



girldevelopit

# JavaScript Class 3: Element Manipulation

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# Agenda

- Walk through the code in the bakery.html file.  
Material covered:
  - document.ready()
  - Selectors, redux
  - “this”
  - Callbacks
  - Click()
  - Val(), append()
  - Anonymous functions
- Add code to a base file, using the concepts we just reviewed, to enrich another html file.

# Today's first code sample: bakery.html

```
15 <script type="text/javascript">
16 $(document).ready(DocReady);
17
18 function DocReady() {
19     $("a").mouseover(toggle);
20     $("a").mouseout(toggle);
21     $("button").click(uploadPics);
22 }
23
24 function toggle() {
25     $(this).toggleClass("pink");
26 }
27
28 function uploadPics() {
29     var text = $("#enterText").val();
30     var photo = $("#enterPhoto").val();
31     $("#photoList").append("<li><img src='" + photo + "' /></li>");
32     $("#textList").append("<li>" + text + "</li>");
33 }
34 </script>
```

# Today's first code sample: bakery.html

We will review the code line by line:

- To understand what each line is doing.
- To learn about each new action we're using.
- To explain basic conventions in jQuery.
  - Please download the sample code from: <http://bit.ly/jsCode3>

# document.ready()

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34 </script>
```

# document.ready() – why do we use it?

- We use selectors in jQuery to select html elements, and then perform actions on them.
- What do you think would happen if we tried to perform an action on an element, like a large image, that hadn't loaded yet?
  - We can try this ourselves.
  - Preview the two files, **hideImageBeforeLoading.html** and **hideImageAfterLoads.html**

# document.ready() – why do we use it?

- The document ready function prevents any jQuery code from running before the html document finishes loading.
- Other examples of actions that can fail if you do not wrap your code in **document.ready( ... );**
  - Trying to get the size of an image that hasn't loaded.
  - Trying to hide an element that doesn't exist.

# Selectors

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32     $("#textList").append("<li>" + text + "</li>");
33 }
34 </script>
```

# Selectors: a refresher

- Basic jQuery syntax is: `$(selector).action()`
- jQuery selectors allow us to find html elements.
- jQuery selectors are much like CSS selectors.
  - Instead of finding to an html element to apply styles, you can find an html element to modify, remove or replace.
- jQuery selectors allow you to select HTML elements (or groups of elements) by element name, attribute name

# The “this” Selector

```
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18 function DocReady() {
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33 }
34 </script>
```

# “this” selector

- The “this” selector in our toggle method is telling us to select the element that just called the function that is currently executing.
  - We called the toggle function after selecting a link (“a”).
  - So **this** in the toggle function will give us the link that we just interacted with.
- Read more: [this demystified](#)

# Mouseover & mouseout

```
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33 }
34 </script>
```

# Mouseover & mouseout actions

- Mouseover is called when you place your mouse over an html element, like a link.
- Mouseout is called when your mouse leaves the element you had been on previously. i.e, you move your mouse off that link.
- Read more:
  - <http://api.jquery.com/mouseout/>
  - <http://api.jquery.com/mouseover/>

# The toggle function & toggleClass

```
function toggle() {  
    $(this).toggleClass("pink");  
}
```

- Inside the toggle function, we call jQuery's toggleClass() function.
- ToggleClass() takes the name of the class you pass it, and:
  - If the element you've selected already **has** that class, it removes it.
  - If the element you've selected does **NOT** have that class, it adds it.

