ΕΛΛΗΝΙΚΗ ΔΗΜΟΚΡΑΤΙΑ
ΠΑΝΕΠΙΣΤΗΜΙΟ ΚΡΗΤΗΣ

Εισαγωγή στην Επιστήμη και Τεχνολογία των Υπηρεσιών

Ενότητα 8: HTML review

Χρήστος Νικολάου

Τμήμα Επιστήμης Υπολογιστών

Με τη συγχρηματοδότηση της Ελλάδας και της Ευρωπαϊκής Ένωσης

Άδειες Χρήσης

- Το παρόν εκπαιδευτικό υλικό υπόκειται στην άδεια χρήσης **Creative Commons** και ειδικότερα

Αναφορά – Μη εμπορική Χρήση – Όχι Παράγωγο Έργο v. 3.0

(Attribution – Non Commercial – Non-derivatives)

- Εξαιρείται από την ως άνω άδεια υλικό που περιλαμβάνεται στις διαφάνειες του μαθήματος, και υπόκειται σε άλλου τύπου άδεια χρήσης. Η άδεια χρήσης στην οποία υπόκειται το υλικό αυτό αναφέρεται ρητώς.

Χρηματοδότηση

- Το παρόν εκπαιδευτικό υλικό έχει αναπτυχθεί στα πλαίσια του εκπαιδευτικού έργου του διδάσκοντα.
- Το έργο «**Ανοικτά Ακαδημαϊκά Μαθήματα στο Πανεπιστήμιο Κρήτης**» έχει χρηματοδοτήσει μόνο τη αναδιαμόρφωση του εκπαιδευτικού υλικού.
- Το έργο υλοποιείται στο πλαίσιο του Επιχειρησιακού Προγράμματος «Εκπαίδευση και Δια Βίου Μάθηση» και συγχρηματοδοτείται από την Ευρωπαϊκή Ένωση (Ευρωπαϊκό Κοινωνικό Ταμείο) και από εθνικούς πόρους.

Ευρωπαϊκή Ένωση
Ευρωπαϊκό Κοινωνικό Ταμείο

ΕΠΙΧΕΙΡΗΣΙΑΚΟ ΠΡΟΓΡΑΜΜΑ
ΕΚΠΑΙΔΕΥΣΗ ΚΑΙ ΔΙΑ ΒΙΟΥ ΜΑΘΗΣΗ
επένδυση στην κοινωνία της γνώσης
ΥΠΟΥΡΓΕΙΟ ΠΑΙΔΕΙΑΣ & ΘΡΗΣΚΕΥΜΑΤΩΝ, ΠΟΛΙΤΙΣΜΟΥ & ΑΘΛΗΤΙΣΜΟΥ
ΕΙΔΙΚΗ ΥΠΗΡΕΣΙΑ ΔΙΑΧΕΙΡΙΣΗΣ

ΕΣΠΑ 2007-2013
πρόγραμμα για την ανάπτυξη
ΕΥΡΩΠΑΪΚΟ ΚΟΙΝΩΝΙΚΟ ΤΑΜΕΙΟ

Με τη συγχρηματοδότηση της Ελλάδας και της Ευρωπαϊκής Ένωσης

XML
HTML Review
605.444 / 635.444

David Silberberg

Lecture 8

What are Markup Languages?

- An encoding scheme that describes the data for a specific purpose
- Any language will do as long as conventions are agreed upon
  - English text
  - Hieroglyphics
  - Numbers
- However, we would like a single, flexible, and universal language that can be used to define any markup language
- SGML (Standard Generalized Markup Language) is an example of such an attempt

