# SGG 3643
# Computer Programming III

## Images, Color, and Backgrounds

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# Content

- Placing images on your page and making them become clickable (adding a hyperlink).

- Specifying alternatives to images for non-graphical browsers.

- Using image dimensions and scaling.

- Setting background images/colors and text colors.ss

# Integration of Images

- Images are very important for Web design. They are used in several ways:

  - Usual graphic (i.e. images) as part of the presentation,
  - button for hyperlinks,
  - symbol for enumerations / lists
  - page background,
  - background for tables.

# Images on the Web

- Two types
  - Inline images - loaded as part of the page
  - External images (i.e. tiff format) - loaded only on request, additional viewer necessary (not discussed here).

- File formats accepted by browsers
  - .gif (accepted by more browsers)
  - .jpeg (sometimes spelled .jpg)
  - .png

- Best if extensions are always lower case

# File formats in the Internet

- gif (Graphic Interchange Format):
  - only 256 colors from color palette, »interlaced« or »non-interlaced«
  - transparent color supported animated gif, licensee problems
  - Could be called gif, gif87, or gif89
- jpg / JPEG (Joint Photographic Expert Group):
  - for larger images and photos
  - Compression algorithm, but lossy
  - 16 Million colors (TrueColor), progressive JPG
- png (Portable Network Graphics):
  - Lossless Compression
  - Well suited for lot of purposes

# Sources

- Commercial Sources
- Open Source
- Own images
- Scan: Resolution vs. File size:
  - 75 dpi sufficient, if not magnified
  - Store first in lossless format (i.e. TIFF)
- Manipulation:
  - Cropping, Optimizing, Scaling
  - Optimization: Color depth, color palette, transparency
- Test, publication

# Inline Images: <img .../> Tag

- Used for integration of inline images
- <img /> has *no* closing tag
- Use the src attribute to specify the filename

```
<img src= "lecture.gif" alt= "Lecture Web-
Engineering" />
```

- You can add an textual alternative for non-graphical browsers (required in XHTML 1.0). The content of this tag is often presented as additional "fly out" text.

# Image Dimensions

- Additional attribute for images size:

  ..., width="200" height="300" ...

- Enhances performance for displaying page content in the browser.

- Can use graphics package or Netscape to determine actual picture size
  - Netscape: View/Document [Page] Info, then select the image

# Image Scaling

- If specified dimensions **larger** than that of the picture, the picture is sized to fit.

  Why is this good?
  Why take care?

- Avoid specifying **smaller** dimensions.
  Why?

# Inline Images (continued)

- The <img> tag (an inline box) should normally be contained within another element-tag section, such as
  <p> … </p> or <td> … </td>

- Note that some users could have image display disabled in their browser
  - Netscape:  Auto Load Images
  - Internet Explorer:  Show Pictures

- Note that some users use text-only browsers or they could be blind.

# Images and Text

- An image can be placed within a line of text

  ```
  <p>I love <img src="map.gif"
          alt="[Map of Johor Bahru]"> Johor Bahru!</p>
  ```

- In the above case, the text is displayed aligned with the bottom of the picture

- `<img>` has an align attribute specifying image alignment
  - Values: "top", "middle", "bottom"
  - Other nonstandard values: "texttop", "absmiddle", "baseline", "absbottom"

# Wrapping Text Next to Images

- Starting in HTML v. 3.2, you could wrap several lines of text around or beside an image

- Added two new align values: "left" and "right"

- Any text following the image would be wrapped to right and left of the image, respectively

- Can align two images right & left w/text in between

# Wrapping Text Next to Images

- To stop the text wrapping (and have it proceed to the line below the image)

  > deprecated in HTML v. 4.0 in favour of CSS

  - Use the clear attribute on the <br> tag
  - <br clear="left" /> stops the wrapping, breaking to the left margin for left-aligned images
  - <br clear="right" /> analogous for right-aligned images
  - <br clear="all" /> breaks to a line clear to both margins

# Adjusting the Space around Images

- This concerns the amount of space between an image and the text around it
- HTML v. 3.2 introduced the vspace and hspace attributes of the <img> tag
  - Values are numeric (and in quotation marks)
  - Values represent number of pixels of space
  - Text alignment is based on the "expanded" image

  <img  src="x1.gif"  alt="MyPic" vspace="10"  hspace="2">

# Images and Links

- To make a hyperlinked, clickable image, simply embed the <img> tag within the <a>…</a> pair:

```
<a href="http://www.utm.my"><img
    src="utm_logo.png"
    alt="[Logo of UTM]"></a>
```

