

Introduction to HTML

Chapter 3

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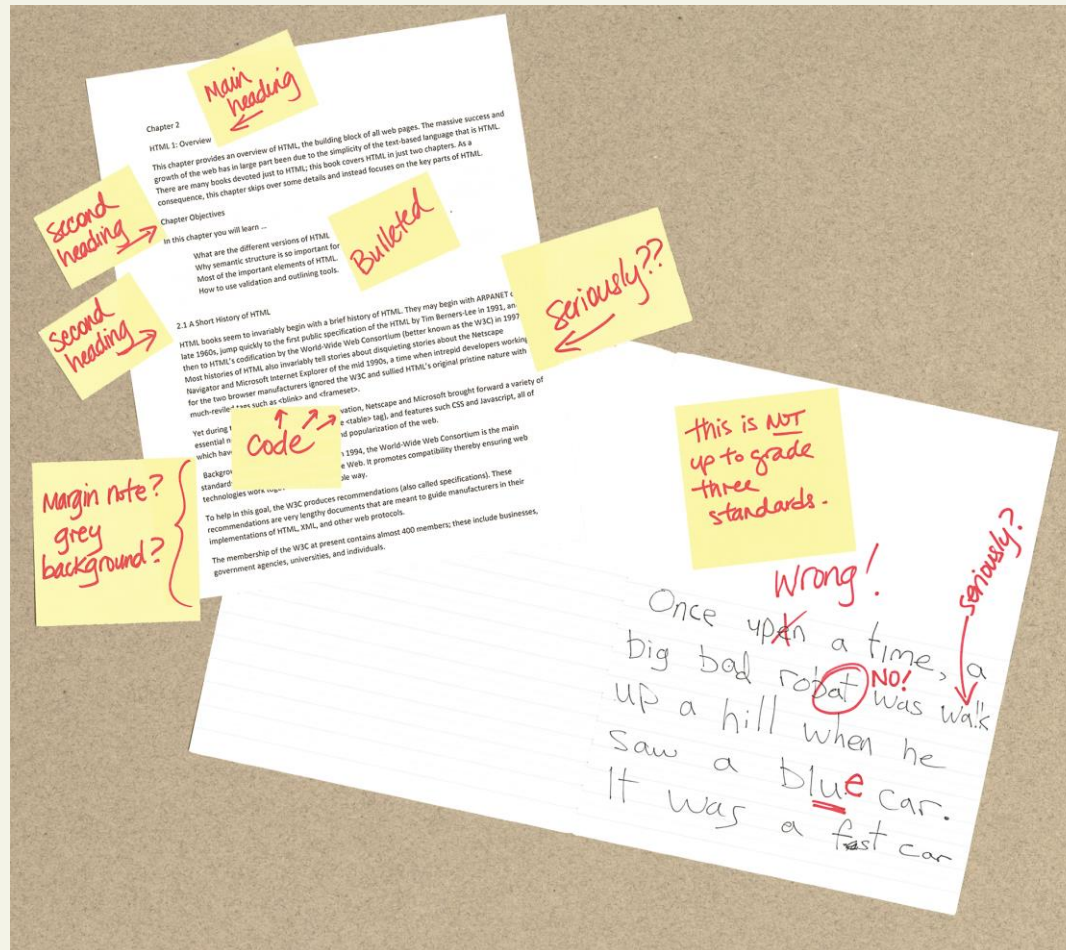
What Is HTML and Where Did It Come from?

HTML

- HTML is defined as a **markup language**.
- **markup** is a way to indicate information about the content that is distinct from the content
- HTML has been through many versions and branches, the details of which might matter if you ever see old HTML code.

What Is HTML and Where Did It Come from?

Markup



What Is HTML and Where Did It Come from?

XHTML and Validation

The image shows two browser windows. The top window is the W3C Markup Validation Service, which has a form to validate a document by URI. The bottom window is the Nu Html Checker, which shows the results of a validation. The checker input is a piece of HTML code, and the output shows an error message: "Error: An img element must have an alt attribute, except under certain conditions. For details, consult guidance on providing text alternatives for images." The error message points to the tag in the input code.

Validator provides feedback on markup's validity according to W3C specification

```
<!DOCTYPE html>
<html>
<head><title>sample document</title></head>
<body>
<p id="here">hello <span>there</span></p>
<ul>
<li>item 1</li>
<li>item 2</li>
<li>item 3</li>
</ul>
<div id="main">

```

1. **Error:** An `img` element must have an `alt` attribute, except under certain conditions. For details, consult [guidance on providing text alternatives for images](#).
From line 14, column 5, to line 14, column 42
``

What Is HTML and Where Did It Come from?

HTML 5

- Widely implemented in modern browsers
- The current W3C recommendation for web development
- Still relatively new and not always taught.

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HTML Syntax

Elements and Attributes

- **HTML documents** are composed of textual content and **HTML elements**
- **HTML element** encompasses
 - the **element name** within angle brackets (i.e., the **tag**) and
 - HTML elements can also contain **attributes**.
 - **the content** within the tag.



HTML Syntax

Elements and Attributes

An **empty element** does not contain any text content; instead, it is an instruction to the browser to do something.

- In XHTML, empty elements had to be terminated by a trailing slash.
- In HTML5, the trailing slash in empty elements is optional.

Example empty element ``

Element name Trailing slash (*optional*)

HTML Syntax

Nesting HTML Elements

Correct nesting

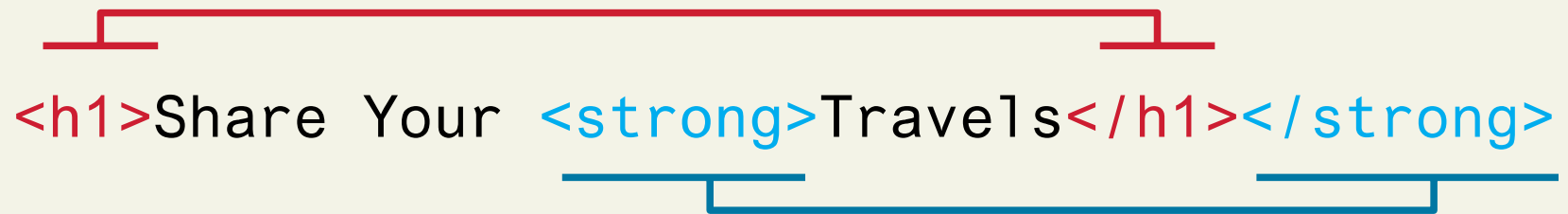


```
<h1>Share Your <strong>Travels</strong></h1>
```