Markup Language Characteristics

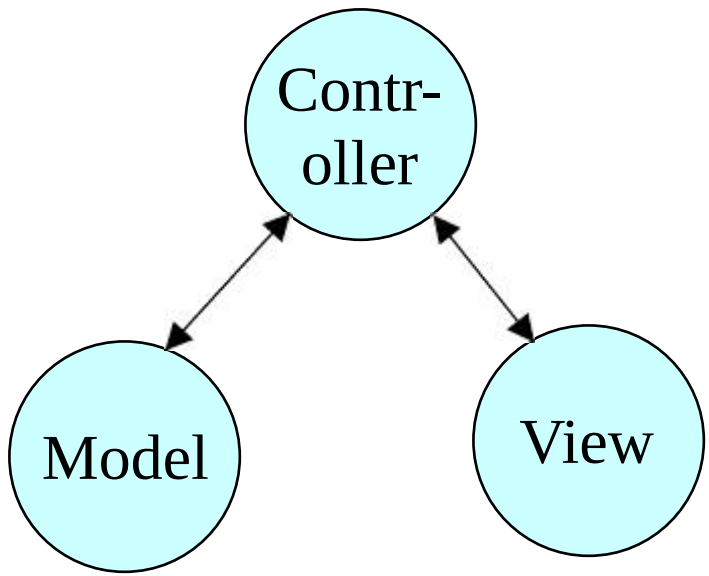
- Markup language specifications allow self-description
- You must choose the domain of the description
- Description can be:
  - Display information - e.g. HyperText Markup Language (HTML)
  - Astrophysics - e.g. FITS files
  - Supermarket inventory
  - Anything else
- SGML is an example of standard that allows you to specify markup languages
- SGML is too complex for normal use
- HTML is a useful, yet powerful, subset of SGML for display

Style Sheets

- Markup languages often describe the structure and semantics of the data in a document
  - Describes the data
  - Describes the meaning of the data
  - Describes the interrelationships among the data
- XML is a good medium for describing the data, structures, and relationships
- However, it is preferable to separate the semantics of the data from its presentation
  - The data should be independent of its presentation
  - The same data should be displayable in multiple ways

Separation of Data from Presentation

- Separation of data from presentation is not new
- Smalltalk
  - Made this an underlying paradigm of its programming environment
  - Called Model-View-Controller
- Model - data structure
- View - presentation
- Controller
  - Operates on Model from View input
  - Presents Model through View



HTML

- HTML is a popular display markup language
  - Defines grammatical and logical structures
  - Defines display characteristics
- HTML origins
  - Describe physics abstracts
  - Documents that summarize article contents
  - Structure has head, body, paragraphs,etc.
  - Structure has sections, title, etc
  - Color and other display characteristics did not originally exist
- Ultimately, it mixed the data structure and display elements

HTML (continued)

- As HTML was being developed for the Web, ad hoc features were being added
- Some of the tags had definitions about how browsers were to display the tags
- Unfortunately, different browsers did not always display the same thing
  - for emphasis could mean display as **bold** or *italic*
  - <h1> for first-level header could be displayed 24pt or 18pt
  - Browsers "Controllers" presented "Views" differently
- Furthermore, tags used for display only (e.g. <FONT>) hide the semantics of the document

Style Sheets

- Style sheets were created to separate data from presentation
  - HTML tags provide structural semantics
  - Style tags provide display semantics
- Course of next few lectures
  - Review HTML
  - Review HTML style sheets
  - Demonstrate that style sheets also provide presentation semantics to XML

HTML Review

- Create a directory for HTML files
  - In home directory, create `public_html` directory
  - All files resident in `/home/s3/davids/public_html` directory, for example
- Place HTML files in the directory
  - By convention, HTML files have a `.html` or `.htm` suffix
  - `test.html` file is placed in `/home/s3/davids/public_html/test.html`
- HTML file access by browser
  - Open browser
  - URL: `http://www.apl.jhu.edu/~davids/test.html`
  - `www.apl.jhu.edu` is the system address
  - `~davids` is davids' home directory
  - Address skips over `public_html`

HTML Setup

- Default file in directory is `index.html`
  - `http://www.apl.jhu.edu/~davids/index.html`
    is the same as:
  - `http://www.apl.jhu.edu/~davids/`
- Permissions
  - `cd`
  - `chmod a+x`
  - `cd public_html`
  - `chmod a+x .`
  - `chmod a+r` *`file`*

HTML Structure

- HTML tags are similar to XML tags
- Regular tags: <TITLE>
- Tags with attributes: <IMG SRC='images/button.gif'>
- Container tags: <BODY> *stuff* </BODY>
- Single tags: <HR>
  - Different from XML because it does not require an end slash

