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Introduction to Web & HTML

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Chapter 3

Introduction to WWW & HTML

Topics Covered in this Session

- Web Page Design and **HTML**
- Web Client/Server Software and HTTP
- Images and Image Maps
- Forms, and Web-database integration
- Other topics

Lingo

- HyperText: Enables linking to places
- Link(s)
- Hyperlinks: Hot spots on which a user can click to access other:
 - » topics (in the same document)
 - » documents, (other HTML files, for e.g.), or
 - » Web sites
- URL: Addresses on Internet to which hot spots connect

Lingo

- GIF, JPEG, XBM, XPM (picture formats)
- Netscape, Mosaic, Iexplorer (browsers)
- WebEdit, HoTMetaL, FrontPage (editors/tools)
- FTP, TCP/IP, HTTP (protocols)
- Applets, J++, javac, Java Engine (Java programming)
- xv, clipart, etc (graphics editors)

Why Design and for Who?

- Personal Pages
- Companies, Organizations
 - » (schools, universities, research centers, etc)
- News Networks
- Journals
- Events (conferences, international games, etc)
- Internet/Intranet

www what in this session?

- What is **HTML** and why do we care?
- **WWW** and **HTTP**
- **Logical** versus Physical Formatting
- HTML Document structure
- Images and Hyperlinks
- Tools for creating HTML
- Beyond simple HTML

What is HTML?

- HTML is a structured language
 - » rules of nesting
- All WWW documents are written in HTML
- WWW
 - » World Wide Web
 - » Most popular Internet information service

What is Internet?

- What is Internet?
 - » Worlds largest network
 - » Collection of interconnected networks built on the Internet protocol **TCP/IP**
 - » Growing at an amazing rate
 - » Open system with decentralized management
- Estimated: **28.8** million people over 16 in the US have access, **16.4** million use the Internet and **11.5** million use the web.

World Wide Web

- Client/Server Architecture
- Designed to make it easy for people to share information
 - » Hides complexities of location of documents
 - » Easy to distribute information
 - » Fun to look at

World Wide Web

- Hyperlinks
 - » Highlighted words or pictures
 - » Item pointed to may be another document image, movie, sound clip etc

Example

Visit NYSE

city tours

NYSE sounds

view sights

NY CITY TOURS

sound audio

Movie

WWW Browsers

- Interpret HTTP as well as other protocols
 - » ftp, mailto, telnet, gopher, etc.
- Display physical formatted HTML text
 - » in-line images
 - » hyperlinks

WWW browsers (contd..)

- Helper Applications
 - » Programs on the user's computer that can be used to display images, movies, sound, etc. that cannot be displayed on the browser itself
 - . Sound files
 - . Movies (MPEG)
 - . Mail
 - . Other file formats

Why learn HTML?

- Everyone is a publisher
 - » The architecture of the Internet allows almost anyone to become an information provider for a world wide audience
- WWW documents must be in HTML
 - » To create your own home page you need to know some HTML

Why learn HTML? (contd..)

- **Not a must**
 - » Can use tools to create HTML
 - » Conversion tools can be used to convert existing HTML documents
 - . Example: LaTeX2HTML
 - . Word documents can be saved in HTML
 - . FrameMaker documents too
- It is very easy to learn

Creating an HTML Page

- Requirements
 - » Text or HTML Editor to enter TAGS
 - » Graphics editors
 - » Browser (Netscape, Internet Explorer, Lynx, etc.)
- Focus
 - » Usable and Eye-catching documents
 - » Images in Web pages
 - » Animation

HTML

- HTML documents contain 3 things
 - » Text +TAGS
 - » External Multimedia such as graphics, sound, movies, etc.
- Example
 - » `<TAG> Your Text Here </TAG>`
 - » Types, used in pairs, or not in pairs
 - » Tags can be nested

What are Tags?

- Mark text as
 - » headings, paragraphs
 - » formatting (physical, logical)
 - » list
 - » quotations, etc.
- Also for
 - » creating hyperlinks
 - » including images, making tables
 - » fill-in forms, frames

How do they look?

- `<H1> KFUPM </H1>`
 - » display KFUPM as a level 1 heading, can go down from H1 to H6
- `<P>` A paragraph comes here `</P>`
- `<A>` Anchor ``
- `
` for line breaks
- `<HR>` for horizontal line

HTML Document Structure

- Basic Structure

- » `<HTML>`

- » `<HEAD>`

- » `<TITLE> KFUPM </TITLE></HEAD>`

- » `<BODY>`

.....

