

Assignment 6

A simple TCP/IP client-server application

Due: October 22, 2008

In this assignment, you are asked to write a client-server program using TCP/IP sockets for viewing directory listings in a remote machine.

Part I: The client program (40)

The client program first sends a directory name (absolute path starting from the root directory /) to the server. If the server reports error (in reading the directory), the client prints an appropriate error message and quits. If the server reports success, the client keeps on receiving `struct dirent` records, one per packet. Since the number of files in the remote directory is not known in advance, the entire directory listing cannot be received at once. The client keeps on reading packets from the server until the server closes connection.

The client prints the name and type of each file in the directory. Each such printing may be done immediately after receiving a `struct dirent` record from the server. Alternatively, all the received records may be stored locally in an array and printed, after the connection with the server closes.

Part II: Iterative server (40)

The server receives a directory name from a client. If the directory does not exist or is not readable, the server sends an error message to the client and closes the connection. Otherwise, the server first sends a success message and then the directory listing (one `struct dirent` record per packet) to the client. When all directory entries are sent, the server closes the connection.

Part III: Concurrent server (20)

Modify the iterative server of Part II such that, upon each request from a client, a child process is created to handle the rest of the interaction with the client.

Submit three C programs: `client.c`, `iterserver.c` and `conserver.c`.