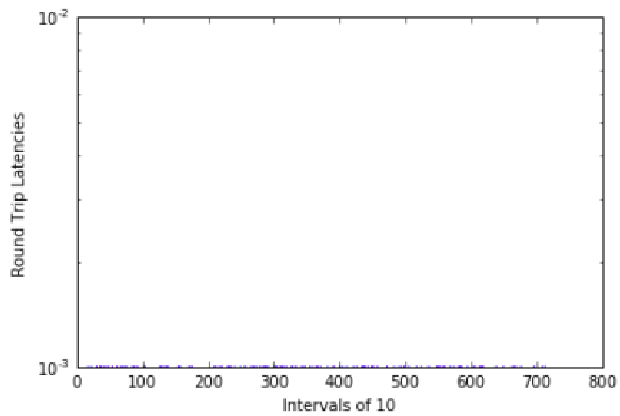
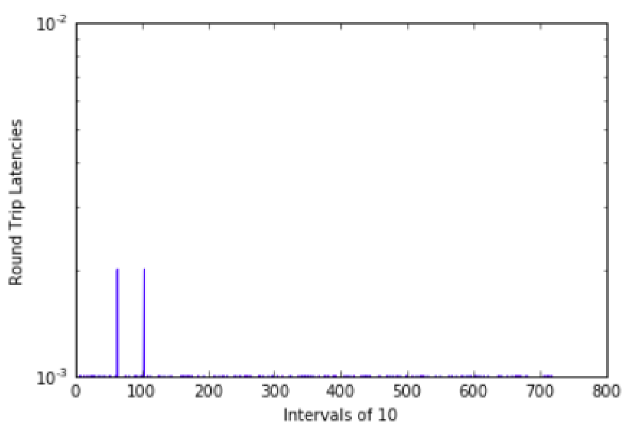
Problem 1

For Part A:

- Both readings show that the latency is almost alwyas nearly 0, as they are located on the same machine and in the same network.
- The slight spike in the second graph suggests that due to other processes occurring during the same time, latency has increased.



Average: 0.000225
Std. Deviation: 0.000417582327212

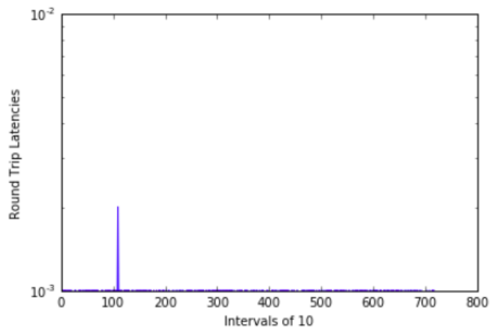


Average: 0.0002625
Std. Deviation: 0.000446261476665

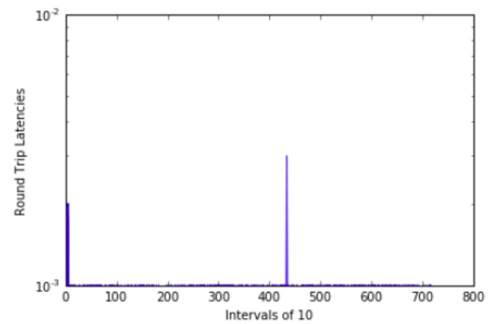
The average and standard deviation values suggest that it is quite accurate

For Part B:

- Both readings show that the latency is almost always nearly 0, as they are located in the same network.
- The slight spike in the second graph suggests that due to other processes occurring during the same time, latency has increased.



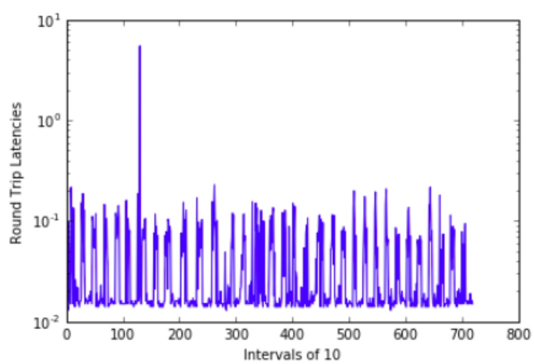

```
Average: 0.000529166666667
Std. Deviation: 0.000501923383928
```



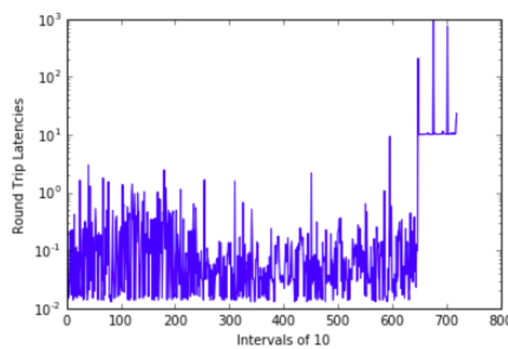

```
Average: 0.000497222222222
Std. Deviation: 0.000513693656608
```

For Part C:

- Both readings show that the latency varies a lot, as the two are located in different networks which may contain other traffic, causing delay in readings due to network congestions.



