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Lecture 22

JavaScript

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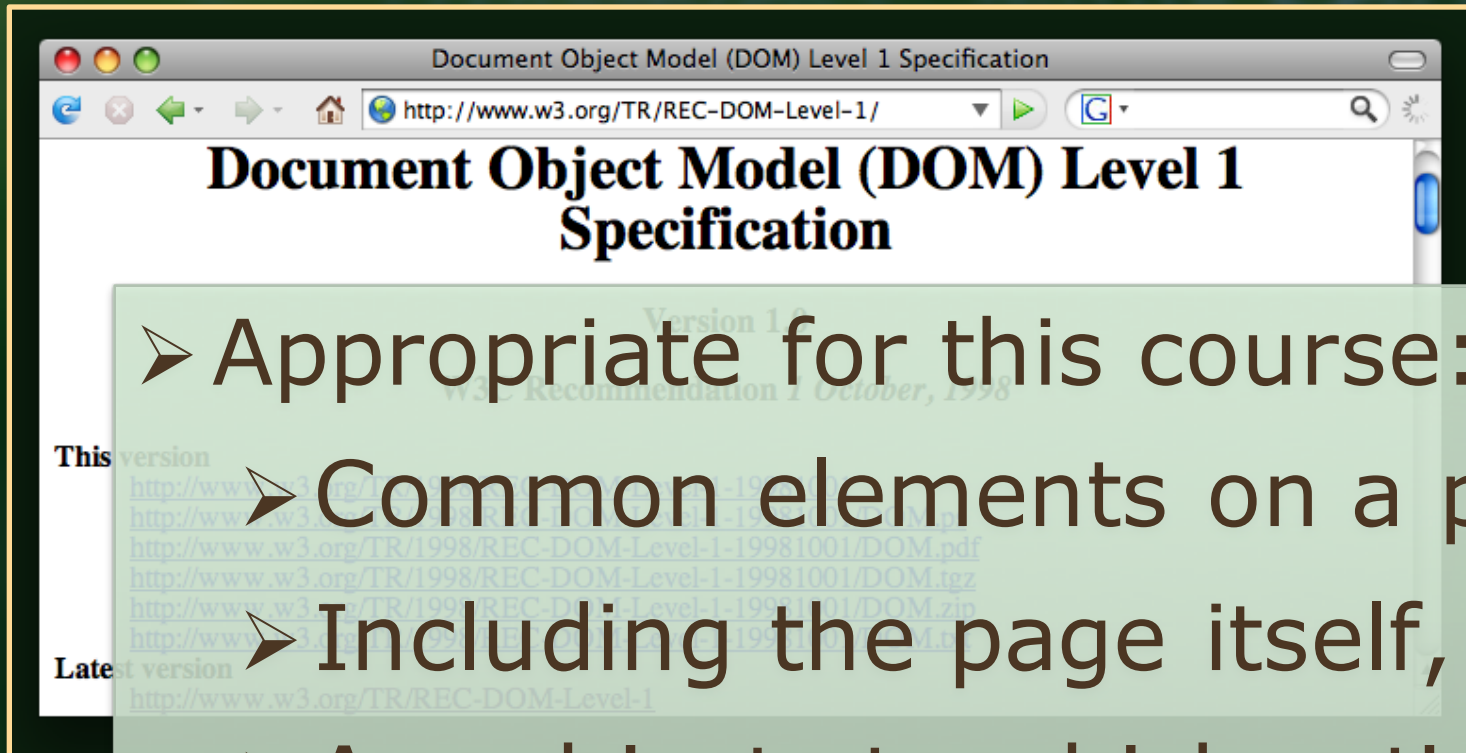
Slide background spider web photograph from [Morquefile](#) openstock photograph by Gabor Karpati, Hungary.

Client-side Dynamic HTML

- Definition by behavior
 - HTML Document Changes Client-Side.
 - In response to user.
 - Automatically, for example animation.
- Definition by example – Mix
 - Client side scripting, e.g. JavaScript
 - Page elements are object, e.g. DOM
 - Properties of objects, e.g. CSS

Document Object Model

➤ There is a lot going on here!



➤ Appropriate for this course:

➤ Common elements on a page,

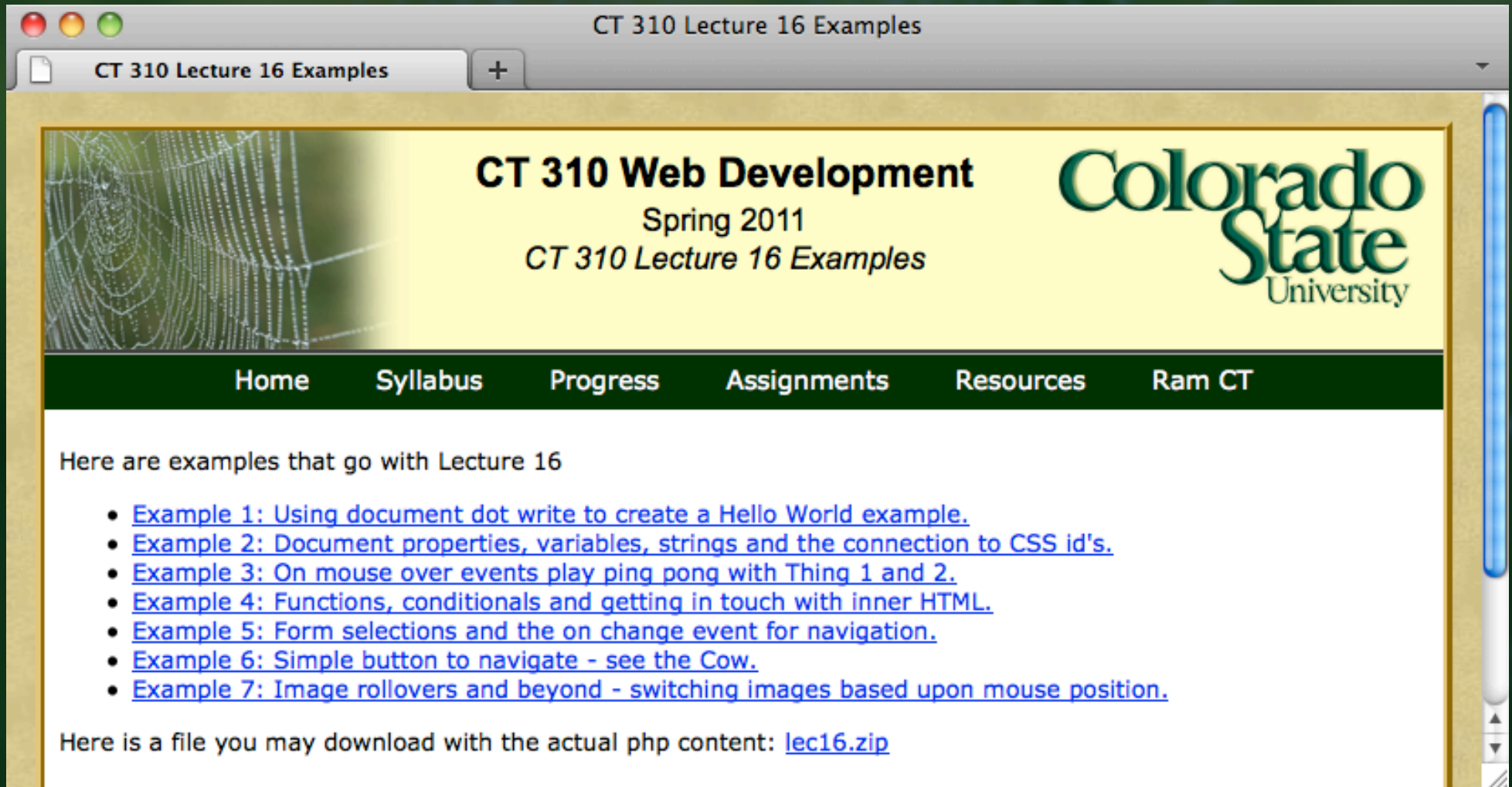
➤ Including the page itself,

➤ Are objects to which actions may be attached.

JavaScript – Look Hither

- Do not confuse Java and JavaScript.
- Learning JavaScript. Where to start.
- Learn by example:
 - Textbook
 - The web
- We will not be going too deep.
- Mind security/convenience tradeoff.

Seven JavaScript Examples



The screenshot shows a web browser window with the title 'CT 310 Lecture 16 Examples'. The page content includes a header with the text 'CT 310 Web Development Spring 2011 CT 310 Lecture 16 Examples' and the Colorado State University logo. Below the header is a navigation menu with links for 'Home', 'Syllabus', 'Progress', 'Assignments', 'Resources', and 'Ram CT'. The main content area contains the text 'Here are examples that go with Lecture 16' followed by a bulleted list of seven examples, each with a blue underlined link. At the bottom of the content area, there is a text block that says 'Here is a file you may download with the actual php content: [lec16.zip](#)'.

CT 310 Lecture 16 Examples

CT 310 Lecture 16 Examples

CT 310 Web Development
Spring 2011
CT 310 Lecture 16 Examples

Colorado State University

Home Syllabus Progress Assignments Resources Ram CT

Here are examples that go with Lecture 16

- [Example 1: Using document dot write to create a Hello World example.](#)
- [Example 2: Document properties, variables, strings and the connection to CSS id's.](#)
- [Example 3: On mouse over events play ping pong with Thing 1 and 2.](#)
- [Example 4: Functions, conditionals and getting in touch with inner HTML.](#)
- [Example 5: Form selections and the on change event for navigation.](#)
- [Example 6: Simple button to navigate - see the Cow.](#)
- [Example 7: Image rollovers and beyond - switching images based upon mouse position.](#)

