EXPERIMENT NO. 7

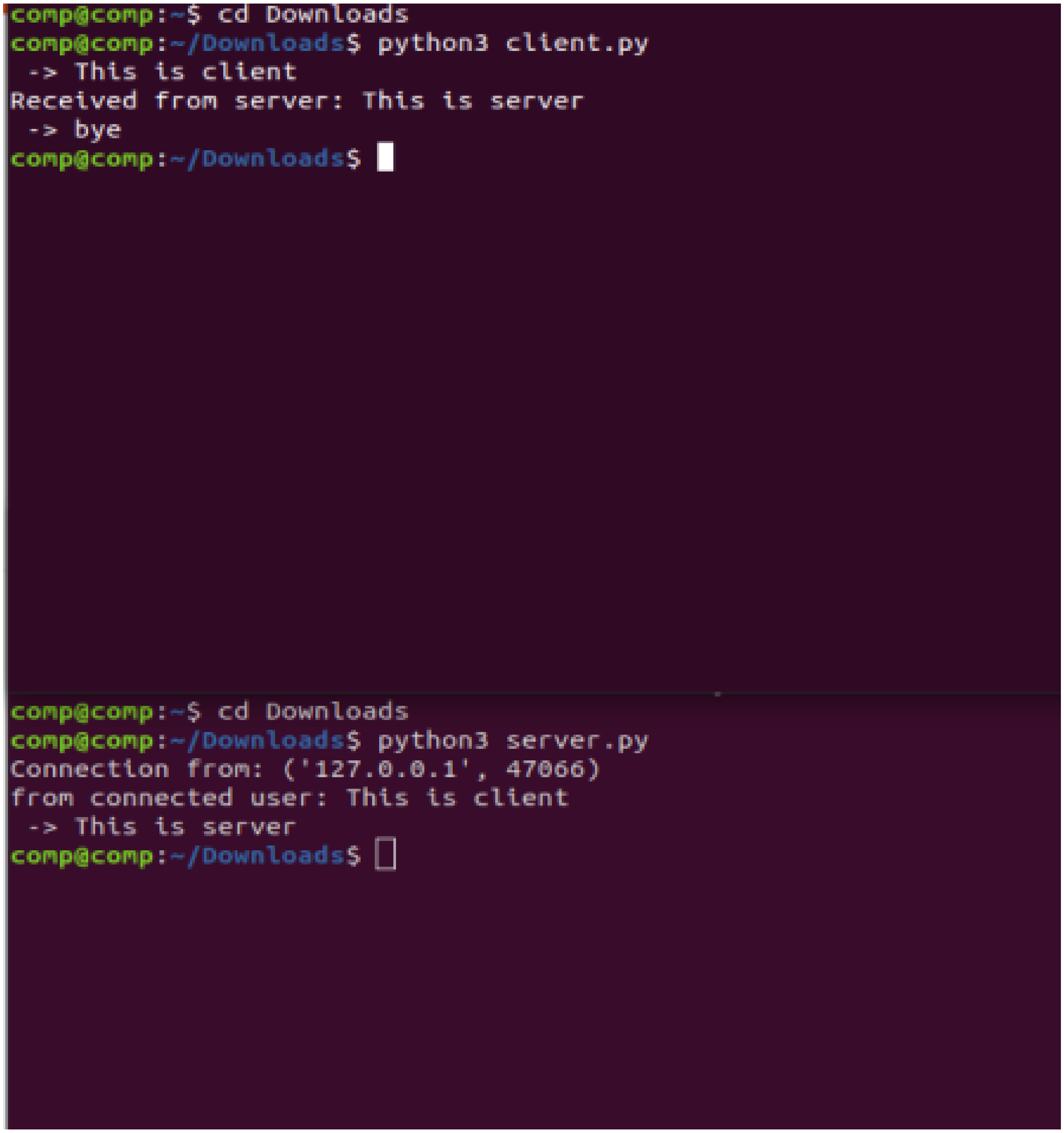
TCP Socket Connection -
TCP server :

```
import socket

def server_program():
    host = socket.gethostname()
    port = 5000

    server_socket = socket.socket()
    server_socket.bind((host, port))
    server_socket.listen(2)
    conn, address = server_socket.accept()
    print("Connection from: " + str(address))
    while True:
        data = conn.recv(1024).decode()
        if not data:
            break
        print("from connected user: " + str(data))
        data = input(' -> ')
        conn.send(data.encode())

    conn.close()


if __name__ == '__main__':
    server_program()
```

