Lab 3 - [Client Server Messaging in java]

Objective

- To create a client-server network for message sharing in Java

Theory

- A client-server network is a computer network type based on the client-server architecture.
- It consists of a `Server` computer that controls and manages all the resources in the system and `Client` computers that are connected with each other via a `Server computer`.

- **Steps to create a client-server network in java**
  a. Create a class to act as a `server`
  b. Create another class to act as a `client`
  c. In `server-class initiate a `Socket` by accepting a `ServerSocket` instance
  d. Create object for `DataInputStream`, `DataOutputStream` and `BufferedReader` then use the `readUTF()` method of `DataInputStream` to read message sent by client, use `readLine()` method of `BufferedReader` to read input of user and sent to server using `writeUTF()` method of `DataOutputStream`
  e. Finally, close all the streams using the `close()` method on some conditions. (*in our case when server says bye*)
  f. In the `client` class initiate a `Socket`
  g. Same as step 4 for the client class
  h. Same as step 5 for the client class
  i. Run the `server` code first then the `client` code
  j. Start messaging from `client` then `server` and continue alternatively till `bye in our case`

Source code

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


public class ClientSide
```

```java
{
    public static void main(String args[])throws
Exception
    {
        Socket s=new Socket("localhost",3333);

        DataInputStream din=new
DataInputStream(s.getInputStream());
        DataOutputStream dout=new
DataOutputStream(s.getOutputStream());
        BufferedReader br=new BufferedReader(new
InputStreamReader(System.in));

        String str="",str2="";

        while(!str.equals("bye"))
        {
            str=br.readLine();
            dout.writeUTF(str);
            dout.flush();
            str2=din.readUTF();
            System.out.println("Server says: "+str2);
        }

        dout.close();
        s.close();
    }
}


/*Server side*/
import java.net.*;
```

```java
import java.io.*;

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

        ServerSocket ss=new ServerSocket(3333);
        Socket s = ss.accept();

        DataInputStream din = new
DataInputStream(s.getInputStream());
        DataOutputStream dout = new
DataOutputStream(s.getOutputStream());
        BufferedReader br = new BufferedReader(new
InputStreamReader(System.in));

        String str="",str2="";

        while(!str.equals("bye"))
        {
            str = din.readUTF();

            System.out.println("client says: "+str);

            str2 = br.readLine();

            dout.writeUTF(str2);
            dout.flush();
        }
```

```
            din.close();
            s.close();
            ss.close();
        }
}
```

Output

```
$ java CN/lab3/ClientSide
hello
Server says: hello
ok
Server says: yes
bye
Server says: bye
```

```
$ java CN/lab3/ServerSide
client says: hello
hello
client says: ok
yes
client says: bye
bye
```