Python Network Chat Tutorial

Contents

Time required: 30 minutes

Objective: Write a cross platform Python script that creates a local area network chat server and client.

Install Python

Windows: If you have never used Python, please go to www.python.org. Install the latest version of Python.

Linux: Linux already has Python installed.

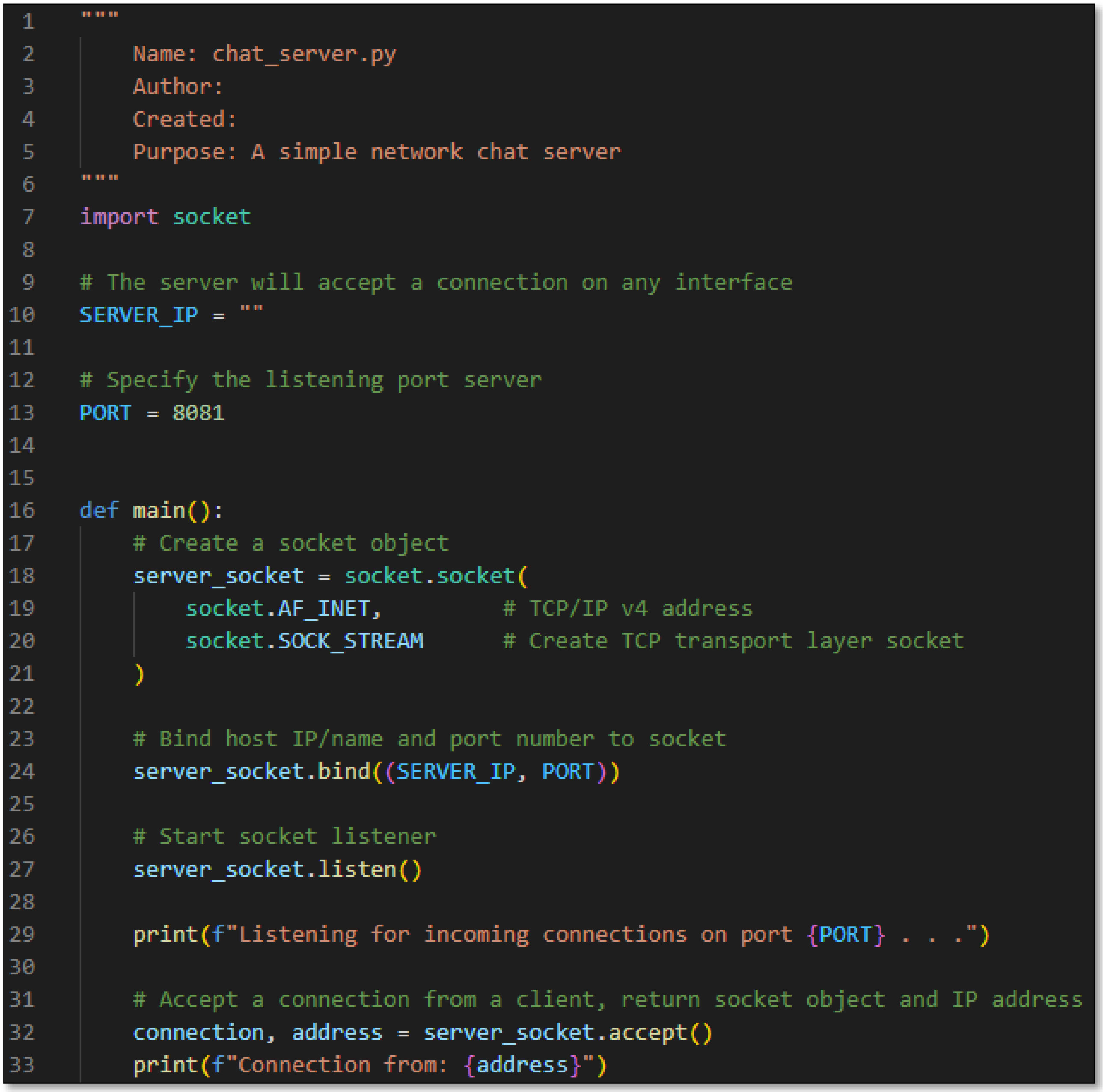
Network Chat Server

If you have previously completed Simple Network Client Server, start with those files.

