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Web Application Development (IT093IU)

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HTML

HTML:

- Hypertext markup languages
- The background for front-end development of a website

The World Wide Web

- The World Wide Web
  - The set of computers on the Internet that support HTTP
  - Not a separate network.
- HTTP
  - The HyperText Transfer Protocol.
  - The language used by a www client (e.g. Firefox, Internet explorer, etc.) to request documents from a www server (i.e. the program running at websites like amazon.com or gmail.com)
- HTML
  - The HyperText Markup Language
  - It was created by Tim Berners-lee in 1990
  - The language used to design webpages

HyperText Markup Language

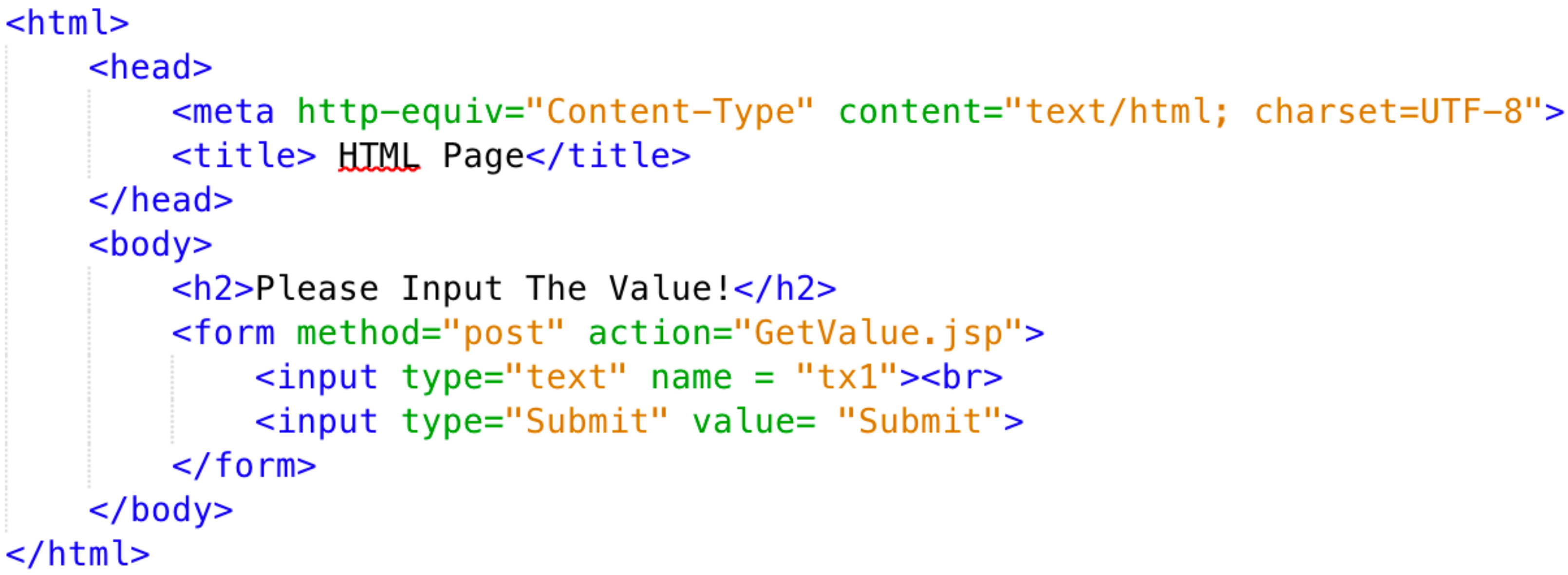
- Text Mixed with Markup Tags
  - Tags Enclosed in Angle Brackets:
    <H1>Introduction</H1>
    <b>Bold</b>
    <Table>Name of a table</Table>
- Nested Tags
  - Whenever you have HTML tags within other HTML tags, you must close the nearest tag first
  - Example:
  - <H1> <I> The Nation </I> </H1>
- What Does Markup Describe?
  - Appearance
  - Layout

Structure of a Web Page

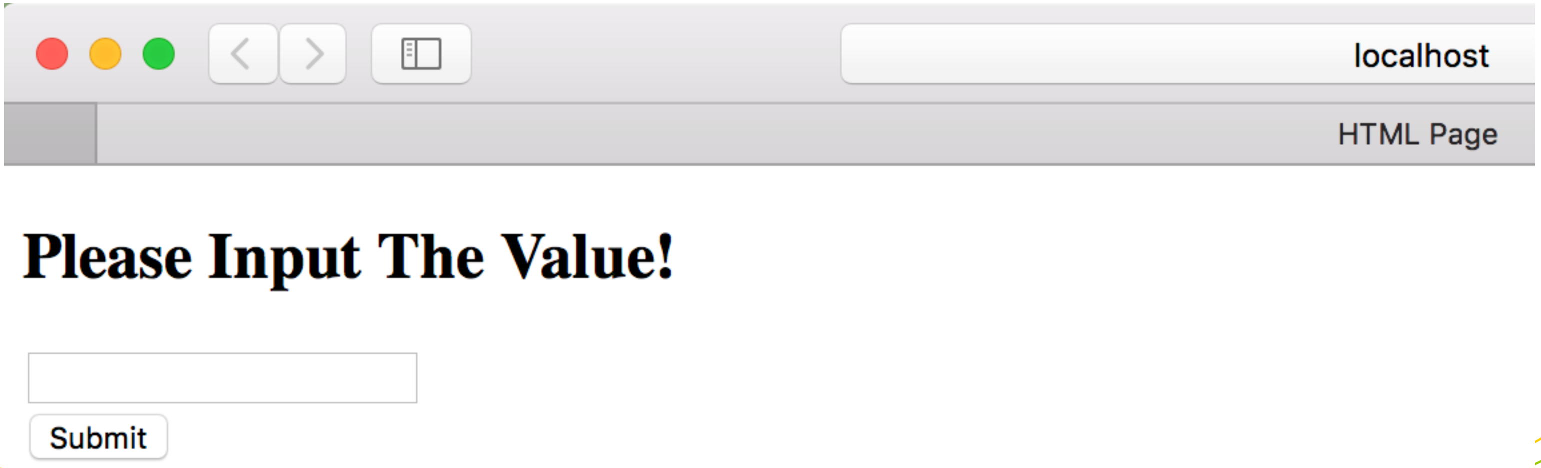
- All Web pages share a common structure
- All Web pages should contain a pair of <HTML>, <HEAD>, <TITLE>, and <BODY> tags

```
<HTML>
<HEAD>
<TITLE> Example </TITLE>
</HEAD>
<BODY>
      This is where you would
    include the text and images on
    your Web page.
</BODY>
</HTML>
```

HTML Example



```
<html>
    <head>
        <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
        <title> HTML Page</title>
    </head>
    <body>
        <h2>Please Input The Value!</h2>
        <form method="post" action="GetValue.jsp">
            <input type="text" name = "tx1"><br>
            <input type="Submit" value= "Submit">
        </form>
    </body>
</html>
```



Please Input The Value!

