**Group 1 Communications Project**

Software Requirements Specification

Revision History

| **Date** | **Revision** | **Description** | **Author** |
| --- | --- | --- | --- |
| 09/13/2023 | 0.1a | Initial Version | Everyone |
| 09/24/2023 | 0.1b | Updating 1.3 with use case doc | Madison |
| 10/01/2023 | 0.2a | Updated everything except section 3 | Sean, Madison, Joseph |
| 10/01/2023 | 0.2b | Section 3 partially Updated | Sedat |
| 10/02/2023 | 1 | Finished Section 3 | David, Madison, Sean, Sedat |
| 10/03/2023 | 1.1a | Small updates to SRS, Use Case Diagram and Sequence Diagram | Joseph |
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# Purpose

This document outlines the requirements for the Communications Application

## Scope

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

## Definitions, Acronyms, Abbreviations

* + 1. MSG - Message or text
    2. Network - connected systems/people operating on the same communication array.
    3. ID - Identity document
    4. IP - Internet Protocol
    5. TCP - Transmission Control Protocol
    6. IT - Information Technology
    7. GUI- Graphic User Interface
    8. TCP - Transmission Control Protocol
    9. YMCA - Your Managerial Communication Application

## References

* + 1. Use Case Specification Document - [Use Case Doc](https://docs.google.com/document/d/14ALAn5li9KMGYhdxbeoddayzvbw7xcvV_NLrRwk90UI/edit?usp=sharing)
    2. UML Use Case Diagrams Document - [Group 1 Use Case Diagrams](https://app.diagrams.net/#G17fWTw6JAT1CNRwYDExMZsuzdxHkaA7fn)
    3. UML Class Diagrams - [Group 1 Class Diagrams](https://app.diagrams.net/?libs=general;uml#G11L7tYIn5A9a5sW_4tedyF7c40CSOJmBL)
    4. UML Sequence Diagrams - [Group 1 Sequence Diagram](https://app.diagrams.net/#G1OcFQIbCFOOWiXXbb8SnEZo3ltUu2iv5N)

## Overview

CLack is designed to send messages for use in business operations. Staff will be able to communicate with each other through “private”\* or group messages.

\* IT team has access to view all messages

# Overall Description

## Product Perspective

This application is developed for large-scale company communication with thousands of users.

## Product Architecture

The system will be organized into 4 major modules: the user module, the chatroom module, the client module, and the server module.

Note: System architecture should follow standard OO design practices.

## 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

2.4.1 Application must allow for a large number of users at one time.

2.4.2. Due to the limitations of the file management system, it may take some time to update users on a new message.

2.4.3 External Interface may be prone to internet outages

2.4.4 Exceeding the maximum number of users may overload the application

## Assumptions and Dependencies

2.5.1 It is assumed that the maximum number of users at a given time is 10,000. 2.5.2 The Application must access to a directory, in file form, of user IDs and passwords,

2.5.3 Directory is only accessible by the IT department

# Specific Requirements

## Functional Requirements

### Common Requirements:

* + - 1. Users should be allowed to log in using their issued ID and password.
      2. Users must be able to send and receive text-based messages (MSG).
      3. MSG can be sent to one user or to multiple (including groups and individual user in one message.
      4. Every MSG sent by a user is logged into a separate file.
      5. IT members must be able to view all messages inside the log
      6. The application will show whether users are offline or online.
      7. The Java based GUI must format the MSG in a readable manner and in the order they were sent.
      8. A directory must be available for users to check who they can send messages to.

### User Module Requirements:

* + - 1. A User must have an ID, username and password.
      2. User password must meet security requirements.
      3. Users must update their password after its expiration date.
      4. Once terminated, the User’s old login info is deleted.

### ChatRoom Module Requirements:

* + - 1. If the user opens a Chat Room it must open under a new tab until the user closes it.
      2. In order to send a message, the User must be part of the ChatRoom.

### Client Module Requirements:

* + - 1. The Client must allow a user to type in their credentials for authentication before allowing them to send and receive messages.
      2. The Client must automatically log out the user before the Client closes
      3. The Client must be able to request logs from the server if an IT user requests it
      4. The Client must wipe out all the chat room logs when an IT user logs out.

### Server Module Requirements:

* + - 1. The server must be able to handle connections with multiple clients at a time.
      2. The server must verify that a Client requesting logs is an IT user before sending it.

## External Interface Requirements

* + 1. The GUI will be a list of existing chat rooms that the user is in. This list will be ordered from top to bottom based on the most recent activity.
    2. Each opened chatroom will have its own button or tab that will redirect the GUI to view the content of the chatroom.
    3. The GUI will contain a search button that opens a directory of users and has a filtering functionality.

## Internal Interface Requirements

* + 1. The system must process data from the chat history logs. The logs will be in the form of a comma-separated file that is updated every time a message is sent for each chat room. The file is read line by line. The first line will contain the unique ID of the chat room. The second line will contain the list of participants which are comma-separated. The remaining lines will have fields that are ordered as follows: date\_sent, sender, and message\_string.

# Non-Functional Requirements

## Security and Privacy Requirements

* + 1. User passwords must be at least 12 characters long and alphanumeric
    2. Only IT members can view chats (limited privacy)
    3. If an IT user logs out then data on the client regarding chat history that the IT user is not part of will get deleted from the machine the client is on.
    4. Users can only view chats they are in

## Environmental Requirements

* + 1. Application must be written in Java
    2. The network must be able to support large TCP/IP packets
    3. The server will not have over 10,000 users at a time

## Performance Requirements

* + 1. The server will not randomly go down
    2. The server will never be subject to attacks