Table of Contents

This slide deck consists of slides used in 2 lecture videos in Week 4. Below is a list of shortcut hyperlinks for you to jump into specific sections.

- (page 2) Week 4: jQuery and the Document Object Model
- (page 11) Week 4: Using jQuery

jQuery and the DOM

- Dr. Charles Severance
- www.dj4e.com

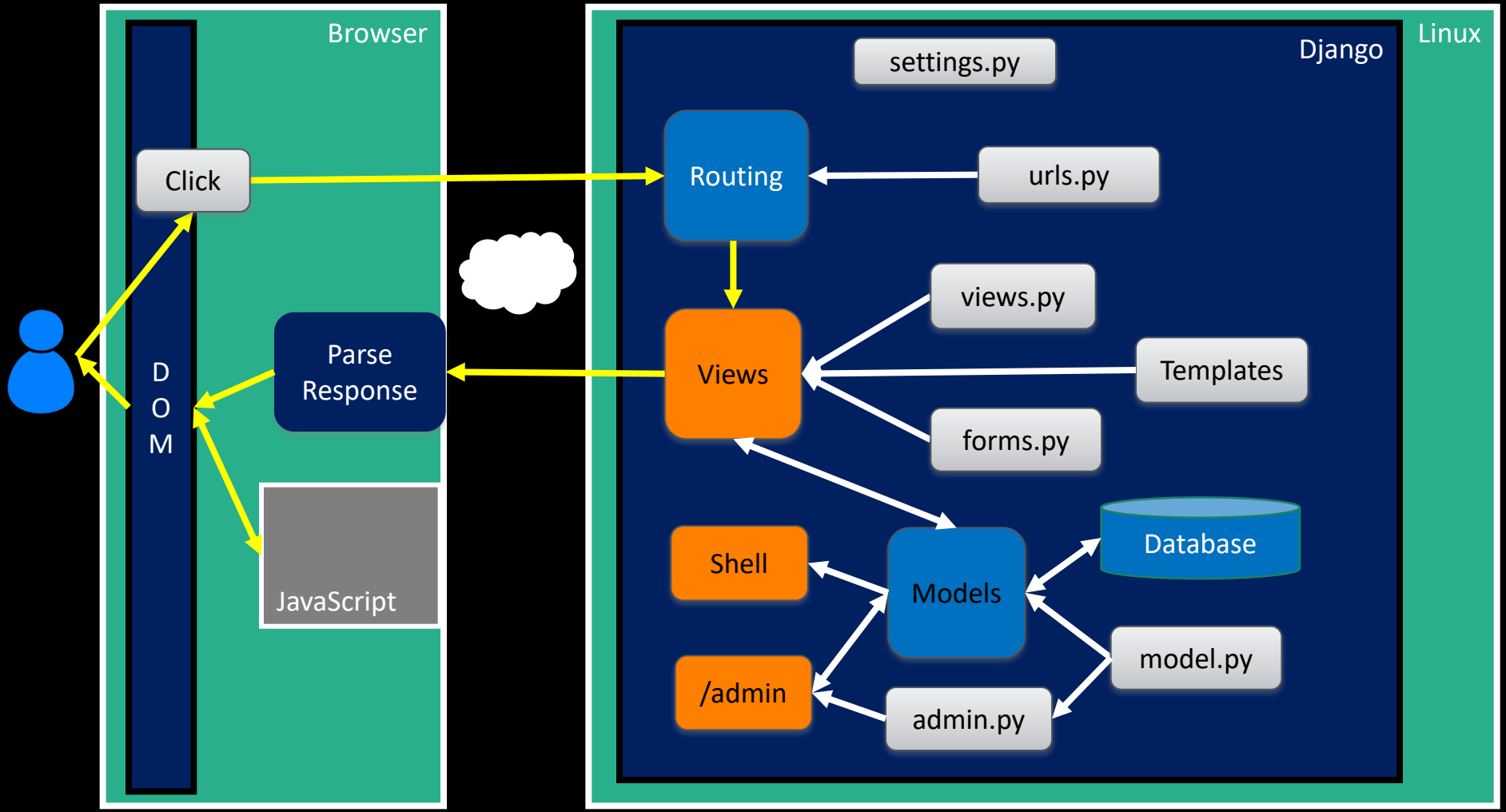
http://www.dj4e.com/code/jquery
http://www.dj4e.com/code/jquery.zip

