

For Monday

- Read Weiss, chapter 7, sections 5-6
- Homework
 - Elementary sorting homework described on Blackboard in the Notes and Homework section.

Programming Assignment 2

Sorting

- Importance of sorting
- Three basic simple sorts
 - bubble (or exchange)
 - selection
 - insertion

Bubble Sort

- Concept is to bubble the largest to the top (or the smallest to the bottom)
- Also called exchange sort.
- Naïve vs. improved bubble sort.

Selection Sort

- Basic concept to the find the smallest (or largest) remaining element and put it in place.

Insertion Sort

- Basic concept:
 - Conceptually split the list to be sorted into two parts: one that is sorted and one that is not
 - Repeatedly insert the first element from the unsorted part into the sorted part.

Performance of Sorting

- What is the performance?
- Each sort would be the best choice (of the simple sorts, at least) in certain situations—what situations?
- What's the space cost of these sorting algorithms?

Shellsort

- What's the concept?
- h-sorting
- increment sequence
- Shell's sequence $\{1, 2, 4, 8, \dots\}$
- Hibbard's sequence $\{1, 3, 7, 15, \dots\}$
- best sequence known $\{1, 5, 19, 41, 109, \dots\}$

Performance of Shellsort