sorting algorithms

advantages and disadvantages

# Bubble Sort

Bubble sorting algorithm is one of the most common sorting algorithms. It works by repeatedly swapping adjacent elements that weren’t in order until the list of items is in sequence. (Shown in Appendix A) A good way to explain bubble that a found “You can imagine that on every step big bubbles float to the surface and stay there. At the step, when no bubble moves, sorting stops” (*Bubble Sort*. Retrieved from algolist, 2009).

The main advantage of bubble sort is easy to implement and easy to understand. Therefore, it’s mainly suitable for teaching but not really for real-life applications. The elements are swapped in place without using more temporary storage.

The Disadvantage is that this sort can’t not deal well with lists that have a larger number of items in it. The sort also requires n-squared processing steps for every n number of elements so that it can be sorted.

# Pancake Sort

Pancake sort idea is to sort a disordered stack of pancakes in order of size by using a spatula to insert at any point in the stack and use it to flip all pancakes above it. This means that it is to order the elements by flipping the largest element to the end of the list then repeat until the list is in order to have an ascending order list. (Shown in Appendix B)

The main disadvantage of pancake sort is that it’s not the quickest solution. The memory and run time that is required is O(n) and O(n2), N being the list length. Due to the data that I obtain by *Austin, Pancake Sort* I can see it wouldn’t work well sorting a large list.

# Merge Sort

Merge sort works on the principle of divide and conquer. This sort repeatedly breaks down into many smaller lists then the sub lists are merged in away that the whole list is sorted. (Shown in Appendix C)

The advantages of merge sort are that it is quicker than other sort algorithm for example bubble sort and insertion sort. This is because merge sort doesn’t loop through the whole list several times.

The disadvantage of merge sort is that this requires more space then other sorts and is less efficient then other sorts. It uses more space to store the sub elements of the initial split list also, will have slower comparative to the other sorts for smaller tasks.

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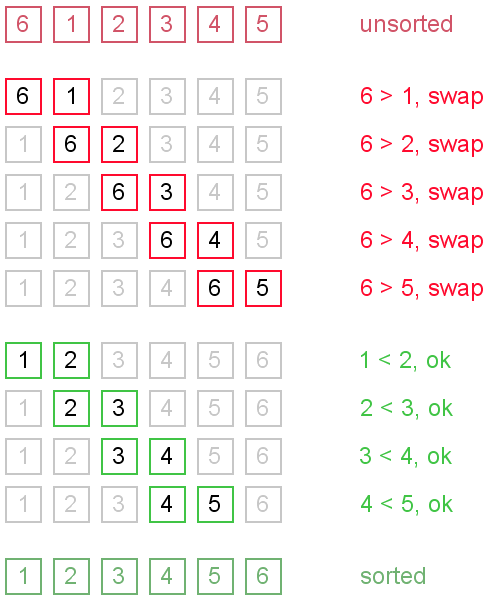
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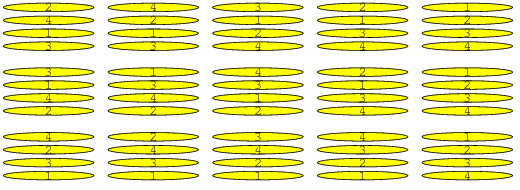
# Appendix

## Appendix A – Bubble Sort



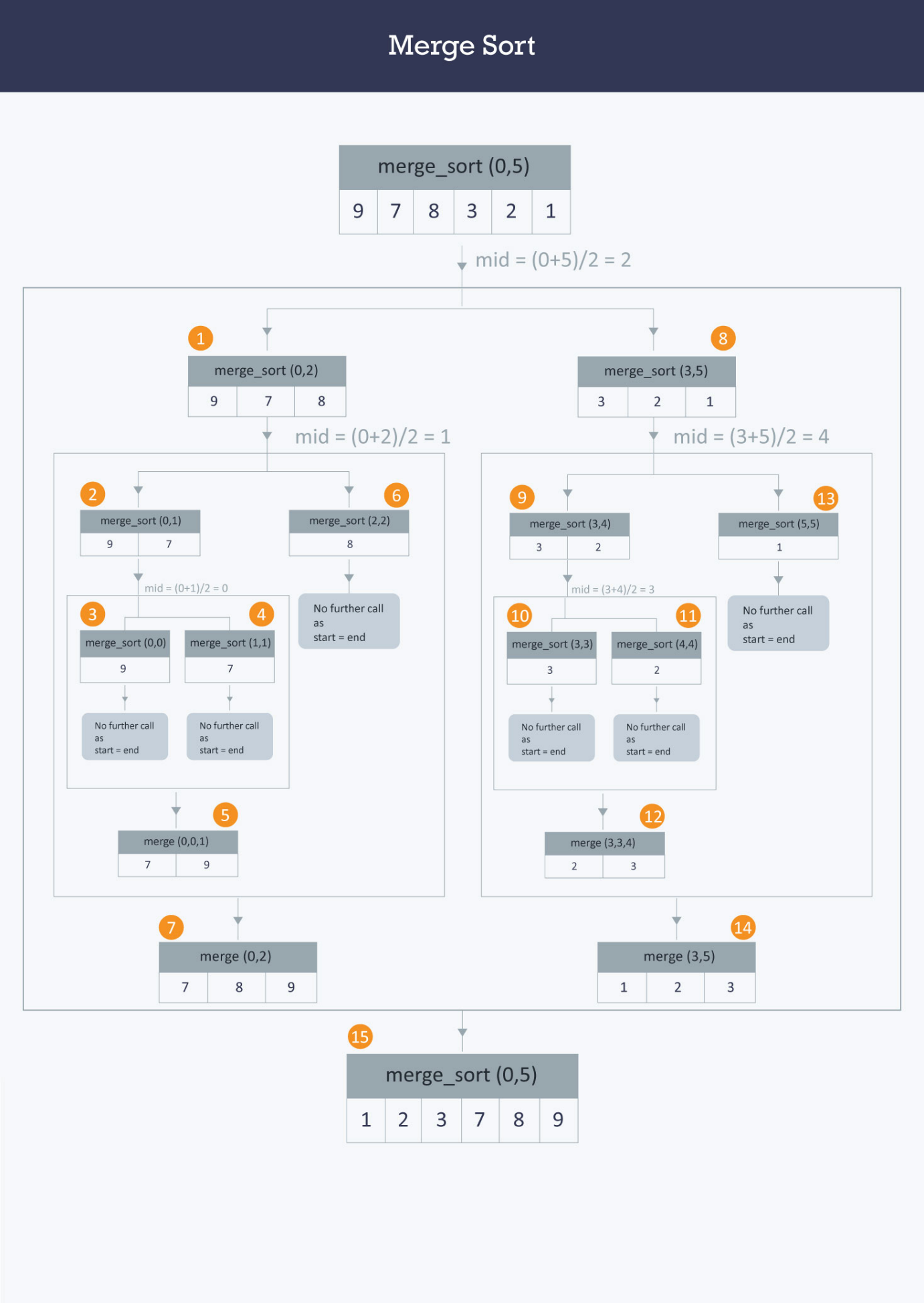
Bubble Sort. Retrieved from algolist: <http://www.algolist.net/Algorithms/Sorting/Bubble_sort>

## Appendix B –Pancake Sort



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## Appendix C – Merge Sort



Retrieved from hackerearth: https://www.hackerearth.com/practice/algorithms/sorting/merge-sort/tutorial/