Announcements/Reminders:

- HW7 due tonight
- P4 due tomorrow night
- Readings for Sorting, Graphs
- Final on Thursday
- Review session and course wrapup on Wednesday

Last class:

- Sorting (finish)
  - Radix Sort
  - Stable sorts
  - Sorting in Java
- Graphs (intro)

Today:

- (Last) Week in Review
- Graphs (cont'd)
  - Using Edge Representations
  - Searches/Traversals: Depth-First Search
(Last) Week in Review

• Hashing
  • Collision Handling in Open Addressing
  • Hashing in Java

• Sorting
  • Problem, Definition
  • Basic Sorts: Bubble Sort, Insertion Sort, Selection Sort
  • Smarter Sorts: Heap Sort, Merge Sort, Quicksort
    • Choosing a pivot for quicksort
  • Radix Sort
  • Stable Sorts
  • Sorting in Java

• Graphs
  • Concept, Terminology
  • Representing Edges
Using Edge Representations

Compute the degree of a node in an undirected graph when edges are represented as:

Adjacency matrix:

Adjacency list:

Computing in-degree in a directed graph:
Euler Paths/Cycles: The Königsberg Bridge Problem

Figure 98. Geographic Map: The Königsberg Bridges.
Searches and Traversals

Search

Traversal
Depth-First Search (DFS)

What kind of questions can we answer?

Recursive Definition:

Using a stack:
DFS Examples

DFS node visit order beginning at A:

Graph 1:

Graph 2:

DFS spanning tree starting at A:

Graph 1:

Graph 2: