DC-4

Program: **Server.java**

import java.io.BufferedReader;

import java.io.InputStreamReader;

import java.io.PrintWriter;

import java.net.ServerSocket;

import java.net.Socket;

import java.util.Vector;

// ALL CLASS MUST BE PUBLIC TO COMMUNICATE ON NETWORK

public class Server {

  // WHAT TYPE OF DATA STORING IN VECTOR <PRINT WRITER>

  private static Vector<PrintWriter> writers = new Vector<PrintWriter>();

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

    // SERVER SOCKET CLASS IE SERVER PUBLISH THAT LISTENING ON THIS PORT

    ServerSocket listener = new ServerSocket(9001); // PORT NO. 9001

    // DISPLAYING MESSAGE

    System.out.println("The server is running at port 9001.");

    // CONTINUOUSLY LISTENING

    while (true)

    {

      // START() IS A METHOD OF THREAD

      new Handler(listener.accept()).start();

    }

  }

  // INHERITING THREAD CLASS

  private static class Handler extends Thread {

    private Socket socket;

    public Handler(Socket socket) {

      this.socket = socket;

    }

    // EXECUTE PER THREAD

    public void run() {

      try { // SOCKET.GETINPUTSTREAM-- READ DATA FROM PARTICULAR CLIENT

        BufferedReader in = new BufferedReader(new InputStreamReader(socket.getInputStream()));

        // WRITE TO EACH AND EVERY CLIENT

        PrintWriter out = new PrintWriter(socket.getOutputStream(), true);

        // BROADCAST MESSAGE SUBMITNAME

        out.println("SUBMITNAME");

        // SERVER READ AND STORE DATA

        String name = in.readLine();

        System.out.println(name + "joined");

        // ADD METHOD TO STORE OUT IN VECTOR

        writers.add(out);

        // CONTINUOUSLY SEND AND RECIEVE

        while (true) {

          String input = in.readLine();

          System.out.println("MESSAGE " + name + ":" + input);

         for (PrintWriter x : writers)

            x.println("MESSAGE " + name + ":" + input);

        }

      } catch (Exception e) {

        System.err.println(e);

      }

    }

  }

}

Program: **master.java**

import java.io.BufferedReader;

import java.io.InputStreamReader;

import java.io.PrintWriter;

import java.net.Socket;

import java.util.Scanner;

public class master {

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

    Scanner sc = new Scanner(System.in);

    Socket socket = new Socket("localhost", 9001);

    // READ DATA FROM SOCKET

    BufferedReader in = new BufferedReader(new InputStreamReader(socket.getInputStream()));

    PrintWriter out = new PrintWriter(socket.getOutputStream(), true);

    System.out.print("Enter your name:");

    String name = sc.nextLine();

    while (true) {

      // READ MESSAGE OF A SERVER WHICH IS SUBMITNAME IN SERVER

      String line = in.readLine();

      String msg = "";

     if (line.startsWith("SUBMITNAME"))

      out.println(name);

      // MESSAGE COMING FROM SERVER FOR LOOP

      else if (line.startsWith("MESSAGE"))

        System.out.println(line.substring(8));

      // MASTER GIVEN ON INPUT I.E ENTER YOUR NAME

      if (name.startsWith("master")) {

        System.out.print("Enter a message:");

        msg = sc.nextLine();

        out.println(msg);

      }

      if (msg.equals("stop")) {

        System.exit(0);

      }

    }

  }

}

Program: **slave1.java**

import java.io.BufferedReader;

import java.io.InputStreamReader;

import java.io.PrintWriter;

import java.net.Socket;

import java.util.Scanner;

public class slave1 {

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

    Scanner sc = new Scanner(System.in);

    Socket socket = new Socket("localhost", 9001);

    BufferedReader in = new BufferedReader(new InputStreamReader(socket.getInputStream()));

    PrintWriter out = new PrintWriter(socket.getOutputStream(), true);

    System.out.print("Enter your name: ");

    String name = sc.nextLine();

    while (true) {

      String msg = "";

      String line = in.readLine();

      if (line.startsWith("SUBMITNAME"))

        out.println(name);

      else if (line.startsWith("MESSAGE"))

        System.out.println("\n" + line.substring(8));

      if (name.startsWith("slave1")) {

        System.out.print("Enter a message: ");

        msg = sc.nextLine();

        out.println(msg);

      }

      if (msg.equals("stop")) {

        System.exit(0);

      }

    }

  }

}

Program: **slave2.java**

import java.io.BufferedReader;

import java.io.InputStreamReader;

import java.io.PrintWriter;

import java.net.Socket;

import java.util.Scanner;

public class slave2 {

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

    Scanner sc = new Scanner(System.in);

    Socket socket = new Socket("localhost", 9001);

    BufferedReader in = new BufferedReader(new InputStreamReader(socket.getInputStream()));

    PrintWriter out = new PrintWriter(socket.getOutputStream(), true);

    System.out.print("Enter your name:");

    String name = sc.nextLine();

    while (true) {

      String msg = "";

      String line = in.readLine();

      if (line.startsWith("SUBMITNAME"))

        out.println(name);

      else if (line.startsWith("MESSAGE"))

        System.out.println("\n" + line.substring(8));

      if (name.startsWith("slave2")) {

        System.out.print("Enter a message: ");

        msg = sc.nextLine();

        out.println(msg);

      }

      if (msg.equals("stop")) {

        System.exit(0);

      }

    }

  }

}



