

SHELL INSERTION SORT

Input Data	Run Time	"nmoves"	"ncomps"
1000.txt	0.000000e+00	2.831400e+04	3.311700e+04
10000.txt	0.000000e+00	4.762780e+05	5.483040e+05
100000.txt	6.880000e-02	4.762780e+06	8.103583e+06
1000000.txt	9.800000e-01	9.721380e+07	1.122000e+08

SHELL SELECTION SORT

Input Data	Run Time	"nmoves"	"ncomps"
1000.txt	1.000000e-02	7.953600e+04	3.088400e+04
10000.txt	2.130000e+00	1.307370e+06	6.120430e+05
100000.txt	-	-	-
1000000.txt	-	-	-

After testing, I have come to conclude that my insertion sort time complexity is about $O(n^2)$ and my selection sort is also if time complexity $O(n^2)$. Even though they note have the same time complexity, it is worth pointing out that selection sort seems to be much less efficient as it does not seem to be able to sort the same amount od data that the insertion sort was able to in reasonable time (for large datasets). As for the space complexities, the insertion sort has a complexity of $O(n)$ while selection has $O(1)$. And finally for my generate sequence both my time and space complexities are about $O(n)$.