



xhtml: A Crash Course

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Topics in This Section

- Differences between xhtml and HTML 4
- Basic structure of an xhtml document
- Hypertext links and URLs
- Block-level elements
- Inline elements
- Tables
- References



Differences between xhtml and HTML 4

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xhtml: Case

- In HTML 4, case does not matter for tag names, attribute names, and predefined attribute values
 - `<BODY>`, `<Body>`, and `<body>` are equivalent
 - `<H1 ALIGN="...">` is equivalent to `<H1 aLiGn="...">`
 - `<INPUT TYPE="TEXT">` is equivalent to `<INPUT TYPE="text">`
- In xhtml, use lower case for tag names, attribute names, and predefined values
 - `<body>`
 - `<h1 align="...">`
 - `<input type="text" />`

6

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xhtml: Quotes

- In HTML 4, quotes are optional if attribute value contains only alphanumeric values
 - `<H1 ALIGN="LEFT">` or
 - `<H1 ALIGN=LEFT>`
- In xhtml, you must always use single or double quotes
 - `<h1 align="left">` or
 - `<h1 align='left'>`

7

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xhtml: End Tags

- **HTML 4**

- Some tags are containers
 - `<H1>...</H1>`, `<A HREF...>...`
- Some tags are standalone
 - `
`, `<HR>`
- Some tags have optional end tags
 - `<P>`, ``, `<TR>`, `<TD>`, `<TH>`

- **XHTML**

- All tags are containers. End tags always required.
 - `<p>...</p>`, `...`
- If there is no body content, start/end tags can be merged
 - `
</br>` → `
`
 - An IE bug prevents this for script tags. Use `<script ...></script>` always.
 - Some people use `
` (space before slash) for compatibility with very old browsers. But these old browsers won't support XMLHttpRequest anyhow, so this is less important in Ajax apps.

8

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xhtml: Boolean Attributes

- **In HTML 4, you can use minimized notation for boolean attributes**

- `<option value="1" selected>...</option>`
- `<dl compact>`

- **In xhtml, you must write out the attribute values**

- `<option value="1" selected="selected">...</option>`
- `<dl compact="compact">`

9

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General Format of xhtml Documents

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xhtml Template

- **Minimal format**

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
    "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head><title>Some Title</title></head>
<body>
...
</body></html>
```

- **Common format**

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
    "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<meta http-equiv="content-type" content="text/html; charset=UTF-8" />
<title>Some Title</title></head>
<body>
...
</body></html>
```


Internet Explorer Bug

- The xhtml specification recommends an XML declaration at the top

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
    "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
...
</html>
```

- IE runs in "quirks" mode if DOCTYPE is not first line of document

- So always omit XML declaration

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
    "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
...
</html>
```

12

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Legal DTDs

- Transitional (non-style sheet formatting like `` and `<i>` allowed)

- `<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">`

- Strict (no non-style sheet formatting)

- `<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">`

- Frame (for top-level page that uses frames)

- `<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Frameset//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-frameset.dtd">`

13

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The head and body elements

- **head**
 - Must contain title
 - May contain the following
 - meta, script, style, base
- **body**
 - Contains main part of the page
 - The part that you directly see in browser window
 - Attributes
 - bgcolor, background, text, link, vlink, alink
 - E.g.: <body bgcolor="blue">
 - Style sheets often used instead
 - onload, onunload, onfocus, onblur
 - For JavaScript event handling

14

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Hypertext Links and URLs

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Hypertext Links

- **Usage**

- Links can contain images and other inline elements (i.e.,
`<a href...> ... `)

- **Link to Absolute URL**

- Use a complete URL beginning with `http://`
Java is discussed in
``
Chapter 2``.

- **Link to Relative URL**

- Use a filename or relative path to filename
 - If no slash, interpreted wrt location of current fileJava is discussed in
``Chapter 2``.

