Introduction to jQuery

Further reading:

http://jquery.com/

https://learn.jquery.com/

http://www.w3schools.com/jquery/default.asp

jQuery makes it easy to:

find	elements in an HTML document
change	HTML content
listen	to what a user does and react accordingly
animate	content on the page
talk	over the network to fetch new content

How do we find things using the DOM?

Of course, there's a catch

each browser has a slightly different DOM interface

jQuery to the rescue!

If our JavaScript uses jQuery to interact with the DOM then it will work on most modern browsers.

Basic jQuery usage

JavaScript

this is the jQuery function

```
jQuery(<code>);
```

How jQuery Accesses The DOM

JavaScript

The DOM

```
jQuery(document);
```

But how can we search through the DOM?

Using the jQuery function to find nodes

HTML document

```
<!DOCTYPE html>
<html>
<head>
  <title>jQuery Adventures</title>
</head>
<body>
  <h1>Where do you want to go?</h1>
  <p>Plan your next adventure.</p>
</body>
</html>
```

jQuery selectors

```
jQuery("h1");
```

```
jQuery("p");
```

=

```
$("h1");
```

```
$("p");
```

short & sweet syntax

We need to use CSS selectors

jQuery Object and DOM nodes

- Invoking jQuery() or $() will return a jQuery Object which is NOT a raw DOM node.
  - jQuery object is similar to array but with special methods
- To pass to raw DOM from a jQuery object

```
var listItems = $( 'li' );
var rawListItem = listItems[0]; // or listItems.get( 0 )
var html = rawListItem.innerHTML;
var html = rawListItem.html();
// Object #<HTMLInputElement> has no method 'html'
var secondListItem = listItems.eq( 1 ); //eq() returns
                                         // a jQuery object
secondListItem.remove();
```

Selecting by HTML element name

```
$("h1");
```

DOM representation of the document

Fetching an element's text

text() *is a method offered by jQuery*

```
$("h1").text();
```

```
"Where do you want to go"
```

DOM representation of the document

Modifying an element's text

text() also allows to modify the text node

```
$("h1").text("Where to?");
```

DOM representation of the document

JavaScript may execute before the DOM loads

```
$("h1").text("Where to?");
```

We need to make sure the DOM has finished loading the HTML content before we can reliably use jQuery.

The DOM ready event

HTML → **DOM**

0% 50% 100%

"I'm ready!"

How can we listen for this signal?

Listen for "I'm ready" then run <code>

Listening for document ready

```
jQuery(document).ready(function(){
  <code>
});
```

Will only run this code once the DOM is “ready”

Selecting by unique ID

HTML document

```
<h1>Where do you want to go?</h1>
<h2>Travel Destinations</h2>
<p>Plan your next adventure.</p>
<ul id="destinations">
  <li>Rome</li>
  <li>Paris</li>
  <li class='promo'>Rio</li>
</ul>
```

```
$("#destinations");
```

Selecting by Class Name

HTML document

```
<h1>Where do you want to go?</h1>
<h2>Travel Destinations</h2>
<p>Plan your next adventure.</p>
<ul id="destinations">
  <li>Rome</li>
  <li>Paris</li>
  <li class='promo'>Rio</li>
</ul>
```

```
$(".promo");
```

Searching the DOM

Using the descendant selector

Find the <li> elements that are inside of the <ul> with a “destinations” ID

HTML document

```
<h1>Where do you want to go?</h1>
<h2>Travel Destinations</h2>
<p>Plan your next adventure.</p>
<ul id="destinations">
  <li>Rome</li>
  <li>Paris</li>
  <li class='promo'>Rio</li>
</ul>
```

the space matters

```
$("#destinations li");
```

parent *descendant*

Selecting multiple elements

Find only elements with either a “promo” class or a “france” ID

HTML document

```
<h1>Where do you want to go?</h1>
<h2>Travel Destinations</h2>
<p>Plan your next adventure.</p>
<ul id="destinations">
  <li>Rome</li>
  <li>
    <ul id="france">
      <li>Paris</li>
    </ul>
  </li>
  <li class='promo'>Rio</li>
</ul>
```

the comma matters

```
$(".promo, #france");
```

Traversing

Filtering by traversing

```
$("#destinations li");
```

```
$("#destinations").find("li");
```

selection

traversal

It takes a bit more code, but it's faster.

Filtering by traversing

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

```
$("li").first();
```

Walking the DOM

```
$("li").first().next().prev();
```

Walking up the DOM

```
$("li").first();
```

```
$("li").first().parent();
```

Working with the DOM

Rendered HTML:

Vacation Packages

jQuery Travels

Hawaiian Vacation

Comments on this deal:

"Amazing Deal!"

"Can't wait to take this trip!"

GET PRICE

Task:
When the botton ‘GET PRICE’ is clicked, we want to show the price replacing the button itself

Call us at 1-555-jquery-air to make a reservation today!

