Computer Networks Homework 1

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Setup

The goal is to create a very simple client and server network. We decided to do this in Python , because of the overall background knowledge of the group. We have written two programs which will run in separate terminals: a client script and a server script. We use the socket library to achieve this: After creating a socket object, pairing the socket with given network interface/port and connecting, the server side is listening and therefore able to receive data from the client. When the server actually receives this data it prints this data and echo's it back to the client side.

Server side

```python
import socket

HOST = "127.0.0.1"  # Standard loopback interface address (localhost)
PORT = 12345  # Port to listen on (non-privileged ports are > 1023)

with socket.socket(socket.AF_INET, socket.SOCK_STREAM) as sock:
    sock.bind((HOST, PORT)) #bind socket to address
    sock.listen() #Enable a server to accept connections
    #get socket, return address
    conn, addr = sock.accept() #
    with conn:
        print(f"Server connected to {addr}")
        while True:
            # receive data from socket:
            data = conn.recv(128)
            if not data:
                break
            # print received data
            print(f"Received {data!r}")
            # send data to socket:
            conn.sendall(data)
```

Client side

```python
import socket

HOST = "127.0.0.1"  # The server's IP address
PORT = 12345  # The port used by the server
```

```
with socket.socket(socket.AF_INET, socket.SOCK_STREAM) as sock: # create
socket object
    sock.connect((HOST, PORT)) # connect to server
    sock.sendall(b"Client is here.") # send message
    data = sock.recv(1024) # read servers reply

print(f"Received {data!r}") # print reply from server
```

How to run

1) Open windows terminal
2) Go to directory “homework1_ComputerNetworks”
3) Run “python server.py”
4) Open another windows terminal
5) Go to the same directory
6) Run “python client.py”