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Program Manual

The program is currently designed to be run on separate devices on the same network.

Start the programs:

1. To start, use the following command in the directory containing the server and client files:
   make all
2. Then, on the device that will run the indexing server, use the following command to start the server:
   ./server
3. On the devices that will run the clients, use the following command:
   ./client [ipaddress] 13000
   Here, *[ipaddress]* is replaced by the appropriate information based off on which device is running the indexing server. The value *13000* represents the port number that is being used by the indexing server.

From here, it is expected the three clients are running, represented as **Client 1**, **Client 2**, and **Client 3**.

Using the programs:

The client, when ran, will show a menu detailing instructions of how to use the following commands:

regf,
addf [filename]
remf [filename]
getf [filename]
retf [hostIP] [filename]
exit

Example sequence of commands:

1. To start, use the regf command on each client:
   regf
   This will register all the files within the clients' current directory, excluding the program files.
   The server will respond by printing out which files have been added to the index.

2. On **Client 1**, use the remf command to remove one of its files from the file directory:
   remf test1.txt

The server will notify the user on the client that the file was removed.

3. On **Client 2**, use the getf command to retrieve the list of peers that have that file.
   getf test1.txt
   Note that only two possible peers is there, since **Client 1** has requested that its copy be removed from the file directory on the indexing server.

4. Back on **Client 1**, add test1.txt back to the file directory by using the addf command.
   addf test1.txt

5. Now, on **Client 3**, the getf command can be used again, passing in test1.txt as the argument.
   getf test1.txt
   This time, three IP addresses are listed for the file.

6. To retrieve a file from a peer, the retf command is used, taking in the arguments host and file name. Still on **Client 3**, check with getf which IP addresses have test2.txt.
   getf test2.txt

7. Using the results, request test2.txt from one of the possible IP addresses
   retf [IP Address] test2.txt
   Here, the value *[IP Address]* is one of the possible IP addresses retrieved using getf. The client will be see a message when the download of the file is complete.

When done, clients can give the *exit* command to disconnect from the indexing server, close their server, and end the program.