

Software Design Document

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1. Introduction

1.1. The Purpose

- 1.1.1. This document will detail how the chat program will operate regarding to what the client and server will individually perform and how they will operate together. It will also give more understanding to how the program will function overall.

1.2. Scope

- 1.2.1. The the major priority of the project is usability

1.3. Constraints

2. System Overview

2.1. Overview

- 2.1.1. The clients will connect to the server via a login and given they enter a valid username they will be allowed to connect. Once the connection to the server has been established they will have options of using the program. They may connect to a chat room that will enable the user to chat with other users. They may also initiate a one-on-one style chat that connects two users privately from within the chat lobby. The user may also sign out and the connection will end.

2.2. Client

- 2.2.1. The client will make decisions from a list of available commands. All input from the user will be from a graphical user interface. The client will handle the decision to either enter a chat lobby or to logout.

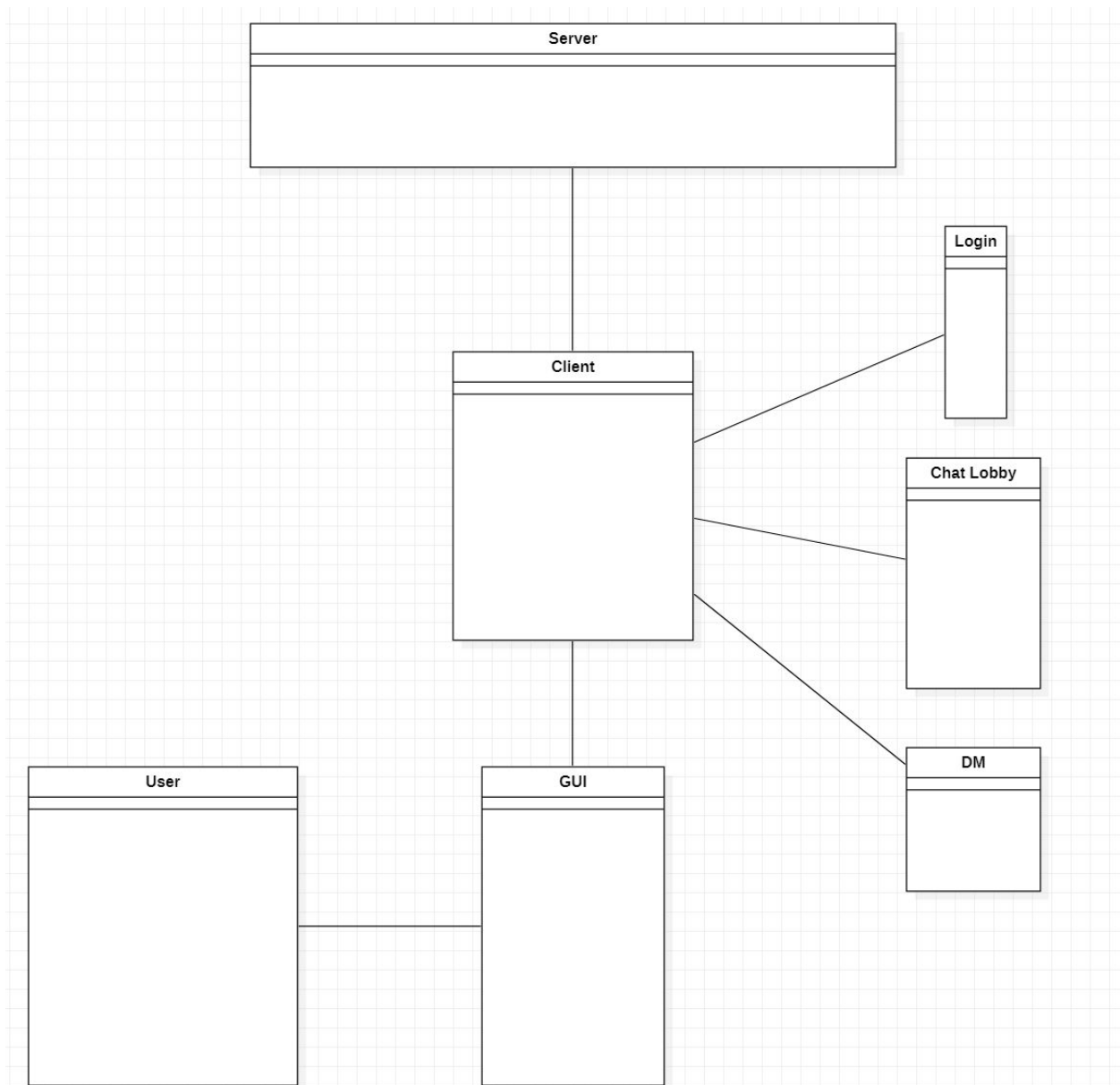
2.3. Server

- 2.3.1. The server will give users commands to choose from and the clients will choose from them. Then the server will properly handle the information.

3. Functional

3.1. Overview

- 3.1.1. Chat runs as a client-server application, they will both be running and communicate simultaneously.
- 3.1.2. Simple Diagram of Operation



3.2. Client

3.2.1. Functions that the client will handle include:

- 3.2.1.1. Connect To Chat Room - this will request information from the server for chat rooms then it will receive data from the server regarding available chat rooms, present it to the user from the GUI and receive the input from the GUI
- 3.2.1.2. Disconnect From Chat Room - will request to the server to end the connection between the client and a specific chat room
- 3.2.1.3. Send Chat Message - will take a chat message from the user, it should contain information like where it is from, where it needs to go, who it is from, who it is going to, the data of the message
- 3.2.1.4. ConnectToIndividualChat - will request to the server for a private chat with another user to open, then sends the relevant data to the client, a new GUI is opened for individual chats.
- 3.2.1.5. Disconnect From Individual - this will disconnect the user from the private chat
- 3.2.1.6. Send Login - login will send information to establish a connection to the server, then the client will send the users login info and receive a message from the server if the user is valid or not, current IP address linked to user may add more reliability
- 3.2.1.7. Receive Chat Message - this will handle data from the server, client needs to know how to handle and unpack the message into a readable format for output in the GUI

