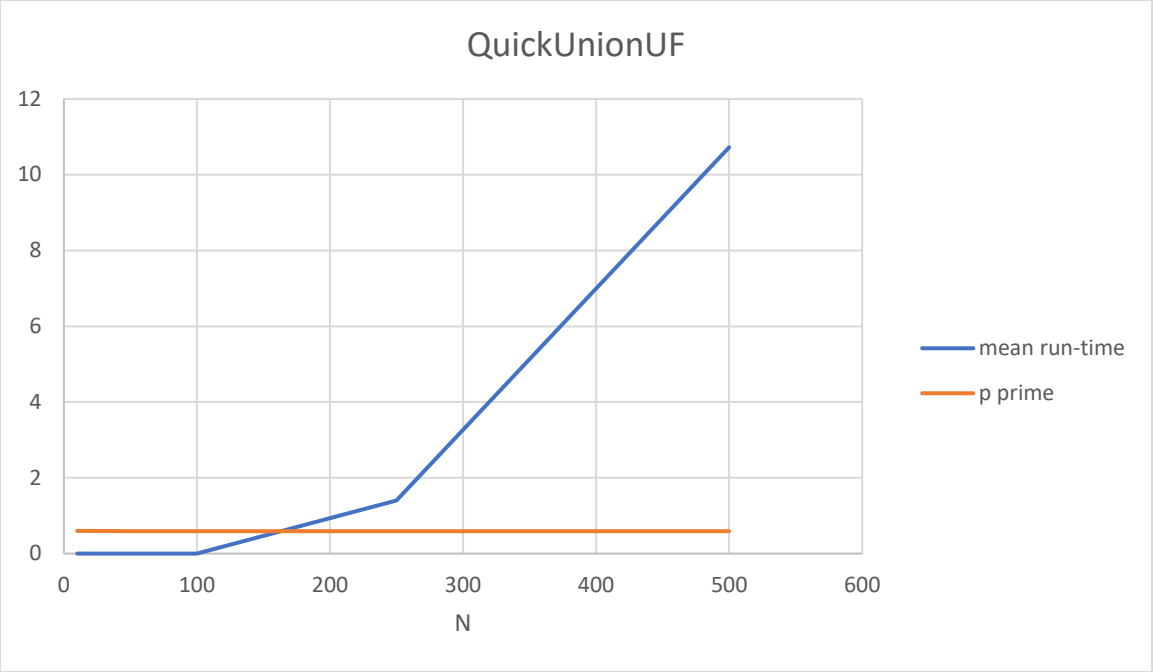
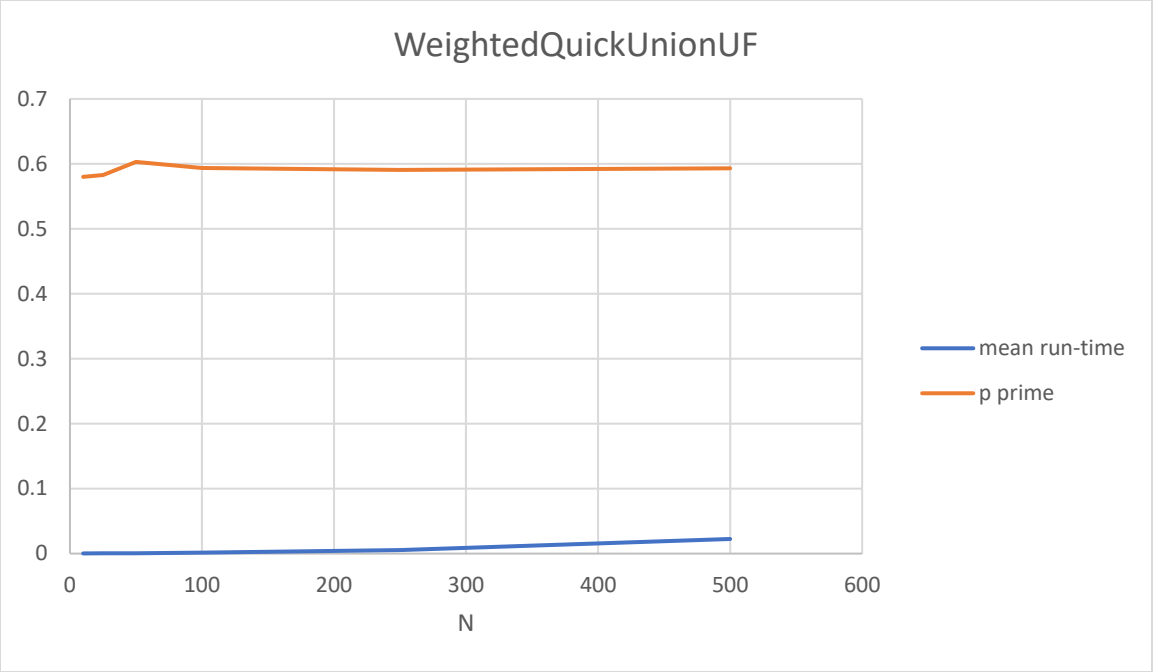


N = {10, 25, 50, 100, 250, 500}

T = 30

Std Dev for mean threshold: {0.0829, 0.0432, 0.0245, 0.0156, 0.00968. 0.00416}

X-Values	mean run-time	mean threshold
10	0.00016	0.596
25	0.00033	0.5968
50	0.00093	0.5912
100	0.00386	0.59198
250	1.398	0.5939
500	10.721	0.59118



N = {10, 25, 50, 100, 250, 500}

T = 30

Std Dev for mean threshold: {0.08, 0.0365, 0.0287, 0.01324, 0.00554, 0.00379}

X-Values	mean run-time	mean threshold
10	0.00024	0.58
25	0.0003	0.5828
50	0.0006	0.603
100	0.00143	0.5935
250	0.0053	0.5907
500	0.0225	0.5931

Analysis:

We can see from both data sets that the WeightedQuickUnionUF method is an order of magnitude faster. If N = 1000, mean time is 0.141. If N = 2000, mean time is 0.878. Both weighted and unweighted methods are quadratic in growth, but the weighted method has a much much slower growth rate.

We can see from both graphs the p prime value didn't change much. About 0.59. We can though, glean some information from the Std Dev of the mean threshold values. We notice how the values decrease over time. This means that with larger values of N, the probability that the system percolates fall arounds 59 percent a higher percentage of the time. We can get a better estimate of the threshold value. It appears to be approaching 60 percent as N gets very large.