FULL SAIL
UNIVERSITY

programming for web applications 2-

jQuery selectors and manipulators

due.**Dates**

Item	Due Dates
Branding / Logo	10/01/13 - After Lab on the First Day
Project Pitch	10/05/13 - Before Lecture on 3
Creative Brief - Finished Document	10/8/13 - Before Lecture 4
Site Prototype (html/css)	10/12/13 - After Last Lab of the 2nd Week
Development Milestone (javascript)	10/15/13 - Due End of Lab 7
Inclusion of 5 media center items	10/24/13 - Last Day of Class After Lab
Aesthetics & Usability (finished site)	10/24/13 - Last Day of Class After Lab
Functionality (finished site)	10/24/13 - Last Day of Class After Lab
Professionalism	The duration of the course
Class Participation	The duration of the course

setup.Review

jQuery setup.**Review**

Setup

- 1. Create and save a jQuery minified file (.js) (slide 5)
- 2. Setup the jQuery minified file within the .HTML file
  - For Development: use a local copy of jQuery
  - For Production: use the Google CDN version
- 3. Create a .js file for your jQuery program
  - Insert DOM Ready statement (slide 6)

jQuery setup.**Review**

go to: jquery.com (REVIEW)

download both *(minified (compressed) and uncompressed)*

FULL SAIL UNIVERSITY

jQuery setup.**Review**

The “dom ready” callback

```
$(document).ready(function(){
    // all site code
});
```

```
$(function(){
    // all site code
});
```

This argument is a nameless function literal. It should already look familiar, as this is how our **DOMReady** method worked in PWA1.

In the same manner, any code inside this function is run when the DOM is loaded.

FULL SAIL UNIVERSITY

jQuery setup.**Review**

jQuery Setup

In the .HTML file

Use for LIVE sites : Google's CDN

```
<script type="text/javascript" src="http://ajax.googleapis.com/ajax/libs/jquery/1.8.3/jquery.min.js"></script>
```

Or

Use during the DEVELOPMENT of a jQuery website

```
<script type="text/javascript" src="js/jquery-1.8.3.js"></script>
```

Place one of the script tags above the </body> tag.

FULL SAIL UNIVERSITY

jQuery.Selectors

jQuery.Selectors

Selecting Items in the DOM

- download this program to try out using jQuery SELECTORS and see them applied:

in FSO's Reference Tab:
Course Material Follow Along Files
'Goal3.zip'

jQuery.**Selectors**

Targeting an HTML Element

- As we've learned, jQuery's methods *(such as css or attr)* **almost always need a target. Most uses in jQuery revolve around manipulating html elements** inside the DOM, **but we have to *select* them first.**
- Essentially, we'll be passing a ***string*** to the jQuery factory that "selects" which elements to perform all of the following methods on.
- The ***selector set*** creates an array of items.

jQuery.Selectors

Targeting with Selectors

- We've already looked at some of the basic selector options, and we've seen how jQuery utilizes a CSS syntax to make this even easier.
- Our basic selectors will use: **ids, classes,** or **element tags**, such as:

```
$("#myid")    $(".myclass")        $("p")
```

- Most advanced selectors still begin with these, for example

```
$("#myid > .topnav:first a[href][rel]")
```

jQuery.Selectors

Targeting with Selectors

- jQuery supports normal CSS syntax for sub-selections, combining the basic selector types... such as:

```
$("#myid ul li")    $("div.hilite a")
```

- In the first example, using a *space* in this way is known as the **ancestor-descendant** relationship, as opposed to the **parent-child** alternative.
- It's important to remember how these CSS selectors work. Keep in mind that these will make *nested* selections. For example .. $("div.hilite a") .. will target *all* anchor tags inside the div.hilite elements, no matter how deeply nested the links are.

jQuery.Selectors

```
$(“div.hilite a”)
```

```
<div class="hilite">
  <a href=""></a>
  <a href=""></a>
  <ul>
    <li><a href=""></a></li>
    <li><a href=""></a></li>
  </ul>
  <a href=""></a>
  <a href=""></a>
</div>
```

jQuery.Selectors

Targeting with Selectors

- Several of the more advanced jQuery selectors utilize syntax from CSS2 and CSS3. By using jQuery however, we have a cross-browser compatible format for selecting more detailed targets.
- For example, we can use **>** to select only direct children, instead of descendants, such as:

```
$(“div.hilite > a”)
```

- In this example now, only <a> tags that are direct children of div.hilite will be selected.

jQuery.Selectors

```
$(“div.hilite > a”)
```

```
<div class="hilite">
  <a href=""></a>
  <a href=""></a>
  <ul>
    <li><a href=""></a></li>
    <li><a href=""></a></li>
  </ul>
  <a href=""></a>
  <a href=""></a>
</div>
```

jQuery.Selectors

Targeting with Selectors

- Multiple selector expressions can also be combined using commas.
- As a basic example, if I wanted to target all divs and paragraphs:

```
$(“div, p”)
```

- The comma acts as an *OR* operator, allowing results of either matched set. Either set can be as complex as needed:

```
$(“div > a:first, p:even”)
```

jQuery.Selectors

Targeting with Selectors

- Our next selector type **targets by element attributes.** Consider the following elements:

```
<a href="http://fullsail.com">Full Sail</a>
<img src="puppy1.jpg" title="puppy" alt="puppy" />
```

jQuery.Selectors

Targeting with Selectors

- Notice the attribute selector syntax follows an element with **[attr]**. In this selector, **spacing is important**, [attr] selector must directly follow a selector (to indicate connection). Some more examples:
- You can choose an element that simply has an attribute, no matter the value:

```
$(“img[title]”)
```

- ^= selects text at the *beginning* of an attribute’s value:

```
$(“a[href^='http://']”)
```

jQuery.Selectors

```
<img src="puppy1.jpg" title="puppy" alt="puppy" />
```

Targeting with Selectors

- To select text at the *end* of the value, use $=

```
$("img[src$=.jpg]")
```

- To match text *anywhere* in the value, use *=

```
$("img[src*=puppy]")
```

- We can also match where the text is *not* inside the value, with !=

```
$("img[src!=kitten]")
```

```
$("img[src=puppy1.jpg]")
```

jQuery.Selectors

Targeting with Selectors

- Multiple attribute selectors can be applied to the same element by simply repeating the **[attr]** syntax.
- For example, If I wanted to match any external link that pointed google.com, inside my content area:

```
$(“#content a[href^=http://][href*=google.com]”)
```

jQuery.Selectors

Selecting with Filters

- Our next selector syntax are **filters.** Filters take a set of matches and reduces or refines the set. Filters, like [attr], must directly follow a selector without space. The syntax looks like...

```
$("selector:filter")
```

- For example...

```
$("li:first")
```

```
$("li:even")
```

jQuery.Selectors

Selecting with Filters

- Let's look at some of the basic filter options:

Filter	Operation
:first	First item in the current selector set *(set is reduced to 1 item)*
:last	Last item in the current selector set *(set is reduced to 1 item)*
:first-child	Selects matches that are the first child of their parent
:last-child	Selects matches that are the last child of their parent
:only-child	Selects matches that are the only-child of their parent
:even	Even instances of selector, by array (0th, 2nd, 4th, 6th, etc)
:odd	Odd instances of selector, by array (1st, 3rd, 5th, etc)
:header	Matches instances of header tags (h1, h2, h3, etc)

jQuery.Selectors

Selecting with Filters

- Notice how the *even* and *odd* basic filters use instances like array indexes, beginning at 0 as the first *even* instance.
- Below are some more filters that use this array-like syntax for further filtering:

Filter	Operation
:eq(*n*)	Matches the *n*th selector match *:eq(0) is same as :first*
:gt(*n*)	Matches elements after (excluding) the *n*th selector match
:lt(*n*)	Matches elements before (excluding) the *n*th selector match

jQuery.**Selectors**

Selecting with Filters

- While the *odd, even, eq, gt, and lt* are direct filters that use an array-like index, the **:nth-child( )** filter only selects children, and **begins at 1 instead of 0**.
- For example, 1*n*th is the *1st* child.

Filter	Operation
:nth-child(*n*)	Matches only the *n*th child ie- $(“ div:nth-child(3) ”)
:nth-child(*formula*)	...

jQuery.Selectors

Selecting with Filters

- A formula of repeatable selects can also be used in **:nth-child( )**. The syntax is:

:nth-child(*X*n+*Y*)	Match the *Y*th element after every *X*th element

- For example:

```
$("div:nth-child(3n+1)")
```

- This example would match: 4, 7, 10, 13, etc.

- Without a Y:

```
$("div:nth-child(3)")
```

- Matches every 3rd element: 3, 6, 9, 12

jQuery.**Selectors**

Filter	Operation
:parent	Matches elements that have at least 1 child *(which can include text nodes)*
:empty	Matches elements with no children at all *(including text)*
:has(*selector*)	Matches the element if they contain an instance of the provided *selector* **$(**“li:has(div)”**)**
:not(*selector*)	Matches elements of only if they are not instances of the provided *selector* **$(**“li:not(.navs)”**)** **not** is the opposite of a normal selector **$(**“li.navs”**)**

jQuery.Selectors

Selecting with Filters

Filter	Operation
:hidden	Matches elements currently hidden *(hidden is defined as the element OR its parent consuming no visible space)*
:visible	Opposite of hidden, using the same conditions. jQuery animations *do* affect these filters *(such as fadeOut or slideUp)*
:animated	Matches elements currently being animated by a jQuery method *(such as animate, fadeOut, slideUp, etc)*

jQuery.Selectors

Selecting with Filters

- jQuery also provides filters for specifically targeting elements of *forms*. A few key examples are below *(not a complete list)*

Filter	Operation
:input	(i.e. input, select, textarea, button)
:button	(i.e. button, submit)
:password	
:submit	
:reset	
:checkbox	:checked
:radio	:selected
:text	

jQuery.Selectors

Selecting with Filters

- Filters can also be **stacked**, again by simply repeating the syntax
  - :filter1:filter2:filter3...
- For example, if I wanted to select to the last div on the page that has something in it, but does not have a class of “mine”:

```
$(“div:parent:not(.mine):last”)
```

```
$(“div:not(.mine):last:parent”)
```

common.**Filters**

Filter	Filter	Filter
:hidden	:has(s)	:eq(n)
:visible	:not(s)	:first
:animated	:parent	:last
	:empty	[attribute='value']

jQuery.Traversing

jQuery.Traversing

Modifying Selector Sets

- Once we've used the $( ) factory to target a ***DOM set***, we can use **traversing** methods to **modify the set.**
- It's important to note, once one of these methods is used, **further methods are being applied to the *new* match set, NOT the original.**

```
$("div").find("p").addClass("nav");
```

jQuery.**Traversing**

target.find(*selector*)	This method adds a new descendant to the *target* selector set.

$(“div p**”)** could be: **$(“**div**”).find(“p”)**

target.children(*selector*)	This method selects direct children that match the provided *selector* inside the *target.*

$(“div, p**”)** could be: **$(“**div**”).add(“p”)**

jQuery.**Traversing**

target.filter(*selector*)	This method refines a list, removing elements that do not match the *selector* expression.

