ARRAY MANIPULATION LIBRARIES

Ultimate JavaScript arrays

INTRODUCTION

- JavaScript has useful, but few, built-in array functions
- Writing one's own functions for simple things like sum, product, max, etc. is time-consuming
- Libraries have been written to help manipulate arrays – Lodash & Underscore
- D3.js has interesting functions relating to math operations on arrays

WHAT WE'LL COVER

- Discuss Lodash and Underscore and their significance
- Use Lodash to work with JavaScript arrays
- Learn about D3.js
- Use D3's built in array methods

LODASH AND UNDERSCORE

- Both spelled like this: _
- Underscore older; Lodash newer, fresher, better tested
- Full of utility functions for operating on arrays
- Lodash implements Underscore's entire API (and then some)
- Lodash is recommended in all cases

WHAT CAN LODASH DO, FOR EXAMPLE?

- **Chunk –** break an array into smaller arrays
- **Intersection –** make a new array out of common elements of two arrays
- **Uniq –** create a version of the array with no duplicates
- **Union –** unique plus interection
- **Tail –** gets all the elements of an array (except the first)

D3.JS PRIMER

- D3 – stands for data-driven documents
- Originally written by coding legend Mike Bostock to help create visualizations for the New York Times
- In D3, arrays are the "canonical data" format
- D3's primary purpose is to display data visually using DOM elements
- It is also packed with loads of helper functions for working with arrays

WHAT CAN D3 DO?

- **Sum –** reduce the array to the sum of all its elements
- **Ascending –** a function to pass to *sort* which **correctly** sorts numbers
- **Mean –** Finds the mean value of an array of numbers
- **Nest –** sophisticated data transformation to transform complex objects
- **Shuffle –** creates a randomized array

CONCLUSION

- D3 and Underscore have more than 50 functions to work with arrays
- Only way to master these libraries is to practice with them
- Before writing your own function for dealing with an array, check to see if D3 or Lodash has already created them
- Lodash and D3 are both backed by significant test suites

D3 AND UNDERSCORE CHEAT SHEET

Technique	Code
Reduce array to max value	`d3.max()`
Randomize an array	`d3.shuffle()`
Sum of all the numbers in an array	`d3.sum()`
Merge child arrays	`_.flatten()`
Find shared elements in arrays	`_.intersection()`
Reverse an array	`_.reverse()`
Remove duplicates from an array	`_.uniq()`
Get a property from each object	`_.pluck()`