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

**day9/TCP/TimeServer.java**

import java.io.\*;

import java.net.\*;

import java.util.\*;

public class TimeServer {

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

ServerSocket sersock = 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());

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

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

os.println(new Date());

} catch (IOException e) {

System.out.println(e);

}

sersock.close();

clisock.close();

os.close();

}

}

/\* OUTPUT -

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

Client with IP Address /127.0.0.1

\*/

**day9/TCP/TimeClient.java**

import java.net.Socket;

import java.util.Scanner;

public class TimeClient {

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

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

msgFromServer = s2.nextLine();

System.out.println(msgFromServer);

clisock.close();

s2.close();

}

}

/\* OUTPUT -

Client /127.0.0.1 is communicating with port No.: 1342

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\*/

**day9/UDP/TimeServer.java**

import java.net.\*;

import java.util.\*;

public class TimeServer {

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();

Date d = new Date(); // getting system time

String time = d.toString(); // converting it to String

sd = time.getBytes(); // converting that String to byte

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

ss.send(sp);

rp = null;

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

}

}

}

/\* OUTPUT -

Server is up....

Done !!

Server is up....

\*/

**day9/UDP/TimeClient.java**

import java.net.\*;

public class TimeClient {

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];

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

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

cs.send(sp);

cs.receive(rp);

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

System.out.println(time);

cs.close();

}

}

/\* OUTPUT -

Server Time >>>>

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