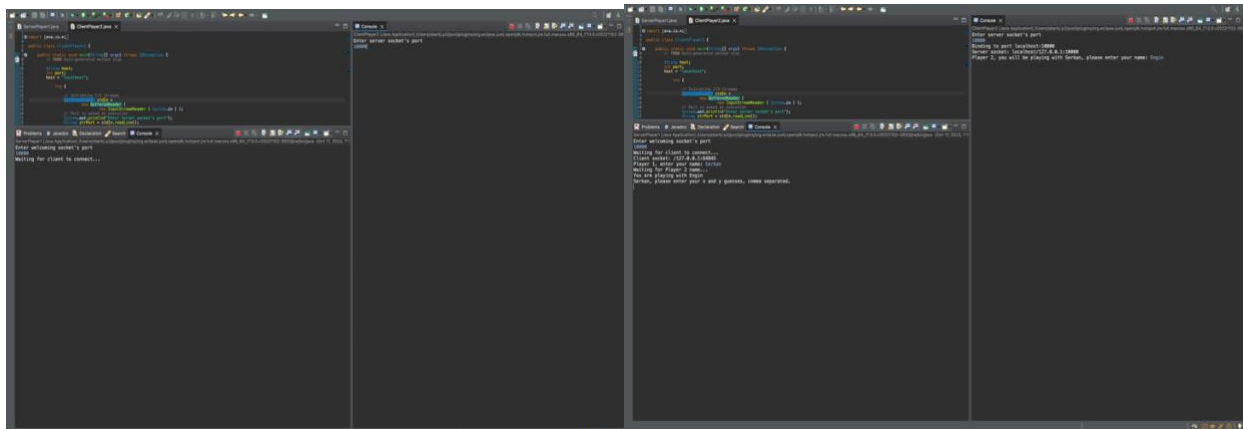


README: First run ServerPlayer1 file which contains codes for Server side and then run ClientPlayer2. Enter the port in the Server console first then Client side. I wrote the code such that until Player 1 inputs x, y value Client waits, so you need to input x, y from Server side when the game starts. As can be seen from the 3 screenshots below port is asked at execution first and then Player 1 inputs its name in ServerPlayer1 console and then Player 2 on ClientPlayer2 console.

In the below example the port was 10000, Player 1's name is Serkan, Player 2's name is Engin. Where it asks for input, the values entered appear in blue on the console.

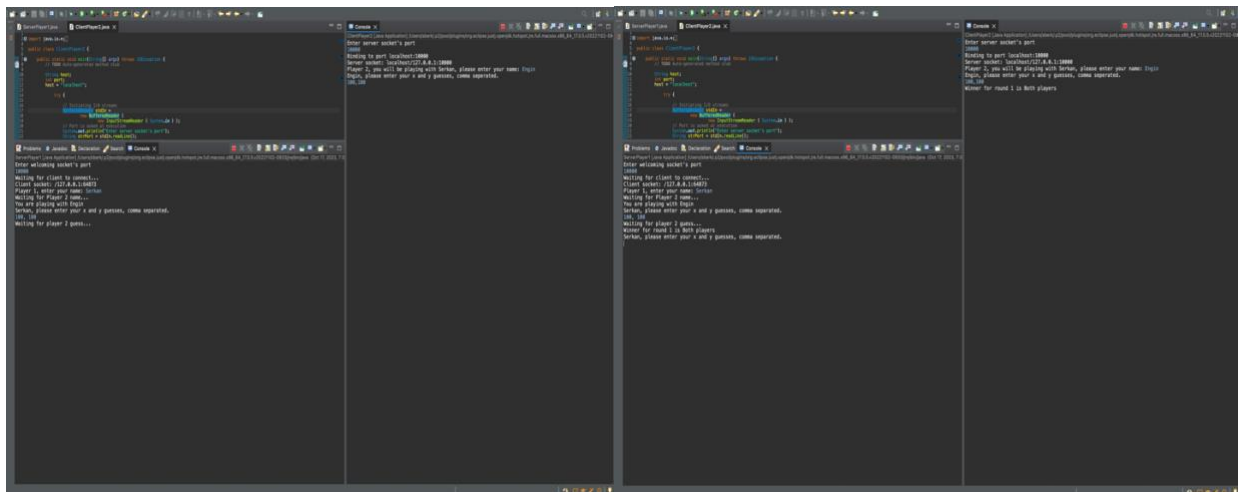


```
ServerPlayer1.java:
import java.io.*;
import java.net.*;

public class ServerPlayer1 {
    public static void main(String[] args) {
        try {
            int port = 10000;
            ServerSocket serverSocket = new ServerSocket(port);
            System.out.println("Server is waiting for client to connect...");
            Socket clientSocket = serverSocket.accept();
            DataInputStream in = new DataInputStream(clientSocket.getInputStream());
            String name = in.readLine();
            System.out.println("Player 1: " + name);
            DataOutputStream out = new DataOutputStream(clientSocket.getOutputStream());
            out.writeUTF("Waiting for player 2 name...");
            out.flush();
        } catch (IOException e) {
            e.printStackTrace();
        }
    }
}

ClientPlayer2.java:
import java.io.*;
import java.net.*;

public class ClientPlayer2 {
    public static void main(String[] args) {
        try {
            int port = 10000;
            Socket socket = new Socket("localhost", port);
            DataInputStream in = new DataInputStream(socket.getInputStream());
            String name = in.readLine();
            System.out.println("Player 2: " + name);
            DataOutputStream out = new DataOutputStream(socket.getOutputStream());
            out.writeUTF("Waiting for player 1 name...");
            out.flush();
        } catch (IOException e) {
            e.printStackTrace();
        }
    }
}
```



```
ServerPlayer1.java:
import java.io.*;
import java.net.*;

public class ServerPlayer1 {
    public static void main(String[] args) {
        try {
            int port = 10000;
            ServerSocket serverSocket = new ServerSocket(port);
            System.out.println("Server is waiting for client to connect...");
            Socket clientSocket = serverSocket.accept();
            DataInputStream in = new DataInputStream(clientSocket.getInputStream());
            String name = in.readLine();
            System.out.println("Player 1: " + name);
            DataOutputStream out = new DataOutputStream(clientSocket.getOutputStream());
            out.writeUTF("Waiting for player 2 name...");
            out.flush();
        } catch (IOException e) {