Vanilla JavaScript (1995)

```
<script type="text/javascript">
  document.write("<p>Hello World</p>")
</script>
```

https://www.dj4e.com/code/javascript/js-01.htm

http://en.wikipedia.org/wiki/Document_Object_Model


Browser
Linux
Django
settings.py
Routing
urls.py
Click
views.py
Views
Templates
forms.py
Parse
Response
D
O
M
JavaScript
Shell
Models
Database
model.py
/admin
admin.py

Document Object Model

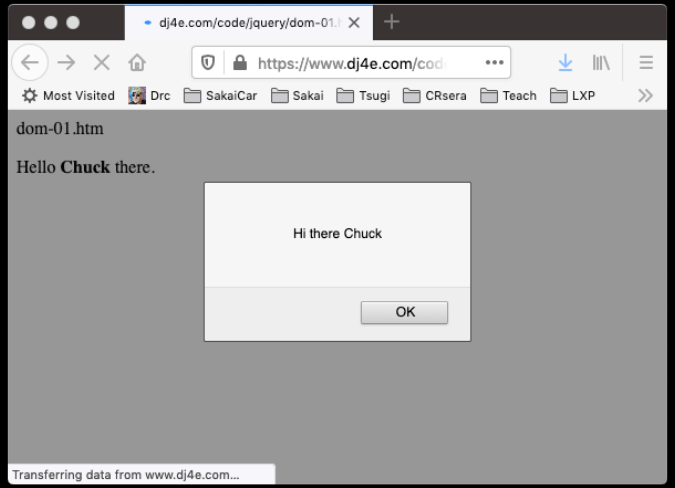
- JavaScript can manipulate the current HTML document.
- The “Document Object Model” is how we access various “bits” of the current screen to read and/or manipulate.
- We can even find pieces of the model by id attribute and change them.
- We can read and write the DOM from (Vanilla) JavaScript.

Using getElementById()

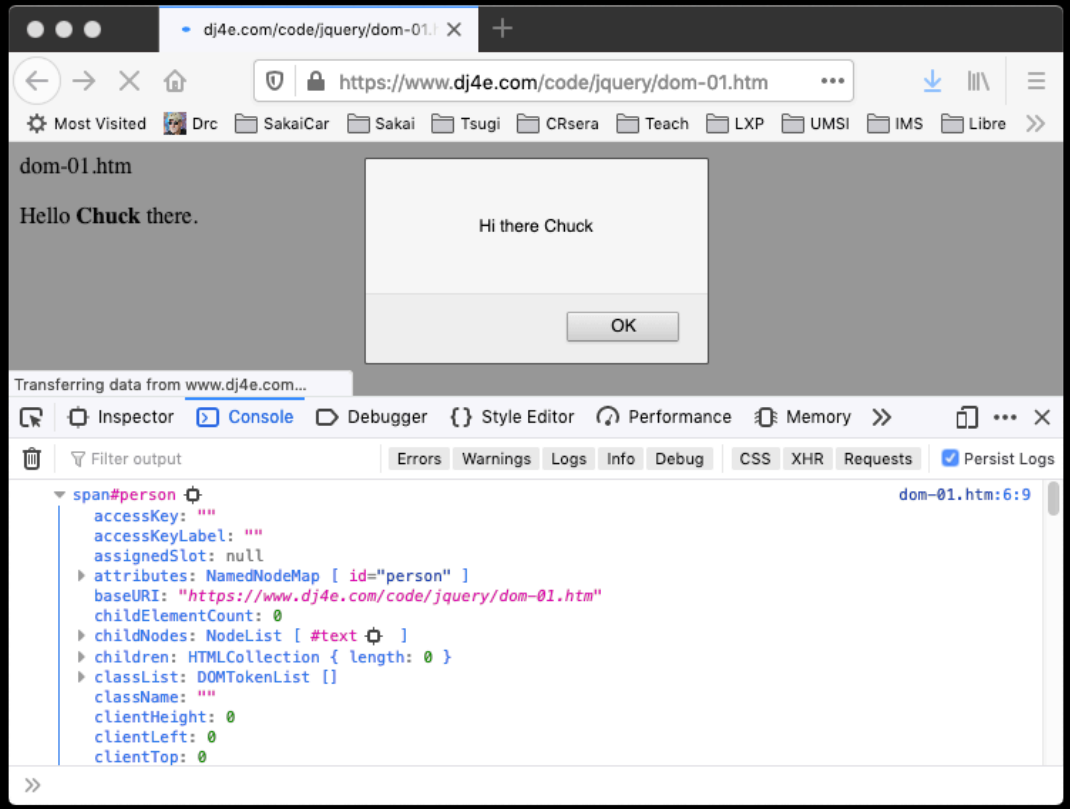
In order not to have to traverse each unique DOM, we use a function call that all browsers support. This allows us to bypass the DOM structure and jump to a particular tag within the DOM and manipulate that tag.

```
<p>
Hello <b><span id="person">Chuck</span></b> there.
</p>
<script type="text/javascript">
console.dir(document.getElementById('person'));
var st = document.getElementById('person').innerHTML;
console.log("ST = "+st);
alert('Hi there ' + st);
document.getElementById('person').innerHTML = 'Joseph';
</script>
```

