Trent Schweitzer
Lab 6

Part 1

N	Time	Ratio	exp value
10	63405		
100	492407	7.766059459	0.8902007113
1000	4281852	8.6957577776	0.9393074339
10000	13908618	3.2482715423	0.5116523273
100000	71627571	5.1498697426	0.7117962444
1000000	1504001526	20.997522393	1.3221680531
10000000	17178966493	11.422173579	1.0577487557
100000000	2.13594E+11	12.433454689	1.094591816

It looks like the exponential value is larger then N so we can infer the big O is around Nlog N

Reasonable values of N would be a range between 1,000,000 and 100,000,000

Part 2

We can see that we get and exp if we add the add and the sort we get around 1.5

N	Time	Ratio	Exp Value
1000	1885780		
100000	39015254	20.689186437	0.6578717066
10000000	459800227	11.78513991	0.5356673714
1000	10278030		
100000	146308440	14.235066448	0.5766797494
10000000	19929737133	136.21727587	1.0671160954

N	Time	Ratio	Exp Value
1000	558444		
100000	13263712	23.75119439	0.6878427271
10000000	459800227	34.666029163	0.769952049
1000	3820823		
100000	188393463	49.307037515	0.8464544549
10000000	19929737133	105.78783794	1.0122178706