

# From Processing 2 Java

## Networking



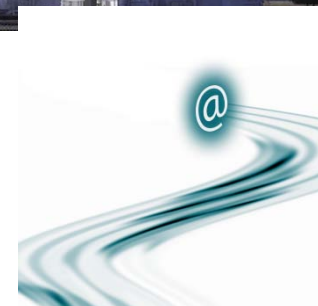
**TU** / **e**

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**Where innovation starts**

# Communication

- The process of conveying information from a sender to a receiver with the use of a medium in which the communicated information is understood by both sender and receiver.



# Protocols\*1

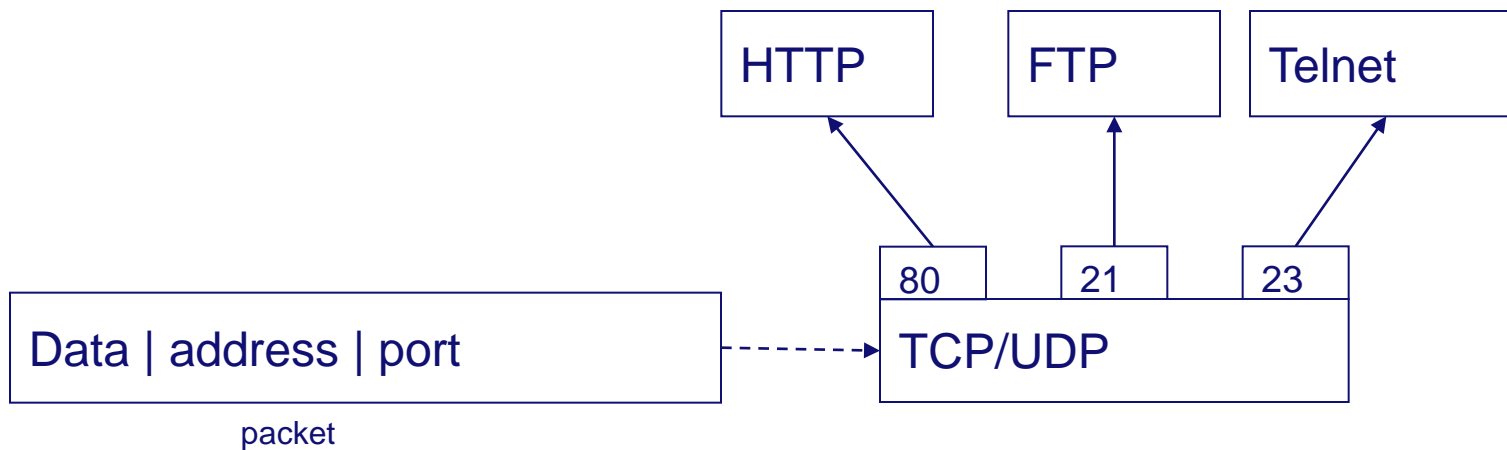
- **Most frequently used “Internet protocol”**
  - **TCP/IP = TCP + IP**
- **Other protocols (conform the ISO OSI layering\*2):**
  - **Application layer** (HTTP, FTP, TELNET)
  - **Transport Layer** (TCP, UDP)
  - **Network Layer** (IP, ARP)
  - **Data Link Layer** (Ethernet)

\*1 Extremely limited view !!!

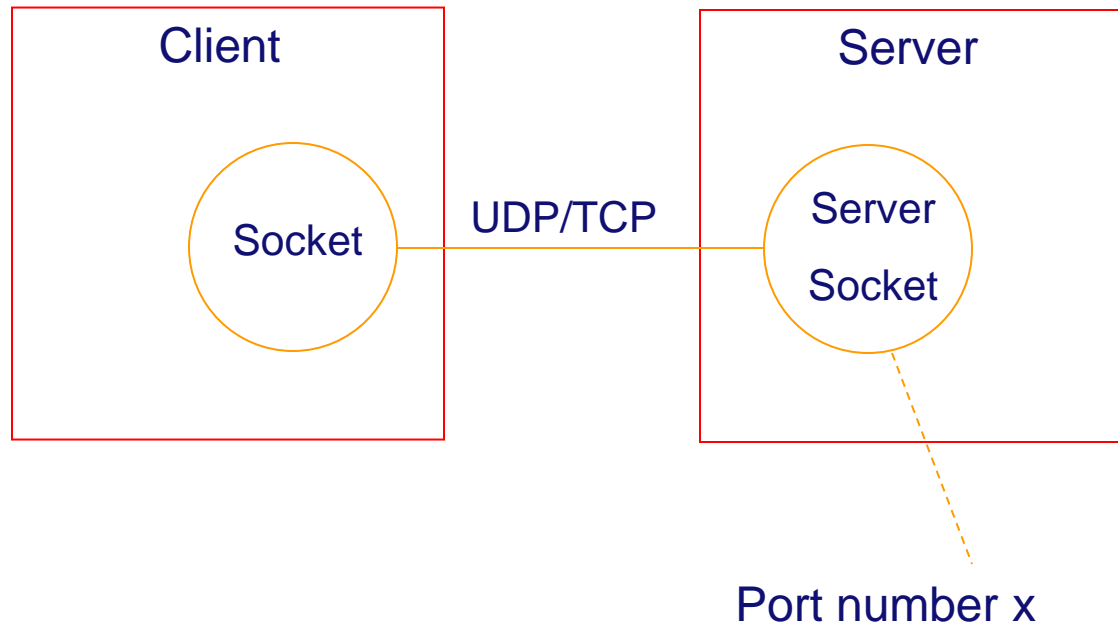
\*2 Not all layers shown here !!!

# Addressing

- **IP address**
  - 131.155.70.123 / somepc.tue.nl
- **Port numbers**
  - 80, 21, 23...



