Institute of Computer Technology

B. Tech Computer Science and Engineering

Subject: (2CSE502) Computer Networking

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Branch: CSE (CS)

Class: A

Batch: 52

Practical 7

Aim: To implement Socket Programing

Scenario:

An organization named Albert Enterprise has established two departments for better performance of the company, as each department will be having some specific set of tasks to perform. So, this will reduce the time and increase the efficiency of the work. As both the departments are dependent on each other, they need to communicate more frequently. To solve the problem, the IT department has suggested the option to create a chat application using socket programming which will work only in the office premises. So, help the IT professionals to create the chat application.

Make sure that the application has the below mentioned features:

1) Department 1 will be set as the SERVER while department 2 will be set as a CLIENT device.

2) The message received by CLIENT or SERVER must be displayed with time stamp.

3) If any of the device irrespective of CLIENT or SERVER has sent the message that the “quit”, then connection should be closed on both the ends.

4) There is no restriction on the protocol selection, you can use UDP or TCP. Justify the reason for selection of the specific protocol.

Server:

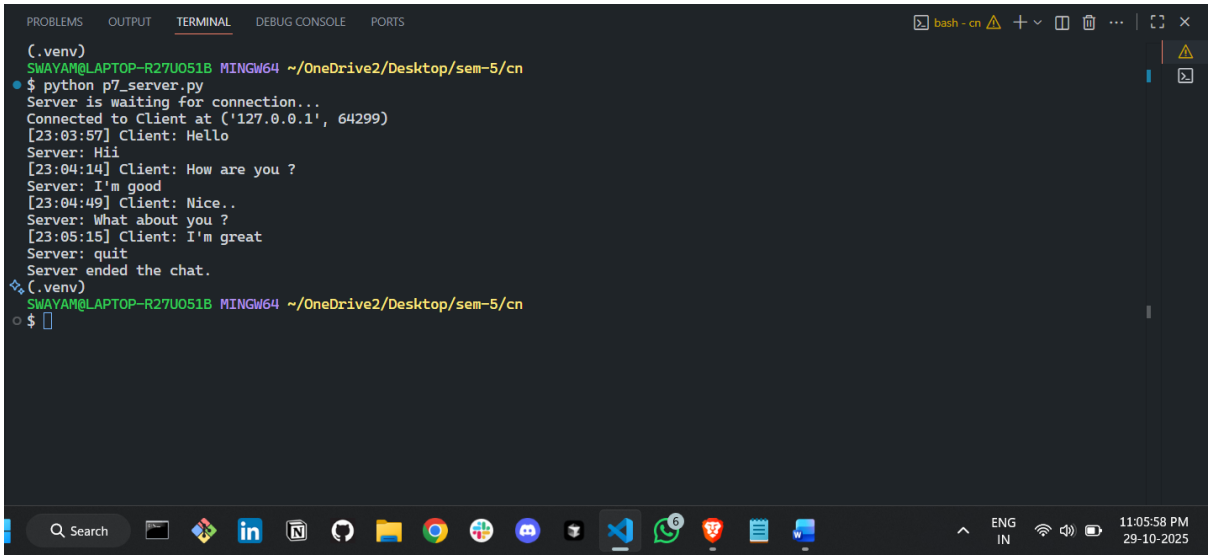
```
import socket
import datetime

# Create a TCP socket
server_socket = socket.socket(socket.AF_INET, socket.SOCK_STREAM)

# Bind to localhost and port
server_socket.bind(('localhost', 9999))

# Listen for connection
server_socket.listen(1)
print("Server is waiting for connection...")

# Accept connection from client
conn, addr = server_socket.accept()
print(f"Connected to Client at {addr}")

while True:
    # Receive message from client
    msg = conn.recv(1024).decode()
    time_stamp = datetime.datetime.now().strftime("%H:%M:%S")
    print(f"[{time_stamp}] Client: {msg}")

    # If client sends 'quit', end connection
    if msg.lower() == "quit":
        print("Client ended the chat.")
        break

    # Send reply
    reply = input("Server: ")
    conn.send(reply.encode())

    # If server sends 'quit', end connection
    if reply.lower() == "quit":
        print("Server ended the chat.")
        break

# Close connection
```

