

## Element Review

❖ Classify the elements as: Document, Block, Inline, List, or Empty?

h3h4
h2divdd
  
dt html sub
var kbd
  
h6bodytitleol samp
  
blockquote head cite strong
  
code small ins a abbr
  
uldfn meta h1 h5 hr br sup

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## Specifying Colors using Inline Style

❖ Computers use RGB 24-bit Color Specification

- ◆ **RGB** = Red Green Blue =  $2^{24}$  = 16 million different colors
- ◆ Specify using 6 digit hexadecimal value in CMST385  
#FF0000    #808080    #FFCCCC  
[http://www.w3schools.com/colors/colors\\_mixer.asp](http://www.w3schools.com/colors/colors_mixer.asp)
- ◆ Sometimes specified using three decimal values  
rgb(255,0,0)    rgb(128,128,128)    rgb(255,204,204)
- ◆ 140 Color names can be used for modern browsers  
 Black White Red Blue Olive Navy MistyRose NavajoWhite  
[http://www.w3schools.com/colors/colors\\_names.asp](http://www.w3schools.com/colors/colors_names.asp)

❖ Modifying default text and background color

```
<body style="color: #990000; background-color: #CCCCFF">
```

- ◆ *color property* defines the default text color value for web page
- ◆ *background-color property* defines the default background color value for web page

475                      510                      570                      650  
Wavelength [nm]

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## Color Property RGB Color Code Values

White	#FFFFFF	rgb(255,255,255)
Black	#000000	rgb(0,0,0)
Red	#FF0000	rgb(255,0,0)
Blue	#0000FF	rgb(0,0,255)
Green	#00FF00	rgb(0,255,0)
Yellow	#FFFF00	rgb(255,255,0)
Aqua	#00FFFF	rgb(0,255,255)
Fuchsia	#FF00FF	rgb(255,0,255)
Gray	#808080	rgb(128,128,128)
Maroon	#800000	rgb(128,0,0)
Navy	#000080	rgb(0,0,128)
Brown	#A52A2A	rgb(165,42,42)
MistyRose	#FFE4E1	rgb(255,228,225)
NavajoWhite	#FFDEAD	rgb(255,222,173)

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## The 8-Bit Color Cube

❖ Old computers maybe set to display 8-bit (256) colors

❖ Select Colors using

- ◆ Rule of 33 Hexadecimal or Rule of 51 Decimal or 20% increments to support

❖ Select values for each byte that are multiples of above numbers:

- ◆ Decimal =    0    51    102    153    204    255    128
- ◆ Hexadecimal = 00    33    66    99    CC    FF    80
- ◆ Percent =    0%    20%    40%    60%    80%    100%    50%

❖ Today nearly all computers display 24-bit color

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## Computer Graphics

❖ In the beginning... Computers could only display ASCII text as graphics


- ◆ ASCII Art Requires use of fixed width font
- ◆ Very small file size
- ◆ Use preformatted elements

```
<pre>;o</pre>
```




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## Vector Graphics

- ❖ Image created from a mathematical coordinate description 
- ◆ Requires significant processing power, however very small file size
- ◆ Software: PowerPoint, Visio, AutoCAD  
Inkscape (Open source) [inkscape.org/en/](http://inkscape.org/en/)  
Tutorial [www.littlewebhut.com/inkscape/](http://www.littlewebhut.com/inkscape/)
- ❖ Adobe (formerly Macromedia) Flash is the standard for Web Vector Graphics
- ❖ Future standard will be HTML5 canvas

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## Raster Graphics

- ❖ Most popular for computer graphics when memory became inexpensive 
- ❖ Larger file size, but very little processing power required to render
- ❖ Image is a rectangular group of pixels
  - ◆ Color Description for each pixel
  - ◆ Usually, 8, 16, or 24 bit color for each pixel
  - ◆ Corresponds with 256, 64K, or 16M colors
- ❖ Also called Bitmapped graphics
  - ◆ Compressed Web Graphics: JPG, GIF, PNG
  - ◆ Uncompressed Graphic: BMP