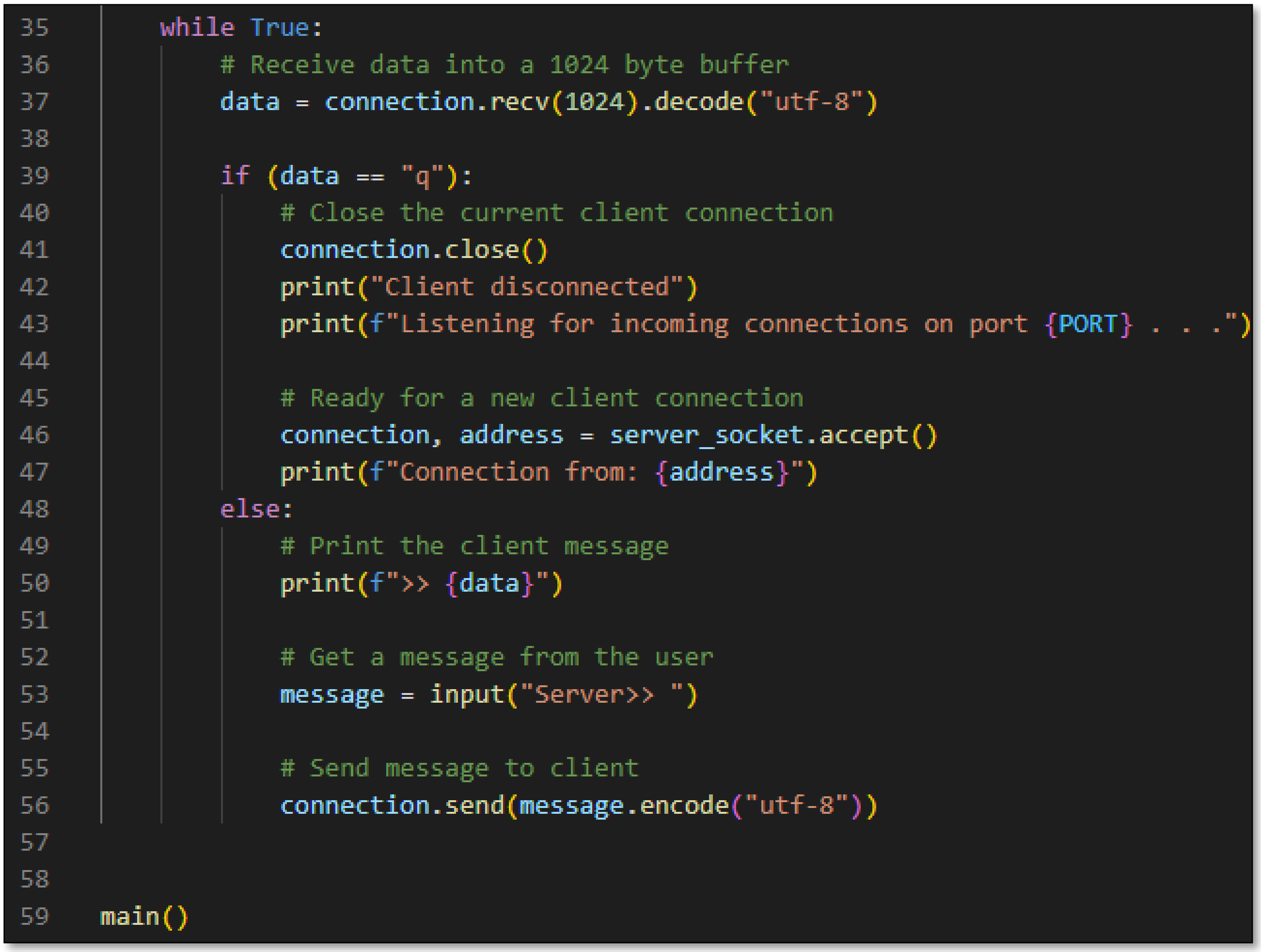
We are going to create a simple client server chat system.