HTML Document Template

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0 Transitional//EN">
<HTML>
<HEAD>
    <TITLE>The Title</TITLE>
</HEAD>

<BODY>
<H1>Main Heading</H1>

<!-- Rest of body -->

</BODY>
</HTML>
```

Resulting Image

HEAD Elements

- <HEAD> … </HEAD>
- Title of document

```
<HEAD>
    <TITLE>Document Title</TITLE>
</HEAD>
```

- Base tag for relative URLs
  - Default is directory from where document was loaded

```
<HEAD>
    <TITLE>Document Title</TITLE>
    <BASE HREF="http://www.apl.jhu.edu/~davids/xml/">
</HEAD>
```

BODY - The Main Body

- HTML documents have only one BODY section
  - Documents that use FRAMES are the exception
  - Contains the main part of the document
  - Usually starts with a title specified in a header <H1> since the <TITLE> does not print in the document itself
- BODY elements
  - <BODY> … </BODY>
  - Does not need attributes
  - Attributes are useful for the appearance of the document

Some BODY Attributes

- <BODY BACKGROUND="images/baby.gif">
  - URL of background image that is tiled across the screen
  - Image repetition lowers the download time of the document
- <BODY BGCOLOR="BLUE">
  - Sets background color
  - Colors can be named or hex

    <BODY BGCOLOR="#0000FF">
  - Common named colors
    - AQUA (#00FFFF)
    - BLACK (#000000)
    - BLUE (#0000FF)
    - FUCHSIA (#FF00FF)
    - GRAY (#808080)
    - GREEN (#008000)
    - LIME (#00FF00)
    - MAROON (#800000)
    - NAVY (#000080)
    - PURPLE (#800080)
    - RED (#FF0000)
