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# Web Design Fundamentals

Web Design Fundamentals

Web Design & Development Bachelor of Science Degree





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# Today's Topics

- XHTML
- Validation





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# XHTML



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# XHTML

- ◎ EXtensible HyperText Markup Language
  - HTML reformulated in XML (EXtensible Markup Language)
  - XML is a markup language used to share data between different computers and systems
  - XHTML is HTML that conforms to the strict rules of XML
  - <http://www.w3.org/TR/xhtml1/>





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# Benefits of XHTML

- Stricter and cleaner version of HTML
  - forces you to write code that follows strict rules
  - easier to troubleshoot
- Ensures web sites display consistently in the widest range of browsers
- Maintains backward and future compatibility





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# Basic Rules of XHTML

- All markup must be lowercase
- All tags must be closed
- All tags must be properly *nested*
- All attributes must have values
- All values must be quoted
- “*Well-formed*” markup - tags closed and nested properly





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# Nested Elements

- Placing one element inside another
- Close tags in reverse order they were opened
  - “First In, Last Out”
- Failure to nest elements properly leads to inconsistent display of web pages across browsers
  - `<p>These elements are NOT <em>properly nested!</p></em>`





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# Differences with HTML

- Documents must be well-formed
- Element and attribute names must be in lowercase
- For non-empty elements, end tags are required
- Attribute values must always be quoted
- No Attribute Minimization
- No Empty Elements
- <http://www.w3.org/TR/2002/REC-xhtml1-20020801/#diffs>







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# Basic XHTML Document

- Valid XHTML documents require:
  - DOCTYPE
  - namespace declaration
  - character encoding





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# XHTML Strict DOCTYPE

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





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# Namespace Declaration

- From XML
- Human readable, not read by computers
- Points to an explanation of element and attribute names
- Applied as a *xmlns* attribute on the `<html>` tag
- Namespaces provided by the W3C
  - `<html xmlns="http://www.w3.org/1999/xhtml">`





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# Character Encoding

- Languages use different characters defined in character sets
  - ISO-8859-1 for English
  - SHIFT-JIS for Japanese
- We should tell the browser what character set we are using on a page
- To do this, we use the `<meta />` tag





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# <meta />

- Provides *metadata* about our document
  - describes the content of a page
  - information used by browsers, search engines, etc.
  - not displayed in browser
- Nested within the <head> tag
- Self-closing
- `<meta name="description" content="Web Developer's Handbook is a list of essential web-sites." />`





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# Self-closing Elements

- Element that doesn't contain any content
  - a.k.a empty elements
- No closing tag
  - all tags must be closed for valid XHTML, right?
- Add a space and a slash
  - `<meta />`
  - `<br />`
  - `<hr />`





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# UTF-8

- ◎ 8-bit Unicode Transformation Format
  - ◎ Character set that supports most characters from most language
  - ◎ Allows use of variety of international characters, like accents
- 
- `<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />`





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# Basic XHTML Document

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
```

```
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
```

```
<html xmlns="http://www.w3.org/1999/xhtml">
```

```
<head>
```

```
<title>Document Title</title>
```

```
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
```

```
</head>
```

```
<body>
```

```
<p>Document content</p>
```

```
</body>
```

```
</html>
```







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# Semantic Markup

- Adds meaning to content
- Tags should describe the content they contain





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# Presentational Markup

- Opposite of semantic markup
- Using tags for visual presentational
  - many are deprecated
- CSS should be used for presentation instead
- <http://www.htmldog.com/guides/htmlintermediate/badtags/>





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# Tag Soup

- HTML *misused* to handle both structure and visual presentation of content
- HTML was never intended for this purpose
  - for adding structure to content





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# Structured Markup

- Structured Markup
  - adds structure to content
  - tags should establish an *information hierarchy*





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# Information Hierarchy

- Defines the importance of information
- "Signposts" for reading
  - guides user's eyes through the content
  - `<h1>` is the most important heading
  - `<h6>` is the least
- Don't skip levels
- Don't pick a level based on its default style
  - CSS can be used to change size, weight, etc.





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# POSH

- ◎ Plain Old Semantic HTML
  - valid, *semantic*, accessible, well-structured (X)HTML
  - [http://www.456bereastreet.com/archive/200711/posh\\_plain\\_old\\_semantic\\_html/](http://www.456bereastreet.com/archive/200711/posh_plain_old_semantic_html/)





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# Making Markup Easier to Follow

## ● Comments

- leave a message to yourself or others
- temporarily disable some markup
- **required** for ALL coding/scripting courses in WDDBS degree
- `<!-- your comment here -->`
- notice the spaces!





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# Making Markup Easier to Follow

- White space
  - spaces, tabs, line breaks
  - visually shows structure of document
- **TAB** that code!
  - nested elements should be tabbed in once
  - adjacent elements should be vertically flush
  - tab up to 4 levels deep, more can be hard to follow
  - aids in legibility and troubleshooting







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# Comments and White Space

- Ignored by browser
- Are invisible to the user
- Can be used anywhere in a document
- Aids in troubleshooting
- Enhances collaboration
- **Required** for this course!!!
- Only seen when using *View Source* in browser





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# View Source

- To view the underlying source code of a web page in a browser
- Firefox
  - *View > Page Source*
- Safari
  - *View > View Source*
- Learn from other web designer's sites
- **NEVER** copy and paste other people's markup and use as your own





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# Block-Level Elements

- Block-level elements display on a new line
- Previously learned tags are all block-level
  - `<h1>` - `<h6>`
  - `<p>`
  - `<ul>`
  - `<ol>`
  - `<li>`





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# Inline-Level Elements

- Inline elements are the opposite of block-level elements
  - do not display on a new line
  - follow the flow of content





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# Document Flow

- The way a browser displays block-level and inline-level elements using browser's default style sheet
- Can be changed with **CSS**
- Important to understand the document flow *before* attempting to change it





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# Block-Level & Inline-Level Elements

- All elements are contained in a “box” that is either block-level or inline-level
- Inline-level elements *need* to be inside block-level elements
- Block-level elements can *not* be nested inside inline-level elements





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# Phrase Elements

- For adding meaning to text
- `<em>` - Defines emphasized text
- `<strong>` - Defines strongly emphasized text
- `<abbr>` - Defines an abbreviation
- `<acronym>` - Defines an acronym
- `<address>` - Defines an address / contact info





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# <em>

- Places emphasis on a given word or group of words
- Inline element
- Often confused with <i> (presentational markup)
- Displayed in *italics* by default







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# <strong>

- Places a *strong* emphasis on a given word or group of words
- Inline element
- Often confused with <b> (presentational markup)
- Displayed in **bold** by default





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# Abbreviations

- ◎ **Abbreviation** - A shortened form of a word or phrase
  - *Dr.*
- ◎ **Initialism** - abbreviation not spoken as a word
  - *W3C, CSS*
- ◎ **Acronym** - abbreviation spoken as a word
  - *GUI, NASA*





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# <abbr>

- Used for abbreviations and initialisms
- Inline element
- Useful to include *title* attribute
- NOT recognized by IE6





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# <acronym>

- Used for acronyms
- Inline element
- Useful to include the *title* attribute





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# title attribute

- Not to be confused with `<title>` element
- Specifies additional information about an element
- Creates a **tool-tip** when hovered over with the mouse
- Also useful for search engines and screen readers
- Often used with `<abbr>` and `<acronym>` element to describe the abbreviations





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# <address>

- Used for contact information about the author of a page
  - link to contact page, email address, mailing address, etc.
- Block-level element
- Displayed in *italics* by default





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# More Phrase Elements

- `<dfn>` - Defines a definition
- `<cite>` - Defines a citation
- `<code>` - Defines computer code
- `<kbd>` - Defines keyboard text
- `<samp>` - Defines sample code
- `<var>` - Defines a variable
- `<del>` - Defines deleted text
- `<ins>` - Defines inserted text





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# HTML Entities

- **&lt;** represents <
- **&gt;** represents >
- **&amp;** represents &
- **&ldquo;** represents “ (curly quotation mark)
- **&rdquo;** represents ”
- **&nbsp;** represents (non-breaking space)







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# Quote Elements

- Used for quotations
- Notice which is block-level vs. inline-level element
  - `<q>`
  - `<blockquote>`
- Useful to include the *cite* element





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<q>

- Used for short inline quotes
- Inline element
- Displayed with quotation marks by default
  - not supported in IE6
  - mixed results with other browsers
  - curly quotation marks in FF, straight in Safari





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# <blockquote>

- Used for quotes of a paragraph or more
- Block-level element
- Displayed indented by default
- Needs to contain a block-level element, usually `<p>` element





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# Other Useful Elements

- `<br />` - Defines a line break
- `<hr />` - Defines a horizontal line
- `<pre>` - Defines pre-formatted text
- `<sup>` - Defines superscripted text
- `<sub>` - Defines subscripted text





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# <br />


- Creates a single line break
- Self-closing
- Use sparingly!!!
- Should not be used presentationally - CSS is used for that





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# Validation



## Markup Validation Service

Check the markup (HTML, XHTML, ...) of Web documents

**Jump To:** [Congratulations · Icon](#)

This document was successfully checked as

<b>Result:</b>	Passed
<b>File :</b>	<div></div> <p>Use the file selection box above if you wish to re-validate diveintoaccessibility.org-1251231198497.html</p>
<b>Modified:</b>	(undefined)





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# Validation

- Errors in markup lead to:
  - inconsistent display of web pages across browsers
  - slower load time
- W3C Markup Validation Service
  - free service that highlights errors in your code
  - details what errors are
  - uses DOCTYPE to determine which rules to check the document against





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# Validation

- To use the validator at <http://validator.w3.org/>
  - select “Validate by Direct Input”
  - copy and paste your code into the text area
  - click “Check”
  - fix any errors and click “Revalidate”







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# Validation

- Web Developer Add-on
  - validates web page using W3C Markup Validation Service
  - not necessary to visit validator site
- Tools > Validate HTML or Local HTML





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# Validation

- Valid code is *not* necessarily well-structured and semantic
- W3C Markup Validation Service only checks for markup errors
- Make sure your web page is well-structured and semantic *before* you validate it





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# Today's Lab

- XHTML Basics / Validation
  - Reading / Viewing Assignment
  - Daily Questions
  - DOCTYPEs and Elements
  - Validation

