

Sorting Summary

Selection sort

- Find the smallest and swap with the first
- Runtime for best, average and worst case: $O(n^2)$

Insertion sort

- Find where element i goes and shift the rest to make room for element i .
- Runtime for best case is $O(n)$ and for average and worst case: $O(n^2)$

Sorting Summary

Merge sort

- Divide and conquer - Split in halves, recurse then merge.
- Runtime for best, average and worst case: $O(n \log n)$ but has $O(n)$ extra space.

Quick Sort

- Pick pivot, split elements into smaller and large than pivot, repeat.
- Runtime for best, average and worst case: $O(n \log n)$

Searching Summary

Linear Search

- Scan one by one until found
- Runtime for best case is $O(1)$ and for, average and worst case: $O(n)$

Binary Search

- Probe middle and repeat (requires sorted array)
- Runtime for best case is $O(1)$ and for, average and worst case: $O(\log n)$