    - SILVER (#C0C0C0)
    - TEAL (#008080)
    - WHITE (#FFFFFF)
    - YELLOW (#FFFF00)

More BODY Attributes

- <BODY TEXT="RED" …>
  - Sets the body text default color
- <BODY LINK="GRAY" …>
  - Sets the default color of hypertext links
- <BODY VLINK="GREEN" …>
  - Sets the default color of visited hypertext links
- <BODY ALINK="PURPLE" …>
  - Sets the default color of active hypertext links (currently depressed)

Headings

- Defines different levels of headings
- <H1 …> … </H1>
  - Top-level heading
  - Often used as displayed document “title”
- <H2 …> … </H2>
  - First-level subheading
- <H3 …> … </H3>
  - Second-level subheading
- etc.
- <H5 …> … </H5>
  - Fifth-level subheading

Headings (cont.)

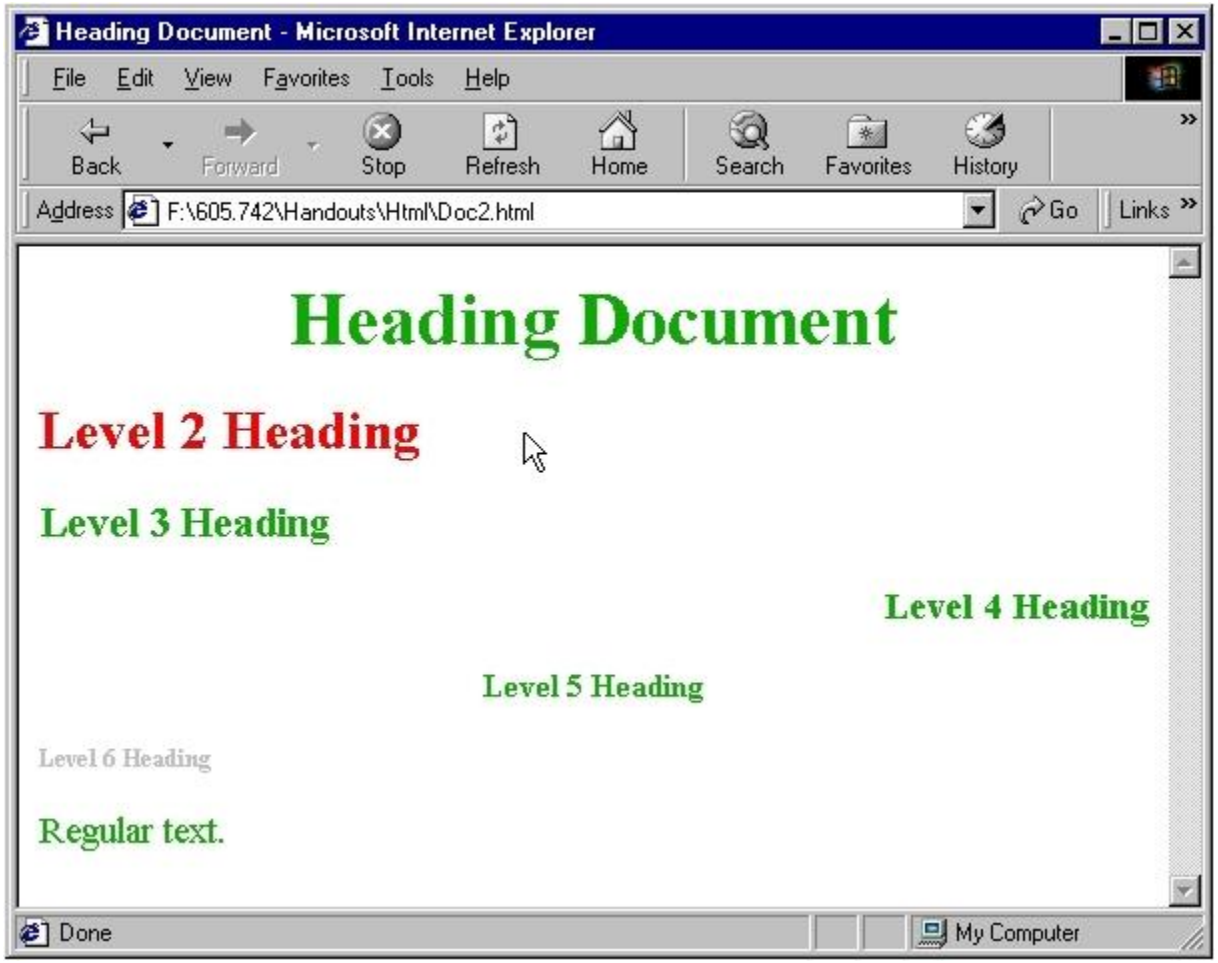
- Usually cannot contain or be contained in other block-level items
- Can contain text-level items
  - <FONT>
  - <EM>
  - etc.
- ALIGN Attribute
  - <H1 ALIGN="…"> … </H1>
  - Values: CENTER, LEFT, RIGHT

Sample Heading Document

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0 Transitional//EN">
<HTML>
<HEAD>
      <TITLE>Heading Document</TITLE>
</HEAD>

<BODY BGCOLOR"#008080" TEXT=”BLACK"”>
        <H1 ALIGN=“CENTER”>Heading Document</H1>
        <H2><FONT COLOR=“RED”>Level 2 Heading</FONT></H2>
        <H3 ALIGN=“LEFT”>Level 3 Heading</H3>
        <H4 ALIGN=“RIGHT”>Level 4 Heading</H4>
        <H5 ALIGN=“CENTER”>Level 5 Heading</H5>
        <H6><FONT COLOR=“SILVER”>Level 6 Heading</FONT></H6>
        Regular text.
</BODY>
</HTML>
```

