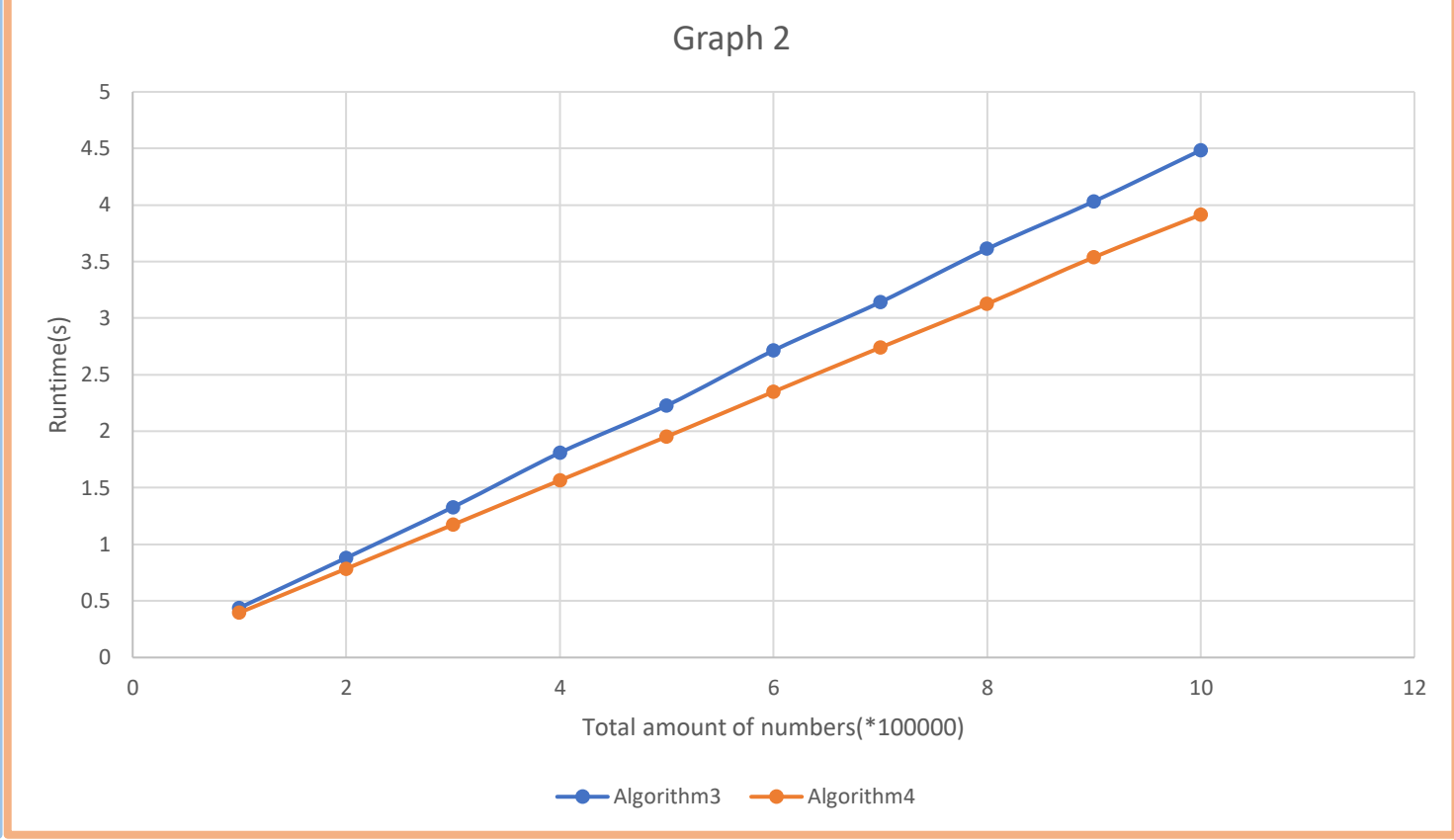
