ECE573 – Internet Protocols - Project II

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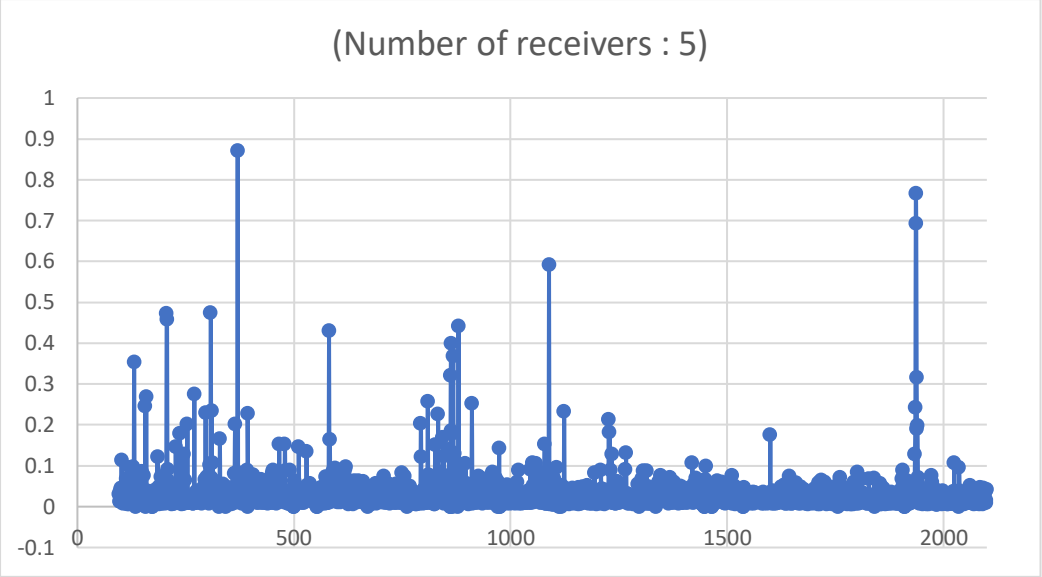
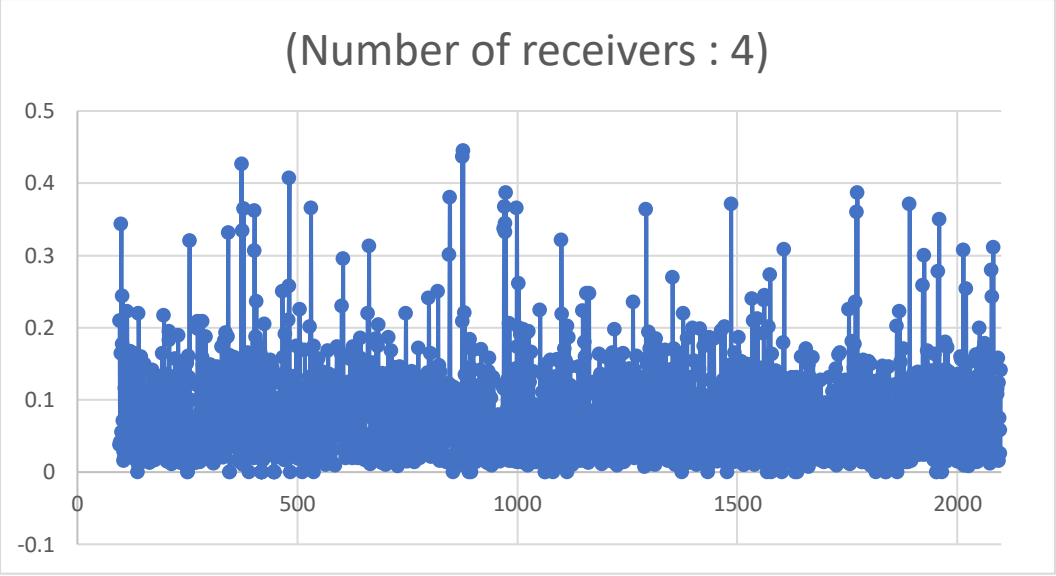
TASK 1:

Effect of number of receivers

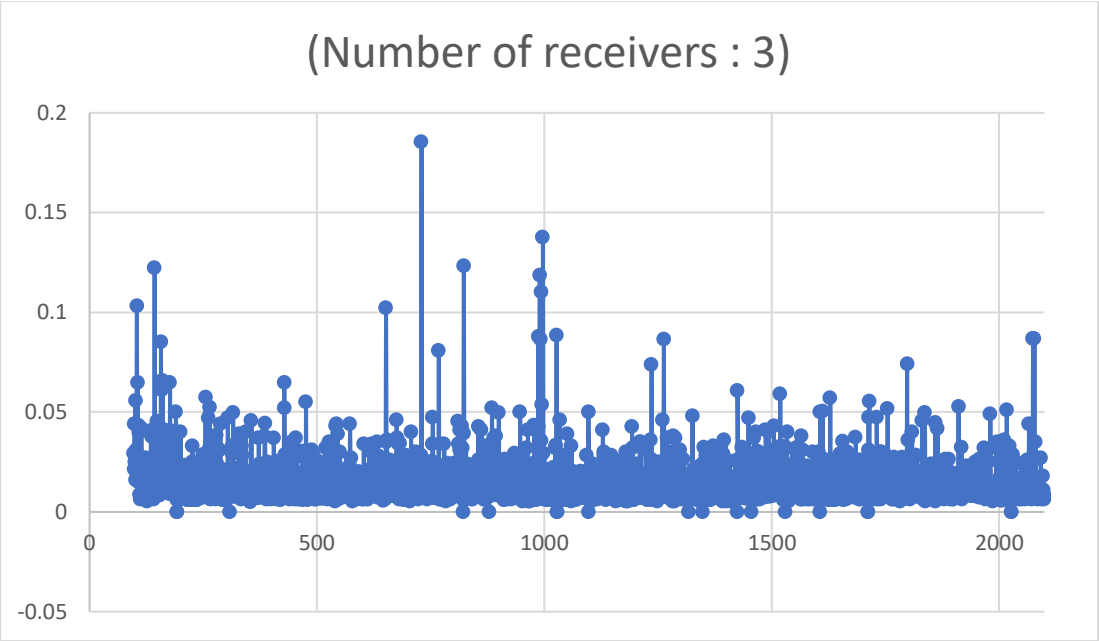
For 5 receivers, these graphs represent the average time it has taken for each datagram as seen by each of the receiver.



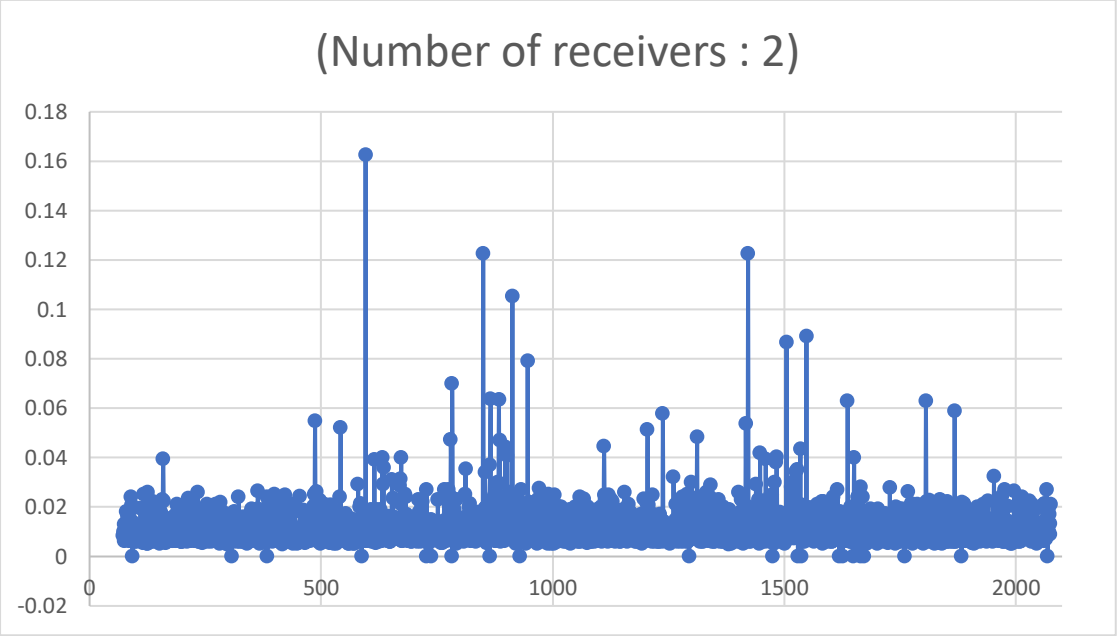
For 4 receivers, these graphs represent the average time it has taken for each datagram as seen by each of the receiver.



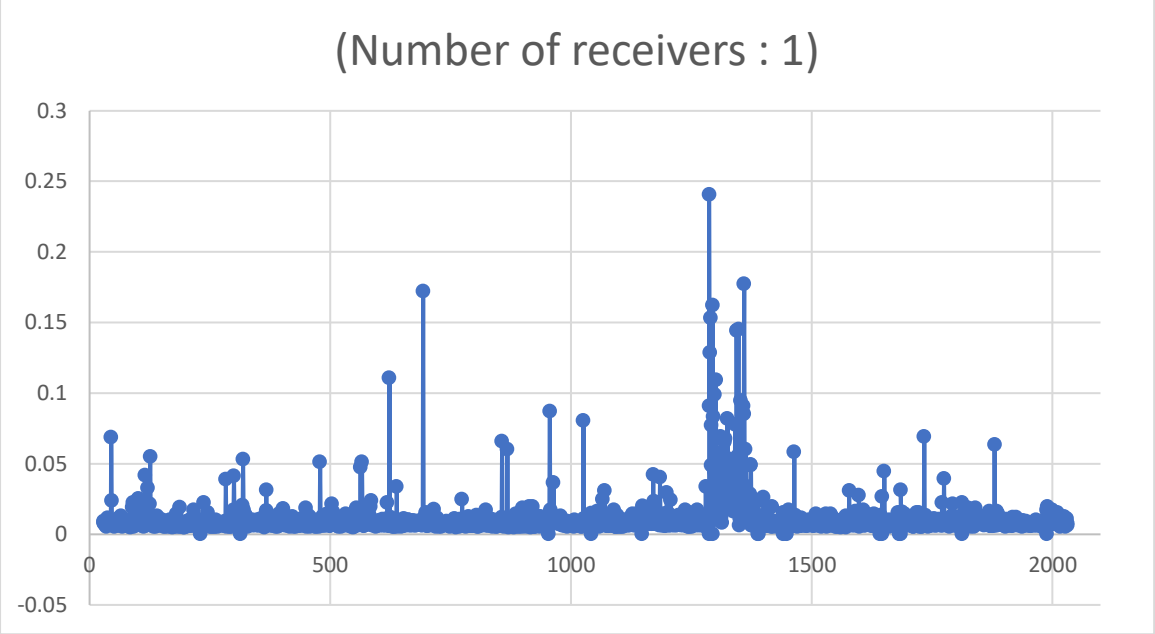
For 3 receivers, these graphs represent the average time it has taken for each datagram as seen by each of the receiver.



For 2 receivers, these graphs represent the average time it has taken for each datagram as seen by each of the receiver.

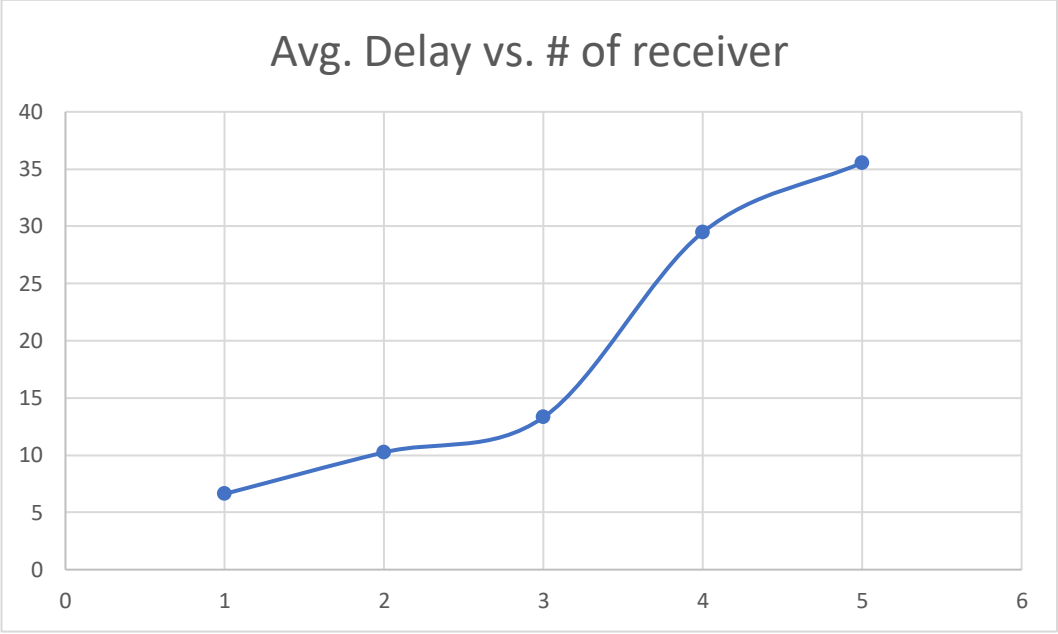


For 1 receiver, these graphs represent the average time it has taken for each datagram as seen by each of the receiver.



The average delay over the five transmissions for receivers(1 to 5) is represented in the following graph:

(X-Axis – Number of receivers, Y-Axis – Average Delay)



Conclusion:

How does the value of n affect the delay and the shape of the curve?

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As the value of n (ie, the number of receivers) in the setup increases, the chance for a probability drop to occur increases as well. Consequently, the average time taken for every receiver to receive the

entire file will increase linearly as well. This interpretation can be confirmed with the graph which plots the number of receivers vs the average delay. As the number of receivers increase, the average delay increases as well.

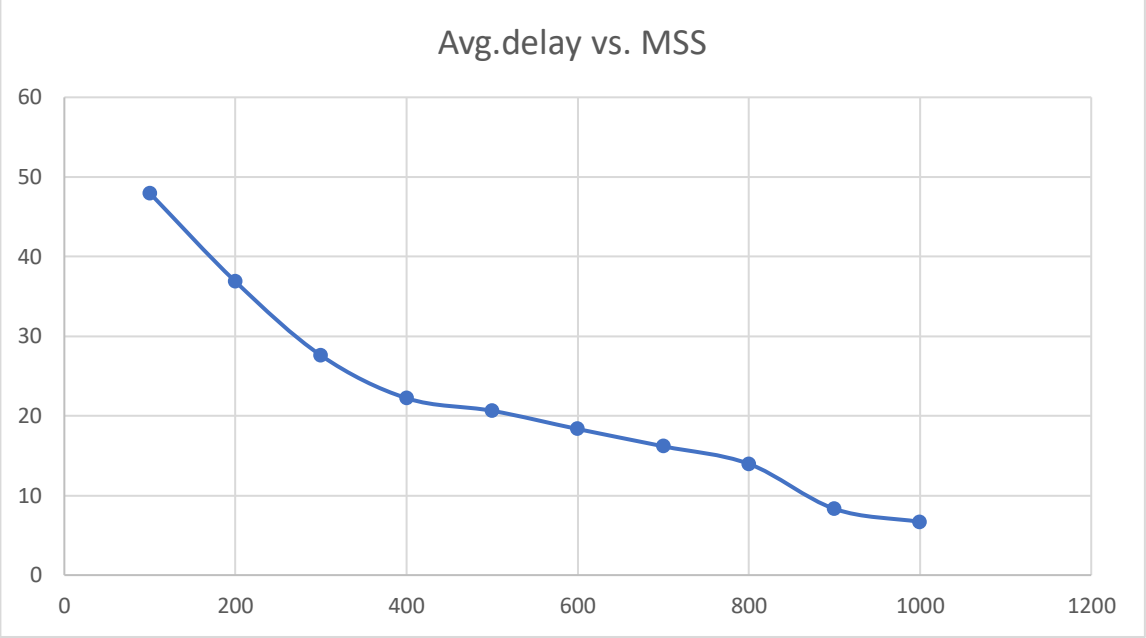
TASK 2:

Effect of MSS

MSS	Avg.delay (min)	Avg.delay(s)
100	47.95788	3528.955
200	36.8554	2877.473
300	27.57725	1654.635
400	22.21696667	1333.018
500	20.63536667	1238.122
600	18.34298333	1100.579
700	16.17416333	970.4498
800	13.96971667	838.183
900	8.319233333	499.154
1000	6.681483333	400.889

The average delay over the five transmissions for MSS(100 to 1000) is represented in the following graph:

(X-Axis – MSS, Y-Axis – Average Delay)



Conclusion:

Discuss the shape of the curve; are the results expected?

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Logically speaking, as the MSS value (the amount of application data) increases, more data is sent over every chunk and as a result the amount of time taken to transfer a file keeping the MSS as a higher value must be lesser than the time taken to transfer a file keeping the MSS lower. This is clearly

observed in both the table and the graph produced. The graph shows the MSS vs Average delay curve and it's a linearly decreasing curve as expected.

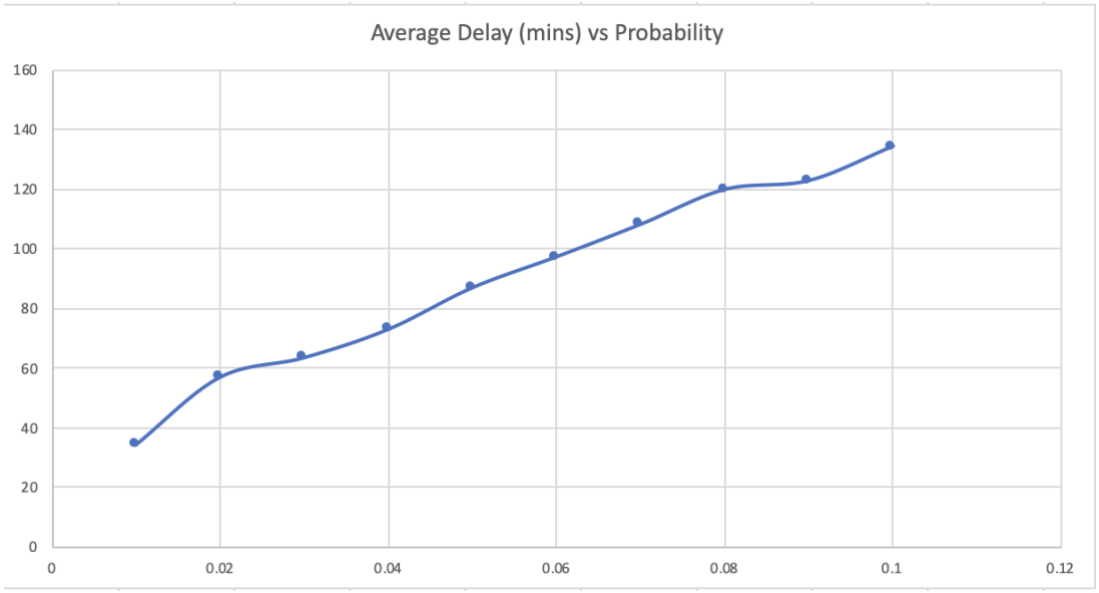
TASK 3:

Effect of drop-probability

Probability	Average Delay
0.01	34.25
0.02	56.91
0.03	63.509
0.04	73.006
0.05	86.9502
0.06	97.3272
0.07	108.2235
0.08	119.8791
0.09	122.8893
0.1	134.3782

The average delay over the five transmissions for probability drop(0.01 to 0.1) is represented in the following graph:

(X-Axis – probability, Y-Axis – Average Delay)



Conclusions:

Discuss and explain the results and shape of the curve.

File size used: 1.8 MB

Here we take the effect of variable probability drop into consideration. Logically speaking, as the probability value given on the command line increases, the chance for a drop increases. That is because there is a higher chance that the randomly generated value falls within the given threshold. Therefore, typically the average delay must increase as the probability value (p) increases. This is observed to be true in the table and the graph as well.