CN-3530/CS 301 Assignment 2

1. Stop and Wait Protocol

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 the average **number of retransmissions** and **average throughput**.

Retransmission timeout (ms)	Average number of re-transmissions	Average throughput (Kilobytes per second)
5	689.26	99.30
10	555.39	76.96
15	479.80	77.84
20	452.12	58.94
25	427.84	48.07
30	492.34	43.86
40	402.07	36.05
50	371.14	30.71
75	342.08	22.59
100	320.89	17.49

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).

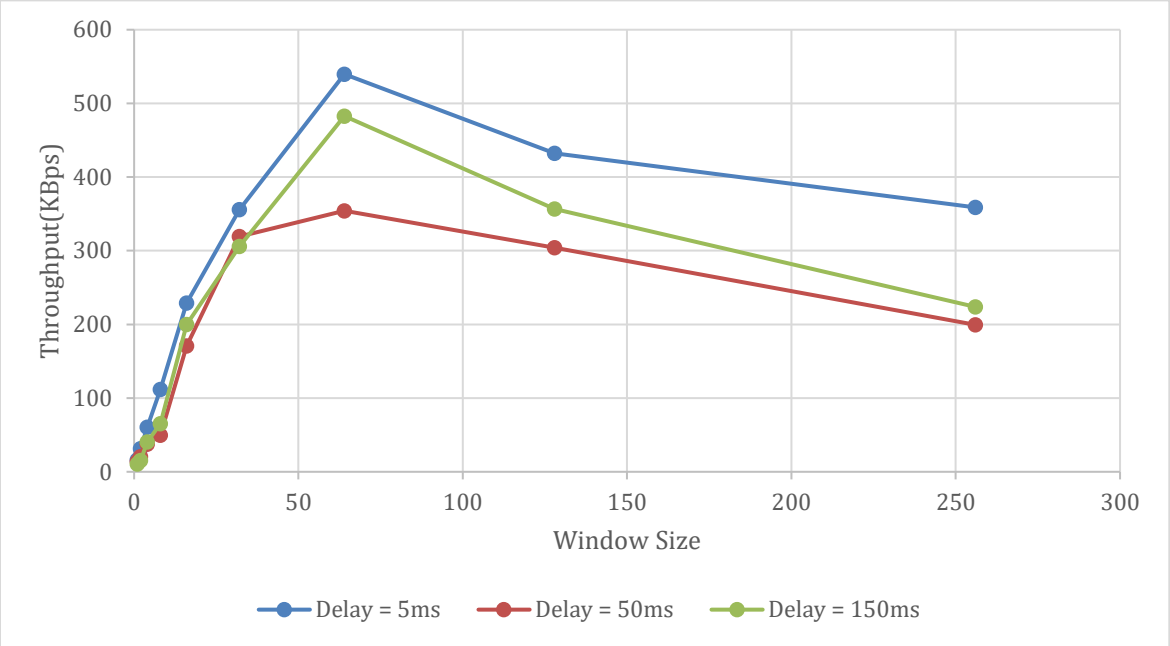
As we can see that the number of retransmission of packets is decreasing as the retransmission time out is increasing and also the through put is decreasing because as the retransmission time out increases the throughput values must have to decrease because the program will wait much more time as excepted. And I think that the most optimal timeout value will be 25ms because there we can see that the tradeoff between the throughput and retransmission will

2. Go back N Protocol

Question 1 – Experimentation with Go-Back-N. For each value of window size, run the experiments **5 times** and write down the **average throughput**.

	Average throughput (Kilobytes per second)		
Window Size	**Delay = 5ms**	**Delay = 50ms**	**Delay = 150ms**
1	16.34	14.09	10.47
2	31.35	20.48	15.53
4	60.52	37.64	40.52
8	111.75	49.54	65.37
16	228.86	170.75	199.75
32	356.01	319.23	305.92
64	539.67	354.27	482.79
128	432.44	303.99	356.47
256	359.01	199.56	223.65

Create a graph similar to the one shown below using the results from the above table: (Edit: change delays to 5ms, 50ms and 150 ms as mentioned in the assignment statement)



Question 2 – Discuss your results from Question 1.

Here we can see that the throughput values are increasing in three of the cases until window size is 64 and then the throughput values are decreased here.
And here the throughput values for 5ms is greater that the one whose values are 50ms and 150ms. We can see that the tradeoff between the delay values and throughput and hence for this case it is better to take the window size is 64 and the transmission delay is 5ms.

PLAGIARISM STATEMENT <Include it in your report>

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