HTML Syntax

Nesting HTML Elements

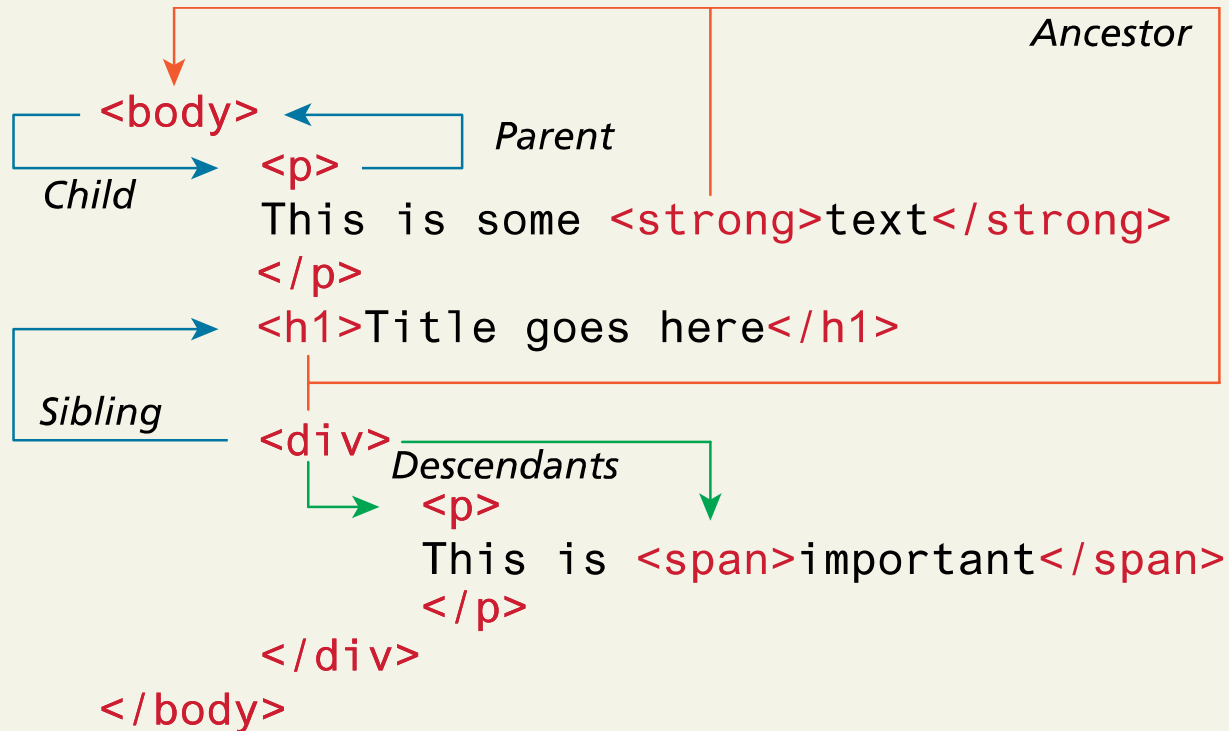
Incorrect nesting



```
<h1>Share Your <strong>Travels</h1></strong>
```

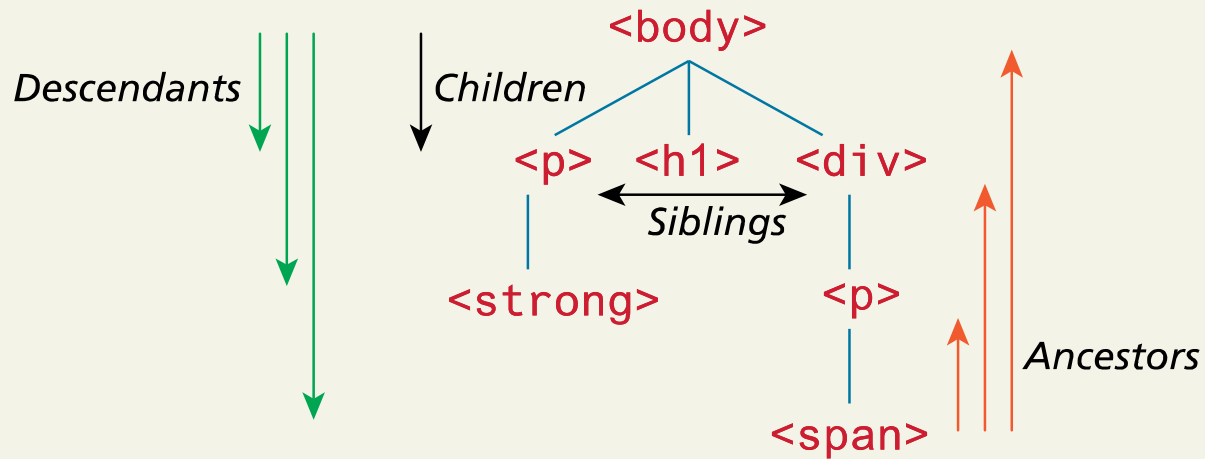
HTML Syntax

Nesting HTML Elements



HTML Syntax

Nesting HTML Elements



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Semantic Markup

Focus on the structure of the document, not the visual

Advantages:

- Maintainability
- Performance
- Accessibility (<http://www.w3.org/WAI>)
- Search Engine Optimization

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Structure of HTML Documents

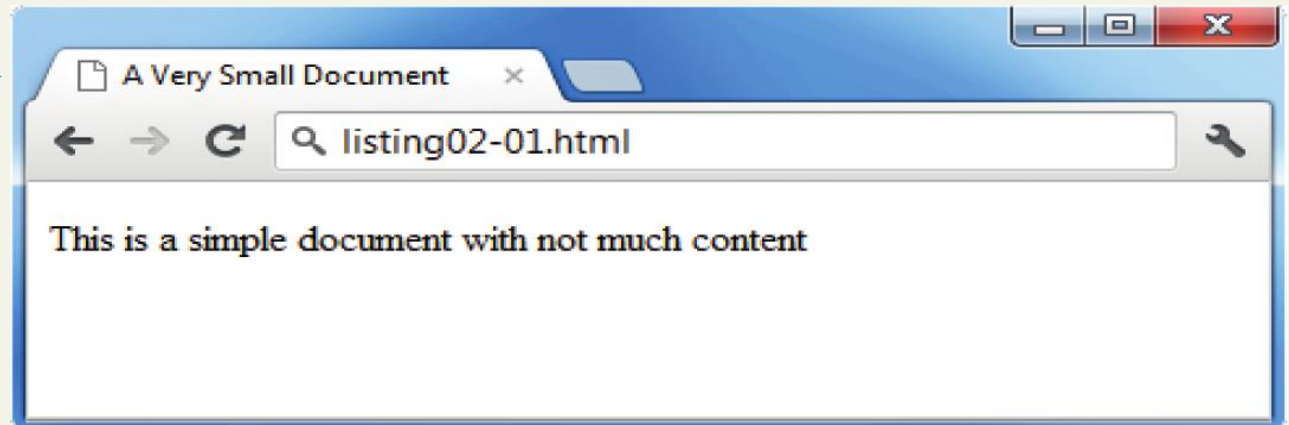
A simple example

1

```
<!DOCTYPE html>
```

```
<title>A Very Small Document</title>
```

```
<p>This is a simple document with not much content</p>
```



Structure of HTML Documents

DOCTYPE

DOCTYPE Short for **Document Type Definition** tells the browser what type of document it is about to process

```
<!DOCTYPE html>
```

Structure of HTML Documents

A slightly more complex document



Structure of HTML Documents

Head and Body

HTML5 does not require the use of the `<html>` , `<head>` , and `<body>` elements (but most developers continue to use them).

