

Q1 UDP client

```
#!/usr/bin/env python3
import socket

sock = socket.socket(socket.AF_INET, socket.SOCK_DGRAM)
udp_host = socket.gethostname()
udp_port = 12345

msg = "My UDP Client message !!"
print("UDP target IP:", udp_host)
print("UDP target Port:", udp_port)

sock.sendto(msg.encode(), (udp_host, udp_port))

data, addr = sock.recvfrom(1024)
print("Server Sent: ", data.decode())
```

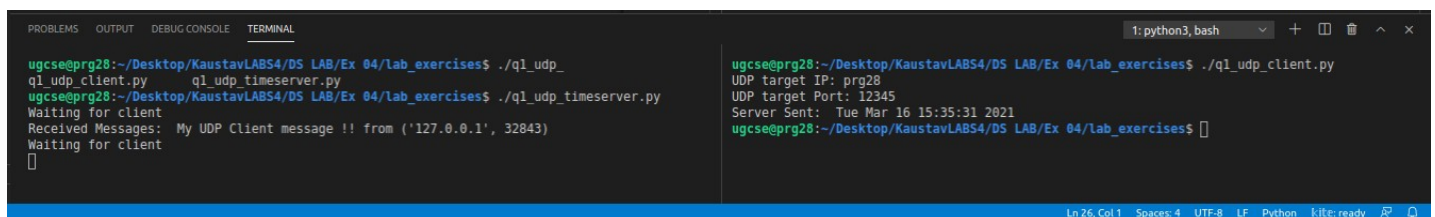
Q1 UDP Time Server

```
#!/usr/bin/env python3
import socket
import time

sock = socket.socket(socket.AF_INET, socket.SOCK_DGRAM)
udp_host = socket.gethostname()
# udp_host = "172.16.58.56"
udp_port = 12345

sock.bind((udp_host, udp_port))

while True:
    print("Waiting for client")
    data, address = sock.recvfrom(1024)
    currentTime = time.ctime(time.time())
    print("Received Messages: ", data.decode(), "from", address)
    sock.sendto(currentTime.encode(), address)
```



The screenshot shows a terminal window with two panes. The left pane shows the execution of the Q1 UDP client program, which sends a message to the server. The right pane shows the execution of the Q1 UDP time server program, which receives the message and responds with the current time. The terminal output is as follows:

```
ugcse@prg28:~/Desktop/KaustavLABS4/DS LAB/Ex 04/lab_exercises$ ./q1_udp_
q1_udp_client.py
ugcse@prg28:~/Desktop/KaustavLABS4/DS LAB/Ex 04/lab_exercises$ ./q1_udp_timeserver.py
Waiting for client
Received Messages: My UDP Client message !! from ('127.0.0.1', 32843)
Waiting for client
[]

ugcse@prg28:~/Desktop/KaustavLABS4/DS LAB/Ex 04/lab_exercises$ ./q1_udp_client.py
UDP target IP: prg28
UDP target Port: 12345
Server Sent: Tue Mar 16 15:35:31 2021
ugcse@prg28:~/Desktop/KaustavLABS4/DS LAB/Ex 04/lab_exercises$
```

Q2 UDP Chat Server

```
#!/usr/bin/env python3
import socket
import time

sock = socket.socket(socket.AF_INET, socket.SOCK_DGRAM)
udp_host = socket.gethostname()
udp_port = 12345

sock.bind((udp_host, udp_port))

while True:
    print("Waiting for client")
    data, address = sock.recvfrom(1024)

    print("Received Messages: ", data.decode(), "from", address)
    msg = str(input("Enter message to send to client: "))
    sock.sendto(msg.encode(), address)
```

Q2 UDP Client

```
#!/usr/bin/env python3
import socket

sock = socket.socket(socket.AF_INET, socket.SOCK_DGRAM)
udp_host = socket.gethostname()
udp_port = 12345

# msg = "My First UDP Client message !!"
print("UDP target IP:", udp_host)
print("UDP target Port:", udp_port)

while True:
    msg = str(input("Enter message to send to server: "))
    sock.sendto(msg.encode(), (udp_host, udp_port))

    data, addr = sock.recvfrom(1024)
    print("Received Messages: ", data.decode())
```

```
KeyBoardInterrupt
ugcse@prg28:~/Desktop/KaustavLABS4/DS LAB/Ex 04/lab_exercises$ ./q2_udp_chatserver.py
Waiting for client
Received Messages: message from client from ('127.0.0.1', 32864)
Enter message to send to client: message back from the server
Waiting for client
█
```

```
ugcse@prg28:~/Desktop/KaustavLABS4/DS LAB/Ex 04/lab_exercises$ ./q2_udp_client.py
UDP target IP: prg28
UDP target Port: 12345
Enter message to send to server: message from client
Received Messages: message back from the server
Enter message to send to server: █
```

Q3 Client

```
#!/usr/bin/env python3
import socket
HOST = '172.16.58.136'
PORT = 31624
s = socket.socket()
name = input(str("\nEnter your name: "))
print("\nTrying to connect to ", HOST, "(", PORT, ")\n")
s.connect((HOST, PORT))
print("Connected...\n")
s.send(name.encode())
s_name = s.recv(1024)
s_name = s_name.decode()
print(s_name, "has joined the chat room\nEnter [e] to exit chat room\n")
while True:
    message = s.recv(1024)
    message = message.decode()
    print(s_name, ":", message)
    message = input(str("Me : "))
    if message == "[e]":
        message = "Left chat room!"
        s.send(message.encode())
        print("\n")
        break
    s.send(message.encode())
```

Q3 Server

```
#!/usr/bin/env python3
import socket
HOST = '127.0.0.1'
PORT = 31621
s = socket.socket()
s.bind((HOST, PORT))
s.listen()
print("\nWaiting for incoming connections...\n")
conn, addr = s.accept()
print("Received connection from ", addr[0], "(", addr[1], ")\n")
s_name = conn.recv(1024)
s_name = s_name.decode()
print(s_name, "has connected to the chat room\nEnter [e] to exit chat room\n")
name = input(str("Enter your name: "))
conn.send(name.encode())
while True:
    message = input(str("Me : "))
    if message == "[e]":
        message = "Left chat room!"
        conn.send(message.encode())
        print("\n")
        break
    conn.send(message.encode())
    message = conn.recv(1024)
    message = message.decode()
    print(s_name, ":", message)
```

```
ugcse@prg28: ~/180905174/Week4
File Edit View Search Terminal Help
ugcse@prg28:~/180905174/Week4$ python3 Q3s.py
Waiting for incoming connections:
Received connection from 172.16.58.56 ( 36452 )
Kaustav Ghosh has connected to the chat room
Enter [e] to exit chat room

Enter your name: Nishkal
Me : hello
Kaustav Ghosh : hi there
Me : ok bye
█
```

```
ugcse@prg28:~/Desktop/KaustavLABS4/DS LAB/Ex 04/lab_exercises$ ./s3client.py
Enter your name: Kaustav Ghosh
Trying to connect to 172.16.58.136 ( 31624 )
Connected...
Nishkal has joined the chat room
Enter [e] to exit chat room

Nishkal : hello
Me : hi there
Nishkal : ok bye
Me : █
```

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