COMM 641
Web Programming Beginning

Thanks Zak Ruvalcaba for this info

Lecture 3

This week at a glance…

- ❖ Images
  - ❖ Working with Images
  - ❖ GIF, JPG, and PNG
  - ❖ Using Images in HTML
  - ❖ Attributes for Images
- ❖ Links
  - ❖ Working with Links
  - ❖ Attributes for Links
  - ❖ Creating a Link for an Image / Text
  - ❖ Creating a Link to an Email Address
  - ❖ Creating a Link to a Placeholder
  - ❖ Working with Image Maps
- ❖ Lists
  - ❖ Working with Lists
  - ❖ Ordered Lists, Unordered Lists, and Definition Lists

Images

Working with Images

Working with images on the web

❖ Adding images to your web page is one of the easiest ways to spice up the look and feel of your documents.

❖ Carefully crafted pages, combined with aesthetically pleasing images can go a long way to keeping your visitors interested and wanting to come back to your web site.

❖ This section outlines the 3 types of images that you can use within your web pages including GIF, JPG, and PNG.

❖ This section also defines the formal structure of the <img> tag and its attributes.

Working with Images

Graphics Interchange Format (GIF)

❖ GIF stands for Graphics Interchange Format

❖ 8 bit color

❖ 1-256 color spectrum

❖ Developed by CompuServe

❖ Uses LZW compression algorithm which is lossless

❖ The lossless method of compression builds a color table for the image where each color value is assigned to pixels

❖ Ideal for graphics with small amounts of color

❖ Ideal for graphics with not a lot of tonal range

❖ Great for web pages

❖ Supports transparencies

❖ Supports animations (for better or worse)

Working with Images

Joint Photographic Experts Group (JPEG)

❖ JPEG stands for Joint Photographic Experts Group, or just JPG for short

❖ 24 bit color

❖ Supports millions of colors

❖ Works well for natural image types like photography

❖ Smooth variations of colors which means it also works well for images that contain gradients and varying tones and colors.

❖ Lossy compression standard which is simply a form of encoding that discards (loses) some of it's data...which is why if you save a JPG 100 times, it will slowly become more deteriorated over time.

❖ Easy to compress and optimize using various tools and techniques which usually have built-in settings.

❖ Compression algorithms basically look at blocks of the image and determine the small variations in color, then discards some of those variations based on the level of compression you've chosen. The data that's discarded is removed from the file altogether, which results in a small file.

Working with Images

Portable Network Graphics (PNG)

❖ Stands for Portable Network Graphics

❖ Initially introduced as a replacement to GIF

❖ Two main types of PNG images including:

    ❖ PNG8 (8-bit) – essentially the same as a GIF in terms of color limitations (256 colors max) but allows for alpha transparency

    ❖ PNG24 (24-bit) – allows for a much broader range of colors

❖ Use DEFLATE compression algorithm (same algorithm used in zip compression)

❖ Lossless compression standard like GIF

❖ When compressed, files tend to result in larger image sizes than JPEG when used for photographic type images. When used for line art type images, PNG results in much smaller file sizes than JPEG and almost always smaller sizes than GIF

❖ Supports alpha transparency (256 levels of transparencies as opposed to just 1 for GIF)

Working with Images

The <img> tag

The <img> tag provides a means for embedding an image in your web pages, which can be used for as many different purposes as your imagination allows. With just a couple of required attributes, the <img> tag provides a reference to the image file to display, and a text alternative should the image not be available for whatever reason.

CODE

```
<img src="header.gif" alt="Vecta Corporation Header">
```

Working with Images

Attributes of the <img> tag

The <img> element supports a few attributes. They're listed here in order of importance.

Attribute	Description
src	Use the required src attribute to set the path to the image.
alt	In the event that the user can't view the image - perhaps because he or she is accessing your page over a very slow connection, because an incorrect src attribute has been defined, or because the user is visually impaired and is accessing the content using a screen reader - the alt attribute provides alternative content that can be displayed in place of the image.
width	Sets the width in pixels for the image.
height	Sets the height in pixels for the image.
ismap	Seldom seen, this attribute is used to process a server-side image map when the user's mouse rolls over the image.
usemap	Tells the browser which map element in the document it should refer to. Used when creating client-side image maps for linking. Covered in a future module.

Links

Working with Links

Introduction to links

❖ At one character long, the <a> tag is one of the smallest elements, but by far can be considered the lifeblood of the Web.

