HoosierChat

CSCI-P438 Project 1

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# Description

HoosierChat is a simple chat program that uses command line to allow users to chat with each other.

# How to compile the source code

HoosierChat is written in Java. In order to compile the code files, go to the folder where ChatServer.java or ChatClient.java files are located, and enter:

* javac ./ChatServer.java
* javac ./ChatClient.java

# Server Instruction

To launch the server, you need to enter the following on the command line:

* **java ChatServer [PortNumber]**

[PortNumber] should be replaced with the port number you want to operate the server on. For example, if you want to run the server on the network port 6001, you enter:

* **java ChatServer 6001**

The server will run until you arbitrarily terminate it, in the ways such as pressing [Ctrl]+[C] on the keyboard.

# Client Instruction

To launch the client, enter the following:

* **java ChatClient [ServerIP] [PortNumber]**

[ServerIP] and [PortNumber] should be replaced respectively with the IPv4 address of the server and the port number of the server. For example, to connect to the server at IPv4 address 10.10.5.12 and port number 6001, you enter:

* **java ChatClient 10.10.5.12 6001**

# How to use the Client program

HoosierChat is a simple chat application and it uses various commands to operate the chat. Users can use the commands to create accounts, authenticate, send messages, and see the list of online users.

The following is the list of the commands available to users and their respective functionalities. All of the commands can also be entered in lowercases.

|  |  |
| --- | --- |
| **Command** | **Description** |
| **REGISTER** [USERNAME] [PASSWORD] | Creates an account with username [USERNAME] and password [PASSWORD]. If the username is already taken, you will need to find a new username. |
| **LOGIN** [USERNAME] [PASSWORD] | Logs the user into the chatroom with username [USERNAME] if the password [PASSWORD] corresponds to the username. |
| **LOGOUT** | Logs the user off of the chatroom. |
| **SEND** [MESSAGE … ] | Sends a message [MESSAGE … ] visible to every user in the chatroom. |
| **SENDTO** [USERNAME] [MESSAGE … ] | Sends a message [MESSAGE … ] only visible to a specified user [USERNAME]. |
| **SENDA** [MESSAGE … ] | Sends an anonymous message [MESSAGE … ] visible to every user in the chatroom. The users will not see your username. |
| **SENDATO** [USERNAME] [MESSAGE … ] | Sends an anonymous message [MESSAGE … ] only visible to a specified user [USERNAME]. The users will not see your username. |
| **LIST** | Displays the list of users currently in the chatroom. |
| **HELP** | Shows the list of available commands. |

# Issues

* After closing connection with the server, the client process does not terminate. When additional commands or inputs are entered in this state, broken pipe error occurs.

# Protocol

HoosierChat uses text-based protocol. Each client sends out a line of text, where the first word should be a recognized command, and the subsequent words should be parameters of the given command (e.g., username and password, message, etc.). A sample client message would be:

[SENDTO **abc** *hello there!*] -> sends a private message “*hello there!*” to user **abc**.

The server parses the message from the client, removes the command from the message after deciding what action to take, and uses the remaining parameters to take that action. For example, with the sample command, the server decides to forward this message as a private message to user **abc**, based on SENDTO command, and sends **abc** the message “hello there!”, with the username of the sender. The message from server to abc’s client would look like this:

(Private) **user**: *hello there!*

Note that the “(Private)” part will not be delivered in case of public message.

# Handled Errors

* HoosierChat keeps track of the users already logged in. When someone tries to log into the server as a user who is already logged in, the server will block the said login attempt and note the attempt in the server console.
* HoosierChat asks clients to provide an available command when an unavailable command is provided.
* When the user provides wrong username and/or password, the error message indicates that the user failed authentication. The specific reason for each authentication is not given to user for security purposes.
* Duplicate account creation is prevented.