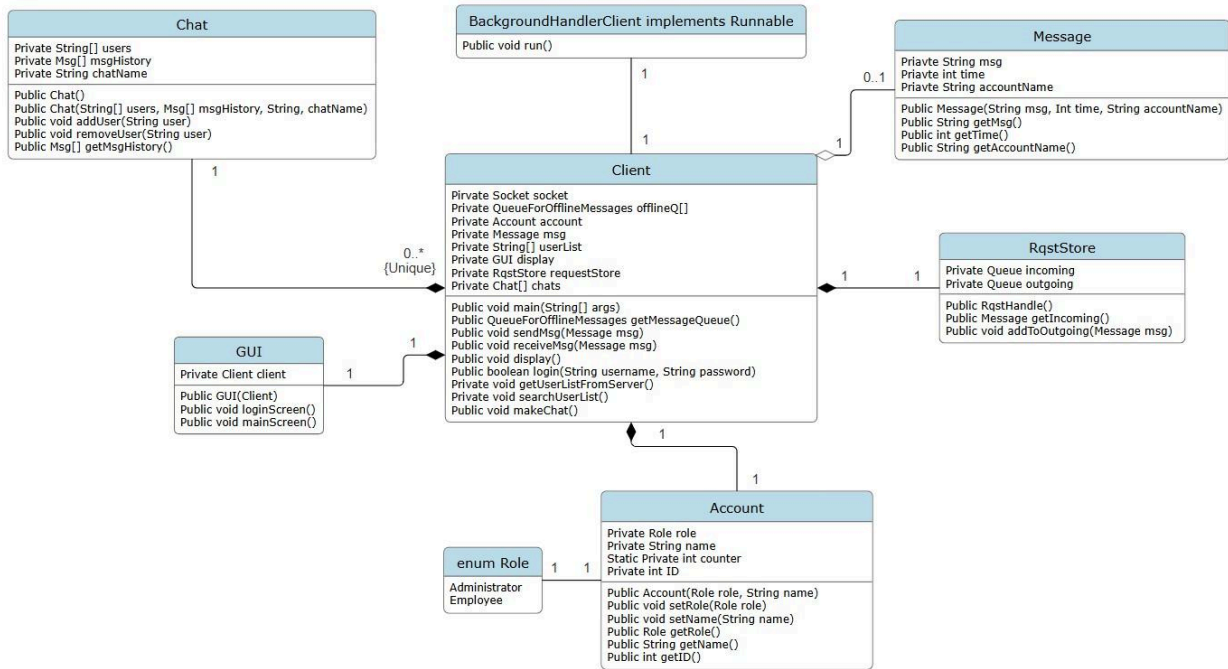
Client-Server:



Database:

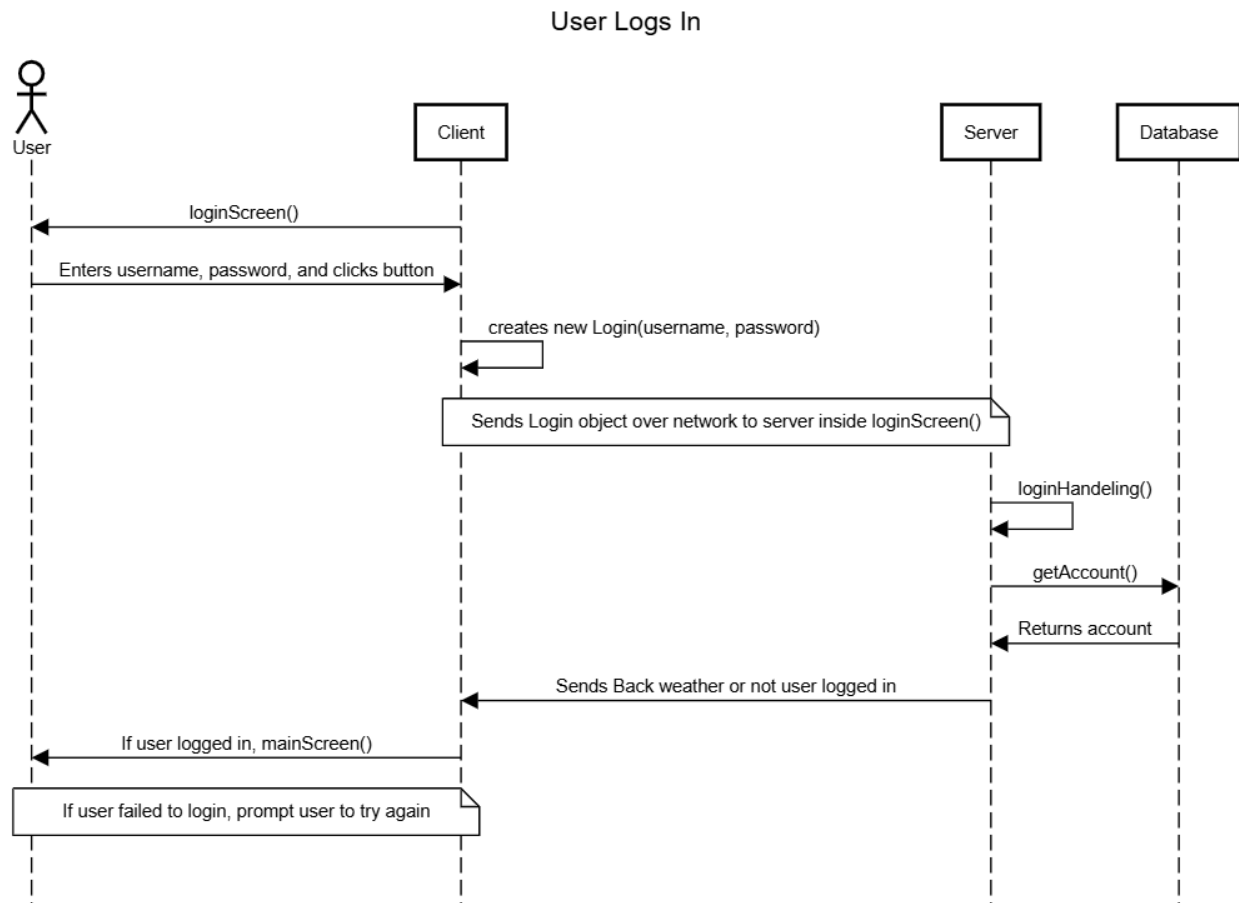


Client:



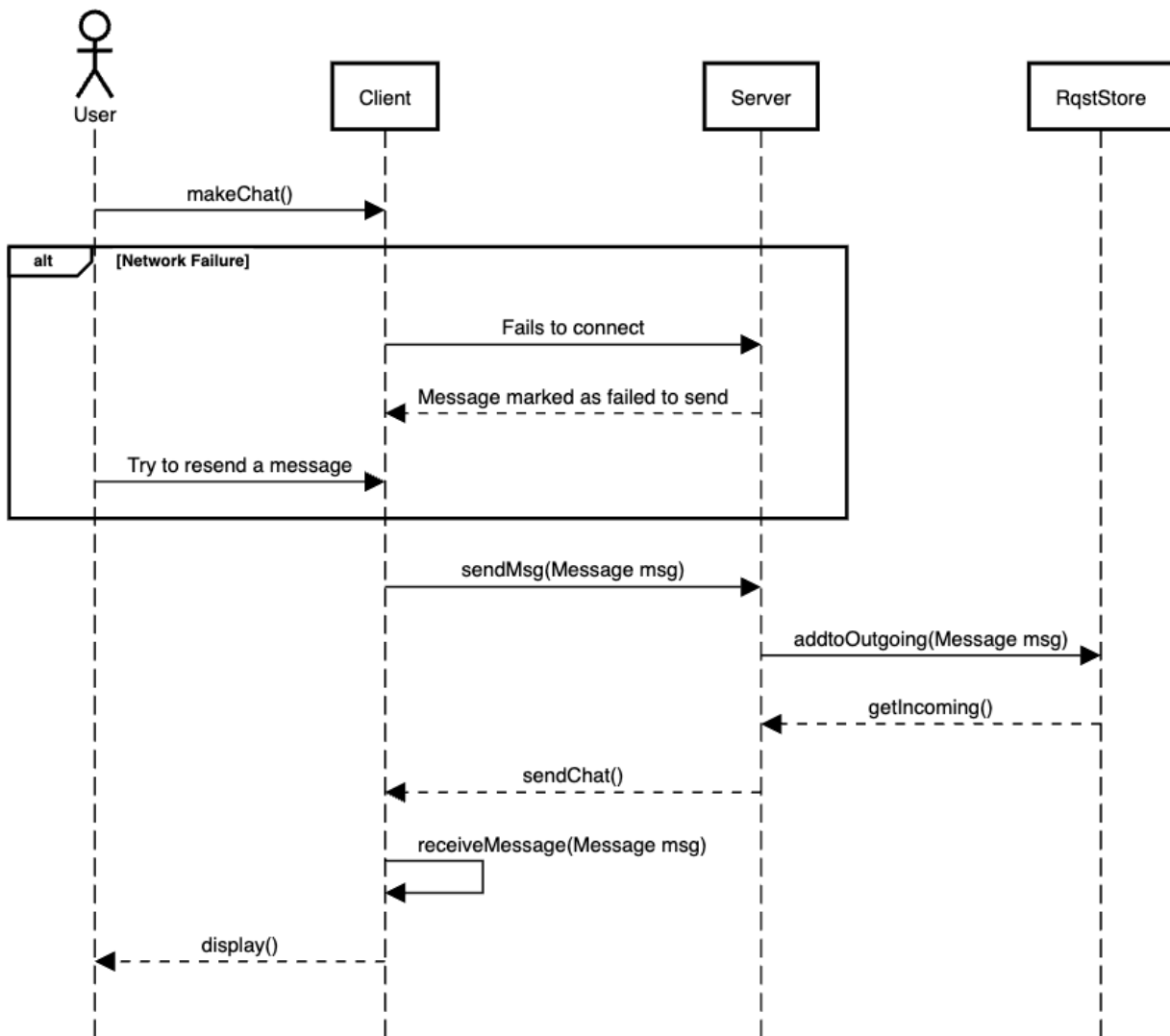
UML Sequence Diagrams

Use Case 1: User Logs In

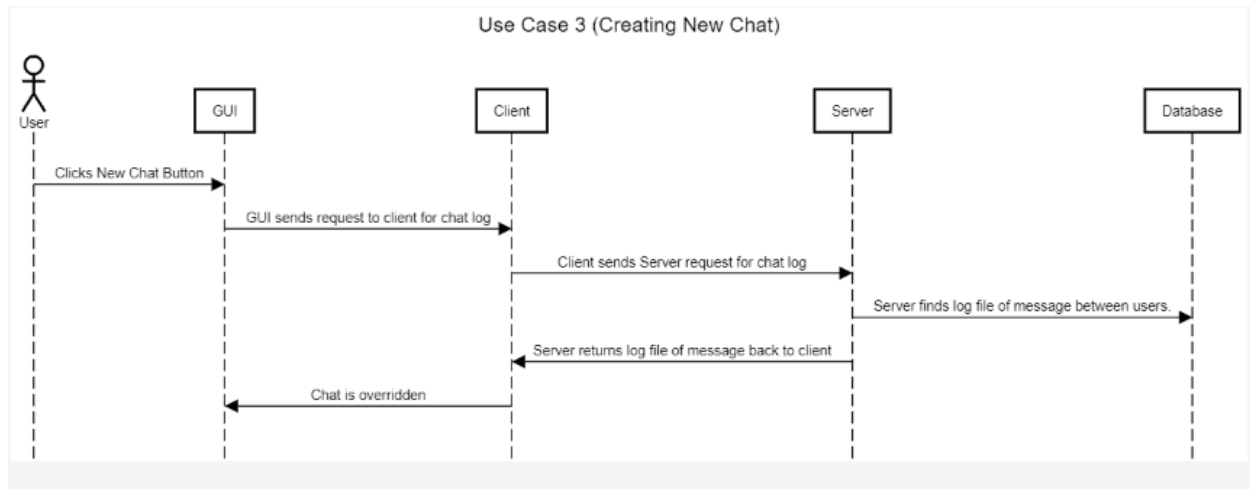


