

Assignment 6

Write a program using TCP socket for your chosen application (using java/C).

1. What is the significance of socket? Explain different parameters to create socket.

Significance of Socket - A socket is one endpoint of two way communication link between two programs running on the network.

It establishes a way of inter process communication. The socket provides bidirectional FIFO Communication facility over the network.

A socket connecting to the network is created at each end of the communication. Each socket has a specific address. This address is composed of an IP address & a port number.

Sockets are generally employed in client server applications. The server creates a socket, attaches it to a network port address & then waits for the client to contact it.

The client creates a socket & then attempts to connect to the server socket. When the connection is established, transfer of data takes place.

```
Socket socket = new Socket(IPaddress, portNo);
```

First parameter → IP address of server (127.0.0.1 is the IP address of localhost)

Second - TCP port (just a number representing which application is running on a server).

eg - HTTP runs on port no - 80
port no. can be from 0 to 65535
(excluding reserved port nos)

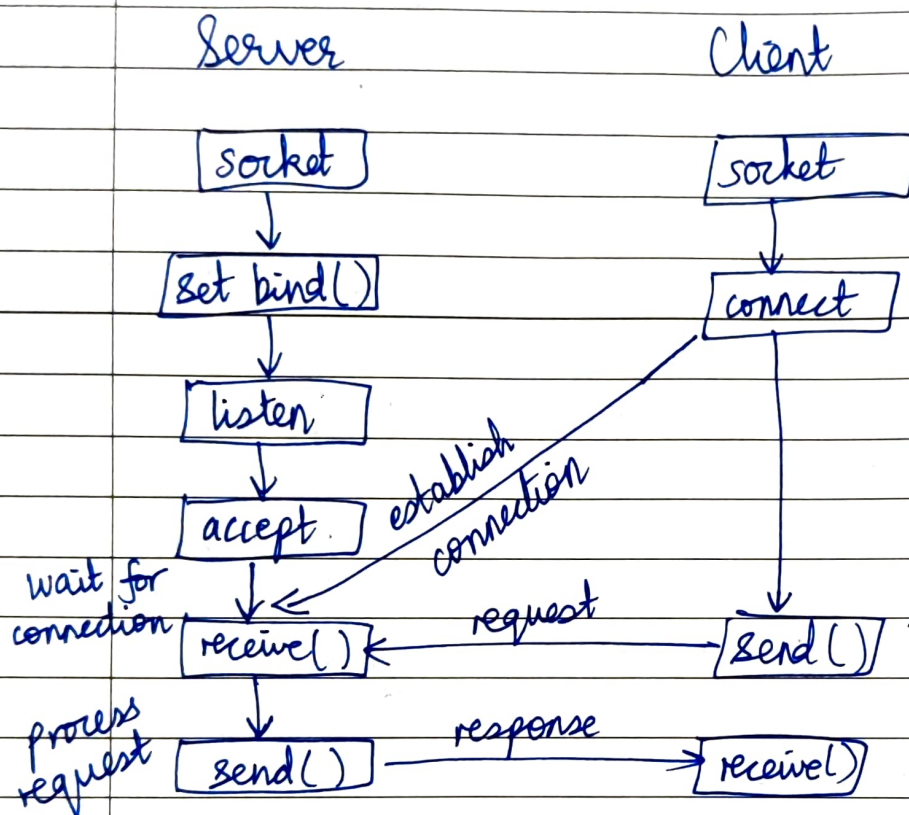
2. Describe TCP socket primitives with diagram and explanation of each primitive (Client & Server Side both)

Socket Primitives in TCP

<u>Primitive</u>	<u>Meaning</u>
<u>Socket</u>	Create a new communication endpoint
<u>Bind</u>	Attach a local address to a socket
<u>Listen</u>	Announce willingness to accept connections
<u>Accept</u>	Block the caller until a connection attempt arrives
<u>Connect</u>	Actively attempt to establish a connection
<u>Send</u>	Send some data over the connection