dom-01.htm



dom-01.htm

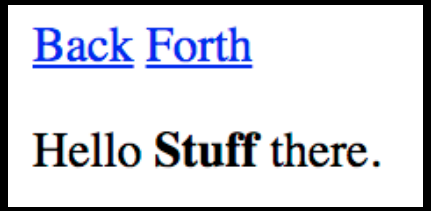



```
console.dir(document.getElementById('person'));
```

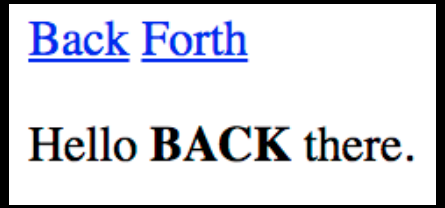
```
<a href="#"
  onclick="document.getElementById('stuff').innerHTML='BACK';return false;">
      Back</a>
<a href="#"
  onclick="document.getElementById('stuff').innerHTML='FORTH';return false;">
   Forth</a>
</p>
<p>
Hello <b><span id="stuff">Stuff</span></b> there.
```

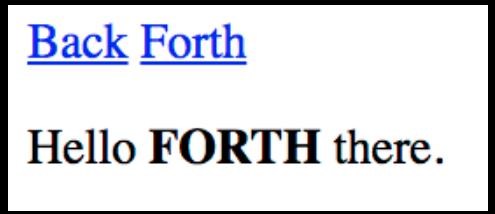
Updating the Browser Document

This is one reason why you can only have one id per document.



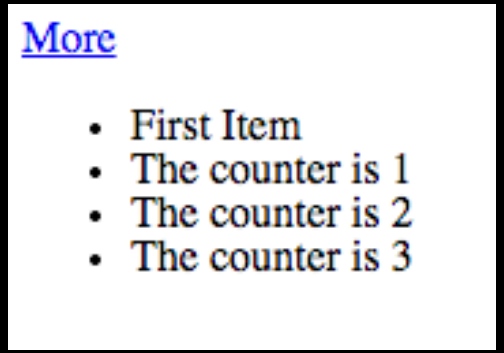
dom-02.htm





dom-03.htm

```
<p>
<a href="#" onclick="add();return false;">More</a>
</p>
<ul id="the-list">
<li>First Item</li>
</ul>
<script>
counter = 1;
console.log(document.getElementById('the-list'))
function add() {
    var x = document.createElement('li');
    x.className = "list-item";
    x.innerHTML = "The counter is "+counter;
    document.getElementById('the-list').appendChild(x);
    counter++;
}
</script>
```



jQuery (2005)

jQuery to the Rescue

- While the DOMs are not particularly portable, and direct DOM manipulation is a little clunky, there are a number of JavaScript frameworks that handle the myriad of subtle differences between browsers.
- With jQuery, instead of manipulating the DOM, we use jQuery functions and everything works much better...

http://jquery.org

John Resig

- Started jQuery in 2005 to make his web development projects easier
  - Elegant way to select DOM elements
  - Clean way to register events
- Released in 2006
- Works at Khan Academy as the “Dean of Computer Science”

jQuery Documentation

- The web is a wonderful source of jQuery documentation.
  - http://docs.jquery.com/Main_Page
  - http://api.jquery.com/
  - http://jqueryui.com/demos/
- This lecture will only cover the basic elements of low-level jQuery.

```
<html>
<head>
</head>
<body>
<p>Here is some awesome page content</p>
<script type="text/javascript" src="jquery.min.js">
</script>
<script type="text/javascript">
$(document).ready(function(){
  alert("Hello jQuery World!");
  console.log('Hello jQuery..');
});
</script>
</body>
```

