Assignment 1

43233

Title: Distributed application using java sockets & RMI

Problem Definition: To develop any distributed application through implementing client-server communication program based on java socket & RMI techniques.

Objectives: To use Java Sockets & RMI.

S/w & H/w Requirements OS Ubuntu 16.04
Tools Eclipse, Java Socket API, rmiregistry
Dual Core & Quad Core Machine with 4GB RAM

Theory

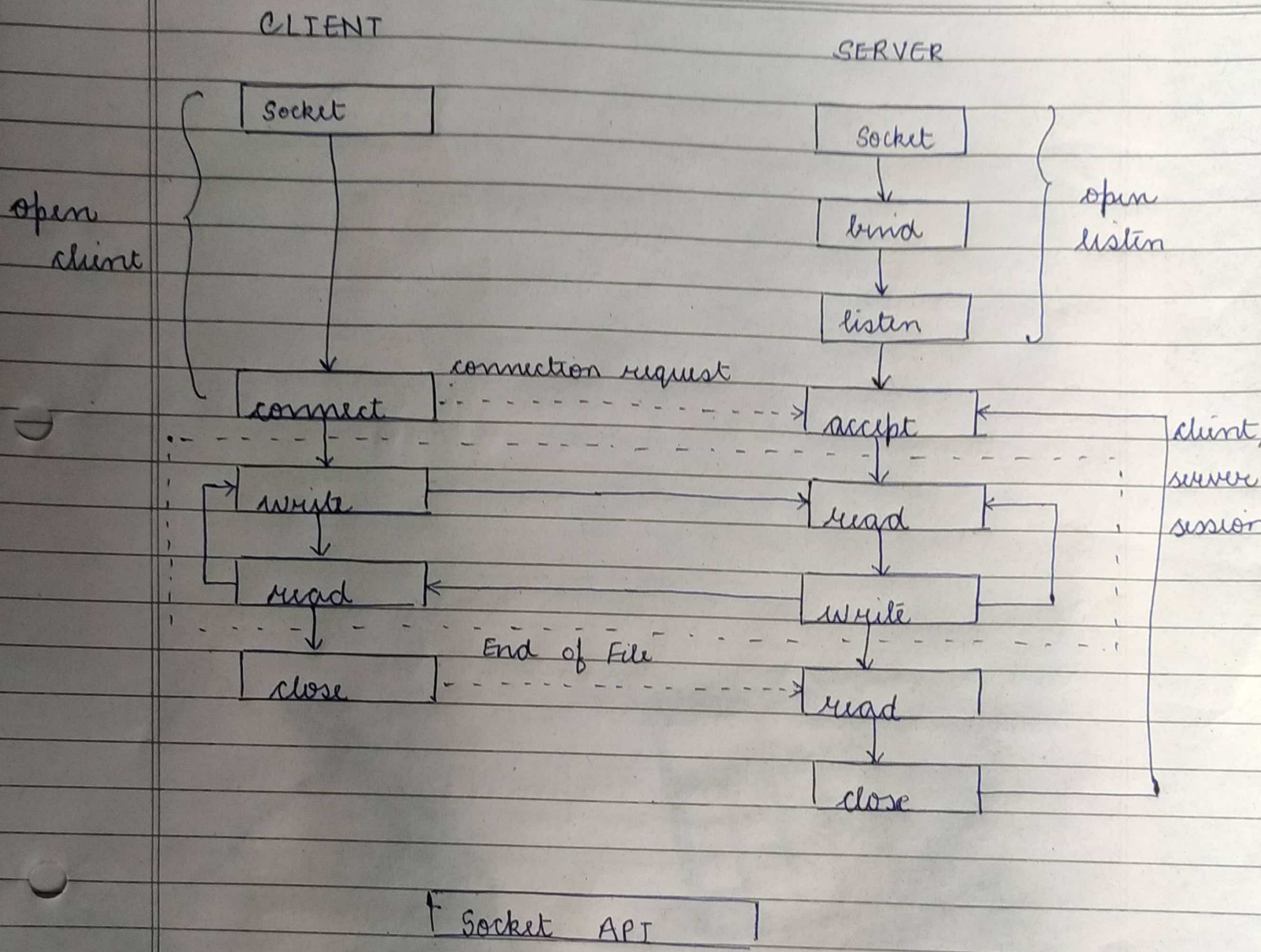
Sockets: In distributed computing, network communication is one of the essential parts of any com. system & socket is endpoint of every instance of Network commun

- A socket is handle that a local program can pass to networking API to connect to other machine.
- TCP Layer can easily identify application location & access inf. through port no assigned to the respective sockets.
- During instance of communication a client program creates a socket at its end & then server & client communication is established.

Socket Programming for TCP

Client programming

1. Establish a socket connection java.net.Socket class represents a socket.


CLIENT
SERVER
Socket
Socket
bind
listen
open
listen
open
client
connection request
connect
accept
client/
server
session
write
read
read
write
End of File
close
read
close

Socket API

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2. Communication : To communicate over a socket connection streams are used to both input & output data.
3. closing connection closed explicitly when message to server is sent

Server Programming

1. Establish a socket connection : Two sockets are needed. A server socket which waits for the client request. A plain Socket to use for communication with client
2. Communication : getOutputStream() method is used to send output through the socket
3. Closing Connection : close connections as well as input output streams.

Compilation & Execution

1. Compile both of them on two diff. terminal
2. Run the server program first
3. Run the client program
4. Type message in client window which will be recieved & showed by the server.
5. Close the Socket connection

Conclusion : In this assignment, we learned about client - server communication through diff. protocols & sockets. Also learned java support through socket API for TCP & UDP programming.