Assignment B4

- Title: TCP/UDP sockets (P2P and Multiuser Chat)

- Problem Statement:
  Write a program using TCP/UDP sockets for wired network to implement.
  a) Peer to peer chat
  b) Multiuser chat.
  Demonstrate the packets captured traces using Wireshark Packet Analyzer Tool.

- Theory:
  Network Socket: is an internal endpoint for sending or receiving data at a single node in a computer network
  It is a representation to this endpoint in networks software (protocol stack) such as entry in a table (listing communication protocol, destination, status, etc) and is a form of system resources.

The principal of communication can be categorized into two, client-server and peer to peer communication.
In client-server environment there is a dedicated server while the rest of the nodes are acting as nodes

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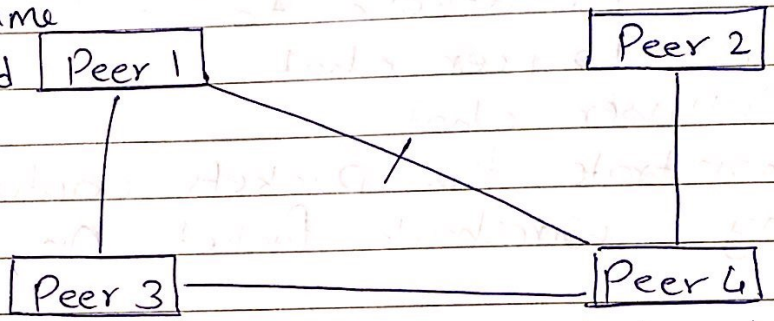
In peer to peer communication, a node can be either a client or a server depending whether it is a request or provider of the service at the specific time.

Table for peer1
Username
Password
IPaddr
Port



Table

Index table of peers Username, Password, IP addresses, Port, number for Peer1 and Peer4

Index table of Peer4 Username, Password, IP addr., Port, number for Peer1, Peer2 & Peer3

With Multi-user Chat (short muc, German multi user chat) & group chat are at XMPP, the chat rooms designed, where multiple users & converse simultaneously.

Similar to the Internet Relay Chat (IRC), a chat room can have different statuses & the participants can take the role of participant visitor or moderator

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The MUC has many advantages over the IRC

MUC offers various functions. This allows the server to create a log file over a room if desired.

Regardless of this the latest messages are also saved & sent to the new visitors with correct timings so that they can see what is going on to happen.

Each user can have different privileges in a chat, he can write in a room or change the subject/subject depending on his/her privileges.
The privileges allow users to kick or ban other users. It is also possible to set which user can see the jabber indentifiers of the others.

If the rights are sufficient these users can change the rights of the other users, thus avoding the right to speak.

In addition the user can be restricted in a chat. A chat is also avaliable without the user being present & can also be present & can also be hidden or protected with a password.

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And if an internal chat is to be established, it is also possible to specify which users can join & which not. A chat can be anonymus & hide the jabber identifier of the others.

- Conclusion:

We successfully implemented a program using TCP sockets for wired network to implement peer to peer chat & a multiuser chat.

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