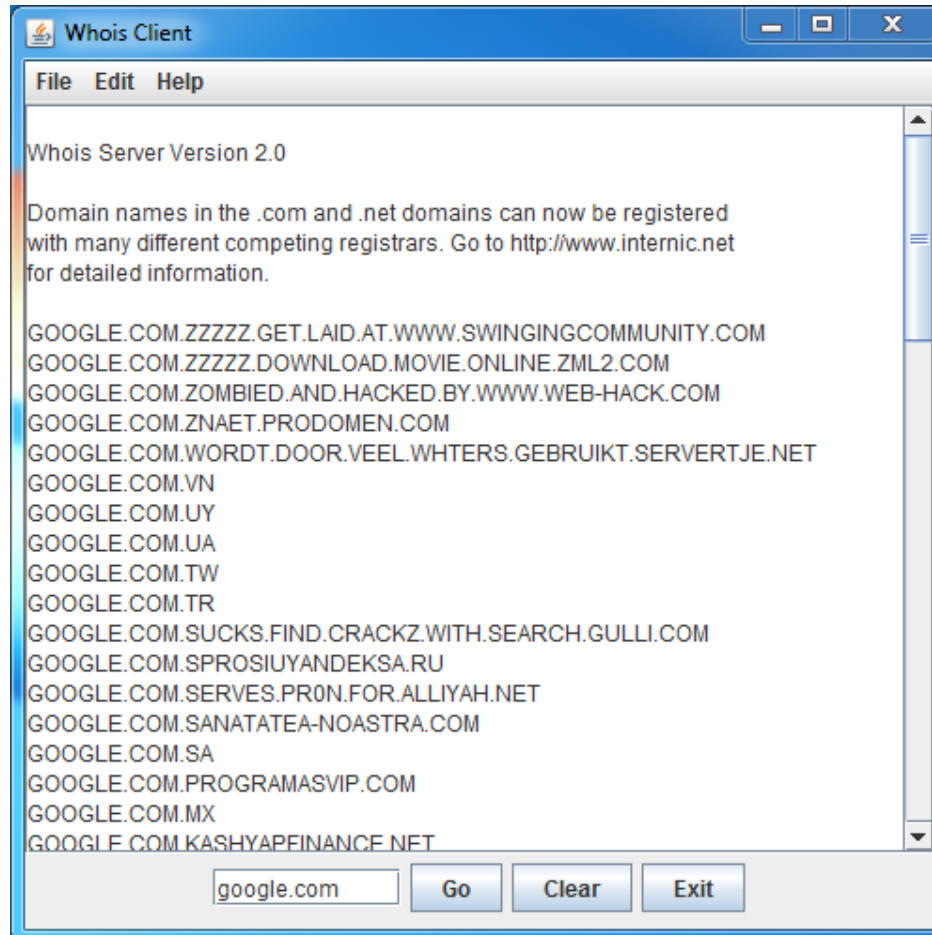
# So...what happens?



# Example 1

- **Whois Client**

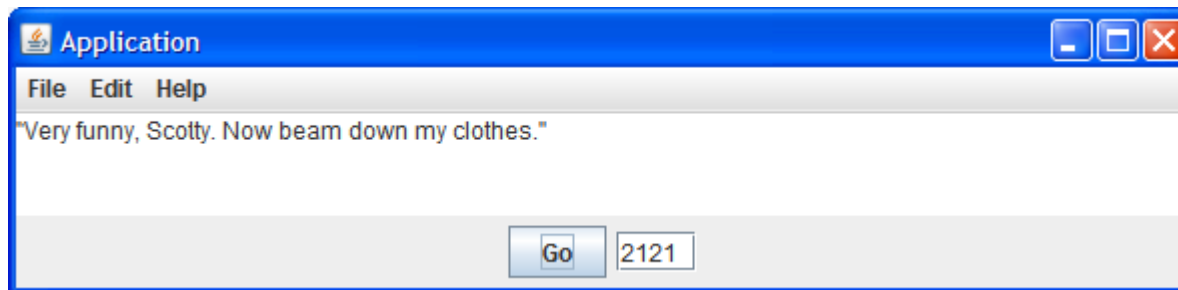
(show in Eclipse)



# Example 2

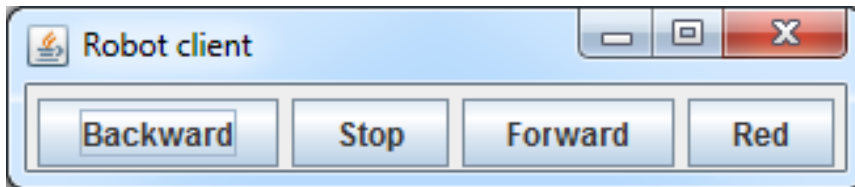
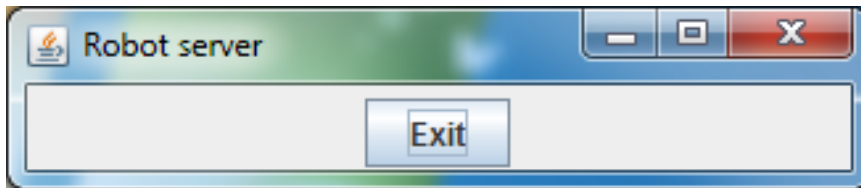
- **Quote client / server**

(show in Eclipse, **start** server first!!)



# Example 3

- Robot client / server





# Homework

- 1. Use the examples to create 2 programs That allow you to control the robot from a distance. The programs have to communicate to each other using sockets.**

# Links

- <http://java.sun.com/developer/onlineTraining/Programming/BasicJava2/socket.html>
- <http://java.sun.com/docs/books/tutorial/networking/index.html>