- `<html>` contains all the other HTML elements in the document (Item 2 in previous slide)
- `<head>` contains descriptive elements about the document, such (title, style sheets, JavaScript files etc.) (Item 3)
- `<body>` contains content to be displayed by the browser (Item 4)

Structure of HTML Documents

Some more common elements

- The **<meta>** element (Item 5) declares that the character encoding for the document is UTF-8.
- Item 6 specifies an external CSS style sheet file with **<link>** that is used with this document.
- Item 7 references an external JavaScript file using **<script>**

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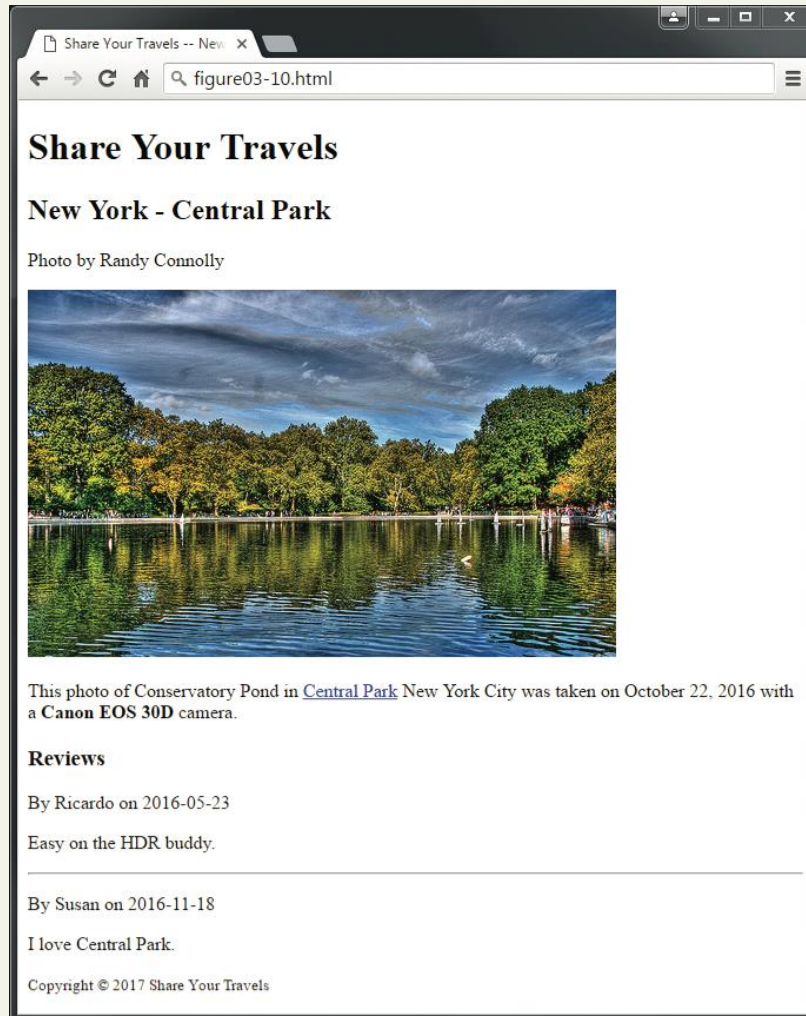
Quick Tour of HTML Elements

A document to walk through

```
<body>
1 | <h1>Share Your Travels</h1>
  | <h2>New York - Central Park</h2>
2 | <p>Photo by Randy Connolly</p>
  | <p>This photo of Conservatory Pond in
  |   <a href="http://www.centralpark.com/">Central Park</a> 3
  |   New York City was taken on October 22, 2016 with a
  |   <strong>Canon EOS 30D</strong> camera.
  | </p> 4
5 | 
  |
  | <h3>Reviews</h3>
6 | <div> 7
  |   <p>By Ricardo on <time>2016-05-23</time></p>
  |   <p>Easy on the HDR buddy.</p>
  | </div>
8 | <hr>
  | <div>
  |   <p>By Susan on <time>2016-11-18</time></p>
  |   <p>I love Central Park.</p>
  | </div> 9
  |
  | <p><small>Copyright &copy; 2017 Share Your Travels</small></p>
  | </body> 10
```

