

Markup Language

Topic 2 – introduction to HTML

- What is HTML and where did it come from?
- HTML Syntax
- HTML Structure
- Element types and HTML5

What is HTML?

Where did it come from?

What Is HTML and Where Did It Come from?

HTML

- A Web page is a text file written in **HTML (Hypertext Markup Language)**
- A **markup language** describes the content and structure of a document by identifying, or tagging, different document elements
- HTML has been through many versions and branches, the details of which might matter if you ever see old HTML code.
- Versions:
 - HTML
 - HTML 2.0
 - HTML 3.0
 - HTML 4.0 (xHTML 1.0)
 - HTML 5

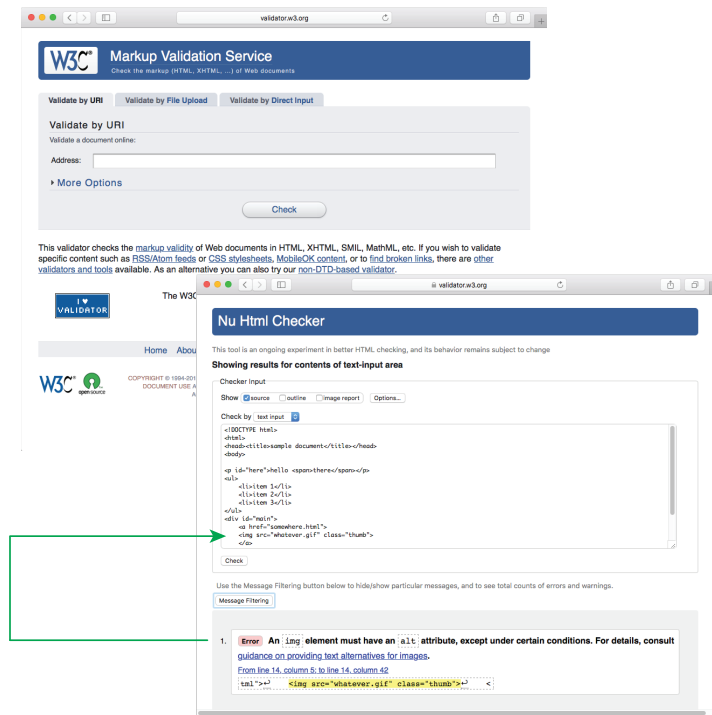
What Is HTML and Where Did It Come from?

HTML

- In the early years of HTML, browser developers were free to define and modify the language as no rules or syntax were defined
- The **World Wide Web Consortium**, or the **W3C**, created a set of recommendations (de-facto standards) for all browser manufacturers to follow
- The **W3C** has no enforcement power
- The recommendations of the **W3C** are usually followed since a uniform approach to Web page creation is beneficial to everyone

What Is HTML and Where Did It Come from?

XHTML and Validation



5

HTML Syntax

6

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.



7

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.



8

HTML Syntax

Nesting HTML Elements

Correct nesting

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

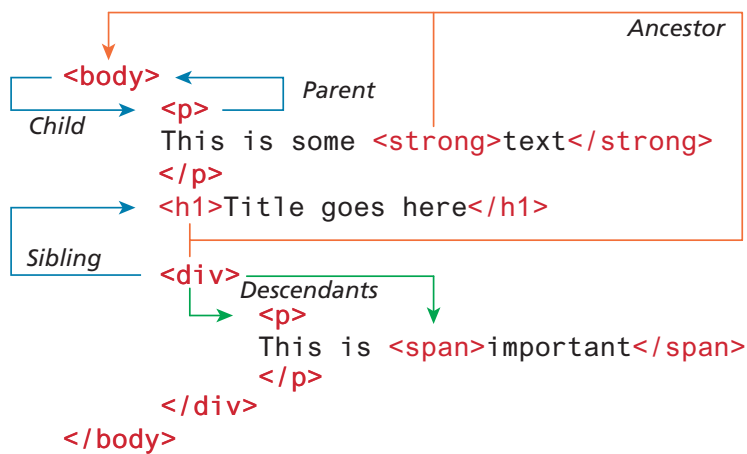
Incorrect nesting

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

9

HTML Syntax

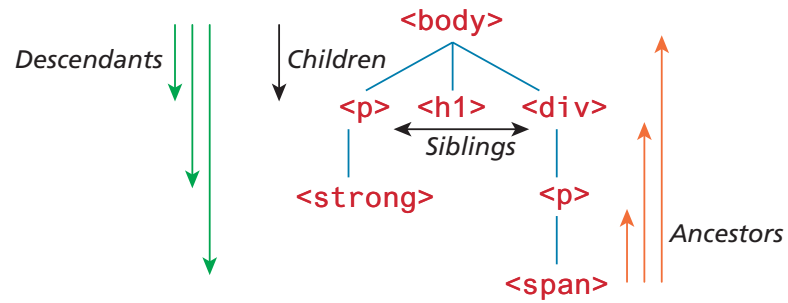
Nesting HTML Elements



10

HTML Syntax

Nesting HTML Elements



11

Semantic Markup

Focus on the structure of the document, not the visual

Advantages:

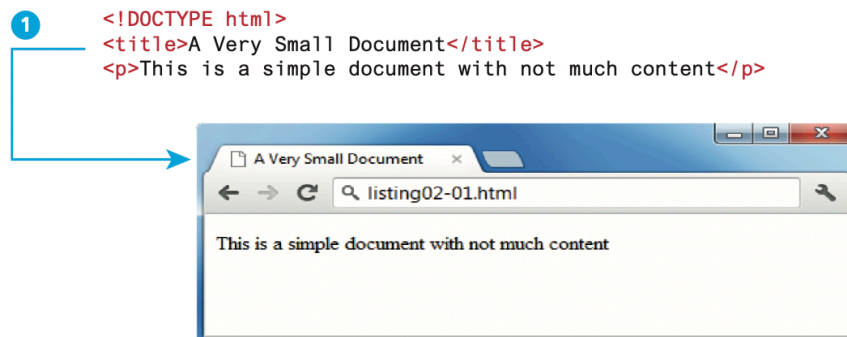
12

Structure of HTML Docs

13

Structure of HTML Documents

A simple example



14

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>

A slightly more complex document



15

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)

16

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>**

17

HTML Elements

Quick Tour

18

HTML Elements

Kinds of Content

- Each element in HTML5 falls into one or more of the following categories:
 - Metadata content
 - Flow content
 - Sectioning content
 - Heading content
 - Phrasing content
 - Embedded content
 - Interactive content

19

Quick Tour of HTML Elements

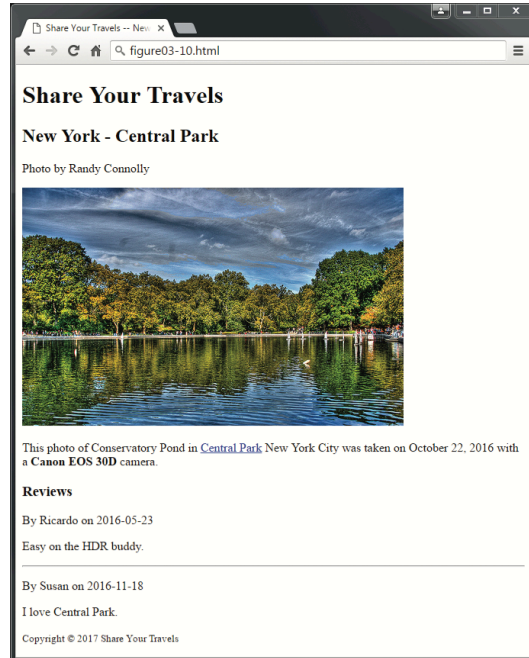
A document to walk through

```
<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>
5 | 
  |
  | <h3>Reviews</h3>
6 | <div>
  |   <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
```

20

Quick Tour of HTML Elements

A document to walk through



21

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>
```

22

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>
```

23

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)

24

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

25

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`

26

Quick Tour of HTML Elements

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>

27

Quick Tour of HTML Elements

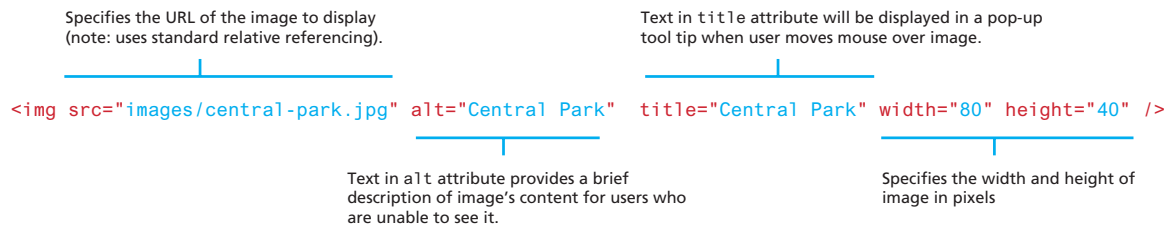
Inline Text Elements ... they do not disrupt the flow