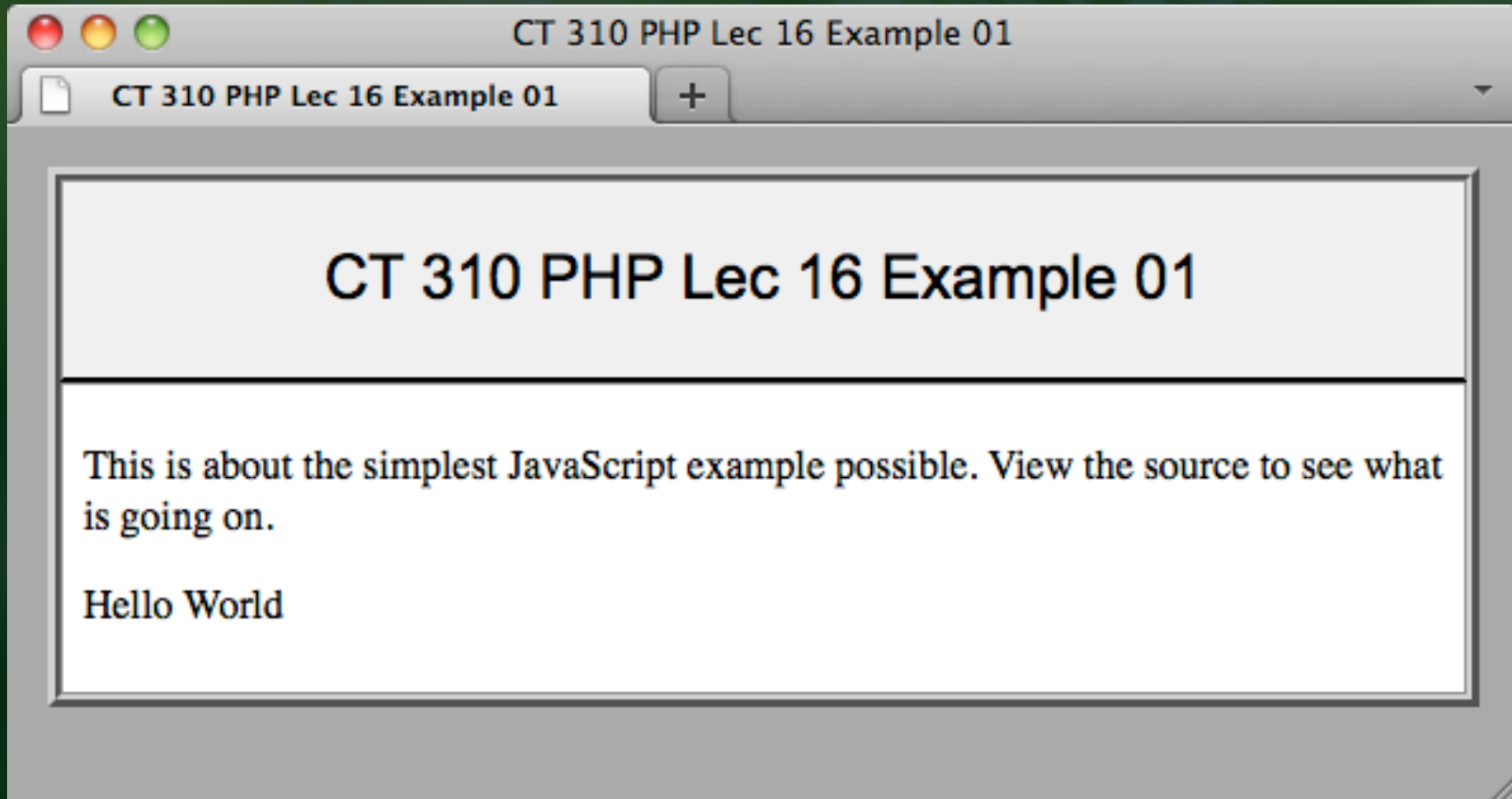
Here is a file you may download with the actual php content: [lec16.zip](#)

Hello World

➤ You may write to the document.

```
7 <div id="contents">
8 <p>
9 This is about the simplest JavaScript example possible.
10 View the source to see what is going on.
11 </p>
12 <script type="text/javascript">
13     document.write("<p>Hello World</p>");
14 </script>
15 <noscript>
16 <p>Your browser doesn't support or has disabled JavaScript.</p>
17 </noscript>
18 </div>
19 <!-- end of the page contents -->
```

Hello World Page



Example 1 - Observations

- The script tag has 'type' attribute.
 - Language attribute is deprecated.
- Note the use of <noscript> tags.
 - This is important on professional sites.
- No accounting for older browsers.
- First taste of document object model.
 - The document object has method 'write'.

