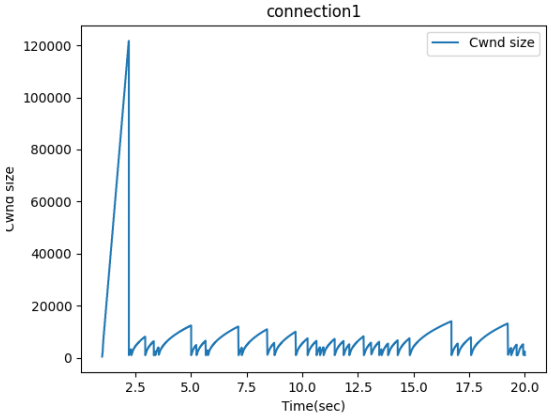
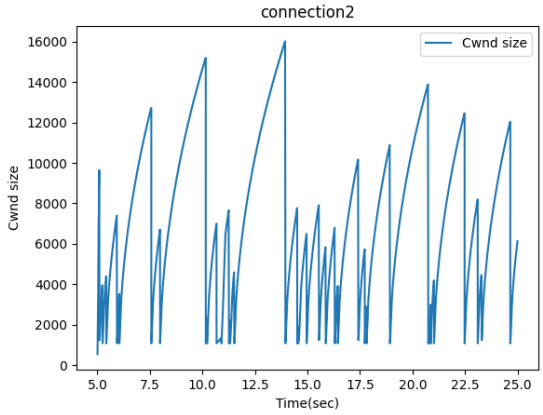
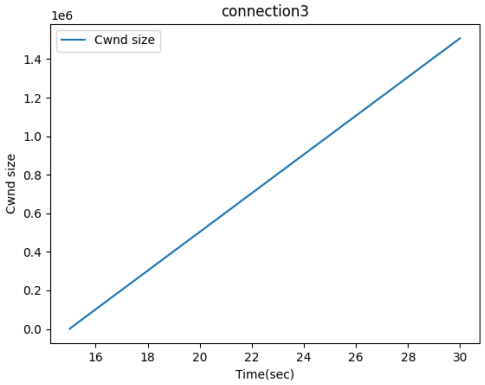
COL334 Assignent 4 - Report Part A - Harshit Mawandia- 2020CS10348

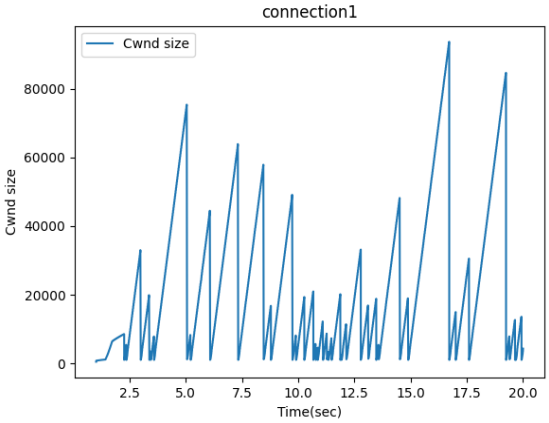
1. Congestion Window Size vs Time for TcpNewReno connections

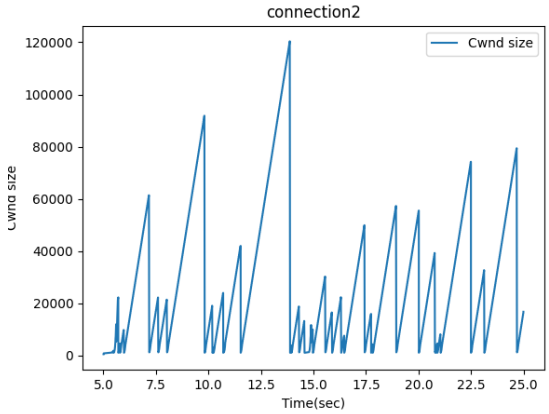


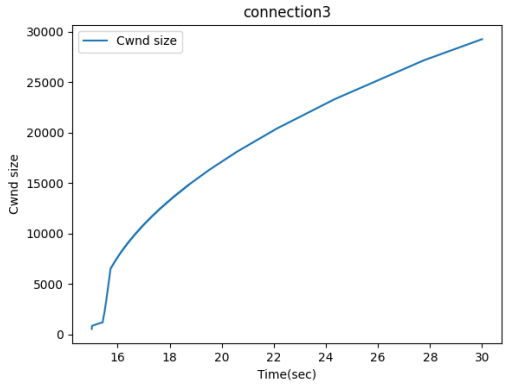




Congestion Window Size vs Time for TcpNewRenoPlus connections







2. TcpNewReno follows $cwnd = cwnd + max(1.0, segmentSize^2/cwnd)$ in congestion avoidance phase.
   TcpNewRenoPlus follows $cwnd = cwnd + 0.51 * segnementSize$ in congestion avoidance phase
   We see that TcpNewRenoPlus grows faster than TcpNewReno as in Slow Start phase it goes grows with the power of 1.91 while TcpNewReno grows with the power of 1. Even when threshold is passed, TcpNewRenoPlus has a faster rate of growth since it grows linearly with segment size while TcpNewReno does not since it has a factor of cwnd in the denominator which is continuously grows bigger and thus dampens the effect of square of segment size by a much larger factor since cwnd >> segment size.
   Therefore we see the these trends where it clearly shows TcpNewRenoPlus growing faster than TcpNewReno

Files Submitted :

6 CSV files - The cwnd vs time data generated for the 3 connections for both TcpNewReno and TcpNewRenoPlus
6 PNG files - The plots generated by using the python script and the CSV data
Task1.py - the script used to generate the plots using the CSV files
First.cc - the code for network simulation
TcpNewRenoPlus.h - The header file for the new Congestion avoidance protocol
TcpNewRenoPlus.cc - The code for the new Congestion avoidance protocol.