❖ It's this tag that links the billions of web pages together, allowing you to surf from page to page almost endlessly.

❖ To say that it's the most important element of all those presented in this course would not be an exaggeration.

Working with Links

A simple linking example

❖ The <a> tag is usually referred to as a link or even a hyperlink.

❖ This element's purpose is simple: it wraps around text, an image, or both, and refers to another web page, an email, document, a section on the same web page, etc.

❖ The user can click on the contained text or image (or tab to it) to activate the link. Here are some common examples of the <a> tag in action:

CODE

```
<a href="aboutus.html">About Us</a>
<a href="index.html"><img src="header.gif" alt="Home"></a>
```

Working with Links

How links are displayed

In terms of display, text that is linked will be underlined by default in all browsers, which signifies that it's a clickable link. It's for this reason that you shouldn't use the <u> tag as you don't want to confuse your users into thinking that your underlined text is a hyperlink. For images, most browsers (except Opera) will display a border surrounding the image.

CSS can also be applied to links to change their appearance. If no styles are applied using CSS however, links will appear as follows:

❖ An unvisited link appears in blue underlined text

❖ A visited link displays in purple underlined text

❖ An active link displays in red underlined text

Think Craigslist and you'll understand how links are displayed by default!

Working with Links

Attributes for links

The <a> tag has a number of special attributes, which are outlined below. The one that you'll use most of the time (if it's not the only one you'll use) is the href attribute. This attribute indicates the link's destination, be that another web page, a section of the same web page, or some other type of document, such as an image, a spreadsheet, or a PDF document.

- ❖ accesskey
- ❖ href
- ❖ hreflang
- ❖ rel
- ❖ tabindex
- ❖ target
- ❖ type

Working with Links

The href attribute

The href attribute defines the document to which the link leads. This may be a web page in the same directory, a page somewhere else on the same server, a location within the current page, or a web page/document stored on another server.

CODE

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

Working with Links

The hreflang attribute

The hreflang attribute is used to identify the language of text used in the linked document (the document that's referenced in the href attribute). It's not used to identify the language of the text contained within the a element itself. For that you would use the lang attribute. Browsers really don't do anything to notify the user that the linked document will display in any special or different language. However, authors may still be able to use this attribute for their own purposes, as a hook perhaps for styling or scripting. For example, you might use CSS to style such links with flag icons to represent the particular language used in the destination file.

CODE

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

Working with Links

The target attribute

The target attribute allows you to specify where your path will open. Possible values include:

- ❖ `_self` (default) – Opens the link in the same browser window
- ❖ `_blank` – Opens the link in a new, blank browser window

<div>
CODE
</div>

```
<a href="http://www.google.com" target="_blank">
    Visit Google
</a>
```

Frames-specific values:

- ❖ `_parent` – Used with frames, opens the link in the parent frame
- ❖ `_top` – Used with frames; breaks the current frameset and opens the link in a new blank window
- ❖ *framename* – Used with frames, opens the link within the named frame.

Working with Links

The accesskey attribute

The accesskey attribute allows the user to activate a control on a page using a keyboard shortcut. This may save time for users who would otherwise need to tab through or move the mouse to get to the desired link. The key combination that activates the link to which the accesskey is applied varies depending on the platform and browser combination:

- ❖ Internet Explorer / Chrome: Alt + accesskey
- ❖ Firefox: Alt + Shift + accesskey
- ❖ Mac browsers: Ctrl + accesskey
- ❖ Opera: Shift + Esc displays a list of links for which accesskey attributes are defined, allowing users to choose the key they want to use.

Working with Links

The accesskey attribute

Generally speaking, browsers do not provide any indication to users that an accesskey attribute is defined on the link, which is a big issue with the accesskey. Most commonly, the accesskey value is indicated within a title attribute, but this solution still relies on the user mousing over the element to which the accesskey is applied. As such, you may wish to state the accesskey value in some other way, perhaps via an accessibility policy on your site or directly within the link as follows:

CODE

```
<a href="index.html" accesskey="h">Home [access key = h]</a>
```

Working with Links

The rel attribute

The rel attribute is used to provide information about the relationship between the document that's being linked to (as defined in the href attribute) and the referencing document. There is currently no visual support within any browsers for this attribute, nor does the application of rel change the browsers' behavior in any way. The real value of the rel attribute is gained by utilizing it to add functionality via JavaScript or CSS.

