	tmax/tmin	n Ratio	nlog(n) Ratio	n2 Ratio	Behavior
SC	6517	83	125	6944	Quadratic
SS	7076	83	125	6944	Quadratic
SR	7709	83	125	6944	Quadratic
IC	18	20	23	400	Linear
IS	18	20	23	400	Linear
IR	2851	125	192	15625	Quadratic
MC	443	333	478	111111	nlogn
MS	469	333	478	111111	nlogn
MR	468	333	486	111111	nlogn
QC	21366	167	265	27777	Quadratic
QS	178	25	31	625	nlogn
QR	100	50	66	2500	nlogn

Selection Sort :
Expected complexity : Θ(n2) for all cases
Empirical output : The behaviour was quadratic and the ratios closely align with n2. Hence the experiment matches with theoretical complexity.

Insertion Sort :
Expected complexity : Ω(n) for best case and Θ(n2) for avg and worst cases.
Empirical output : IC and IS show linear behaviour which lines up with Ω(n) i.e. the best case scenario.
IR shows quadratic behaviour which lines up with the expected Θ(n2) for random or worst case data.

Merge Sort :
Expected complexity : it has Θ(nlogn) complexity for all cases.
Empirical output : Our results also show nlogn behaviour matching with theoretical expectations.

Quick Sort :
Expected complexity : Θ(nlogn) complexity for best and average cases. O(n2) for worst cases i.e. poor choice pivots like in sorted data.
Empirical output : QC shows quadratic behaviour which aligns with worst case complexity as the input is a constant data.
QS and QR shows nlogn behaviour, which aligns the best and average case performance on random data.

All empirical data from the four algorithms are aligning with the theoretical complexities.