16

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Hypertext Links (Continued)

- **Link to Section**

- Use a section name (see below) preceded by `#`
Images are discussed in
``Section 2``.

- **Link to Section in URL**

- Use absolute or relative URL, then `#`, then section name
Images are discussed in
``
Section 2 of Chapter 1``.

- **Naming a Section**

- Use `` and do not include the pound sign
`<h2>`Images`</h2>`

17

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Interpreting Relative URLs

- **URLs starting with http:// (absolute URLs)**
 - Interpreted independently of the URL of current page
- **URLs starting with .**
 - Interpreted with respect to the directory of current file
 - Really with respect to the rightmost / in the URL, since URLs don't necessarily refer to real folders or files
- **URLs starting with ..**
 - Interpreted with respect to the parent directory of current file
 - Again, based on the URL the browser sees, not necessarily the real location of the resource
- **URLs starting with /**
 - Interpreted with respect to the hostname of the URL
- **Notes**
 - In addition to <a href...>, these URLs can apply to img, form, script, style, and many other elements

18

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Interpreting Relative URLs (Examples)

- **Assume URL of current page is**
<http://somehost.com/a/b/c/d/e/f.html>

Link	Result
<code>...</code>	<code>http://otherhost.com/a/b.html</code>
<code>...</code>	<code>http://somehost.com/a/b/c/d/e/g.html</code>
<code>...</code>	<code>http://somehost.com/a/b/c/d/h.html</code>
<code>...</code>	<code>http://somehost.com/i.html</code>

19

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Block-Level Elements (Paragraph-Like Elements)

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Block-Level Elements

- **Headings**
 - h1 ... h6
 - align attribute
- **Basic Text Sections**
 - p
 - pre
- **Tables**
 - Covered later in this lecture
- **Forms**
 - Covered in later lecture
- **Lists**
 - ol
 - li
 - ul
 - li
 - dl
 - dt
 - dd
- **Misc.**
 - hr
 - div
 - center

Shared Attributes

- **id**
 - A *unique* identifier, usually used so that JavaScript can reference the tag later.
 - `<div id="placeholder-for-ajax"></div>`
 - `<input type="text" id="firstNameField" name="..."/>`
- **class**
 - A stylesheet class name
 - `<p class="warning">...</p>`
- **style**
 - An inline style
 - `<p style="color: red; font-size: 18px;">Warning!</p>`
- **JavaScript event handlers**
 - onclick, onchange, ondblclick, onmousedown, onmouseup, onmouseover, onmousemove, onkeypress, onkeydown, onkeyup
 - Discussed in later section on JavaScript

22

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Headings

- **Heading Types**
 - `<h1 ...> ... </h1>`
 - `<h2 ...> ... </h2>`
 - `<h3 ...> ... </h3>`
 - `<h4 ...> ... </h4>`
 - `<h5 ...> ... </h5>`
 - `<h6 ...> ... </h6>`
- **Attributes: align**
 - Values: left (default), right, center
- **Nesting tags**
 - Headings and other block-level elements can contain inline (text-level) elements, but *not* vice versa

23

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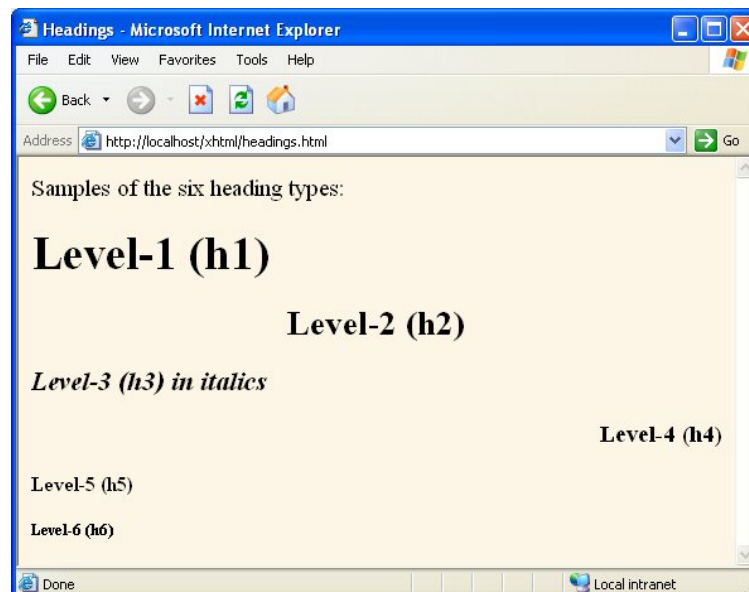
Headings: Example

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
    "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head><title>Headings</title>
</head>
<body bgcolor="#fdf5e6">
<p>
Samples of the six heading types:
</p>
<h1>Level-1 (h1)</h1>
<h2 align="center">Level-2 (h2)</h2>
<h3><i>Level-3 (h3) in italics</i></h3>
<h4 align="right">Level-4 (h4)</h4>
<h5>Level-5 (h5)</h5>
<h6>Level-6 (h6)</h6>
</body></html>
```

24

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Headings: Result



25

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p – The Basic Paragraph

- **Attributes: align**

- left (default), right, center. Same as headings.
- Whitespace ignored (use
 for line break)
 - Consecutive <p/>'s do not yield multiple blank lines
 - But multiple
's do
- xhtml: End tags required

xhtml:

```
<body>
<p>
Paragraph 1
</p>
<p>
Paragraph 2
</p>
<p>
Paragraph 3
</p>
</body>
```

HTML 4:

```
<BODY>
Paragraph 1
<P>
Paragraph 2
<P>
Paragraph 3
</BODY>
```

pre: Preformatted Paragraphs

- **Characteristics**

- Line wrapping disabled
- Whitespace no longer ignored
- Fixed-width font used

- **Problem: Special Characters**

```
<pre>
if (a<b) {
    doThis();
} else {
    doThat();
}
</pre>
```

Desired Character	Text Required
<	<
>	>
&	&
"	"
Non-breaking space	

div

- **Purpose**
 - A container for enclosing other block-level elements
- **Attributes**
 - align, style, class, id
- **Usage**
 - Apply alignment or styles to multiple elements
 - Make a placeholder where Ajax results will be placed
 - Differs from span in that span can only enclose inline elements, whereas div can enclose both block and inline
- **The center tag**
 - `<div align="center">...</div>` is equivalent to `<center>...</center>`
 - div is allowed in both xhtml transitional and strict
 - center is allowed only in xhtml transitional

28

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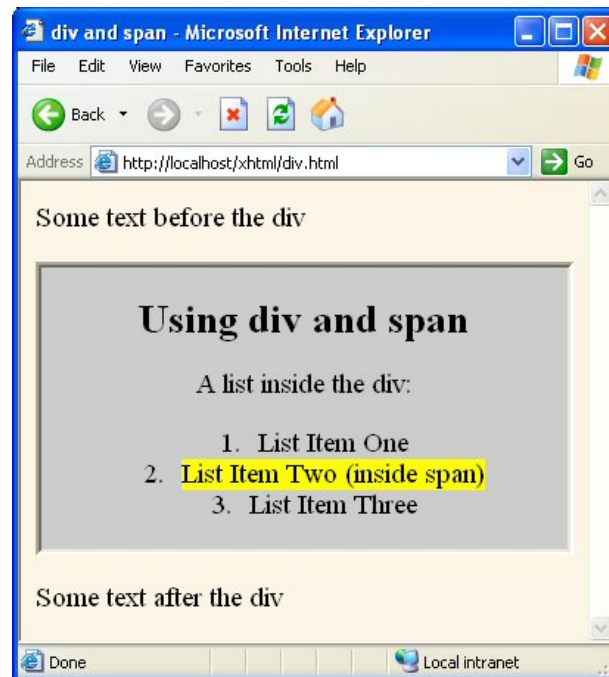
div and span: Example (Code)

```
<body bgcolor="#fdf5e6">
<p>Some text before the div</p>
<div style="border: inset; background-color: #cccccc;"
    align="center">
<h2>Using div and span</h2>
<p>A list inside the div:</p>
<ol>
    <li>List Item One</li>
    <li><span style="background-color: yellow;">
        List Item Two (inside span)</span></li>
    <li>List Item Three</li>
</ol>
</div>
<p>Some text after the div</p>
</body>
```

29

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div and span: Example (Result)



30

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ol: Ordered (Numbered) Lists

- **OL Element**

- ``
 `...`
 `...`
 ...
 ``

- Attributes: type, start, compact

- **List items: li**

- Attributes: (When inside ol) value, type

```
<p>A sample list:</p>
<ol>
  <li>List Item One</li>
  <li>List Item Two</li>
  <li>List Item Three</li>
</ol>
```

A sample list:

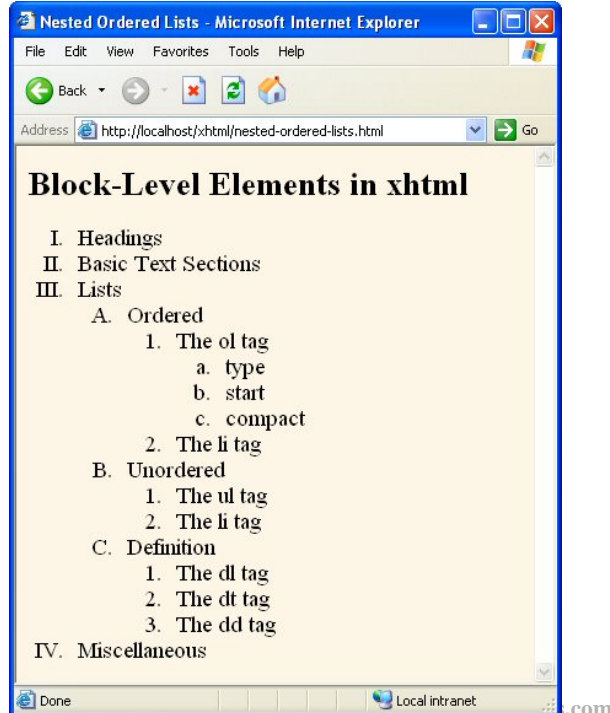
1. List Item One
2. List Item Two
3. List Item Three

31

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Nested Ordered Lists

```
<h2>Block-Level Elements in xhtml</h2>
<ol type="I">
  <li>Headings</li>
  <li>Basic Text Sections</li>
  <li>Lists
    <ol type="A">
      <li>Ordered
        <ol type="1">
          <li>The ol tag
            <ol type="a">
              <li>type</li>
              <li>start</li>
              <li>compact</li>
            </ol>
          </li>
          <li>The li tag</li>
        </ol>
      </li>
      <li>Unordered
        <ol type="1">
          <li>The ul tag</li>
          <li>The li tag</li>
        </ol>
      </li>
      <li>Definition
        <ol type="1">
          <li>The dl tag</li>
          <li>The dt tag</li>
          <li>The dd tag</li>
        </ol>
      </li>
    </ol>
  </li>
  <li>Miscellaneous</li>
</ol>
```



UL: Unordered (Bulleted) Lists

- **ul Element**

```
- <ul>
  <li>...
  <li>...
  ...
</ul>
```

- **Attributes: type, compact**

- type is disc, circle, or square

- **List items: li (type)**

- type is disc, circle, or square

