ISE 315 Analysis of Algorithms Fall 2015 - Homework 3

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1.Quick Sort

-Worst Case: O(n^2)

-Best Case: O(nlogn)

-Average Case: O(nlogn)

2. Average Case O(nlogn)

```
tq@tq-ubuntu:~/hw$ ./quick 1000
It took me 0.000105 seconds.
tq@tq-ubuntu:~/hw$ ./quick 10000
It took me 0.001768 seconds.
tq@tq-ubuntu:~/hw$ ./quick 100000
It took me 0.017096 seconds.
tq@tq-ubuntu:~/hw$ ./quick 1000000
It took me 0.211907 seconds.
```

3.Worst Case (n^2)

```
tq@tq-ubuntu:~/hw$ ./quick 1000
It took me 0.000643 seconds.
tq@tq-ubuntu:~/hw$ ./quick 10000
It took me 0.202476 seconds.
tq@tq-ubuntu:~/hw$ ./quick 100000
It took me 26.5853 seconds.
tq@tq-ubuntu:~/hw$ ./quick 1000000
Segmentation fault (core dumped)
```

4.Quick Sort’s upper bound is O(n^2)

N	S1	N	S2
1000	0,000105	1000	0,000643
10000	0,001768	10000	0,202476
100000	0,017096	100000	26,2853
1000000	0,211907