

Assignment 4

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1. Write a client and server program using socket programming in python. To create a 1 to 1 chat application (threaded server and client)

Server Code:

```
import socket
import select
import sys
from _thread import *

server = socket.socket()

host='localhost'
port=9999

server.bind((host, port))

server.listen(100)

list_of_clients = []

def clientthread(conn, addr):

    conn.send("Welcome to this chatroom!".encode())

    while True:
        try:
            message = conn.recv(2048).decode()
            if message:
                if message == "quit":
                    conn.close()
                    print(addr[0]+"closed")
                    remove(conn)
                else:
                    print("<" + addr[0] + "> " + message)
                    message_to_send = "<" + addr[0] + "> " + message
                    broadcast(message_to_send, conn)
            else:
                remove(conn)
        except:
            continue

def broadcast(message, connection):
    for clients in list_of_clients:
```

```

        if clients!=connection:
            try:
                clients.send(message.encode())
            except:
                clients.close()
                remove(clients)

def remove(connection):
    if connection in list_of_clients:
        list_of_clients.remove(connection)

while True:

    conn, addr = server.accept()
    list_of_clients.append(conn)
    print(addr)

    print (addr[0] + " connected")

    start_new_thread(clientthread, (conn,addr))

conn.close()
server.close()

```

Client Code:

```

import socket
import select
import sys
import threading

class myThreadSend(threading.Thread):
    global s
    def __init__(self, threadID, name, counter):
        threading.Thread.__init__(self)
        self.threadID = threadID
        self.name = name
        self.counter = counter

    def run(self):
        msgSend(s)

class myThreadRecv(threading.Thread):
    global s
    def __init__(self, threadID, name, counter):
        threading.Thread.__init__(self)
        self.threadID = threadID
        self.name = name
        self.counter = counter

    def run(self):

```

```
msgRecv(s)
```

```
def msgRecv(s):
    while True:
        data = s.recv(2048).decode()
        print(data)
        if(data == "quit"):
            s.close()
            exit(0)

def msgSend(s):
    msg = input("")
    while msg:
        s.send(msg.encode())
        if(msg=="quit"):
            s.close()
            exit(0)
        msg = None

if __name__ == "__main__":
    s = socket.socket()

    host = 'localhost'
    port = 9999
    s.connect((host, port))

    while True:
        threadSend = myThreadSend(1, "ThreadSend", 1)
        threadRecv = myThreadRecv(2, "threadRecv", 2)

        threadSend.start()
        threadRecv.start()
        threadSend.join()
        threadRecv.join()

    s.close()
```

Output:

File Edit View Bookmarks Plugins Settings Help

Lab_4: python — Konsole

New Tab Split View

Lab_4: python

```
python xchat_serv1.py
('127.0.0.1', 45104)
127.0.0.1 connected
('127.0.0.1', 55026)
127.0.0.1 connected
<127.0.0.1> Hello all!
<127.0.0.1> Hi all
<127.0.0.1> How are you?
<127.0.0.1> I'm good, what about you?

```

Lab_4: python

```
python chat_cli.py
Welcome to this chatroom!
<127.0.0.1> Hello all!
Hi all
<127.0.0.1> How are you?
I'm good, what about you?

```

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Welcome to this chatroom!
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