ARRAY ALGORITHMS

CS302 – Introduction to Programming
University of Wisconsin
Lecture 13

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Array Algorithms

- We covered Bubble Sort, an algorithms that sorts an array.

- Today we will cover a few more topics:
  - Linear Search
  - Removing elements
  - Inserting elements
  - Copying

Linear Search

- Say we are given an array called arr, how do we find a specific value, val, in that array?

- Let's write a method called linearSearch that will perform a linear search on the array for some value. If it finds the value, it will return the first index of that value, if it doesn't find that value, it will return -1.

Removing Elements

- Let's write a method that removes an element from the array, called removeElement, that takes an array, and an index of the element we wish to remove.

Inserting Elements

- Let's write a method called insertElement that accepts an array of integers, a value we would like to insert into the array, and an index specifying where we want to insert this new element.

The **Arrays** Library

- The standard Java libraries include methods for performing the tasks we just implemented ourselves.
- Arrays.sort() → Sorts an array
- Arrays.binarySearch() → Searches an array for a specific value and returns the index of the first occurrence of that value

- The Javadocs for the **Arrays** library can be seen here: http://docs.oracle.com/javase/7/docs/api/java/util/Arrays.html

Cool CS Link of the Day

- http://www.cbsnews.com/video/watch/?id=50148119n
- Robotic arms controlled by the human brain