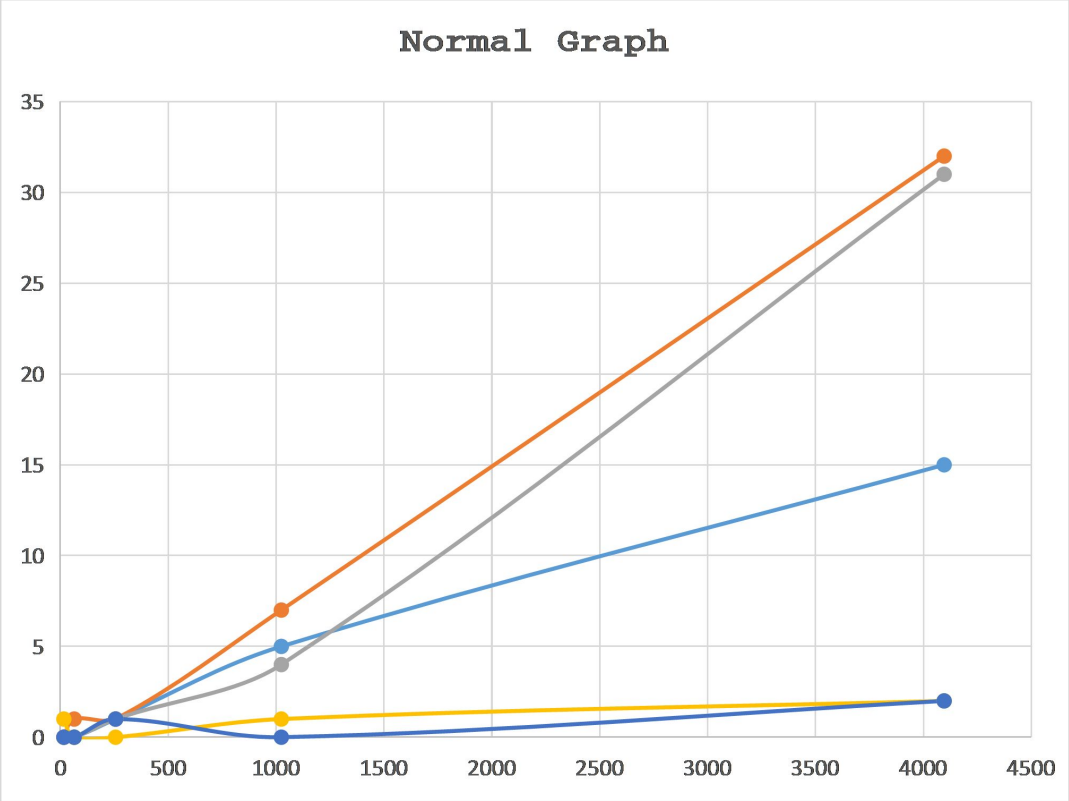
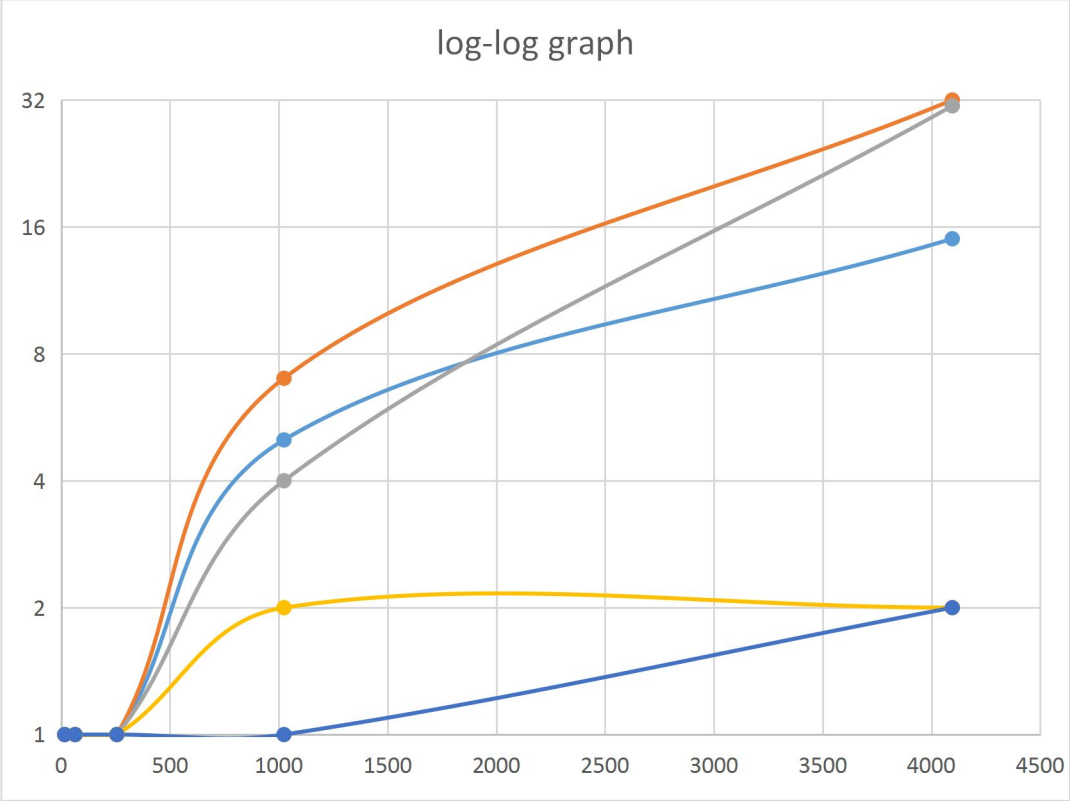
Size of the dataset	Regular Insertion sort	Insertion sort with comparable	Insertion sort with binary search	Merge sort	Heap sort
2^4	0	0	0	1	0
2^6	0	1	0	0	0
2^8	1	1	1	0	1
2^{10}	5	7	4	2	0
2^{12}	15	32	31	2	2