$(“div.myclass”**)** could be: **$(**“div”**).filter(“.myclass”)**;

target.not(*selector*)	This method refines a list, removing elements from the list that match the given *selector* expression.

opposite of filter **$(**“div”**).not(“.myclass”)**;

jQuery.Traversing

Modifying Selector Sets

- We can also chain these traversing methods to powerful effect.

```
<td></td>
<td>I'm not blank</td>
<td></td>
```

```
$("td")
    .css({'background-color':'black'})
    .filter(":parent")
        .css({'border':'red solid 4px'})
;
```

jQuery.Traversing

Method	Operation
.contents( )	Returns a set of the children of matched elements *(including text nodes). Also works on IFrames*
.add(s)	Adds all matching *selector* into the current set. (s = selector)
.siblings(s)	Returns a set of all the siblings of the previous set
.closest(s)	Searches up the Ancestor tree for the *selector. Reduces the set to 1.*
.parent(s)	Matches the *direct* parent of the matches, with optional selector
.parents(s)	Matches *all* ancestors of the matches, with optional selector
.offsetParent( )	Finds the parents of the matches that are not position static
.parentsUntil(s)	Matches *all* ancestors of the matches, *up to but not including* the given selector.

jQuery.Traversing

Method	Operation
.next(s) .nextAll(s)	Returns siblings *(either the first sibling, or all siblings)*
.prev(s) .prevAll(s)	...
.nextUntil(s) .prevUntil(s)	Returns all siblings of matches *up to but not including* the selector
.slice(*start, end*)	Returns a set containing a sliced portion. Uses index-basis beginning at 0, using *start* and *end* to slice out the return. *end* is optional.
.eq(i)	Reduces the set to the *index (to 1 item)*
.has(s)	Reduces set to those that contain the *selector* as a descendant
.children(s)	Selects one level deep. If no selectors used it will get all selector items.
.find(s)	This will find all selectors, and will go down to all levels.

lecture.**Activity**

jQuery Challenge: Selectors

in FSO's Reference Tab:
Course Material - Lecture Activities1
'Activity for Goal3-1'

content.Manipulation

content.**Manipulation**

Get/Set Contents

.html()	Gets all the html contents of the set. (getter)
.html(*text*)	Replaces the html content of the set with new code. (setter)

- Note that **these methods interpret html** (which includes tags).
- The **get** method will return a string of all the html content ***(cannot be chained)***. It is the equivalent of the **.innerHTML** property, from Javascript.
- The **set** method returns the original matched set (including any changes), and **can be chained**. *Just like innerHTML, this replaces all of the html inside the element.*

content.**Manipulation**

Get/Set Contents

.text()	Gets all the text contents of the set *(concatenates all of the text inside any elements and* ***returns a single string*** *as a result).* ***(getter)***
.text(*text*)	Replaces the content of the set with text. **(setter)**

- One of the benefits of the text set-method is that it will automatically encode HTML entities correctly. For example:

```
$("selector").text("Miyagi > Karate Kid")
```

becomes...

```
"Miyagi &gt; Karate Kid"
```

content.**Manipulation**

Creating New Elements

- These next methods we'll discuss **create new elements in the DOM.** The key difference between all of them is **where they add the new content.**
- These are extremely **useful for adding content to a target set**, using parent-child relationships to designate the point of entry.

content.**Manipulation**

target.append(*content*)	Appends the contents (can be html, text, or element sets) as the last child of the *target* set.

- If the *content* is a string of html or text, it is **created** and **then appended** inside.
- With **append**, the original *target* is the returned object that can be chained on.
  - *This code would animate the paragraphs, not just the anchors.*

```
$('#desc').append('<a href="#">link</a>').animate();
```

content.**Manipulation**

content.appendTo(*selector*)	Moves all the elements specified by *content* and appends them to the elements of the *selector*

```
$('<a href="">Link</a>').appendTo('#nav').animate();
```

- **appendTo** is similar to the reverse of **append**, with the *target* in the factory.
- The benefit of this is in chaining. Previous, the target of further chains was the element being appended *on*. Now, the targets are the elements *being* appended.
- In the above example, the link is being made into #nav, and then animated.