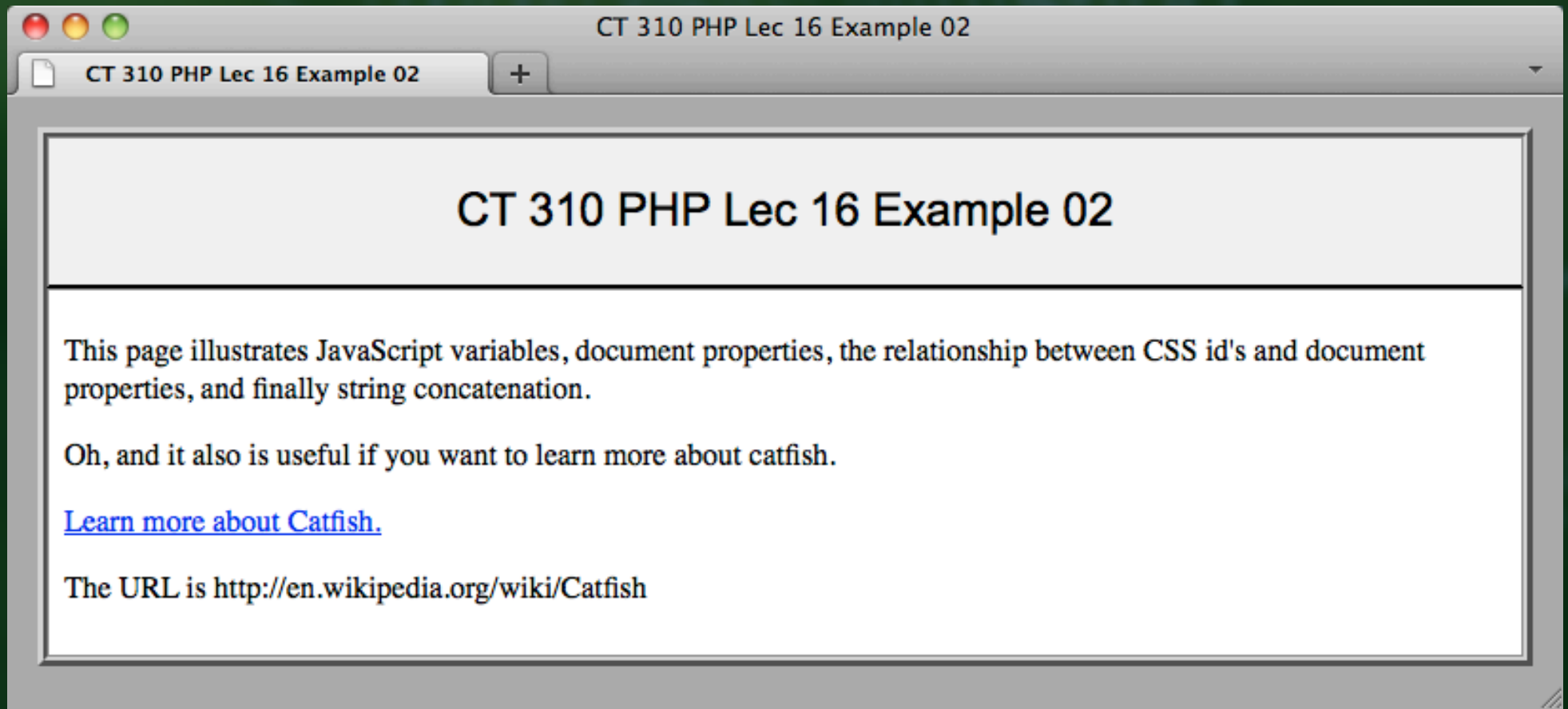
Example 2

- Using CSS id's to name objects.
- Accessing properties of objects.
- Assignment to variables.
- String concatenation.

```
16 <p><a id="catfish" href="http://en.wikipedia.org/wiki/Catfish">
17 Learn more about Catfish.</a>
18 </p>
19 <p>
20 <script>
21     myurl = document.links.catfish.href
22     document.write('The URL is ' + myurl)
23 </script>
24 </p>
```

Example 2 – The Page

- The printed URL is pulled from link.



Example 3 – Functions

- Usually in header or separate file.
- Definition syntax pretty standard.

```
1 <?php
2 $exNumText = '03a';
3 include 'ct310phpexStart.php';
4 ?>
5 <script>
6     function goThere() {
7         document.location.href = "ct310lec16ex03b.php";
8     }
9 </script>
10 </head>
11 <?php include 'ct310phpexHeader.php';?>
12 <div id="contents">
```

First Taste of Power

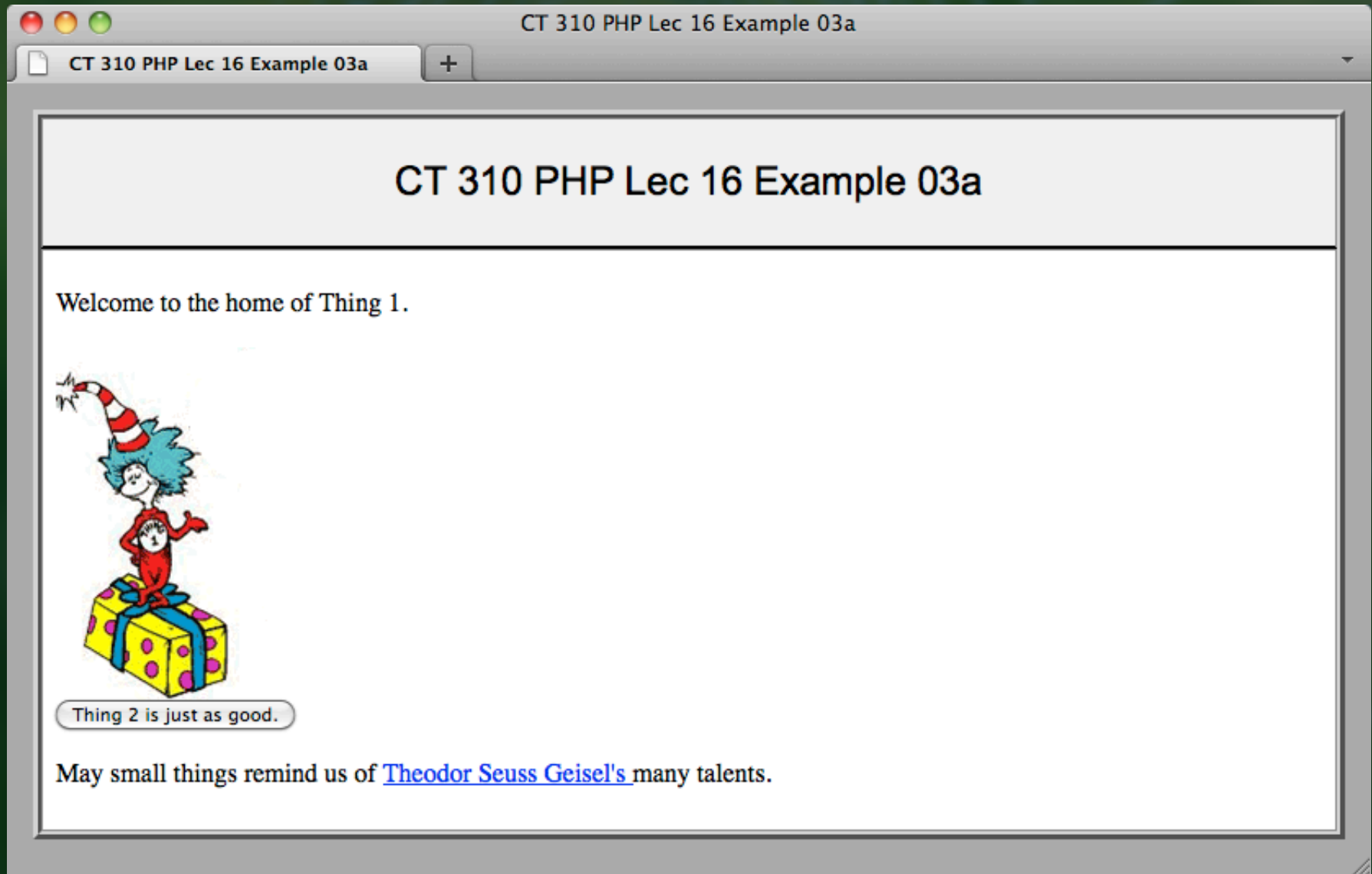
- What is `document.location.href` ?
- It is the URL of the current window.
- It can be used to retrieve a URL.
- In our example it is on the left side of an assignment statement.
 - ... think about this ...
- That is enough to switch the page!
- Fun trick, but not generally good idea.

