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Readme for Assignment 3: Wherefore Art Thou, File?

In Assignment 3, the program is a messaging system between a client and a server.

Since we included pthread.h, it is necessary to do the following to compile the server:

gcc netfileserver.c -pthread. See make file.

Libnetfiles.c:

1. Contains functions such as netopen, netread, netwrite, and netclose.
2. Netopen()
    a. Creates a socket connection to the server
    b. Creates a message to send that server will run
    c. Receives a response from server
    d. Returns a file descriptor just like open()
3. Netread()
    a. Creates a socket connection to the server
    b. Creates a message to send that server will run
    c. Receives a response from server
    d. Returns a file descriptor just like read()
4. Netwrite()
    a. Creates a socket connection to the server
    b. Creates a message to send that server will run
    c. Receives a response from server
    d. Returns a file descriptor just like write()
5. Netclose()
    a. Creates a socket connection to the server
    b. Creates a message to send that server will run
    c. Receives a response from server
    d. Returns a file descriptor just like close()

Netfileserver.c:

1. Main method
    a. Opens a socket in order to connect to the client
    b. Bind socket to the address and port number of the client
    c. Check for the maximum number of connections
    d. Accept the socket that connects to the client
    e. Create a thread

2. Clientservice
    a. Takes in a structure that contains a file descriptor and a message from the client
    b. Depending on the first word of the message, input the message into another function
    c. In the separate “handle” functions, the open, read, write, and close functions will be called for the appropriate messages
    d. The handle functions return a message back to clientservice
    e. Send the results from the handle functions back to the client

Extension A:

1. There were three possible file connections: unrestricted, exclusive, and transaction mode
2. Unrestricted mode: The fileserver allows an unlimited amount of clients to have the same file open with any read and write permissions attached to it
3. Exclusive mode: Allows for any number of clients to have a file open in read mode, but limits the number of clients with the file open in write mode to one.
4. Transaction mode: File server only lets one client at a time be open.
5. The netinit function included two parameters instead of one: the two parameters are char* hostname and int filemode