CS4392/5376: Computer Networks/Communication Networks
Summer II 2021

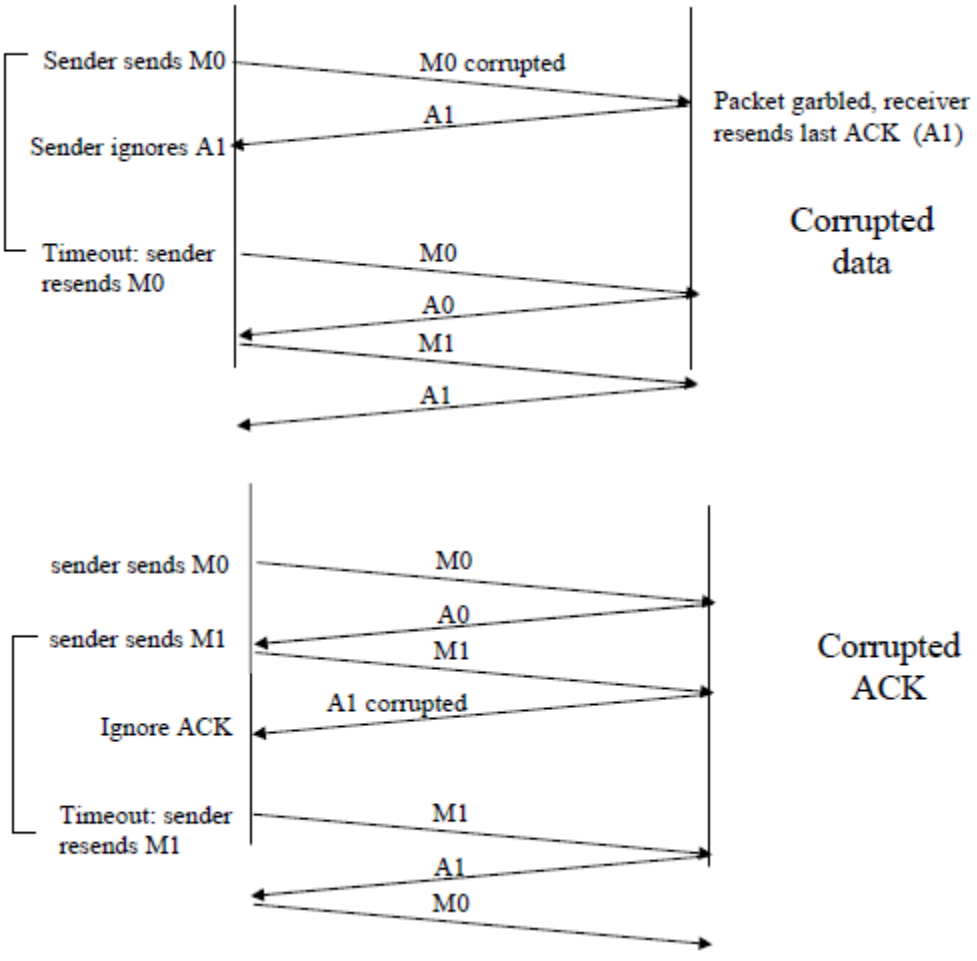
Homework #2 Solution

- Full name only: _____
- Release date: June 14th, 2021 (Wednesday)
- Due date: **July 19th, 2021 (Monday) before midnight, 11:59 PM**
- It should be done INDIVIDUALLY; Show ALL your work; Write your answer in a Word file and submit it through the Blackboard
- Total: 25 pts

1. Give traces of the operation of protocol rdt3.0 when data packets and acknowledgement packets are garbled, respectively. Your trace should be similar to that used in the lecture note (e.g. rdt3.0 in Action in lecture note #8). Suppose the protocol has been in operation for some time.

[4 pts]

The sender is in state "Wait for call from above" (top left hand corner) and the receiver is in state "Wait for 0 from below". The scenarios for corrupted data and corrupted ACK are shown in Figure 1.



2. Compare GBN and SR. Assume that the timeout values for all two protocols are sufficiently long such that 5 consecutive data segments and their corresponding ACKs can be received (if not lost in the channel) by the receiving host (Host B) and the sending host (Host A) respectively. Suppose Host A sends 5 data segments to Host B, and the 2nd segment (sent from A) is lost. In the end, all 5 data segments have been correctly received by Host B.

- How many segments has Host A sent in total and what are their sequence numbers in GBN and SR, respectively? Show ALL your work.

  [3 pts]

  GoBackN:
  Host A sends 9 segments in total. They are initially sent segments 1, 2, 3, 4, 5 and later re-sent segments 2, 3, 4, and 5.

  Selective Repeat:
  Host A sends 6 segments in total. They are initially sent segments 1, 2, 3, 4, 5 and later re-sent segments 2.

- How many ACKs has Host B sent in total and what are their sequence numbers in GBN and SR, respectively? Show ALL your work.

  [3 pts]

  GoBackN:
  Host B sends 8 ACKs. They are 4 ACKS with sequence number 1, and 4 ACKS with sequence numbers 2, 3, 4, and 5.

  Selective Repeat:
  Host B sends 5 ACKs. They are 4 ACKS with sequence number 1, 3, 4, 5. And there is one ACK with sequence number 2.