Programming Assignment 1

	10^n min (>20 milliseconds)	t_{min}	10^n max	t_{max}
SC	10^4	0.02 seconds	10^4	0.0003 minute = 2 seconds
SS	10^5	0.9 seconds	10^6	1.5 minute = 92 seconds
SR	10^4	0.02 seconds	10^4	0.0004 minute = 2 seconds
IC	10^6	0.5 seconds	10^7	0.3075 minute = 18 seconds
IS	10^4	0.04 seconds	10^5	3. seconds
IR	10^6	0.4 seconds	10^7	47 seconds
MC	10^6	0.4 seconds	10^7	32 seconds
MS	10^4	0.04 seconds	10^5	4 seconds
MR	10^6	0.5 seconds	10^7	46 seconds
QC	10^5	0.008 seconds	10^7	46 seconds
QS	10^4	0.04 seconds	10^5	4 seconds
QR	10^6	0.36 seconds	10^7	32 seconds

	t_{max}/t_{min}	n_{max}/n_{min} ratio	$n\ln(n)$ ratio ($n_{max}\ln(n_{max})/n_{min}\ln(n_{min})$)	n^2 ratio (max^2/min^2)	Behavior
SC	$2/.02 = 100$	1	1	1	n
SS	$92/0.9 = 102$	10	12	100	n^2
SR	$2/.02 = 100$	1	1	1	n
IC	$18/0.5 = 36$	10	$11.\overline{66}$	100	nlnn
IS	$3/.04 = 75$	10	12.5	100	n^2
IR	$47/0.4 = 117.5$	10	$11.\overline{66}$	100	n^2
MC	$32/.4 = 80$	10	$11.\overline{66}$	100	n^2
MS	$4/0.04 = 100$	10	12.5	100	n^2
MR	$46/0.5 = 92$	10	$11.\overline{66}$	100	n^2
QC	$46/.008 = 5,750$	100	140	10,000	n^2
QS	$4/.04 = 100$	10	12.5	100	n^2
QR	$32/.36 = 88$	10	$11.\overline{66}$	100	n^2

Summary: My results for QS was worst case (n^2), merge sort was n^2 surprisingly, IS was Average-Worst case (n^2), & Selection Sort is n^2 all cases, but I had (n) so thats cool