

# EE4717/IM4717 Web Application Design

## HTML5 Basics

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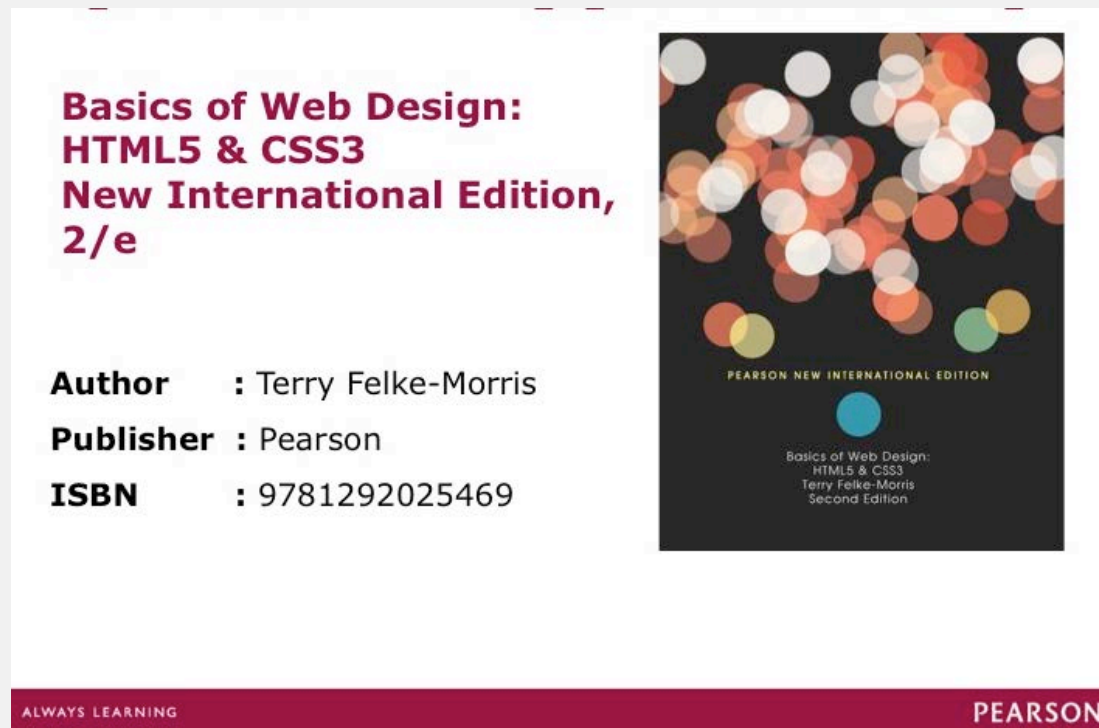


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# Markup Languages for the Web

- SGML – Standard Generalized Markup Language
  - A standard for specifying a markup language or tag set.
- HTML – Hypertext Markup Language
  - The set of markup symbols or codes placed in a file intended for display on a web browser.
    - **Element** or **Tag** – individual markup code
    - Attribute – modifies the purpose of an element or tag.
- XML – eXtensible Markup Language
  - A text-based language designed to describe, deliver, and exchange structured information.
  - It is not intended to replace HTML but to extend the power of HTML by separating data from presentation.