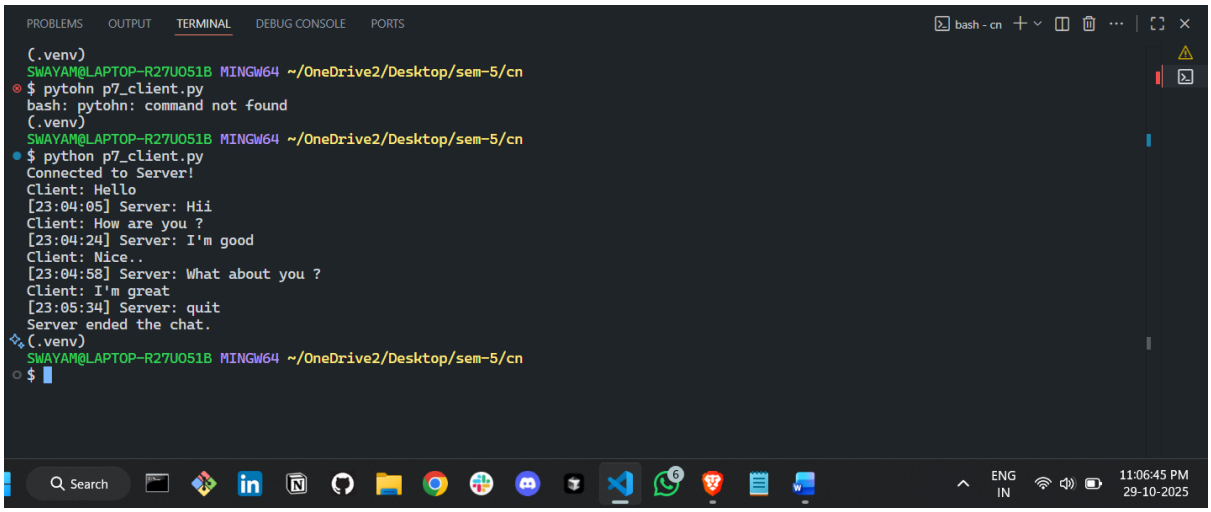
```
conn.close()
server_socket.close()
```

Client:

```
import socket
import datetime

# Create TCP socket
client_socket = socket.socket(socket.AF_INET, socket.SOCK_STREAM)

# Connect to server
client_socket.connect(('localhost', 9999))
print("Connected to Server!")

while True:
    # Send message to server
    msg = input("Client: ")
    client_socket.send(msg.encode())

    # If client sends 'quit', end connection
    if msg.lower() == "quit":
        print("Client ended the chat.")
        break

    # Receive reply from server
    reply = client_socket.recv(1024).decode()
    time_stamp = datetime.datetime.now().strftime("%H:%M:%S")
    print(f"[{time_stamp}] Server: {reply}")

    # If server sends 'quit', end connection
    if reply.lower() == "quit":
        print("Server ended the chat.")
        break

# Close connection
client_socket.close()
```

Output:


PROBLEMS
OUTPUT
TERMINAL
DEBUG CONSOLE
PORTS
bash - cn
(.venv)
SWAYAM@LAPTOP-R27U051B MINGW64 ~/OneDrive2/Desktop/sem-5/cn
$ python p7_server.py
Server is waiting for connection...
Connected to Client at ('127.0.0.1', 64299)
[23:03:57] Client: Hello
Server: Hii
[23:04:14] Client: How are you ?
Server: I'm good
[23:04:49] Client: Nice..
Server: What about you ?
[23:05:15] Client: I'm great
Server: quit
Server ended the chat.
(.venv)
SWAYAM@LAPTOP-R27U051B MINGW64 ~/OneDrive2/Desktop/sem-5/cn
$
Search
ENG
IN
11:05:58 PM
29-10-2025


PROBLEMS
OUTPUT
TERMINAL
DEBUG CONSOLE
PORTS
bash - cn
(.venv)
SWAYAM@LAPTOP-R27U051B MINGW64 ~/OneDrive2/Desktop/sem-5/cn
$ pytohn p7_client.py
bash: pytohn: command not found
(.venv)
SWAYAM@LAPTOP-R27U051B MINGW64 ~/OneDrive2/Desktop/sem-5/cn
$ python p7_client.py
Connected to Server!
Client: Hello
[23:04:05] Server: Hii
Client: How are you ?
[23:04:24] Server: I'm good
Client: Nice..
[23:04:58] Server: What about you ?
Client: I'm great
[23:05:34] Server: quit
Server ended the chat.
(.venv)
SWAYAM@LAPTOP-R27U051B MINGW64 ~/OneDrive2/Desktop/sem-5/cn
$
Search
ENG
IN
11:06:45 PM
29-10-2025