

Slide 1

Administrivia

- Reminder: Quiz 4 Wednesday.
- Reminder: Homework 6 due Wednesday.

Slide 2

Minute Essay From Last Lecture

- Responses were a little vague (understandably so) but most people mentioned applications involving multiple variables and/or a lot of data.
- One person mentioned video games, especially 3D, and — maybe! at first thought it seems likely, but it's possible what's actually going on behind the scenes involves more-sophisticated data structures. In games speed/efficiency matter more than in many applications!

Multi-Dimensional Arrays — Recap/Review

- Multi-dimensional arrays possible in C but some details are ugly, at least in part because of how they're represented. VLAs help but are not a "silver bullet" since they're not usually a good choice for very large arrays.
- (Finish ASCII-art program.)

Slide 3

Sorting and Searching

- Traditional topics in CS1 courses. Arguably not of first importance to people more interested in using computers as tools, but still interesting . . . :
- Both are good examples of problems that can be solved in different ways.
- Both are good examples for introducing the idea of "order of magnitude" for algorithms.
- (But if you actually need to do one of these operations, look first for a library function!)

Slide 4

Sorting — The Problem and Some Solutions

Slide 5

- Problem: Given an array (or list) of elements for which there is a sensible “less than” operator, put them in order.
- Simple solutions include bubble sort, selection sort, insertion sort. Easy to program but not “fast” (more later).
- More-complex but “faster” solutions exist, and two of the best-known use recursion.

Searching — The Problem and Some Solutions

Slide 6

- Problem: Given an array (or list) and an element, search the array for the element.
- Simplest solution is sequential search. Easy to program and works for any array but not “fast”.
- Slightly more-complex solution is binary search. “Faster” but requires array to be in order.

Minute Essay

- None really — unless you have questions? otherwise just sign in.

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