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## Web Graphics

- ❖ Web Graphics are usually Raster Graphics
- ❖ Use compression to reduce file size for faster download through network
- ❖ Requires processing to uncompress and properly display within browser window
- ❖ Supported compressed graphics file formats
  - ◆ JPEG = Joint Photographic Experts Group
  - ◆ GIF = Graphics Interchange format
  - ◆ PNG = Portable Network Graphic (ver. 5 IE)
- ❖ Freeware Software
  - ◆ GIMP [Win] [MacOSX] [Linux] [www.gimp.org](http://www.gimp.org)
  - ◆ Pixlr [Win] [MacOSX] [WebApp] [pixlr.com](http://pixlr.com)
  - ◆ PhotoFiltre [Win] [photofiltre.free.fr](http://photofiltre.free.fr)

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## JPEG Format

- ❖ *filename.jpg* (note the extension)
- ❖ Best for photographs (24 bit RGB color)
- ❖ Excellent Compression (10:1 to 100:1)
- ❖ Lossy Process (Not for Archive)
- ❖ File Size Reduction
  - ◆ Reduce image size
  - ◆ Reduce quality
  - ◆ Gaussian Blur image
  - ◆ Do NOT reduce colors (Keep 24-bit color)
- ❖ Properties:
  - ◆ Loading: Progressive or Standard
  - ◆ No Transparency and NO Animation

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## GIF Format

- ❖ *filename.gif* (note the extension)
- ❖ Best for graphics with
  - ◆ Long runs of same color (i.e. Cartoons)
  - ◆ Maximum palette size of 256 colors
- ❖ Lossless LZW Compression
- ❖ File Size Reduction
  - ◆ Reduce image size
  - ◆ Reduce palette colors (128,64,32,16,8,4,2)
  - ◆ Do NOT Anti-alias or Blur
- ❖ Properties:
  - ◆ Loading: Interlaced or Standard
  - ◆ Transparency
  - ◆ Animation

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## PNG Format

- ❖ *filename.png* (note the extension)
- ❖ Best for graphics with
  - ◆ Long runs of same color (i.e. Cartoons)
  - ◆ Maximum palette size of 16Million colors
- ❖ Lossless Compression
- ❖ File Size Reduction
  - ◆ Reduce image size
  - ◆ Reduce palette colors (65536, 256, 128,64,32,16,8,4,2)
  - ◆ Do NOT Anti-alias or Blur
- ❖ Properties:
  - ◆ Loading: Interlaced or Standard
  - ◆ Transparency channel for variable transparency
  - ◆ Animation not available in PNG use MING

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## HTML: Image Element

- ❖ The Image Element is an Inline Element
- ❖ ``
  - ◆ Source file in same folder as html file = "bob.gif"
  - ◆ Source file in sub-folder photo = "photo/bob.gif"
  - ◆ Source file in parent-folder = "../bob.gif"
  - ◆ Source file at another URL  
`"http://www.bob.com/photos/bob.gif"`
  - ◆ Alternate text attribute is required and text will be displayed if image not available  
`alt="Bob's Mug"`
- ❖ Optional Attributes:
  - ◆ `width="200" height="150"` Image dimensions

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## HTML: Image Tag Example

```
<head>  
  <title>My Mug Shot</title>  
</head>  
<body>  
  <p><a href="../index.html">  
   </a>  
</p>  
  <h1 style="text-align:center">  
    
  <br>  
  This is Me!  
</h1>  
</body>
```




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## Image Usage Tips

- ❖ Do not contribute to the world wide wait... Use reduced size images! (< 100kbytes)
- ❖ Do not link to images located on other sites unless there is a good reason
- ❖ Limit Animated images to one per web page
- ❖ Acquiring images on Web
  - ◆ Be aware of copyright (if free Right click and Save)
  - ◆ <http://www.freebuttons.com>
  - ◆ <https://images.google.com/>
  - ◆ <https://www.flickr.com/creativecommons/>
  - ◆ <https://search.creativecommons.org/>
- ❖ Digitize Photo or Drawing
  - ◆ Scanner
  - ◆ Digital Camera

