CS 3110 A6 Data Report

Results:

N	N log N	Time		N	N log N	Time
500000	2.85E+06	0.176163		11000000	7.75E+07	4.79316
1000000	6.00E+06	0.371158		11500000	8.12E+07	5.10139
1500000	9.26E+06	0.568331		12000000	8.50E+07	5.53176
2000000	1.26E+07	0.777762		12500000	8.87E+07	5.53163
2500000	1.60E+07	0.983894		13000000	9.25E+07	5.82999
3000000	1.94E+07	1.20113		13500000	9.63E+07	6.18484
3500000	2.29E+07	1.40962		14000000	1.00E+08	6.54643
4000000	2.64E+07	1.62641		14500000	1.04E+08	7.13428
4500000	2.99E+07	1.83273		15000000	1.08E+08	7.3101
5000000	3.35E+07	2.05513		15500000	1.11E+08	7.71389
5500000	3.71E+07	2.27384		16000000	1.15E+08	7.61991
6000000	4.07E+07	2.49735		16500000	1.19E+08	7.97072
6500000	4.43E+07	2.73469		17000000	1.23E+08	7.97435
7000000	4.79E+07	2.93567		17500000	1.27E+08	8.03622
7500000	5.16E+07	3.1742		18000000	1.31E+08	8.76586
8000000	5.52E+07	3.4157		18500000	1.34E+08	8.96727
8500000	5.89E+07	3.77583		19000000	1.38E+08	9.44825
9000000	6.26E+07	3.9076		19500000	1.42E+08	9.28886
9500000	6.63E+07	4.41655		20000000	1.46E+08	9.55463
10000000	7.00E+07	4.32641		20500000	1.50E+08	10.1655
10500000	7.37E+07	4.90106		**R Squared**	**0.9968863927**	

How did I perform the linear regression?

I uploaded the timings.csv that I received from my program into google sheets. I then used the equation **=RSQ(known_ys, known_xs)** that is supported by google which then reported **0.9968863927**. This falls in line with the statement in A6 that states "We think you should get a value that is at least 0.9 if not higher. We have observed values of 0.999 in our testing."

Time vs. N log N
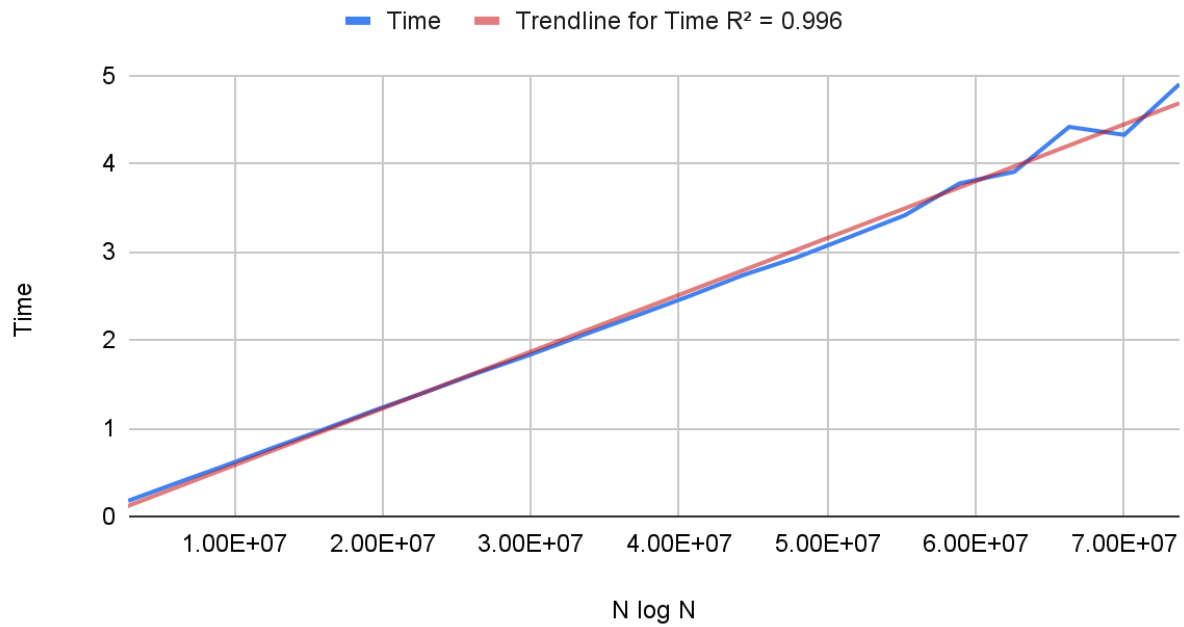
Above is a graph of N log N v. time in which the "N log N" column is the x values and the "Time" column is the y values. This R Squared value is also in agreement with the equation in sheets.