# Markup Languages for the Web

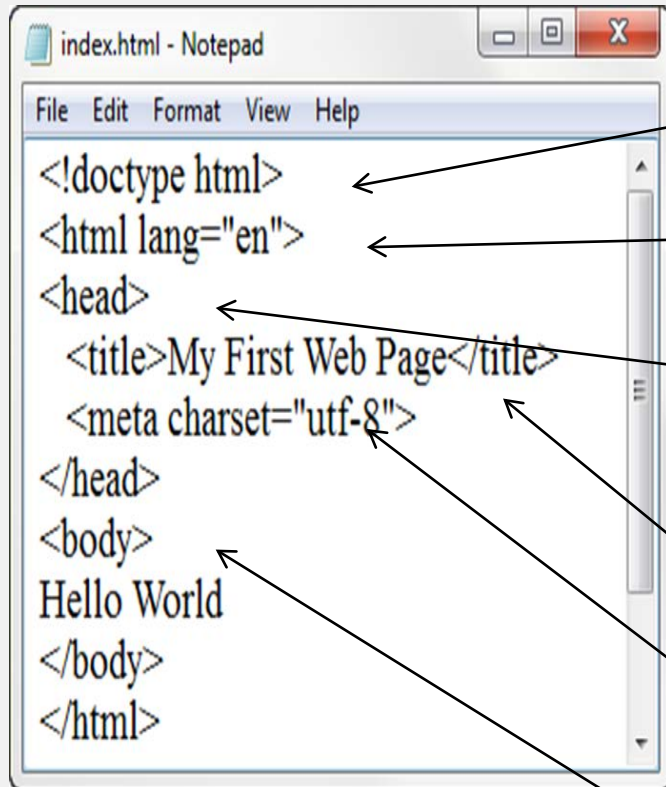
- XHTML – eXtensible Hypertext Markup Language
  - Developed by the W3C, the reformulation of HTML 4.0 as an application of XML.
  - Combines the formatting strengths of HTML 4.0 and the data structure and extensibility strengths of XML.
- HTML 5
  - The next version of HTML 4 and XHTML 1
    - Incorporates features of both HTML and XHTML
    - Adds new elements
    - Eliminates some elements
    - Intended to be backward compatible
- ❖ Student's task: Check the compatibility of web browsers by visiting <http://html5test.com>. Try in Google Chrome, Opera, Safari, Firefox and Internet Explorer (Edge).

# Your First HTML5 Webpage

- Type the following in an editor (**Notepad++**, Atom, or Textwrangler) and save it as “**myindex.html**”, under the “**public\_html**” folder in your **web server**.

```
<!doctype html>
<html lang="en">
<head>
  <title>My First Web Page</title>
  <meta charset="utf-8">
</head>
<body>
Hello World
</body>
</html>
```

# Anatomy of a Web Page



- ❑ Document Type Declaration (DTD) – describes the markup language syntax
- ❑ HTML tag – contains the web page document
- ❑ Head tag – contains the head section.
  - The head section contains information that describes the web page document
- ❑ Title tag – Text displays in title bar of window
- ❑ Meta tag – describes the character encoding
- ❑ Body tag – contains the body section
  - The body section contains the text and elements that display in the browser viewport.

# A typical template to start

```
<!DOCTYPE html>
<html lang="en">
<head>
  <title>Page Title Goes Here</title>
  <meta charset="utf-8">
</head>
<body>

</body>
</html>
```

# HTML5 elements

- The HTML5 elements are often known as **Tags**.
- The heading elements: `<h1> .....<h6>`  
e.g. `<h1>.... </h1>`  
`<h2>...</h2>`
  - Used for headings of sections
- Paragraph element `<p>` tag:  
`<p> ...paragraph goes here... </p>`
  - Groups sentences and sections of text together.
  - Configures a blank line above and below the paragraph



# Exercise 1: <h1>...<h6>, <p>

- Type the codes in the editor and save it as `<html_ex01.html>` in the web folder.
- Visit your website and view this file in the web browser.

```
<!DOCTYPE html>
<html lang="en">
<head>
<title>Paragraph Example</title>
<meta charset="utf-8">
</head>
<body>
<h1>Heading Level 1</h1>
<p>This is a sample paragraph. Heading
tags can help to make your pages more
accessible and usable. It is good coding
practice to use heading tags to outline
the structure of your web page content.
</p>
<h2>Heading Level 2</h2>
<h3>Heading Level 3</h3>
<h4>Heading Level 4</h4>
<h5>Heading Level 5</h5>
<h6>Heading Level 6</h6>
</body>
</html>
```

# HTML5 elements

- Line Break element `<br>` tag:
  - Stand-alone tag, called a void element in HTML5  
*...text goes here <br>*  
*This starts on a new line....*
  - Causes the next element or text to display on a new line
- Horizontal Rule element `<hr>`
  - Stand-alone tag
  - Configures a horizontal line on the page
- The Blockquote element `<blockquote>`
  - Indents a block of text for special emphasis  
`<blockquote>` *...text goes here...* `</blockquote>`

# Exercise 2 :<br>

- Modify the codes for exercise 1 in the editor and save it as `<html_ex02.html>` in the web folder.
- Visit your website and view the file in the web browser.

```
<!DOCTYPE html>
<html lang="en">
<head>
<title>Line Break Example</title>
<meta charset="utf-8">
</head>
<body>
<h1>Heading Level 1</h1>
<p>This is a sample paragraph. <br>
Heading tags can help to make your pages
more accessible and usable. It is good
coding practice to use heading tags to
outline the structure of your web page
content.
</p>
<h2>Heading Level 2</h2>
<h3>Heading Level 3</h3>
<h4>Heading Level 4</h4>
<h5>Heading Level 5</h5>
<h6>Heading Level 6</h6>
</body>
</html>
```

# Exercise 3: <hr>

- Modify the codes for exercise 2 in the editor and save it as `<html_ex03.html>` in the web folder.
- Visit your website and view the file in the web browser.

```
<!DOCTYPE html>
<html lang="en">
<head>
<title>Line Break Example</title>
<meta charset="utf-8">
</head>
<body>
<h1>Heading Level 1</h1>
<p>This is a sample paragraph. <br>
Heading tags can help to make your pages
more accessible and usable. It is good
coding practice to use heading tags to
outline the structure of your web page
content.
</p>
<hr>
<h2>Heading Level 2</h2>
<h3>Heading Level 3</h3>
<h4>Heading Level 4</h4>
<h5>Heading Level 5</h5>
<h6>Heading Level 6</h6>
</body>
</html>
```

# Exercise 4: <blockquote>

- Modify the codes for exercise 3 in the editor and save it as `<html_ex04.html>` in the web folder.
- Visit your website and view the file in the web browser.

```
<!DOCTYPE html>
<html lang="en">
<head>
<title>Blockquote Example</title>
<meta charset="utf-8">
</head>
<body>
<h1>The Power of the Web</h1>
<p>According to Tim Berners-Lee, the
inventor of the World Wide Web, at
http://www.w3.org/WAI/:
</p>
<blockquote>
The power of the Web is in its
universality. Access by everyone regardless
of disability is an essential aspect.
</blockquote>
</body>
</html>
```

# Phrase Elements

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- Display inline with the text
- Common Phrase Elements:
  - `<b>` this will be displayed in bold`</b>`  
Text is displayed in bold font
  - `<strong>` This is important `</strong>`  
To cause text to "stand out" from surrounding text. Usually bold.
  - `<em>` Please note `</em>`  
To cause text to be emphasized in relation to other text on the page. Usually italics.

# Exercise 5 : `<em>` , `<strong>`

- Modify the codes for exercise 4 in the editor and save it as `<html_ex05.html>` in the web folder.
- Visit your website and view the file in the web browser.

```
<!DOCTYPE html>
<html lang="en">
<head>
<title>Blockquote Example</title>
<meta charset="utf-8">
</head>
<body>
<h1>The Power of the Web</h1>
<p>According to Tim Berners-Lee, the
inventor of the World Wide Web, at
http://www.w3.org/WAI/
</p>
<blockquote>
The power of the Web is in its
universality. <em>Access by everyone</em>
regardless of <strong>disability</strong>
is an essential aspect.
</blockquote>
</body>
</html>
```

# List Basics (1)

- Unordered List: `<ul>`
  - Contains the unordered list
- List Item Element : `<li>`
  - Contains an item in the list

`<ul>`

`<li>Blue</li>`

`<li>Teal</li>`

`<li>Red</li>`

`</ul>`

## My Favorite Colors

- Blue
- Teal
- Red



# Exercise 6: <ul>, <li>

- Type the codes in the editor and save it as `<html_ex06.html>` in the webfolder.
- Visit your website and view this file in the web browser.

```
<!DOCTYPE html>
<html lang="en">
<head>
  <title>Heading and List</title>
  <meta charset="utf-8">
</head>
<body>
  <h1>My Favorite Colors</h1>
  <ul>
    <li>Blue</li>
    <li>Teal</li>
    <li>Red</li>
  </ul>
</body>
</html>
```