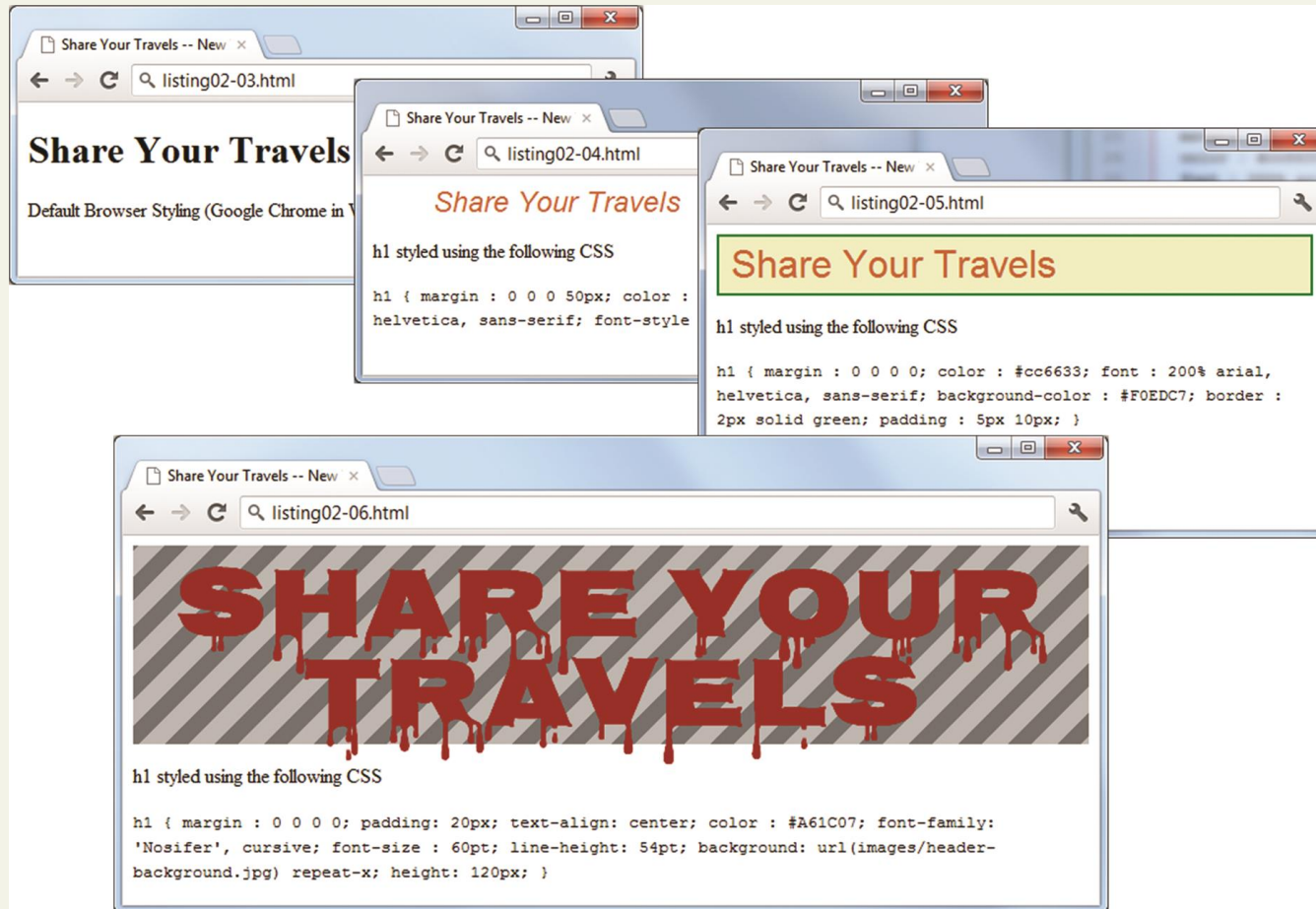

Quick Tour of HTML Elements

A document to walk through



Quick Tour of HTML Elements

CSS styles are coming soon, HTML is structural



Quick Tour of HTML Elements

Headings

- HTML provides six levels of heading (h1 - h6)
- Headings are also used by the browser to create a document outline for the page.

```
      <body>  
1 — | <h1>Share Your Travels</h1>  
    | <h2>New York - Central Park</h2>
```

Quick Tour of HTML Elements

Paragraphs and Divisions

- `<p>` tag is a container for text and other HTML elements
- `<div>` also a container element and is used to create a logical grouping of content

2

```
<p>Photo by Randy Connolly</p>  
<p>This photo of Conservatory Pond in  
  <a href="http://www.centralpark.com/">Cen  
New York City was taken on October 22, 20  
  <strong>Canon EOS 30D</strong> camera.  
</p>
```

Quick Tour of HTML Elements

Links

- Links are an essential feature of all web pages
- Links use the `<a>` element (the “a” stands for anchor).

```
<a href="http://www.centralpark.com">Central Park</a>
```



Destination



Label (text)

Quick Tour of HTML Elements

Links

Link to external site

`Central Park`

Link to resource on external site

`Central Park`

Link to another page on same site as this page

`Home`

Link to another place on the same page

`Go to Top of Document`

...

``

Defines anchor for a link to another place on same page

Quick Tour of HTML Elements

Links (continued)

Link to specific place on another page

`Reviews for product X`

Link to email

`Someone`

Link to JavaScript function

`See This`

Link to telephone (automatically dials the number
when user clicks on it using a smartphone browser)

`Call toll free (800) 922-0579`

Quick Tour of HTML Elements

URL Relative Referencing

Relative Link Type	Example
Same directory	<code></code>
Child Directory	<code></code>
Grandchild/Descendant Directory	<code></code>
Parent/Ancessor Directory	<code></code> <code></code>
Sibling Directory	<code></code>
Root Reference	<code></code>

Quick Tour of HTML Elements

Inline Text Elements ... they do not disrupt the flow

- `<a>`
- `<abbr>`
- `
`
- `<cite>`
- `<code>`
- ``
- `<mark>`
- `<small>`
- ``
- ``
- `<time>`

Quick Tour of HTML Elements

Images

Specifies the URL of the image to display
(note: uses standard relative referencing).

Text in `title` attribute will be displayed in a pop-up
tool tip when user moves mouse over image.

```

```

Text in `alt` attribute provides a brief
description of image's content for users who
are unable to see it.

Specifies the width and height of
image in pixels

Quick Tour of HTML Elements

Character Entities

These are special characters for symbols for which

- there is either no easy way to type them via a keyboard
- or which have a reserved meaning in HTML (like “<”)

Entity	Description
 	Nonbreakable space
<	<
>	>
©	©
™	™

Quick Tour of HTML Elements

Lists

- Unordered Lists ``
- Ordered Lists ``
- Description Lists `<dl>`

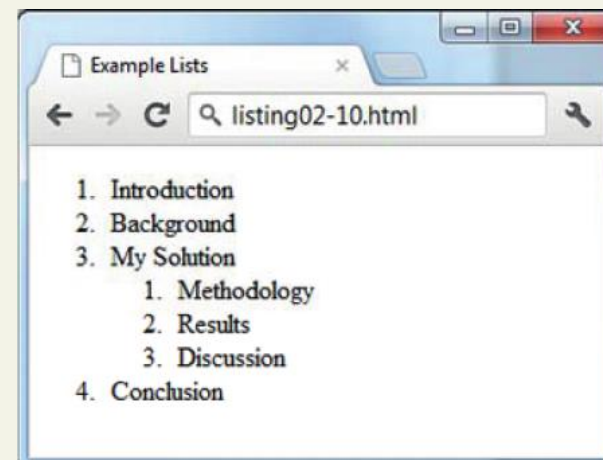
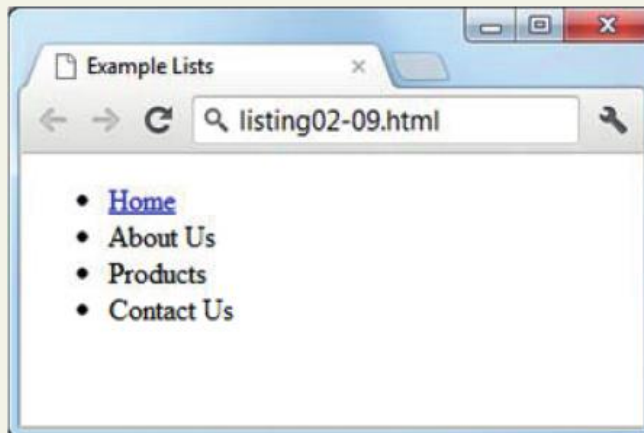
Quick Tour of HTML Elements

Lists

Notice that the list item element can contain other HTML elements.

```
<ul>  
  <li><a href="index.html">Home</a></li>  
  <li>About Us</li>  
  <li>Products</li>  
  <li>Contact Us</li>  
</ul>
```

```
<ol>  
  <li>Introduction</li>  
  <li>Background</li>  
  <li>My Solution</li>  
  <li>  
    <ol>  
      <li>Methodology</li>  
      <li>Results</li>  
      <li>Discussion</li>  
    </ol>  
  </li>  
  <li>Conclusion</li>  
</ol>
```



