Conclusion and Summary:

Summary:

After running the program, I got 5 sets of data. After importing to excel, I did an averaged them to get the data which I am going to analyze. In the excel file, we can see Five Plots: Three individual plots for each sorting method, one baud plot (lg vs lg) for insertion and selection sort and one comparison plots with all three method together.

Conclusion:

1. From the individual plots for insertion and selection sorts, by fitting both graphs, we can clearly see that both insertion sorts and selection sorts are Theta(n^2), which is the same result we can get by analyzing the code directly.
2. The baud plot further confirms it’s n^2
3. From the individual plot for the built-in method, we can conclude the theta running time for built-in method is close to linear, which is n. So it’s Theta(n) for the built-in sort
4. From the comparison plot, we can clearly see, the time efficiency for three sorting methods, from most efficient to least should be : Built-in method> Insertion sort > Selection Sort.