CSCI 3428 - Software Requirements Specification

Group 4

Monday 18rd November 2019

1 Introduction

1.1 Purpose

The program is intended to allow users to communicate with each other via text and images through instant messaging. It distinguishes itself from other messaging platforms by prioritising accessibility (by being tailored to the individual needs of each of the users), as well as ease-of-use and simplicity. It hopes to respond to the need for simple and accessible web-based services for use by the elderly.

1.2 Intended Audience

The program is being custom-designed for three residents of the Northwood Long-Term Care facility in Halifax, Nova Scotia. While the program's functionality is similar in nature to any other messaging platform, and can therefore be exploited by a wider user-group, its design will be constrained according to the needs of the three residents, and will be driven based on the feedback we receive from the residents during the testing and prototype phase.

1.3 Intended Use

The program is intended to be used as a text- and image- based communication platform. It will not include functionality for voice or video communication between users, however it might implement accessibility features that allow the users to interact with the program by voice, depending on their specific needs.

2 Description

The system is a free instant-messaging platform tailored to the specific needs of residents at the Northwood long-term care facility.

2.1 User Needs

Users of the platform require an instant messaging system that allows them to communicate with friends and family via the internet. Specific demands include the ability to send and receive text messages and images from a number of different contacts, using separate conversations. Users should be able to add or remove contacts as they see fit, and open or close lines of communication with these users.

3 System Features and Requirements

3.1 External Interface Requirements

3.1.1 User Interfaces

There are two primary user-interfaces that the users will interact with. The first is a log-in screen, which allows us to distinguish between users, and gives each user access to their own conversation list. Depending on the user's needs, it may not be required to use a password to authenticate the log-in. The second is the conversation panel, which lists on the left all active conversations that user has. The currently selected conversation appears on the right, and allows the user to scroll through their entire conversation history, as well as toggle between viewing the entire conversation, and only the images they have sent or received. This toggle is activated by clicking the image icon that appears in the top-right corner of the chat window.

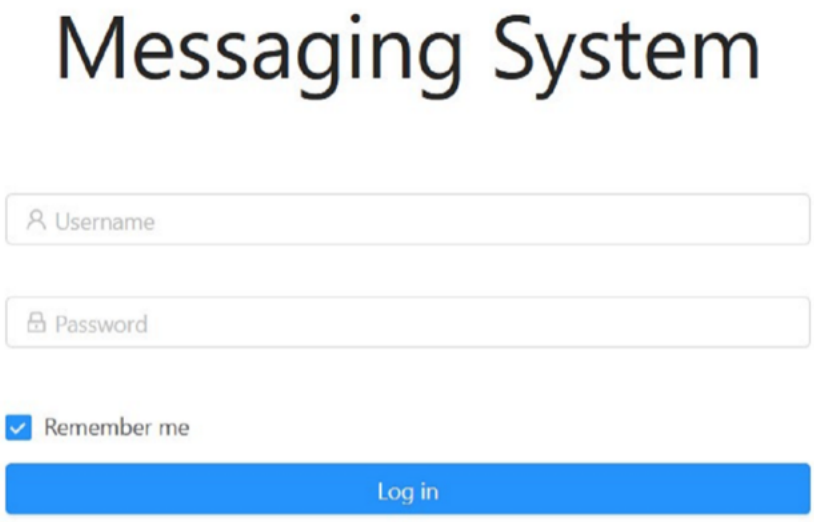

Figure 1: Log-In Page

Details for Login Page:

1. Username (name): The user is required to log in with their username credential in order to access the system. Text, size: 30
2. Password (password): The user is required to log in with their password credential in order to access the system. Text, size: 50
3. A correct combination of a username and its corresponding password is required to be entered to access the system.