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Quick Tour of HTML Elements

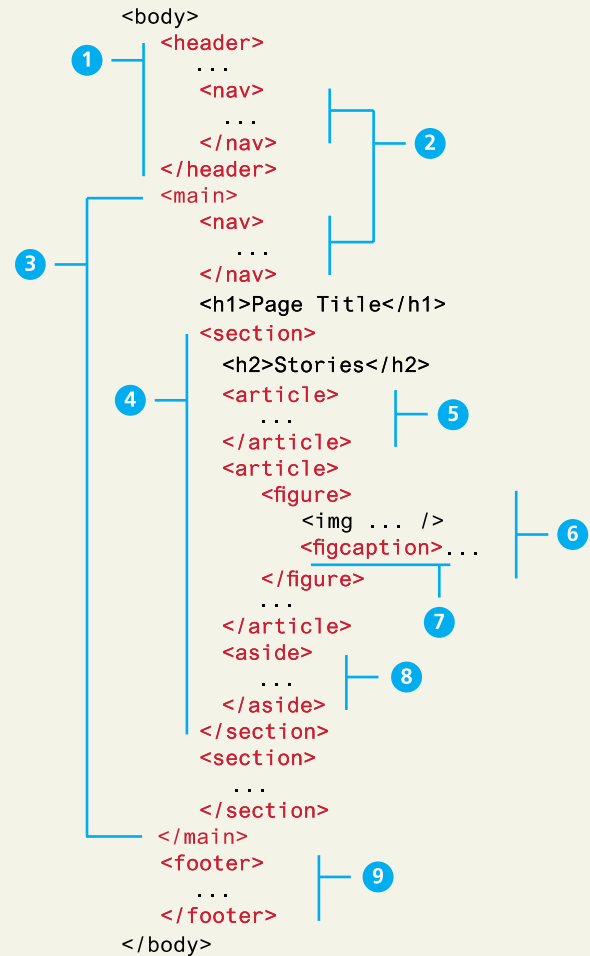
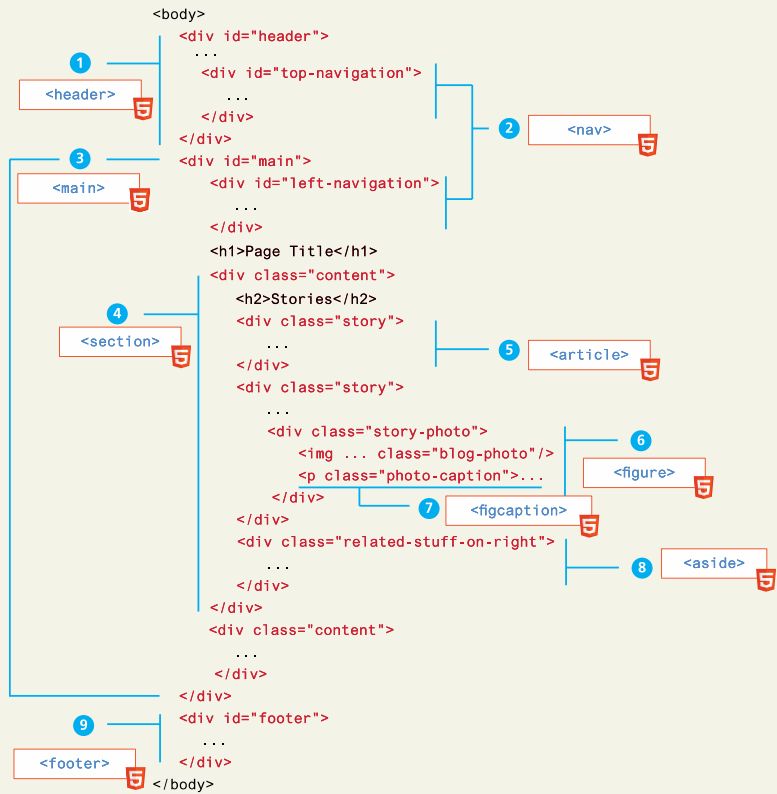
6

HTML5 Semantic Structure Elements

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Summary

HTML5 Semantic Structure Elements



HTML5 Semantic Structure Elements

Header and Footer

1

```
<header>  
  ...  
  <nav>  
  ...  
  </nav>  
</header>
```

```
<footer>  
  ...  
</footer>
```

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HTML5 Semantic Structure Elements

Header and Footer

- *A header element is intended to usually contain the section's heading (an h1– h6 element), but this is not required.*
- *The header element can also be used to wrap a section's table of contents, a search form, or any relevant logos.*

```
<header>

<h1>Fundamentals of Web
Development</h1>
...
</header>
<article>
<header>
<h2>HTML5 Semantic Structure
Elements</h2>
<p> By <em>Randy
Connolly</em></p>
</header>
...
</article>
```

HTML5 Semantic Structure Elements

Navigation

```
<header>
  
  <h1>Fundamentals of Web Development</h1>
  <nav>
    <ul>
      <li><a href="index.html">Home</a></li>
      <li><a href="about.html">About Us</a></li>
      <li><a href="browse.html">Browse</a></li>
    </ul>
  </nav>
</header>
```

HTML5 Semantic Structure Elements

Main

- `<main>` is meant to contain the main unique content of the document.
- `<main>` provides a semantic replacement for markup such as `<div id="main">` or `<div id="main-content">`

HTML5 Semantic Structure Elements

Articles and Sections

<section> is a much broader element, while the **<article>** element is to be used for blocks of content that could potentially be read or consumed independently of the other content on the page

HTML5 Semantic Structure Elements

Figure and Figure Captions

Figure could be moved to a different location in document ...

But it has to exist in the document (i.e., the figure isn't optional).

```
<p>This photo was taken on October 22, 2011 with a Canon EOS 30D camera.</p>  
<figure>  
  <br/>  
  <figcaption>Conservatory Pond in Central Park</figcaption>  
</figure>  
<p>  
  It was a wonderfully beautiful autumn Sunday, with strong sunlight and expressive clouds. I was very fortunate that my one day in New York was blessed with such weather!  
</p>
```



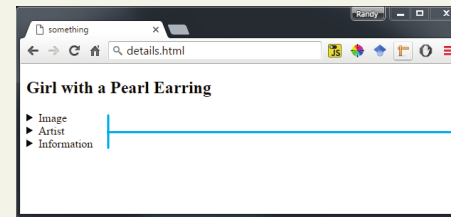
HTML5 Semantic Structure Elements

Aside

The `<aside>` element can be used for sidebars, pull quotes, groups of advertising images, or any other grouping of nonessential elements

