

Objective:

- Connecting multiple clients to a server.
- Exchange of files between client and server.
- Clients staying connected until explicit disconnect.

Program execution:

- Firstly, the python file 'Server.py' is run
- Secondly, and finally, the python file 'Client.py' is run

Screenshots:

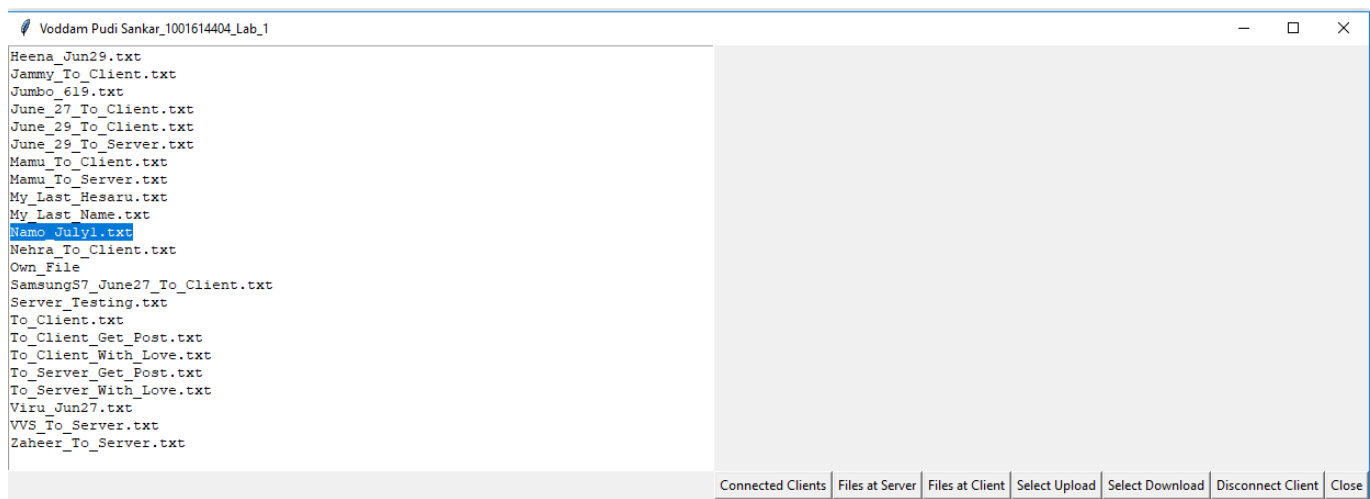
- Click on 'Connected Clients', to view the currently connected clients.



File Upload or Download process:

- Select the complete file name (i.e., highlight using mouse) along with the file extension.
- If extension is not displayed, select the full file name alone.
- Click on 'Select Upload' or 'Select Download' buttons to upload or download the file respectively.

A screen grab is provided below:



Directory Description

- **Server Directory:** C:\Users\Venkat\Desktop\DS Server Folder
- **Client Directory:** C:\Users\Venkat\Desktop\DS Client Folder

IP and Port Descriptions

- **IP address:** 127.0.0.1
- **Port number:** 2346

GUI description

The buttons present in GUI are described below:

- **Connected Clients:** Shows the clients currently connected with the server.
- **Files at Server:** Shows the file available at the server (server directory).
- **Files at Client:** Shows the file available at the Client (Client directory).
- **Select Upload:** Uploads files present at the client to the server.
- **Select Download:** Downloads files present at the server to the client.
- **Disconnect Client:** Disconnects a connected client from server.
- **Close:** Safe closes the GUI.

Assumptions and Limitations

In Server.py:

- **s.listen(19)—Line 44--** 19 is set as the upper bound for the number of waiting clients. If Client number 20 tries to connect to server, server will reject Clients 20s' connection request.
- **split_data = data.split('\r')—Line 73—**The HTTP header is split by the character literal '\r'.
- **file_name_content = split_data[7].split('*')—Line 78—**File's name and content are split by the character literal '*' (asterik).
- Connected clients get displayed but an index error exception is generated when 'Connected Clients' button is clicked
- Clients get disconnected but an exception is generated when 'Disconnect Client' button is clicked.

In Client.py:

- Lines 141 to 147, and lines 219 to 225: Default HTTP header is used.

References: (Documented in the source code as well)

In Server.py:

https://www.python-course.eu/sys_module.php

<https://docs.python.org/2/library/thread.html>

<http://www.pythonforbeginners.com/os/pythons-os-module>

<https://www.binarytides.com/python-socket-programming-tutorial/>

<https://stackoverflow.com/questions/5104957/how-do-i-create-a-file-at-a-specific-path#>

<https://www.guru99.com/reading-and-writing-files-in-python.html#1>

In Client.py:

<https://en.wikipedia.org/wiki/Tkinter>

https://www.python-course.eu/sys_module.php

<http://www.pythonforbeginners.com/os/pythons-os-module>

<http://www.pythonforbeginners.com/requests/using-requests-in-python>

https://www.reddit.com/r/learnprogramming/comments/3vq0dm/python_how_can_i_print_text_out_in_the_gui_rather/

<http://effbot.org/tkinterbook/text.htm>

<https://www.binarytides.com/python-socket-programming-tutorial/>

<https://stackoverflow.com/questions/3207219/how-do-i-list-all-files-of-a-directory>

<https://stackoverflow.com/questions/4073468/how-do-i-get-a-selected-string-in-from-a-tkinter-text-box>

<https://stackoverflow.com/questions/28670835/python-socket-client-post-parameters>

https://en.wikipedia.org/wiki/List_of_HTTP_header_fields