Sorting

Selection Sort

- Goes through list positions one by one
- Selects value that should go there
- More formally:
  - go through list to find smallest value
  - swap that value with value in first spot
  - scan rest of list to find next smallest value
  - swap that value with value in second spot
  - continue with remaining spots for each position in the list

Selection Sort - Complexity

- Think about the work it does:
  - How many times does it go through the list?
  - For each pass, how many elements does it look at?

Recall: Selection Sort

- go through list to find smallest value
- swap that value with value in first spot
- scan rest of list to find next smallest value
- swap that value with value in second spot
- continue with remaining spots for each position in the list

Merge Sort

- divide and conquer algorithm
- recursive
- process:
  - divide array into 2 halves
  - **recursively** sort each half (by calling mergesort on each half)
  - merge sorted halves (take 2 sorted lists and combine into one sorted list)

Merge Sort - Complexity

- Tree like, recursive halving/combining
- How much work at each step of tree?