```
<p>A sample list:</p>
```

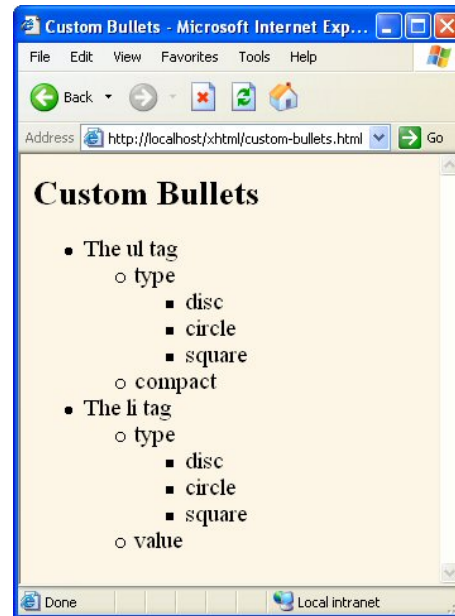
```
<ul>
  <li>List Item One</li>
  <li>List Item Two</li>
  <li>List Item Three</li>
</ul>
```

A sample list:

- List Item One
- List Item Two
- List Item Three

ul: Custom Bullets

```
<h2>Custom Bullets</h2>
<ul type="disc">
  <li>The ul tag
    <ul type="circle">
      <li>type
        <ul type="square">
          <li>disc</li>
          <li>circle</li>
          <li>square</li>
        </ul></li>
      <li>compact</li>
    </ul></li>
  <li>The li tag
    <ul type="circle">
      <li>type
        <ul type="square">
          <li>disc</li>
          <li>circle</li>
          <li>square</li>
        </ul></li>
      <li>value</li>
    </ul></li>
</ul>
```



34

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Inline (Text-Level) Elements (Font-Like Elements)

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Inline Elements

- **Physical Character Styles**

- b, i, tt, u, sub, sup, small, big, strike, s, blink
- font
 - size
 - color
 - face
- basefont
- size

- **Logical Character Styles**

- em, strong, code, samp, kbd, dfn, var, cite

Inline Elements (Continued)

- **Hypertext Links**

- a
 - href, name, target, ...
 - See earlier section on URLs and links

- **Images**

- img
 - src (required), alt, align, width, height, hspace, vspace, border, usemap, ismap

- **Misc. Inline Elements**

- span (arbitrary style wrapped around text)
- br (explicit line break)
- area (client-side image map)
- applet (Java)
- ...

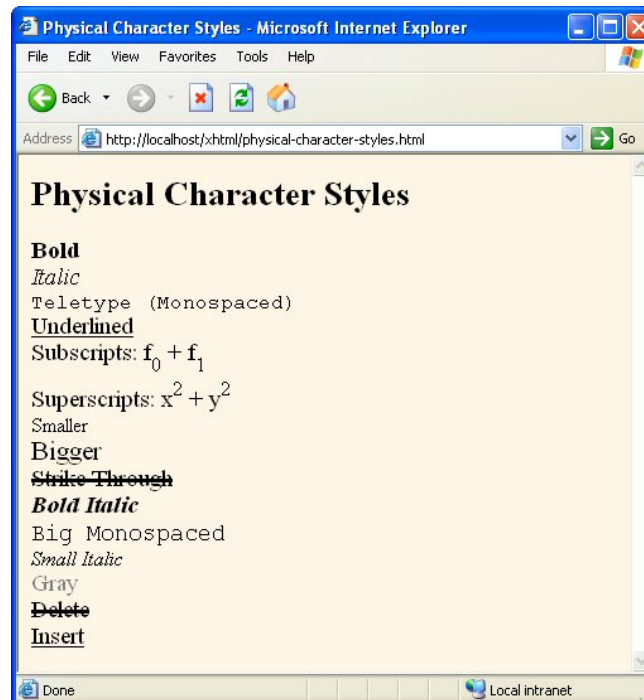
Physical Character Styles: Example