# The toggle function & toggleClass

```
function toggle() {  
    $(this).toggleClass("pink");  
}
```

- If the the html was this before calling toggleClass:  
`<a href="cupcakes.html">Cupcakes</a>`
- Then after toggleClass, the html is:  
`<a class="pink" href="cupcakes.html">  
Cupcakes</a>`
- Read more: <http://api.jquery.com/toggleClass/>

# Important Jargon: Callbacks

- A callback is a function that is passed as an argument to another function.
- A callback is executed *after* the parent function is finished.
- We used our **toggle** function as a callback:

```
$("#a").mouseout(toggle);
```

# The click action

```
15 <script type="text/javascript">
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18 function DocReady() {
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20     $("a").mouseout(toggle);
21     $("button").click(uploadPics);
22 }
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24 function toggle() {
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28 function uploadPics() {
29     var text = $("#enterText").val();
30     var photo = $("#enterPhoto").val();
31     $("#photoList").append("<li><img src='" + photo + "' /></li>");
32     $("#textList").append("<li>" + text + "</li>");
33 }
34 </script>
```

# click action

- click is called when you place your click on an html element, like a link or a button.
- Read more: <http://api.jquery.com/click/>
- In our code sample, we pass the uploadPics function as a *callback* to the click action.

# The uploadPics

```
function uploadPics() {  
    var text = $("#enterText").val();  
    var photo = $("#enterPhoto").val();  
    $("#photoList").append("<li><img src='" +  
photo + "' /></li>");  
    $("#textList").append("<li>" + text +  
"</li>");  
}
```

- Inside the uploadPics function, we call the following jQuery actions: val(), append().

# The val action

```
15 <script type="text/javascript">
16 $(document).ready(DocReady);
17
18 function DocReady() {
19     $("a").mouseover(toggle);
20     $("a").mouseout(toggle);
21     $("button").click(uploadPics);
22 }
23
24 function toggle() {
25     $(this).toggleClass("pink");
26 }
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28 function uploadPics() {
29     var text = $("#enterText").val();
30     var photo = $("#enterPhoto").val();
31     $("#photoList").append("<li><img src='" + photo + "' /></li>");
32     $("#textList").append("<li>" + text + "</li>");
33 }
34 </script>
```

# The val() action

- Val() will get you the current value of the first element your selector matches.
  - If your selector matches more than one element, val() will only pass you back the current value of the **first** match.
- Val() is often used to grab the text out of a form element, like a text box.

In our example, we grab the text entered into the `<input type="text" id="enterText"/>` textbox with this line:

```
var text = $("#enterText").val();
```

- Read more: <http://api.jquery.com/val/>

# The append action

```
15 <script type="text/javascript">
16 $(document).ready(DocReady);
17
18 function DocReady() {
19     $("a").mouseover(toggle);
20     $("a").mouseout(toggle);
21     $("button").click(uploadPics);
22 }
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24 function toggle() {
25     $(this).toggleClass("pink");
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28 function uploadPics() {
29     var text = $("#enterText").val();
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31     $("#photoList").append("<li><img src='" + photo + "' /></li>");
32     $("#textList").append("<li>" + text + "</li>");
33 }
34 </script>
```

# append action

- Append will insert the content you pass to it onto the end of the element you selected (but before that element's closing tag).

```
$("#textList").append("<li>" + text + "</li>");
```

First it finds the id="textList" element (`<ul id="textList">`)

Then, it inserts `<li>the_text_you_entered</li>` right before the `</ul>` tag

- Read more: <http://api.jquery.com/append/>

# The uploadPics function

In summary, the uploadPics function:

- Grabs the html element with id="enterText" (this is the first textbox), and requests the value of the text in the textbox.
- Does the same thing to the element with id="enterPhoto" (the second textbox).
- Appends new html code, containing a new image nested inside a list item. The image contains the URL typed into the second textbox.
- Appends the text entered in the first textbox next to the new image.

# There's more than one way to do it...

- There is another way we could have written the same code, in a slightly more condensed way, than the way we just reviewed.
- This other way leverages something called an **Anonymous Function**.