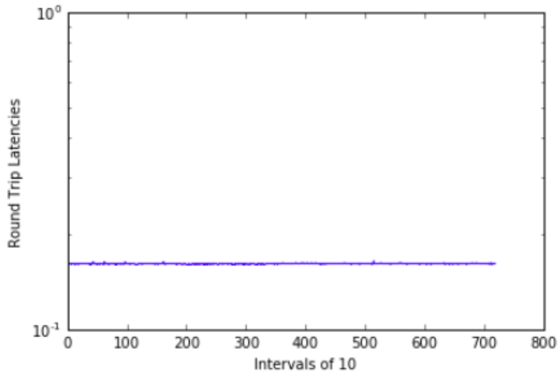

```
Average: 0.0455708333333
Std. Deviation: 0.206300113062
```

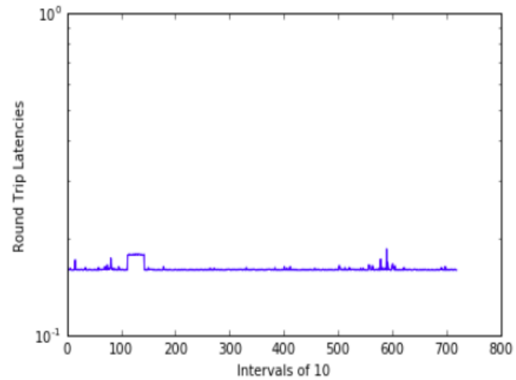



```
Average: 3.78573194444
Std. Deviation: 45.5271511987
```

For Part D:

- Both readings show that the latency is constant, as a dedicated instance is used to find the difference in time. This constant is due to the propagation delay between the two.





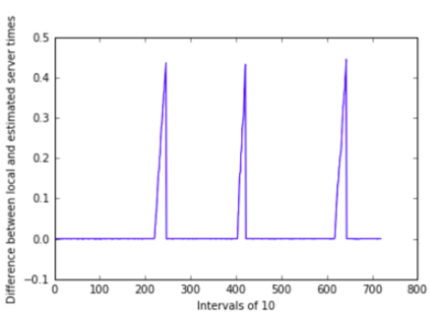

```
Average: 0.1608875
Std. Deviation: 0.000440781345391
```

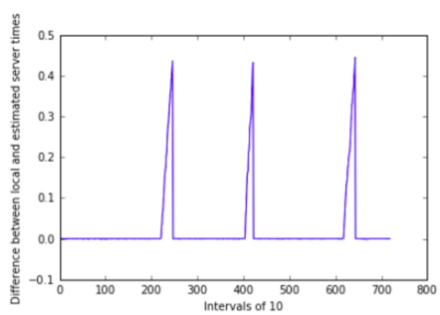
```
Average: 0.160413888889
Std. Deviation: 0.00393394435775
```

Out of all the above scenarios, the most accurate seem to be Part A, B and D. Part C has the most deviation and varies the most hence cannot be assumed to be accurate. The other parts have a more or less constant manner of round trip latencies.

Problem 2

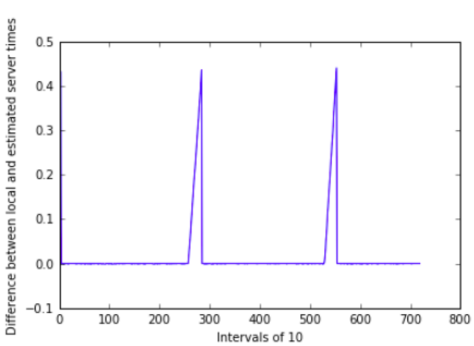
For Part A:

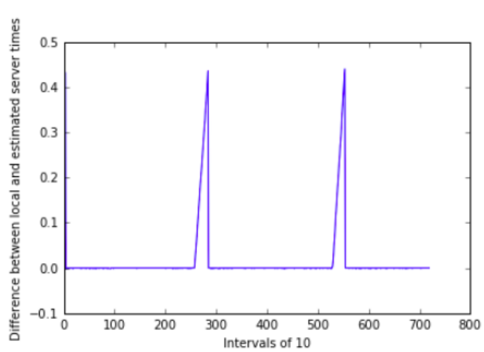




From Problem 1, the Tmin is estimated to be 243 * 10^-6 seconds from the average of the two