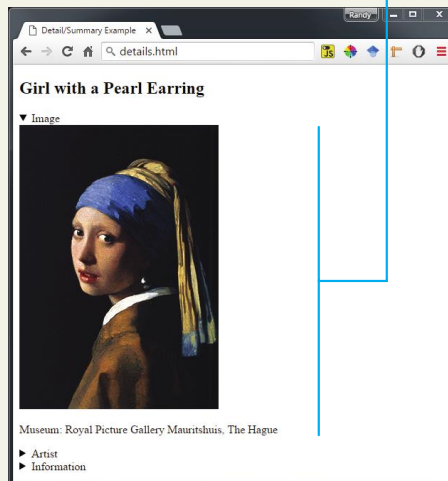
HTML5 Semantic Structure Elements

Details and Summary



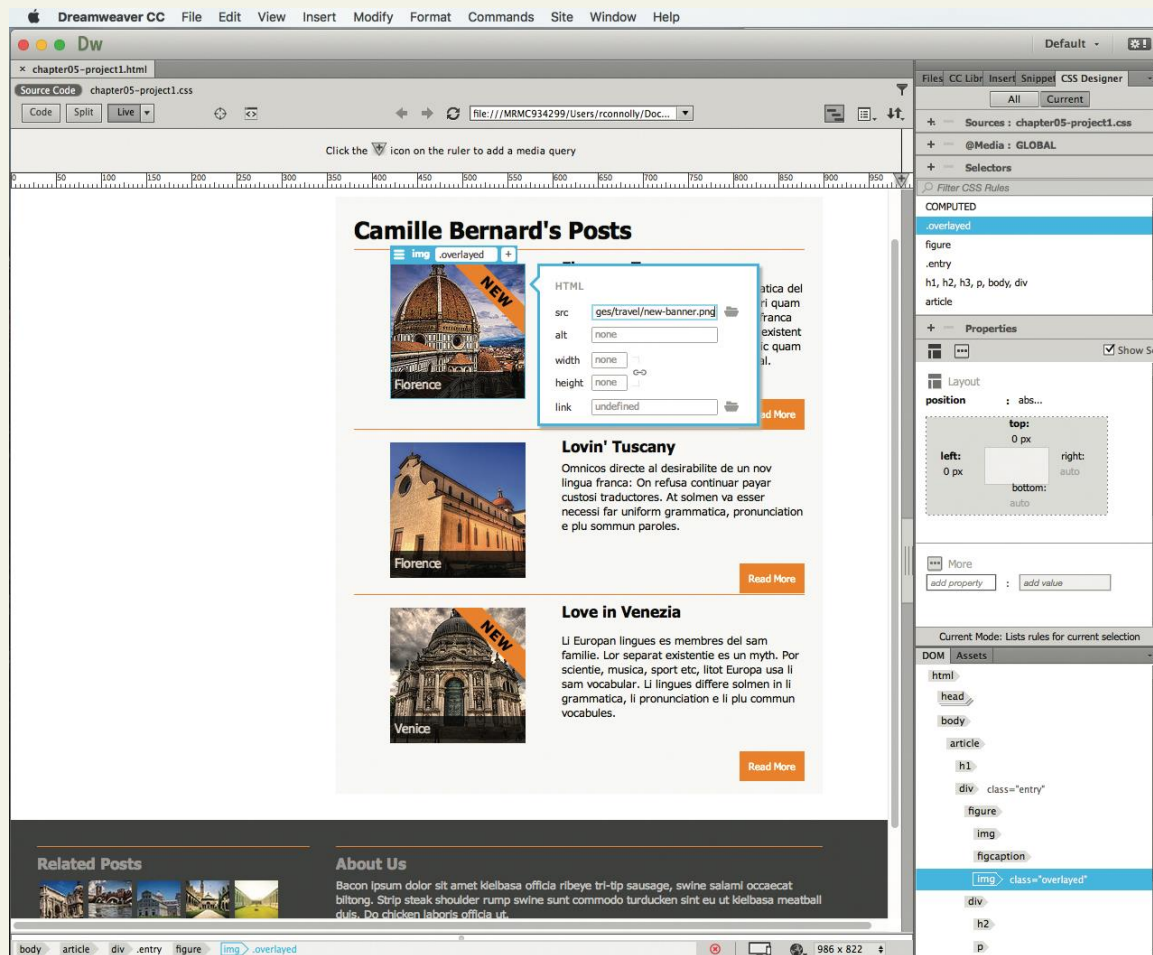
```
<body>
  <h2>Girl with a Pearl Earring</h2>
  <details>
    <summary>Image</summary>
    <br>
    <p>Museum: Royal Picture Gallery Mauritshuis ...
  </details>
  <details>
    <summary>Artist</summary>
    <p><strong>Jan Vermeer</strong> was a Dutch ...
  </details>
  <details>
    <summary>Information</summary>
    <p>
      Date: 1665<br>
      Medium: Oil on Canvas
    </p>
  </details>
</body>
```

Clicking on the summary label reveals the rest of the content with the <details> container



