TCP


```
      String sentence = inFromUser.readLine();
      sendData = sentence.getBytes();
      DatagramPacket sendPacket = new DatagramPacket(sendData, sendData.length, IPA
      clientSocket.send(sendPacket);
      DatagramPacket receivePacket = new DatagramPacket(receiveData, receiveData.le
      clientSocket.receive(receivePacket);
      String modifiedSentence = new String(receivePacket.getData());
      System.out.println("FROM UDP SERVER:" + modifiedSentence);
      clientSocket.close();
   }
}

//---------------------------------TCPServer.java
//home/tovantran/Ctest/TCPServer.java --> 2015-03-14 by ./.tv  owner: tovantran

//https://systembash.com/a-simple-java-tcp-server-and-tcp-client/
//package mythread.tcpserver;

import java.io.*;
import java.net.*;

class TCPServer
{
   public static void main(String argv[]) throws Exception
      {
         String clientSentence;
         String capitalizedSentence;
         ServerSocket welcomeSocket = new ServerSocket(6789);
                                      // ServerSocket only port
         while(true)
         {
            Socket connectionSocket = welcomeSocket.accept(); // block call
            BufferedReader inFromClient =
               new BufferedReader(new InputStreamReader(connectionSocket.getInputSt
            DataOutputStream outToClient = new DataOutputStream(connectionSocket.ge
            clientSentence = inFromClient.readLine();          //READ
            System.out.println("Received: " + clientSentence);
            capitalizedSentence = clientSentence.toUpperCase() + '\n';
            outToClient.writeBytes(capitalizedSentence);       // WRITE
         }
      }
}
//---------------------------------TCPClient.java
//home/tovantran/Ctest/TCPClient.java --> 2015-03-14 by ./.tv  owner: tovantran

//https://systembash.com/a-simple-java-tcp-server-and-tcp-client/
//package mythread.tcpclient;

import java.io.*;
import java.net.*;

class TCPClient
{
 public static void main(String argv[]) throws Exception
 {
  String sentence;
  String modifiedSentence;
  BufferedReader inFromUser = new BufferedReader( new InputStreamReader(System.in))
  Socket clientSocket = new Socket("localhost", 6789); //Socket(client) host and po
  DataOutputStream outToServer = new DataOutputStream(clientSocket.getOutputStream(
  BufferedReader inFromServer = new BufferedReader(new InputStreamReader(clientSock
  sentence = inFromUser.readLine();
  outToServer.writeBytes(sentence + '\n');   //READ
  modifiedSentence = inFromServer.readLine();  // WRITE
  System.out.println("FROM TCP SERVER: " + modifiedSentence);
  clientSocket.close();
 }
}
```

send

Rx

SOCKET

Socket API → binding

Source IP
Src Port
Destination IP
destination port

— SOCK_STREAM
— SOCK_DATAGRAM

int socket(int domain, int type, int protocol)

— INET
— UNIX

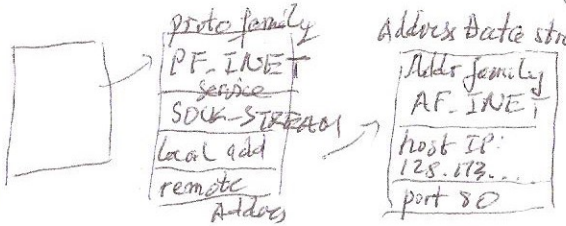
int bind (int socket, struct sockaddr * address, int len)
It binds the socket to the specified address.

Socket Descriptors

(IN, OUT) OBJ

— Descriptor each process
Socket descriptors are shared by threads

3 data structures — Socket descriptor table
— Socket data structure
— Address data structure



SOCKET
SOCKET STREAM
(OUT, IN) CREATE OBJ