jQuery
JavaScript Frameworks

• There are a lot of alternative JavaScript frameworks

• E.g.
  – Google Web Toolkit
  – Ember.js
  – Backbone.js
  – Angular.js
  – React

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Opinionated frameworks

• All frameworks have:
  – Varying capabilities built-in
  – Varying levels of being opinionated

• Highly opinionated:
  – Doing what the framework is good at is:
    • very easy (powerful)
    • very quick (efficient)
    • embodies best practices into your app without you having to do so yourself (quality)
  – Tradeoff: doing what the framework is not good at:
    • difficult to impossible to innovation outside the framework (limited/restricted)
    • can produce cookie-cutter apps (e.g. one can often tell "There is another Twitter Bootstrap site")
    • can hinder run-time efficiency by being bloated with functionality that is never used.

• jQuery is not opinionated
  – More of a set of useful tools and utilities than a full framework
What is jQuery?

• JavaScript library with a large and useful set of capabilities
• As name implies, it is based on *queries*
  – query with a CSS selector to identify a set of DOM elements
  – that result set is returned as an object
  – provides a large number of useful methods to apply to the result set
    • modifying content
    • modifying HTML attributes and CSS properties
    • defining event handlers
    • performing animations
• E.g.
  – Find all list elements in a `<ul>`, and hide them
  – Get a set of `<p>`'s, delete the first one, and add a new one with data fetched from a server
What is jQuery?

• jQuery also has:
  – Simpler means for using XMLHttpRequest
  – A cross-browser event model
    • Hiding idiosyncrasies of different browsers
  – A set of useful general-purpose utilities
jQuery UI

• A set of user interface widgets, built on jQuery and JavaScript
• E.g.
  – autocompletion input fields
  – date pickers
  – accordions and tabs for organizing information
  – sliders and progress bars
  – modal dialogs
• Also
  – Advanced interaction support for simpler:
    • dragging
    • dropping
    • resizing
    • selecting
    • sorting
  – Visual effects
jQuery Mobile

• Built on jQuery and JavaScript
• Provides a unified mobile UI framework
• Targeted to a large set of popular mobile devices
  – Phones to tablets
• Progressive enhancement
  – basic markup is geared towards the lowest common denominator
  – functionality added to the presentation based on phone and browser capability
• Easily themeable design
• jQuery Mobile is more opinionated
Where to get jQuery

• Easiest to use the CDN:
  – Content Delivery Network: A large geographically-distributed set of servers with the same content
  – Find the links at:
    http://jquery.com/download/#using-jquery-with-a-cdn
  – E.g.
    <script src="http://code.jquery.com/jquery-1.11.3.min.js"></script>

• You can also download and look at the latest Development version which is uncompressed.
  – In this way, you can look at how jQuery works
jQuery basics

- jQuery defines only 2 names in the global namespace:
  - jQuery()
  - $ as a shortcut to jQuery
**Possible arguments to `$()`**

1. **A CSS selector (string)**
   - Returns a set of elements from the document

2. **An element, document, or window object**
   - Wraps the argument in a jQuery object, for using jQuery methods on it.
   - I.e.
     - document.body is a document object
     - $(document.body) is a jQuery object
     - You can do $(document.body).fadeOut()

3. **String of HTML text**
   - Returns a jQuery object representing the HTML text, which can be inserted into the DOM with jQuery methods.
   - The string must have an HTML element in it, else jQuery will think the argument is a CSS selector string.

4. **A function**
   - This function will be run once the document has been loaded and the DOM is ready to be manipulated.
   \[ $(function) === $(document).ready(function) \]
Will select elements from the document, based on the CSS selector

Allows most CSS selectors, and some special additional ones

"#foo" – selects element with id="foo"

".bar" – selects elements with class="bar"

"#foo p" – selects the paragraph element within the element with id="foo"

"a[target="_blank"]" – selects a elements with attribute target="_blank"
Browse the jQuery API

- http://api.jquery.com/
Work in teams of 4 to:

• Start with
  http://www.andrew.cmu.edu/course/67-328/examples/jq1.html

• Add a click handler to id=favorites and have it slideUp

• When you click on a tree, have it move to the end of the list.

• Use mouseenter and mouseleave to do something interesting (you can start with new html)
jQuery Ajax

• Review:
  – http://www.andrew.cmu.edu/course/67-328/examples(jq-getJSON-simple.html