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##

Utilization List:

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IDE - Pycharm version 2019.3.3

Programming Language - Python version 3.8

OS - Windows 10

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Requirements to Run & check the functionalities

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1. Download and Install Pycharm 2019.3.3 - from https://www.jetbrains.com/pycharm/download/#section=windows

2. Download and Install Python 3.8 - from https://www.python.org/downloads/

3. Create a new Project in Pycharm

4. Setup Pycharm with Python Interpreter:

    a) Go to settings > Projects > Project Interpreter - Select Python 3.8

5. Include header/packages

    a) Go to settings > Projects > '+' - add desired packages

        If not installed already install json, socket, threading, Tkinter packages for this project

REFERENCES:

Following videos/links/document links include Sockets, Client-Server Model, Multi-threading, Chat room, Broadcast messages, Multiclient chat system

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https://www.geeksforgeeks.org/simple-chat-room-using-python/

https://medium.com/swlh/lets-write-a-chat-app-in-python-f6783a9ac170

https://pythontips.com/2013/08/06/python-socket-network-programming/

https://github.com/attreyabhatt/Reverse-Shell/tree/master/Multi_Client%20(%20ReverseShell%20v2)

https://pythonprogramming.net/sockets-tutorial-python-3/

https://pythonprogramming.net/client-chatroom-sockets-tutorial-python-3/

https://pythonprogramming.net/client-chatroom-sockets-tutorial-python-3/

https://www.bogotobogo.com/python/python_network_programming_tcp_client_client_chat_client_chat_client_select.php

https://github.com/KetanSingh11/SimpleChatApp

https://github.com/naveensn/Naveen_GitRepo/commit/084a277eb29f46f122e17a43ee03074c5478c428

https://www.geeksforgeeks.org/python-get-key-from-value-in-dictionary/

https://www.geeksforgeeks.org/python-string-split/

Following videos/links/document links include tutorials, code snippets, widgets, buttons, multiple frames, syntax for TKINTER (GUI MODULE) Using Python

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https://www.geeksforgeeks.org/radiobutton-in-tkinter-python/

https://mail.python.org/pipermail/tutor/2009-October/072145.html

https://stackoverflow.com/questions/6919596/tkinter-radio-buttons-does-not-work-inside-function

https://stackoverflow.com/questions/35660342/radio-button-values-in-python-tkinter

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

https://stackoverflow.com/questions/47386185/how-to-create-multiple-checkbox-in-loop-using-tkinter

https://stackoverflow.com/questions/15306631/how-do-i-create-child-windows-with-python-tkinter

https://www.youtube.com/watch?v=IB6VkXJVf0Y

https://www.youtube.com/watch?v=qWnE-yp6wzU&t=163s

https://www.youtube.com/watch?v=_lSNIrR1nZU

##

How to Run the Code and check Functionalities

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1. Download the File.
2. Contents –
    a. READ_ME.pdf
    b. server.py
    c. client1.py
    d. client2.py
    e. client3.py
3. Open server.py, client1.py, client2.py, client3.py in the newly created project in Pycharm.
4. Check If all the headers are included in your IDE.
5. Go ahead and Run server.py first
    a. GUI Window for the server will be started.
    b. “Server started” – message will be displayed in the message listbox.
6. Run client1.py
    a. GUI Window for the client1 will be started.
    b. “Enter Username-” message will be displayed.
    c. Enter a username for the client1 (if the username is already in use by any other client then “username already exits please try another username” will be displayed. Use a different username for the client).
    d. Client will receive a welcome notification and the connection notification will be broadcasted to all the currently connected users.

    e. All buttons except “enter” button will be disabled until the client is registered.

7. Repeat Step 6 for both client2 and client3.
8. You can visualize the connections being made with the server in the Server GUI – “username connected” message and “Username Disconnected” message for any disconnections. And the active users list, Complete Usernames logs.
9. Go the Client1 –
    a. Click on messaging options and select either of the one (In the Popup GUI Window) – Unicast, Multicast or Broadcast and click OK to confirm.
    b. Double click on “Select User(s) ” button – (In the Popup GUI Window) select your intended recipients and hit confirm (one user for unicast, More than one user for multicast (if present)).
    c. If No username was selected an error message will popup for the user to select a username before send the message.
    d. After selecting your intended recipients – Click on “Send Message” - (In the Popup GUI Window) enter a brief text and press send message button and close the send message popup gui window & check for the message in the corresponding intended recipient (client GUI).
10. Similarly, check for all the three messaging options from all the three clients.
11. If you want to you can disconnect from the server using the disconnect button on the client gui & disconnection notification can be visualized on the server GUI and will also be broadcasted to the actively connected users. The username which disconnected will be removed from the active clients list.

12. This Chat system is a persistent one meaning a user can send messages to another user even if that user not online at the time of delivery. Every user can check for any messages stored for them in the message server once they comeback online which once seen will be deleted forever