content.**Manipulation**

Creating Elements

- Keep in mind, with **appendTo,** the new html is the factory target.. so all chained methods will occur on the newly created markup. Use **append** if you want the jquery target to be the insertion point instead.

```
$('<a href="">Go Home</a>')
    .appendTo("#nav")
    .slideDown()
;
```

```
$('#nav')
    .append("<a href="">Go Home</a>")
    .slideDown()
;
```

content.**Manipulation**

Creating Elements

- Similar to the append method are **prepend**, which **adds the content to the beginning of the target elements**.

target.prepend(*content*)	Moves all elements of *content* into the beginning of the *target* set. Returns the *target* for chaining.
content.prependTo(*target*)	Moves all elements of *content* into the beginning of the *target* set. Returns the *content* for chaining.

content.**Manipulation**

Creating Elements

- Similar again, these **before** and **after** methods **insert the content as siblings of the target, instead of as a child of the target.**

target.before(*content*)	Moves all elements of *content* into positions of siblings of *target*, in front of *target*. Returns ***target*** for chaining.
content.insertBefore(*target*)	Moves all elements of *content* into positions of siblings of *target*, in front of *target*. Returns ***content*** for chaining.

target.after(*content*)	Moves all elements of *content* into positions of siblings of *target*, after the *target*. Returns ***target*** for chaining.
content.insertAfter(*target*)	Moves all elements of *content* into positions of siblings of *target*, after the *target*. Returns ***content*** for chaining.

content.**Manipulation**

Wrapping Elements

- The methods we've looked at so far *(before, after, append, etc..)*, these all move or insert content ***into*** something.
- These next few methods will instead take a target of content, and ***wrap*** **it with some html markup**.
- For example, if I wanted to target all links on a page and wrap them each individually in a li with a class:

```
$("a").wrap('<li class="anchor"></li>');
```

content.**Manipulation**

Replacing Elements

- These next 2 methods instead take a *target* and replace all of its contents with the new specified *content.*
- As usual, the key difference between these is *what* is being returned...

target.replaceWith(*content*)	Replaces all of the contents of *target* with *content*. This method returns the *target* for chaining, even though it has been removed from the DOM.
content.replaceAll(*target*)	Replaces all of the contents of *target* with *content*. Returns *content* as the target of further chaining.

```
$('<p>New Paragraph</p>').replaceAll('span').animate();
```

```
$('span').replaceWith('<p></p>').appendTo('#blah').animate();
```

