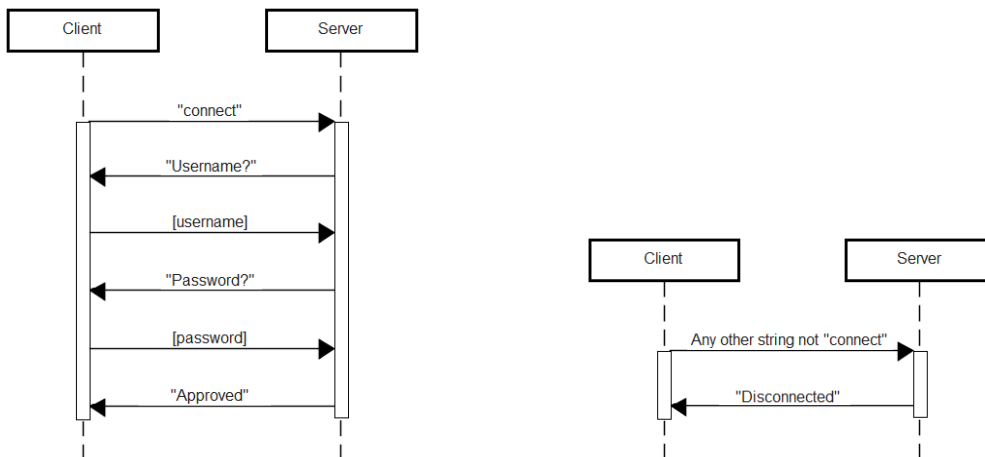


Exercise: Login system

Implement a client/server application using Sockets with TCP following the communication protocol shown. The client sends three strings: "connect", a username, a password, and the server replies with the string "connected". In between the 3 strings from client, the server replies with a string (see diagram below). If you do not follow the protocol, the server sends the string "Disconnected".



Step 1 – Server

Write the server application for the login system on port number 5678. The server waits for a client to connect and follows the protocol shown, i.e.

- Receive a string
 - If the string is not "connect" then Send the string "Disconnected" and end the communication with this client
 - Otherwise continue
- Send the string "Username?"
- Receive a string
- Send the string "Password?"
- Receive a string
- Send the string "Approved"
- Go back to wait for another client

Use print statements to show what the server sends and receives. You may include the client ip in the output, which may be found this way:

```
String client = socket.getInetAddress().getHostAddress();
```

If using two computers, know which wireless network you have connected (e.g. VIANet) and find the ip address for the computer running the server application, e.g. writing *ipconfig* in a command window (window → run → cmd → ipconfig)

Step 2 – Client

Write the client application for the login system. The client contacts the server on the port number used in the server side application and with the ip address for the server. The steps follows the protocol shown, i.e.

- Send the string "connect"
- Receive a string
- Send a string with a username
- Receive a string
- Send a string with a password
- Receive a string

Use print statements to show what the client sends and receives.

Step 3 – run

- Start the server on one computer (and find the ip address for the computer)
- Start the client on another computer (make sure that you are connected to the same wireless network as the server)
- Test the application and make sure you test the normal flow and the exception flow