Tools Insight

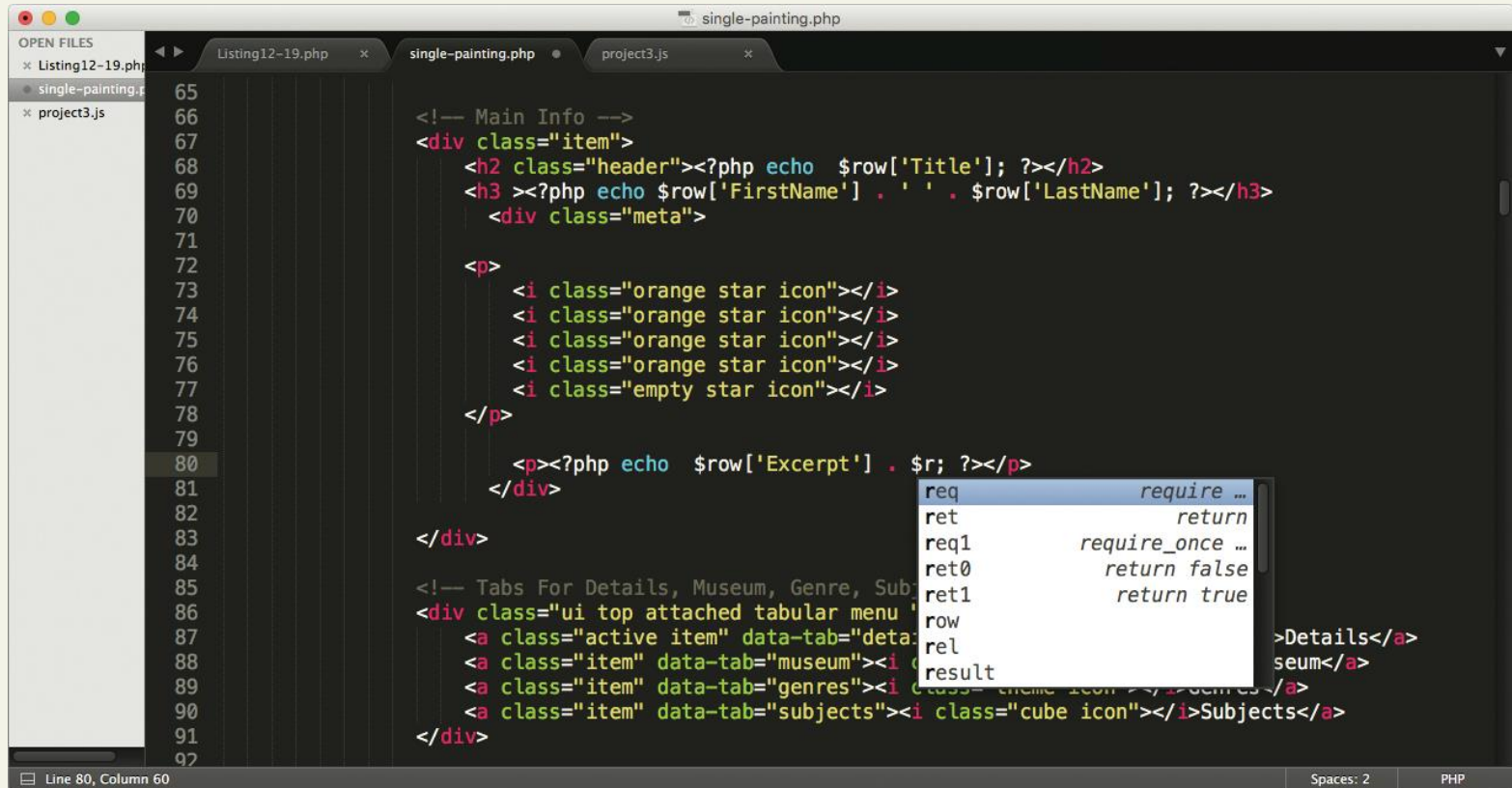
WYSIWYG Editors



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Tools Insight

Code Editors



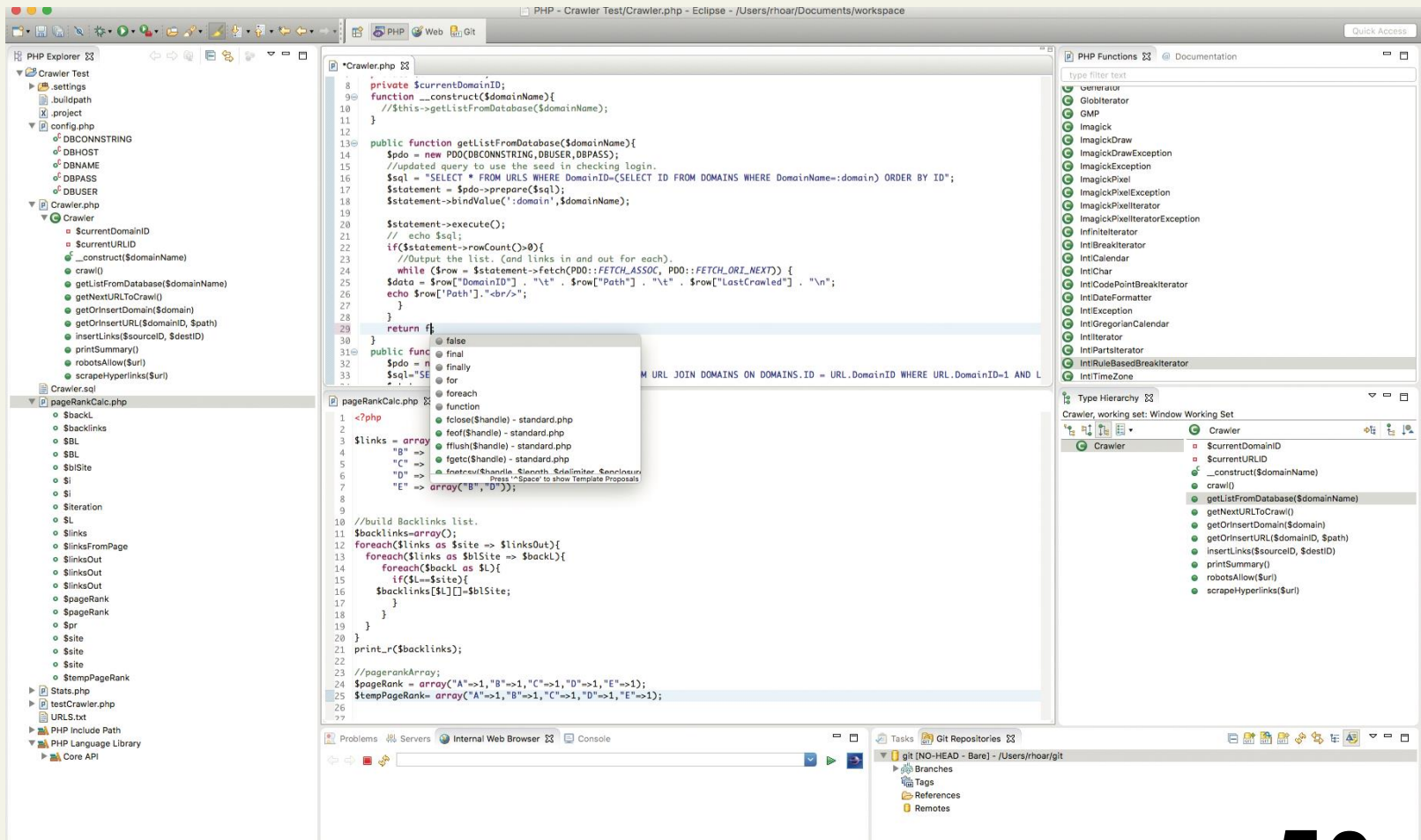
```
65
66
67 <!-- Main Info -->
68 <div class="item">
69   <h2 class="header"><?php echo $row['Title']; ?></h2>
70   <h3 ><?php echo $row['FirstName'] . ' ' . $row['LastName']; ?></h3>
71   <div class="meta">
72
73     <p>
74       <i class="orange star icon"></i>
75       <i class="orange star icon"></i>
76       <i class="orange star icon"></i>
77       <i class="empty star icon"></i>
78     </p>
79
80     <p><?php echo $row['Excerpt'] . $r; ?></p>
81   </div>
82
83 </div>
84
85 <!-- Tabs For Details, Museum, Genre, Subjects -->
86 <div class="ui top attached tabular menu">
87   <a class="active item" data-tab="details">Details</a>
88   <a class="item" data-tab="museum"><i class="cube icon"></i>Museum</a>
89   <a class="item" data-tab="genres"><i class="cube icon"></i>Genres</a>
90   <a class="item" data-tab="subjects"><i class="cube icon"></i>Subjects</a>
91 </div>
92
```

req require ...
ret return
req1 require_once ...
ret0 return false
ret1 return true
row
rel
result

