Lab Experiment 05 (ODD Group)

CSE 2213- Data and Telecommunications Lab

Implementation of Selective Repeat ARQ Mechanism

**Problem Description**

PART 1: This experiment implements a flow control and error control mechanisms at the data link layer: Selective Repeat ARQ mechanism. Consider,

* In the sender program, data will read from a small text file (1 KB) and produce 8-byte frames.
* Sender window size: 8 (sequence numbers 0, 1, 2, 3, … , 15).
* Sender program will start a timer for each sent-frame so that it can handle timeout-based retransmissions.
* Receiver window size: 8
* Receiver program will probabilistically (e.g. Perror<0.5) drop some frames.
* Receiver program should send Acknowledgement to the sender. Receiver will maintain a timer from start time. On time-expiration will send one acknowledgement for all the packets received on that time interval or will send repeat-request for the missing packet only.

**There will be five distinct cases:**

1. The frame will not be received by the receiver (lost/dropped during Transmission) [implement on the sender side with send probability (P<0.3)]

2. The frame will be received by the receiver error free.

3. The frame will be received by the receiver with error(s)

* In this case there will a negative acknowledgement

4. Acknowledgement frame will be received by the sender

5. Acknowledgement frame will not be received by the sender. (lost/dropped

during transmission ) [implement on the receiver side with send probability

(P<0.3)]

Declare all the events and take necessary steps according to Selective Repeat ARQ.

Please refer to your textbook (pages 369 onwards) for details.

Useful Tutorials:

* <https://www.youtube.com/watch?v=Oipm5DdYYAs>
* <https://www.youtube.com/watch?v=8eLhbOlF44U>
* <http://www.cs.virginia.edu/~zaher/classes/CS457/lectures/flow-control.pdf>