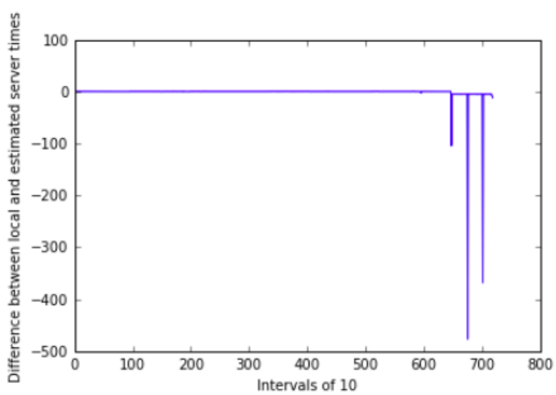
For Part B:

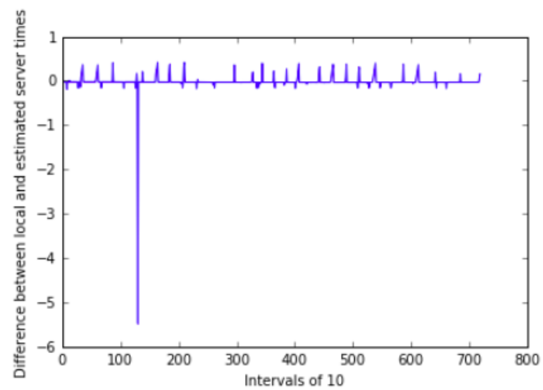




From Problem 1, the Tmin is estimated to be 513 * 10^-6 seconds from the average of the two

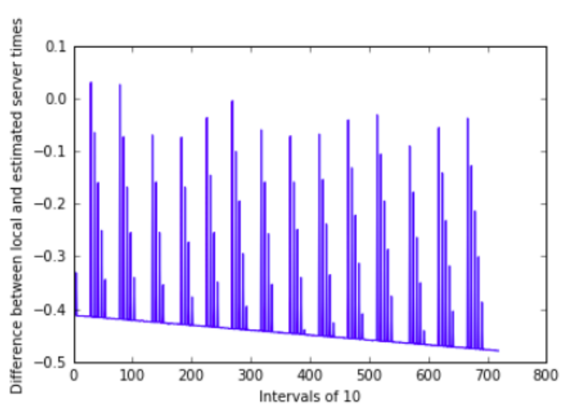
For Part C:

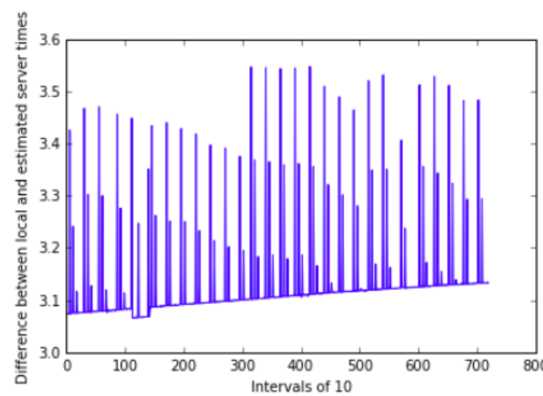




From Problem 1, the Tmin is estimated to be 1.91 seconds from the average of the two

For Part D:



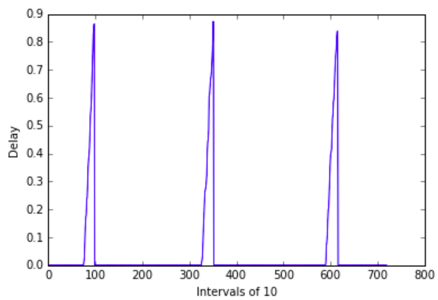


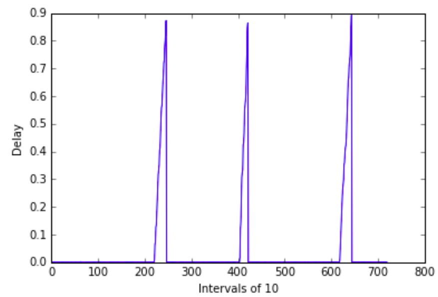
From Problem 1, the Tmin is estimated to be 0.16 seconds from the average of the two