```
<body bgcolor="#fdf5e6">
<h2>Physical Character Styles</h2>
<b>Bold</b><br/>
<i>Italic</i><br/>
<tt>Teletype (Monospaced)</tt><br/>
<u>Underlined</u><br/>
Subscripts: f<sub>0</sub> + f<sub>1</sub><br/>
Superscripts: x<sup>2</sup> + y<sup>2</sup><br/>
<small>Smaller</small><br/>
<big>Bigger</big><br/>
<strike>Strike Through</strike><br/>
<b><i>Bold Italic</i></b><br/>
<big><tt>Big Monospaced</tt></big><br/>
<small><i>Small Italic</i></small><br/>
<font color="gray">Gray</font><br/>
<del>Delete</del><br/>
<ins>Insert</ins><br/>
</body>
```

38

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Physical Character Styles: Result



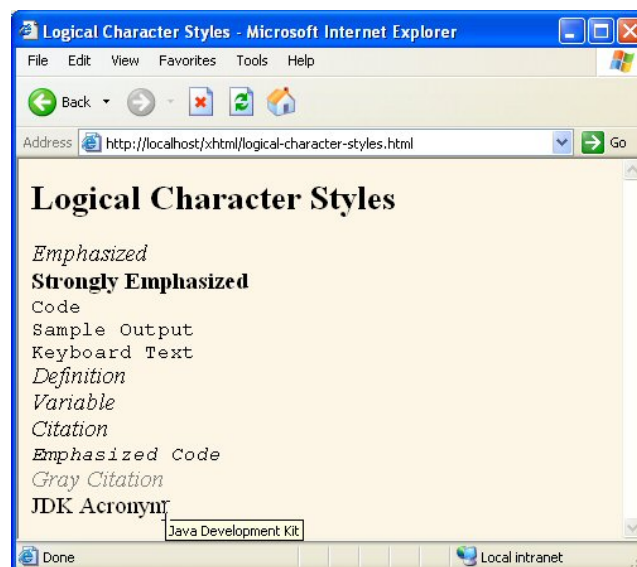
39

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Logical Character Styles: Example (Code)

```
...  
<h2>Logical Character Styles</h2>  
<em>Emphasized</em><br/>  
<strong>Strongly Emphasized</strong><br/>  
<code>Code</code><br/>  
<samp>Sample Output</samp><br/>  
<kbd>Keyboard Text</kbd><br/>  
<dfn>Definition</dfn><br/>  
<var>Variable</var><br/>  
<cite>Citation</cite><br/>  
<em><code>Emphasized Code</code></em><br/>  
<font color="gray"><cite>Gray Citation</cite></font><br/>  
<acronym title="Java Development Kit">JDK Acronym</acronym>  
...
```

Logical Character Styles: Example (Result)



img: Embedding Images

- **Example**

```

```

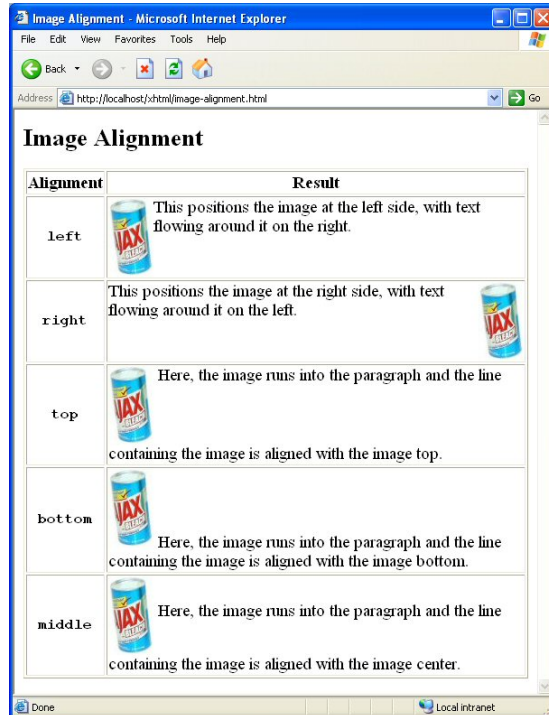
- **Attributes:**

- src (required)
- alt (technically required)
- align (see <br clear="all"/>)
- width, height
- hspace, vspace
- border
- usemap, ismap

Image Alignment: Example (Code)

