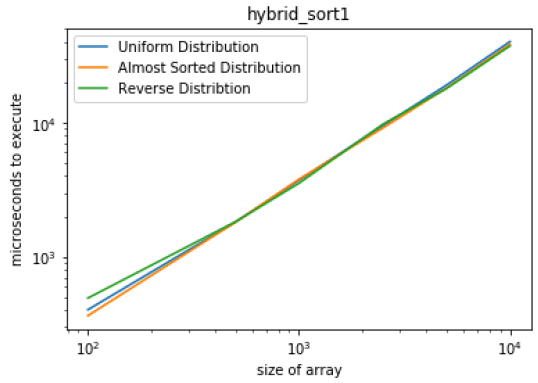
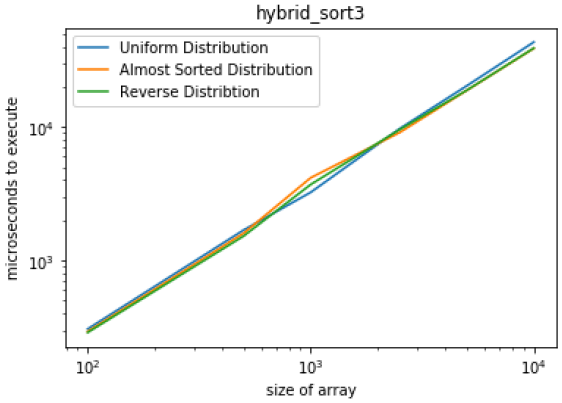
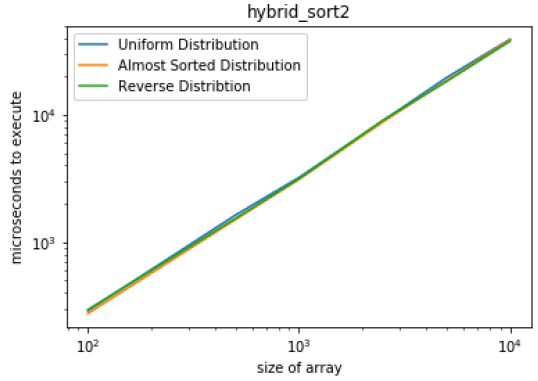


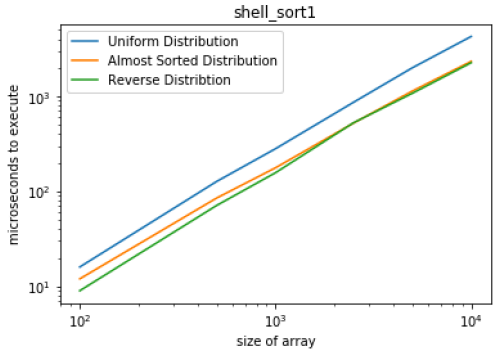
Best Fit Line for Uniform Distribution: ŷ = 4.03371X − 351.80404
Best Fit Line for Almost Sorted Distribution: ŷ = 3.84517X − 258.77938
Best Fit Line for Reversed Distribution: ŷ = 3.72755X − 20.36611



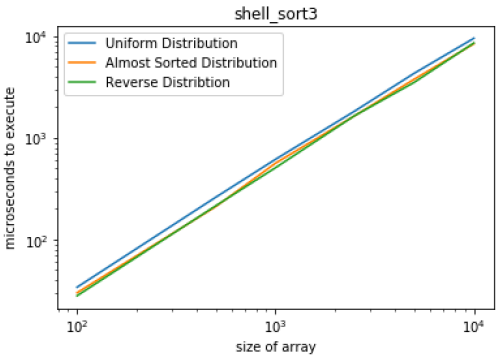
Best Fit Line for Uniform Distribution: ŷ = 4.35724X − 790.03542
Best Fit Line for Almost Sorted Distribution: ŷ = 3.87619X − 226.37855
Best Fit Line for Reversed Distribution: ŷ = 3.90641X − 296.7481



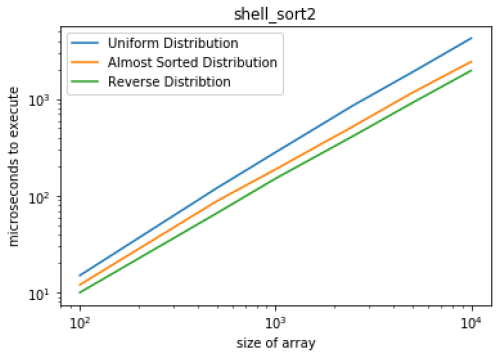
Best Fit Line for Uniform Distribution: ŷ = 3.97X − 481.16593
Best Fit Line for Almost Sorted Distribution: ŷ = 3.91562X − 620.57176
Best Fit Line for Reversed Distribution: ŷ = 3.81577X − 442.71491