CODE

```html
<a href="vprospect.html" rel="solution">vProspect 2.0</a>
<a href="vconvert.html" rel="solution">vConvert 2.0</a>
<a href="vretain.html" rel="solution">vRetain 1.0</a>
```

Working with Links

The tabindex attribute

The tabindex is used to define a sequence that users follow when they use the Tab key to navigate through a page. By default, the natural tabbing order will match the source order in the markup. In certain circumstances it may be necessary to override the default tabbing order, but it's strongly recommended that you craft a page in a logical flow and let the browser work through it in the default order - an approach that negates the need for the tabindex attribute.

CODE

```
<a href="vprospect.html" tabindex="1">vProspect 2.0</a>
<a href="vconvert.html" tabindex="2">vConvert 2.0</a>
<a href="vretain.html" tabindex="3">vRetain 1.0</a>
```

If you prefer to exclude a link from being tabbed to, you may also use a negative number such as -1.

Working with Links

The type attribute

Specifies the MIME type of the target document.

CODE

```
<a href="vprospect.html" type="text/html">vProspect 2.0</a>
<a href="audio.mp3" type="audio/mpeg3">Listen to presenter</a>
<a href="video.mp4" type="video/mpeg">Watch our video</a>
<a href="flash.swf" type="application/x-shockwave-flash">
        Watch our product animation
</a>
```

Working with Links

Creating a link for an image or text

Probably the easiest application of a link is to apply it directly to images or text. As mentioned earlier, the following examples show how a link would be applied to both text and images:

Link for text:

CODE

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

Link for images:

CODE

```
<a href="index.html"><img src="images/nav_home.gif"></a>
<a href="aboutus.html"><img src="images/nav_aboutus.gif"></a>
```

Working with Links

Creating a link to an email address

Another common application for links is to apply them to text and/or images in order to launch the user's default email client in hopes of having the user send an email. To set this up, you'd simply use mailto: within the href attribute followed by the email that you wish to pre-populate the new message's To field with.

CODE

```
<a href="mailto:hr@vectacorp.com">Email Us</a>
```

You can also pre-populate other field's such as CC, BCC, Subject, and even Body as follows:

CODE

```
<a href="mailto:hr@vectacorp.com?subject=MY RESUME&body=Dear
Human Resources:">Email Us</a>
```

Working with Links

Creating a link to a placeholder

In some cases your pages might be so long that it makes sense to create a sub navigation menu to links within that page. When this is the case, you can create links to placeholders as opposed to links to web pages or an email address. The following example shows how you can create links to three different placeholders:

Somewhere near the top of the page:

CODE

```
<a href="#vprospect">vProspect 2.0</a>
<a href="#vconvert">vConvert 2.0</a>
<a href="#vretain">vRetain 1.0</a>
```

Somewhere within the page:

CODE

```
<a id="vprospect">
<a id="vconvert">
<a id="vretain">
```

Working with Links

Working with image maps

In some cases it makes more sense to link a specific portion of an image rather than the entire image. Consider the header graphic for the Vecta Corp. site. Rather than linking the entire graphic, it might make more sense to simply link the Vecta Corp. logo instead. In this case, you'll need to work with an image map. An image map works by outlining a map which then defines an area within the image to be clicked. When working with image maps, you'll end up using the following attributes/tags:

- ❖ **<map>** – The map tag is a container for a number of area tags that define specific clickable areas within an image. The name attribute of this tag is required.

- ❖ **<area>** - The area tag is used to define each hotspot that's clickable or actionable and will act as a link within an image map. Required attributes include shape (rect, poly, circle, and default), coords, and href.

- ❖ **usemap attribute for image tag** – Defines the image map to use for the image.

Working with Links

Working with image maps

The following example would create a clickable rectangle surrounding the logo in the Vecta Corp. header graphic. This of course assumes that the image has been inserted in the upper left corner of the browser:

CODE

```
<img src="images/header.gif" border="0" usemap="#headermap">

<map name="headermap">
    <area shape="rect" coords="37,32,180,131" href="index.html">
</map>
```

Lists

Working with Lists

Introduction to lists

In this section we'll outline all the elements related to lists. Specifically we'll work with the following types:

- ❖ Ordered list
- ❖ Unordered list
- ❖ Definition List

Working with Lists

The ordered list - the <ol> tag

The ordered list, represented by the <ol> tag is used to group a collection of items together in a list. Each list item is defined by a <li> tag, which suggests an order of importance or sequence. The <ol> tag may be used to mark up a series of steps that someone has to undertake, a table of contents, or a numbered list of references.