Appending to the DOM

1. append a new DOM node
2. remove a DOM node

Appending to the DOM

application.js

```
$(document).ready(function() {
  // create a <p> node with the price
});
```

```
var price = "From $399.99";
```

```
var price = "<p>From $399.99</p>";
```

```
var price = $('<p>From $399.99</p>');
```

Creates a node but doesn't add it to the DOM

Price node (not in the DOM yet)

Removing from the DOM

application.js

```
$(document).ready(function() {
  var price = $('<p>From $399.99</p>');
  $('.vacation').append(price);
  $('button').remove();
});
```

*Removes the **<button>** from the DOM*

Watching for Click

application.js

```
$(document).ready(function() {
  // runs when the DOM is ready
});
```

Target all buttons

Watch for any clicks

```
$('button').on('click', function() {
  // runs when any button is clicked
});
```

Run the code inside of this function

jQuery Object Methods

```
.on(<event>, <event handler>)
```

Removing from the DOM

application.js

```
$(document).ready(function() {
  $('button').on('click', function() {
    var price = $('<p>From $399.99</p>');
    $('.vacation').append(price);
    $('button').remove();
  });
});
```

Rendered HTML:

Vacation Packages

jQuery Travels

Hawaiian Vacation

Comments on this deal:

"Amazing Deal!"

"Can't wait to take this trip!"

GET PRICE

Orlando

Comments on this deal:

There aren't any comments on this deal yet.

GET PRICE

Visit Japan

Comments on this deal:

"Never been, but can't wait!"

GET PRICE

Call us at 555-2593 to make a reservation today!

What if there are multiple vacation packages?

Working, but with Errors

application.js

```
$(document).ready(function() {
  $('button').on('click', function() {
    var price = $('<p>From $399.99</p>');
    $('.vacation').append(price);
    $('button').remove();
  });
});
```

Every button will be removed

The price will be appended to both .vacation elements

An Introduction to $(this)

application.js

```
$(document).ready(function() {
  $('button').on('click', function() {
    var price = $('<p>From $399.99</p>');
    $('.vacation').append(price);
    $('button').remove();
  });
});
```

*If clicked, the button will be '**this**'*

```
this.remove();
```

Not a jQuery object, needs to be converted

```
$(this).remove();
```

3.3 Refactor Using Traversing

An Introduction to $(this)

application.js

```
$(document).ready(function() {
  $('button').on('click', function() {
    var price = $('<p>From $399.99</p>');
    $('.vacation').append(price);
    $(this).remove();
  });
});
```

Only removes whichever button was clicked

Traversing from $(this)

application.js

```
$(document).ready(function() {
  $('button').on('click', function() {
    var price = $('<p>From $399.99</p>');
    $('.vacation').append(price);
    $(this).remove();
  });
});
```

```
$(this).after(price);
```

*Adds the **<p>** node after the **<button>***

Traversing from $(this)

application.js

```
$(document).ready(function() {
  $('button').on('click', function() {
    var price = $('<p>From $399.99</p>');
    $(this).after(price);
    $(this).remove();
  });
});
```

Add the price as a sibling after button

Traversing and Filtering

Rendered HTML:

Vacation Packages

jQuery Travels

On Sale Now | Expiring Soon

Hawaiian Vacation

Comments on this deal:

"Amazing Deal!"

"Can't wait to take this trip!"

GET PRICE

Orlando

Comments on this deal:

There aren't any comments on this deal yet.

GET PRICE

Visit Japan

Comments on this deal:

"Never been, but can't wait!"

GET PRICE

Call us at 555-2593 to make a reservation today!

We'll implement our new filters next

Filtering HTML

index.html

```
<div id='filters'>
 ...
  <button class='onsale-filter'>On Sale Now</button>
  <button class='expiring-filter'>Expiring</button>
 ...
</div>
```

We'll write 2 event handlers for our buttons

We'll highlight vacations with these traits

On With a Selector

application.js

```
$(document).ready(function() {
  $('button').on('click', function() {
    ...
  });
});
```

If we add new buttons anywhere, they will trigger this click handler

```
$('.vacation button').on('click', function() {});
```

```
$('.vacation').on('click', 'button', function() {});
```

*Only target a '**button**' if it's inside a '**.vacation**'*

Filtering for Vacations On sale

application.js

```
$('#filters').on('click', '.onsale-filter',
                    function() {
  // find all vacations that are on-sale
  // add a class to these vacations
});
```

Filtering for Vacations On sale

application.js

```
$('#filters').on('click', '.onsale-filter',
                    function() {
  $('.vacation').filter('.onsale')
  // add a class to these vacations
});
```

Class Manipulation

```
.addClass(<class>)
```

```
.removeClass(<class>)
```

```
$('.vacation').filter('.onsale').addClass('highlighted');
```

Filtering for Vacations On sale

application.js

```
$('#filters').on('click', '.onsale-filter', function() {
  $('.vacation').filter('.onsale').addClass('highlighted');
});
```

