Searching

- Frequent Task

- Many Solutions: depend on
  - Nature of data
  - How it is stored

- Depends on Comparisons: What do we need?
  - Equality?
  - Greater-Than, Less-Than?
Comparing

- How do we compare primitive type?

- How do we Compare two Objects
  - Which school is “better”
  - Which car is best deal?
  - Apples vs Oranges
Sequential Search

- "Brute Force"
  - (Also called linear search)
  - Just look everywhere
  - You can’t miss
  - Makes no assumptions

- For Arrays or Collections
  - Use Loops
    - "for each" usually works
  - Iterators
    - Collections provide them
    - Scanner has one built int
Binary Search

- “Telephone Book” search
  - Also “Dictionary Search”

- What does this search assume of the data?

- How much better is it than sequential search?
  - Each pass cuts uncertainty in half
Special Data

- “Know” where it is
  - Stored based on search key
  - Mail boxes at post office
  - Arrays
  - Telephone Number in traditional switches
  - Computer memory

- How much better is it than sequential search?

- How much better is it than binary search?
Extra Support

- Index

- Table of Contents
  - Depends of hierarchy of data

- Directory Structure
  - Also hierarchical