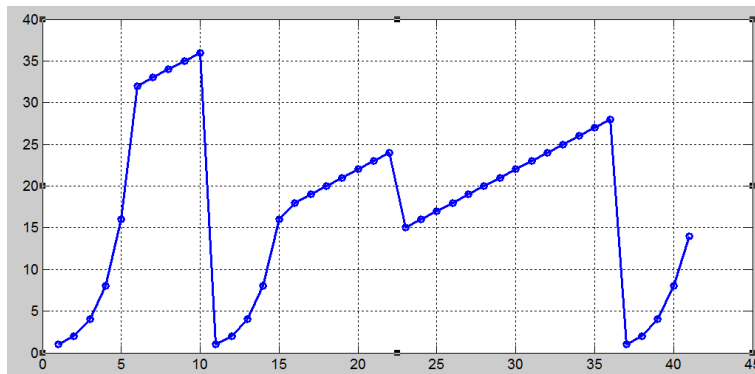


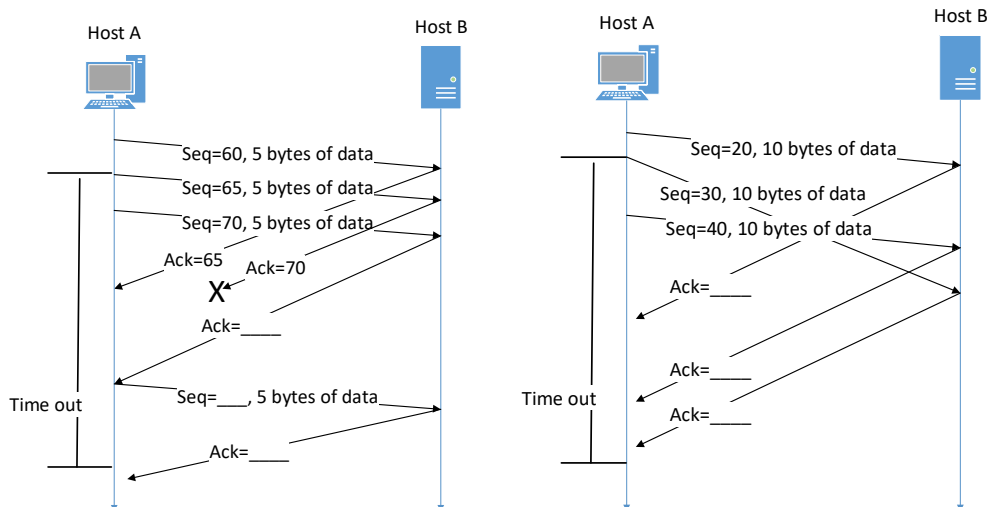
Computer Networks Homework

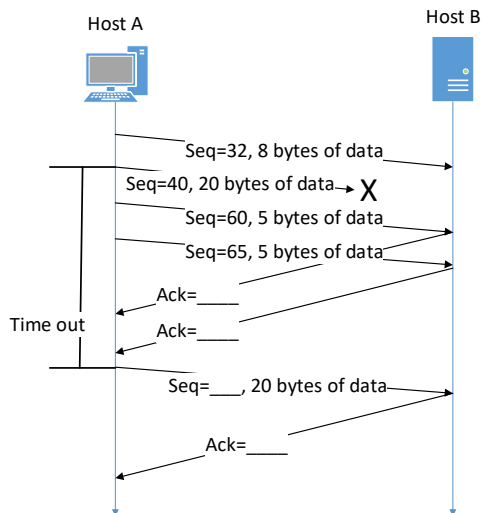
Transport Layer

1. Compute 8-bit checksum for 01100010 and 10111001, and use an example to show that if the two numbers each has a 1-bit error, the checksum can not detect the errors.
2. Consider the following cwnd evolution at a TCP sender:



- (a) Is this TCP Tahoe or TCP Reno?
 - (b) What is the sender's initial ssthresh?
 - (c) What happens at time 10? What is ssthresh and cwnd at time 11?
 - (d) What happens at time 22? What is ssthresh and cwnd at time 23?
 - (e) What happens at time 36? What is ssthresh and cwnd at time 37?
 - (f) When is the 50th segment is sent?
 - (g) Which intervals the TCP connection is under slow start?
3. Host A sets up a TCP connection with Host B, fill in the blanks the appropriate sequence and acknowledgement numbers.





4. Two TCP connections A and B strictly follow AIMD and they share a same bottleneck of 100 Mbps. Initially connection A has a throughput of 64 Mbps, connection B has a throughput of 32 Mbps, the two connections increase their throughputs at a same rate. 1) Fill in following table. 2) After how many loss events, the difference between the two connections' throughputs is within 5 Mbps?

| Round | A | B |
|----------------------------|----------|----------|
| 1 st loss event | 64→66→33 | 32→34→17 |
| 2 nd loss event | | |
| 3 rd loss event | | |
| 4 th loss event | | |