Steps for creating and publishing a webpage

1. Create an HTML document
2. Register with an ISP (Internet service provider)
3. Place the document in a world-accessible directory on a system running an HTTP server
4. Access the webpages through:
   http://localhost:8081/WAD/TestPage.jsp
   http://vnexpress.net
   http://*hostname/~username/filename*

Note: http ≠ https (s: security sites)

Checking and validating a website

- Check the syntax using a formal HTML validator
  - https://jsonformatter.org/html-validator
  - http://validator.w3.org/
- The version of HTML against which the document is validated is based on the DOCTYPE

  https://www.w3schools.com/tags/ref_html_dtd.asp
- The WWW Consortium recently added advice that web pages include information on the character set, even though ASCII or Latin-1 is the default. The validator at http://validator.w3.org/ gives warnings if you omit this. You can ignore such warnings if you wish.

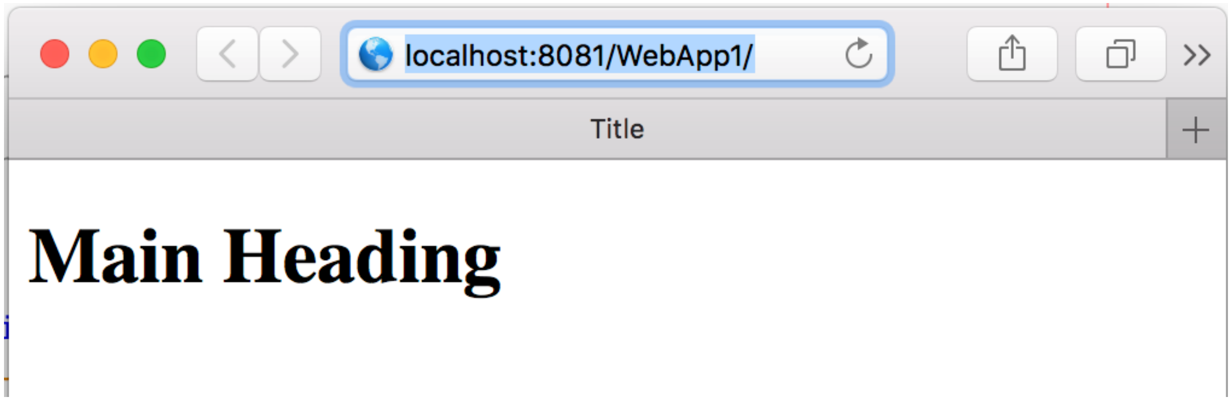
HTML Document Template

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

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

<!-- Rest of page goes here -->

</BODY>
</HTML>
```

Goes on browser's title bar
May not appear in printouts

Main heading. Often used as title
Appears in printouts

HTML comment
Replace with body of
WWW page



localhost:8081/WebApp1/

Main Heading

Main HTML Elements

- DOCTYPE
- HTML
- HEAD
  - TITLE element required
  - Optional elements:
    - BASE
    - META
    - BGSOUND
    - SCRIPT, NOSCRIPT
    - STYLE
    - LINK

Explain ➔ https://www.w3schools.com/tags/tag_head.asp

Main HTML Elements (Continued)

- BODY Element
  - <BODY BGCOLOR="YELLOW">
  - HTML Attributes and Attribute Values
    - BACKGROUND
    - BGCOLOR
    - TEXT
    - LINK, VLINK, ALINK
    - OnLoad, OnUnload, OnFocus, OnBlur,…
- Elements inside BODY element
  - <BODY>

    Remaining HTML elements

    </BODY>

META Element

- Provides data information of HTML document, forwards and refreshes pages
- The data information are not displayed on the browser
- The information are as bellows:
  - NAME="author"
  - NAME="keywords"
  - NAME="description”
  - HTTP-EQUIV="refresh”, "content-type”,…

META Element, Example

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0 Transitional//EN">
<HTML>
<HEAD>
  <TITLE>News Headlines</TITLE>
  <META HTTP-EQUIV="REFRESH"
        CONTENT="3600">
</HEAD>

<BODY>
<H1 ALIGN="CENTER">News Headlines</H1>

<H2>National News</H2>
Blah, blah, blah.

<H2>International News</H2>
Yadda, yadda, yadda.

</BODY>
</HTML>
```

Block-Level Elements

- Headings
  - H1 … H6
  - ALIGN
- Basic Text Sections
  - P
  - ALIGN
  - PRE
  - WIDTH
  - ADDRESS
  - BLOCKQUOTE

Block-Level Elements, cont.

