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Assignment - II

Title :- Socket programming.

Problem statement :- Enhance the system with the help of socket programming, use client server architecture Develop chat server

Objective :-

- To learn basic & advanced techniques of socket based client server programming
- To understand java.net package of J2SE APIs which provides the low level communication details,
- To understand TCP/UDP client server application developement.

Outcome :-

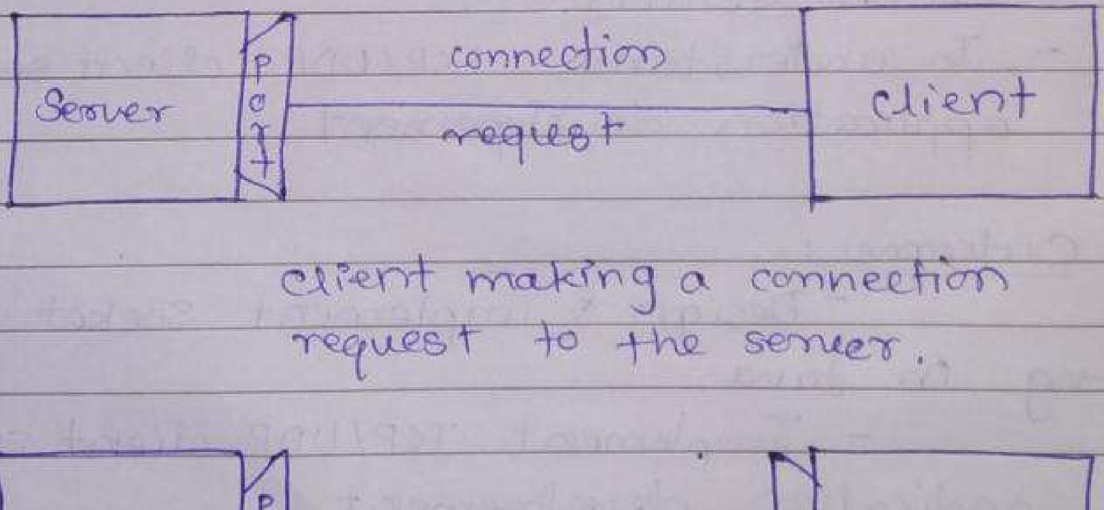
- Design & implement socket programming in Java.
- Implement TCP/UDP client server application developement.

S/W & H/W requirements :- Java, SE developement kit, Fedora OS 64 bit, programming tools.

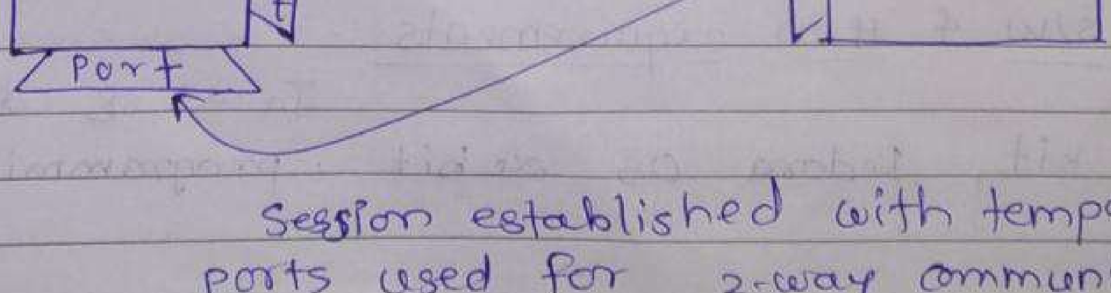
Concept related theory :-

Java creates network application using sockets. program running on client m/c makes request to platform / program running on server, involves networking services provided by transport layer. Transport layer has 2 protocols (TCP, UDP). These are port to map incoming data to particular process on computer.

A socket is a software endpoint the establishes bidirectional communication betn a server program & one or more client program.



client making a connection request to the server.



Session established with temparary ports used for 2-way communication.

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The socket associates the server program with a specific hardware port on machine where it runs to any client program anywhere in the network with a socket associated with that same port can communicate with server program,

Steps :-

1) Open the server socket;
ServerSocket = new Serversocket (port);

2) Wait for the client request
socket client = server.accept().

3) create I/o streams for communicating to the client

DataInputStream is = new DataInputStream (client.getInputSt
am

DataOutput Stream os . new DataOutputStream(client.getOutput
stream

4) Perform communication with server from clie

Recieve from client
string line = is.readline();

5) Send data to the server :-
os.writeBytes(" Hello \n");

close the socket when done

client.close();

Applications :-

① Client-Server :-

client programming :-

To connect to other machine we need a socket connection.

command :-

```
Socket socket = new Socket("127.0.0.1", 5000);
"127.0.0.1" → IP address of localhost
5000 → TCP port.
```

- Streams are used to comminicate over socket connection.
- socket connection closed explicitly once the communication is done.
- accept() method used to connect a client to server.

Test-Cases :-

I/P	O/P	Expected O/P	Result
2. Chat to Admin	Server: Welcome client: Some Issue Server: Resolved client: Over	same	Success
Sign Up as Employee Manager (name: "admin")	options for Employee Manager. (Respective options).	Same	Success

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Conclusion :-

We are able to implement chat server using socket programming in Java.