Use Case 2: Sending a Message

User Sends Message Sequence

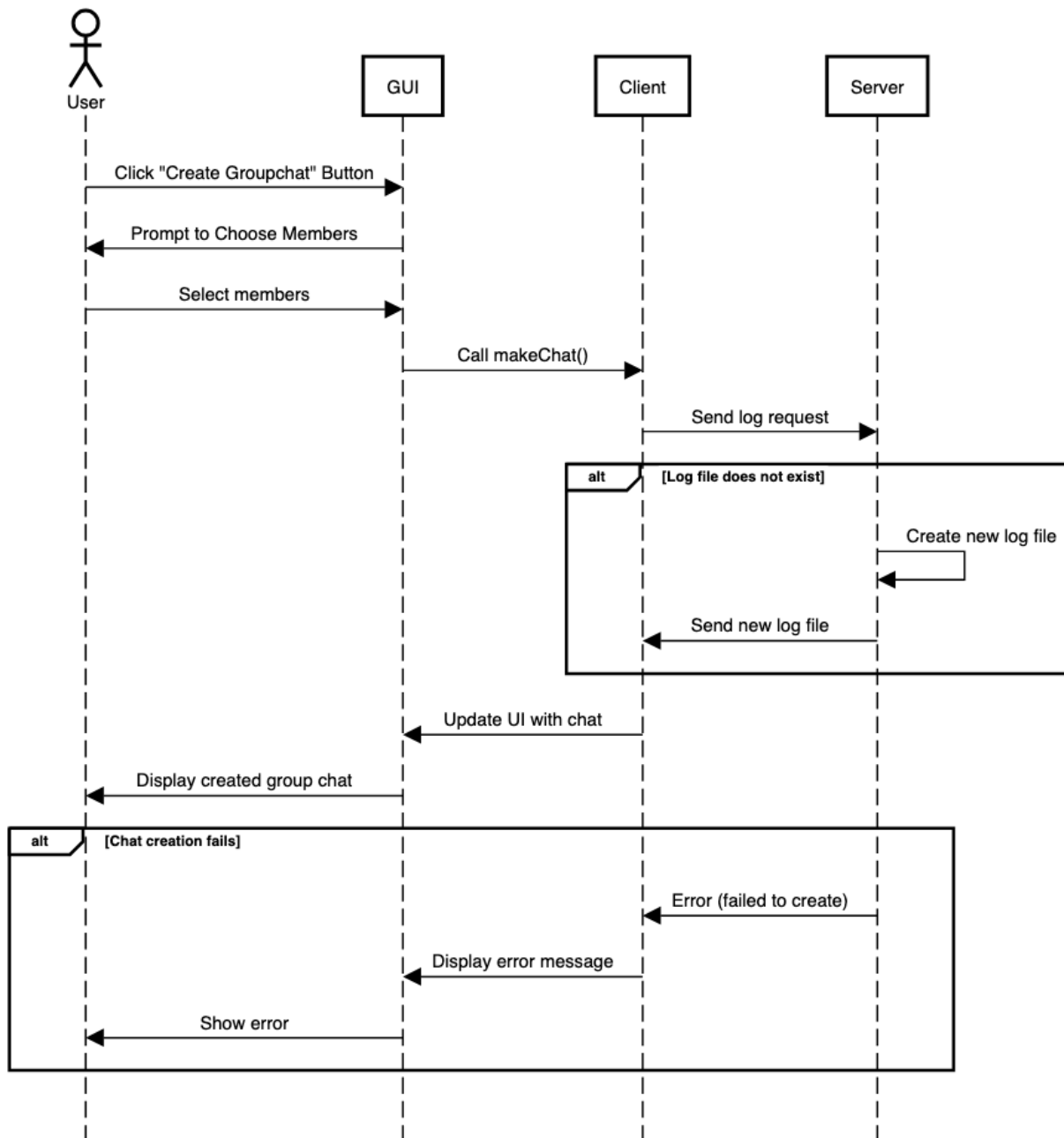