            e.printStackTrace();
        }
    }
}

ClientPlayer2.java:
import java.io.*;
import java.net.*;

public class ClientPlayer2 {
    public static void main(String[] args) {
        try {
            int port = 10000;
            Socket socket = new Socket("localhost", port);
            DataInputStream in = new DataInputStream(socket.getInputStream());
            String name = in.readLine();
            System.out.println("Player 2: " + name);
            DataOutputStream out = new DataOutputStream(socket.getOutputStream());
            out.writeUTF("Waiting for player 1 name...");
            out.flush();
        } catch (IOException e) {
            e.printStackTrace();
        }
    }
}
```

```
ServerPlayer.java
import java.io.*;

public class ServerPlayer {
    public static void main(String[] args) throws IOException {
        // 7000 Auto-generated method stub
        int port;
        String host;
        host = "localhost";
        try {
            // Initiating I/O streams
            BufferedReader stdin =
                new BufferedReader(
                    new InputStreamReader(System.in));
            // Port is asked at execution
            System.out.println("Enter server socket's port");
            String strPort = stdin.readLine();
        } catch (IOException e) {
            e.printStackTrace();
        }
    }
}

ClientPlayer2.java
import java.io.*;

public class ClientPlayer2 {
    public static void main(String[] args) throws IOException {
        // 7000 Auto-generated method stub
        int port;
        String host;
        host = "localhost";
        try {
            // Initiating I/O streams
            BufferedReader stdin =
                new BufferedReader(
                    new InputStreamReader(System.in));
            // Port is asked at execution
            System.out.println("Enter server socket's port");
            String strPort = stdin.readLine();
        } catch (IOException e) {
            e.printStackTrace();
        }
    }
}

Console
<terminated> ClientPlayer2 [Java Application] /Users/berk/p2pool/plugins/org.eclipse.justi.openjdk.hotspot.jre.full.macosx.x86_64.17.0.5.v20221102-0933/rt/hotspot.jre.full.macosx.x86_64.17.0.5.v20221102-0933
Enter server socket's port
10000
Binding to port localhost:10000
Server socket: localhost/127.0.0.1:10000
Player 2, you will be playing with Serkan, please enter your name: Engin
Engin, please enter your x and y guesses, comma separated.
10, 10
Winner for round 1 is Both players
Engin, please enter your x and y guesses, comma separated.
0, 1
Winner for round 2 is Serkan
Engin, please enter your x and y guesses, comma separated.
12, 48
Winner for round 3 is Serkan
Game Winner is Serkan
```

Codes: I wrote comment for each line in my code. It is a bit small because I could not take more screenshots since it says no more than 3 pages. You can zoom in these pictures to see my code and all of my comments.

