Computer Communications and Networks (COMN)
2020/21, Semester 2

Assignment 2 Results Sheet

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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	981	54.68
10	962	40.72
15	128	51.99
20	89	60.07
25	99	51.76
30	104	49.35
40	124	36.33
50	102	39.33
75	100	30.51
100	110	23.64

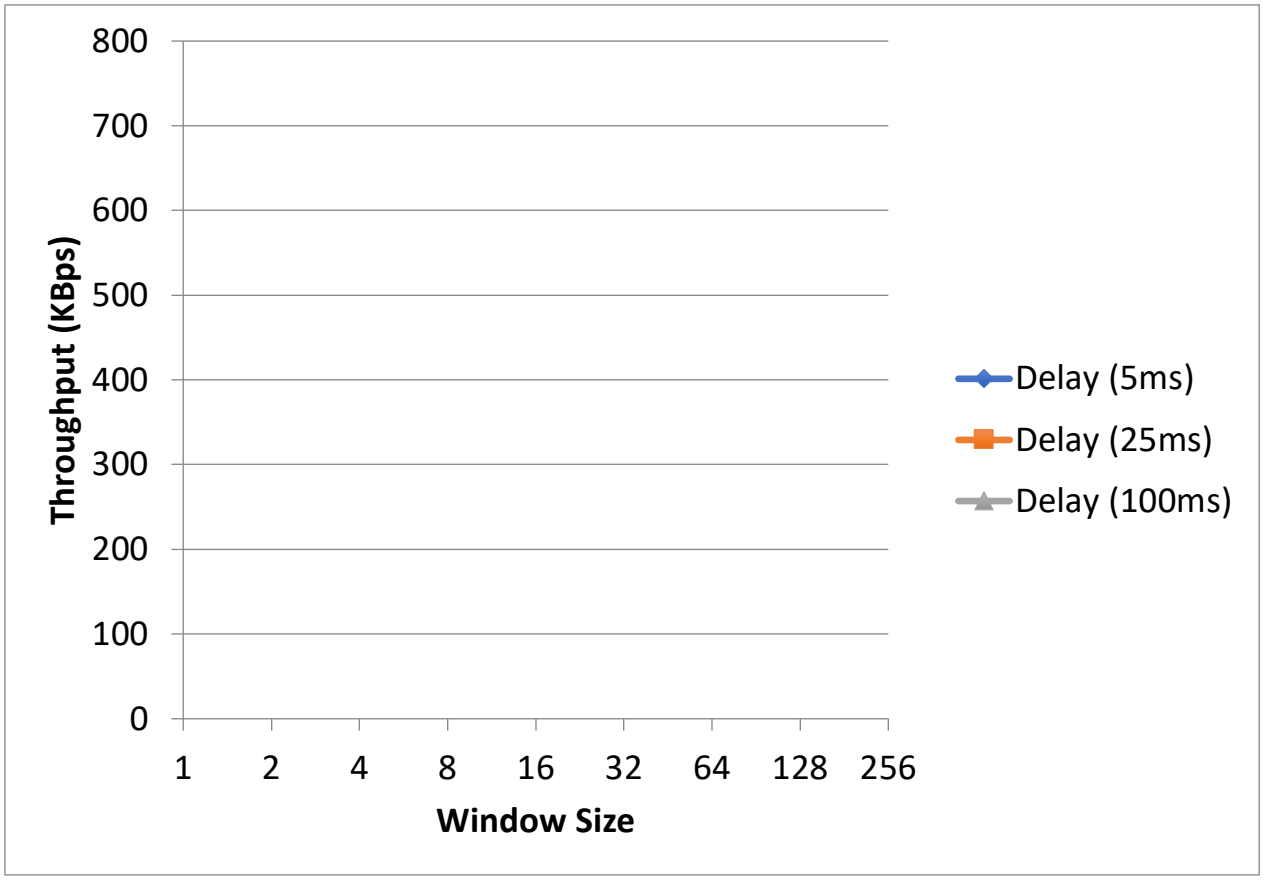
Question 2 – Discuss the impact of retransmission timeout value on the number of retransmissions and throughput. Indicate the optimal timeout value from a communication efficiency viewpoint (i.e., the timeout that minimizes the number of retransmissions while ensuring a high throughput).

From the table we can see that the lower retransmission timeout the average number of retransmissions will become higher. The higher retransmission timeout, the value of average throughput become smaller thus less efficient. The optimal value for retransmission timeout should be 20ms, since it keeps lower number of retransmissions and still has high average throughput.

Question 3 – Experimentation with Go-Back-N. For each value of window size, run the experiments for **5 times** and write down **average throughput**.

	Average throughput (Kilobytes per second)		
Window Size	**Delay = 5ms**	**Delay = 25ms**	**Delay = 100ms**
1			
2			
4			
8			
16			
32			
64			
128			
256			

Create a graph as shown below using the results from the above table:



Question 4 – Discuss your results from Question 3.

Question 5 – Experimentation with Selective Repeat. For each value of window size, run the experiments for **5 times** and write down **average throughput**.

	Average throughput (Kilobytes per second)
Window Size	**Delay = 25ms**
1	
2	
4	
8	
16	
32	

Question 6 - Compare the throughput obtained when using "Selective Repeat" with the corresponding results you got from the "Go Back N" experiment and explain the reasons behind any differences.

Question 7 – Experimentation with *iperf*. For each value of window size, run the experiments for **5 times** and write down **average throughput**.

Window Size (KB)	Average throughput (Kilobytes per second) Delay = 25ms
1	
2	
4	
8	
16	
32	

Question 8 - Compare the throughput obtained when using "Selective Repeat" and "Go Back N" with the corresponding results you got from the *iperf* experiment and explain the reasons behind any differences.