# There's more than one way to do it...

```
15 <script type="text/javascript">
16     $(document).ready(function(){
17
18         $("a").mouseover(function(){
19             $(this).toggleClass("pink");
20         });
21
22         $("a").mouseout(function(){
23             $(this).toggleClass("pink");
24         });
25
26         $("button").click(function(){
27             var text = $("#enterText").val();
28             var photo = $("#enterPhoto").val();
29             $("#photoList").append("<li><img src='" + photo + "' /></li>");
30             $("#textList").append("<li>" + text + "</li>");
31         });
32     });
33 </script>
34
```

# Anonymous Functions

```
15 <script type="text/javascript">
16     $(document).ready(function(){
17
18         $("a").mouseover(function(){
19             $(this).toggleClass("pink");
20         });
21
22         $("a").mouseout(function(){
23             $(this).toggleClass("pink");
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26         $("button").click(function(){
27             var text = $("#enterText").val();
28             var photo = $("#enterPhoto").val();
29             $("#photoList").append("<li><img src='" + photo + "' /></li>");
30             $("#textList").append("<li>" + text + "</li>");
31         });
32     });
33 </script>
34
```

# Anonymous Functions—what are they?

- An anonymous function is all those **function()** { **/\*some code \*/** }; blocks you see passed to events.
  - Example: `$(“p”).hide(function() { alert(“the paragraph is now hidden!”); });`
- Anonymous functions don't have names.
- This is NOT an anonymous function: `function passTheSalt() { ... }`

# Anonymous Functions— placement matters

- When you see an anonymous function inside an event, you are **binding** the anonymous function to that event.
  - `$(“p”).hide(function() {  
    alert(“the paragraph is now hidden!”);  
});`
  - In the above example, we are binding the anonymous function whose code displays an alert to the **hide** event.

# Anonymous Functions—when they are **required**

- If a function takes a parameter, and you want to call that function from within an event, you **must** use Anonymous Functions.
- Let's review this in the sample code file, `anonFxnExample.html`
  - This file is contained within the zip file at:  
[\*\*http://bit.ly/jsCode3\*\*](http://bit.ly/jsCode3)

# Anonymous Functions—when they are **required**

- Let's say we have a function that takes one parameter:

```
function fadeLinkAway(aLink) {  
    $(aLink).fadeOut();  
}
```

- The function accepts a link, and then fades that link out.
- If you try and call it like this, it will **NOT** work:  

```
$("#a").mouseover(fadeLinkAway2(this));
```

# Anonymous Functions—when they are **required**

```
function fadeLinkAway(aLink) {  
    $(aLink).fadeOut();  
}
```

- Because you are passing a parameter, you must use an anonymous function:

```
$("#a").mouseover(function() {  
    fadeLinkAway(this);  
});
```

# Anonymous Functions—when they are **required**

- To read more, see the “[Callback with arguments](#)” section of “[How jQuery Works](#)” by John Resig (creator of jQuery).

# Extra Topics: Validation plugins and Regular Expressions

- Time permitting, we will discuss the jQuery validation plugin, which allows us to validate form data: <http://docs.jquery.com/Plugins/validation>
  - See the example here:  
<http://docs.jquery.com/Plugins/validation#Example>
- The plugin uses Regular Expressions to do the validation. To read more about regular expressions:  
[http://en.wikipedia.org/wiki/Regular\\_expression](http://en.wikipedia.org/wiki/Regular_expression)

# Lab Time!

- Next up, we're going to do a new example that is similar to the bakery example, and re-uses many of the same jQuery actions.
- We are going to use this a base file:
  - LINK to be given in class
- We are going to modify this file to create a LOLCAT generator!

# Homework

- Reading:
  - <http://api.jquery.com/append/>
  - <http://docs.jquery.com/Val>
  - <http://api.jquery.com/toggleClass/>
  - [http://docs.jquery.com/Tutorials:Getting\\_Started\\_with\\_jQuer](http://docs.jquery.com/Tutorials:Getting_Started_with_jQuer)
  - <http://docs.jquery.com/Plugins/validation>
- Lab:
  - To be announced in class