# List Basics (2)

- Ordered List
  - Conveys information in an ordered fashion
- Ordered List Element: `<ol>`
  - Contains the ordered list
  - type attribute determines numbering scheme of list
  - default is **numerals**

`<ol>`

`<li>Apply to school</li>`

`<li>Register for course</li>`

`<li>Pay tuition</li>`

`<li>Attend course</li>`

`</ol>`

1. Apply to school
2. Register for course
3. Pay tuition
4. Attend course

# Exercise 7: <ol>

- Modify the codes in Ex. 6 in the editor and save it as **<html\_ex07.html>** in the webfolder.
- Visit your website and click on this file.

```
<!DOCTYPE html>
<html lang="en">
<head>
  <title>Heading and List</title>
  <meta charset="utf-8">
</head>
<body>
  <h1>My Favorite Colors</h1>
  <ol>
    <li>Blue</li>
    <li>Teal</li>
    <li>Red</li>
  </ol>
</body>
</html>
```

# Exercise 8: <ol type = ... >

- Modify the codes for ex. 7 in the editor and save it as `<html_ex08.html>` in the webfolder.
- Visit your website and view this file in the web browser.
- Try out other types of list by adding:
  - type = "a"
  - type = "I"
  - type = "i"
  - start = "6"

```
<!DOCTYPE html>
<html lang="en">
<head>
  <title>Heading and List</title>
  <meta charset="utf-8">
</head>
<body>
  <h1>My Favorite Colors</h1>
  <ol type="A">
    <li>Blue</li>
    <li>Teal</li>
    <li>Red</li>
  </ol>
</body>
</html>
```

# Description List

- New name for HTML5, called a **Definition List** in previous versions of HTML and XHTML.
- Uses:
  - Display a list of terms and descriptions
  - Display a list of FAQ and answers
- The Description List element: `<dl>` tag
  - Contains the definition list
- The dt Element : `<dt>` tag
  - Contains a term or name
  - Configures a line break above and below the text
- The dd Element : `<dd>` tag
  - Contains a definition or description, Indents the text

# Exercise 9: <dl>,<dt>,<dd>

- Type the codes in the editor and save it as `<html_ex09.html>` in the web folder.
  - More codes on the next slide

```
<!DOCTYPE html>
<html lang="en">
<head>
<title>Description List</title>
<meta charset="utf-8">
</head>
<body>
<h1>Sample Description List</h1>
<dl>
  <dt>TCP</dt>
  <dd>Transmission Control Protocol is a
    method (protocol) used along with the
    Internet Protocol (IP) to send data in
    the form of message units, called
    packets, between computers over the
    Internet.</dd>
  <dt>IP</dt>
  <dd>Internet Protocol is the method or
    protocol by which data is sent from
    one computer to another on the
    Internet. Each computer on the
    Internet is uniquely identified by an
    IP address.</dd>
```

# Exercise 9 cont.

- Continue to type the codes in the editor and save it in `<html_ex09.html>` in the webfolder.
- Visit your website and view this file in the web browser.

```
<dt>FTP</dt>
  <dd>File Transfer Protocol is a
    protocol used to exchange files
    between computers on the Internet. </dd>
<dt>HTTP</dt>
  <dd>Hypertext Transfer Protocol is the
    protocol used for exchanging text,
    graphic images, sound, video, and
    other multimedia files on the Web.</dd>
</dl>
</body>
</html>
```

# Special Entity Characters and Ex.10

- Display special characters such as quotes, copyright symbol, etc.

Character	Code
©	&copy;
<	&lt;
>	&gt;
&	&amp;
"	&quot;
[space]	&nbsp; /* no-break space*/

- Try to type these in a text paragraph in your exercise files to see how they look like. Save the file as `<html_ex10.html>` . View the file in the web browser.



# The Anchor Element <a> and Ex.11

- Inline-level element
- Specifies a hyperlink reference ([href](#)) to a file
- Text between the <a> and </a> is displayed on the web page.
- href Attribute: indicates the file name or URL, Web page document, photo, pdf, etc.

- Type these in your editor. Save the file as `<html_ex11.html>`.
- View the file in the web browser

```
<!DOCTYPE html>
<html lang="en">
<head>
<title>Anchor Example</title>
<meta charset="utf-8">
</head>
<body>
<a href="http://webdevbasics.net">Basics of
Web Design Textbook Companion</a>
</body>
</html>
```

# Exercise 12: block anchor

- Try to type these in your editor to see how they look like. Save the file as `<html_ex12.html>`.
- View the file in the web browser

```
<!DOCTYPE html>
<html lang="en">
<head>
  <title>Block Anchor</title>
  <meta charset="utf-8">
</head>
<body>
  <a href="http://www.w3.org/TR/html-markup">
    <h1>HTML5 Reference</h1>
    <p>Bookmark this site for a handy HTML5
    reference.</p>
  </a>

</body>
</html>
```

# More on Hyperlinks

## ➤ Absolute link

- Link to other websites

`<a href="http://yahoo.com">Yahoo</a>`

## ➤ Relative link

- Link to pages on your own site
- Relative to the current page

`<a href="index.html">Home</a>`

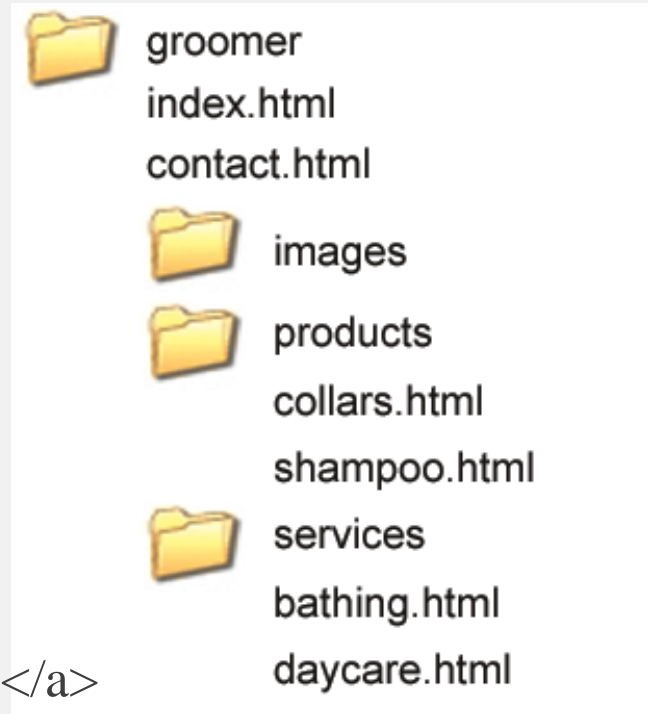
## More examples:

From collas.html,

`<a href="shampoo.html">Shampoo</a>`

`<a href="../index.html">Home</a>`

`<a href="../services/daycare.html">Dog Daycare </a>`



# More on Hyperlinks

## ➤ Opening a Link in a New Browser Window

- The target attribute on the anchor element opens a link in a **new browser window** or **new browser tab**.

```
<a href="http://yahoo.com" target="_blank">Yahoo!</a>
```

## ➤ Email Hyperlinks

- Automatically launch the default mail program configured for the browser
- If no browser default is configured, a message is displayed

```
<a href="mailto:me@hotmail.com">me@hotmail.com</a>
```

# The div element <div>

- Purpose:
  - Configure a specially formatted division or area of a web page
- There is a line break before and after the division.
- Can contain other block display and inline display elements

