Institute of Computer Technology

B. Tech Computer Science and Engineering

Sub: Computer Networks

Course Code:-2CSE502

Sem-V(CS)

Class:-A

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.

Code:-

Server.py

```
import socket
import datetime

server_socket = socket.socket(socket.AF_INET, socket.SOCK_STREAM)
server_socket.bind(('localhost', 5000))
server_socket.listen(1)

print("Server started. Waiting for client connection...")
conn, addr = server_socket.accept()
print(f"Connected with {addr}")

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

    if msg.lower() == "quit":
        print("Client ended the chat.")
        conn.close()
        break

    reply = input("You: ")
    conn.send(reply.encode())

    if reply.lower() == "quit":
        print("You ended the chat.")
        conn.close()
        break
```

Client.py

```python
import socket
import datetime

client_socket = socket.socket(socket.AF_INET, socket.SOCK_STREAM)
client_socket.connect(('localhost', 5000))
print("Connected to the Server.\n")

while True:
    msg = input("You: ")
    client_socket.send(msg.encode())

    if msg.lower() == "quit":
        print("You ended the chat.")
        client_socket.close()
        break

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

    if reply.lower() == "quit":
        print("Server ended the chat.")
        client_socket.close()
        break
```

Output:-

```
PS C:\Desktop\SEM-V> & C:/Users/MANAN/AppData/Local/Programs/Python/Python313/python.exe c:/Desktop/SEM-V/CN/P7/server.py
Server started. Waiting for client connection...
Connected with ('127.0.0.1', 52700)
[12:33:59] Client: Hi
You: Hello bruh
[12:34:28] Client: Bas Badhiya aap bolo!
You: Hum bhi bus aapki kripa se badhiya hai
[12:35:06] Client: chalo me rakhta hu
You: bye bro
[12:35:15] Client: quit
Client ended the chat.
PS C:\Desktop\SEM-V>
```

```
PS C:\Desktop\SEM-V> & C:/Users/MANAN/AppData/Local/Programs/Python/Python313/python.exe c:/Desktop/SEM-V/CN/P7/client.py
Client: Connected to the Server.

You: Hi
[12:34:06] Server: Hello bruh
You: Bas Badhiya aap bolo!
[12:34:57] Server: Hum bhi bus aapki kripa se badhiya hai
You: chalo me rakhta hu
[12:35:11] Server: bye bro
You: quit
You ended the chat.
PS C:\Desktop\SEM-V>
```