Introduction to Sorting
Topic 21

"The founders put some brains in me
So I could choose instead!
Now slip me snug about your ears,
I've never yet been wrong,
I'll have a look inside your mind
And tell where you belong!"
-The Sorting Hat,
Harry Potter and the Goblet of Fire

Based on slides for Building Java Programs by Reges/Stepp, found at http://faculty.washington.edu/stepp/book/

Sorting

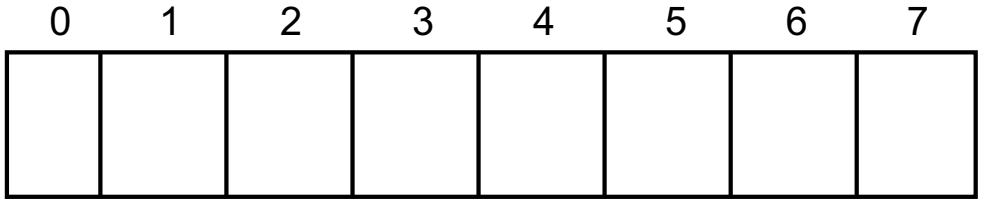
- A fundamental application of computer's
- Sorting data is done to make it easier to find things later
  - either easier for the computer or easier for humans
- Many different algorithms and techniques for sorting data
  - en.wikipedia.org/wiki/Sorting_algorithm
  - en.wikipedia.org/wiki/Category:Sort_algorithms
  - www.nist.gov/dads/HTML/sort.html

Sorting

- Canonical sort problem in a language like Java.
  - given an array of ints, sort them.
  - done to focus on the algorithm
  - usually the ints are the key and data is attached to them
  - **key:** a piece of data used to sort a larger collection of data
  - example: student information: key could be name, uteid, email address

Sorting Demo

- Why is this hard?



Sorting

0	1	2	3	4	5	6	7
18	29	12	37	5	-3	17	7

One Sorting Algorithm

- Selection Sort
- One of the simplest sorts to understand and implement.
- As described at Wikipedia:

1. find the minimum value in the list
2. swap it with the value in the first position
3. sort the remainder of the list (excluding the first value)