* The unit in the cells is in milliseconds.

6.1 Plot the results





6.2 Hypotheses:

	Insertion sort (regular)	Insertion sort (comparable)	Insertion sort (binary search)	Merge Sort	Heap Sort
Color	Light blue	Orange	Grey	Yellow	Dark blue
Lg(T(N))	2*Lg(N)	2*Lg(N)	2*Lg(N)	e^N	e^N
T(N)	aN^2	aN^2	aN^2	aN	aN

6.3&6.4&6.5 Predict & verification execution time for array size of 2^{14}

For insertion sort (regular): a*(4096)^2 = 15; a=8.94e-7
For Insertion sort(comparable): a*(4096)^2 = 32; a=1.9e-6
For Insertion sort(binary search): a*(4096)^2 = 31; a=1.8e-6
For merge sort: a*4096 = 2; a=0.000488
For Heap sort: a*4096 = 2; a=0.000488

	Insertion sort (regular)	Insertion sort (comparable)	Insertion sort (binary search)	Merge Sort	Heap Sort
Color	Light blue	Orange	Grey	Yellow	Dark blue
Prediction 2^{14}	240.0	510	483	a*16384 = 8	8
Verification 2^{14}	178	398	610	8	10
Prediction 2^{16}	3840	8160	7731	a*65536 = 32	32
Verification 2^{16}	5020	10667	7848	77	31
Prediction 2^{18}	61435.2	130567	123695	a*262144 = 128	128
Verification 2^{18}	(too long)	(too long)	(too long)	138	(too long)

6.6

	Insertion sort (regular)	Insertion sort (comparable)	Insertion sort (binary search)	Merge Sort	Heap Sort
Color	Light blue	Orange	Grey	Yellow	Dark blue
Tilde approx.	N^2	N^2	N^2	N	N
Description	Quadratic	Quadratic	Quadratic	Linear	Linear