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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: ")

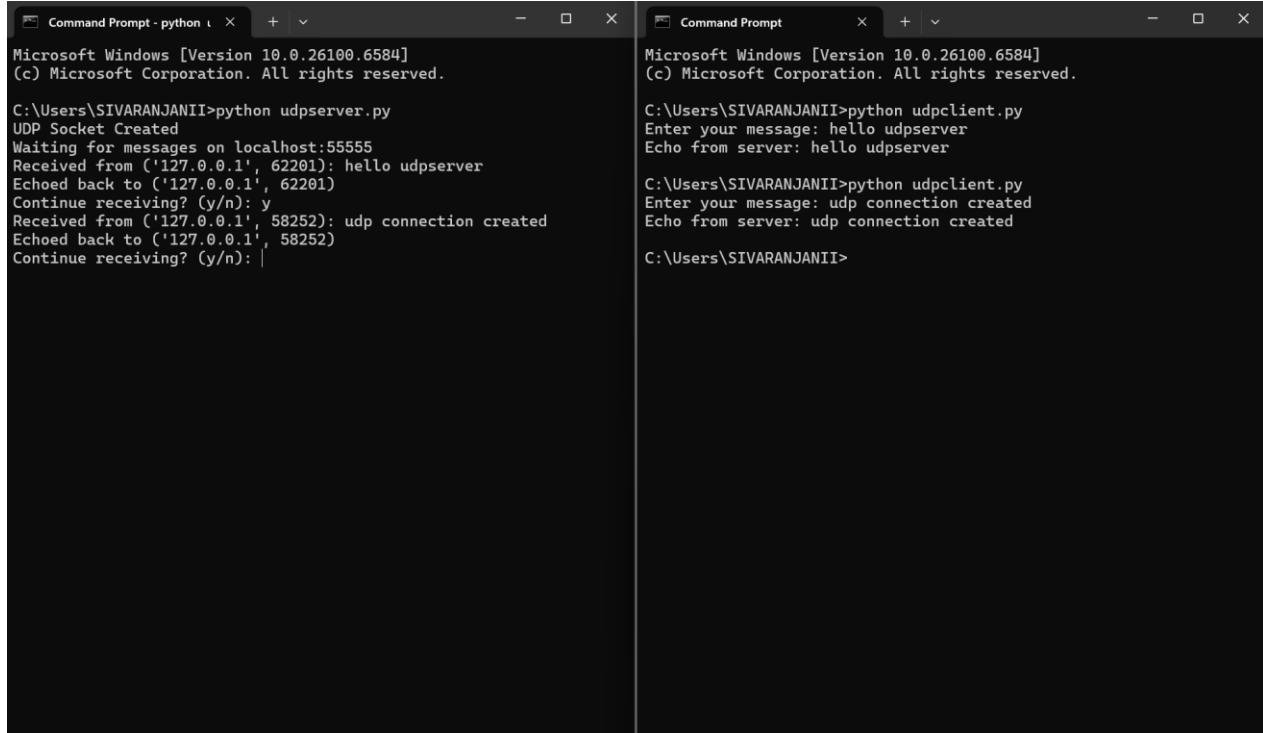
clientfd.sendto(msg.encode('utf-8'), server_addr)

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

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

```
clientfd.close()
```

OUTPUT:



The image shows two Microsoft Windows Command Prompt windows side-by-side. The left window, titled 'Command Prompt - python', displays the output of a UDP server application. It starts with the Windows version information, then shows the command 'python udpserver.py' being run. The server creates a UDP socket and listens on localhost:55555. It receives a message from ('127.0.0.1', 62201) containing 'hello udpserver', echoes it back, and continues to receive messages. The right window, also titled 'Command Prompt', shows the output of a UDP client application. It runs 'python udpclient.py', prompts for a message ('Enter your message:'), and sends 'hello udpserver'. The server responds with 'Echo from server: hello udpserver'. The client then runs another instance of 'python udpclient.py', sends 'udp connection created', and receives the server's response 'Echo from server: udp connection created'.

```
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): |
```

```
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.