- Lists

OL	ordered list
LI	list of items
UL	unordered list
DL	description list
DT	a term in a description list
DD	the term in a description list

- Tables and Forms (Postponed)
- Misc.
  - HR
  - DIV (A <div> section in a document that is styled with CSS)
  - CENTER
  - MULTICOL (Netscape only)

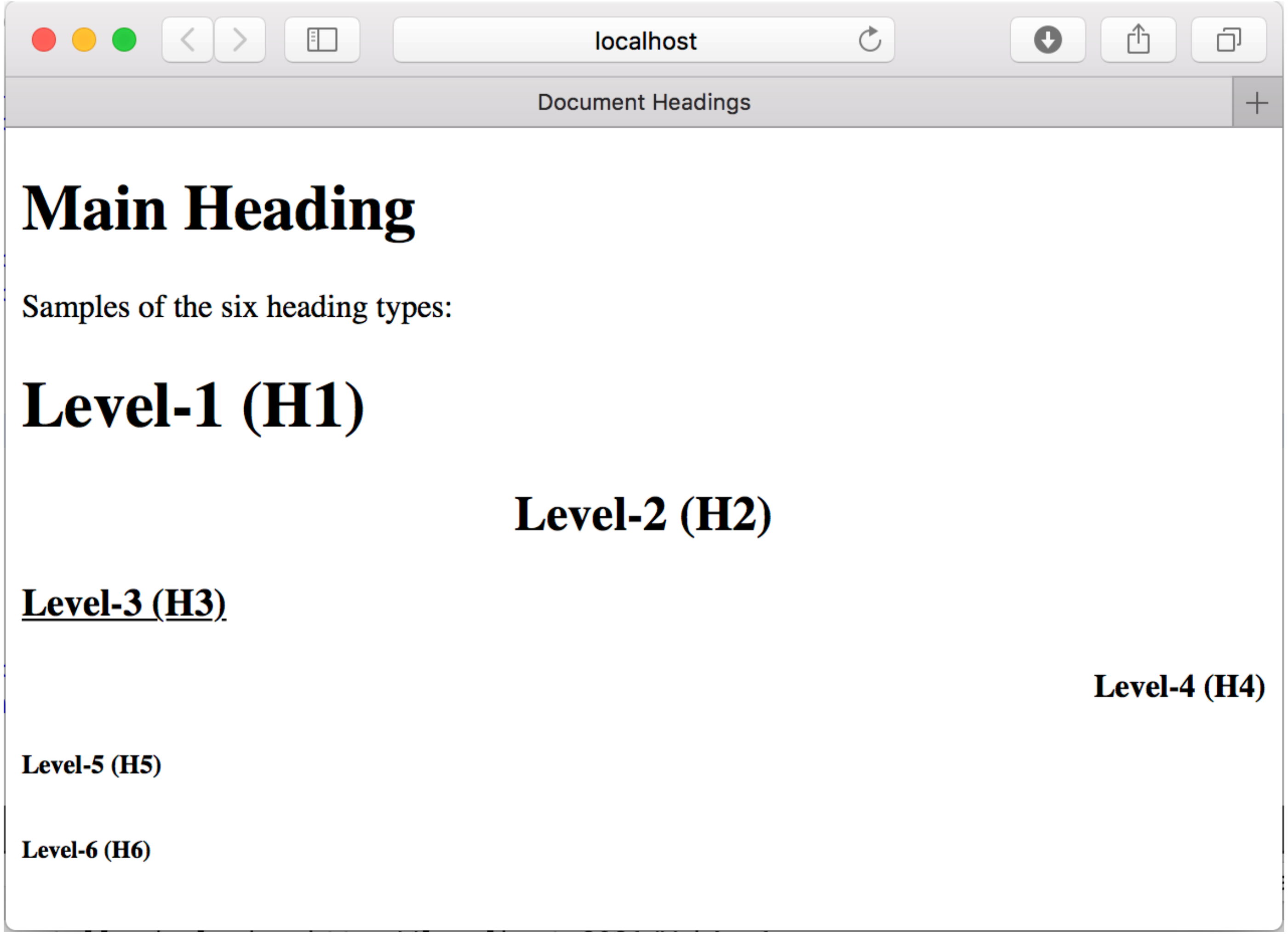
Headings

- Heading Types
  - <H1 ...> ... </H1>
  - <H2 ...> ... </H2>
  - <H3 ...> ... </H3>
  - <H4 ...> ... </H4>
  - <H5 ...> ... </H5>
  - <H6 ...> ... </H6>
- Attributes: ALIGN
  - Values: LEFT (default), RIGHT, CENTER
- Nesting tags
  - Headings and other block-level elements can contain text-level elements, but not in the contrary

Headings, Example

```
<HTML>
<HEAD>
  <TITLE>Document Headings</TITLE>
</HEAD>
<BODY>
Samples of the six heading types:
<H1>Level-1 (H1)</H1>
<H2 ALIGN="CENTER">Level-2 (H2)</H2>
<H3><U>Level-3 (H3)</U></H3>
<H4 ALIGN="RIGHT">Level-4 (H4)</H4>
<H5>Level-5 (H5)</H5>
<H6>Level-6 (H6)</H6>
</BODY>
</HTML>
```

Headings, Result



Main Heading

Samples of the six heading types:

Level-1 (H1)

Level-2 (H2)

Level-3 (H3)

Level-4 (H4)

Level-5 (H5)

Level-6 (H6)

P – The Basic Paragraph

- Attributes: ALIGN
  - LEFT (default), RIGHT, CENTER. Same as headings.
  - Whitespace ignored (use <BR> for line break)
    - Consecutive <P>'s do not yield multiple blank lines
  - End Tag is Optional:

```
<BODY>
<P>
Paragraph 1
</P>
<P>
Paragraph 2
</P>
<P>
Paragraph 3
</P>
</BODY>
```

Fully-Specified

```
<BODY>
Paragraph 1
<P>
Paragraph 2
<P>
Paragraph 3
</BODY>
```

Equivalent with Implied Tags

Preformatted Paragraphs

- The PRE element
  - <PRE> ... </PRE>
- Attributes: WIDTH
  - Expected width in characters. Not widely supported.
- Problem: Special Characters

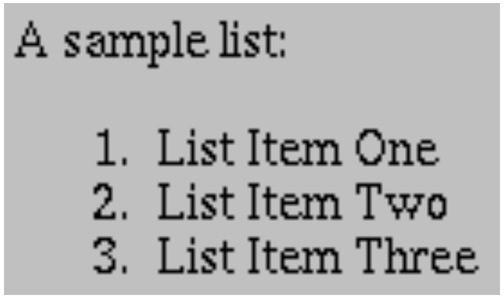
```
<PRE>
if (a<b) {
  doThis();
} else {
  doThat();
}
</PRE>
```

Desired Character	HTML Required
<	&lt;
>	&gt;
&	&amp;
"	&quot;
Non-breaking space	&nbsp;