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

28

Quick Tour of HTML Elements

Images



29

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
<	<
>	>
©	©
™	™

30

Quick Tour of HTML Elements

Lists

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

31

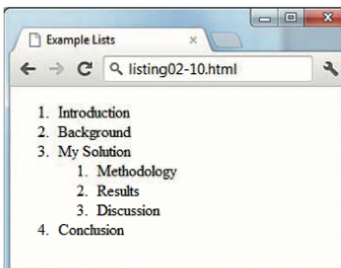
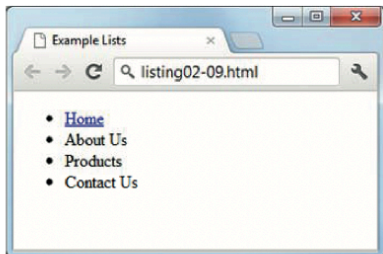
Quick Tour of HTML Elements

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>
```



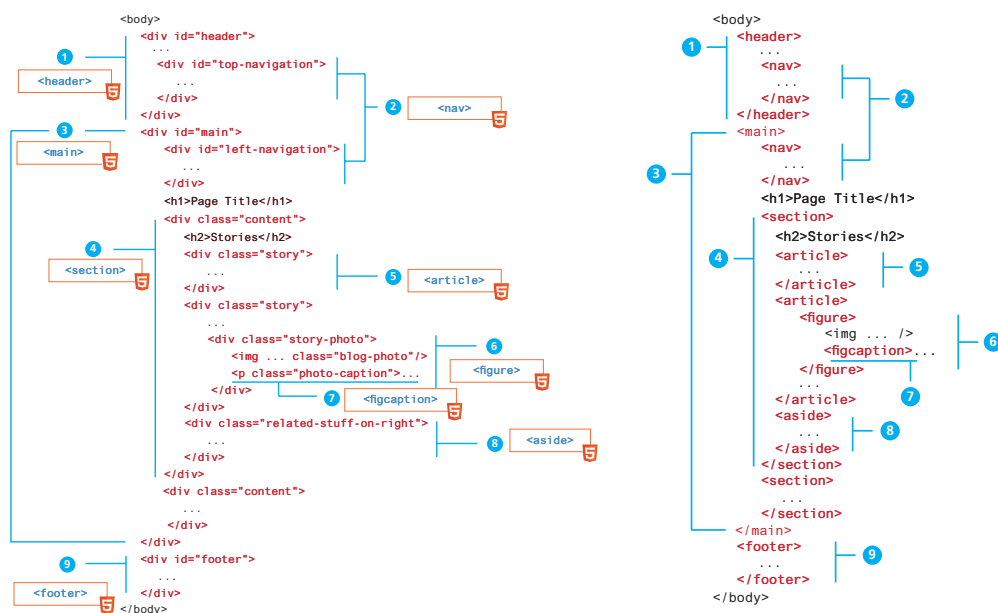
32

HTML

Semantic Structure Elements

33

HTML5 Semantic Structure Elements



34

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.*

```
<header>

<h1>Fundamentals of Web
Development</h1>
...
</header>
```
- *The header element can also be used to wrap a section's table of contents, a search form, or any relevant logos.*

```
<article>
<header>
<h2>HTML5 Semantic Structure
Elements</h2>
<p> By <em>Randy Connolly</em></p>
</header>
...
</article>
```

35

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>
```

36

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">`

37

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

<figure> and **<figcaption>** elements creates standalone content aside from the flow.

38

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

<details> and **<summary>** elements display content blocks with “more info” or “less info”.