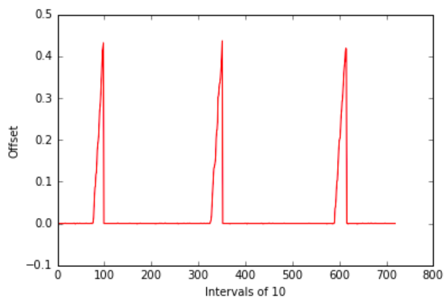
Thus the error bounds can be calculated for all using the formula: $\pm (T_1 - T_0 / 2) - T_{min}$

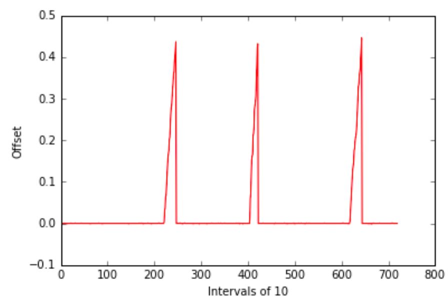
Problem 3

For Part A:



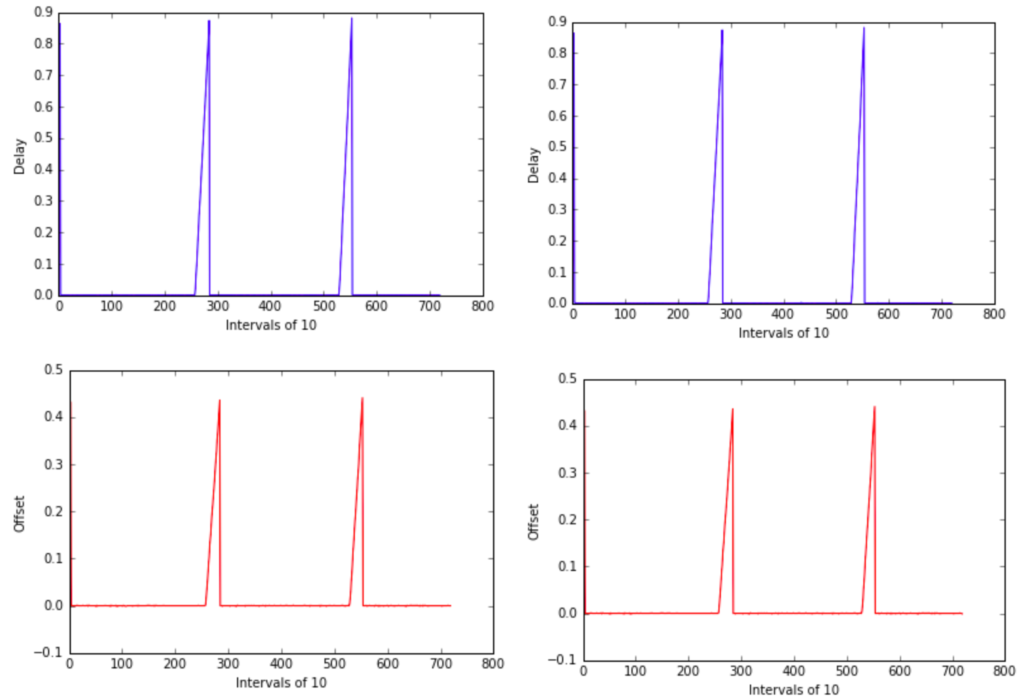






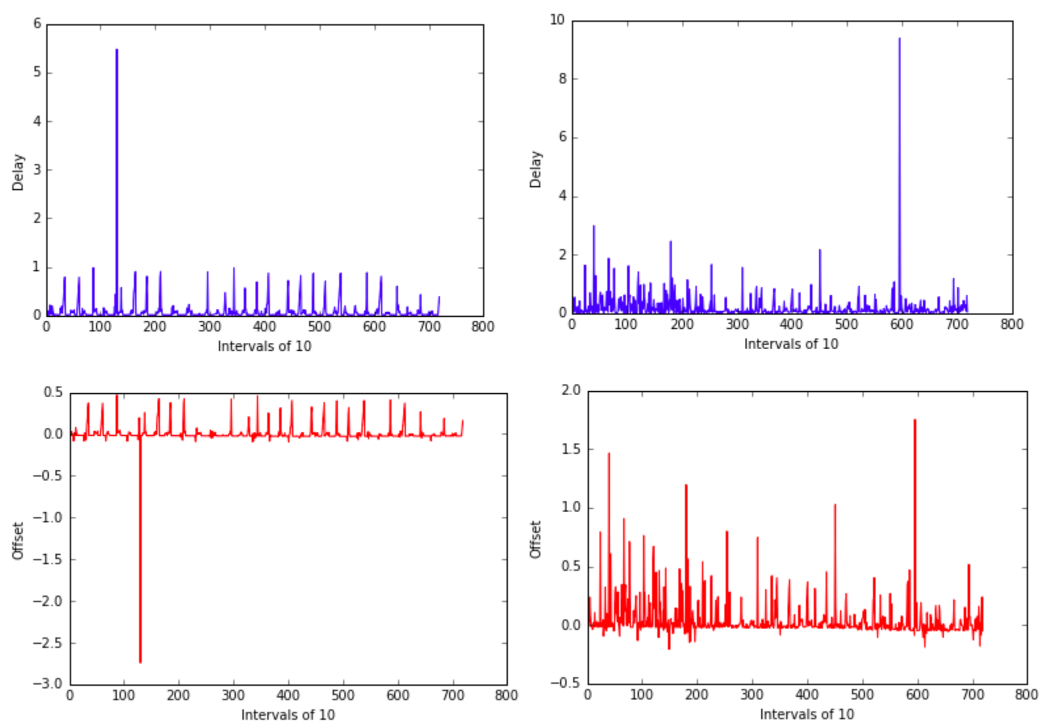
These plots of delays and offsets show that as along with the data in Problem 1, the offset and delays are calculated accurately and displayed as shown required for clock synchronization. As the data is more or less constant, there is not much change in offset and delay except for when the data is not same.

