# Lab 8

## Computer Communication Networks

### TCP & UDP

The lab's schedule

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| Published date: | 02/06/22 |
| Quiz date: | 07,09/06/22 |
| Deadline for the final report: | 18/06/21 |

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# General Instructions

- **The final report** will be based on the answers of this document.
- **Remember** to pay attention to the "Final report submission" in the Introduction Lab.
- Most of the laboratory experiments based on the book: "*Mastering Networks: An Internet Lab Manual*"
- For each exercise, it is recommended to **read it all to understand the main idea before you do it**.
- IP address is composed of four octets ( "octet1.octet2.octet3.octet4" ).
  In our Labs all IP addresses will be according to the Network Figure, except *octet2*.
  ***Octet2* will be according to the pair's number ("10.*X*.0.1", *X = pair's number*).**
- **Write the number *X*** clearly **on the title page** of your final report.

# Reading Material

As always, focus on the subjects found in the ***Preliminary Questions*** section, **not** all subjects found in the links!

For the quiz you can read only from:

- Read about UDP: https://en.wikipedia.org/wiki/User_Datagram_Protocol
- Read about TCP: https://en.wikipedia.org/wiki/Transmission_Control_Protocol

For the rest of the lab (no need to read for the quiz):

- A nice example of the Sliding window mechanism (Selective Repeat):
  http://www.ccs-labs.org/teaching/rn/animations/gbn_sr/ \
- Read about the command/program ttcp: http://linux.die.net/man/1/ttcp
- Read about TCP stream graphs (you will use those in part 2 of this lab)
  https://www.wireshark.org/docs/wsug_html_chunked/ChStatTCPStreamGraphs.html

# Preliminary Questions

- Describe the fields of a TCP segment and a UDP datagram.
- Describe the error detection method of TCP and UDP protocols.
- Describe the process of 3-way handshake.
    - In your answer consider various situations such that the connection is not successful.
- Briefly explain what are the main differences between TCP and UDP?
- Briefly explain about the fairness considerations that each protocol keeps.
    - For TCP, two examples of these are: Congestion control and Flow control.

# The practical section

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