**Project 4**

1) Strand Sort

it's a sorting algorithms based on recursion, this algorithm sorts items of a list in an increasing order.

Time Complexity:

- In the worst case(where the list is in reverse order) it takes O(n^2).

- In the best case ( where the list is already sorted) it takes O(n)

Note:

how its work(algorithm):

1- at first take the first element in the list into a sub list, and remove it from the main list

2- then compare the last element in the sub list (supose it = X) to each subsequent element in main list(supose it = Y),

if Y is greater than X :

add Y to the last of sub\_list and remove Y from the main list, continue until the end of the main\_list.

3- after that, merge the existing sub\_list to the sorted\_list(which is empty at first time), and remove all elements in sub\_list.

4- repeat this until the main list becoming empty

animation:

-- add gif here

references :

Strand Sort:

<https://www.pythonpool.com/python-strand-sort/>

<https://en.wikipedia.org/wiki/Strand_sort>

Choose algorithms by this article on geeksforgeeks:

<https://www.geeksforgeeks.org/sorting-algorithms/>