Use Case 3: Opening New Chat



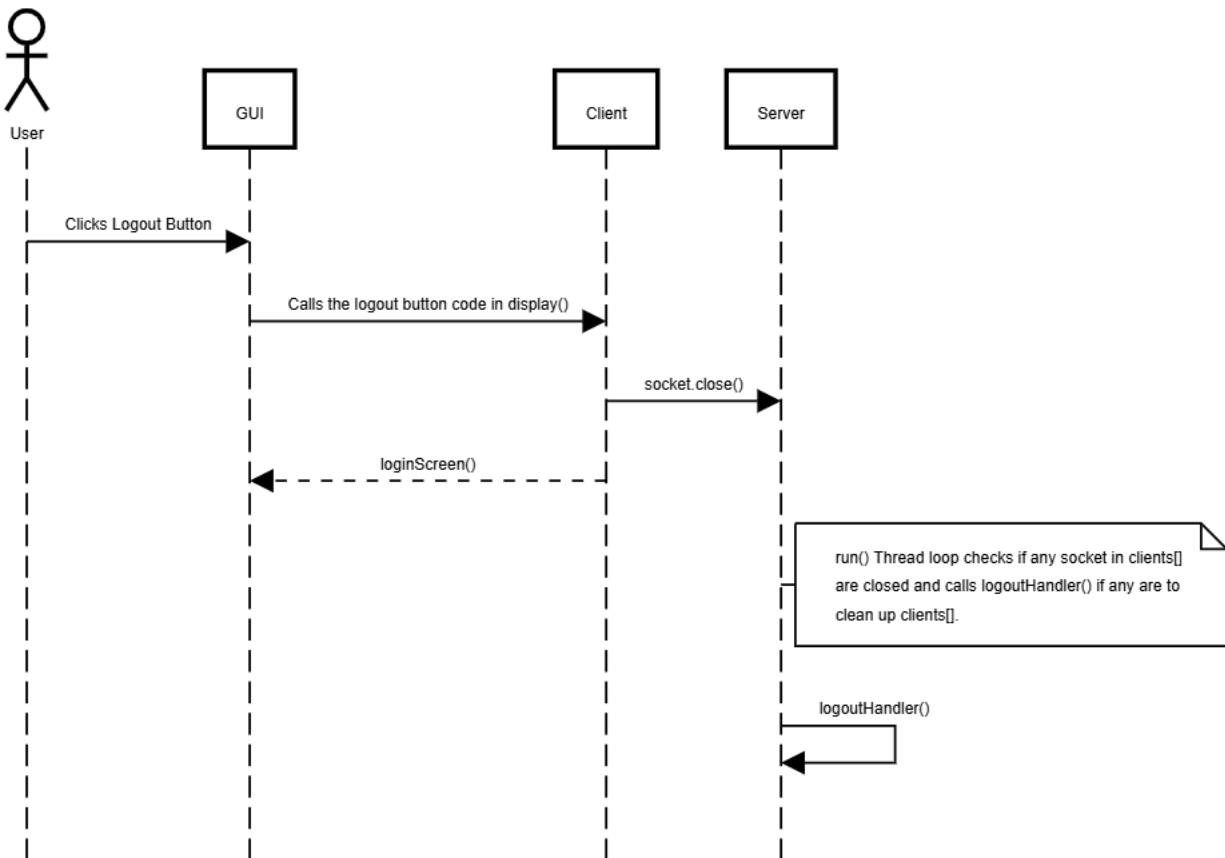
Use Case 4: User Creates Chat with Other Users