Tutorial 1: Chat Server

1. Enter the following code including the comments



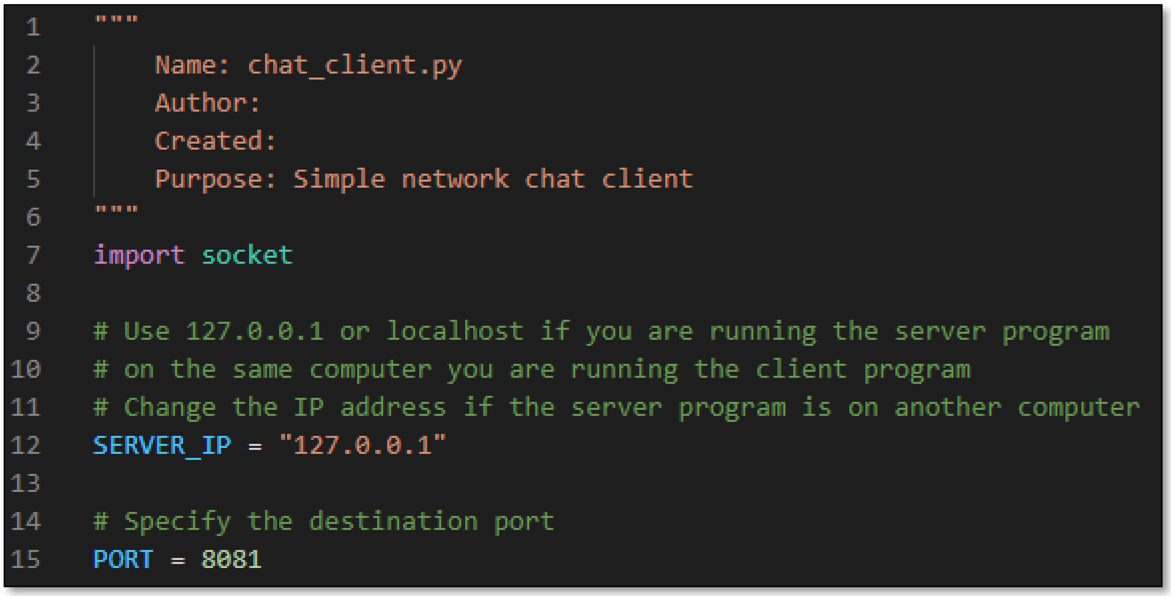
```python
"""
    Name: chat_server.py
    Author:
    Created:
    Purpose: A simple network chat server
"""
import socket

# The server will accept a connection on any interface
SERVER_IP = ""

# Specify the listening port server
PORT = 8081


def main():
    # Create a socket object
    server_socket = socket.socket(
        socket.AF_INET,         # TCP/IP v4 address
        socket.SOCK_STREAM      # Create TCP transport layer socket
    )

    # Bind host IP/name and port number to socket
    server_socket.bind((SERVER_IP, PORT))

    # Start socket listener
    server_socket.listen()

    print(f"Listening for incoming connections on port {PORT} . . .")

    # Accept a connection from a client, return socket object and IP address
    connection, address = server_socket.accept()
    print(f"Connection from: {address}")
```



