**CS 401 Group 4 Communication System Project**

Software Requirements Specification

Revision History

|  |  |  |  |
| --- | --- | --- | --- |
| **Date** | **Revision** | **Description** | **Author** |
| 02/08/2023 | 1.0 | Initial Version | Jonathan Lunn |
| 2/20/2023 | 1.1 | Requirements for chat logs & users. | Vicente Chavez |
| 02/26/2023 | 1.2 | Requirements for users module. | Victoria Swanson-Oswood |
| 2/27/2023 | 1.3 | Requirements for GUI | Vicente Chavez |
| 2/27/2023 | 1.4 | Requirements for Server | Charles Scrivens |
| 2/27/2023 | 1.5 | Requirements for Client | Xinye Daniel Zhang |
| 2/28/2023 | 1.6 | Definitions | Xinye Daniel Zhang |
| 2/28/2023 | 1.7 | UML Diagram | Vicente Chavez |
| 2/28/2023 | 1.8 | Product architecture, requirements for users | Victoria Swanson-Oswood |
| 2/28/2023 | 1.9 | External/Internal Interface Reqs. + non. Func. Requirements | Xinye Daniel Zhang |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

Table of Contents

1. Purpose [4](#__RefHeading___Toc19440719)

1.1. Scope [4](#__RefHeading___Toc19440720)

1.2. Definitions, Acronyms, Abbreviations [4](#__RefHeading___Toc19440721)

1.3. References [4](#__RefHeading___Toc19440722)

1.4. Overview [4](#__RefHeading___Toc19440723)

2. Overall Description [5](#__RefHeading___Toc19440724)

2.1. Product Perspective [5](#__RefHeading___Toc19440725)

2.2. Product Architecture [5](#__RefHeading___Toc19440726)

2.3. Product Functionality/Features [5](#__RefHeading___Toc19440727)

2.4. Constraints [5](#__RefHeading___Toc19440728)

2.5. Assumptions and Dependencies [5](#__RefHeading___Toc19440729)

3. Specific Requirements [6](#__RefHeading___Toc19440730)

3.1. Functional Requirements [6](#__RefHeading___Toc19440731)

3.2. External Interface Requirements [6](#__RefHeading___Toc19440736)

3.3. Internal Interface Requirements [7](#__RefHeading___Toc19440737)

4. Non-Functional Requirements [8](#__RefHeading___Toc19440738)

4.1. Security and Privacy Requirements [8](#__RefHeading___Toc19440739)

4.2. Environmental Requirements [8](#__RefHeading___Toc19440740)

4.3. Performance Requirements [8](#__RefHeading___Toc19440741)

# Purpose

This document outlines the requirements for the Communication system that we are developing.

## Scope

This document will catalog the user, system, and hardware requirements for the communication system. It will not, however, document how these requirements will be implemented.

## Definitions, Acronyms, Abbreviations

Users - person that is using this system include: Employees or Supervisors

Logger - a device/program that records events and data.

## References

Use Case Specification Document – Step 2 in assignment description

UML Use Case Diagrams Document – Step 3 in assignment description

Class Diagrams – Step 5 in assignment description

Sequence Diagrams – Step 6 in assignment description

## Overview

The communication program that we are developing is designed for a large business to have a text based contact system for inner organization conversations and communication. This will be server client based and have logs for all conversations.

# Overall Description

## Product Perspective

## Product Architecture

The system will be organized into 5 major modules: the client module, the server module,

the message thread module, the user module, and the GUI module.

## Product Functionality/Features

The high-level features of the system are as follows (see section 3 of this document for more detailed requirements that address these features):

## Constraints

String only messaging.

All messages are logged and stored.

Each User can only have one account.

Users can only access the system after login.

Users must start the client in order to access the UI.

## Assumptions and Dependencies

Each user has a unique identifier and only one for themselves to use.

Users have access to the internet.

Users belong to the purchasing company.

The user has access to a computer.

Users only need to send messages with string type.

Users have preset roles: General User and Admin User.