Create Group Chat Sequence

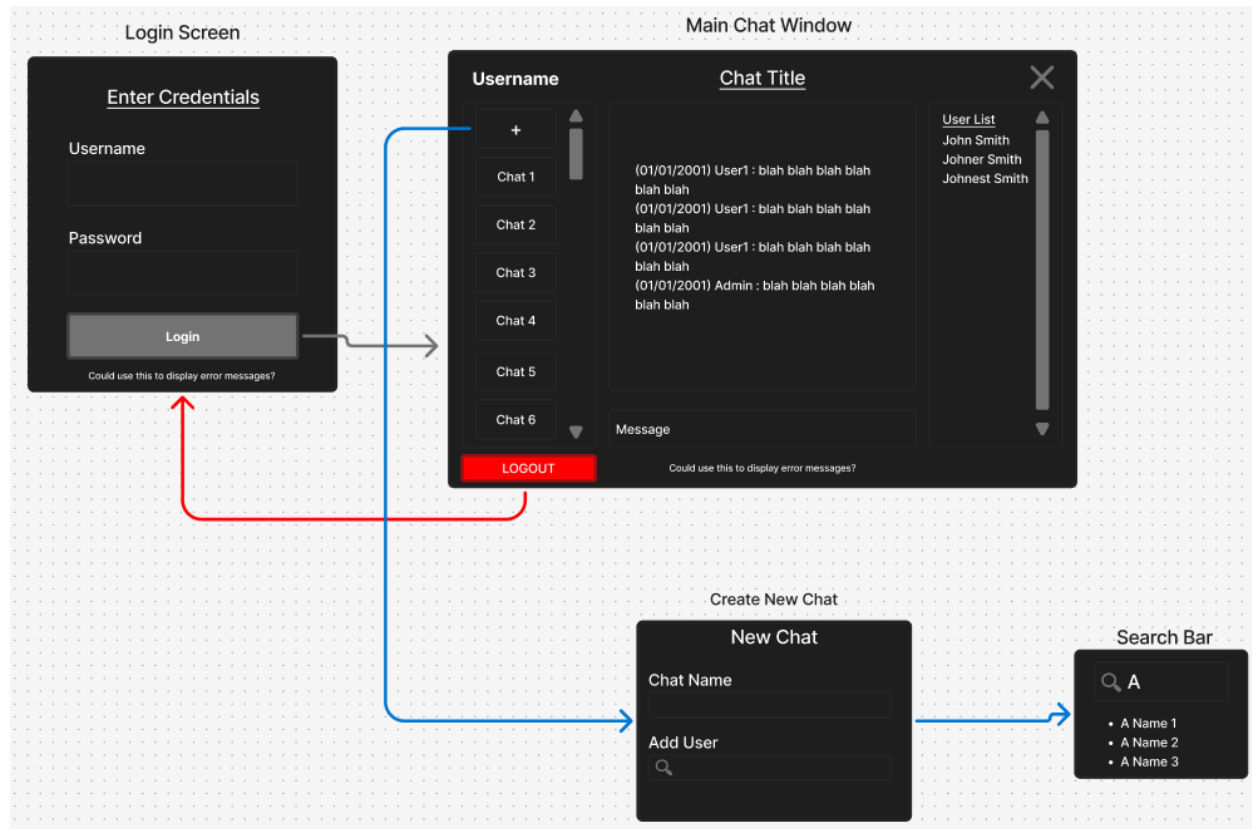


Use Case 5: User Logs Out

Logout Sequence



GUI Concept Diagram



Figma Link:

<https://www.figma.com/board/9q77PtpLaQqwhea6qjYmXv/GUI-Concept?node-id=0-1&t=MMfCgX2ORltdWPO8-1>

Gantt Chart

