HTW-Berlin / Fachbereich-4
Internationaler Studiengang Medieninformatik
Modul: Netzwerke
Dozent: Malik Algazaeery
Aufgabenblatt-04

Hochschule für Technik und Wirtschaft Berlin
University of Applied Sciences

Homework Instructions

Submission Deadline: The homework must be submitted within the next two weeks.

Grading Criteria:

- Your assignment will be graded as either **1 (Pass)** or **0 (Fail)**.
- To receive a passing grade, you must solve **75% or more** of the assignment correctly.
- **Feedback Policy**: Detailed feedback on individual solutions will not be provided. After the submission deadline, a complete solution will be published, allowing you to compare your work with the ideal solution. Use this to evaluate your approach and understand any mistakes.

Important:

- Please make sure to submit your work on time. Late submissions will not be accepted.
- Make sure to clearly explain your calculations and reasoning.
- **Solution Steps and Clarifications**: Be prepared! The lecturer may ask any student in your group during class or online to explain the solution steps and reasoning for any problem. Make sure that everyone in your group understands the approach and can explain why the problem was solved in that particular way.
- **Group Contribution**: For each homework problem, list the name(s) of the student(s) from your group who worked on that specific problem. This will help in tracking contributions and ensuring everyone participates.
- **Language**: You may write your answers in **German, English, or a mix of both**. Choose the language you feel most comfortable with.

Homework Problem 1: Multiple choice. (12 Points)

Solve the multiple choice questions (2, 3, 4, 5, 6, 10) of chapter-3 on the companion website of the book. Show all steps in detail and reason your answer.

Homework Problem 2: True or False. (18 Points)

Solve the True or False questions (1, 2, 3, 4, 5, 6, 7, 8, 10) of chapter-3 on the companion website of the book. Show all steps in detail and reason your answer.

Homework Problem 3: Go-Back-N Protocol. (15 Points)

Start the simulation animation of Go-Back-N Protocol on the companion website. Simulate as many scenarios as you can. For example:

- Kill one or more packets on the way to the receiver.
- Kill one or more acknowledgments on the way back to the sender.
- Wait till a timeout occurs.

Write down your observations and attach screenshots to your solution. What are the differences to the Selective Repeat Protocol Protocol?

Homework Problem 3: Selective Repeat Protocol. (15 Points)

Start the simulation animation of Selective Repeat Protocol on the companion website. Simulate as many scenarios as you can. For example:

- Kill one or more packets on the way to the receiver.
- Kill one or more acknowledgments on the way back to the sender.
- Wait till a timeout occurs.

Write down your observations and attach screenshots to your solution. What are the differences to the Go-Back-N Protocol?

Homework Problem 4: Packet Capture and Analysis Using Wireshark. (40 Points).

Objective: The purpose of this assignment is to give you hands-on experience with network traffic analysis by using Wireshark (https://www.wireshark.org/) to capture and analyze HTTP requests. By doing so, you will gain insight into how data packets are structured and transmitted over a network.

Instructions:

- Group Work Requirement: This assignment is a group project; however, each group member must complete the packet capture and analysis individually. Each member's findings will be compiled into a final group report.
- Include screenshots from Wireshark that support each summary.
- Wireshark Setup: You may use Wireshark on any operating system (Windows, macOS, or Linux). Ensure you have the appropriate permissions to run Wireshark, especially on Linux systems, where additional setup might be needed.
- Task: Read the paper, run wireshark and answer all questions at the end of the paper: The paper is available on the companion website of the book. Under wireshark labs **choose HTTP** v8.1.

Good Luck