EE 5516: Intro to Communication Networks
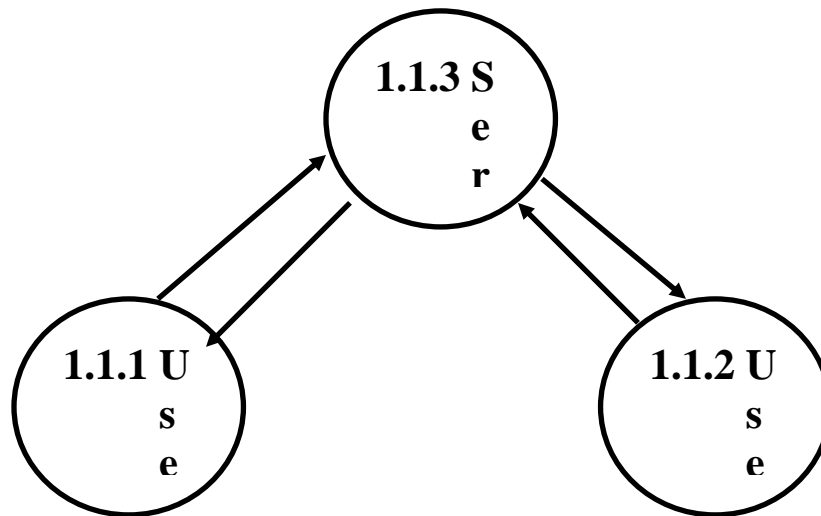### Fall 2009
Course Project
Due: 12/12/09

You have a choice of the following two project topics. You chose only one.

- **Networking Programming Project**

Server-based Chat Software

This is a 4-member team effort project. In this project you are asked to develop and test a server-based chat software. A suggested software architecture is shown by the diagram below (but it is not required). Each user should first establish (TCP) connection with the server and provide a unique name, i.e., geeky_guy. The server should maintain a table of all users currently connected to the server with the associated IP address. Each user should be able to see the user names from the list but not their IP addresses. The number of users that could be connected to the server at the same time should be five or more. A user wishing to talk to another user, it must always prepend the name of the other user to each transmitting line. The display output line should always contain the name of the sending user. The user's chat program should wait for an entire line of text before sending anything across the network; that is, when a user press "enter", then a string of characters will be sent to the other peer-user. When the server receives a line from a user, it will read the name of the destination user and then forward it to that user. If the destination user had exited the system, the server would reply back to the sending user indicating that the destination user is not available or not connected.

To disconnect from the server, a user should type either word: "disconnect" or "quit" and first pass it to the server process before closing the connection. The program should be well designed and documented.

Additional Notes:

1. Don't forget to use free port numbers**.**

2. **Start Early!**

What you need to do:

1. Each team will demo its software functionality in class.

2. Write a report (using MS Word).

Grading Policy:

The client and server programs should work correctly and be documented. When you hand in your programming assignment, you should include:

1. client and server program listings containing in-line documentation.

2. a report with the following format (11point Times New Roman fonts, 1in margins, justified):

    a. Cover page with a Summary

    b. Introduction Section

    c. Software Design Section

    d. User Interface Section

        i. How to install software

        ii. How to run the program

        iii. Etc

    e. Experiments and Analysis

    f. Conclusion

        i. Possible improvements and extensions

Grading (Total points = 100)

Weekly Progress reports		10%
Program Listing	Works correctly	40%
	In-line documentation	10%
	Quality Design	10%
Report		25%
Thoroughness of test cases		05%

- **Review Paper**

This is a 3- or 4-member team effort project. In this project you are asked to review many IEEE journal papers on a particular topic of your choice and write a review paper about that topic. You must write your paper using the IEEE style:

http://www.ieee.org/portal/cms_docs_iportals/iportals/publications/authors/transjnl/style manual.pdf

I suggest using the IEEE template and instructions provided here:

http://www.ieee.org/web/publications/authors/transjnl/

You must use the two-column standard and the paper must be at least 5 pages long when using 11pts New Times Romans fonts.

This project consists of four parts:

- **Review IEEE journals papers and identify your topic. IEEE journal papers can be obtained from IEEE Xplore: http://ieeexplore.ieee.org/Xplore/guesthome.jsp I am sure that you can access Xplore from the library computers.**

- **Research and select at least 6 papers related to your topic.**

- **Study the papers, and then**

- **Write your review paper based on them.**

Note that your review paper must contain an Abstract as shown in the IEEE template.