TCP client :

```
import socket


def client_program():
    host = socket.gethostname()
    port = 5000

    client_socket = socket.socket()
    client_socket.connect((host, port))

    message = input(" -> ")

    while message.lower().strip() != 'bye':
        client_socket.send(message.encode())
        data = client_socket.recv(1024).decode()

        print('Received from server: ' + data)
        message = input(" -> ")
    client_socket.close()


if __name__ == '__main__':
    client_program()
```

Output -



```
comp@comp:~$ cd Downloads
comp@comp:~/Downloads$ python3 client.py
 -> This is client
Received from server: This is server
 -> bye
comp@comp:~/Downloads$ 
```

```
comp@comp:~$ cd Downloads
comp@comp:~/Downloads$ python3 server.py
Connection from: ('127.0.0.1', 47066)
from connected user: This is client
 -> This is server
comp@comp:~/Downloads$ 
```

UDP Socket Connection -

UDP server :

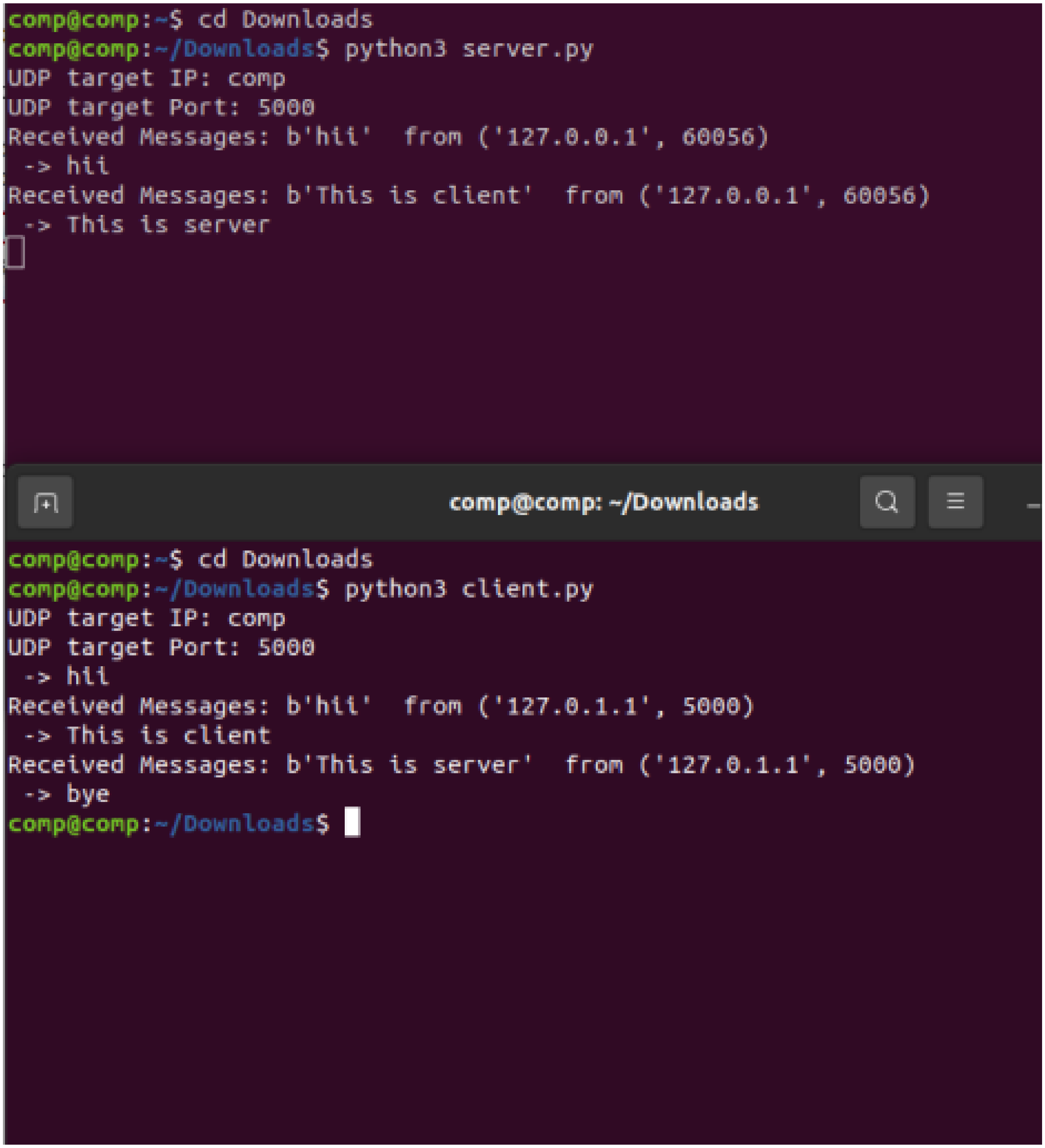
```
import socket

sock = socket.socket(socket.AF_INET,socket.SOCK_DGRAM)

udp_host = socket.gethostname()
udp_port = 5000
```

```
print ("UDP target IP:", udp_host)
print ("UDP target Port:", udp_port)
sock.bind((udp_host,udp_port))

while True:
    data,addr = sock.recvfrom(1024)
    print ("Received Messages:",data," from",addr)

    if not data:
    break
    data = input(" -> ")
    sock.sendto(data.encode(),addr)
sock.close()
```

