Week 7 Assessment

#1 Runtime Analysis

Results for extraLargeArray insert function: 962.725 ms

Results for extraLargeArray append function: 3.0035 ms

Results for tinyArray insert function: 36.4 μs

Results for tinyArray append function: 78 μs

Results for smallArray insert function: 48 μs

Results for smallArray append function: 96.5 μs

Results for mediumArray insert function: 164.8 μs

Results for mediumArray append function: 120.7 μs

Results for largeArray insert function: 7.9798 ms

Results for largeArray append function: 442.1 μs

Results for extraLargeArray insert function: 967.3337 ms

Results for extraLargeArray append function: 2.9131 ms

The append function uses .push, which simply adds a new number to the end of the array, while leaving the rest where they were. The insert function uses .unshift, which places each new number at the beginning of the array, causing each number that is after it to be pushed to the next spot down, and having to go through each of those numbers to assign the new spot, which adds up as you continue to do that process each time a new number is added.

The append function works scales much more efficiently as it is not required to go through the entire array each time a number is introduced, it simply tacks it on to the end of it (categorized as an O(1)). The .unshift function would be categorized as an O(n).