# Specific Requirements

## Functional Requirements

### Common Requirements:

3.1.1.1 All users must belong to the organization.

3.1.1.2 The messages have a size limit.

3.1.1.3 Users must be online to receive messages.

3.1.1.4 All Users must possess a Username and Password

### Client Module Requirements:

3.1.2.1 The inputs/requests/interactions from the User will be handled by the client which will send them to the server.

3.1.2.2. The client must be connected to the server.

3.1.2.3 The client must be able to retrieve data from the server.

3.1.2.4. The client will handle the GUI upon launching the program.

3.1.2.5 The client must be able to ping other clients/Users and get their status from the Server.

3.1.2.6 The client must be able to neatly display the data from the Server through the use of a GUI.

3.1.2.7 The client must log all the messages and logins into a log file.

### Server Module Requirements:

3.1.3.1 Server manages User file to verify

3.1.3.2 Server transmits Messages from Client to Client.  
3.1.3.3 Server transmits Messages from Client to Groups.

3.1.3.4 Server manages the connection status of the client between the client and the server.

3.1.3.5 Server manages the connection between the Message Thread and the Logs

3.1.3.6 Server manages authentication and verification of all users.

3.1.3.7 Server manages the state (status) of clients.

### Message Thread Module Requirements:

* + - 1. Message threads will only display the X most recent messages.
      2. Once a message thread is created, users will not be able to be added or removed.
      3. Only valid users can be a part of a message thread.
      4. A message thread must have at least 2 valid users.

### Users Module Requirements:

* + - 1. Users should be one of two types: Regular and Admins.
      2. Admins can see logs of all message threads.
      3. Regular users should not be able to view logs.
      4. All users will be able to create new groups
      5. Users will be able to send and receive messages to other users
      6. Users will each have unique username and password using a string of alphanumeric characters, with a maximum of 12 characters each.
      7. Users current status will be held to display inactivity for offline messaging.
      8. All of a users messages will be logged and can be accessed later by the users and admin.

## GUI Module Requirements

* + - 1. User will be prompted with a login screen upon launching client
      2. Username and password are input boxes with writable text.
      3. The login button will not be clickable until the Username and password fields have at least 1 character.
      4. The login button will be grayscale until the Username and password fields have at least 1 character.
      5. The User will be prompted with an invalid login message upon invalid login.
      6. User will be shown the homepage screen immediately after a successful login.
      7. The homepage for the user will have clickable buttons for each of the following actions: view chat log, create new chat log, logout.
      8. The homepage will display how many chat logs the user has unread message from.
      9. Upon clicking the logout button, the user will be taken to the initial login screen.
      10. Upon clicking the view chat log button, the user will be taken to the chat log screen.
      11. A chat log summary displays the chat log name, how many users are a part of it, date/time of latest message, notification if there are any unread messages in the chat log.
      12. The chat log screen will display all the chat logs summary the user belongs to in a scrollable box with a scroll bar.
      13. Each chat log summary will be in an individual container.
      14. Each chat log summary container will be selectable and will turn grayscale upon selection.
      15. If no chat log container is selected the chat log main box will be a blank white screen.
      16. Upon selection of a chat log container, that chat log will be displayed in the chat log main box.
      17. The chat log main box will display the last 30 messages in a container which can be scrolled.
      18. The chat log main box will have a new message input box with writable text
      19. The chat log main box will have a send button next to the new message input box, which will be grayscale until the new message box has at least 1 character.
      20. The chat log main box will display the users that belong to the selected chat log container.
      21. The chat log screen will have a clickable button to make new chat logs
      22. Upon clicking the new chat log button the user will be taken to the create chat log screen.
      23. The chat log screen will prompt the user to enter the users which will be a part of the chat log.
      24. The chat log screen will have a clickable button to create the new chat log.
      25. The create chat log button will be grayscale until the user has entered at least 1 valid user to the chat log.
      26. Upon clicking the create chat log button, the user will be taken to the chat log screen with the created chat log selected.

## External Interface Requirements

3.2.1 The chat system must provide a LoginUI that asks for User’s Login ID and Password.

3.2.2 A UserUI must be shown after successful login that is specific to the User’s role.

3.2.3 The system must have a general interface to neatly display information, such as active users, chats, and user states.

3.2.4 The system must have a general interface that allows the users to send a message, create a new message, and retrieve old messages.

## Internal Interface Requirements

3.3.1 The system must check if the user is active or inactive on the client side.

3.3.2 The system must ping the server occasionally to see that the client is still connected to the server.

3.3.3 The system must check that the data on the client side is current and updated.

# Non-Functional Requirements

## Security and Privacy Requirements

4.1.1 The general user is not able to see messages that are not sent to them.

4.1.2 The Administrators and IT users can review message logs for everyone in the organization.

4.1.3 A User’s Login ID and Password are created by administrators.

## Environmental Requirements

4.2.1 The Communication Application is built on Java using any IDE.

## Performance Requirements

4.3.1 The system must consistently update logs without interrupting the client and server connection

4.3.2 The server must be ran on a network with smooth latency

