CO323 - Lab 06
Investigating TCP communication using Time-Sequence Diagrams

We will consider the following setup for checking the TCP communication between two computers over a **Wi-Fi** network.

1) We will first upload a file to the Aiken/Tesla server via a TCP connection and observe the network traffic.
    a) Follow these steps:
        i) Use only the given Zoom installer file (~15MB).
        ii) Open Wireshark on your computer and start capturing outgoing packets.
        iii) Open a terminal and copy the given Zoom installer file to the Aiken/Tesla server via SSH. (**Hint: Look into `scp` command)**.
        iv) Wait until the uploading finish and stop the Wireshark capture.
        v) Apply a filter as necessary to filter only the TCP packets from source to destination.
        vi) Obtain the TCP Time-Sequence (Stevens) graph for the TCP communication from YOUR_IP to Aiken/Tesla Server_IP and take a screenshot. (**Hint: Look into Wireshark statistics)**. Note: Make sure the graph is for YOUR_IP => Server_IP, not the other way around.
    b) What do you see at the beginning of the TCP Sequence-Time graph when you start transferring data? Explain briefly.
    c) What is the reason for the behavior you observed in part b?
    d) Obtain the Time-Sequence (TCP trace). Do you see red lines in that? Explain what happens by comparing those with the graph you obtained for Time-sequence (Stevens) graph.
    e) Obtain the Window Scaling graph from Wireshark statistics. Explain what happens in the obtained graph.

Create a small report renamed as E17XXX_report.pdf (XXX is your E Number) including the screenshots for your observations, simulations, and answers.

Submit a zip file **E17XXX_Lab06.zip** (XXX is your E Number) which contains the following.

- **E17XXX_report.pdf**
- **Time_Sequence_stevens_graph_Screenshot**
- **Time_Sequence_tcptrace_graph_Screenshot**
- **Window_Scaling_graph_Screenshot**
- **Wireshark file (E17XXX_capture.pcapng)**