Assignment 3 Remote File Server Readme

In this program me and my partner split the work between us into client – server to allow an equal division of work. The client side(libnetfiles) had the library of all the appropriate calls to the server and implemented each call such as open, read, write, and close to pass the correct arguments to the server side through socket programming. Each call to the server created a socket with a predefined port number but it could have a changed host name depending on the server. Also, each individual method in the library made a connection to the server since its supposed to be one connection per client call to the server. The first thing we did in each call was to check if the host name is found and then start making the connection. We also created test files (client.c) to check our code and make sure it works with passing the correct arguments from the library to the server side and that it works with multithreading and locks as well. On the server side, we made an infinite loop that will accept unlimited amount of calls from clients and perform the necessary tasks depending on the arguments sent from the client side. We had a global array that is shared between all threads that will identify each file descriptor, client and the file mode. We did that so we could make sure we don't overwrite things between two or more clients and for that reason we locked and unlocked every time we changed that array.

In addition to the base program, we did extension A as well. Extension A was difficult but we managed to finish it on time and make sure it works all across the 3 new file modes. The way we did it was we used the same global array of structs and just added more variables to it to identify the network client descriptor and make sure that if one client is in transaction mode for example then no other clients can read or write to that file. One must compile their executable by doing:

gcc -o execname clientname.c libnetfiles.c

One must compile their server file by doing:

gcc -o execname netfileserver.c -lpthread

Extension A: In addition to what I wrote above about extension A, we defined the following three variables

#define UNRESTRICTED 0

#define EXCLUSIVE 1

#define TRANSACTION 2

When the client wants to open a file with a specific mode, he would have to add the extra argument which specifies which mode out of the above modes he will want to be in.