OL: Ordered (Numbered) Lists

- OL Element
    - <OL>
        <LI>…
        <LI>…
        …
      </OL>
    - Attributes: TYPE, START, COMPACT
- List entries: LI
    - <LI …> … </LI> (End Tag Optional)
    - Attributes: (When inside OL) VALUE, TYPE

```
A sample list:
<OL>
  <LI>List Item One
  <LI>List Item Two
  <LI>List Item Three
</OL>
```

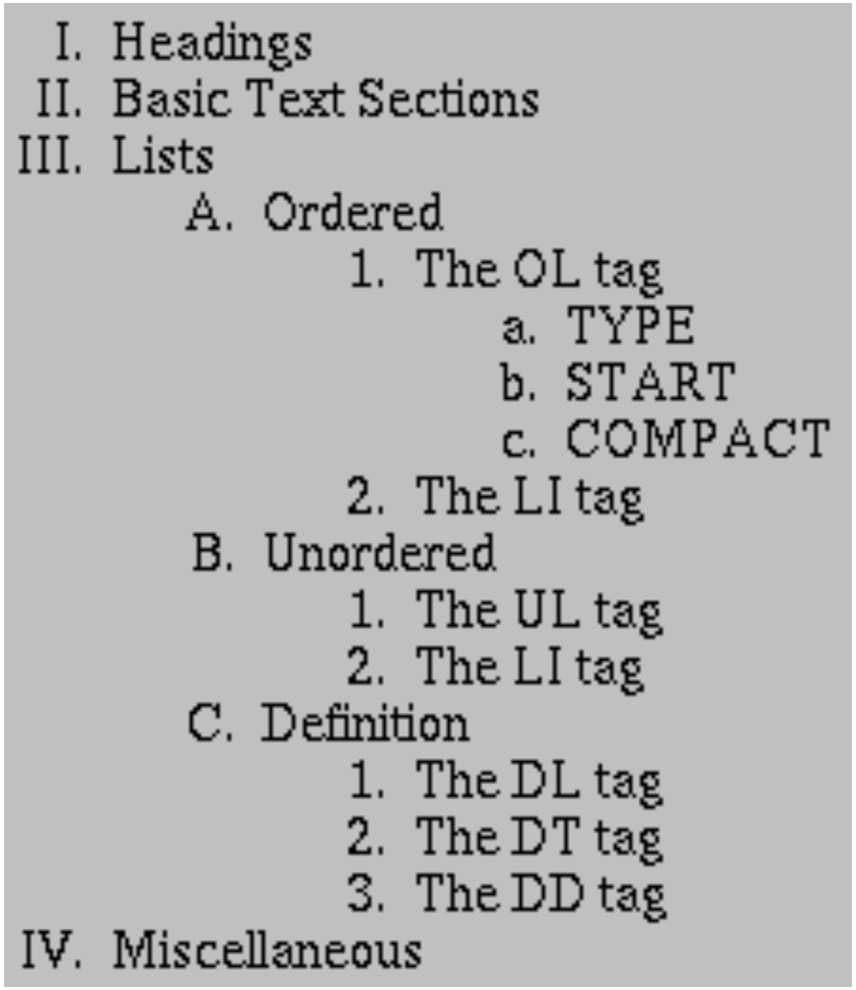


A sample list:

1. List Item One
2. List Item Two
3. List Item Three

Nested Ordered Lists

```
<OL TYPE="I">
<LI>Headings
 <LI>Basic Text Sections
 <LI>Lists
   <OL TYPE="A">
    <LI>Ordered
      <OL TYPE="1">
       <LI>The OL tag
         <OL TYPE="a">
          <LI>TYPE
          <LI>START
          <LI>COMPACT
         </OL>
       <LI>The LI tag
      </OL>
    <LI>Unordered
      <OL TYPE="1">
       <LI>The UL tag
       <LI>The LI tag
      </OL>
    <LI>Definition
      <OL TYPE="1">
       <LI>The DL tag
       <LI>The DT tag
       <LI>The DD tag
      </OL>
   </OL>
 <LI>Miscellaneous
</OL>
```



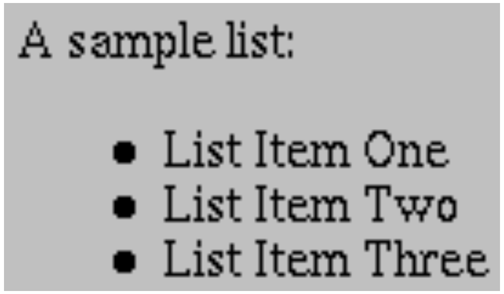
```
  I. Headings
 II. Basic Text Sections
III. Lists
        A. Ordered
               1. The OL tag
                      a. TYPE
                      b. START
                      c. COMPACT
               2. The LI tag
        B. Unordered
               1. The UL tag
               2. The LI tag
        C. Definition
               1. The DL tag
               2. The DT tag
               3. The DD tag
 IV. Miscellaneous
```

UL: Unordered (Bulleted) Lists

- UL Element

  -
    ```
    <UL>
      <LI>…
      <LI>…
      …
    </UL>
    ```
- Attributes: TYPE, COMPACT
  - TYPE is DISC, CIRCLE, or SQUARE
- List entries: LI (TYPE)
  - TYPE is DISC, CIRCLE, or SQUARE

```
A sample list:
<UL>
  <LI>List Item One
  <LI>List Item Two
  <LI>List Item Three
</UL>
```

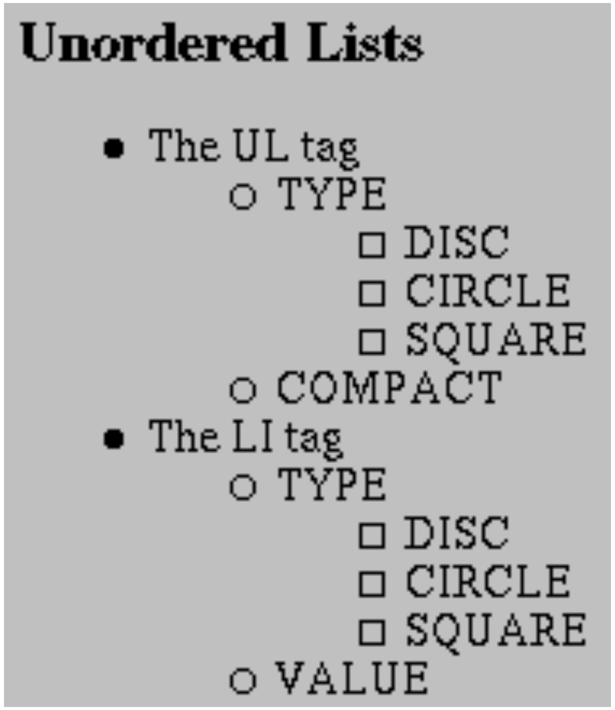


A sample list:

- List Item One
- List Item Two
- List Item Three

UL: Custom Bullets