jquery/jq-01.htm

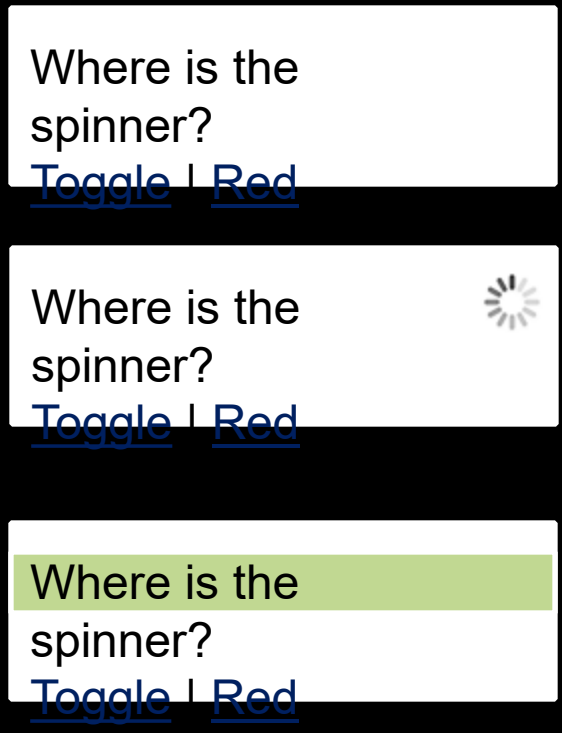
jquery/jq-02.htm

```
<html
<head>
</head>
<body>
<script type="text/javascript" src="jquery.min.js">
</script>
<script type="text/javascript">
$(window).resize(function() {
  console.log('.resize() called. width='+
    $(window).width()+' height='+$(window).height());
});
</script>
<p>Here is some awesome page content</p>
</body>
```

http://api.jquery.com/resize/

```
<p id="para">Where is the spinner?
  <img id="spinner" src="spinner.gif" height="25"
      style="vertical-align: middle;
display:none;">
</p><p>
<a href="#" id="tog">Toggle</a> |
<a href="#" id="red">Red</a>
</p>
<script type="text/javascript">
$(document).ready(function() {
 $("#tog").on('click', function() {
  $('#spinner').toggle();
 });
 $("#red").on('click', function() {
     $('#para').css('background-color', 'green');
 });
});
</script>
```

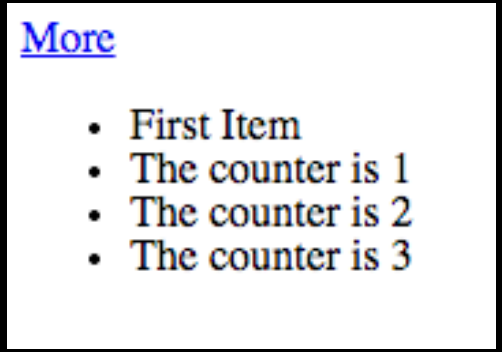
jquery/jq-03.htm



```
<p>
<a href="#" id="the-href">More</a>
</p>
<ul id="the-list">
<li>First Item</li>
</ul>
<script type="text/javascript"
        src="jquery.min.js"> </script>
<script>
counter = 1;
$(document).ready(function(){
  $("#the-href").on('click', function() {
      console.log('Clicked');
      $('#the-list').append('<li>The counter is '+counter+'</li>');
      counter++;
  });
});

</script>
```

jq-04.htm



Improving Browsers…

- jQuery is now > 15 years old – many people assume it *is* JavaScript
- The browsers have been extending the DOM in a portable fashion and adding features equivalent to jQuery

```
// jQuery: Hide all instances with class box
$(".box").hide();

// Vanilla: Iterate over the nodelist of elements to hide all instances of .box
document.querySelectorAll(".box").forEach(box => { box.style.display = "none" }
```

https://tobiasahlin.com/blog/move-from-jquery-to-vanilla-javascript/

Summary

- This focused on the mechanics of low-level jQuery.
  - Initialization setup
  - Event handling
  - DOM selection
  - DOM manipulation
- Vanilla JavaScript is catching up…

Acknowledgements / Contributions

These slides are Copyright 2010- Charles R. Severance (www.dr-chuck.com) as part of www.dj4e.com and made available under a Creative Commons Attribution 4.0 License. Please maintain this last slide in all copies of the document to comply with the attribution requirements of the license. If you make a change, feel free to add your name and organization to the list of contributors on this page as you republish the materials.

Initial Development: Charles Severance, University of Michigan School of Information

Insert new Contributors and Translators here including names and dates

Continue new Contributors and Translators here

Additional Source Information

- Image of John Resig Copyright Charles R. Severance and licensed as CC-BY