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EXPT: 3 UDP CLIENT-SERVER COMMUNICATION USING SOCKET PROGRAMMING IN PYTHON

Aim:

To build a basic UDP client and server using Python's socket module and enable message transfer between them.

Algorithm:

1. **Server:**
   - Create a UDP socket and bind it to a specific IP address and port number.
   - Wait for data from the client.
   - Receive the message, display it, and send a reply if needed.
2. **Client:**
   - Create a UDP socket.
   - Send a message to the server using its IP and port.
   - Receive the server's response and print it.

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')
while True:
    data, addr = sockfd.recvfrom(1024)
    receivedMsg = data.decode()
    print("Received message from", addr)
    print("Message:", receivedMsg)
       # Send the same message back to client
    sockfd.sendto(data, addr)
    print("Message reply sent to Client!")
    choice = input("Do you want to continue (type y or n): ")
    if choice == 'n':
        break
sockfd.close()
```

Client:

```
import socket
clientfd = socket.socket(socket.AF_INET, socket.SOCK_DGRAM)
server_address = ('localhost', 55555)
name = input("Enter your message: ")
clientfd.sendto(name.encode(), server_address)
data, _ = clientfd.recvfrom(1024)
print("Message Received from Server:", data.decode())
clientfd.close()
```

Output:

Server:

```
PS H:\bala> python .\UDP_s.py
UDP Socket Created
Waiting for messages
Received message from ('127.0.0.1', 52807)
Message: This is balamurugan
Message reply sent to Client!
Do you want to continue (type y or n): n
```

Client:

```
PS H:\bala> python .\UDP_c.py
Enter your message: This is balamurugan
Message Received from Server: This is balamurugan
```

Result:

The UDP program worked properly. The client sent messages to the server, and the server received them and sent back responses successfully.