```
ServerPlayer.java
import java.io.*;

public class ServerPlayer {
    public static void main(String[] args) throws IOException {
        // 7000 Auto-generated method stub
        int port;
        String host;
        host = "localhost";
        try {
            // Initiating I/O streams
            BufferedReader stdin =
                new BufferedReader(
                    new InputStreamReader(System.in));
            // Port is asked at execution
            System.out.println("Enter server socket's port");
            String strPort = stdin.readLine();
            port = Integer.parseInt(strPort);
            System.out.println("Waiting for client to connect...");
            ServerSocket serverSocket = new ServerSocket(port);
            Socket clientSocket = serverSocket.accept();
        } catch (IOException e) {
            e.printStackTrace();
        }
        // Initiating I/O streams
        PrintWriter out =
            new PrintWriter(clientSocket.getOutputStream(), true);
        BufferedReader in =
            new BufferedReader(
                new InputStreamReader(clientSocket.getInputStream()));
        // Showing the socket address of the Server
        System.out.println("Client socket: " + clientSocket.getRemoteSocketAddress());
        // Setting the game, asking for Player Names
        System.out.println("Player 1, enter your name:");
        String playerName1 = stdin.readLine();
        // Sending player 1's name to the client
        out.println(playerName1);
        System.out.println("Waiting for Player 2 name...");
        // Getting player 2's name from client
        String playerName2 = in.readLine();
        System.out.println("You are playing with " + playerName2);
        // Initiating scores for each player
        int playerScore = 0;
        int player2Score = 0;
        // Game Logic
        for(int i=1; i<=3; i++) {
            System.out.println(playerName1 + ", please enter your x and y guesses, comma separated.");
            String nums = stdin.readLine(); // asking for x, y values to Player 1
            num = nums.replaceAll("[^0-9]", ""); // getting rid of all non-numeric values
            int[] arr = convertToIntArray(nums); // calling the string2int converter method
            int x_guess = arr[0]; // first value is x
            int y_guess = arr[1]; // second value is y
            System.out.println("Waiting for player 2 guess...");
            out.println(); // After inputting the x, y values client were waiting sending signal
            // so that client ask for input from Player 1
            String num2 = in.readLine();
        }
    }
}

ClientPlayer2.java
import java.io.*;

public class ClientPlayer2 {
    public static void main(String[] args) throws IOException {
        // 7000 Auto-generated method stub
        int port;
        String host;
        host = "localhost";
        try {
            // Initiating I/O streams
            BufferedReader stdin =
                new BufferedReader(
                    new InputStreamReader(System.in));
            // Port is asked at execution
            System.out.println("Enter server socket's port");
            String strPort = stdin.readLine();
        } catch (IOException e) {
            e.printStackTrace();
        }
    }
}

Console
<terminated> ClientPlayer2 [Java Application] /Users/berk/p2pool/plugins/org.eclipse.justi.openjdk.hotspot.jre.full.macosx.x86_64.17.0.5.v20221102-0933/rt/hotspot.jre.full.macosx.x86_64.17.0.5.v20221102-0933
Enter server socket's port
10000
Binding to port localhost:10000
Server socket: localhost/127.0.0.1:10000
Player 2, you will be playing with Serkan, please enter your name: Engin
Engin, please enter your x and y guesses, comma separated.
10, 10
Winner for round 1 is Both players
Engin, please enter your x and y guesses, comma separated.
50, 50
Winner for round 2 is Serkan
Engin, please enter your x and y guesses, comma separated.
120, 20
Winner for round 3 is Engin
Game Winner is Both players
```

```
ServerPlayer.java ClientPlayer2.java
71 int x_guess_p1 = arr1[0]; // First value is x
72 int y_guess_p1 = arr1[1]; // Second value is y
73
74 System.out.println("Waiting for player 2 guess...");
75 out.println(); // After inputting the x, y values client were waiting sending signal
76 // so that client send for input from Player 1
77
78 String num2 = in.readLine();
79 num2 = num2.replace(" ", "");
80 int x_guess_p2 = Integer.parseInt(num2);
81 int y_guess_p2 = arr2[1];
82
83 double dist_p11 = Math.sqrt(Math.pow((x_guess_p1-1),2) + Math.pow((y_guess_p1-y),2));
84 double dist_p12 = Math.sqrt(Math.pow((x_guess_p2-1),2) + Math.pow((y_guess_p2-y),2));
85
86 //System.out.println("x=" + x1 + " y=" + y1 + " x=" + x2 + " y=" + y2);
87 if (dist_p11 < dist_p12) {
88     player1Score++;
89     out.println("Winner for round " + i + " is " + player1Name);
90 } else if (dist_p11 > dist_p12) {
91     player2Score++;
92     out.println("Winner for round " + i + " is " + player2Name);
93 } else {
94     System.out.println("Winner for round " + i + " is Both players");
95     out.println("Winner for round " + i + " is Both players");
96 }
97
98 // Checking the Winner of the Game at the end
99 if (player1Score == player2Score) {
100     out.println("Game Winner is Both players");
101 } else if (player1Score > player2Score) {
102     out.println("Game Winner is " + player1Name);
103 } else {
104     out.println("Game Winner is " + player2Name);
105 }
106
107 // Closing sockets and I/O streams
108 out.close();
109 in.close();
110 serverSocket.close();
111
112 } catch (Exception e) { // catching error and printing if any
113     e.printStackTrace();
114 }
115
116 // Converter method takes String as an argument when Player inputs the x and y values
117 // creates an int array which contains x in its 0th index and y in its 1st index. Then returns
118 private static int[] convertInput(String str) {
119     String[] arr = str.split(" ");
120     int x_guess = Integer.parseInt(arr[0]);
121     int y_guess = Integer.parseInt(arr[1]);
122     int[] points = new int[2];
123     points[0] = x_guess;
124     points[1] = y_guess;
125     return points;
126 }
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