

2018-11-13 NLogN Sorts (MergeSort)

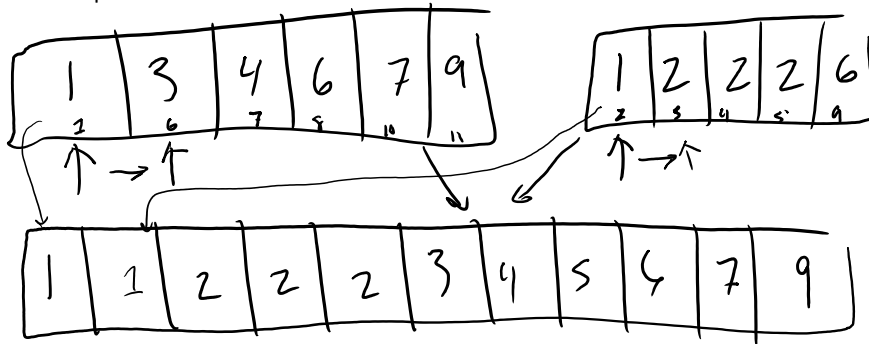
Tuesday, November 13, 2018 3:11 PM

MergeSort

- NLogN sort (we'll see why later)
- Two fundamental observations:
 - An array of size 1 is sorted
 - You can merge sorted arrays in linear time

Merging Sorted Arrays

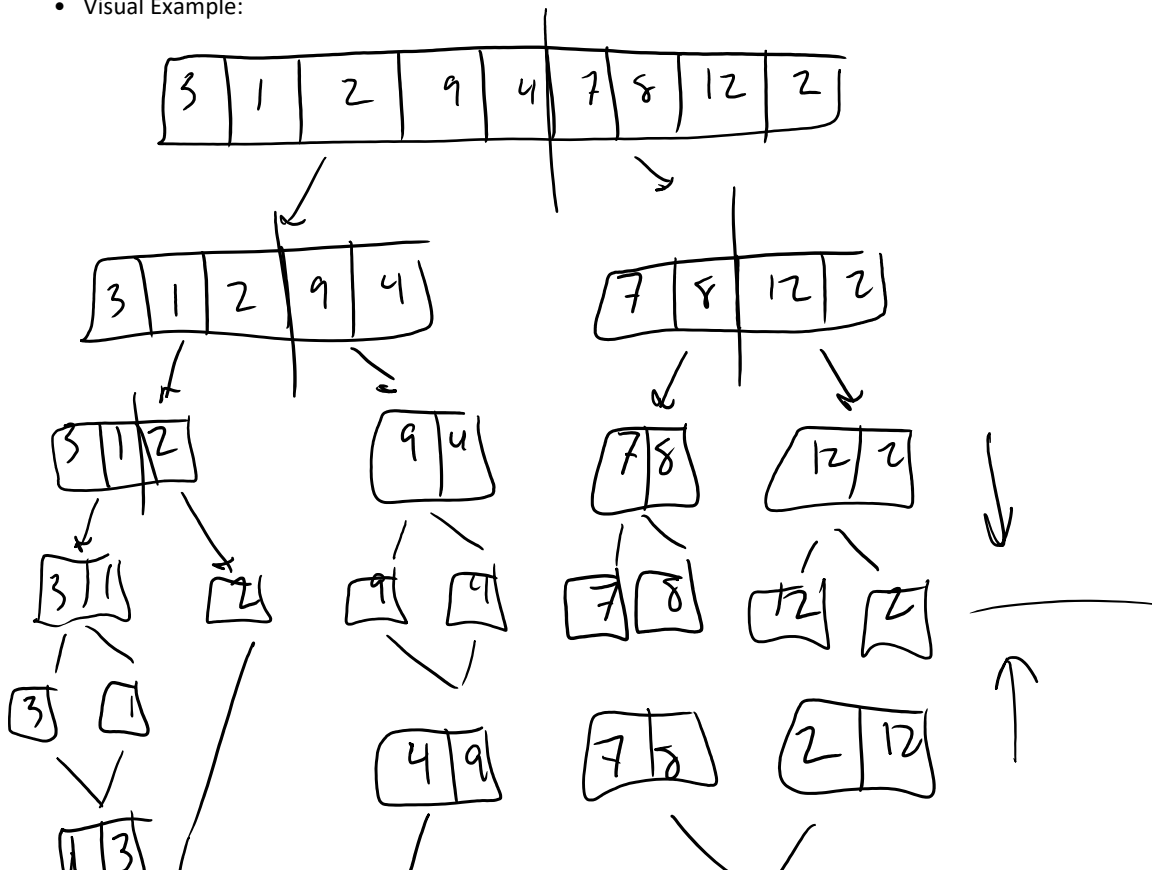
- Example:

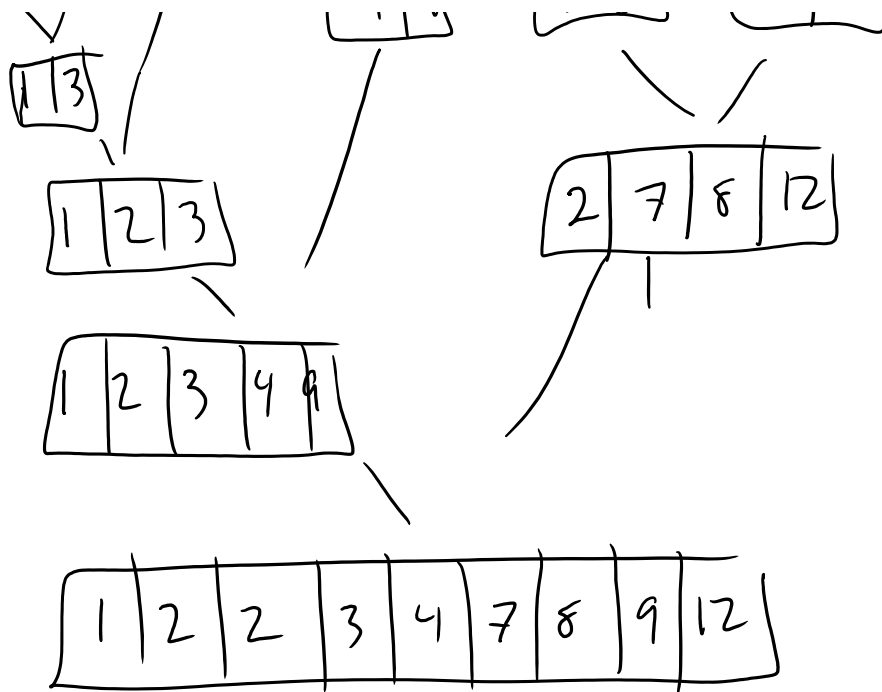


- Observation:
 - Treat arrays as queues, "dequeue" smaller element into merged array. Repeat until both queues are empty.

General Algorithm

- Break an array down until we get to observation #1 (array of single size)
- Then, progressively merge smaller chunks until we are completely sorted
- Visual Example:





Abstract perspective:

