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Assignment - B4

Title :- Peer to Peer & Multiuser chat.

Problem statement :-
write a program using UDP/TCP sockets for wired network to implement
(a) peer to peer chat
(b) Multiuser chat
Demonstrate the packets captured traces using wireshark packet analyzer tool for peer to peer mode

Objective :- To understand the implementation of peers-to-peers & multiuser chat.

Outcome :- Students will be able to implement peer-to-peer & multiuser chat & understand its theory

S/w & H/w :- python, IDE, wireshark, linux/windows OS, eclipse

Theory :-
Network Socket :-
It is an internal end-point for sending/recieving data at a single node in a computer network

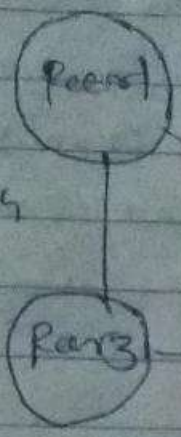
conceptually. It is representation of an endpoint in networking software (protocol stack), such as entry in table. It is a form of system resource.
- Similarly, the term 'port' is used for external endpoints at a node, and the term 'socket' is also used for an internal end-point of local inter-process communication (IPC).

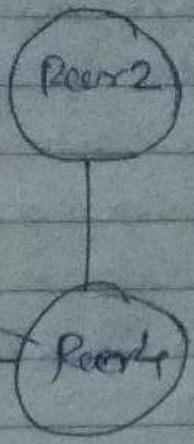
Peer-to-peer chat :-

The principle of communication can generally be categorized into two, client server & peer-to-peer. In client-server environment there is a dedicated servers, while rest of other nodes are acting as clients throughout the whole communication
- whereby peer to peer mode, a node can either be a client or a server depending whether it is a requestor or provider of the service at that specific time.
- Examples of client servers technology : web access, network time & windows login, This however causes an idea of single point of failure, which may cause a devasted damage in case of breakings.

Index table of Peer 1

username, password, IP add, port no for P3 & P4





Index table of peer 2

username, password, IP address, port no for P4

Index table of Port 3

username, password, IP address, port no, for P1 & P4.

Index table of peer 4

username, password, IP address, port no for P1, P2, P3

Multichat :

With multiuser chat, chat rooms are designed, where multiple users can converse simultaneously.

- Similar to IRC, ie chat room have different stat users (visible, hidden, password, protected) & role of participants.
- However MUC has many advantages over IRC. This is how go online in MUC with its globally unique Jabber Identifier, which cannot be occupied by somebody else. Therefore it doesn't need auxiliary some service (such as NickServ) to uniquely identify users

Functions:- MUC offers various functions this allows the server to create a log file over a room, if designed.
- In addition, each user can have different privelages in a chat, one can write in a room or change the subject depending on his/her privelleges.

Wireshark Packet Analyzer tool:-

It is a network packet analyzer, which will capture network packets & tries to display that packet data, as detailed as possible.

Testcase:-

I/P	O/P	Expected O/P	Result
P-to-P clientside: Hi! server, need help Serverside:- Hi client! glad to help	on client side: Hi client! server: glad to help on server side: client: Hi server need help	—11—	Success

Conclusion :-

Successfully implemented a peer-to-peer & multichat program over a wired network & captured the packets using wireshark