1 ▣ CS3134 #15

10/23/03
Janak J Parekh

2 ▣ Administrivia

- HW#3 due Tuesday
- Final exam is actually on Tuesday
  – Registrar messed it up this year!

3 ▣ Agenda

- Look at midterm
- Finish Quicksort
- Trees

4 ▣ Quicksort: Picking the pivot

- Imagine a reverse-sorted array
- How long does Quicksort take?
  – $O(n^2)$!
- How can we fix this?
  – Pick pivot more intelligently
  – Any suggestions?
  – Two popular mechanisms:
    - Random
    - Median-of-three
    - Latter is a bit better
- Also, inefficient for small arrays
  – Use insertion sort as a degenerate case…

5 ▣ Trees

- Linked Lists are generally connected to *one* other link
- What if we connect to multiple other links?
- A Tree is one generalization of a Linked List
- Key definition: no "cycles" amongst children
  – Graphs are more general
- Terminology
  – Node, Edge, Path, Root, Parent, Child, Leaf, Subtree, Level

6 ▣ Next time

- Continue Trees