<div>

**<strong>**

# Part 1

## Part 2

## Part 3

## Part 4

</div>

# HTML5 Structural Elements (1)

## ➤ Header Element

`<header> </header>`

Contains the web page document's headings

## ➤ Nav Element

`<nav> </nav>`

Contains web page documents main navigation

## ➤ Footer Element

`<footer> </footer>`

Contains the web page document's footer

header

nav

div

footer

# HTML5 Structural Elements (2)



**Example:**

**<body>**

**<header>** *document headings go here* **</header>**

**<nav>** *main navigation goes here* **</nav>**

**<div>** *main content goes here* **</div>**

**<footer>** *document footer information goes here* **</footer>**

**</body>**

# Linking to Fragment Identifiers

- A link to a part of a web page
- Also called **named fragments**, **fragment ids**
- Two components:
  - The element that identifies the named fragment of a Web page. This requires the id attribute.
- The anchor tag that links to the named fragment of a Web page. This uses the href attribute.

```
<div id="top"> ..... </div>
```

```
<a href="#top">Back to Top</a>
```



# Exercise 13

- Try to type these in a text paragraph in your exercise files to see how they look like. Save the file as `<html_ex13.html>`.
- View the file in the web browser.

```

<!DOCTYPE html>
<html lang="en">
<head>
<title>Trillium Media Design</title>
<meta charset="utf-8">
</head>
<body>
<header>
  <h1>Trillium Media Design</h1>
</header>
<nav>
  <b>Home &nbsp;   Services &nbsp;   Contact</b>
</nav>
<div>
  <h2>New Media and Web Design</h2>
  <p>Trillium Media Design will bring your company
  &rsquo;s Web presence to the next level. We offer a
  comprehensive range of services.</p>
  <h2>Meeting Your Business Needs</h2>
  <p>Our expert designers are creative and eager to
  work with you.</p>
</div>
<footer>
  <small><i>Copyright &copy; 2014 Your Name Here
  </i></small>
</footer>
</body>
</html>

```

# A complete example: index.html

```

<!DOCTYPE html>
<html lang="en">
<head>
<title>Trillium Media Design</title>
<meta charset="utf-8">
</head>
<body>
<header>
<h1>Trillium Media Design</h1>
</header>
<nav>
<b><a href="index.html">Home</a> &nbsp;&nbsp;&nbsp;
<a href="services.html">Services</a> &nbsp;&nbsp;&nbsp;
<a href="contact.html">Contact</a>
</b>
</nav>
<div>
<h2>New Media and Web Design</h2>
<p>Trillium Media Design will bring your company's
Web presence to the next level. We offer a comprehensive
range of services.</p>
<h2>Meeting Your Business Needs</h2>
<p>Our expert designers are creative and eager to work with
you.</p>
</div>
<footer>
<small><i>Copyright &copy; 2014 Your Name Here</i></small>
</footer>
</body>
</html>

```

## Trillium Media Design

[Home](#) [Services](#) [Contact](#)

### New Media and Web Design

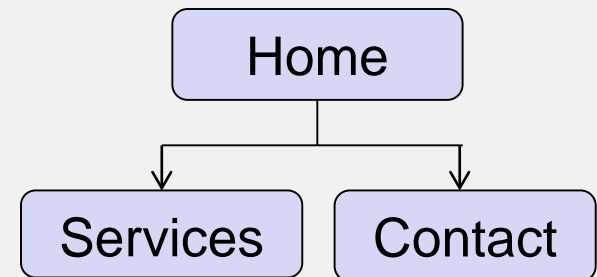
Trillium Media Design will bring your company's Web presence to the next level. We offer a comprehensive range of services.

### Meeting Your Business Needs

Our expert designers are creative and eager to work with you.

*Copyright © 2014 Your Name Here*

## Site Map



# A complete example: contact.html

```

<!DOCTYPE html>
<html lang="en">
<head>
<title>Trillium Media Design - Contact</title>
<meta charset="utf-8">
</head>
<body>
<header>
<h1>Trillium Media Design</h1>
</header>
<nav>
<b><a href="index.html">Home</a> &nbsp;<a href="services.html">Services</a> &nbsp;<a href="contact.html">Contact</a>
</b>
</nav>
<div>
<h2>Contact Trillium Media Design Today</h2>
<ul>
<li>E-mail: <a href="mailto:contact@trilliummediadesign.com">contact@trilliummediadesign.com</a></li>
<li>Phone: 555-555-5555</li>
</ul>
</div>
<footer>
<small><i>Copyright &copy; 2014 Your Name Here</i></small>
</footer>
</body>
</html>