- » `</BODY>`

- » `</HTML>`

HTML Document Structure

- HTML= head + body
 - » Body elements contain all the text and other material to be displayed
- Line breaks and indentation exist only for human readability
- Comment
 - » `<! upto the next >`
- `<PRE>` for pre-formatted text

Example

```
<HTML>
```

```
<HEAD><TITLE>head/title</TITLE></HEAD>
```

```
<BODY> all elements of document
```

```
<H1> Big heading </H1>
```

```
<H6> Small heading </H6>
```

```
<P> a para of text comes here </P>
```

```
</BODY>
```

```
</HTML>
```

Character formatting Markup

- Physical Styles

- » `` bold ``
- » `<BIG>` `õ .` `</BIG>`
- » `_{` Makes text subscripts `}`
- » `<TT>` emphasized text `</TT>`
- » `<I>` text in italics `</I>`
- » `` changes font size ``
- » `<BASEFONT SIZE=n>` `n=1,õ ,7`

Character formatting Markup

- Logical Styles
 - » `<CODE>` Marks computer code `</CODE>`
 - » `<PLAINTEXT>` without processing tags `</PLAINTEXT>`
 - » `` emphasized text ``
 - » `` Strong Emphasis ``

List Markup

- ` ... õ `
 - » UL specifies unordered list
 - » LI specifies list item
- OL specifies ordered list
- `<DL>` specified a definition list
- `<DL> <DT> õ <DD>õ ..</DL>`
 - » provides a definition list
 - » DT begins each item title
 - » DD begins each item definition
- `<PRE>` unformatted text `</PRE>`

Logical vs. Physical Formatting

- Design Goal:
 - » Specify logical organization of document
 - » not designed to be an editor like Word, FrameMaker etc..
- Documents with sections of text marked as logical units
 - » Titles
 - » Paragraphs
 - » Lists

More on Tags

- HTML elements
 - » start tag and end tag
 - . `<NAME>` `</NAME>`
- Empty elements
 - » `
`
- Attributes for elements
 - » ``
 - . tag names and attributes are case insensitive
 - . filename is case sensitive

Spinning your HTML Web

- To create hot spots (or Anchors) you need two things
 - » URLs (Uniform Resource Locator)
 - » Links
- Anchors and Links allow readers to jump from place to place in the document
- URL is a fancy way of saying address or location for information on the Internet

- Example:

<http://www.ccse.kfupm.edu.sa/~sadiq/tut.html>
protocol indicator, hostname, directory/filename

- Types:

- » Absolute URLs (also called complete URLs)
- » Relative URLs (are incomplete URLs)

- Other Protocols (mailto, ftp, etc)

<ftp://ftp/pub/images/backgrounds/glosbgr.gif>
<mailto:sadiq@ccse.kfupm.edu.sa>

Examples

- <http://www.ccse.kfupm.edu.sa/~sadiq/tut.html>
- `<IMAGE SRC=
ftp://ftp/pub/images/backgrounds/glosbgr.gif ALIGN =
MIDDLE>`
- `<A HREF=%00
mailto:sadiq@ccse.kfupm.edu.sa+>
sadiq@ccse.kfupm.edu.sa`

Building Anchors <A>

- Components required
 - » The Tag: `<A> anchor_name `
 - » HREF: Indicates where to jump
 - » NAME: Identifies an internal label
- HREF: Lets users jump to either material on the same Web site or to other material on the Internet
- NAME: Lets users jump to material within the same document

Named Anchor & Basic Links

- `anchor_name `
 - » `something = #name`
 - . name=funny (for example)
 - » `something = filename.html[#name]`
 - . tutorial.html
 - » `something = a Web site, for example`
 - . `http://www/uqu.edu.sa/~youssef/tutorial.html`
 - . `ftp://www/ksu.edu.sa/~ahmed/jokes.html`
- `<H2> Funny</H2>`

Using Images in Web Pages

- Including
- Aligning
- Using them as links
- Making images load more quickly
- Using thumbnail images

Adding Images

- Must include them as GIF or JPG graphics
- Use graphic editors, scanners, or, **borrow**
- Must use an Image Tag `<IMG SRC = "..õ ↵`
- `ALT="..."` specifies text to be displayed if image not available
- `BORDER=#` of pixels, controls the thickness of the border
- Pictures can be aligned Left, Right, etc.