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## Use Image Map for Complex Images

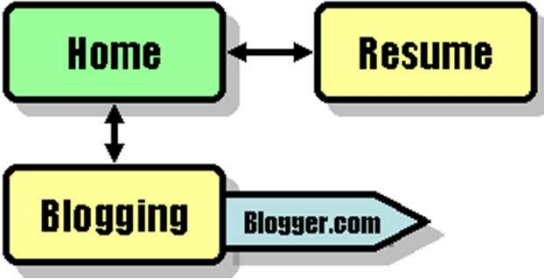


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## Creating a Site Map using Image Map

1. Create with PowerPoint and save slide as GIF image
2. Use Image Editor (PhotoFiltre) to crop and resize
3. Use Image Editor to determine size and coordinates



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## Client Image Map Syntax

- ❖ The *img element* has an optional *usemap attribute* which provides the reference to the image map.  
``
- ❖ The *map element* specifies the image map. Use both name and id attributes for maximum browser support.  
`<map name="Map1" id="Map1"> </map>`
- ❖ The *area elements* specify the shape and dimensions of the hot spot area and includes coordinates. Use *title attributes* to create hover tips.  
`<area shape="rect" coords="0,96,131,157" href="http://www.islandman.org/topic" title="Topic">`  
`<area shape="poly" href="http://www.blogger.com" coords="132,113,221,113,254,130,221,149,132,149" title="Blogger.com">`

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## Hot Spot Shapes

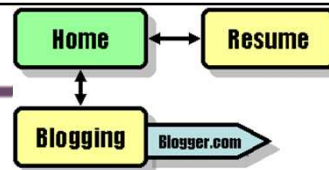
- ❖ The area elements are empty elements encapsulated within the map element tags
- ❖ The shape attribute can specify three different hot spot shapes with appropriate dimensions
  - ◆ Rectangular Hot Spots  
`<area shape=rect coords="0,0,15,45" href="#" />`  
 A rectangle is defined using two points, top-left corner, and bottom-right corner of the rectangle.
  - ◆ Circular Hot Spots  
`<area shape=circle coords="20,20,10" href="#" />`  
 A circle is defined by its center and radius.
  - ◆ Polygon Hot Spots  
`<area shape=poly coords="10,50,15,20, 20,50" />`  
 A polygon is built up by a list of coordinates. They are all connected in the order presented, and last coordinate pair is connected to the first. This triangle has vertices at (10,50), (15,20), (20,50).

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## Site Map Code

```
<body>
<h2>My Site Map</h2>
<p>

</p>
<map name="Map1" id="Map1">
<area shape="rect" coords="0,0,133,61"
href="http://www.islandman.org" title="Home" />
<area shape="rect" coords="184,0,317,61" href=
"http://www.islandman.org/resume" title="Resume" />
<area shape="rect" coords="0,96,131,157" href=
"http://www.islandman.org/topic" title="Topic" />
<area shape="poly" href="http://www.blogger.com"
coords="132,113,221,113,254,130,221,149,132,149"
title="Blogger.com" />
</map>
</body>
```



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## Web Page Background Images

- ❖ Use images that tessellate or can repeat x and y axis
  - ◆ Google search: web background images repeat
- ❖ CSS Style Properties for background-image
  - ◆ *background-image* (repeat x and y directions is default)  
`<body style="background-image: url(wpBubbles.jpg);">`
  - ◆ *background-repeat* [repeat-x | repeat-y | no-repeat]  
`<body style="background-image: url(wpBubbles.jpg); background-repeat: repeat-y;">`
  - ◆ *background-attachment* [fixed, scroll]  
`<body style="background-image: url(wpBubbles.jpg); background-repeat: repeat-y; background-attachment: fixed;">`
  - ◆ *background-position* [% | <length>] [top | center | bottom] | [left | center | right]  
`<body style="background-image: url(wpBubbles.jpg); background-position: 10px 20px;">`
  - ◆ Combined *background property*  
`<body style=" background: #FF99CC url(wpBubbles.jpg) repeat-y right fixed;">`

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