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## EXERCISE 3

### UDP CLIENT-SERVER COMMUNICATION USING SOCKET PROGRAMMING IN PYTHON

#### AIM:

To implement UDP client-server communication using socket programming in Python.

#### ALGORITHM:

##### SERVER:

1. Create a socket using `socket.socket()`.
2. Bind the socket to IP and port using `bind()`.
3. Receive message using `recvfrom ()`.
4. Send response using `sendto ()`.
5. Close connection.

##### CLIENT:

1. Create a socket using `socket.socket()`.
2. Send a message to the server using `sendto ()`.
3. Receive response using `recvform ()`.
4. Close connection.

**CODE:**SERVER:

```
import socket

sockfd = socket.socket(socket.AF_INET, socket.SOCK_DGRAM)

print("UDP Socket Created")

sockfd.bind(('localhost', 55555))

print("Waiting for messages on localhost:55555")

while True:

    data, addr = sockfd.recvfrom(1024)

    message = data.decode('utf-8')

    print(f"Received from {addr}: {message}")

    sockfd.sendto(data, addr)

    print(f"Echoed back to {addr}")

    choice = input("Continue receiving? (y/n): ")

    if choice.lower() == 'n':

        break

sockfd.close()

print("Server shutdown")
```

CLIENT:

```
import socket

clientfd = socket.socket(socket.AF_INET, socket.SOCK_DGRAM)

server_addr = ('localhost', 55555)

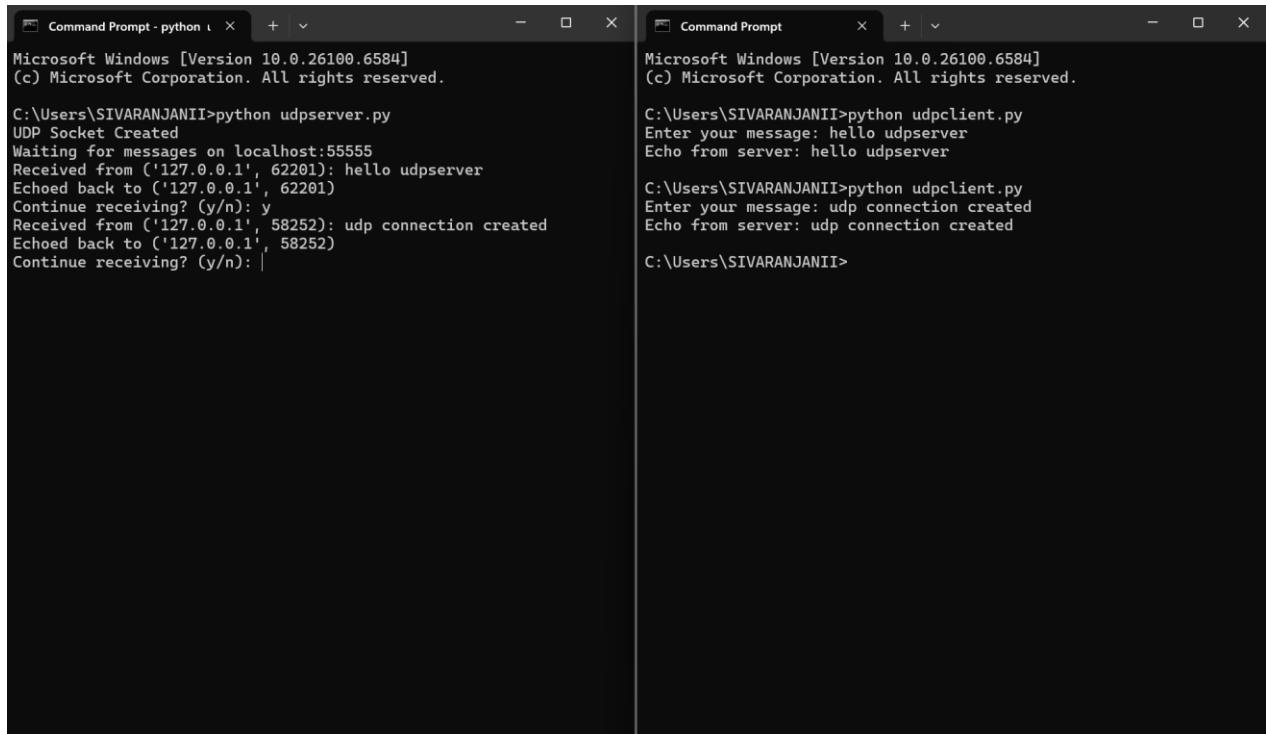
msg = input("Enter your message: ")

clientfd.sendto(msg.encode('utf-8'), server_addr)

data, _ = clientfd.recvfrom(1024)
```

```
print("Echo from server:", data.decode('utf-8'))  
  
clientfd.close()
```

### OUTPUT:



The image displays two side-by-side Windows Command Prompt windows. The left window shows the execution of a Python script named `udpserver.py`. It outputs the following text: `Microsoft Windows [Version 10.0.26100.6584]  
(c) Microsoft Corporation. All rights reserved.  
  
C:\Users\SIVARANJANII>python udpserver.py  
UDP Socket Created  
Waiting for messages on localhost:55555  
Received from ('127.0.0.1', 62201): hello udpserver  
Echoed back to ('127.0.0.1', 62201)  
Continue receiving? (y/n): y  
Received from ('127.0.0.1', 58252): udp connection created  
Echoed back to ('127.0.0.1', 58252)  
Continue receiving? (y/n): |`. The right window shows the execution of a Python script named `udpclient.py`. It outputs the following text: `Microsoft Windows [Version 10.0.26100.6584]  
(c) Microsoft Corporation. All rights reserved.  
  
C:\Users\SIVARANJANII>python udpclient.py  
Enter your message: hello udpserver  
Echo from server: hello udpserver  
  
C:\Users\SIVARANJANII>python udpclient.py  
Enter your message: udp connection created  
Echo from server: udp connection created  
  
C:\Users\SIVARANJANII>`.

### RESULT:

Thus, UDP client-server communication was successfully implemented using Python.