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Stooge sort

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Stooge sort is a recursive sorting algorithm with a time complexity of $O(n^{\log 3 / \log 1.5}) = O(n^{2.7095...})$. The running time of the algorithm is thus slower compared to efficient sorting algorithms, such as Merge sort, and is even slower than Bubble sort, a canonical example of a fairly inefficient and simple sort.

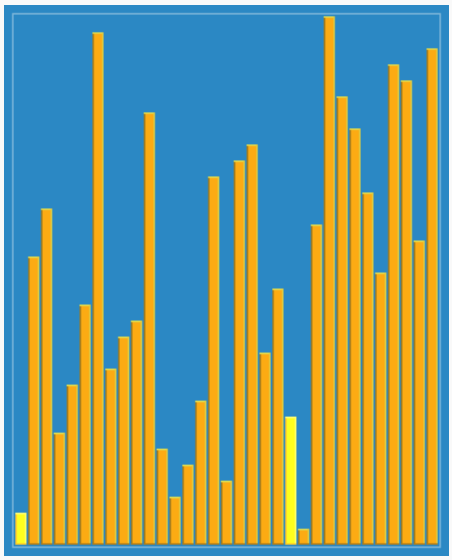
The algorithm is defined as follows:

- If the value at the end is smaller than the value at the start, swap them.
- If there are 3 or more elements in the list, then:
  - Stooge sort the initial 2/3 of the list
  - Stooge sort the final 2/3 of the list
  - Stooge sort the initial 2/3 of the list again
- else: exit the procedure

It is important to get the integer sort size used in the recursive calls by rounding the 2/3 *upwards*, e.g. rounding 2/3 of 5 should give 4 rather than 3, as otherwise the sort can fail on certain data. However, if the code is written to end on a base case of size 1, rather than terminating on either size 1 or size 2, rounding the 2/3 of 2 upwards gives an infinite number of calls.

The algorithm gets its name from slapstick routines of The Three Stooges, in which each stooge hits the other two.[*citation needed*]

Stooge sort



Visualization of Stooge sort.

Class	Sorting algorithm
Data structure	Array
Worst case performance	$O(n^{\log 3 / \log 1.5})$
Worst case space complexity	$O(n)$

Implementation [edit]

```
function stoogesort(array L, i = 0, j = length(L)-1)
    if L[j] < L[i] then
        L[i] ↔ L[j]
    if (j - i + 1) > 2 then
        t = (j - i + 1) / 3
        stoogesort(L, i  , j-t)
        stoogesort(L, i+t, j  )
        stoogesort(L, i  , j-t)
    return L
```

References [edit]

- Black, Paul E. "stooge sort". *Dictionary of Algorithms and Data Structures*. National Institute of Standards and Technology. Retrieved 2011-06-18.
- Cormen, Thomas H.; Leiserson, Charles E., Rivest, Ronald L., Stein, Clifford (2001) [1990]. "Problem 7-3". *Introduction to Algorithms* (2nd ed.). MIT Press and McGraw-Hill. pp. 161–162. ISBN 0-262-03293-7.

External links [edit]

- Everything2.com – Stooge sort
- Sorting Algorithms (including Stooge sort)
- Stooge sort – implementation and comparison

v · t · e **Sorting algorithms** [hide]

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