Example of Image Inclusion

```
<HTML>
<HEAD><TITLE> Biography </TITLE></HEAD>
<BODY>
<H1> Dr. Sadiq M. Sait's Biography </H1>
<P><IMG SRC="sadiq.gif"
ALT="Picture of Sadiq Sait " ALIGN=RIGHT>
Picture of Sadiq M. Sait for his biography...</P>
</BODY>
</HTML>
```

Example of Image inclusion

```
<HTML>
```

```
<HEAD><TITLE> Biography </TITLE></HEAD>
```

```
<BODY>
```

```
<H1> Dr. Sadiq M. Sait's Biography </H1>
```

```
<P><IMG SRC="sadiq.gif"
```

```
ALT="Picture of Sadiq Sait " ALIGN=RIGHT
```

```
HSPACE=20 HEIGHT=100 WIDTH=50>
```

```
Picture of Sadiq M. Sait for his biography...</P>
```

```
</BODY> </HTML>
```

Some notes on Images

- Loading of images is made **faster** by telling the browser the **size** of the image
- Size is specified in **pixels**
- You can link by using **images**
 - » Can have pictures with no borders
- You can use **thumbnail** images to link to larger images
- Making **clickable** images (image maps)

Pictures as Links

```
<P>
```

```
<A HREF="saitbio.html">
```

```
<IMG SRC="sadiq.gif"> </A>
```

```
Sadiq M. Sait's brief biography  
comes here
```

```
</P>
```

Pictures as Links (contd..)

```
<P>
```

```
<A HREF="saitbio.html">
```

```
<IMG SRC="sadiq.gif"
```

```
ALT="Picture of Sadiq Sait" ALIGN=RIGHT
```

```
HSPACE=20 HEIGHT=100 WIDTH=50
```

```
BORDER=0>
```

```
</A>
```

```
Sadiq M. Sait was born in .....</P>
```


Using Thumbnails

```
<P>
```

```
<A HREF="sadiqbig.gif">
```

```
<IMG SRC="sadiqthumbnail.gif"
```

```
    ALT="Picture of Sadiq Sait">
```

```
</A> Thumbnail of Sait's picture .
```

Clickable Images

- Enable readers to click on parts of images (e.g., click on a state or country in a map)
- HTML tag used in `<MAP>`
- Define clickable areas
- Examples
 - » Map a rectangle, circle or polygons

Defining the map

- Tells which area readers may click and what link to follow
 - » `<MAP>`
 - » `NAME= %o%` gives the map a name
 - » `<AREA>` specifies the shape of a hot spot
 - » `COORDS= %o1 ,y1,x2,y2,õ +`
 - » `HREF= %oJRL+`
 - » `SHAPE= %o +` specifies type of shape as RECT, CIRC, POLYGON, etc.

Example

```
<P> <IMG ALT=%This is a clickable map.+  
SRC=%magemap.gif+USEMAP=%demomap+>
```

the above is an imagemap </P>

```
<MAP NAME=%demomap+>
```

```
<AREA SHAPE=%RECT+COORDS=200, 75, 300, 190+  
  HREF=%shapes/square.html+>
```

```
<AREA SHAPE=%CIRC+COORDS=118, 33, 60+  
  HREF=%shapes/round.html+>
```

```
<AREA SHAPE=%POLY+COORDS=400, 75, 500, 200, 350,  
  200+HREF=%shapes/poly.html+>
```

```
</MAP>
```

Other Attributes

- Choosing Colors
 - » Background
 - » Links (link, alink, vlink)
 - » Text
- Colors can be chosen for tables, background etc.
- RGB concept (#FFFFFF=white)
- Choosing background (using images, .gif files)

Some More Tags

- CENTER, BLINK, HR, APPLET
- <FORM>
 - » SELECT, OPTION, TEXTAREA
- <TABLE>
 - » TR, TH, TD, CAPTION
- FRAME
 - » FRAMESET
- And many more .