```
<UL TYPE="DISC">
  <LI>The UL tag
      <UL TYPE="CIRCLE">
        <LI>TYPE
          <UL TYPE="SQUARE">
            <LI>DISC
            <LI>CIRCLE
            <LI>SQUARE
          </UL>
        <LI>COMPACT
      </UL>
  <LI>The LI tag
      <UL TYPE="CIRCLE">
        <LI>TYPE
          <UL TYPE="SQUARE">
            <LI>DISC
            <LI>CIRCLE
            <LI>SQUARE
          </UL>
        <LI>VALUE
      </UL>
</UL>
```



Unordered Lists

- ● The UL tag
  - ○ TYPE
    - □ DISC
    - □ CIRCLE
    - □ SQUARE
  - ○ COMPACT
- ● The LI tag
  - ○ TYPE
    - □ DISC
    - □ CIRCLE
    - □ SQUARE
  - ○ VALUE

Text-Level Elements

- Physical Character Styles
  - B, I, TT, U, SUB, SUP, SMALL, BIG, STRIKE, Q, BLINK
  - FONT
    - SIZE
    - COLOR
    - FACE
  - BASEFONT
  - SIZE
- Logical Character Styles
  - EM, STRONG, CODE, SAMP, KBD, DFN, VAR, CITE

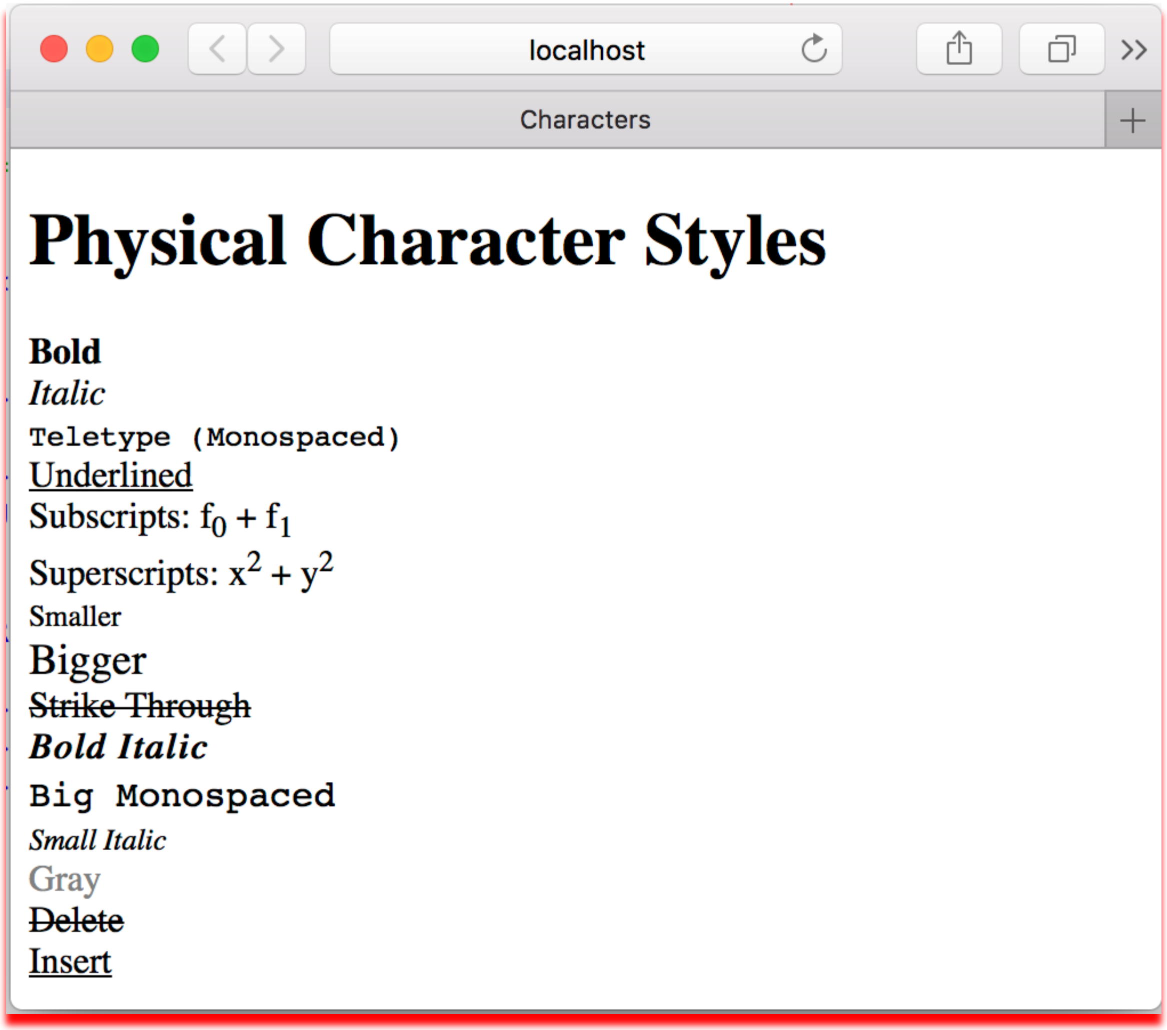
Text-Level Elements (Continued)

- Hypertext Links
  - A
    - HREF, NAME, TARGET, ...
- Images
  - IMG
    - SRC (required), ALT, ALIGN, WIDTH, HEIGHT, HSPACE, VSPACE, BORDER, USEMAP, ISMAP
- Misc. Text-Level Elements
  - BR (Explicit line break)
  - AREA (Client-side image maps)
  - APPLET (Java),
  - ...

Physical Character Styles, Example