```
<table border="1">
  <tr><th>Alignment</th>
    <th>Result</th></tr>
  <tr><th><code>left</code></th>
    <td>
      This positions the image at the left side,
      with text flowing around it on the right.</td></tr>
  <tr><th><code>right</code></th>
    <td>
      This positions the image at the right side,
      with text flowing around it on the left.</td></tr>
  <tr><th><code>top</code></th>
    <td>
      Here, the image runs into the paragraph
      and the line containing the image is
      aligned with the image top.</td></tr>
  ...
</table>
```

Image Alignment: Example (Result)



44

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Tables

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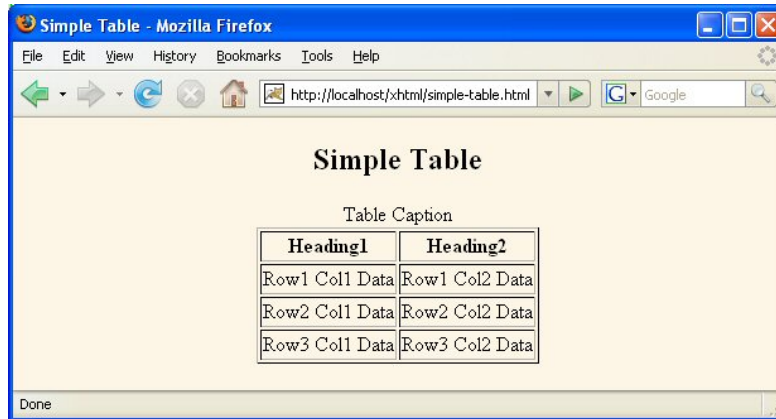
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Basic Template

```
<table border="1">  
  <caption>Table Caption</caption>  
  <tr><th>Heading1</th>      <th>Heading2</th></tr>  
  <tr><td>Row1 Col1 Data</td><td>Row1 Col2 Data</td></tr>  
  <tr><td>Row2 Col1 Data</td><td>Row2 Col2 Data</td></tr>  
  <tr><td>Row3 Col1 Data</td><td>Row3 Col2 Data</td></tr>  
</table>
```

Borders are usually on for real tabular data, but tables are used even more widely for multi-column text, usually with borders off.

Many developers omit "caption" and use normal HTML markup to make captions.



46

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table Element Attributes

- **align**
 - The horizontal alignment of the table as a whole (left, right, center). Default is left.
 - Text flows around the table for left and right alignments
- **border**
 - The width in pixels of the border around the table (default: 0)
 - This is in addition to the border around each cell (the cellspacing).
- **bgcolor**
 - The background color of the table (e.g., "yellow" or "#rrggbb"). Also legal for tr, td, and th.
 - Tables are widely used to make colored sidebars or columns of text, but stylesheets are often a better way to specify the colors.
- **background**
 - The background image for the table. Will be tiled to fit table size. Also legal for td and th (but not tr).

47

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table Element Attributes (Continued)

- **width, height**
 - This specifies the width or height of the table, either in pixels (`<table width="250">`) or, for width only, as a percentage of the current browser window width (`<table width="75%">`)
- **cellspacing**
 - The space in pixels between adjacent cells. Drawn as a 3D line if border is nonzero, otherwise empty space in the background color is used
 - The default is usually about 3
- **cellpadding**
 - The empty space, in pixels, between the cell's border and the table element
 - The default is usually about 1

48

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table Element Attributes (Continued)

- **rules**
 - Specifies which inner dividing lines are drawn
 - All are drawn if this attribute is omitted
 - Legal values are none, rows, cols, and all
- **frame**
 - Specifies which outer borders are drawn
 - All four are drawn if this attribute is omitted
 - Legal values are border or box (all), void (none), above (top), below (bottom), hside (top and bottom, despite the somewhat confusing name), vside (left and right), lhs (left), and rhs (right)

49

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tr: Table Row

- **tr is used to define each row in the table**
 - Each row will then contain th and/or td entries
- **align**
 - The default horizontal alignment for table cells. Legal values: left, right, or center
- **valign**
 - The default vertical alignment for table cells. Legal values: top, bottom, or middle
- **bgcolor**
 - The row color. Overrides bgcolor of the table as a whole.
 - Tables with rows that alternate colors are widely used, but again stylesheets are often used instead

Table Cells: th and td

- **Where legal**
 - th (table header) and td (table data cell) can be used anywhere in the table (inside tr). In particular, there is no restriction that th is only at the top.
- **Difference between th and td**
 - th uses bold font and center alignment by default. td uses normal font and left alignment by default.
 - Otherwise they are the same.
- **Real headers (and footers)**
 - For real headers, you can enclose one or more of the topmost rows inside thead. This does not change appearance in browsers, but when printed, the header will be repeated if the printout spans multiple pages. Similarly, bottom rows can go inside tfoot.

Table Cells: th and td -- Attributes

- **align**
 - left, right, center, justify and char.
 - E.g., the following aligns entries on a decimal point
 - `<td align="char" char=".">`
- **valign**
 - top, bottom, middle
- **width, height**
 - Values in pixels only (no percentages officially allowed)
- **bgcolor, background**
 - Background color and image (tiled)
- **nowrap**
 - Disables word wrapping. Use with caution

52

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Table Cells: th and td – Attributes (Continued)

- **colspan**
 - Defines a wide cell that straddles more than one column
- **rowspan**
 - Defines a tall cell that straddles more than one row

- **Example**