Attributes for the <ol> tag

Attribute	Description
type	Specifies the type of list to create. Default is a numbered list but different lists can be created by setting this attribute to either a, A, i, I, and 1.
start	Specifies the starting number (letter or numeral) at which to begin the list at.
reversed	Specifies that the list should be shown in reverse order.

Working with Lists

Example 1

CODE

```
<p>I own the following video games:</p>

<ol>
    <li>Call Of Duty: World At War</li>
    <li>Call Of Duty 4</li>
    <li>Call Of Duty 4: Modern Warfare 2</li>
    <li>Halo 3</li>
    <li>Halo: Reach</li>
    <li>Rainbow Six: Vegas 2</li>
</ol>
```

Looks like this…

I own the following video games:

1. Call Of Duty: World At War
2. Call Of Duty 4
3. Call Of Duty 4: Modern Warfare
4. Halo 3
5. Halo: Reach
6. Rainbow Six: Vegas 2

Working with Lists

Example 2

CODE

```
<p>I own the following video games:</p>

<ol>
    <li>Call Of Duty
        <ol type="a">
            <li>Call Of Duty 3</li>
            <li>Call Of Duty: World At War</li>
            <li>Call Of Duty 4: Modern Warfare</li>
            <li>Call Of Duty 4: Modern Warfare 2</li>
        </ol>
    </li>
</ol>
```

Looks like this…

I own the following video games:

1. Call Of Duty
   a. Call Of Duty 3
   b. Call Of Duty: World At War
   c. Call Of Duty 4: Modern Warfare
   d. Call Of Duty 4: Modern Warfare 2

Working with Lists

The unordered list - the <ul> tag

The <ul> tag is used to group a collection of items together in a list, but in a way that doesn't suggest an order of precedence or importance. The <ul> tag might be used for anything from a simple shopping list to a collection of links.

There are no supported attributes for the <ul> tag in HTML5.

Working with Lists

Example 1

CODE

```
<p>I own the following video games:</p>

<ul>
    <li>Call Of Duty: World At War</li>
    <li>Call Of Duty 4</li>
    <li>Call Of Duty 4: Modern Warfare</li>
    <li>Halo 2</li>
    <li>Halo 3</li>
    <li>Halo: Reach</li>
</ul>
```

Looks like this…

I own the following video games:

- Call Of Duty: World At War
- Call Of Duty 4
- Call Of Duty 4: Modern Warfare
- Halo 2
- Halo 3
- Halo: Reach

Working with Lists

Example 2

CODE

```
<p>I own the following video games:</p>

<ul>
    <li>Halo
        <ul>
        <li>Halo 2</li>
        <li>Halo 3</li>
        <li>Halo: Reach</li>
        </ul>
    </li>
</ul>
```

Looks like this…

I own the following video games:

- Halo
  - Halo 2
  - Halo 3
  - Halo: Reach

Working with Lists

The definition list - the <dl> tag

If you want to list a series of items that essentially have a title and a description of some kind (that is, each item has two parts), use the definition list, or <dl> tag. This element contains a series of definition terms using the <dt> tag and definition descriptions using the <dd> tag.

There are no supported attributes for the <dl> tag in HTML5.

Working with Lists

Example 1

CODE

```
<p>I own the following video games:</p>
<dl>
    <dt>Halo: Reach</dt>
    <dd>It's 2552 and humanity is locked in a war with the alien
        Covenant on the human colony of Reach.</dd>
    ... More list items would go here ...
</dl>
```

Looks like this…

I own the following video games:

Halo: Reach
    It's 2552 and humanity is locked in a war with the alien
    Covenant on the human colony of Reach.
Call Of Duty: Modern Warfare 2
    Despite the efforts of the USMC and the SAS, the
    Ultranationalists seize control of Russia and declare
    Imran Zakhaev a hero and martyr.
Rainbow Six: Vegas 2
    Assume the role of Bishop, a member of the Rainbow
    squad in an effort to eliminate enemy terrorists world
    wide.

Images, Links, and Lists

Resources

❖ Image Types and Usage in Web Design

http://webdesign.tutsplus.com/articles/image-types-and-usage-in-web-design--webdesign-1298

modulemedia

Innovative website design and application development