1. **Write a socket programming using Java to implement echo server and echo client for both TCP and UDP.**

**day8/TCP/EchoServer.java**

import java.io.\*;

import java.net.\*;

import java.util.\*;

public class EchoServer

{

public static void main(String args[]) throws Exception

{

ServerSocket sersock = null;

String line;

Scanner is=null;

PrintStream os=null;

Socket clisock = null;

try

{

sersock = new ServerSocket(1342);

}

catch (IOException e)

{

System.out.println(e);

}

//(Optional)To confirm Server Reserved specified port or not

System.out.println("The Server has reserved port No.: "+sersock.getLocalPort()+" for this Service");

try

{

clisock = sersock.accept();

//To confirm Server communicated through the socket or not

System.out.println("Client with IP Address "+clisock.getInetAddress());

is = new Scanner(clisock.getInputStream());

os = new PrintStream(clisock.getOutputStream());

// we receive data, echo that data back to the client

line = is.nextLine();

os.println(line);

}

catch (IOException e)

{

System.out.println(e);

}

sersock.close();

clisock.close();

is.close();

os.close();

}

}

/\* OUTPUT -

The Server has reserved port No.: 1342 for this Service

Client with IP Address /127.0.0.1

\*/

**day8/TCP/EchoClient.java**

import java.net.Socket;

import java.util.Scanner;

import java.io.PrintStream;

public class EchoClient

{

public static void main(String args[]) throws Exception

{

String msgToServer, msgFromServer;

Socket clisock = new Socket("127.0.0.1", 1342);

//(Optional) To confirm Client is communicating through the port

System.out.println("Client "+clisock.getInetAddress()+" is communicating with port No.: "+clisock.getPort());

Scanner s1 = new Scanner(System.in);

System.out.println("Greet the Server...\n");

msgToServer=s1.nextLine();

PrintStream p = new PrintStream(clisock.getOutputStream());

p.println(msgToServer);

Scanner s2 = new Scanner(clisock.getInputStream());

msgFromServer=s2.nextLine();

System.out.println(msgFromServer);

clisock.close();

s1.close();

s2.close();

p.close();

}

}

/\* OUTPUT -

The Server has reserved port No.: 1342 for this Service

Client with IP Address /127.0.0.1

\*/

**day8/UDP/EchoServer.java**

import java.net.\*;

public class EchoServer {

public static void main(String[] args) throws Exception {

DatagramSocket ss = new DatagramSocket(1234);

while (true) {

System.out.println("Server is up....");

byte[] rd = new byte[100];

byte[] sd = new byte[100];

DatagramPacket rp = new DatagramPacket(rd, rd.length);

ss.receive(rp);

InetAddress ip = rp.getAddress();

int port = rp.getPort();

sd = rp.getData();

DatagramPacket sp = new DatagramPacket(sd, sd.length, ip, port);

ss.send(sp);

rp = null;

System.out.println("Done !! ");

}

}

}

/\* OUTPUT -

Server Time >>>>

Greet the Server...

hi

hi

\*/

**day8/UDP/EchoClient.java**

import java.net.\*;

import java.util.Scanner;

public class EchoClient {

public static void main(String[] args) throws Exception {

System.out.println("Server Time >>>>");

DatagramSocket cs = new DatagramSocket();

InetAddress ip = InetAddress.getByName("localhost");

byte[] rd = new byte[100];

byte[] sd = new byte[100];

Scanner s1 = new Scanner(System.in);

System.out.println("Greet the Server...\n");

sd = s1.nextLine().getBytes();

DatagramPacket sp = new DatagramPacket(sd, sd.length, ip, 1234);

cs.send(sp);

DatagramPacket rp = new DatagramPacket(rd, rd.length);

cs.receive(rp);

String mssg = new String(rp.getData());

System.out.println(mssg);

cs.close();

}

}

/\* OUTPUT -

Server is up....

Done !!

Server is up....

\*/