# Sliding Window – An Introduction to Reliable Data Transfer

Assignment in Computer Networks I
Department of Information Technology, Uppsala University

## 1 Formalities

This assignment has to be performed in groups of two people. You are encouraged to use available resources such as the course book and online examples. If you discuss with another group, please state so in the *answers.txt* file to give them credit and avoid suspicion of cheating. The assignment is divided into three tasks that are all mandatory.

### Submission instructions

Download and use the template file *answers.txt* to write down your answers. The file can be found in the lab section of the course homepage. There you can also find the deadline for the assignment.

The assignment is handed in through the course page in the Studentportal. It is enough that one of you submit the answers by uploading the file *answers.txt* before the deadline.

Give short but precise answers to the questions, an answer to a question should at most be 5 sentences long. After submitting the assignment with acceptable answers, your group (exactly 2 people) will be called for an interview with us where we will discuss your answers and ask further questions regarding "Reliable Data Transfer". Both of you need to attend the interview together in order to pass the assignment.

## 2 Tasks

Read the course book section 3.4 "Reliable Data Transfer" to understand how Go-Back-N, Selective Repeat and alternatives work. This understanding is essential for passing the assignment.

### Task 1

Using the course literature as reference answer the following:

- **Question 1** Stop-and-Wait is the most basic data transfer protocol. What is its major drawback?
- **Question 2** What technique does Go-Back-N and Selective Repeat use to improve this drawback?

### Task 2

Visit the Go-Back-N Java applet at the following website: `http://media.pearsoncmg.com/aw/aw_kurose_network_4/applets/go-back-n/index.html` Try it out and get familiar with how it works, then using the applet, answer the following questions:

- **Question 3** Have the source send five packets, and then pause the animation before any of the five packets reach the destination. Then kill the first packet and resume the animation. Describe what happens.
- **Question 4** Repeat the experiment, but now let the first packet reach the destination and kill the first acknowledgement. Describe again what happens.
- **Question 5a** What is the window size in this applet application?
- **Question 5b** Why do you think the window is limited in size and what determines that limit?

### Task 3

Visit the Selective Repeat Java applet at the following website: `http://media.pearsoncmg.com/aw/aw_kurose_network_4/applets/SR/index.html` Using the applet, answer the following questions:

- **Question 6** Have the source send five packets, and then pause the animation before any of the five packets reach the destination. Then kill the first packet and resume the animation. Describe what happens.
- **Question 7** Repeat the experiment, but now let the first packet reach the destination and kill the first acknowledgement. Describe again what happens.
- **Question 8** Describe one good and one bad property of Go-Back-N and Selective Repeat respectively (four properties in total).