Example 3 - Events

- JavaScript is about exploiting events.
 - Many events involve the mouse.
 - For example, a click (up or down).
 - Or, simply passing over an object.

```
12 <div id="contents">
13
14 <p>Welcome to the home of Thing 1.</p>
15
16 
17
18 <form action="#">
19   <input type="button" value="Thing 2 is just as good." onmouseover="goThere()"/>
20 </form>
```

Example 3 – The Page




Example 3 – The Page

CT 310 PHP Lec 16 Example 03b

CT 310 PHP Lec 16 Example 03b

Welcome to the home of Thing 2.



Thing 1 is just as good.

May small things remind us of [Theodor Seuss Geisel's](#) many talents.

The image shows a web browser window with a title bar containing 'CT 310 PHP Lec 16 Example 03b'. The browser has a single tab with the same title. The page content is enclosed in a light gray border. At the top of the page is a header with the text 'CT 310 PHP Lec 16 Example 03b'. Below the header is a main content area. It starts with the text 'Welcome to the home of Thing 2.' followed by a cartoon illustration of Thing 2, a small blue creature with a red and white striped hat, holding three balloons (yellow, red, and blue). Below the illustration is a small rounded rectangle containing the text 'Thing 1 is just as good.'. At the bottom of the main content area is the text 'May small things remind us of [Theodor Seuss Geisel's](#) many talents.'

Example 4 – More Functions

- Conditionals, recursion and return.
- Get in touch with 'innerHTML' 😊

```
5 <script>
6   function fact(n) {
7       if (n < 2) { return(1); }
8       else { return(n * fact(n-1)); }
9   }
10  function showResult() {
11      nn = parseInt(document.enter.num.value);
12      nc = "The factorial of " + nn + " is " + fact(nn);
13      document.getElementById("result").innerHTML = nc;
14  }
15 </script>
```


Example 4 – Make it Go

- What makes this page do something?
 - Think about object's 'enter' and 'num'.
 - Assignment to 'innerHTML' is powerful.

```
10 function showResult() {
11     nn = parseInt(document.enter.num.value);
12     nc = "The factorial of " + nn + " is " + fact(nn);
13     document.getElementById("result").innerHTML = nc;
14 }
15 </script>
16 ...|
17 <form name="enter">
18     <input type="text" value="9" name="num" onchange="showResult()" />
19 </form>
20 <p id="result">Factorial will appear here when you enter a number above.</p>
```