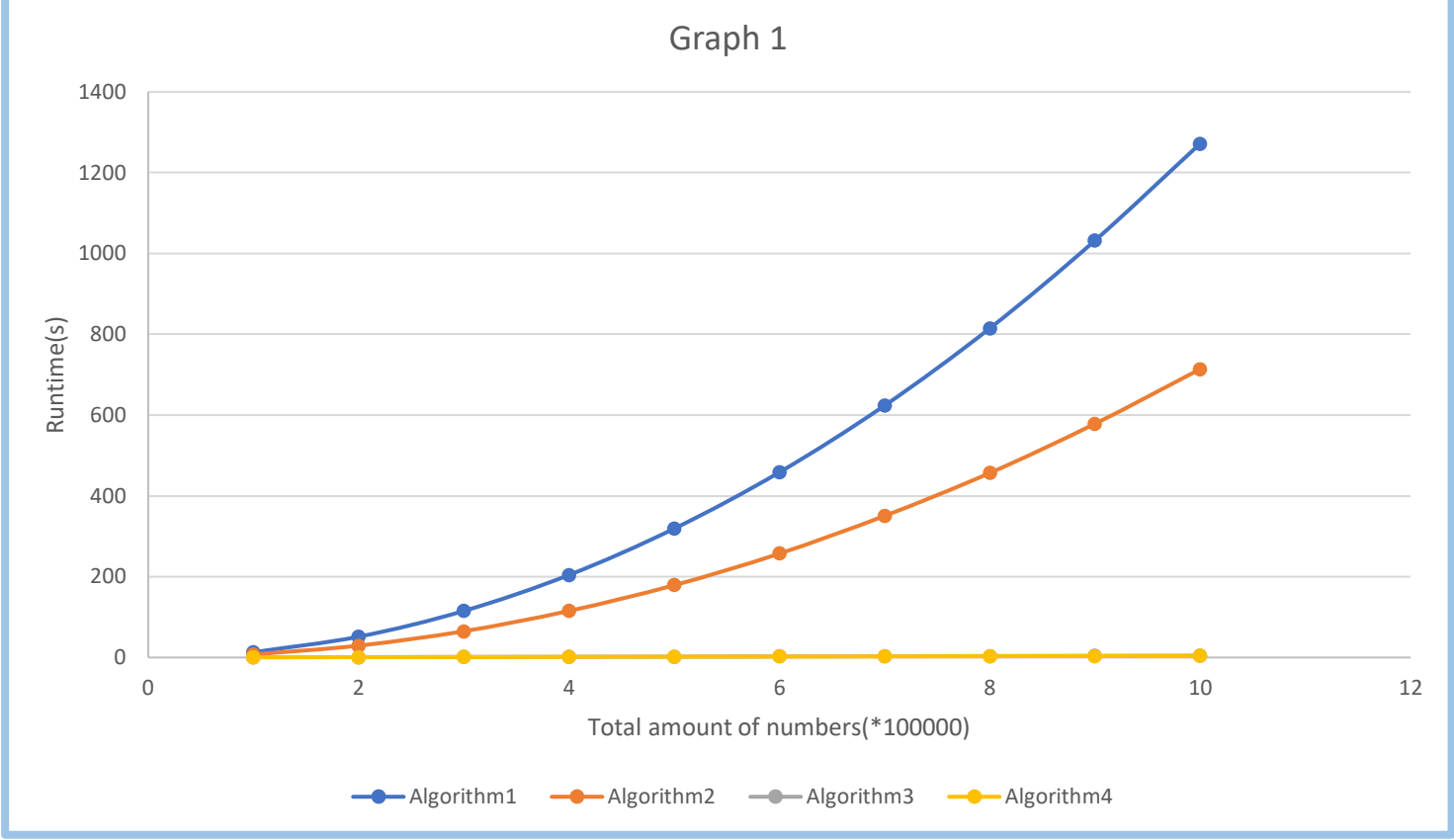