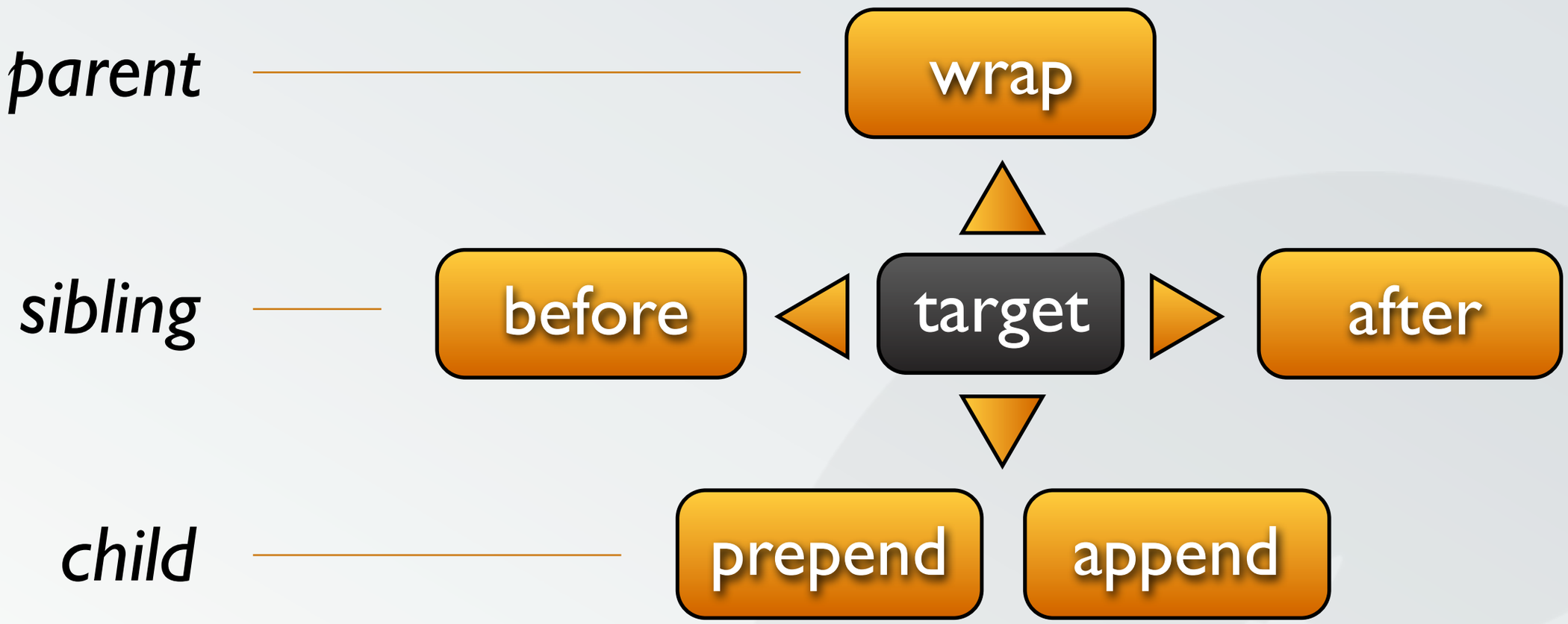
content.**Manipulation**

Wrapping Elements

target.wrap(*wrapper*)	Takes each element in the *target* set and wraps each individually with the html of *wrapper*.
target.wrapAll(*wrapper*)	Takes the entire *target* set as a whole and wraps the entire blocks with the html of *wrapper*.
target.wrapInner(*wrapper*)	Takes each element in the *target* set and wraps the ***contents*** of each individually with the html of *wrapper*.

- Each of these returns the *target*. The *wrapper* can be any set of complex html elements, but must be validly closed:

```
$("p").wrapInner("<span><strong><em></em></strong></span>");
```


parent
wrap
sibling
before
target
after
child
prepend
append

content.**Manipulation**

Removing Elements

target.empty()	Removes all elements inside of the matched set.
target.remove()	Removes all elements of the matched set.
target.detach()	Same as *remove*, except it saves jQuery data on the element instead of discarding.

- While **empty** leaves the original set selectable *(can be chained)*, **remove** destroys the set and its descendants.

```
$("p").empty();
$("p").remove();
```

content.**Manipulation**

Copying Elements

- The clone method is a unique manipulation method with only 1 argument:

target.clone(*boolean*)	Creates a clone of the *target* element(s), including all children and text. If *boolean* is true, it also copies all events throughout. *(default: false)*.

- With this method, the returned element is the *clone*, not the original. In addition, the clone is not yet inserted into the DOM, until one of our other methods is used *(such as appendTo)*

```
$("p").clone().appendTo("#mydiv").animate();
```

```
$("a#mine").clone(true).appendTo("#mydiv").animate();
```

lecture.**Activity**

jQuery Challenge: Manipulation

in FSO's Reference Tab:
Course Material - Lecture Activities1
'Activity for Goal3-2'

assignment.**Goal3** (see schedule for due dates)

- **Next Milestone:** Creative Brief
  - 1 pdf file: **lastname_firstname_CB.pdf**
  - *(refer to the Day 1 Requirements pdf for guidance)*