```
...
<H1>Physical Character Styles</H1>
<B>Bold</B><BR>
<I>Italic</I><BR>
<TT>Teletype (Monospaced)</TT><BR>
<U>Underlined</U><BR>
Subscripts: f<SUB>0</SUB> + f<SUB>1</SUB><BR>
Superscripts: x<SUP>2</SUP> + y<SUP>2</SUP><BR>
<SMALL>Smaller</SMALL><BR>
<BIG>Bigger</BIG><BR>
<STRIKE>Strike Through</STRIKE><BR>
<B><I>Bold Italic</I></B><BR>
<BIG><TT>Big Monospaced</TT></BIG><BR>
<SMALL><I>Small Italic</I></SMALL><BR>
<FONT COLOR="GRAY">Gray</FONT><BR>
<DEL>Delete</DEL><BR>
<INS>Insert</INS><BR>
...
```

Physical Character Styles, Result



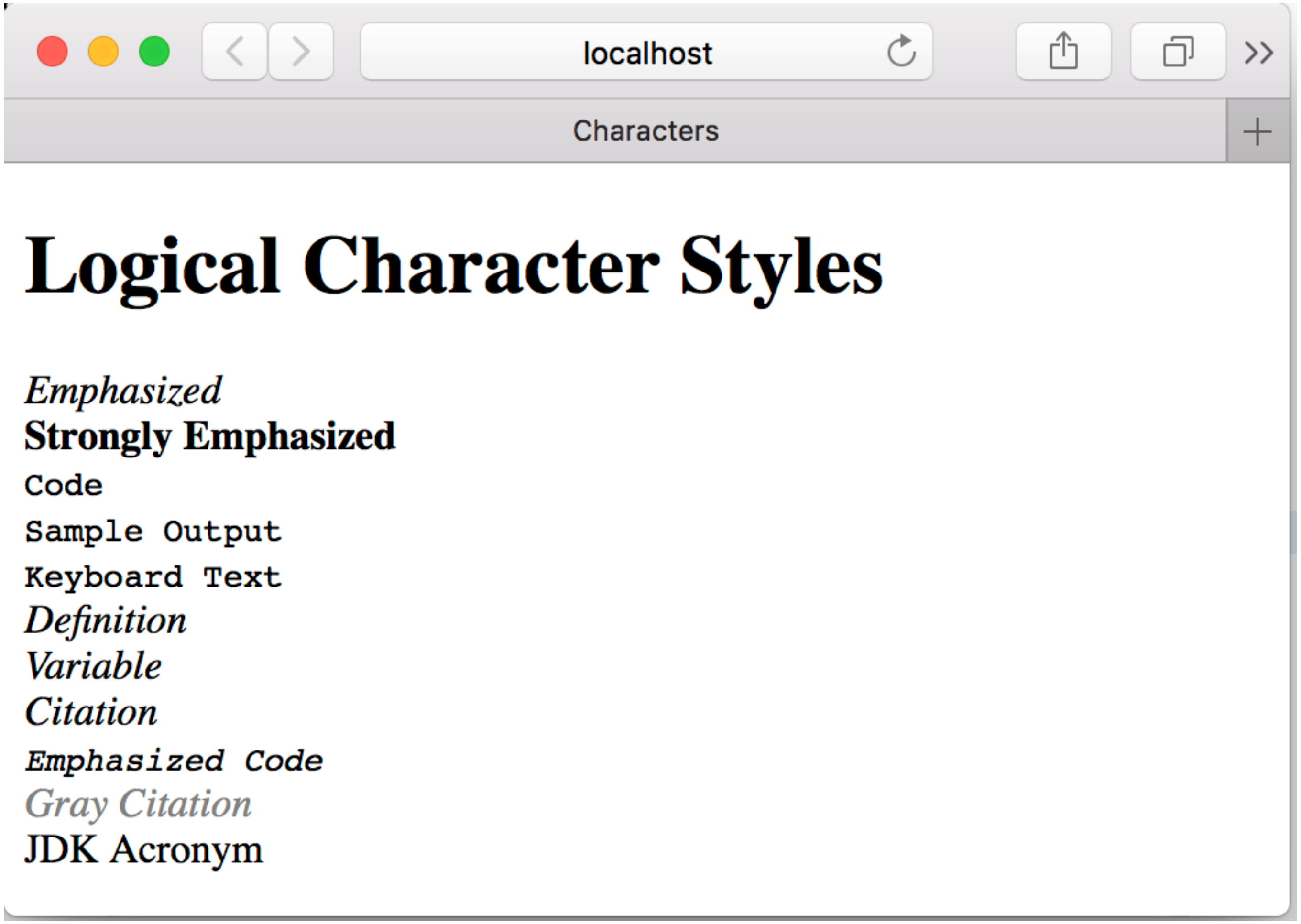
Physical Character Styles

Bold
Italic
`Teletype (Monospaced)`
Underlined
Subscripts: $f_0 + f_1$
Superscripts: $x^2 + y^2$
Smaller
Bigger
~~Strike Through~~
Bold Italic
`Big Monospaced`
Small Italic
Gray
~~Delete~~
Insert

Logical Character Styles, Example

```
...
<H1>Logical Character Styles</H1>
<EM>Emphasized</EM><BR>
<STRONG>Strongly Emphasized</STRONG><BR>
<CODE>Code</CODE><BR>
<SAMP>Sample Output</SAMP><BR>
<KBD>Keyboard Text</KBD><BR>
<DFN>Definition</DFN><BR>
<VAR>Variable</VAR><BR>
<CITE>Citation</CITE><BR>
<EM><CODE>Emphasized Code</CODE></EM><BR>
<FONT COLOR="GRAY"><CITE>Gray
   Citation</CITE></FONT><BR>
<ACRONYM TITLE="Java Development Kit">JDK
   Acronym</ACRONYM>
...
```

Logical Character Styles, Result



Logical Character Styles

Emphasized
Strongly Emphasized
`Code`
`Sample Output`
`Keyboard Text`
Definition
Variable
Citation
`Emphasized Code`
Gray Citation
JDK Acronym

Hypertext Links

- Links can contain images and other text-level elements (i.e., <A HREF…> … </A>)
- Link to Absolute URL
  - Use a complete URL beginning with http://