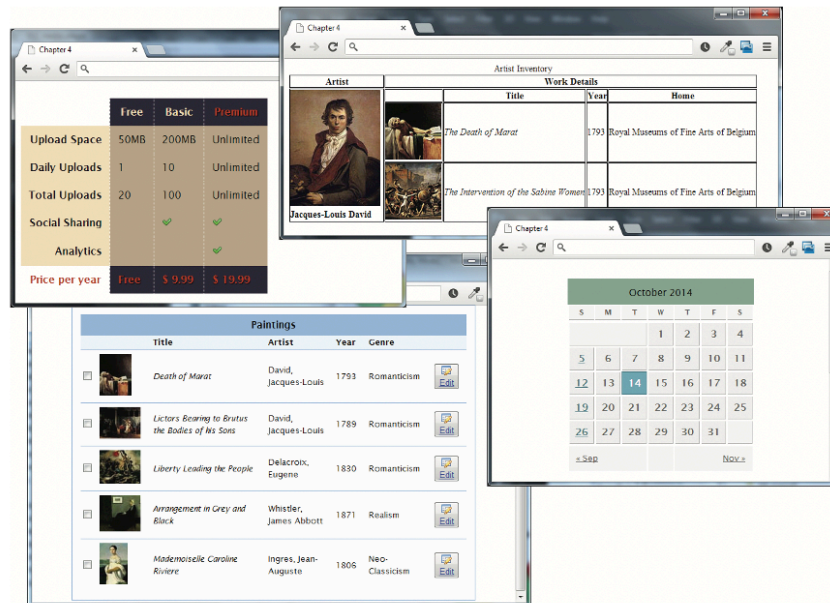
39

Tables

40

Introducing Tables

Basic Table Structure



41

Introducing Tables

Basic Table Structure

```

<table>
<tr>
    The Death of Marat
    Jacques-Louis David
    1793
    162cm
    128cm
</tr>
<tr>
    Burial at Ornans
    Gustave Courbet
    1849
    314cm
    663cm
</tr>
</table>

```

42

Introducing Tables

Adding Headings

Title	Artist	Year	Width	Height
The Death of Marat	Jacques-Louis David	1793	162cm	128cm
Burial at Ornans	Gustave Courbet	1849	314cm	663cm

```
<table>
  <tr>
    <th>Title</th>
    <th>Artist</th>
    <th>Year</th>
    <th>Width</th>
    <th>Height</th>
  </tr>
  <tr>
    <td>The Death of Marat</td>
    <td>Jacques-Louis David</td>
    <td>1793</td>
    <td>162cm</td>
    <td>128cm</td>
  </tr>
  <tr>
    <td>Burial at Ornans</td>
    <td>Gustave Courbet</td>
    <td>1849</td>
    <td>314cm</td>
    <td>663cm</td>
  </tr>
</table>
```



The screenshot shows a web browser window with the address bar displaying 'figure05-03.html'. The rendered table is displayed below the address bar, matching the structure of the table in the previous block.

43

Introducing Tables

Spanning Columns

Title	Artist	Year	Size (width x height)	
The Death of Marat	Jacques-Louis David	1793	162cm	128cm
Burial at Ornans	Gustave Courbet	1849	314cm	663cm

Notice that this row now only has four cell elements.

```
<table>
  <tr>
    <th>Title</th>
    <th>Artist</th>
    <th>Year</th>
    <th colspan="2">Size (width x height)</th>
  </tr>
  <tr>
    <td>The Death of Marat</td>
    <td>Jacques-Louis David</td>
    <td>1793</td>
    <td>162cm</td>
    <td>128cm</td>
  </tr>
  ...
</table>
```

44

Introducing Tables

Spanning Rows

<table>

Artist	Title	Year
Jacques-Louis David	The Death of Marat	1793
	The Intervention of the Sabine Women	1799
	Napoleon Crossing the Alps	1800

```
<table>
  <tr>
    <th>Title</th>
    <th>Artist</th>
    <th>Year</th>
  </tr>
  <tr>
    <td rowspan="3">Jacques-Louis David</td>
    <td>The Death of Marat</td>
    <td>1793</td>
  </tr>
  <tr>
    <td>The Intervention of the Sabine Women</td>
    <td>1799</td>
  </tr>
  <tr>
    <td>Napoleon Crossing the Alps</td>
    <td>1800</td>
  </tr>
</table>
```

Notice that these two rows now only have two cell elements.

45

Introducing Tables

Additional Table Elements

A title for the table is good for accessibility.

These describe our columns, and can be used to aid in styling.

Table header could potentially also include other <tr> elements.

Yes, the table footer comes *before* the body.

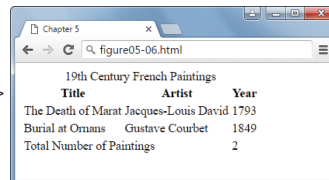
Potentially, with styling the browser can scroll this information, while keeping the header and footer fixed in place.

```
<table>
  <caption>19th Century French Paintings</caption>
  <col class="artistName" />
  <colgroup id="paintingColumns">
    <col />
    <col />
  </colgroup>

  <thead>
    <tr>
      <th>Title</th>
      <th>Artist</th>
      <th>Year</th>
    </tr>
  </thead>

  <tfoot>
    <tr>
      <td colspan="2">Total Number of Paintings</td>
      <td>2</td>
    </tr>
  </tfoot>

  <tbody>
    <tr>
      <td>The Death of Marat</td>
      <td>Jacques-Louis David</td>
      <td>1793</td>
    </tr>
    <tr>
      <td>Burial at Ornans</td>
      <td>Gustave Courbet</td>
      <td>1849</td>
    </tr>
  </tbody>
</table>
```



46