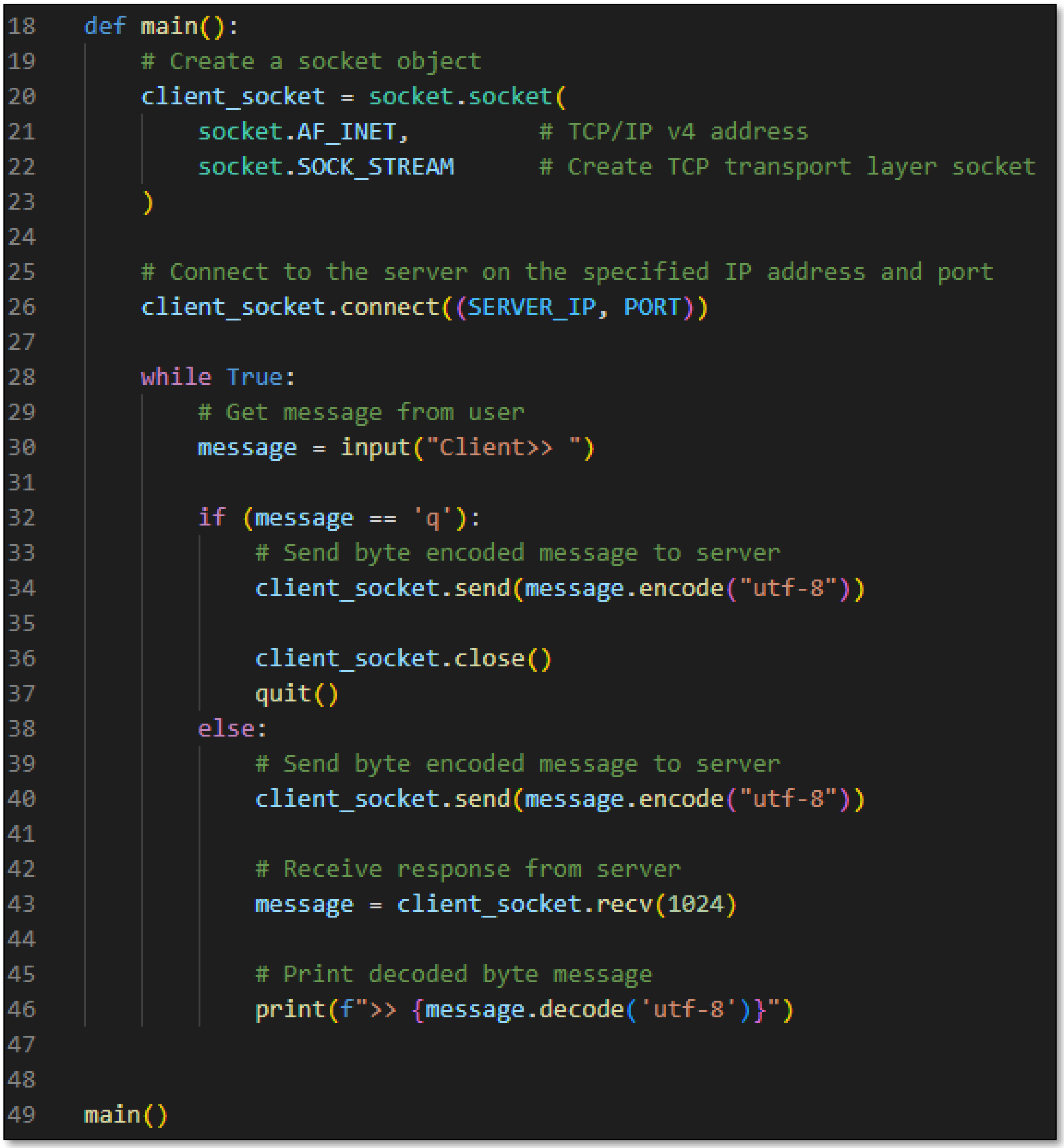
```python
    while True:
        # Receive data into a 1024 byte buffer
        data = connection.recv(1024).decode("utf-8")

        if (data == "q"):
            # Close the current client connection
            connection.close()
            print("Client disconnected")
            print(f"Listening for incoming connections on port {PORT} . . .")

            # Ready for a new client connection
            connection, address = server_socket.accept()
            print(f"Connection from: {address}")
        else:
            # Print the client message
            print(f">> {data}")

            # Get a message from the user
            message = input("Server>> ")

            # Send message to client
            connection.send(message.encode("utf-8"))


main()
```

