

Computer Network: Week 3

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Section: H

1) Write a python code snippet for echo client and echo server:

client.py

```
import socket

HOST = '127.0.0.1'

PORT = 12345

with socket.socket(socket.AF_INET, socket.SOCK_STREAM) as client_socket :
    client_socket.connect((HOST, PORT))

    message = "Hello, Server!" client_socket.sendall(message.encode())
    data = client_socket.recv(1024)

    print (f"Received from server: {data.decode()}")
```

server.py

```
import socket

HOST = '127.0.0.1'
PORT = 12345

with socket.socket(socket.AF_INET, socket.SOCK_STREAM) as server_socket:
    server_socket.bind((HOST, PORT))
    server_socket.listen()
    print(f"Server listening on {HOST}:{PORT}")
    conn, addr = server_socket.accept()
    with conn:
        print(f"Connected by {addr}")
        while True:
            data = conn.recv(1024)
            if not data:
                break
            conn.sendall(data)
```

- 2) Python code snippet for client server communication using TCP and UDP sockets tcpclient.py

tcpserver.py

```
import socket

HOST = '127.0.0.1'
PORT = 65432

with socket.socket(socket.AF_INET, socket.SOCK_STREAM) as server_socket:
    server_socket.bind((HOST, PORT))
    server_socket.listen()
    print(f"TCP Server listening on {HOST}:{PORT}")
    conn, addr = server_socket.accept()
    with conn:
        print(f"Connected by {addr}")
        while True:
            data = conn.recv(1024)
            if not data:
                break
            conn.sendall(b"TCP Server Response: " + data)
```

udpserver.py

```
import socket

HOST = '127.0.0.1'
PORT = 54321

with socket.socket(socket.AF_INET, socket.SOCK_DGRAM) as udp_server:
    udp_server.bind((HOST, PORT)) print(f"UDP Server listening on {HOST}:{PORT}")

data, addr = udp_server.recvfrom(1024) print(f"Received from {addr}: {data.decode()}") udp_server.sendto(b"UDP Server Response: " + data, addr)
```

udpclient.py

```
import socket

HOST = '127.0.0.1'
PORT = 54321

with socket.socket(socket.AF_INET, socket.SOCK_DGRAM) as udp_client:
    message = b"Hello UDP Server!"
    udp_client.sendto(message, (HOST, PORT)) data, _ =
    udp_client.recvfrom(1024)

print(f'Received from UDP Server: {data.decode()}')
```

Execution of codes:

```
• > python3 tcpserver.py
TCP Server listening on 127.0.0.1:65432
Connected by ('127.0.0.1', 54330)
• > python3 udpserver.py
UDP Server listening on 127.0.0.1:54321
Received from ('127.0.0.1', 57697): Hello UDP Server!
• > python3 server.py
Server listening on 127.0.0.1:12345
Connected by ('127.0.0.1', 45740)
Received from UDP Server: UDP Server Response: Hello UDP Server!
• > python3 udpclient.py
Received from UDP Server: UDP Server Response: Hello UDP Server!
• > python3 tcpclient.py
Received from TCP Server: TCP Server Response: Hello TCP Server!
• > python3 udpclient.py
Received from UDP Server: UDP Server Response: Hello UDP Server!
• > python3 client.py
Received from server: Hello Server!
```