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	1330	76.4532
10	779	71.4325
15	213	66.7896
20	142	63.3456
25	121	61.897
30	110	56.7892
40	113	54.4567
50	115	52.2345
75	120	48.3456
100	124	45.3456

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 5 and 10 ms are less than rtt(10ms) the number of retransmissions is higher than we expected and for remaining timeouts number of retransmissions seems to decrease and settle down to a particular value

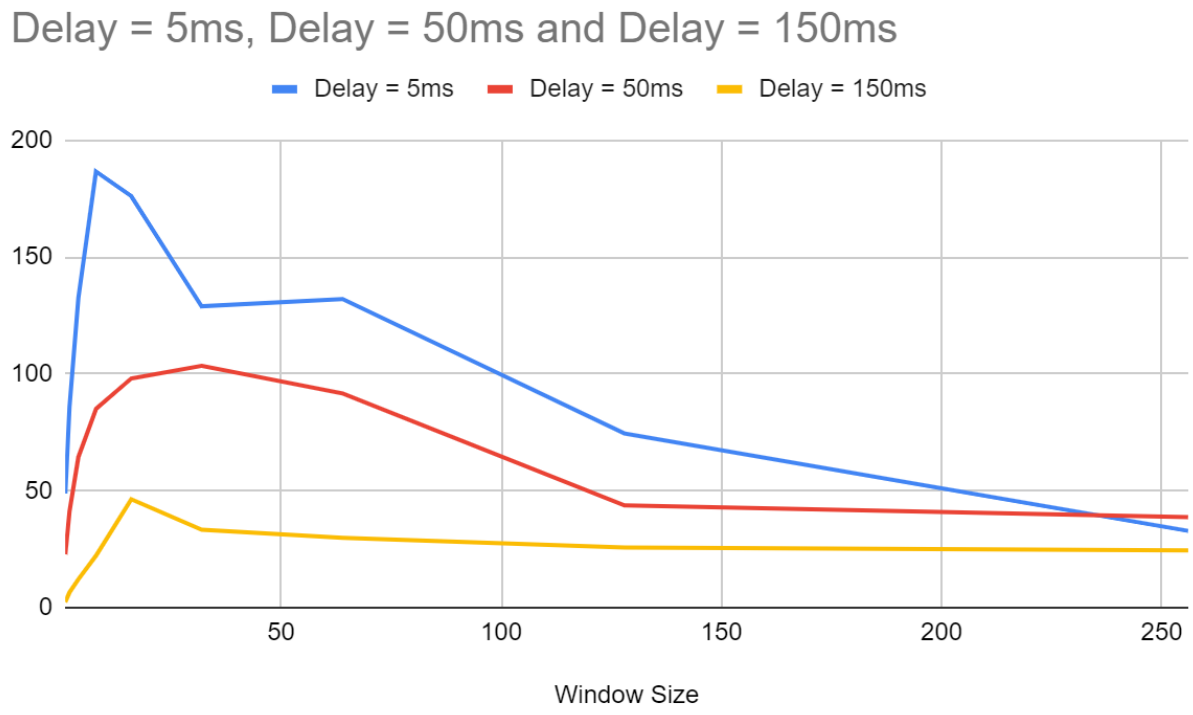
Average throughput decreases over the increase in timeout with decreasing slope(negative).It may be because the effect of packet loss (5%) is lesser on smaller timeouts.

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	48.7983	22.8407	2.3456
2	85.9307	41.1612	6.5678
4	132.5582	64.5313	12.2345
8	186.6126	85.0859	22.2345
16	176.099	98.083	46.3456
32	128.9753	103.4829	33.3456
64	132.0375	91.6468	29.879
128	74.4915	43.7207	25.6789
256	32.8369	38.7328	24.4567

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.

As windows size increase throughput increases and reaches it peak and decrease after works for all delay times because of two conflict factors (increase in utilization of link and increase in no of retransmissions) At first increase in utilization is dominant and then effect due to no of retransmissions becomes dominant in all cases and then throughput seems to settle down.

PLAGIARISM STATEMENT <Include it in your report>

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Name:Gorantla Pranav Sai
Date:21-11-2022
Signature: G.Pranav Sai