PA1 Report
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1. Running Time

Input Size	IS		MS		QS		HS	
	CPU time (ms)	Memory (kb)	CPU time (ms)	Memory (kb)	CPU time (ms)	Memory (kb)	CPU time (ms)	Memory (kb)
4000. case2	0.124	5904	0.8	5904	0.319	5904	0.772	5904
4000. case3	11.885	5904	1.036	5904	0.341	5904	0.778	5904
4000. case1	6.234	5904	1.831	5904	0.934	5904	0.906	5904
16000. case2	0.114	6056	1.392	6056	0.578	6056	1.909	6056
16000. case3	84.522	6056	1.599	6056	0.608	6056	1.328	6056
16000. case1	43.936	6056	3.025	6056	1.875	6056	1.543	6056
32000. case2	0.113	6188	2.08	6188	0.972	6188	3.192	6188
32000. case3	323.844	6188	3.079	6188	1.179	6188	2.778	6188
32000. case1	162.803	6188	4.083	6188	3.159	6188	2.78	6188
1000000. case2	1.454	12144	70.153	14004	27.167	12144	93.005	12144
1000000. case3	322559	12144	77.03	14004	33.971	12144	93.73	12144
1000000. case1	161212	12144	149.181	14004	84.586	12144	170.256	12144

2. Results (on EDA Union 6)
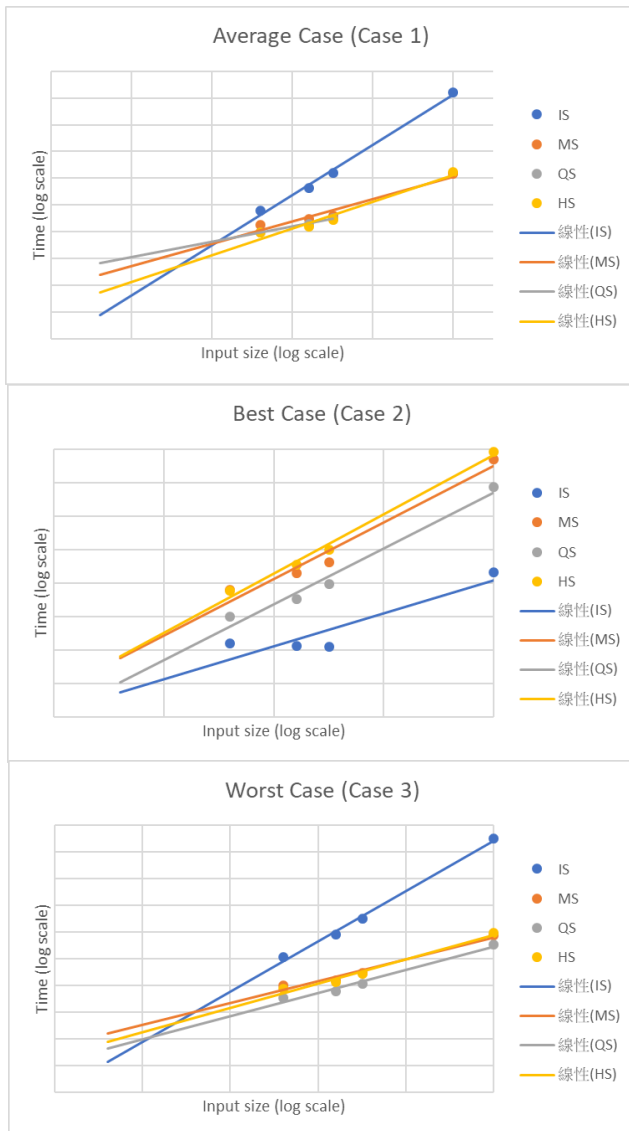
IS:

$$\text{Case1,} \quad \text{slope} = \frac{\log(n^2)}{\log(n)} = 2$$

$$\text{Case2,} \quad \text{slope} = \frac{\log(n^2)}{\log(n)} = 2$$

$$\text{Case3,} \quad \text{slope} = \frac{\log(n)}{\log(n)} = 1$$

MS/HS:

$$\text{slope} = \frac{\log(n\log(n))}{\log(n)} \text{ for all cases}$$

QS:

$\because$ use randomized quicksort

$\therefore \text{slope} = \frac{\log(n\log(n))}{\log(n)}$ for all cases