

Name: Tanmay Vig

Roll No.: 19BCS061

Class: B. Tech 3rd year, 5th sem

Lab 10: Write a program to connect multiple clients to server.

Answer:

Source code:

Server:

```
import socket  
from datetime import datetime  
import os
```

```
HOST:str='127.0.0.1'
```

```
PORT:int=3000
```

```
thread_count:int=0
```

```
conn_list:list=[]
```

```
def chat(connection,add) -> None :
```

```
    while True:
```

```
        data = connection.recv(2048)
```

```
        if not data or data.decode() == "bye":
```

```
        break

    print("{} Client {}: ".format(datetime.now(),str(add[1])) + data.decode())

    connection.sendall(reply:=str.encode(input("{} Server: ".format(datetime.now()))))

    if reply=="bye":

        break

    connection.close()
```

with socket.socket(socket.AF_INET, socket.SOCK_STREAM) as s:

```
    s.bind((HOST, PORT))

    s.listen()

    while True:

        choice= int(input("Enter:\n 1. to add new client\n 2. to chat with client\n 0 to exit\n"))

        if(choice==1):

            conn,add =s.accept()

            print("Connected to:" + add[0]+":"+str(add[1])+" at "+str(datetime.now()))

            conn_list.append((conn,add))

            thread_count+=1

        elif(choice==2):

            if(len(conn_list)<1):

                print("no connections yet!")
```

```
    continue

    chat(conn_list[0][0],conn_list[0][1])

    conn_list.pop(0)

else:

    break
```

client:

```
import socket

from datetime import datetime
```

HOST:str='127.0.0.1'

PORT:int=3000

```
with socket.socket(socket.AF_INET,socket.SOCK_STREAM) as s:

    s.connect((HOST,PORT))

    while True:

        s.sendall(reply:=input("{} Client: ".format(datetime.now())).encode());

        if reply=="bye":

            break

        data=s.recv(1024)

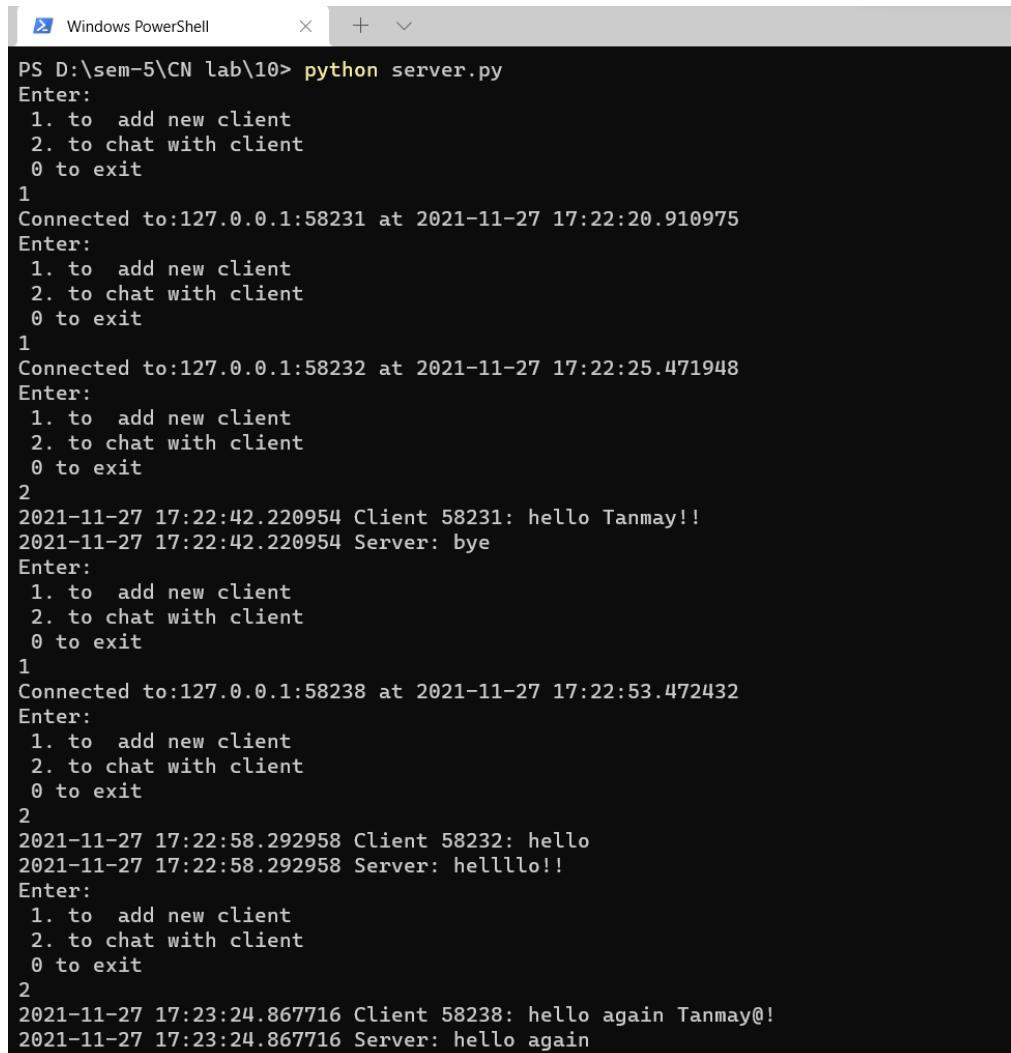
        if not data or data.decode()!="bye":
```

```
break
```

```
print("{} Server: ".format(datetime.now()) +data.decode())
```

Output:

Server:



A screenshot of a Windows PowerShell window titled "Windows PowerShell". The window shows the execution of a Python script named "server.py" located at "D:\sem-5\CN lab\10>". The script runs a server and handles multiple client connections. The log includes user input for menu selection, connection details, and client messages.

```
PS D:\sem-5\CN lab\10> python server.py
Enter:
1. to add new client
2. to chat with client
0 to exit
1
Connected to:127.0.0.1:58231 at 2021-11-27 17:22:20.910975
Enter:
1. to add new client
2. to chat with client
0 to exit
1
Connected to:127.0.0.1:58232 at 2021-11-27 17:22:25.471948
Enter:
1. to add new client
2. to chat with client
0 to exit
2
2021-11-27 17:22:42.220954 Client 58231: hello Tanmay!!
2021-11-27 17:22:42.220954 Server: bye
Enter:
1. to add new client
2. to chat with client
0 to exit
1
Connected to:127.0.0.1:58238 at 2021-11-27 17:22:53.472432
Enter:
1. to add new client
2. to chat with client
0 to exit
2
2021-11-27 17:22:58.292958 Client 58232: hello
2021-11-27 17:22:58.292958 Server: hellllo!!
Enter:
1. to add new client
2. to chat with client
0 to exit
2
2021-11-27 17:23:24.867716 Client 58238: hello again Tanmay@!
2021-11-27 17:23:24.867716 Server: hello again
```

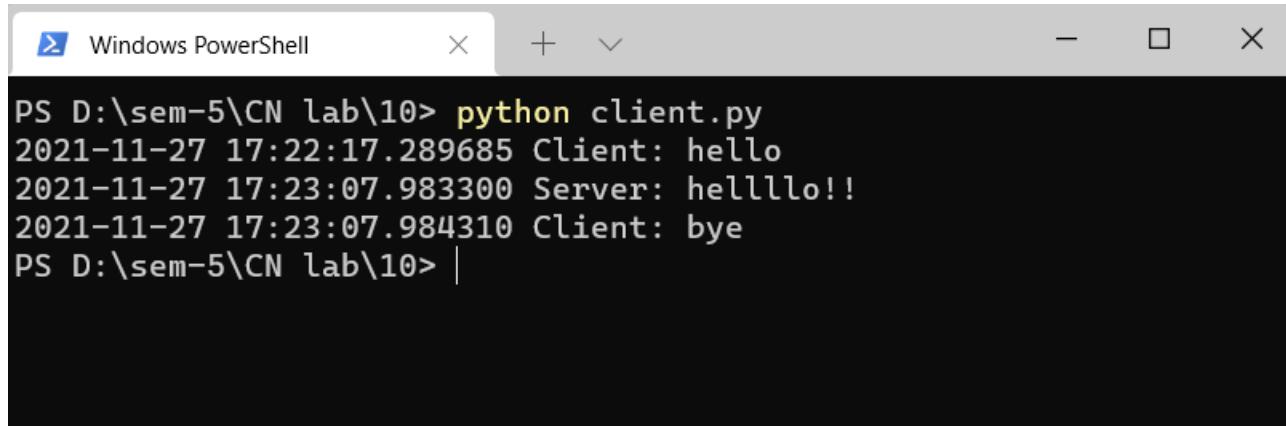
```
Windows PowerShell + < > 0 to exit  
1  
Connected to:127.0.0.1:58232 at 2021-11-27 17:22:25.471948  
Enter:  
1. to add new client  
2. to chat with client  
0 to exit  
2  
2021-11-27 17:22:42.220954 Client 58231: hello Tanmay!!  
2021-11-27 17:22:42.220954 Server: bye  
Enter:  
1. to add new client  
2. to chat with client  
0 to exit  
1  
Connected to:127.0.0.1:58238 at 2021-11-27 17:22:53.472432  
Enter:  
1. to add new client  
2. to chat with client  
0 to exit  
2  
2021-11-27 17:22:58.292958 Client 58232: hello  
2021-11-27 17:22:58.292958 Server: hellllo!!  
Enter:  
1. to add new client  
2. to chat with client  
0 to exit  
2  
2021-11-27 17:23:24.867716 Client 58238: hello again Tanmay@!  
2021-11-27 17:23:24.867716 Server: hello again  
Enter:  
1. to add new client  
2. to chat with client  
0 to exit  
0  
PS D:\sem-5\CN lab\10> |
```

Client:

1:

```
Windows PowerShell + < > PS D:\sem-5\CN lab\10> python client.py  
2021-11-27 17:22:12.705852 Client: hello Tanmay!!  
PS D:\sem-5\CN lab\10> python client.py  
2021-11-27 17:22:53.472432 Client: hello again Tanmay@!  
2021-11-27 17:23:32.828457 Server: hello again  
2021-11-27 17:23:32.828457 Client: bye  
PS D:\sem-5\CN lab\10> |
```

2:



A screenshot of a Windows PowerShell window titled "Windows PowerShell". The window shows a command being run and its output. The command is "PS D:\sem-5\CN lab\10> python client.py". The output consists of four lines of text: "2021-11-27 17:22:17.289685 Client: hello", "2021-11-27 17:23:07.983300 Server: hellllo!!", "2021-11-27 17:23:07.984310 Client: bye", and "PS D:\sem-5\CN lab\10> |". The window has standard operating system window controls at the top right.

```
PS D:\sem-5\CN lab\10> python client.py
2021-11-27 17:22:17.289685 Client: hello
2021-11-27 17:23:07.983300 Server: hellllo!!
2021-11-27 17:23:07.984310 Client: bye
PS D:\sem-5\CN lab\10> |
```