Beyond Simple HTML

- Tables
- Forms
- Frames
- Simple animation
- Inclusion of Java Applets
- JavaScript and CGI programs

Tables in HTML

- Caption
- Alignment and Width
- Table Header <TH>
- Table Data <TD>
- Table Rows <TR>
- Color (of cells)
- Border or not (and width)

Tables

```
<TABLE BORDER=10  
ALIGN=ABSCENTER bgcolor=#68d1cc>  
<CAPTION><H3> This is a table with a  
border</H3> </CAPTION>  
<TR> <TH> <TH>Male <TH>Female  
<TR> <TH>Pop <TD>0.49<TD>0.51  
<TR> <TH>Wealth <TD> 0.9<TD> 0.1  
</TABLE>
```

Forms in HTML

- What are they used for
 - » Surveys
 - » Collect addresses of visitors to your Homepage
 - » Allow people to register for something
- Features
 - » Submitted by mail
 - » Security (Passwords)
 - » Checkboxes and Radio buttons
 - » Area for Text and Comments

HTML TAGS/Attributes

- `<FORM>` ÷ enclose form ... `</FORM>`
- `ACTION=%w` +identifies what should happen when the form is submitted
- `<INPUT ÷ . >` identifies some type of input field
- `CHECKED` shows which item is selected by default (check box/radio button)
- `TYPE` indicates the type of field (text, password, radio, submit, reset, etc)
- `VALUE` indicates the value of the button

Forms (Input Types)

```
<FORM METHOD=POST ACTION=
"http://www.salford.ac.uk/wibblefish">
<A NAME="form_simple">Simple </A>
<P> Your Name: <INPUT NAME="name"
TYPE=TEXT size="24"></P><H3>
<A NAME="form_pass">Password</A>
Input</H3>
<P>Your Password: <INPUT NAME="pass"
TYPE=PASSWORD size="24"></P>
```

Selection/Options in Forms

```
<H3><A NAME="form_sel">Sel</A>  
  ect from a group</H3><P>  
<SELECT>  
<OPTION>Dhahran  
<OPTION>Jeddah  
<OPTION>Riyadh  
<OPTION>Taif  
</SELECT></P>
```

Checkboxes in Forms

<H3>Checkbox to choose a number of parameters</H3>

<INPUT NAME="kent" TYPE=CHECKBOX VALUE="kent"> Kent

 <INPUT NAME="canterbury" TYPE=CHECKBOX VALUE="canterbury"> Canterbury

 <INPUT NAME="manchester" TYPE=CHECKBOX VALUE="manchester"> Manchester

 <INPUT NAME="coventry" TYPE=CHECKBOX VALUE="coventry"> Coventry

Radio Buttons in Forms

Radio buttons to choose only one parameter

<INPUT NAME="wib" TYPE=RADIO VALUE="1"> Maybe

<INPUT NAME="wib" TYPE=RADIO VALUE="2" >Why
not ?

<INPUT NAME="wib" TYPE=RADIO VALUE="3">Yes

<INPUT NAME="wib" TYPE=RADIO VALUE="4" >No

Frames

- SRC: URL of documents to be displayed
- NAME: so this frame can be targeted by links in other documents
- Physical dimensions: Height, width etc.
- Other features: Scrolling, Resizing, etc.
- They are a complete HTML document or a page

Spicing up your Web Page

- Some HTML commands and Tricks
 - » BLINK tag, etc
- Animation and Sound
- Using Java Applets

Java Applet inclusion

- Compile the Java code (e.g., use javac)
 - » example: javac Blinker
- Creates file with extension .class,
 - » example Blinker.class
- Use the tags `<APPLET>` and `</APPLET>`
- Specify parameters such as speed, color (for background and text, etc.)

Java Applet Inclusion (contd)

```
<applet code=%Blink.class+width=300 height=30>  
<param name=lbl value = %SADIQ M. SAIT, +>  
<param name=speed value=%6+>  
</applet>
```

Java Applet Inclusion (contd..)

```
<applet code=%ticker.class+width=280 height=30>  
<param name=msg value = %W/elcome to the tutorial on  
  Web page design and HTML!+>  
<param name=%shco+value=%210, 210,210+>  
<param name=%speed+value=%0+>  
<param name=%bgco+value=%255,255,255+>  
<param name=%xtco+value=%255,0,0+>  
</applet>
```

CGI-bin

- cgi-bin (common gateway interface)
- Executable: Example
 - » `<!--#exec cgi=%6cgi-bin/counter+-->` people visited this page.
- Helper programs
 - » to send mail
 - » run audio/video applications
 - » etc

Searching

- On the internet we can
 - » search for a file using Archie
 - » Find an e-mail address
 - . Internet White Pages (internic keeps records)
 - » Finding a gopher site
 - » etc
- Search engines using the Web

Search Engines

- Tools to discover Web resources on the internet
- Help in locating information
- They act as an agent between publishers and users

Other & Recent Technologies

- Authoring Tools
- VRML, Dynamic HTML, ASPs, etc
- Video Streaming
- Push Technology
- Data-Base Integration
- E-Commerce



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