```
Java is discussed in
<A HREF="http://host/path/chapter2.html">
Chapter 2</A>.
```

- Link to Relative URL
  - Use a filename or relative path to filename
    - Interpreted write location of current file

```
Java is discussed in
<A HREF="chapter2.html">Chapter 2</A>.
```

Hypertext Links (Continued)

- Link to Section
  - Use a section name (see below) preceded by #

    ```
    Images are discussed in
    <A HREF="#Section2">Section 2</A>
    ```

- Link to Section in URL
  - Use absolute or relative URL, then #, then section name

    ```
    Images are discussed in
    <A HREF="chapter1.html#Section2">
    Sec. 2 of Chap. 1</A>.
    ```

- Naming a Section
  - Use <A NAME="..."> and do not include the pound sign

    ```
    <H2><A NAME="Section2">Images</A></H2>
    ```

Changing the Color of Links

- The LINK, VLINK, and ALINK attributes can be inserted in the <BODY> tag to define the color of a link
  - LINK defines the color of links that have not been visited
  - VLINK defines the color of links that have already been visited
  - ALINK defines the color of a link when a user clicks on it

Using Links to Send Email

- To create a link to an email address, type

  <A HREF=“mailto:email_address”> Label</A>

- For example, to create a link to send email to myself, I would type:

  <A HREF=“mailto:nvsinh@hcmiu.edu.vn”> email Sinh Nguyen</A>

Anchors

- Anchors enable a user to jump to a specific place on a Web site
- Two steps are necessary to create an anchor. First you must create the anchor itself. Then you must create a link to the anchor from another point in the document.

Anchors

- To create the anchor itself, type <A NAME=“anchor name”>label</A> at the point in the Web page where you want the user to jump to
- To create the link, type <A HREF=“#anchor name”>label</A> at the point in the text where you want the link to appear

Example: Anchor

<A HREF="#chap2">Chapter Two</A><BR>

Link

<A NAME="chap2">Chapter 2 </A> *Anchor*

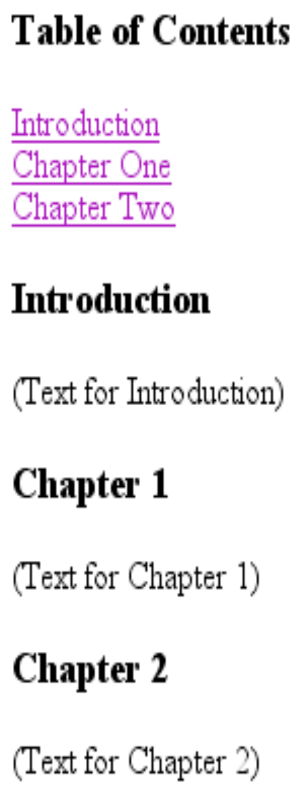


Table of Contents

Introduction
Chapter One
Chapter Two

Introduction

(Text for Introduction)

Chapter 1

(Text for Chapter 1)

Chapter 2

(Text for Chapter 2)

IMG: Embedding Images

- Example

```
<IMG SRC="SomeFile.gif" ALT="My Dog"
     WIDTH=400 HEIGHT=300>
```

- Attributes:
  - SRC (required)
  - ALT (technically required)
  - ALIGN (see <BR CLEAR="ALL">)
  - WIDTH, HEIGHT
  - HSPACE, VSPACE
  - BORDER
  - USEMAP, ISMAP

Image Alignment, Example

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0
   Transitional//EN">
<HTML>
<HEAD><TITLE>Image Alignment</TITLE></HEAD>
<BODY>
<H1 ALIGN="CENTER">Image Alignment</H1>
<TABLE BORDER=1>
  <TR><TH>Alignment
      <TH>Result
  <TR><TH><CODE>LEFT</CODE>
      <TD><IMG SRC="rude-pc.gif" ALIGN="LEFT"
               ALT="Rude PC" WIDTH=54 HEIGHT=77>
          This positions the image at the left side,
          with text flowing around it on the right.
  <TR><TH><CODE>RIGHT</CODE>
      <TD><IMG SRC="rude-pc.gif" ALIGN="RIGHT"
               ALT="Rude PC" WIDTH=54 HEIGHT=77>
          This positions the image at the right side,
          with text flowing around it on the left.
   ...
</TABLE>
</BODY>
</HTML>
```

