I have read and understood the course academic integrity policy.

Timer Scheme: I have selected timeout values on a trial and error basis selecting that timeout value that gave the best results of throughput.

For ABT I have taken a timeout value of 4.0.

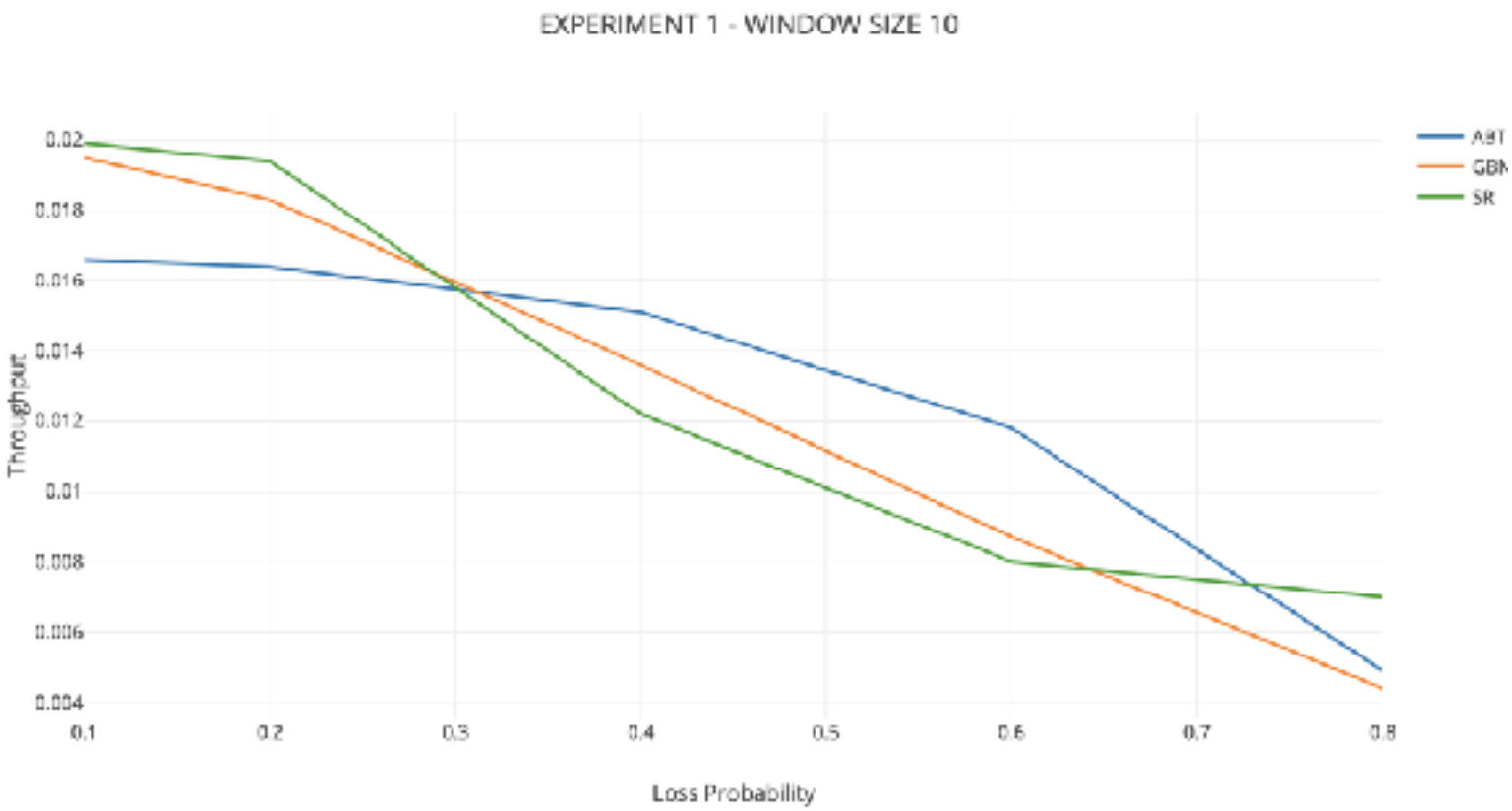
For GBN I have taken a timeout value of 40.0. The timeout of GBN should actually depend on the window size.

For SR I have taken a timeout value of 15.0. The performance of SR could have been increased by taking an adaptive timeout scheme as the performance of SR is greatly dependent on the timeout value.

Multiple Timer Scheme: The technique I have used to implement multiple logical timers with one physical timer is by taking a relative timer approach. I have saved the local time for each of the packet sent and then, on updating the timer I have checked for the longest ‘unacked’ packet and then calculated the time left for that packet from a timeout based on its timestamp and the local time.

