CS 4345 (Operating Systems)

Assignment 3 [Spring 2019]

<u>Due date</u>: Tuesday, 26 March 2019, 11:00 p.m.

This is a group project. Each group must contain 3 members of current class. However, the group will have one submission file.

Inter-process communication using connection-oriented sockets: Write a *Group Chat Application* using Java to illustrate IPC between multiple processes.

Program requirements: Use *Connection-oriented (TCP) sockets* in Java [*you may use the example codes supplied on BlazeVIEW as reference*] to implement communication between two or more users (represented by processes). The communication will start with two users (processes) exchanging messages. New users (processes) can join (or, existing processes may leave) at any time. Each of the processes is identified by a name that is entered by the user after a prompt [after initiating the process, a prompt can read like "Enter your name:"]. Once joined in the group conversation, all of the existing users (processes) should see a message like "<name> has joined the group" [<name> indicates the name specified by the user upon initiation of that process]. Similar message should be displayed when a process leaves the conversation (terminate). During conversation, if a user (process) enters a message, it is displayed by default on all other processes (group message) window. If a user (process) chooses to send the message to another specific user process (personal message - PM), **the process must have some way to indicate (or, choose) the target process for PM.**

Provide the user a way to terminate the chat.

Extra credit [5 points] : If you implement the application as a GUI-based.

<u>Submission instructions:</u>

[Important] Naming of the .zip file: If your group has members *Alice Dean, James Smith,* and *Bob Bryan* (hypothetical names) then name the .zip file as ***AD_JS_BB.zip***

Comments in the header: Each program file should contain the following: course number (CS4345), Semester/Year (Spring 2019), assignment identifier (Assignment 3), and all group members' names. You may use regular Java comments or Javadoc comments to furnish above information.

Deliverables:

One of the members in the group will submit a .zip file containing the following files:
(i)   your program file(s) or package,   [15 points]
(ii)   a README.txt file that **furnishes instructions to execute your program**, and   [5 points]

Each individual member will submit a document file describing: [10 points]
    a.   what was the design of the code and how it was done,
    b.   your role/responsibility in the team and contribution to the final product,
    c.   how you communicated with others, and shared your part with the team
each student in the team will name his/her document file with his/her name (like, JohnSmith.docx)