Group 4: Communications

Software Requirements Specification

Revision History

Date	Revision	Description	Authors
9/19/2022	1.0	Initial Version	Jared Patterson

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1.   Purpose

This document outlines the requirements for the Communications system.

1.1.   Scope

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

1.2.   Definitions, Acronyms, Abbreviations

Message: At minimum, a message refers to the string of text sent from one user to another user(s). It may also include more specific metadata, like a timestamp, author, and receiver.

Messaging: The act of sending and receiving a message from one client application, to the server application, to one or more other user client applications.

Message History: The collection of messages sent or received by a user.

Messaging Group / Chat Group: A group of selected users who share a messaging space, viewable to all users in that group. Additional users may be added to an existing group.

Direct Message: A messaging space shared between two users only, or a message within this space.

User Account: A user account refers to someone with credentials to prove that they have authorization to use the Communications system. Extra information about users accounts may include (but is not necessarily limited to) a name and position within an organization.

IT User / Privileged User: An IT or privileged user may view all the message history for the entire system. An IT also has all the abilities of a non-privileged user.

Basic User / Messaging User / Non-privileged User: A basic or messaging or non-privileged user may log into the system on their user account, then send and receive messages, and view all previous messages they sent or received.

1.3.   References

Use Case Specification Document v1.0 - Group 4

UML Use Case Diagrams Document v1.0 - Group 4

Class Diagrams v1.0 - Group 4

Sequence Diagrams v1.0 - Group 4

1.4.   Overview

The Communications system is designed to facilitate messaging in the workplace, and interconnect users within chat groups. Additionally, enforcement mechanisms in the system will keep messaging appropriate for the workplace.

2. Overall Description

2.1. Product Architecture

The system will be organized into three major modules: the messaging client module, the privileged client module, and the communications server module.

Note: System architecture should follow standard OO design practices.

2.2. 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):

The system will provide a means for employees to log in and message other employees.
The system will store employee account data and message history.
The system will allow IT employees to view the entire message history of all users.

2.3. Constraints

The system should be delivered as two Java applications: server and client, using TCP/IP protocols.

2.4. Assumptions and Dependencies

2.4.1 It is assumed that IT privileges only include the viewing of the entire message history; additional privileges are not to be added unless requested, or unless Group 4 is permitted to add features freely.

2.4.2 It is assumed that the size of an organization using this system may be of an arbitrarily large size, so the system should accommodate many concurrent users and messages. Navigation of a very large message history for privileged users is also assumed, so search functionality may be specified in a future version.

2.4.3 It is assumed that the system only needs to facilitate communication between employees on the same wifi network.

3.   Specific Requirements

3.1.   Functional Requirements

3.1.1.   Common Requirements:

3.1.1.1 The system should let users to log in, and allow logged in users to take actions appropriate to their privilege level.

3.1.1.2 The system should have a message sent from one client be received by another intended client.

3.1.1.2 The system should be able to show messages in their message spaces (messaging spaces are the previously defined *chat group* and *direct message*).

3.1.2.   Messaging Client Module Requirements:

3.1.2.1 The messaging client should require a valid login before allowing access to any other messaging client features.

3.1.2.2 Users should be able to search for other user accounts on the system.

3.1.2.3 Users should be able to form chat groups with other users.

3.1.2.4 Users should be able to add additional users to an existing chat group.

3.1.2.5 Users should be able to send a message to one other user as a direct message.

3.1.2.6 Users should be able to send a message to a chat group.

3.1.2.7 Users should be able to view messages they previously sent or received.

3.1.2.8 Users should be notified of new messages they have received.

3.1.2.9 The messaging client should provide a way for privileged users to access features of the privileged client module.

3.1.3.   Privileged Client Module Requirements:

3.1.3.1 The privileged client should only be accessible by privileged users.

3.1.3.2 A privileged user should be able to access and view all messages on the system, regardless of whether they had been the intended recipient of those messages.

3.1.4.   Communications Server Module Requirements:

3.1.4.1 The communications server should store user account information, including login info.

3.1.4.2 The communications server should handle login attempts.

3.1.4.3 The communications server should store all messages.

3.1.4.4 The communications server should receive messages sent by user clients.

3.1.4.5 The communications server should send new messages to recipients when the recipient is logged in.

3.1.4.6 The communications server should send clients their own message history when needed.

3.1.4.7 The communications server should send privileged clients the entire message history when needed.

3.2. External Interface Requirements

3.2.1 A Java GUI should provide clients a way for users to access features.

3.3. Internal Interface Requirements

3.3.1 The server must use TCP/IP protocols to communicate across a wifi network.

4. Non-Functional Requirements

4.1. Security and Privacy Requirements

4.1.1 The system must hide all user features behind a login requirement.

4.2. Environmental Requirements

4.2.1 The clients need to be run on machines that are on the same wifi network as the machine running the server.

4.3. Performance Requirements

4.3.1 The system should not cause issues on the network it is run on.