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Assignment 4

Algorithm Analysis

The different versions of quicksort yield very interesting results when the algorithms are implemented on very large arrays. The first thing that is apparent is that the simple quicksort was by far the least efficient of the algorithms. In every situation it had the worst average time, especially when the array is already sorted. The median of three quicksort seems to be very efficient and they work slightly faster when the base case array size is larger. The pivot quicksort is more similar to the simple quicksort, however it has exceptionally better runtimes on reversed and previously sorted arrays. The best algorithm for all situations is probably the quicksort with a base case of less than 20 because it has the fastest runtime in almost all scenarios. The simple quicksort is also bad because as the array size gets larger it takes significantly longer to run, while the median of 3’s only take slightly longer to run with much larger arrays.