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EXPT: 2 TCP CLIENT-SERVER COMMUNICATION USING SOCKET PROGRAMMING IN PYTHON

AIM:

To study and implement socket programming in Python for establishing communication between a client and a server using the TCP/IP protocol.

ALGORITHM:

SERVER ALGORITHM:

1. Start
2. Import the socket module.
3. Create a socket using socket(AF_INET, SOCK_STREAM).
4. Display “Socket Created”.
5. Bind the socket to a host (localhost) and port (55555).
6. Put the server into listening mode using listen().
7. Display “Waiting for connections”.
8. Repeat forever:
    - Accept a client connection using accept().
    - Receive message from client using recv().
    - Decode and display the received message.
    - Send the same message back to the client (echo).
    - Display confirmation message “reply sent”.
    - Ask user whether to continue (y/n).
    - If user enters **n**, exit the loop.
9. Close the server socket.
10. Stop

CLIENT ALGORITHM:

1. Start
2. Import the socket module.
3. Create a socket using socket(AF_INET, SOCK_STREAM).
4. Connect to the server using hostname localhost and port 55555.
5. Accept message input from the user.
6. Send the message to the server using send().
7. Receive the server's reply using recv().
8. Display the message received from the server.
9. Close the client socket.
10. Stop

CODE:

SERVER:

```
import socket
sockfd=socket.socket(socket.AF_INET, socket.SOCK_STREAM)
print('Socket Created')
sockfd.bind(('localhost',55555))
sockfd.listen(3)
print('Waiting for connections')
while True:
    clientfd,addr=sockfd.accept()
    receivedMsg=clientfd.recv(1024).decode()
    print("Connected with ",addr)
    print("Message Received from Client: ",receivedMsg)
    clientfd.send(bytes(receivedMsg,'utf-8'))
    print("Message reply sent to Client!")
    print("Do you want to continue(type y or n):")
```

```
    choice=input()
    if choice=='n':
        break
```

CLIENT:

```
import socket
clientfd=socket.socket(socket.AF_INET, socket.SOCK_STREAM)
clientfd.connect(('localhost',55555))
name=input("Enter your message:")
clientfd.send(bytes(name,'utf-8'))
print("Message Received from Server: ",clientfd.recv(1024).decode())
```

OUTPUT:

```
========== RESTART: C:/Users/Mahalaxmi/OneDrive/Desktop/expt2_server.py ==========
Socket Created
Waiting for connections
Connected with  ('127.0.0.1', 55128)
Message Received from Client:  HELLO
Message reply sent to Client!
Do you want to continue(type y or n):
y
Connected with  ('127.0.0.1', 55129)
Message Received from Client:  BYE
Message reply sent to Client!
Do you want to continue(type y or n):
n
```

```
C:\Users\Mahalaxmi\OneDrive\Desktop>python expt2_client.py
Enter your message:HELLO
Message Received from Server:  HELLO

C:\Users\Mahalaxmi\OneDrive\Desktop>python expt2_client.py
Enter your message:BYE
Message Received from Server:  BYE

C:\Users\Mahalaxmi\OneDrive\Desktop>
```

RESULT:

The implementation of socket programming in Python was successfully executed. A TCP connection was established between the client and the server, enabling successful message exchange.