- 3.2.2. Interfaces that the client will interact with are User Interfaces regarding:
Login, Chat Room, Individual Chat, Chat Messages.
- 3.2.3. The client will process: messages, connection to chat room, connection to individual chat, connection to server, output to UI elements.

3.3. Server

- 3.3.1. Functions that the server will handle include:
 - 3.3.1.1. receiveLogin - server will be waiting to receive incoming connections, once a connection is established it will wait for login information to be received, it will compare the data given against valid login and return if the information is valid or not, if login is successful it will send the client information if it wants to connect to a chat room, connect to an individual chat or logout
 - 3.3.1.2. connectUserToRoom - given the request from the user to connect to a chat room, the server will send the available chat rooms to the client and wait for a response either one of the available chat rooms or to exit and go back to login, after the response is received it will connect that user with that chat room and wait for chat messages from the user to send to the chat room
 - 3.3.1.3. disconnectUserFromRoom - the user disconnects from the specific chat room
 - 3.3.1.4. connectUserToIndividualChat - given the request from the user to connect to an individual chat, the server will initiate direct message session between two users, after the response is received it will connect that client with the corresponding client and

wait for chat messages from the user to send to the other user
until either user disconnects

3.3.1.5. disconnectUserFromIndividualChat - the user disconnects from
the individual chat

3.3.1.6. processChatMessage - the server will listen for incoming chat
messages when the user is in either a chat room or individual chat

3.3.2. Interfaces that the server will interact with are: the command line.

3.3.3. The server will process: messages, connection requests, disconnects

4. User Interface

4.1. There will be 3 main UI elements: Login, Individual Message, and Chat Room.

The login is designed to be the access point for the chat room and direct
message UI the Individual message will display the other user's name and
messages and a disconnect option, the chat room will display other users names
and their messages and will have a disconnect option

4.2. External Interfaces

4.2.1. Internet Access

4.3. Internal Interfaces

4.3.1. Command Line

4.3.2. GUI

4.4. Human Interfaces

4.4.1. Monitor

4.4.2. Computer Mouse

4.4.3. Computer Keyboard

5. Restrictions, Limitations and constraints

6. Testing Issues

6.1. Main focus will be functionality and making sure basic commands are working.

Use cases, their expected outcome, and the critical components are outlined at the end of the software requirements specification document.

7. Appendices