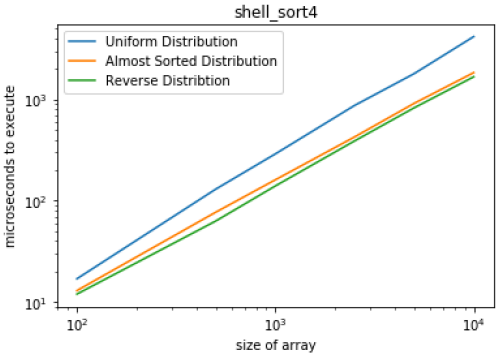
Best Fit Line for Uniform Distribution: ŷ = 0.43415X − 123.22017
Best Fit Line for Almost Sorted Distribution: ŷ = 0.23669X − 42.28635
Best Fit Line for Reversed Distribution: ŷ = 0.22926X − 46.64718



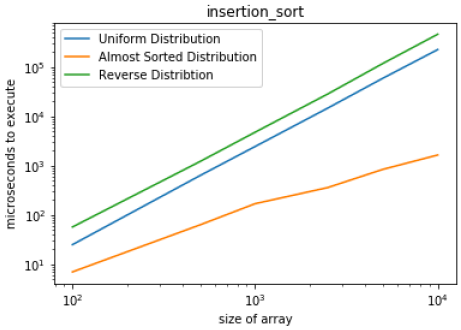
Best Fit Line for Uniform Distribution: ŷ = 0.97123X − 320.59691
Best Fit Line for Almost Sorted Distribution: ŷ = 0.85558X − 279.11117
Best Fit Line for Reversed Distribution: ŷ = 0.86646X − 337.74643



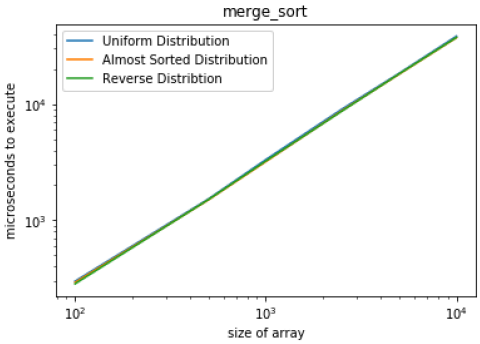
Best Fit Line for Uniform Distribution: ŷ = 0.43242X − 133.69327
Best Fit Line for Almost Sorted Distribution: ŷ = 0.24745X − 50.22573
Best Fit Line for Reversed Distribution: ŷ = 0.19979X − 46.16818



Best Fit Line for Uniform Distribution: ŷ = 0.41903X − 122.56953
Best Fit Line for Almost Sorted Distribution: ŷ = 0.18555X − 19.3498
Best Fit Line for Reversed Distribution: ŷ = 0.16901X − 21.34589



Best Fit Line for Uniform Distribution: ŷ = 22.68147X − 21846.52639
Best Fit Line for Almost Sorted Distribution: ŷ = 0.166X − 15.6
Best Fit Line for Reversed Distribution: ŷ = 46.38505X − 45423.57685



Best Fit Line for Uniform Distribution: ŷ = 3.84178X − 447.6512
Best Fit Line for Almost Sorted Distribution: ŷ = 3.73423X − 417.79619
Best Fit Line for Reversed Distribution: ŷ = 3.75259X − 438.75928

5 points. Comparing the different Shellsort algorithms to the different Hybrid-sort algorithms, to see which have similar running times and which ones are better than others:

Shell Short proved to be a faster algorithm to run. Even the slowest shell_sort3, was all-around faster than the fastest hybrid_sort2. Hybrid sort however proved to be more consistent between the different distributions. Shell sort worked best on uniform distributions.

5 points. Identifying which algorithms have very different running times for the different input distributions and which ones have similar running times for all the different input distributions:

Hybrid sort and merge sort had similar running times for the 3 different distrubitions. Insertions sort and shell sort had varying running times for the different distributions. Insertion sort had the fastest resuls for almost-sorted distrubtion by far, while reverse was the slowest.

5 points. Identifying the algorithm you think is best. Explain whether you think this algorithm is the best possible sorting algorithm or if there is a different algorithm that you think might be even better:

I think the best algorithm is shell sort. Between the different versions, the microseconds to execute stays pretty similar. Between the different versions, the variance in execution time for different distribtions is also low. Lastly, shell_sort has some of the fastest result almong all the sorts. It does consistently well across the board.