<u>Practical Exercise 2</u>
Socket and Multi-Threaded Programming

1. **Description**

   This is an exercise in C programming in the UNIX/Linux environment using sockets and threads. This serves as an introduction to practical applications of operating system concepts discussed in class. This involves the implementation of a simple text-based chat server called **mychatd**. Clients connect to the system using any telnet client.

   This exercise *may* be performed by pairs. Students who wish to work individually may do so.

2. **mychatd Specifications**

   (a) The chat server can accept up to five (5) maximum clients simultaneously. Once five users are already connected, no other user must be allowed to connect.

   (b) The chat server will accept connections at port 1550. While testing your programs, you may use ports (1551, 1552, 1553, ...) to avoid conflict with other mychat programmings running on the same server.

   (c) The /NAME [username] command will set the username. The user must register a username before being allowed to chat. A maximum length of 10 characters on the user name may be imposed. The user may set the name anytime, while connected. Notification that a user has logged on, or has changed names must be sent to other users.

   (d) The /LIST command will list all online users connected to the system.

   (e) The /QUIT command will disconnect the user. Notification that a user has logged off must be sent to other users.

   (f) Any other input from the user will be echoed to all the *other* users.

3. **Deadline**
   12:00 AM Thursday, 26 February 2004

4. **Early Submission Bonus (+10%) Deadline**
   12:00 AM Thursday, 19 February 2004

5. **Submission**

   (a) Place the files mychatd.c and mychat-client.c in a directory called *lastname1-lastname2* (e.g. santos-cruz).

   (b) Make a gzipped tarball containing the directory using the filename *lastname1-lastname2.tar.gz* (e.g. `tar cvzf santos-cruz.tar.gz santos-cruz`).

   (c) Email the gzipped tarball to <u>damparo@ateneo.edu</u> with the subject *CE 155: mychat*.

   (d) After submission, signup for your defense/presentation schedule with the instructor.

6. **Grading System**
15%	for /LIST
15%	for /NAME
10%	for /QUIT
30%	for 5-user support
30%	for chatting (messages sent to other users)