Assignment - VI

Title :-

Write a program using TCP socket for wired network for following -

a. Say Hello to each other
b. File Transfer.
c. Calculator (mithmatic)
d. Calculator (Trigonometric).

Requirements :-

Fedora OS 64 bit, Eclipse

Theory :-

a. Say Hello to Each other

1. TCP socket programming for wired network :

The two key classes from java .net package used in creation of server & client programs are:
Σ server socket & Σ Socket. A server program creates a specific type of socket that is used to listen for client request (server socket), In case of

connection request, the program creates a new socket through which it will exchange data with the client using input & output streams. The socket abstraction is very similar to the file concept: developers have to open a socket, perform I/O & close it.

A simple server program in Java

The steps for creating a simple server program are:

① Open the server socket:
Server_socket server = new Server_socket (PORT)
② Wait for the client request
Server client = server.accept();
③ Create I/O streams for communicating to the client DataInputStream is = new DataInputstream (client.getInputStream());
④ perform communication with client recieve from client
⑤ close socket : client.close();

A simple client program in Java

The steps for creating a simple client program are:

① Create a socket object :-
Socket client = new socket (server, port_id)
② Create I/O streams for communicating with the servers, is- new DataInput-stream (client.getInputStream)
③ Perform I/O / communication with server
Receive data from the server :
String line = is.readline();
send data to server :
OS.writeBytes ("Hello");
④ Close the socket when done client.close

2. Running Socket Programs

Compile both server & client programs & then deploy server program code on a machine which is going to act as a server & client program which is going to act as a client.
If required, both client & server programs can run on the same machine To illustrate execution of server & client programs let us assume that a machine called mundroo.cse.unimelb.edu.au on which one want to run a server program as indicated below.
[raj@mundroo] java simpleserver

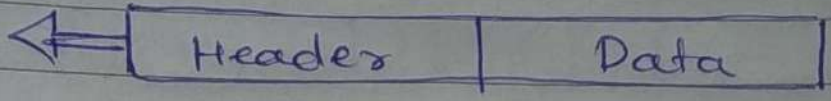
The client program can run on any computer in the network (LAN or WAN or internet) as long as there is no firewall bet" then that blocks communication. let us way we want to run our client.

[raj@gribus] java SimpleClient.

The client program is just establishing a connection with the server & then waits for a message

b. File transfer :

A TCP client, initiates the communication with the server which is waiting for the connection TCP is connection oriented & UDP is connection less, which means that UDP sockets do not need to be connected before being used.



Source Port Address 16 bits								Destination port address
Sequence number 32 bits								
Acknowledgement number 32 bits								
HLEN 4 bits	Reserved 6 bits	URG	ACK	PSH	RST	SYN	FIN	Window Size 16 bits
checksum 16 bits								Urgent pointer 16 bits
Options & Padding								

TCP Header.

Conclusion :-

Hence we studied & implemented program to demonstrate TCP socket programming.