For Part B:



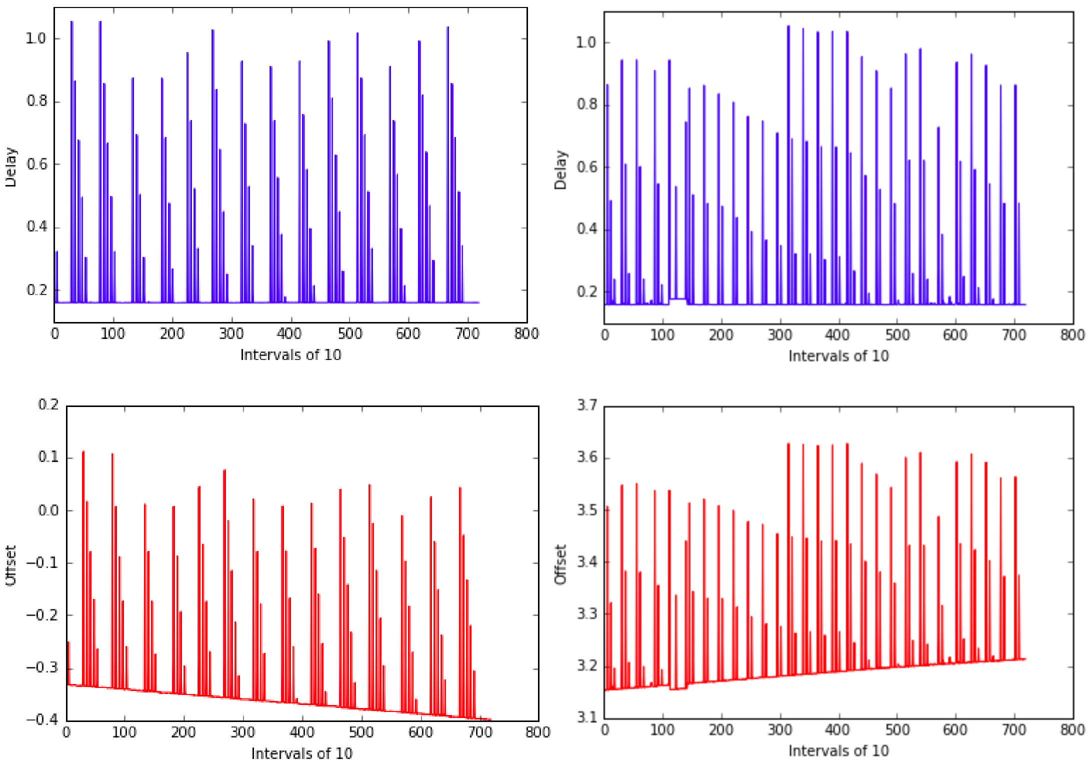
These plots of delays and offsets show that as along with the data in Problem 1, the offset and delays are calculated accurately and displayed as shown required for clock synchronization. As the data is more or less constant, there is not much change in offset and delay except for when the data is not same.

For Part C:



These plots of delays and offsets show that as along with the data in Problem 1, the offset and delays are calculated accurately and displayed as shown required for clock synchronization. As the data varies, the offset and delay are varying.

For Part D



These plots of delays and offsets show that as along with the data in Problem 1, the offset and delays are calculated accurately and displayed as shown required for clock synchronization. As the data has a constant delay, the offset and delay are varying in a regular fashion.