Line 80, Column 60 Spaces: 2 PHP

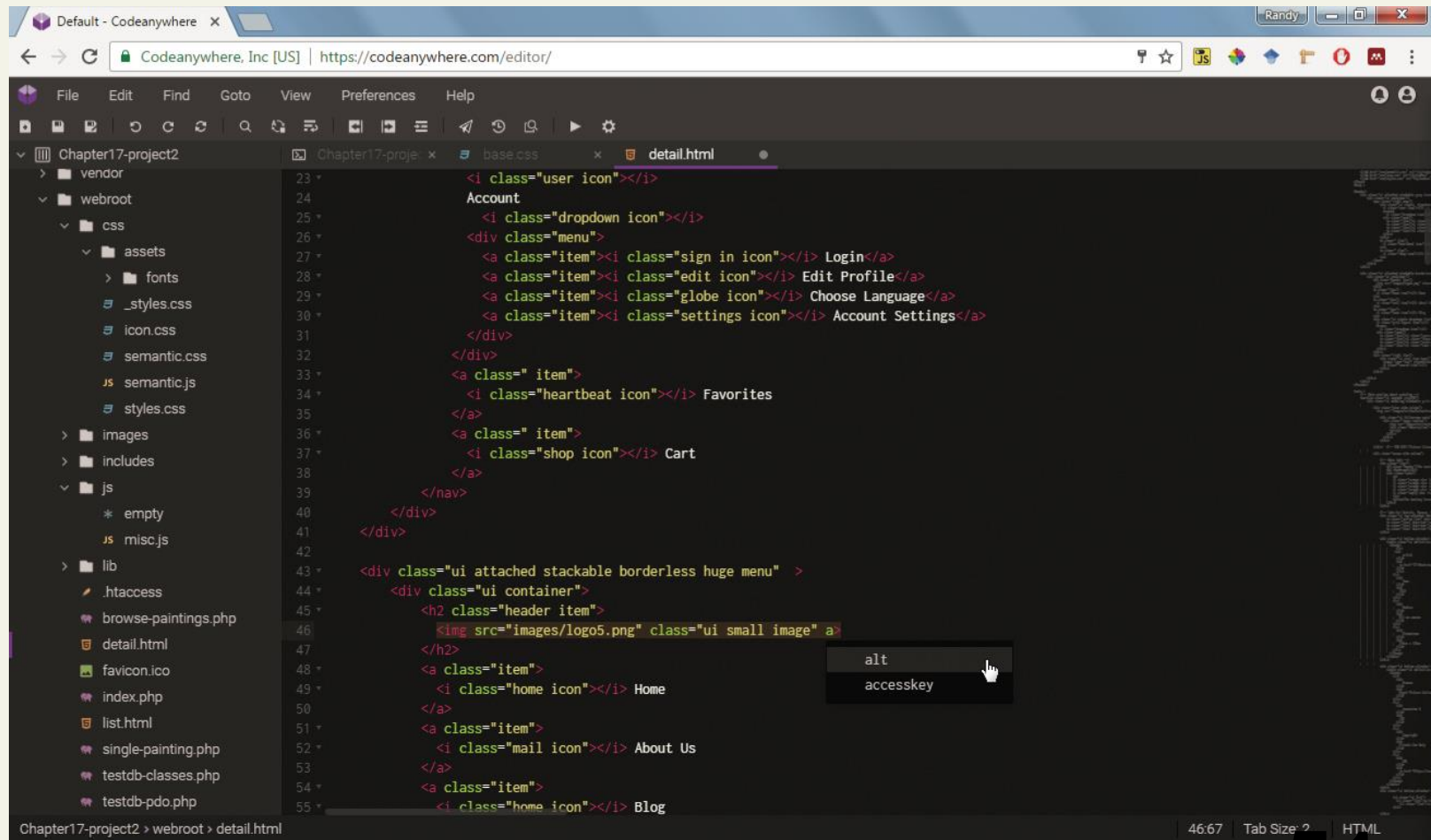
Tools Insight

Integrated Development Environments



Tools Insight

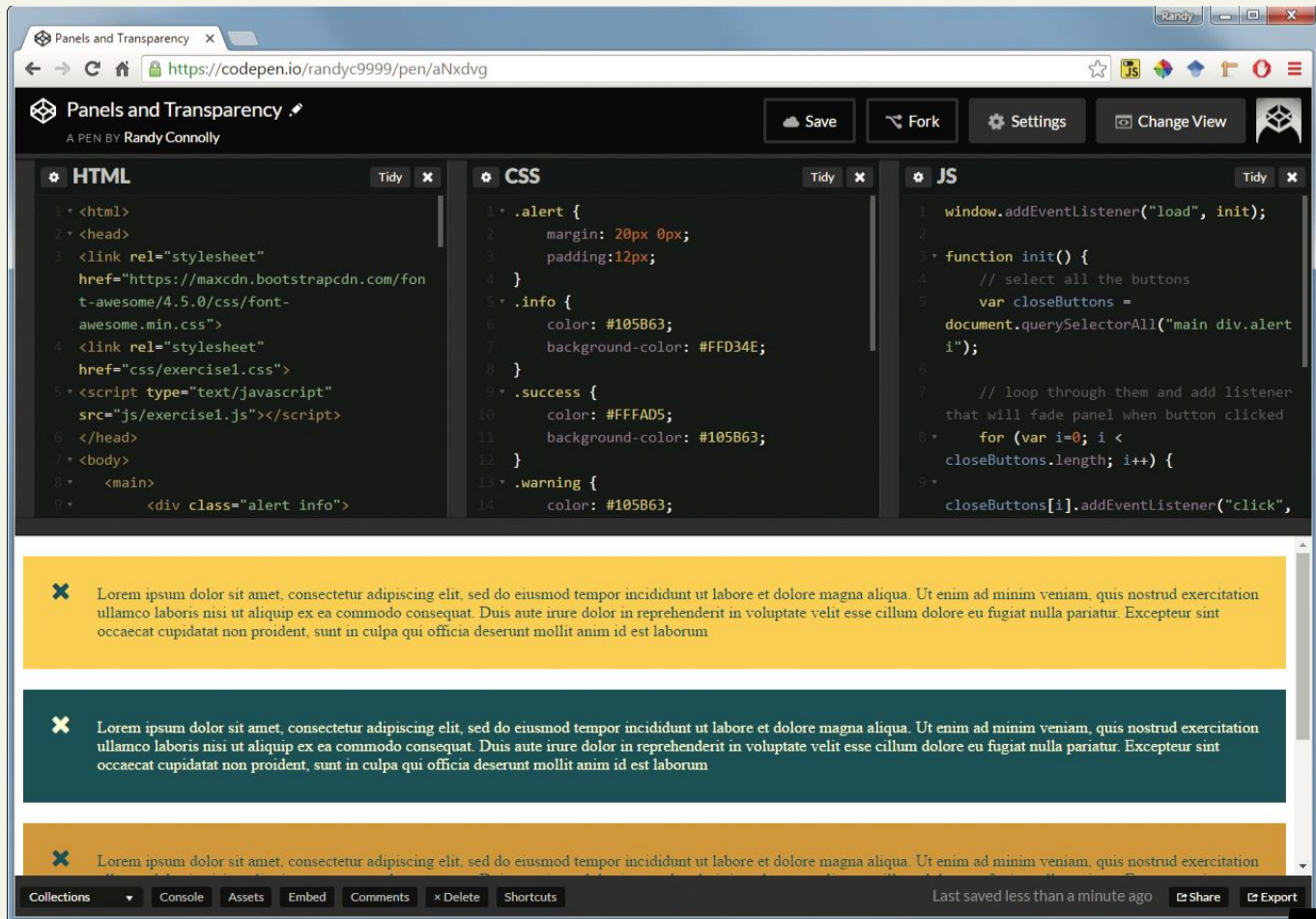
Cloud-Based Environments



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Tools Insight

Code Playgrounds



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Summary

Key Terms

absolute referencing	folder	root reference
accessibility	head	schemas
ancestors	HTML attribute	search engine optimization
body	HTML validators	semantic HTML
Cascading Style Sheets (CSS)	inline HTML elements	specifications
character entity	maintainability	standards mode
description lists	markup	syndication
descendants	markup language	syntax errors
directory	ordered lists	tags
document outline	pathname	unordered lists
Document Object Model	polyfill	UTF-8
Document Type Definition	quirks mode	WHATWG
empty element	Recommendations	W3C
	relative referencing	XHTML 1.0 Strict
	root element	XHTML 1.0 Transitional

Questions