```
<table border="1">
```

```
  <tr><th colspan="2">Col 1&2 Heading</th>
```

```
    <th>Col3 Heading</th></tr>
```

```
  <tr><td>Row1 Col1 Data</td>
```

```
    <td rowspan="2">Row1&2 Col2 Data</td>
```

```
    <td>Row1 Col3 Data</td></tr>
```

```
  <tr><td>Row2 Col1 Data</td>
```

```
    <td>Row2 Col3 Data</td></tr>
```

```
</table>
```

Col 1&2 Heading		Col3 Heading
Row1 Col1 Data	Row1&2 Col2 Data	Row1 Col3 Data
Row2 Col1 Data		Row2 Col3 Data

53

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Wrapup

Customized Java EE Training: <http://courses.coreservlets.com/>

Servlets, JSP, Struts, JSF/MyFaces/Facelets, Ajax, GWT, Java 5 or 6, etc. Spring/Hibernate coming soon.
Developed and taught by well-known author and developer. At public venues or onsite at *your* location.

References

- **Books**

- *HTML, XHTML, and CSS, Sixth Edition*
by Elizabeth Castro
- *Head First HTML with CSS & XHTML*
by Eric Freeman and Elisabeth Freeman

- **Online References**

- xhtml specification: <http://www.w3.org/TR/xhtml1/>
- xhtml cheat sheet (pocket reference):
<http://floele.flyspray.org/htmlcheatsheet.pdf>
- xhtml reference: <http://xhtml.com/en/xhtml/reference/>
- xhtml tutorials: <http://www.w3schools.com/xhtml/>
- Search on Google for "HTML tutorial[s]" and adapt syntax for xhtml (use validator to be sure)

Summary

- **Template**

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
    "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head><title>Some Title</title></head>
<body>
...
</body></html>
```

- **Differences from HTML 4**

- Use lowercase for tag names, attribute names, predefined attribute values (<h1 align="center">)
- Always include end tags (<p></p> or <p/>)
- Always use quotes around attribute values (<table border="1">



Questions?