

Assignment 2

Algorithms and Data Structures 1 (1DL210)

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1 How to run

Just run the sort.py. It will import the required sorting algorithms as modules and run them.

2 Comparison

2.1 Insertionsort

Insertionsort is the only algorithm of the three that does not use recursion. Since it has the lowest complexity in the best case, it is the fastest when the list to be sorted has a high probability of already being sorted.

2.2 Quicksort

Quicksort is the faster algorithm in most cases compared to the other 2 algorithms in practice. Quicksort, because of the potential number of recursive calls and the resulting stack frames, potentially taking up more auxiliary space than Insertionsort and Heapsort.

2.3 Heapsort

Heap sort is $\theta(n \log(n))$ for best-, average- and worst cases. It has the best complexity of all the worst case scenarios and is therefore best if a constant sorting time is desired.