CS3205 Assignment 3 Report

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Parameters used in simulation

- k_i - Initial congestion window size

- k_m - Exponential growth phase congestion window multiplier

- k_n - Linear growth phase congestion window multiplier

- k_f - Timeout phase congestion window multiplier

- P_s - Probability of successfully receiving acknowledgement packet

Affect of parameters to the simulation

The default values of k_i, k_m, k_n, k_f, P_s are set to 1, 1, 0.5, 0.1, 0.9 respectively, unless specified for the following graphs.

1. k_i : With change in k_i, the only observable changes are in the start of the graph, keeping the other parameters the same. From figures 1.1 and 1.2, we see that only the height of the first saw-tooth is different, while the rest of the graph remains the same.
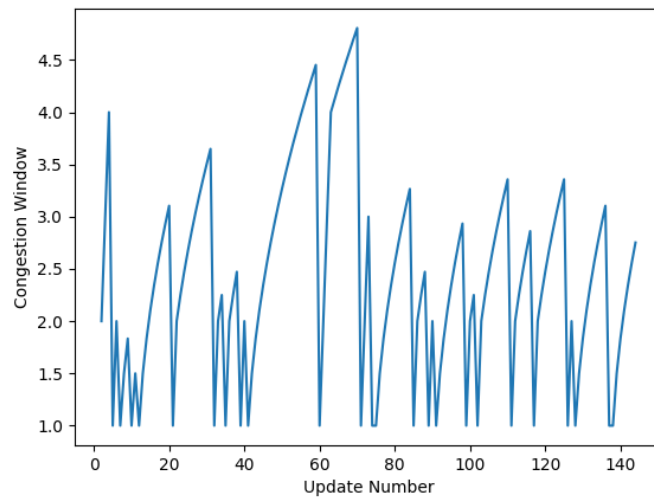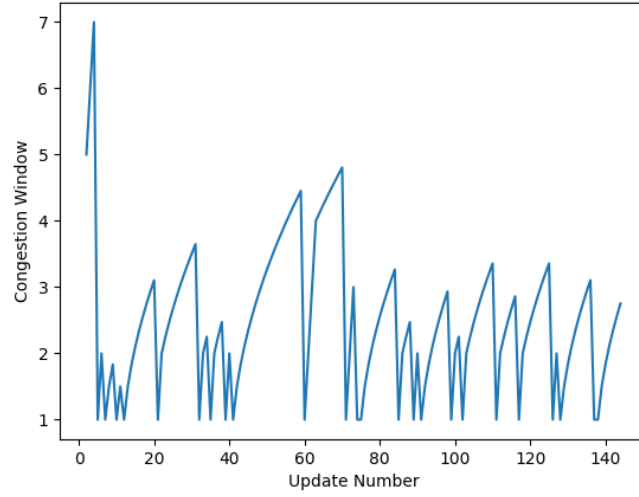

Fig 1.1 - ki = 1

Fig 1.2 - ki = 4

2. k_m : From the two figures, 2.1 and 2.2, we can see that change in k_m leads to change in the max height the graph reaches during the **Slow Start Phases**, thus increasing the height of those saw-tooths which are in the slow start phase for a longer time, more than the others.
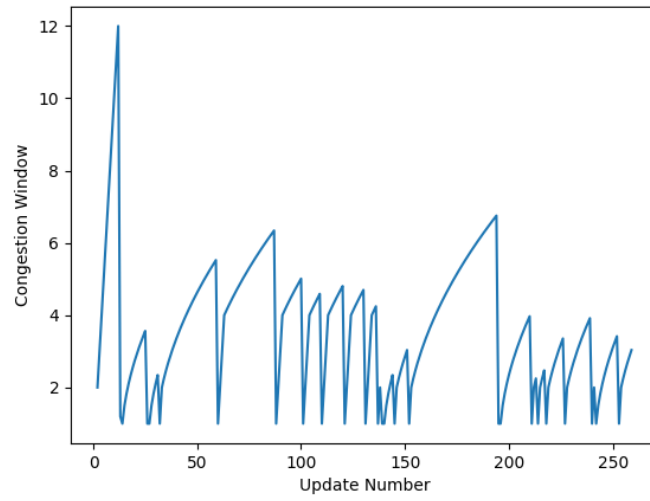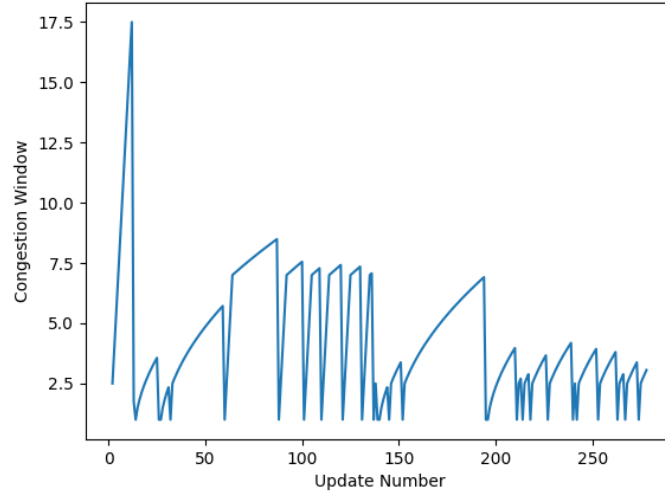