Tutorial 2: Chat Client

Enter the following code.



```python
"""
    Name: chat_client.py
    Author:
    Created:
    Purpose: Simple network chat client
"""
import socket

# Use 127.0.0.1 or localhost if you are running the server program
# on the same computer you are running the client program
# Change the IP address if the server program is on another computer
SERVER_IP = "127.0.0.1"

# Specify the destination port
PORT = 8081
```



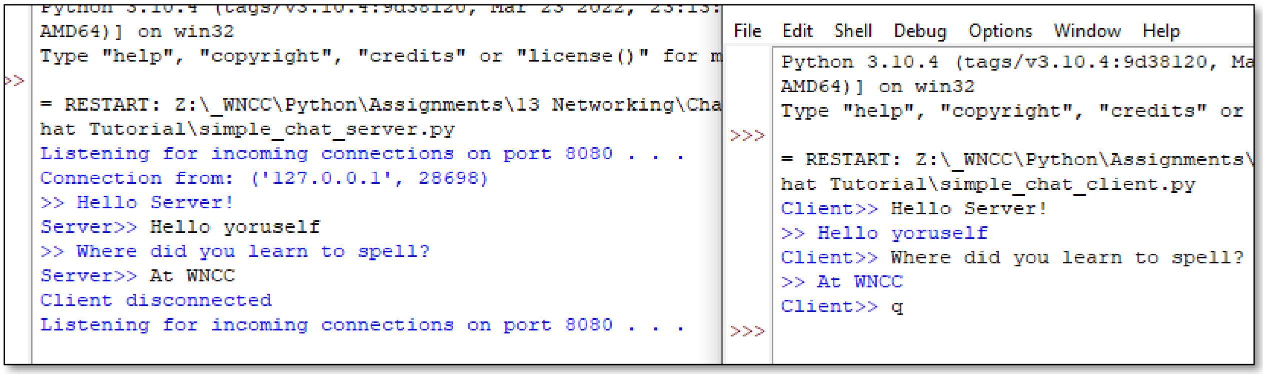
```python
def main():
    # Create a socket object
    client_socket = socket.socket(
        socket.AF_INET,          # TCP/IP v4 address
        socket.SOCK_STREAM       # Create TCP transport layer socket
    )

    # Connect to the server on the specified IP address and port
    client_socket.connect((SERVER_IP, PORT))

    while True:
        # Get message from user
        message = input("Client>> ")

        if (message == 'q'):
            # Send byte encoded message to server
            client_socket.send(message.encode("utf-8"))

            client_socket.close()
            quit()
        else:
            # Send byte encoded message to server
            client_socket.send(message.encode("utf-8"))

            # Receive response from server
            message = client_socket.recv(1024)

            # Print decoded byte message
            print(f">> {message.decode('utf-8')}")


main()
```

Assignment 1: Chat Time

1. Start the chat server.
2. Start the chat client.
3. Type a message in the client. It should show up in the server.
4. Type a message in the server. It should show up in the client.
5. Do this a few times.

6. Insert a screenshot with the assignment showing this conversation.

Example run:



```
Python 3.10.4 (tags/v3.10.4:9d38120, Mar 23 2022, 23:13:
AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for m
>>
= RESTART: Z:\_WNCC\Python\Assignments\13 Networking\Cha
hat Tutorial\simple_chat_server.py
Listening for incoming connections on port 8080 . . .
Connection from: ('127.0.0.1', 28698)
>> Hello Server!
Server>> Hello yoruself
>> Where did you learn to spell?
Server>> At WNCC
Client disconnected
Listening for incoming connections on port 8080 . . .
```

```
Python 3.10.4 (tags/v3.10.4:9d38120, Ma
AMD64)] on win32
Type "help", "copyright", "credits" or
>>>
= RESTART: Z:\_WNCC\Python\Assignments\
hat Tutorial\simple_chat_client.py
Client>> Hello Server!
>> Hello yoruself
Client>> Where did you learn to spell?
>> At WNCC
Client>> q
>>>
```

Assignment Submission

1. Attach the program files.

2. Attach screenshots showing the successful operation of the program.

3. Submit in Blackboard.