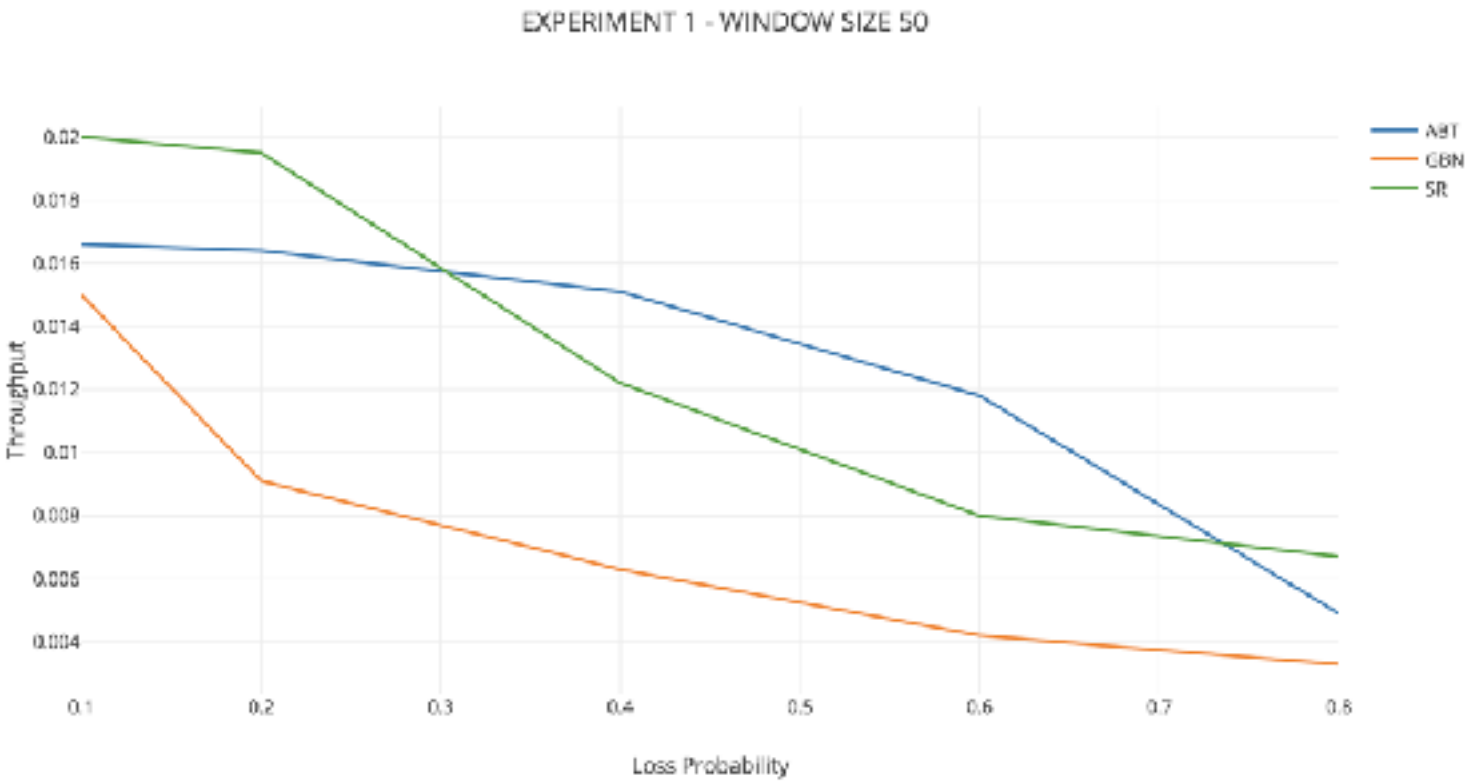
EXPERIMENT 1

Window Size = 10



Observations: ABT protocol seems to be the least effective of all the protocols, although it has a higher throughput than the other protocols for a loss range of 0.3 - 0.75 (approximately). This maybe due to implementation errors. SR has the highest throughput for lower loss probabilities. It has a higher throughput than the other two protocols for high values of loss probability as well.

Window Size = 50



Observation: The throughput for GBN significantly decreases on increasing the window size as it has to send the entire window again in case of a lost packet. GBN efficiency can be increased by keeping the window size small. Otherwise, we can take an adaptive window size based on the loss probability in case of GBN protocol.

Conclusions of Experiment 1: SR is clearly a better protocol when compared to ABT and GBN. GBN works efficiently when the window size is small. ABT would work efficiently for smaller number of packets.