Sample Heading Output



Text Sections

- <P>Basic Paragraph</P>
  - Creates section of text with blank above and below
  - End tag is optional
  - Extra white space in block of text is optional
  - Can align paragraphs (LEFT, RIGHT, CENTER)
  - <P ALIGN="RIGHT">Paragraph that is right-aligned</P>
- <PRE>Preformatted Paragraph</PRE>
  - Preserves white space
  - Displays fixed-width font
  - Special characters are still interpreted
    - < - less than
    - © - copyright symbol

Text Sections (cont.)

- <XMP>Exempt from formatting</XMP>
  - Prints exactly what is typed
  - No formatting
  - Can cut and paste code or HTML code directly
    - Must change special characters (<) since they are not interpreted
- <BLOCKQUOTE> … </BLOCKQUOTE>
  - Used for large quotations
  - Indents on left and right

Text Section Example

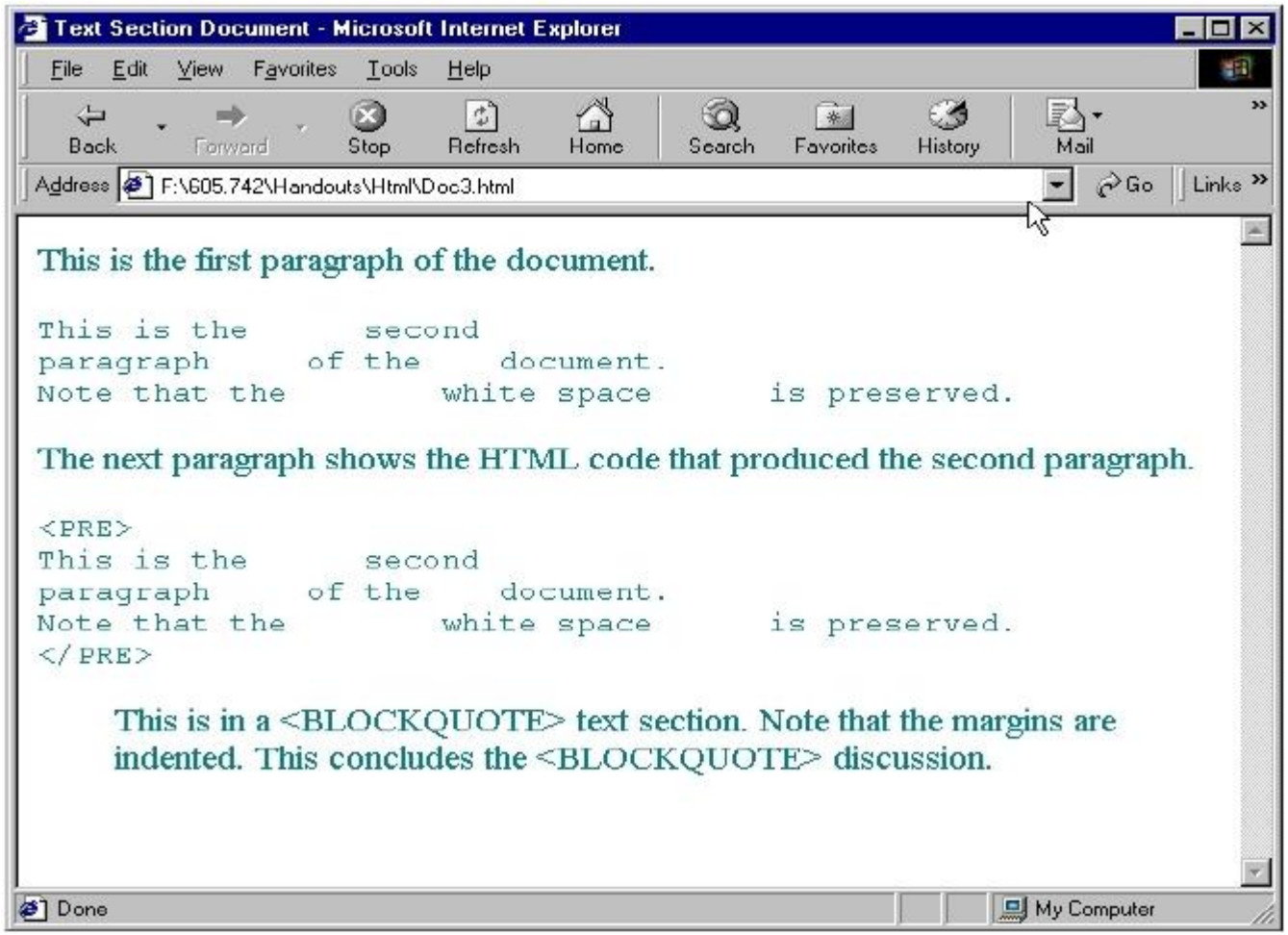
```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD
    HTML 4.0 Transitional//EN">
<HTML>
<HEAD>
    <TITLE>Text Section Document</TITLE>
</HEAD>

<BODY BGCOLOR="WHITE" TEXT="TEAL">
<P>
This is the first
paragraph of the document.
</P>
<PRE>
This is the second
paragraph of the document.
Note that the white space is preserved.
</PRE>
```

