

CS 349
Assignment 2: Socket Programming
Problem 2: HTTP Server and Client

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The code contains two directories, named as Server and Client. The Server directory contains all the server code and the Client directory contains all the client code. The code for the server is present in server.c and that for the client is present in client.c.

The code works in the following manner: the client can invoke either the local server or any of the intranet servers for either sending files to those servers or receiving files from them. There is a local server to which the client can send/receive files, but for the intranet servers, files can only be received from them. The client cannot upload a file on those servers.

There is exactly one client which can send requests to the server. These requests are http requests and have a specific format. For any other request than the valid http request, the server does not respond. The server is set around an infinite loop and needs to be interrupted with a terminal signal before it stops.

There is also a makefile that compiles the entire code and generates all executable files. After running the makefile, the following executable files are created:

1. client in the directory named Client
2. server in the directory named Server

Steps to execute code:

In the Client directory, the client needs to give a command in a particular format, which is understood by the client. The format is:

`./client hostname port GET/PUT filename`

The hostname specifies the server name to which the client has requested a connection from. The port specifies the port number through which a connection is requested. GET/PUT stands for whether the client wants to upload a file to the server or wants to retrieve a file from the server. The filename specifies the name of the file that is requested by the client.

In the Server directory, to run the server, the following command needs to be entered:

`./server port`

The port specifies the port number on which the server is open to connections. To terminate the server, Ctrl + C needs to be pressed.

Sample Input-Output:

Server Directory:

```
./server 1234
```

Client Directory:

```
./client localhost 1234 GET new.html
```

These commands have the following actions:

The contents of the file new.html which is present on the server are displayed on the terminal screen. If the requested file does not exist, then an error message is displayed.

```
./client localhost 1234 PUT index.html
```

This command has the following action:

The client issues a put request for the file index.html on the server running on the local machine. A new file named index.html is created/appended in the Server directory on the local server. The contents of the file on the server are appended for the same request being run multiple times. The contents of that file are also displayed on the console.