

Sorted

The steps amount in terms of assignment, swaps, and condition checks.

n	insertion	selection	bubble	merge	quick
100	301	20902	15251	5497	26936
300	901	182702	135751	19809	230836
500	1501	504502	376251	35409	634736
1000	3001	2009002	1502501	77825	2519486
3000	9001	18027002	13507501	268321	22558486
5000	15001	50045002	37512501	472649	62597486
10000	30001	200090002	150025001	1015305	250194986
50000	150001	705482706	544842295	5891241	1956007690

Time in seconds.

n	insertion	selection	bubble	merge	quick
100	0.000000	0.000000	0.000000	0.000000	0.001000
300	0.000000	0.000000	0.001000	0.000000	0.002000
500	0.000000	0.001000	0.000000	0.000000	0.004000
1000	0.000000	0.003000	0.002000	0.001000	0.010000
3000	0.000000	0.038000	0.020000	0.002000	0.064000
5000	0.000000	0.109000	0.064000	0.003000	0.167000
10000	0.000000	0.423000	0.261000	0.008000	0.535000
50000	0.000000	9.161000	4.944000	0.030000	11.371000

Reversed.

The steps amount in terms of assignment, swaps, and condition checks.

n	insertion	selection	bubble	merge	quick
100	39901	18402	35051	5794	21936
300	359701	160202	315151	20706	185836
500	999501	442002	875251	36906	509736
1000	3999001	1759002	3500501	80822	2019486
3000	35997001	15777002	31501501	277318	18058486
5000	99995001	43795002	87502501	487646	50097486
10000	399990001	175090002	350005001	1045302	200194986
50000	1410015409	80482706	160090409	6041238	706007690

Time in seconds.

n	insertion	selection	bubble	merge	quick
100	0.000000	0.000000	0.000000	0.000000	0.000000
300	0.001000	0.000000	0.000000	0.000000	0.001000
500	0.001000	0.001000	0.001000	0.001000	0.003000
1000	0.003000	0.004000	0.005000	0.001000	0.008000

3000	0.030000	0.028000	0.048000	0.001000	0.043000
5000	0.083000	0.079000	0.137000	0.003000	0.114000
10000	0.332000	0.323000	0.537000	0.006000	0.398000
50000	8.412000	7.776000	13.432000	0.029000	9.047000

Random permutation.

The steps amount in terms of assignment, swaps, and condition checks.

n	insertion	selection	bubble	merge	quick
100	21637	16255	25919	5296	4225
300	167701	139402	219151	18882	20474
500	48205	381774	616527	33603	31118
1000	18755	1514674	2438765	73424	69724
3000	1720468	13547685	22105341	251545	249364
5000	4809982	37584891	61640301	441965	470839
10000	193218585	150175664	24661929	945642	997548
50000	1074559633	544065004	214159059	5461974	6148019

Time in seconds.

n	insertion	selection	bubble	merge	quick
100	0.000000	0.001000	0.000000	0.000000	0.000000
300	0.000000	0.001000	0.000000	0.000000	0.001000
500	0.001000	0.000000	0.001000	0.001000	0.001000
1000	0.002000	0.002000	0.005000	0.001000	0.002000
3000	0.015000	0.026000	0.034000	0.001000	0.009000
5000	0.040000	0.073000	0.110000	0.003000	0.015000
10000	0.159000	0.261000	0.438000	0.006000	0.029000
50000	4.527000	6.694000	11.757000	0.034000	0.156000

Averages for random permutation for 50 sets.

The steps amount in terms of assignment, swaps, and condition checks.

n	insertion	selection	bubble	merge	quick
100	877850	812150	1193950	264200	244450
300	8389850	6956500	10959950	940050	862600
500	23453450	19103850	30501750	1678350	1550300
1000	95474450	75750900	123064378	3671800	3739800
3000	856939650	677472467	1103039114	12572744	12476300
5000	1905184590	1879100898	1220611178	22087675	24451050
10000	1078566242	1081244750	552733422	47300550	50128065
50000	1508934734	1431618350	66964390	273077226	312131113

Time in seconds.

n	insertion	selection	bubble	merge	quick
100	0.000000	0.000000	0.000000	0.000000	0.000000
300	0.001000	0.000000	0.001000	0.000000	0.001000
500	0.000000	0.001000	0.001000	0.000000	0.001000
1000	0.002000	0.004000	0.004000	0.000000	0.003000
3000	0.014000	0.023000	0.034000	0.002000	0.009000
5000	0.047000	0.066000	0.100000	0.003000	0.016000
10000	0.164000	0.265000	0.421000	0.007000	0.031000
50000	4.605000	6.806000	11.700000	0.039000	0.154000