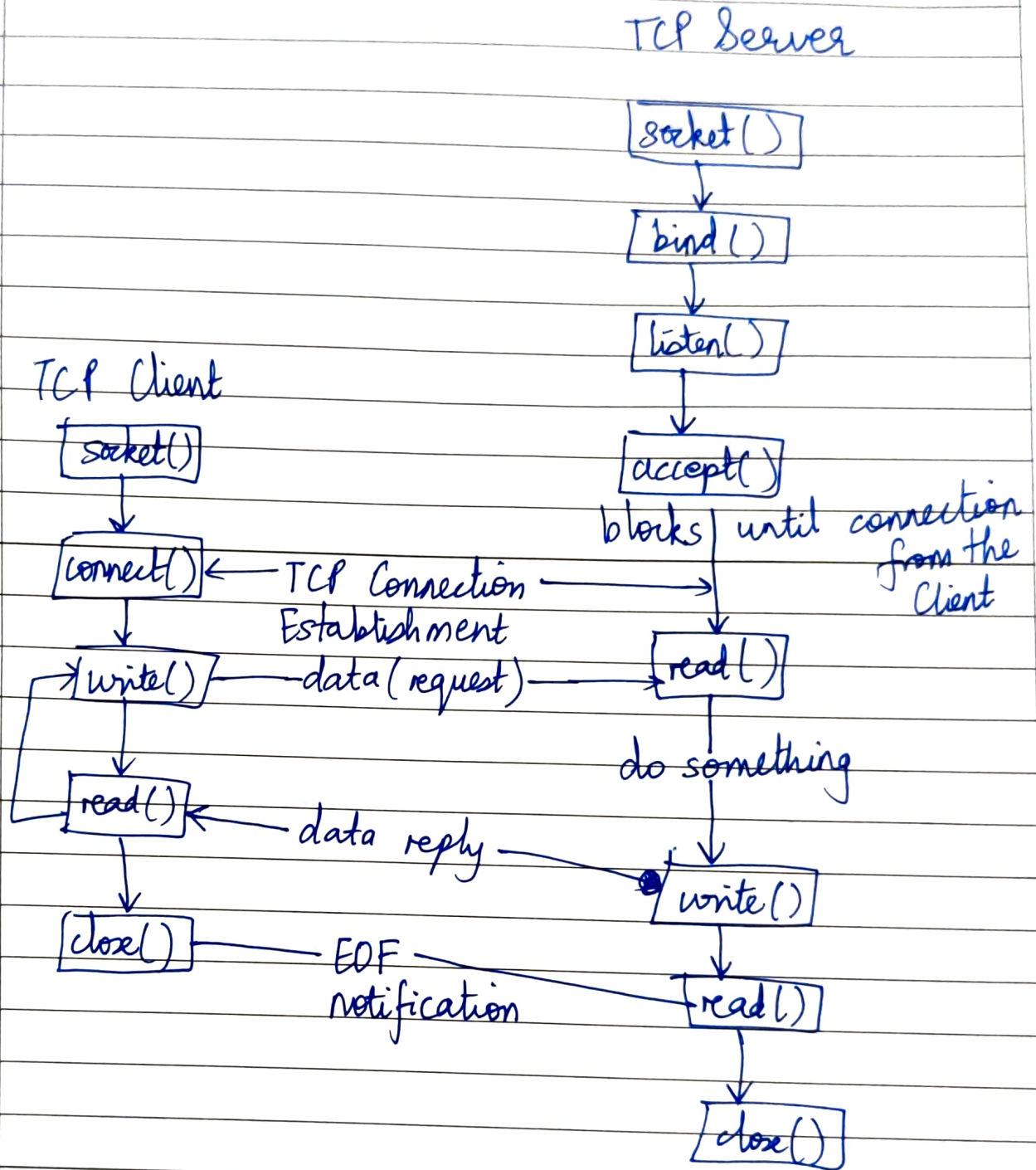


<u>Primitive</u>	<u>Meaning</u>
<u>Receive</u>	Receive some data from the connection
<u>Close</u>	Release the connection



3. Explain TCP socket APIs used in the program. Socket API is a collection of socket calls that enable you to perform the following primary communication functions between application programs:-
- Set up and establish connections to other users on the network

- Send & receive data to & from the users
- close down connections.





4. Write the logic for your client & server program separately.

logic of Client Server program -

- Client - Create socket using `socket()` function
- Side - Connect to the server using IP address of server & port no. using `connect()` function
- While true ~~to~~ repeat sending messages from Client to Server, send & receive data by `read()` & `write()`.
 - Also try receiving sms from server.

- Server - Create socket using `socket` function
- side - Bind socket to IP address & port no. using `bind()` method.
- listen to incoming connections using `listen()` method.
 - Accept a connection using `accept`.
 - Send & receive data by (using `send` & `receive` functions).
 - Close connection by `close()` function.