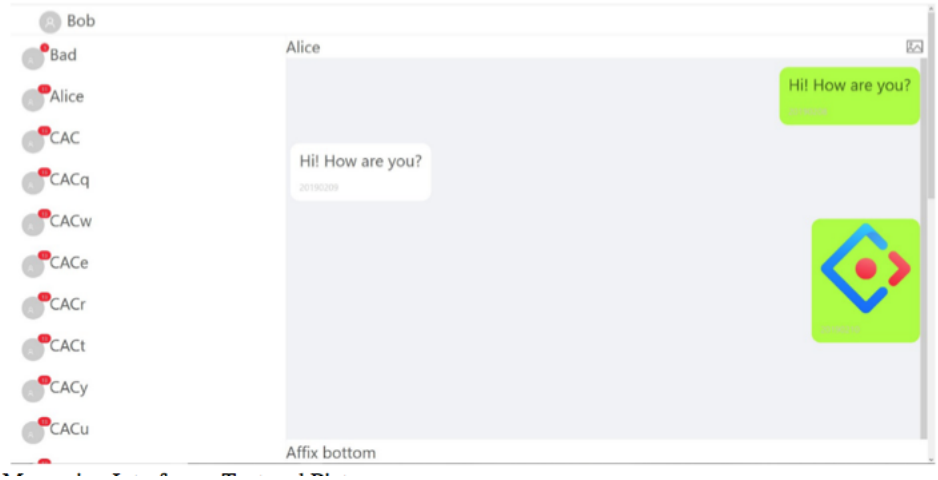

Figure 2: Conversation Panel

Details for Messaging Page:

1. Content of the Textbox (content): The user may type text to the input box on the bottom right of the screen. Upon pressing enter, the text is displayed on the right side of the screen. The text is then sent to the recipient, another user of the system, who can view received messages on the left side of the screen in the chronological order of which they were received. Text, size: 100

3.1.2 Software Interfaces

The product will be accessed via a web-browser, and can therefore be widely used on most modern hardware. Specific requirements include in-browser support for the latest standards of both HTML (HTML5) and CSS (CSS3), as well as JavaScript and/or Python web-scripts. Ideal choices include the latest desktop versions of both Chrome (`v.78`) and Firefox (`v.70`), as the project was both created and tested on these platform.

3.1.3 Communication Interfaces

The project's webpage will be hosted on the undergraduate student's server at Saint Mary's University, and is accessible at `ugdev.cs.smu.ca`. Upon completion of the project, the system administrator will be given access to the server, its attendant MySQL database, and the user-management framework, to allow for long-term maintenance of the project. See the 'Installation and Maintenance' document for further details.

3.2 Functional Requirements

3.2.1 Essential

The following list represents core-aspects of the system's functionality that must be present in order to satisfy the client's requirements, and allow the system to be usable and maintainable over the project's life-span (at minimum: 1-year).