Fig 2.1 - km = 1

Fig 2.2 - km = 1.5

3. k_n : Similar to k_m, with increase in k_n, we see an increase in the heights gained for the saw-tooths during the **Congestion Avoidance Phases**, and as a consequence, the heights of those saw-tooths, lie in the congestion avoidance phase for a longer time, increase more compared to the other saw-tooths.
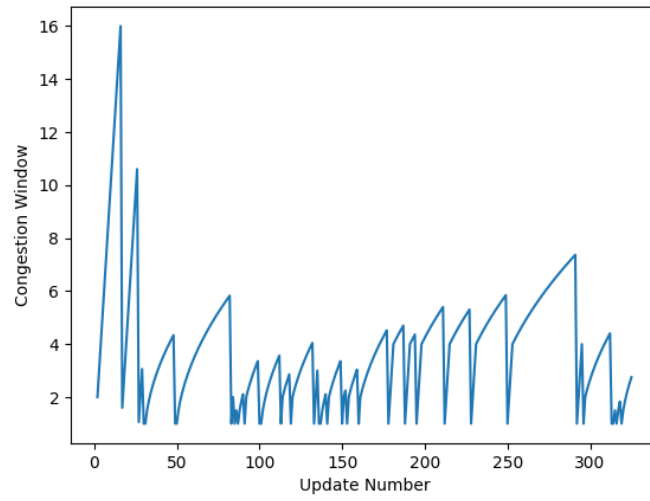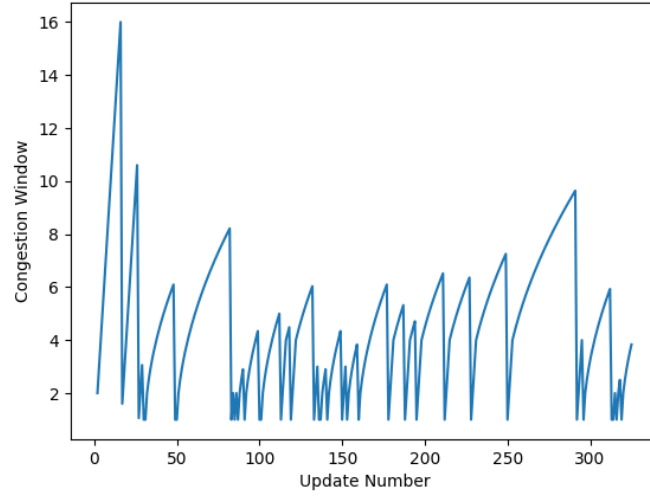