- Border attribute of <img> lets you control width of border [deprecated in HTML 4.0]
  - Use number (pixels) in quotation marks
  - "0" means no border [Used mainly with graphical buttons]

```
<map name="Landkarte">

<area shape="rect" coords="78,182,132,200"
href="http://www.karlsruhe.de/" alt="Karlsruhe">

<area shape="circle" coords="140,209,10"
href="http://www.stuttgart.de/" alt="Stuttgart">

<area shape="poly"
coords="48,311,105,248,96,210,75,205,38,234,8,310"
href="http://www.baden-aktuell.de/" alt="Baden"> </map>

<p><img src="karte.gif" width="345" height="312"
border="0" alt="Karte" usemap="#Landkarte"></p>
```

Upper left corner, lower right corner

```
<area shape="rect" coords="78,182,132,200"
href="http://www.karlsruhe.de/" alt="Karlsruhe">
```

# Circle

Center of circle, radius

```
<area shape="circle" coords="140,209,10"
href="http://www.stuttgart.de/" alt="Stuttgart">
```

# Poly

```
<area shape="poly"
```
List of coordinate pairs

```
coords="48,311,105,248,96,210,75,205,38,234,8,310"
href="http://www.baden-aktuell.de/" alt="Baden">
```

# Tool support for image maps

- Phase 5, http://www.qhaut.de/

# Color [HTML 3.2, deprecated in 4.0]

- Colors as attribute values can be named or numbered
- Predefined color names
  - Black White Green Maroon Olive Navy Purple Gray Red Yellow Blue Teal Lime Aqua Fuchsia Silver
  - Supported by Netscape/IE--not always by other browsers
  - Much more color names are available in CSS!

# Color numbers

- better supported & more flexible
- Color picker programs helpful here
- # followed by 6 hex digits [RGB]    www.lne.com/rgb.html

black = "#000000"

silver = "#C0C0C0"

gray = "#808080"

white = "#FFFFFF"

maroon = "#800000"

red = "#FF0000"

purple = "#800080"

fuchsia = "#FF00FF"

green = "#008000"

lime = "#00FF00"

olive = "#808000"

yellow = "#FFFF00"

navy = "#000080"

blue = "#0000FF"

teal = "#008080"

aqua = "#00FFFF"

# Color: Changing the Background Color

- Add an attribute called bgcolor to the <body> tag:

  <body  bgcolor="#800000">
  <body  bgcolor="Fuchsia">


- Recommendation: Use CSS!

# Color: Changing the Text Color

- Add any of the following attributes to the <body> tag
  - text=…   All of the page's text (other than hyperlinks)
  - link=…   All of the page's unvisited hyperlinks
  - vlink=…  All of the page's visited hyperlinks
  - alink=…  "Activated links," i.e., those links that the mouse button is being pressed over (but not released)
- Example (Halloween):

  <body  bgcolor="#ff9933"  text="#000000" link="#800000">

# Color: Spot Changes to the Text Color

- You can add a color attribute to a <font> tag

- Example

  <p>"You're just<font color="#FFFF00"> yellow</font>," he said to McFly.</p>

# Image Backgrounds

> Better use CSS
> for such purposes

- Uses a graphic (in a file) for a background instead of a plain color...will be tiled

- Make sure the image flows smoothly when tiled, i.e., avoid "seams"

  - You can get clip art designed for backgrounds

- Simply put a filename in the background attribute of the <body> tag

```
<body  background="bglines.gif">
```

# Responsible Use of Color

- You should always have a color scheme for any page that you design for other humans to view

- Use http://www.ColorSchemer.com/online for a quick, effective color scheme (complementary, monochromatic, split-complementary, or triadic)

- Use no more than 3 main colors (<7 total variants) on your page (+ white/black)

# Wise Image Use:  Hints

- Do you really need this image?
    - Want a balance of efficiency and fun!
    - Avoid animated images!
    - Remember handicapped people!
- Keep your images small
    - One way is to reduce the number of colors
    - Try to keep each inline image to <20K
        - 20K file takes 10 seconds to download at 28.8Kbps
- Reuse images as much as possible – the browser keeps them in the cache!
- Provide alternatives to images (… `alt="MyPhoto"`…)
    - Alternative: Create alternate text-only pages