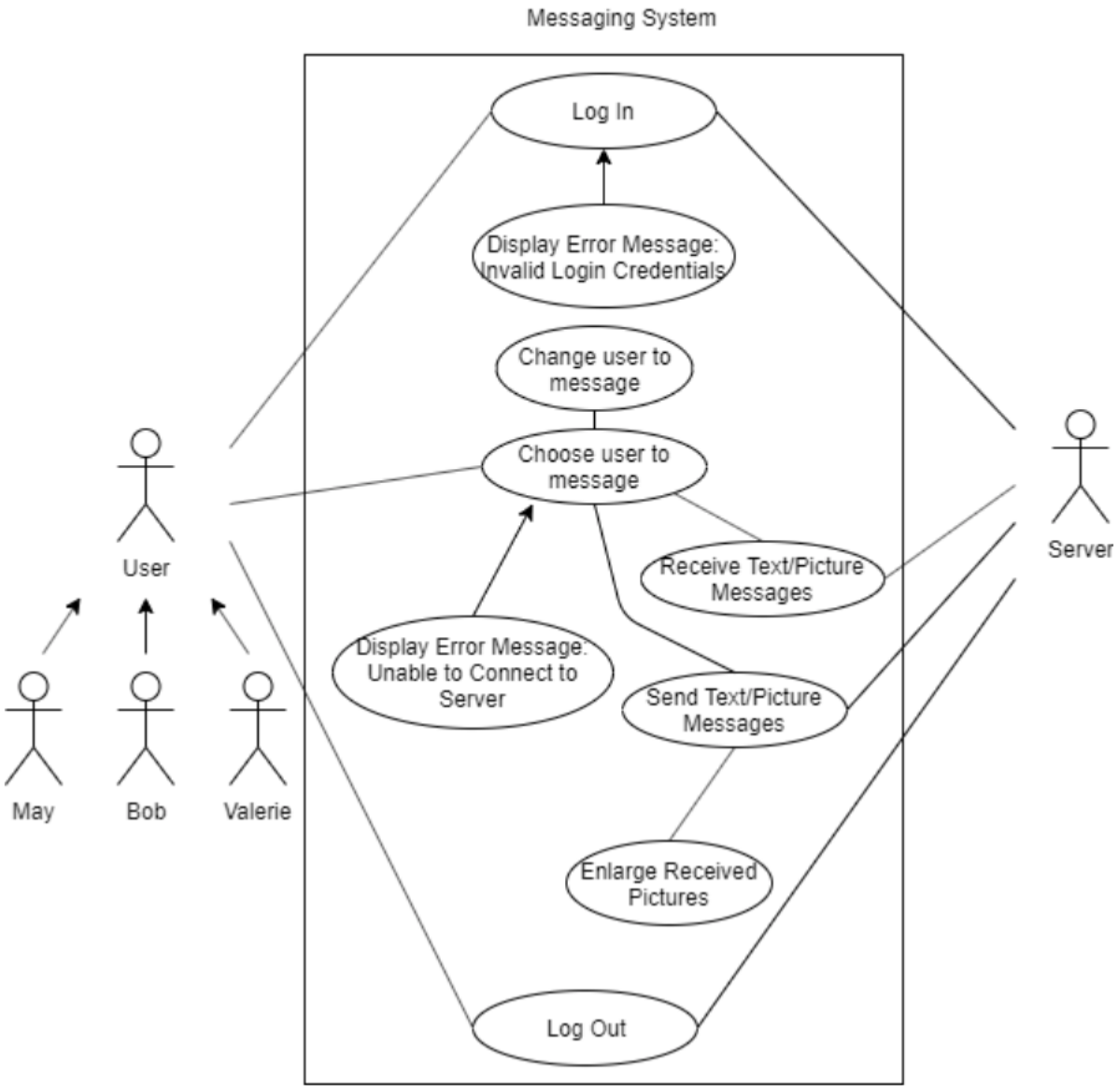

Figure 3: Use-case diagram

1. Authenticate and log-in user into system: secures each user account to prevent public access to their communications. A robust user-management framework will further allow wider use of the project outside of its initial scope.

2. Allow user to choose and change who they communicate with: provide functionality to allow users to open (or close existing) channels of communication with other users on the platform. Provides greater flexibility, and a potentially wider use-case for the project.

3. Allow user to send text messages to others: the key use-requirement for the entire system.

4. Allow user to send images to others: the second key use-requirement for the entire system.

5. Allow user to receive text messages from others: an extension of the first key use-requirement.

6. Allow user to receive images from others: an extension of the second key use-requirement.

7. Display error message if connection to server fails: failure to deliver potentially important messages can have serious consequences for the user, so it is crucial to notify the user should the system fail to function, and ideally provide some indication for how the issue can be resolved (i.e. differentiate between no internet connection vs. a problem on the server's end).

8. Enable user to log-out of system: allows use on public machines (e.g. at a library) without compromising the user's private data and conversations.

3.2.2 Desirable

The following list represents a set of requirements that would make the system more flexible, allowing for use that can be tailored to a wider audience. While not an explicit requirements of the current three clients, such functionality could expand the project's use.

1. Allow user to access a settings page: provide functionality to allow users to tailor the appearance of the product according to their changing needs. Enables new users to access and use the system according to their own needs.

2. Allow user to change font size for messaging interface: improve readability of the displayed text according to user's preferences.

3. Allow user to change background colour of messaging interface: improve readability, comfort, and appearance of the system according to user's preferences.

4. Allow user to change text colour of messaging interface: improve readability and appearance of the displayed text according to user's preferences.

3.3 Performance Requirements

The messaging system will be browser-based, and run from the `ugdev.cs.smu.ca` server. Initial load time will be dependent on the internet connection available to the user, and the stability of the hosting server. The performance will additionally be marginally dependent on the hardware available to the user to interact with the program. Additionally, there exist the following performance requirements (according to the needs of the system's three core-users):

a. **Valerie**

   System must be readable and usable on a small screen

   Use of varied colour palette to distinguish elements for readability

   Support for mobile browsing platforms

b. **May**

Ability to favourite/save important messages

Ability to easily navigate through message history/browse old messages

Ability to easily navigate through image history/browse old images

c. **Bob**

High contrast between background and text

Background must be dark, and foreground elements/text must be light

Ability to have separate conversations with different family members

3.4 Design Constraints

Users must have access to a modern web browser (e.g. Google Chrome, Mozilla Firefox, Safari, or Internet Explorer) that is able to support the program. This includes being compatible with HTML5, CSS3, and being able to run JavaScript- or Python-based scripts. Additionally, the user will need an active internet connection to be able to make use of the program. From the development perspective, the program is constrained according to compatibility with the `ugdev.cs.smu.ca` server. That includes using databases that are available to be installed on the server.