The next paragraph shows the HTML code that produced the second paragraph.

```
<XMP>
<PRE>
This is the second
paragraph of the document.
Note that the white space is preserved.
</PRE>
</XMP>
<BLOCKQUOTE>
This is in a &lt;BLOCKQUOTE&gt; text section. Note that
the margins are indented.
This concludes the &lt;BLOCKQUOTE&gt; discussion.
</BLOCKQUOTE>
</BODY>
</HTML>
```

Sample Text Section Output



Lists

- Two types of lists are covered
  - Numbered
  - Bulleted
- Ordered list
  - <OL …> … </OL>
  - Attributes
    - TYPE
      - Type of list
      - 1 - Arabic 1, 2, 3
      - A - Alphabetic uppercase A, B, C
      - a - Alphabetic lowercase a, b, c
      - I - Roman numeral I, II, III
      - i - Roman numeral lowercase i, ii, iii
    - START
      - Specifies where numeration should start

List Elements

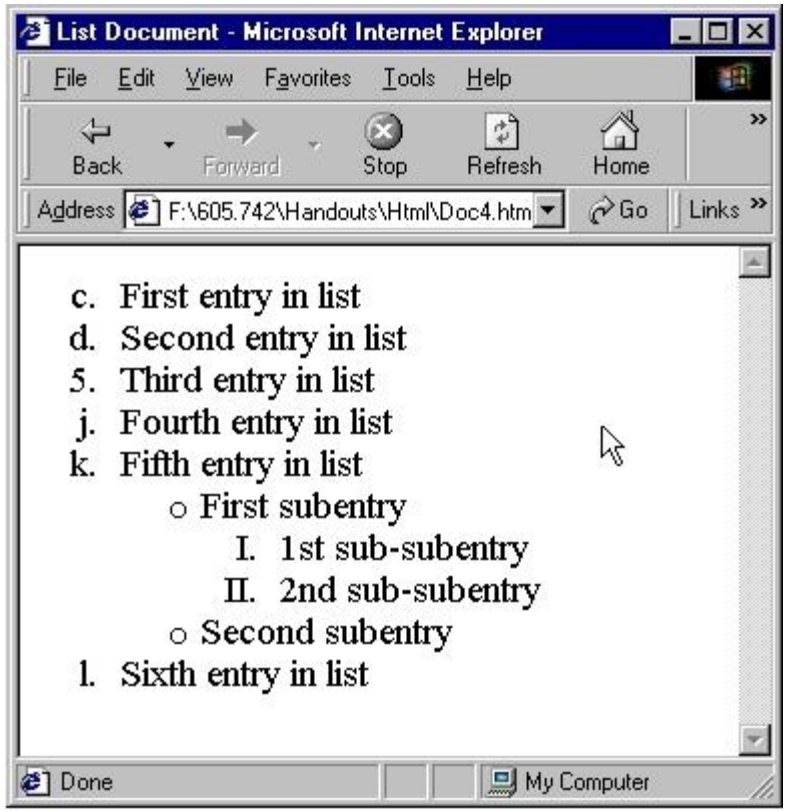
- <LI …>List Element</LI>
  - </LI> is optional
  - Attributes
    - VALUE
      - Set value for this list element
      - Enables non-contiguous numbering
    - TYPE
      - Can change numbering scheme in middle of list
- <UL …> … </UL>
  - Bulleted list
  - TYPE: CIRCLE, DISC (hollow), SQUARE

List Element Example

```
<!DOCTYPE HTML PUBLIC "-
    //W3C//DTD HTML 4.0
    Transitional//EN">
<HTML>
<HEAD>
    <TITLE>List Document</TITLE>
</HEAD>

<BODY>
<OL TYPE="a" START="3">
  <LI>First entry in list
  <LI>Second entry in list</LI>
  <LI TYPE="1">Third entry in list
  <LI VALUE="10">Fourth entry in list
  <LI>Fifth entry in list
    <UL TYPE="SQUARE">
      <LI>First subentry
      <OL TYPE="I">
        <LI>1st sub-subentry
        <LI>2nd sub-subentry
      </OL>
      <LI>Second subentry
    </UL>
    <LI>Sixth entry in list
</OL>
</BODY>
</HTML>
```

