CIS 360 Lab #5: Divide and Conquer: Quick Sort

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1. Implement the Quick Sort algorithm (Algorithm 2.6 and 2.7). Test it with randomly generated list as input, and count the number of times of the recursive calls (the calling for *quicksort* method).

2. In Algorithm 2.7, the first item in the list is selected as the pivot item. Now implement another pivot strategy: the median of the three: select the median of the 1st, the middle and the last item in the list as the pivot item.

   For example, given list: 56, 34, 189, 240, 150, 12, 9, 123

The 1st is 56, the last is 123, and the middle (1+8)/2 = 4th item is: 240. The median of these three numbers 56, 123, and 240 is: 123, therefore the pivot is 123.

3. Run experiments with for these two different pivot strategies with different input size, record the number of recursive calls.

n=	**100**	**5000**	**50,000**	**100,000**
1st as pivot	129	8129	98001	1998001
Medium of three	125	8095	98001	1998001