Fig 3.1 - kn = 0.5

Fig 3.2 - kn = 1

4. k_f : From figures 4.1 and 4.2, we can see that there isn't any changes in the peak heights of the saw-tooths, nor a displacement in between them. The only difference is the heights to which the saw-tooths drop to when a timeout occurs.
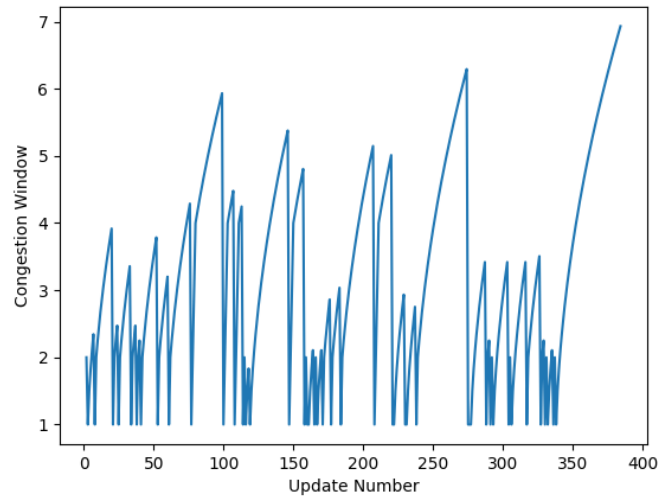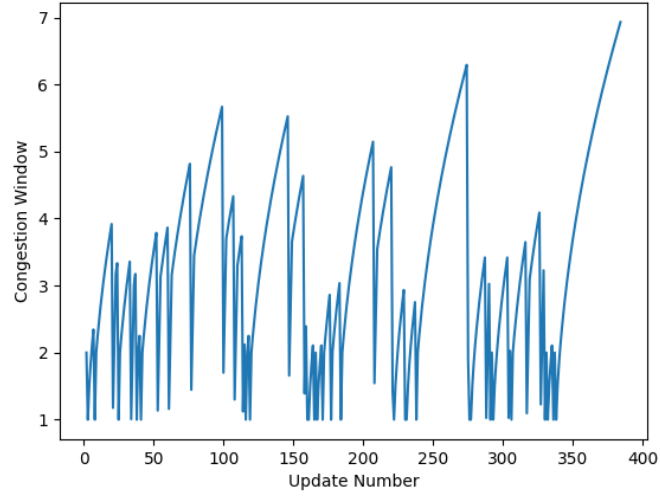

Fig 4.1 - kf = 0.1

Fig 4.2 - kf = 0.3

5. P_s : As one would expect, increasing P_s decreases the chances of a timeout happening and as we can see in figure 5.2, the slow start phase doesn't end until the congestion window reaches the initial threshold value.
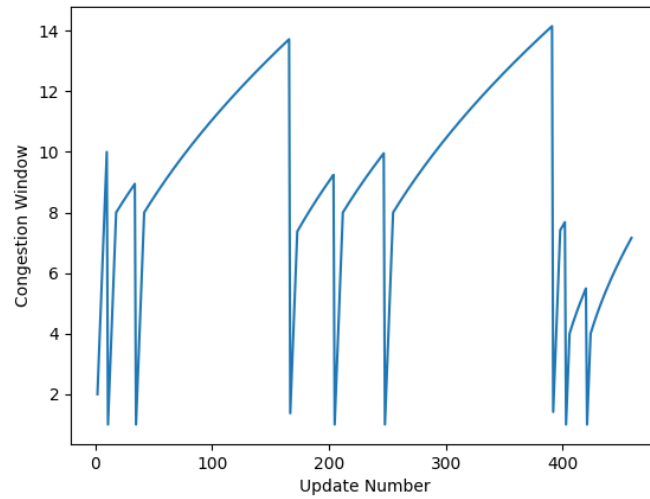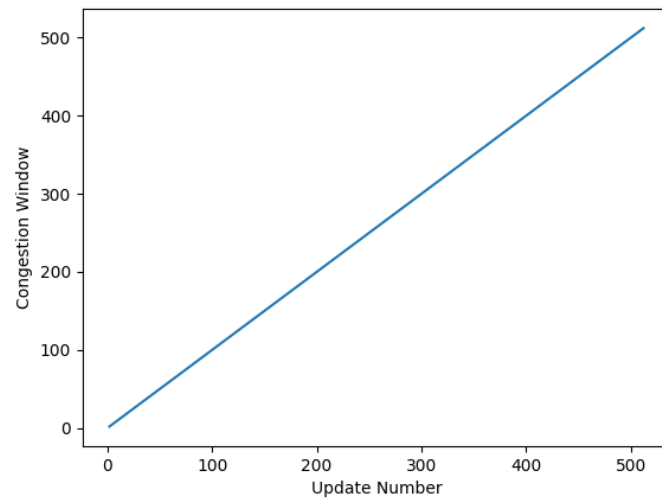

Fig 5.1 - ps = 0.99

Fig 5.2 - ps = 0.9999