Did you run each algorithm on each input once? Or did you repeat a number of times and take the average of measurements?

I used different inputs for all algorithms and cases. I ran 10 cases for each algorithm and data set, took the average and draw the chart based on this data.

	Algorithm 1											Algorithm 2										
Data Sets	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6	Case 7	Case 8	Case 9	Case 10	Average	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6	Case 7	Case 8	Case 9	Case 10	Average
50000-100000	13.335	13.121	13.075	13.071	13.069	13.069	13.068	13.06	13.066	13.079	13.1013	7.628	7.55	7.72	7.527	7.499	7.486	7.469	7.485	7.498	7.501	7.5363
100000-200000	51.445	51.45	51.791	51.445	51.448	51.545	51.443	51.51	51.493	51.441	51.5011	29.385	29.556	29.801	29.205	29.149	29.364	29.308	29.232	29.335	29.101	29.3436
150000-300000	115.06	115.083	116.079	115.148	115.085	115.009	115.078	115.186	115.148	115.182	115.2058	64.766	64.937	64.611	64.895	64.736	64.725	65.463	65.471	64.958	64.943	64.9505
200000-400000	205.465	204.025	204.108	203.952	204.226	204.125	204.067	204.107	204.374	203.958	204.2407	114.822	116.314	114.955	114.976	114.71	114.988	115.688	115.364	115.085	115.457	115.2359
250000-500000	318.31	321.852	319.776	318.261	318.389	318.095	318.588	318.264	318.424	319.854	318.9813	180.032	178.926	178.609	179.237	178.887	178.768	178.487	178.905	178.522	178.568	178.8941
300000-600000	458.744	458.583	457.934	457.881	458.148	460.433	458.022	458.472	457.975	457.885	458.4077	256.786	256.348	257.439	256.844	258.799	257.393	257.841	257.041	256.395	256.555	257.1441
350000-700000	623.894	624.09	622.847	623.191	622.756	623.774	623.412	623.506	623.905	624.945	623.632	349.303	349.129	352.21	351.728	350.428	350.14	350.576	349.496	351.002	350.975	350.4987
400000-800000	814.968	816.023	814.792	813.943	814.235	814.632	814.043	814.769	815.108	814.169	814.6682	457.73	456.424	456.53	456.04	456.036	456.365	456.788	456.987	456.737	456.607	456.6244
450000-900000	1030.8	1030.35	1031.46	1035.36	1030.32	1030.71	1029.12	1032.52	1029.08	1040.98	1032.07	577.925	578.025	579.15	577.898	578.094	579.01	580.249	577.87	579.198	578.076	578.5495
500000-1000000	1271.87	1270.38	1271.21	1271.56	1273.24	1272.8	1273.42	1270.79	1270.61	1272.88	1271.876	714.416	714.351	712.998	713.151	715.248	712.892	713.027	711.686	713.364	715.777	713.691
	Algorithm 3											Algorithm 4										
Data Sets	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6	Case 7	Case 8	Case 9	Case 10	Average	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6	Case 7	Case 8	Case 9	Case 10	Average
50000-100000	0.439	0.439	0.439	0.438	0.442	0.44	0.441	0.438	0.44	0.439	0.4395	0.396	0.394	0.397	0.399	0.395	0.397	0.397	0.403	0.39	0.395	0.3963
100000-200000	0.883	0.88	0.878	0.881	0.879	0.882	0.879	0.884	0.885	0.88	0.8811	0.783	0.779	0.79	0.79	0.785	0.788	0.785	0.783	0.783	0.787	0.7853
150000-300000	1.326	1.344	1.323	1.327	1.331	1.329	1.324	1.328	1.33	1.335	1.3297	1.18	1.169	1.17	1.173	1.168	1.19	1.174	1.172	1.176	1.172	1.1744
200000-400000	1.773	1.783	1.774	1.777	1.778	2.101	1.781	1.78	1.78	1.774	1.8101	1.56	1.558	1.568	1.573	1.567	1.568	1.568	1.572	1.558	1.565	1.5657
250000-500000	2.258	2.222	2.225	2.223	2.224	2.22	2.232	2.232	2.222	2.215	2.2273	1.95	1.957	1.952	1.96	1.964	1.95	1.956	1.948	1.941	1.947	1.9525
300000-600000	2.676	2.67	2.68	3.078	2.678	2.671	2.676	2.667	2.671	2.673	2.714	2.342	2.345	2.353	2.355	2.35	2.345	2.354	2.347	2.35	2.35	2.3491
350000-700000	3.135	3.13	3.121	3.125	3.132	3.137	3.248	3.127	3.129	3.128	3.1412	2.741	2.732	2.744	2.744	2.725	2.753	2.722	2.75	2.742	2.745	2.7398
400000-800000	3.569	3.579	3.578	3.581	3.575	3.585	3.582	3.846	3.647	3.581	3.6123	3.119	3.143	3.12	3.122	3.127	3.123	3.123	3.141	3.126	3.114	3.127
450000-900000	4.049	4.031	4.025	4.026	4.028	4.028	4.025	4.023	4.037	4.044	4.0316	3.527	3.539	3.695	3.533	3.534	3.515	3.508	3.523	3.499	3.509	3.5382
500000-1000000	4.495	4.486	4.482	4.492	4.479	4.479	4.477	4.482	4.483	4.482	4.4837	3.881	3.92	3.908	3.914	3.912	3.919	3.9	3.947	3.913	3.925	3.9139



Conclusion

When we look at graph 1, we can see that algorithm 1 and algorithm 2 are growing exponentially. As we can't see algorithm 3 and 4 in graph 1 because algorithm 3 and 4 is very fast with respect to algorithm 1 and 2, we need to analyze graph 2. In graph 2, we can see that algorithm 3 and 4 is increasing linearly.

I finished all the runs but total computing time was nearly 22 hours. Algorithm 1 and 2 took almost full of the time, and algorithm 3 and 4 finished in couple minutes.

The longest process was algorithm 1 in 500000-1000000 case. It took almost 20 minutes for each case.