UDP client :

```
import socket

sock = socket.socket(socket.AF_INET,socket.SOCK_DGRAM)

udp_host = socket.gethostname()
udp_port = 5000
print ("UDP target IP:", udp_host)
print ("UDP target Port:", udp_port)
message = input(" -> ")
while message.lower().strip() != 'bye':
    sock.sendto(message.encode(),(udp_host,udp_port))
    data,addr = sock.recvfrom(1024)

    print ("Received Messages:",data," from",addr)
    message = input(" -> ")
sock.close()
```

Output -



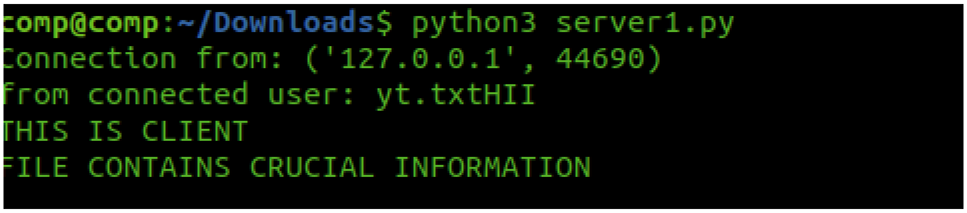
```
comp@comp:~$ cd Downloads
comp@comp:~/Downloads$ python3 server.py
UDP target IP: comp
UDP target Port: 5000
Received Messages: b'hii'  from ('127.0.0.1', 60056)
 -> hii
Received Messages: b'This is client'  from ('127.0.0.1', 60056)
 -> This is server
```

```
comp@comp:~$ cd Downloads
comp@comp:~/Downloads$ python3 client.py
UDP target IP: comp
UDP target Port: 5000
 -> hii
Received Messages: b'hii'  from ('127.0.1.1', 5000)
 -> This is client
Received Messages: b'This is server'  from ('127.0.1.1', 5000)
 -> bye
comp@comp:~/Downloads$ 
```

File Transfer in tcp:

Server side:

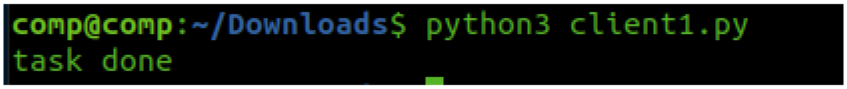
```
import socket
def server_program():
    host = socket.gethostname()
    port = 5000
    FORMAT = "utf-8"
    server_socket = socket.socket()
    server_socket.bind((host, port))
    server_socket.listen(2)
    conn, address = server_socket.accept()
    print("Connection from: " + str(address))
    while True:
        filename = conn.recv(1024).decode(FORMAT)
        if not filename:
            break
        print("from connected user: " + str(filename))
        file = open(filename, "w")
        data = conn.recv(1024).decode(FORMAT)
        file.write(data)
        file.close()
        data = input(' -> ')
        conn.send(data.encode())
    conn.close()

if __name__ == '__main__':
    server_program()
```



```
comp@comp:~/Downloads$ python3 server1.py
Connection from: ('127.0.0.1', 44690)
from connected user: yt.txtHII
THIS IS CLIENT
FILE CONTAINS CRUCIAL INFORMATION
```

Client Side:

```
import socket

def client_program():
    host = socket.gethostname()
    port = 5000
    FORMAT = "utf-8"
    client_socket = socket.socket()
    client_socket.connect((host, port))
    file = open("data.txt", "r")
    data = file.read()
    client_socket.send("yt.txt".encode(FORMAT))
    client_socket.send(data.encode(FORMAT))
    print("task done")

    file.close()
    client_socket.close()

if __name__ == '__main__':
    client_program()
```



```
comp@comp:~/Downloads$ python3 client1.py
task done
```