**Assignment : Introduction to Sockets**

**The Assignment:** Create three programs – two client programs and one server program. Client 1 will send a C struct comprising of an integer value, a character value and a float value to the server process.

The server changes each of the value in the following way – it doubles the integer value (a 2 becomes a 4), adds 1 to the float value (a 2.3 becomes a 3.3) and increases the character value to the next higher character with a roll over (i.e a ‘z’ becomes ‘a’, ‘b’ becomes a ‘c’). The server then prints the original values that it received and the modified values as well (label these values as “Before” and “After” values). The server then transmits these values to Client 2.

Client 2 prints the values that it received from the server and terminates the connection. All other processes are terminated as well.

Compile and run this exercise in the Unix domain.

**Helpful hints:** First try the above program with client1 sending just an integer or a character to the server. Read through the example codes that I have posted on BlackBoard and the one in the Tannenbaum book – they are sure to help. Start early – it is not a difficult program, however it could be time-consuming.

**What to turn in:** A soft copy of your well documented source code and a snap shot of the screen to show me that your program was actually running. Have a client and a server window on the screen with messages which explicitly tells me that the server (for example jason.sdsu.edu) requested a connection with a specific client (say rohan.sdsu.edu) and that the connection was established. Every student needs to demonstrate the project to the grader on the assigned time and date.

**Grading Criteria: (points 100)**

Code works amongst 3 different machines (e.g, volta, Jason, rohan) and every criterion is met: 120 points

Code works between 2 different machines (e.g volta to Jason and Jason to volta) and every criterion is met: 100 points

Code works between separate ports on same machine and every criterion is met: 70points

Sophistication in code writing for example querying the DNS server for IP address of a machine instead of hard-coding the address will garner extra credit points as well.