

The following lines provide a concise overview of the code in the documents server.c and client.c in a block-wise sequence

Note: [p - q] represent the line numbers <p to q> in the respective files).

[server.c]

[29-40]

- Created a socket and bind the server(port 9000 - macro variable) to the socket

[43-44]

- Listens for clients

[48]

- Infinite loop to allow service

[49-55]

- Accepts connection from new client

[56-94]

- Checks if the user exists in 'users.txt'. If Yes, then checks for the password and also notifies the client by sending a msg,
 - i. If password Matched, then sends "Hello <username>" to the client.
 - ii. Else sends message "Authentication Failure!!!", and terminates the connection.

[98-104]

- If the user doesn't exist, then sends message "**Authentication Failure!!!**", and terminates the connection.

[106-110]

- Receives the input file name from the client

[113-128]

- If file exists, then sends a message saying "**Download Initiated...**". Then, opens the file and sends the client line by line and receives acknowledgement. Once done, closes the file.

[129-132]

- If file doesn't exist, the message "**File Not Found**" is sent.

[134-135]

- Terminates the connection with the client

[client.c]

[23-37]

- Created a socket and bind the server(**port 9000** - macro variable) to the socket

[28-32]

- Parses the argv - <username:password@serverip> into **{username, password, ip_addr}**

[39-42]

- Connects the server, notifies if any error.

[45-48]

- Sends the username,
 1. if exists, then receives the message - "**Checking for the password...**"
 2. else message - "**Authentication Failure!!!**" & terminates the connection.

[50-53]

- Sends the password
 1. if matches, then receives the message - "**Hello " <username>.**"
 2. else message - "**Authentication Failure!!!**" & terminates the connection.

[58-66]

- Takes filename as input from the user, Receives the following message -
 - i. "**File Not Found**", if the file is not present and the connection is terminated.
 - ii. "**Download Initiated...**", if the file is present.

[68-92]

- Opens a new file and writes the received messages line by line and sends the server the acknowledgement. Then closes the file

[93-94]

- Closes the connection

Assumptions and Limitations:

- (1) PORT_NUMBER is hard_coded to '**9000**' in both server.c and client.c
(#define PORT_NUMBER 9000)
- (2) username and password can not contain ':'
- (3) Run the server using '**./server**'
- (4) Run the client using '**./client harshan:123456789@127.0.0.1**'
[find more users and passwords in '**users.txt**']
- (5) Then, the <file> is to be requested, just by entering the filename.
- (6) After one request of a client is serviced, the server terminates connection with that client.
- (7) Client exits once the file download completes or if the server does not have that file.

References:

<https://www.youtube.com/playlist?list=PL0JmC-T2nhdgJ2Lw5YdufR8MffaQdAvEf>
<https://stackoverflow.com/questions/9206091/going-through-a-text-file-line-by-line-in-c>
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