8. Develop a program on a datagram socket for client/server to display the messages on client side, typed at the server side.

UdpServer.java

```
import java.io.IOException;
import java.net.DatagramPacket;
import java.net.DatagramSocket;
import java.net.InetAddress;
import java.io.BufferedReader;
import java.io.InputStreamReader;

public class UdpServer {
   public static void main(String[] args) throws IOException {
      // Step 1: Create DatagramSocket to listen on port 4000
      DatagramSocket datagramSocket = new DatagramSocket(4000);
      System.out.println("Server ready for connection...");
      System.out.println("Waiting for the message...");

      byte[] receiveData = new byte[1024];
      byte[] sendData;

      while (true) {
         // Step 2: Receive packet from client
         DatagramPacket receivePacket = new DatagramPacket(receiveData, receiveData.length);
         datagramSocket.receive(receivePacket);

         String clientData = new String(receivePacket.getData(), 0, receivePacket.getLength());
         System.out.println("Client data: " + clientData);

         // Step 3: Get client address and port
         InetAddress clientIPAddress = receivePacket.getAddress();
         int port = receivePacket.getPort();

         // Step 4: Read server's reply from keyboard
         System.out.print("Enter the data to send to client: ");
         BufferedReader scan = new BufferedReader(new InputStreamReader(System.in));
         String dataToSend = scan.readLine();

         // Step 5: Send reply to client
         sendData = dataToSend.getBytes();
         DatagramPacket toSendToClient = new DatagramPacket(sendData, sendData.length,
clientIPAddress, port);
         datagramSocket.send(toSendToClient);
      }
   }
}
```

UdpClient.java

```
import java.io.IOException;
import java.net.DatagramPacket;
import java.net.DatagramSocket;
import java.net.InetAddress;
import java.net.SocketException;
import java.io.BufferedReader;
import java.io.InputStreamReader;
import java.net.UnknownHostException;

public class UdpClient {
   public static void main(String[] args) throws SocketException, UnknownHostException, IOException
{
      byte[] sendData = new byte[1024];
      byte[] receiveData = new byte[1024];

      while (true) {
         // Step 1: Create socket for sending and receiving
         DatagramSocket mySocket = new DatagramSocket();

         // Step 2: Read input from user
         System.out.print("Enter the data: ");
         BufferedReader informUser = new BufferedReader(new InputStreamReader(System.in));
         String data = informUser.readLine();

         // Step 3: Convert input string to bytes
         sendData = data.getBytes();

         // Step 4: Get server IP address
         InetAddress myIP = InetAddress.getByName("localhost");

         // Step 5: Create packet to send to server
         DatagramPacket sendPacket = new DatagramPacket(sendData, sendData.length, myIP, 4000);
         mySocket.send(sendPacket);

         // Step 6: Receive packet from server
         DatagramPacket receivePacket = new DatagramPacket(receiveData, receiveData.length);
         mySocket.receive(receivePacket);

         // Step 7: Display server response
         String dataToDisplay = new String(receivePacket.getData(), 0, receivePacket.getLength());
         System.out.println("From Server: " + dataToDisplay);

         // Step 8: Close socket
         mySocket.close();
      }
   }
}
```