

UDPClient

```
import java.io.*;
import java.net.*;
public class UDPClient {
    public static void main(String[] args) throws Exception {
        BufferedReader inFromUser = new BufferedReader(new InputStreamReader(System.in));
        DatagramSocket clientSocket = new DatagramSocket();
        InetAddress IPAddress = InetAddress.getByName("localhost");
        byte[] sendData = new byte[1024];
        byte[] receiveData = new byte[1024];

        System.out.print("Enter a Number: ");
        String number = inFromUser.readLine();
        sendData = number.getBytes();

        DatagramPacket sendPacket = new DatagramPacket(sendData, sendData.length, IPAddress, 9876);
        clientSocket.send(sendPacket);

        DatagramPacket receivePacket = new DatagramPacket(receiveData, receiveData.length);
        clientSocket.receive(receivePacket);

        String modifiedString = new String(receivePacket.getData(), 0, receivePacket.getLength());
        System.out.println("FROM SERVER: " + modifiedString);

        clientSocket.close();
    }
}
```

OUTPUT of UDPClient

C:\VS Code\Java>java UDPClient

Enter a Number: 5

FROM SERVER: Factorial of 5 is 120

C:\VS Code\Java>java UDPClient

Enter a Number: 4

FROM SERVER: Factorial of 4 is 24

UDPServer

```
import java.net.*;
class UDPServer {
    public static void main(String[] args) throws Exception {
        DatagramSocket serverSocket = new DatagramSocket(9876);
        byte[] receiveData = new byte[1024];
        byte[] sendData;

        while (true) {
            DatagramPacket receivePacket = new DatagramPacket(receiveData, receiveData.length);
            serverSocket.receive(receivePacket);
            String num = new String(receivePacket.getData(), 0, receivePacket.getLength()).trim();
            System.out.println("Received: " + num);

            String response;
            try {
                int number = Integer.parseInt(num);
                int factorial = calculateFactorial(number);
                response = "Factorial of " + number + " is " + factorial;
            } catch (NumberFormatException e) {
                response = "Invalid input. Please send a valid integer.";
            }

            sendData = response.getBytes();
            InetAddress IPAddress = receivePacket.getAddress();
            int port = receivePacket.getPort();
            DatagramPacket sendPacket = new DatagramPacket(sendData, sendData.length, IPAddress, port);
            serverSocket.send(sendPacket);
            System.out.println("RESPONSE SEND TO CLIENT SUCCESSFULLY");
        }
    }

    static int calculateFactorial(int num) {
        if (num < 0) return -1;
        int fact = 1;
        for (int i = 1; i <= num; i++)
            fact *= i;
        return fact;
    }
}
```

OUTPUT of UDPServer

C:\VS Code\Java>java UDPServer

Received: 5

RESPONSE SEND TO CLIENT SUCCESSFULLY

Received: 4

RESPONSE SEND TO CLIENT SUCCESSFULLY