List Element Output



Tables

- Can be used to display data in tabular format
- Can be used to control the layout of data
  - Groups items together
  - Controls formatting of images and text
- Table entries can contain
  - Images
  - Text
  - Lists
  - Other tables

Basic Table Structure

- <TABLE …> … </TABLE>
  - Defines the table
  - Attributes
    - ALIGN
      - Aligns entire table
      - LEFT, CENTER, RIGHT
    - BORDER: sets border size in pixels
    - CELLSPACING: pixels between adjacent cells
    - CELLPADDING: empty space between border and table element
    - WIDTH: width of table
      - Pixels <TABLE WIDTH=375>
      - Percentage of current browser window <TABLE WIDTH=50%>
    - BGCOLOR: background color of entire table

Table Structure (cont.)

- <CAPTION …> … </CAPTION>
  - Table caption
  - ALIGN attribute: TOP or BOTTOM
- <TR …> … </TR>
  - Table Row
  - End tag is optional
  - Attributes
    - ALIGN: (LEFT, CENTER, RIGHT)
    - VALIGN: (TOP, MIDDLE, BOTTOM) // vertical align
    - BGCOLOR: background color

Table Structure (cont.)

- <TH …> … </TH>
  - Table heading
- <TD …> … </TD>
  - Table data element
- End tags are optional
- Attributes
  - COLSPAN: number of columns that element spans
  - ROWSPAN: number of rows that element spans
  - ALIGN: (LEFT, CENTER, RIGHT)
  - VALIGN: (TOP, MIDDLE, BOTTOM)
  - WIDTH: in pixels
  - HEIGHT: in pixels
  - NOWRAP: suppresses word wrapping in cell

Table Example

```
<HTML>
<HEAD><TITLE>Table Document</TITLE></HEAD>

<BODY BGCOLOR="TEAL">
<TABLE BORDER=2 BGCOLOR="WHITE">
<CAPTION ALIGN="BOTTOM"><FONT COLOR="YELLOW">Sample Table
  </FONT></CAPTION>
<TR BGCOLOR="NAVY">
  <TH COLSPAN=2><FONT COLOR="YELLOW">Name</FONT>
  <TH><FONT COLOR="YELLOW">Age</FONT></TH>
<TR><TD>John<TD>Smith<TD ROWSPAN=2>25</TD>
<TR><TD>Harry<TD>Jones
<TR><TD>Fred</TD><TD>Cho<TD>28</TR>
</TABLE>
</BODY>
</HTML>
```

Table Output

Hypertext Links

<A HREF="http://www.apl.jhu.edu/~davids/xml/text.html">
HyperText Link </A>

- Can include image

<A HREF="http://www.apl.jhu.edu/~davids/xml/text.html">
<IMG SRC="images/funny_image.gif"> </A>

Style Tags

- <B> … </B> - bold
- <I> … </I> - italics
- <U> … </U> - underline
- _… - subscript
- […] - superscript
- <STRIKE> … </STRIKE>
  - draw horizontal line through text
- <BLINK> … </BLINK>
- <FONT …> … </FONT>
  - SIZE
    - Font size numbered from 1 to 7
    - Relative size +2 or -3
  - COLOR

Miscellaneous Tags

- <HR …>
  - Horizontal rule (line)
  - Attributes:
  - ALIGN: (LEFT, CENTER, RIGHT)
  - WIDTH: in pixels or percent of screen
  - SIZE: thickness of line in pixels
  - COLOR
- <DIV ALIGN="…"> … </DIV>
  - Sets default horizontal alignment for block-level elements
- <CENTER> … </CENTER>
  - Centers text

Summary

- Learned basic HTML
- Did not cover some important aspects of HTML
  - Forms
  - Maps
  - Frames
- HTML specifies document components
  - Leaves display of components up to the browser
  - Gives you some control of display, but not directly related to components of a document
- Cascading Style Sheet provide this functionality

Τέλος Ενότητας