Finds only the right vacations

*Adds a class of '**highlighted**'*

*The same can be done for our **expiring** filter*

```
$('#filters').on('click', '.expiring-filter', function() {
  $('.vacation').filter('.expiring').addClass('highlighted');
});
```

Unhighlighting Vacations

application.js

```
$('#filters').on('click', '.onsale-filter', function() {
  $('.highlighted').removeClass('highlighted');
  $('.vacation').filter('.onsale').addClass('highlighted');
});
```

Remove the highlighted class before adding it back

Rendered HTML:

jQuery Air Atlantic - Vacation Confirmation

Confirmations

Hawaiian Vacation

Paid $399.99 on January 14, 2013.

FLIGHT DETAILS

Task:
Show flight details when clicking the button

Call us at 555-25937 to make a reservation today!

4.1 On DOM Load

Adding Ticket Confirmation

index.html

```
<li class="confirmation">
  ...
  <button>FLIGHT DETAILS</button>
  <ul class="ticket">...</ul>
</li>
```

Clicking this button...

...will show the ticket

```
.ticket {
  display: none;
}
```

Hide ticket on page load

Rendered HTML:

jQuery Air Atlantic - Vacation Confirmation

Confirmations

Hawaiian Vacation

Paid $399.99 on January 14, 2013.

FLIGHT DETAILS

Call us at 555-25937 to make a reservation today!

- watch for click
- find the ticket
- show the ticket

Using slideDown to Show Elements

index.html

```
<li class="confirmation">
  ...
  <button>FLIGHT DETAILS</button>
  <ul class="ticket">...</ul>
</li>
```

jQuery Object Methods

- `.slideDown()`
- `.slideUp()`
- `.slideToggle()`

application.js

```
$('.confirmation').on('click', 'button', function() {
 $(this).closest('.confirmation').find('.ticket').slideDown();
});
```

Searches up through ancestors

Searches down through children

Deciding on an Event

application.js

```
$(document).ready(function() {
  $('.confirmation').on('click', 'button', function() {
    $(this).closest('.confirmation').find('.ticket').slideDown();
  });
  $('.confirmation').on('?', 'h3', function() {
    $(this).closest('.confirmation').find('.ticket').slideDown();
  });
});
```

What event should we watch for?

Mouse Events

Fires when the mouse is first positioned over the element

click	focusin	mousedown	mousemove	mouseover	mouseenter ✓
dblclick	focusout	mouseup	mouseout	mouseleave	

Refactoring Handler Functions

application.js

```
function showTicket () {
  $(this).closest('.confirmation').find('.ticket').slideDown();
}
$(document).ready(function() {
  $('.confirmation').on('click', 'button', showTicket);
  $('.confirmation').on('mouseenter', 'h3', showTicket);
});
```

Don't add () at the end - that would execute the function immediately

Taming CSS

Changing the Style

application.js

```
$(document).ready(function() {
  $('#vacations').on('click', '.vacation', function() {
    $(this).css('background-color', '#252b30');
    $(this).css('border-color', '1px solid #967');
  });
});
```

```
$(this).css('background-color', '#252b30')
       .css('border-color', '1px solid #967');
```

```
$(this).css({'background-color': '#252b30',
             'border-color': '1px solid #967'});
```

Passing in a JavaScript Object as an argument is a common jQuery pattern

DOM representation

jQuery Object Methods

```
.css(<attr>, <value>)
```

```
.css(<attr>)
```

```
.css(<object>)
```

Showing the Price

application.js

```
$(document).ready(function() {
  $('#vacations').on('click', '.vacation', function() {
    $(this).css({'background-color': '#252b30',
                 'border-color': '1px solid #967'});
  });
});
```

```
$(this).find('.price').css('display', 'block');
```

```
$(this).find('.price').show();
```

Same as CSS syntax, but easier to read and understand

DOM representation

jQuery Object Methods

- `.show()`
- `.hide()`

Moving Styles to External CSS

application.js

```
$(document).ready(function() {
  $('#vacations').on('click', '.vacation', function() {
    $(this).css({'background-color': '#563',
                 'border-color': '1px solid #967'});
    $(this).find('.price').show();
  });
});
```

DOM representation

Can we move these to a CSS stylesheet?

application.css

```
.highlighted {
  background-color: #563;
  border-color: 1px solid #967;
}
.highlighted .price {
  display: block;
}
```

```
$(this).addClass('highlighted');
```

Moving Styles to External CSS

application.js

```
$(document).ready(function() {
  $('#vacations').on('click', '.vacation', function() {
    $(this).addClass('highlighted');
  });
});
```

It's now much easier to manipulate with external CSS styles

application.css

```
.highlighted {
  background-color: #563;
  border-color: 1px solid #967;
}
.highlighted .price {
  display: block;
}
```

DOM representation