```

## Trillium Media Design

[Home](#) [Services](#) [Contact](#)

### Contact Trillium Media Design Today

- E-mail: [contact@trilliummediadesign.com](mailto:contact@trilliummediadesign.com)
- Phone: 555-555-5555

*Copyright © 2014 Your Name Here*

# A complete example: services.html

```

<!DOCTYPE html>
<html lang="en">
<head>
<title>Trillium Media Design - Services</title>
<meta charset="utf-8">
</head>
<body>
<header>
<h1>Trillium Media Design</h1>
</header>
<nav>
<b><a href="index.html">Home</a> &nbsp;<a href="services.html">Services</a> &nbsp;<a href="contact.html">Contact</a>
</b>
</nav>
<div>
<h2>Our Services Meet Your Business Needs</h2>
<dl>
<dt><strong>Website Design</strong></dt>
<dd>Whether your needs are large or small, Trillium can get you on the Web!</dd>
<dt><strong>E-Commerce Solutions</strong></dt>
<dd>Trillium offers quick entry into the e-commerce marketplace.</dd>
<dt><strong>Search Engine Optimization</strong></dt>
<dd>Most people find new sites using search engines. Trillium can get your website noticed.</dd>
</dl>
</div>
<footer>
<small><i>Copyright &copy; 2014 Your Name Here</i></small>
</footer>
</body>
</html>

```

## Trillium Media Design

[Home](#) [Services](#) [Contact](#)

### Our Services Meet Your Business Needs

#### Website Design

Whether your needs are large or small, Trillium can get you on the Web!

#### E-Commerce Solutions

Trillium offers quick entry into the e-commerce marketplace.

#### Search Engine Optimization

Most people find new sites using search engines. Trillium can get your website noticed.

*Copyright © 2014 Your Name Here*

# Exercise 14

- Create a folder named **TMD**
- Type the html5 codes in the complete example and save them in the 3 respective files as shown in previous slides in the TMD folder.
- Try to navigate the pages.

+++++

- Copy all the files created for the exercises to the folder named **week01** in the webserver (this folder has already been created for you).
- These (and future) hands-on exercises will be used for Progress Assessments for the CA.
- Learn more about HTML5, visit: <http://www.w3schools.com/>

# Case Study (Part 1) –HTML Basics

- Create a folder named **CaseStudyPt1** in the **week02** web folder.
- Type the html5 codes in the editor to create a Website as shown in the box. Save the codes in a file with filename “**index.html**” in the folder.
- Note that the filenames for the links are
  - **Menu** : **menu.html**
  - **Music**: **music.html**
  - **Jobs** : **jobs.html**
- You must replace *yourfirstname* with your real first name and *yourlastname* with your real last name; otherwise you will not earn CA mark for this case study.

## JavaJam Coffee House

[Home](#) [Menu](#) [Music](#) [Jobs](#)

- Specialty Coffee and Tea
- Bagels, Muffins, and Organic Snacks
- Music and Poetry Readings
- Open Mic Night Every Friday

54321 Route 42  
Ellison Bay, WI 54210

Copyright © 2014 JavaJam Coffeee House  
[yourfirstname@yourlastname.com](mailto:yourfirstname@yourlastname.com)

# Case Study (Part 1)

- Type the html5 codes to display the following in the web browser when the link “Menu” is clicked. Save the file as “**menu.html**”

## JavaJam Coffee House

[Home](#) [Menu](#) [Music](#) [Jobs](#)

### Just Java

Regular house blend, decaffeinated coffee, or flavor of the day.  
Endless Cup \$2.00

### Cafe au Lait

House blended coffee infused into a smooth, steamed milk.  
Single \$2.00 Double \$3.00

### Iced Cappuccino

Sweetened espresso blended with icy-cold milk and served in a chilled glass.  
Single \$4.75 Double \$5.75

*Copyright © 2014 JavaJam Coffee House*

[yourfirstname@yourlastname.com](mailto:yourfirstname@yourlastname.com)

- Draw the sitemap in **Powerpoint** and save the file as **sitemap.pptx**
- Complete this part of case study on the webserver before the next class.