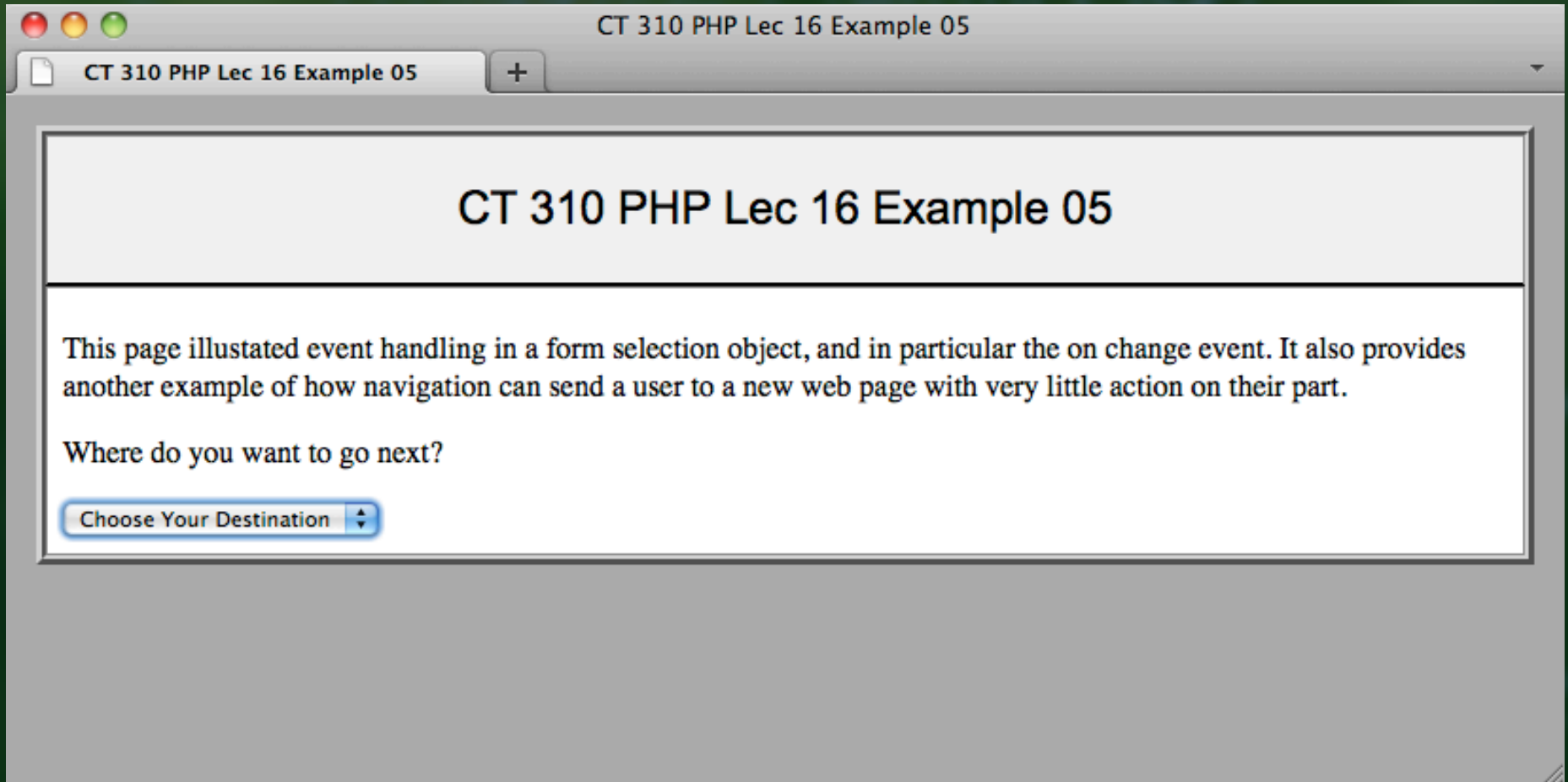
Caution
Try 'return'
vs. 'tab'
key

Example 5 – Navigation

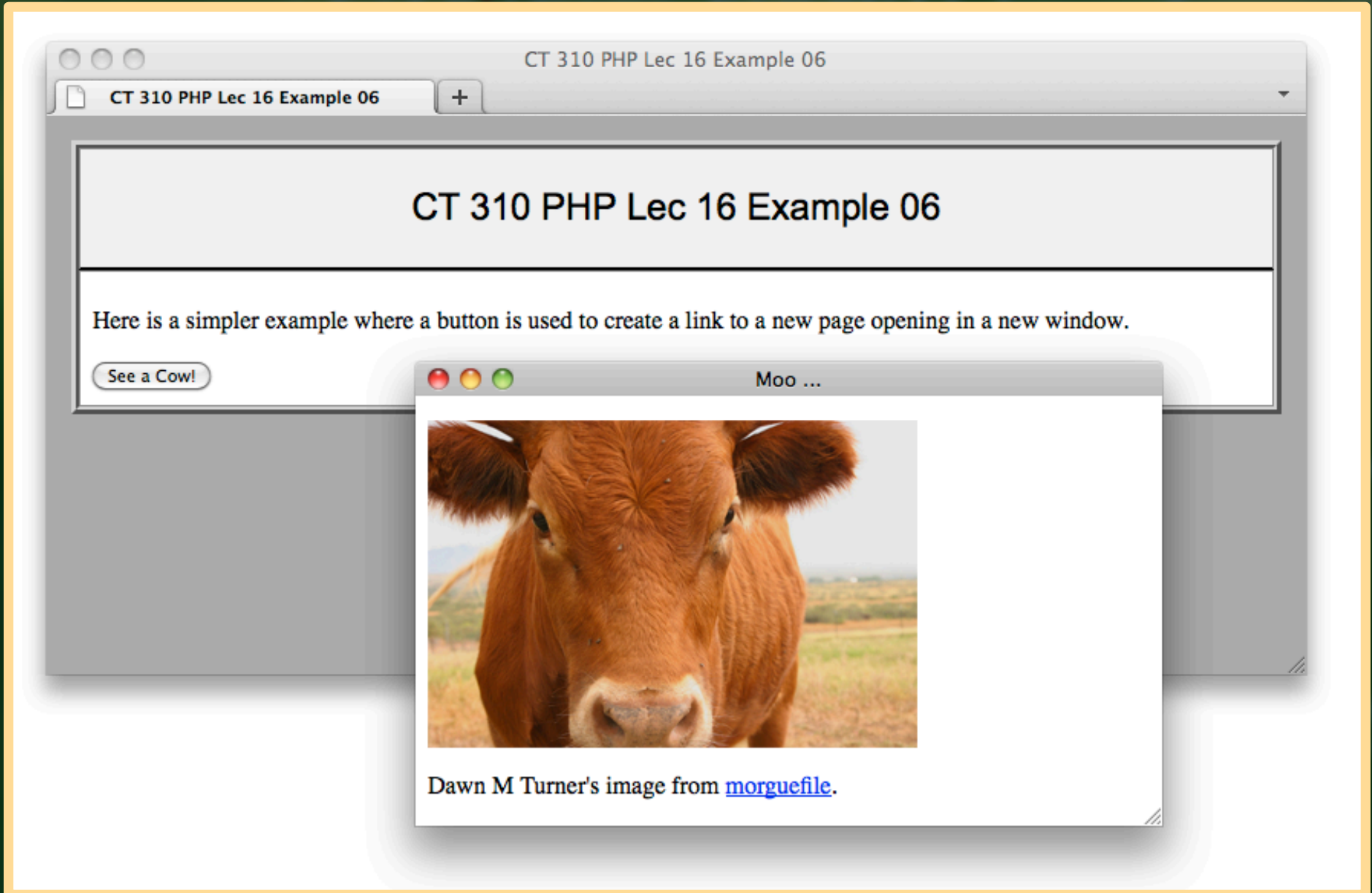
➤ Notice how the URL passes to goSite().

```
5 <script>
6   function goSite(sel) {
7     window.location.href = sel.options[sel.selectedIndex].value;
8   }
9 </script>
10 ...|
11 <p>
12 Where do you want to go next?
13 </p>
14 <form action="#">
15 <select name="sample" onchange="goSite(this)" size="1">
16   <option selected="selected" value="#">Choose Your Destination</option>
17   <option value="http://www.yahoo.com">Yahoo!</option>
18   <option value="http://www.google.com">Google</option>
19 </select>
20 </form>
```

