

Computer Communications and Networks (COMN) 2018/19, Semester 2

Assignment Part 1 Results Sheet

Forename and Surname:	Boyan Yotov
Matriculation Number:	s1509922

Question 1 - Number of retransmissions and throughput with different retransmission timeout values with stop-and-wait protocol. For each value of retransmission timeout, run the experiments for **5 times** and write down **average number of retransmissions** and **average throughput**.

Retransmission timeout (ms)	Average number of re-transmissions	Average throughput (Kilobytes per second)
5	2254.4	45.2
10	1087.8	44
15	718.4	40.8
20	183	41.2
25	191.6	40
30	195.2	39
40	194.6	34.4
50	199.2	31.6
75	197	26
100	225.8	21

Question 2 - Discuss the impact of retransmission timeout value on number of retransmissions and throughput. Indicate the optimal timeout value from communication efficiency viewpoint (i.e., the timeout that minimizes the number of retransmissions and keeps the throughput as high as possible).

When the retransmission timeout value is lower than the round-trip propagation delay (which is 20ms), most of the retransmissions can be considered as reckless and not needed, as at least wait time equal to the round-trip propagation time (20ms) should be considered in order for an ACK to be received. An optimal value should be somewhere around the round-trip propagation time. In our case it is the 20ms timeout.

NB: throughput is a bit low, because the sender itself reads the data for the next package, which slows the execution but is memory friendly and as well simulated the time gap the application layer might have between calls.

