

CS 4254

Homework Assignment 2

Given: Sept 28, 2004

Due: Oct 8, 2004

For this homework, you will create two client programs that talk to TCP and UDP echo servers. An echo server performs a very simple function. It reads characters from a socket and writes the characters back onto the same socket. This homework will give you some simple socket programming practice for your first project.

This homework consists of two parts. For the first part, you need to write a TCP client program that can talk to a TCP echo server. For the second part, you will write a UDP client program that talks to a UDP echo server. The source code for both echo servers is available from the course web page. The source can be compiled and linked on Linux or *BSD. The echo server takes 1 command line parameter, a port number on which it listens. Use the last 4 digits of your soc. security number as the server port number. If the last 4 digits of your soc. security are ≤ 1024 , add 10000 to the last 4 digits of your SSN to get the server port number. For example, if the last 4 digits of your SSN are 0234, your server port number is 10234.

Your client programs should take 2 arguments. The first argument is the IP address of the machine on which the echo server (UDP or TCP) server is executing. The second argument is the server port number (last 4 digits of your SSN, with the caveat above). Your program should connect to the server socket and display a prompt ("Enter data: \n"). The user is allowed to enter data at the prompt. Any data entered at the prompt should be sent to the server on the just opened socket. The server will echo the data back. Read the echoed data from the socket and display it on the screen. Additionally, for the UDP client, **data SHOULD be sent 1 character at a time**. For the TCP client, any amount of data can be sent by the client. Read the source for the servers to figure out why this would work. To terminate the connection, the user may enter the ' _ ' character at the prompt. On receiving the ' _ ' character, your client program should send a binary value of 0 to the server to terminate the connection. Your client program can then terminate.

To run your code, start the echo server in background mode. e.g. `tcp_server 1026 &`. Then start your client program. Remember to terminate the TCP server before starting the UDP server and vice versa. Why?

Submit your source code at chekhov.cs.vt.edu/cs4254. Register your social security number, and a password. Your user name for chekhov will be your social security number.

The deadline for electronic submission is midnight 10/08/2004.