Example 5 – The Page



Example 6 - Buttons

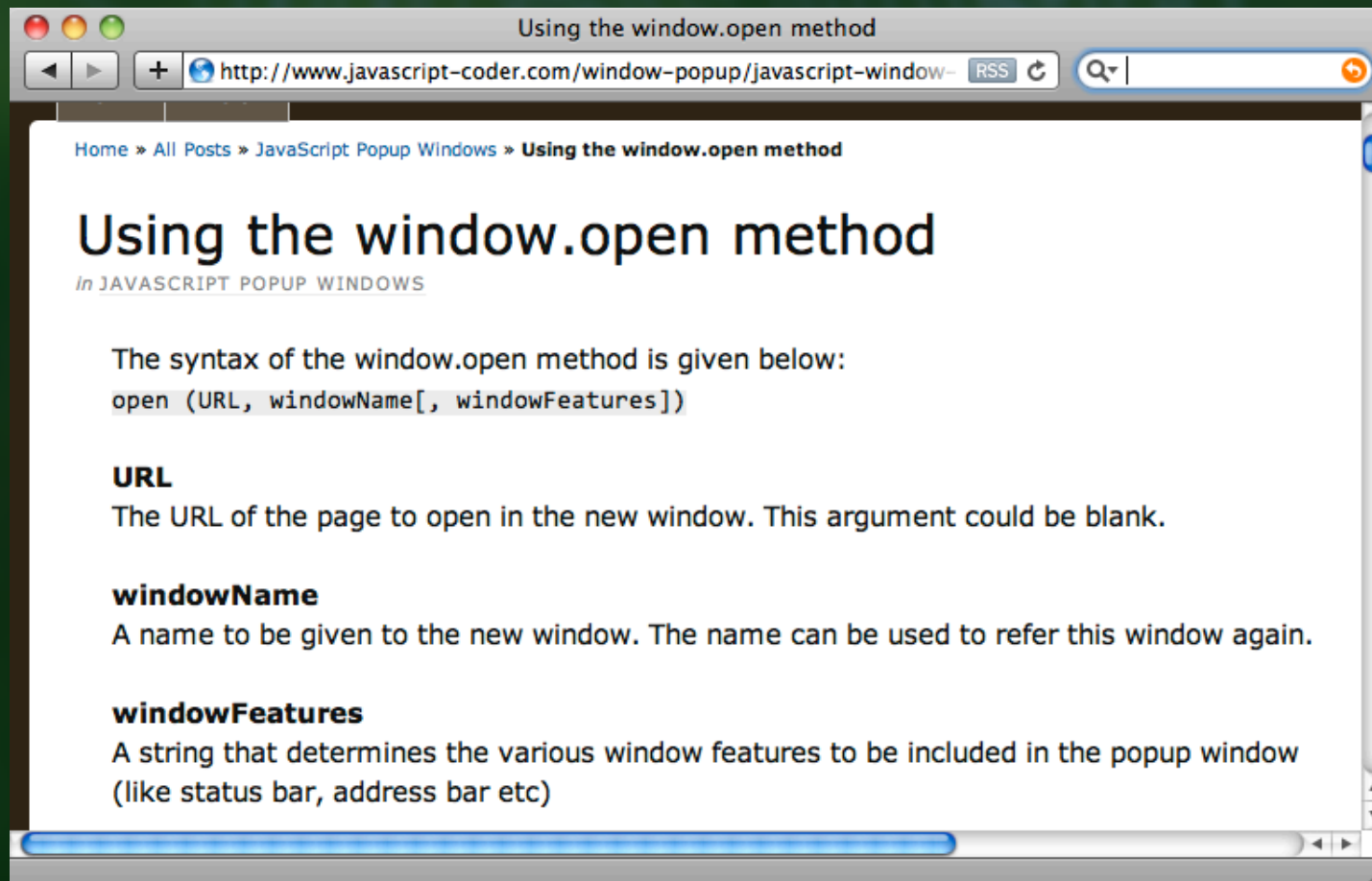


The image shows a web browser window titled "CT 310 PHP Lec 16 Example 06". The browser's address bar also displays "CT 310 PHP Lec 16 Example 06". The main content area of the browser contains the text "CT 310 PHP Lec 16 Example 06" and a paragraph: "Here is a simpler example where a button is used to create a link to a new page opening in a new window." Below this text is a button labeled "See a Cow!".

A smaller window titled "Moo ..." is open in the foreground, displaying a close-up photograph of a brown cow's face. Below the image, the text reads: "Dawn M Turner's image from [morguefile](#)."

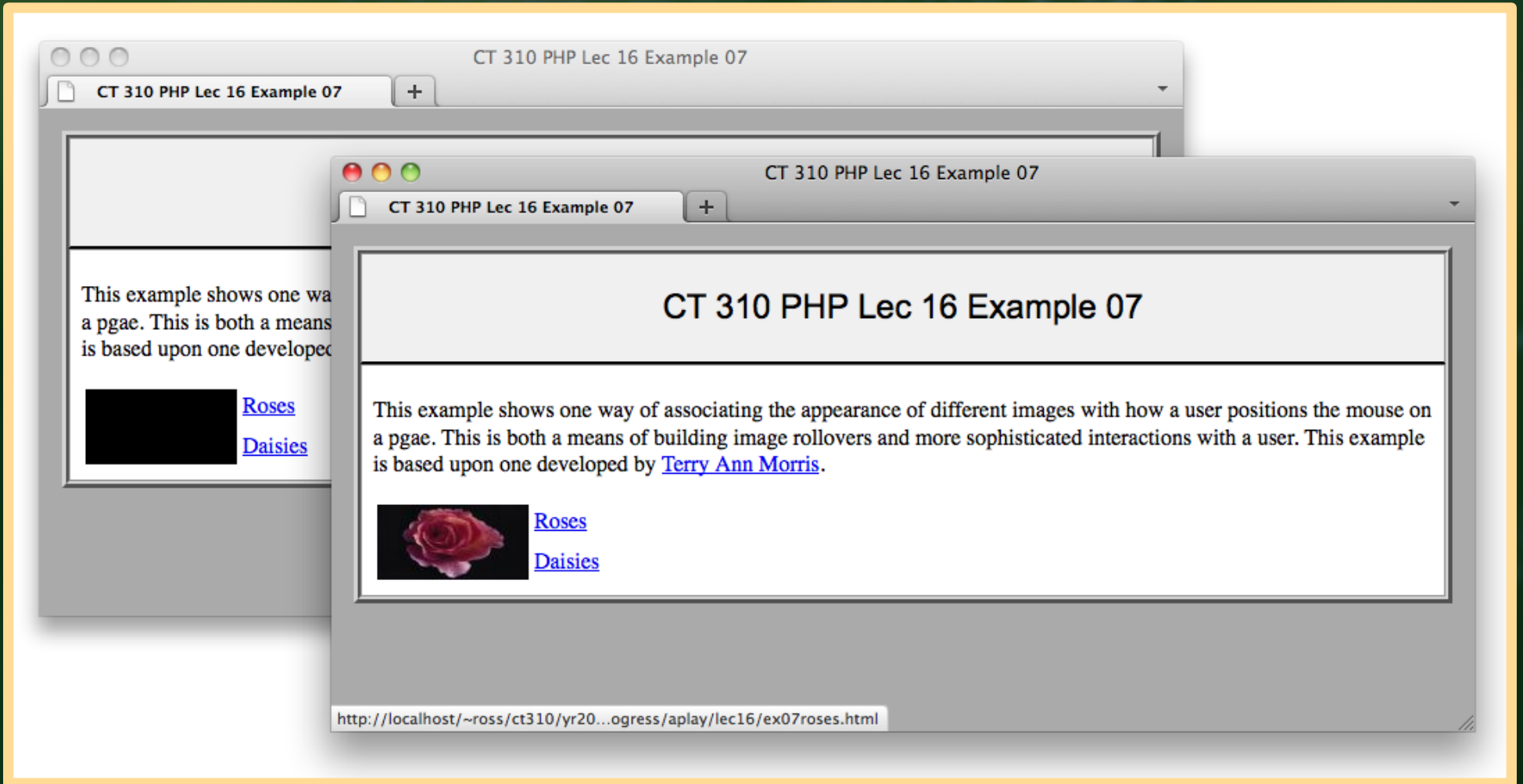
Example 6 – Window.open

```
13 <button type="button"  
14     onclick="window.open('ex06cowPage.html', 'fuzzy', 'top=200, left=200')">  
15     See a Cow!  
16 </button>
```



Example 7 – Rollover

- Change the image based upon mouse.



Example 7 - Header

- Note the variables and image objects.

```
7  if (document.images) {
8      placeholder = new Image
9      image1on     = new Image
10     image2on     = new Image
11     placeholder.src = "ex07blank.jpg"
12     image1on.src   = "ex07roseon.jpg"
13     image2on.src   = "ex07daisyon.jpg"
14 }
15 function showMe(myImage) {
16     if (document.images)
17         document.display.src = eval(myImage + ".src")
18 }
```

Example 7 – The Table

- Note that 'display' is the name of an image object on the page.
- Two types of mouse events.

```
27 <table border="0">
28   <tr>
29     <td rowspan="2">
31     <td><a href="ex07roses.html" onmouseover="showMe('image1on')"
32       onmouseout="showMe('placeholder')">Roses</a></td>
33   </tr>
34   <tr>
35     <td><a href="ex07daisies.html" onmouseover="showMe('image2on')"
36       onmouseout="showMe('placeholder')">Daisies</a></td>
37   </tr>
38 </table>
```