Image Alignment, Result

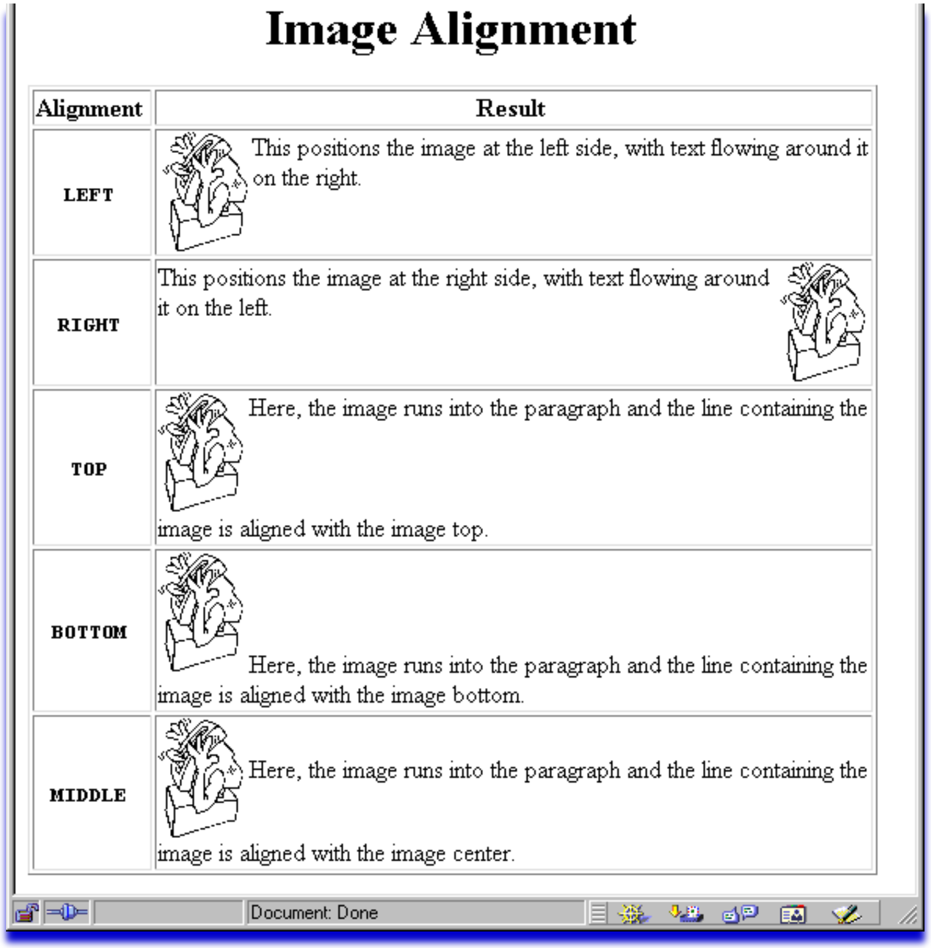


Image Alignment

Alignment	Result
LEFT	This positions the image at the left side, with text flowing around it on the right.
RIGHT	This positions the image at the right side, with text flowing around it on the left.
TOP	Here, the image runs into the paragraph and the line containing the image is aligned with the image top.
BOTTOM	Here, the image runs into the paragraph and the line containing the image is aligned with the image bottom.
MIDDLE	Here, the image runs into the paragraph and the line containing the image is aligned with the image center.

Document: Done

Tables

- Tables can be used to display the data in rows and columns,
- Tables can be used to create multi-column text, captions for images and sidebars, etc.
- The <TABLE> tag is used to create a table; the <TR> tag defines the beginning of a row while the <TD> tag defines the beginning of a cell

Tables

- Example

```
<TABLE BORDER=1>
   <CAPTION>Table Caption</CAPTION>
   <TR><TH>Heading1</TH>      <TH>Heading2</TH></TR>
   <TR><TD>Row1 Col1 Data</TD><TD>Row1 Col2
    Data</TD></TR>
   <TR><TD>Row2 Col1 Data</TD><TD>Row2 Col2
    Data</TD></TR>
   <TR><TD>Row3 Col1 Data</TD><TD>Row3 Col2
    Data</TD></TR>
</TABLE>
```

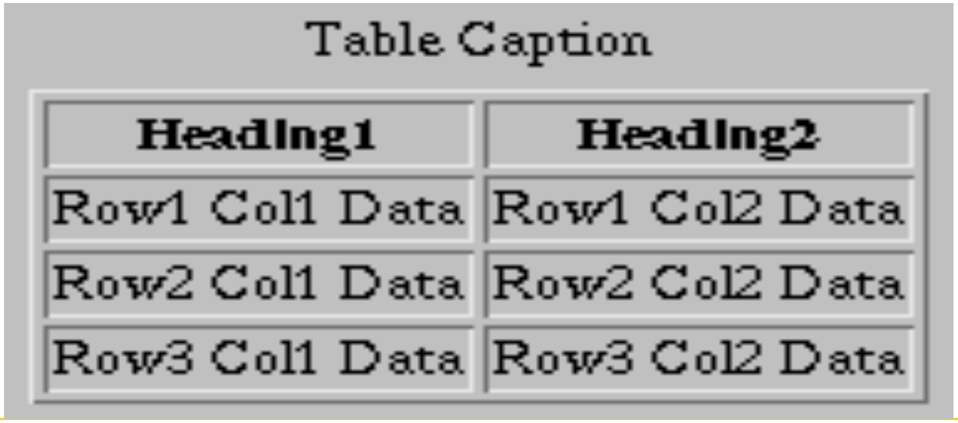


Table Caption

Heading1	Heading2
Row1 Col1 Data	Row1 Col2 Data
Row2 Col1 Data	Row2 Col2 Data
Row3 Col1 Data	Row3 Col2 Data

TABLE Element Attributes

- ALIGN
  - The ALIGN attribute gives the horizontal alignment of the table as a whole
  - Legal values are LEFT, RIGHT, and CENTER, with LEFT being the default
- BORDER
  - This specifies the width in pixels of the border around the table
  - This is in addition to the border around each cell (the CELLSPACING).
  - The default is zero, which also results in the visible 3D divider between cells being turned off
- CELLSPACING
  - This gives the space in pixels between adjacent cells. Drawn as a 3D line if BORDER is nonzero, otherwise empty space in the background color is used
  - The default is usually about 3

TABLE Element Attributes (Continued)

- CELLPADDING
  - CELLPADDING determines the empty space, in pixels, between the cell’s border and the table element
  - The default is usually about 1
- WIDTH
  - This specifies the width of the table, either in pixels (<TABLE WIDTH=250>) or as a percentage of the current browser window width (<TABLE WIDTH="75%">)
- BGCOLOR
  - Specify the background color of the table TABLE (also legal for TR, TD, and TH)
- BORDERCOLOR, BORDERCOLORDARK,
- BORDERCOLORLIGHT
  - No standard attributes supported by IE to specify the colors to user for the borders

TABLE Element Attributes (Continued)

- BACKGROUND
  - This nonstandard attribute supported by IE gives an image file that will be tiled as the background of the table
  - You might want to use style sheets instead.
- RULES
  - HTML 4.0 attribute that specifies which inner dividing lines are drawn
  - All are drawn if this attribute is omitted
  - Legal values are NONE, ROWS, COLS, and ALL
- FRAME
  - Specifies which outer borders are drawn
  - All four are drawn if this attribute is omitted
  - Legal values are BORDER or BOX (all), VOID (none), ABOVE (top), BELOW (bottom), HSIDES (top and bottom, despite the somewhat confusing name), VSIDES (left and right), LHS (left), and RHS (right)

Table CAPTION

- Attribute
  - ALIGN (Values: TOP, BOTTOM)
- Usage
  - An enclosing borderless table may give more flexibility than the built-in CAPTION.

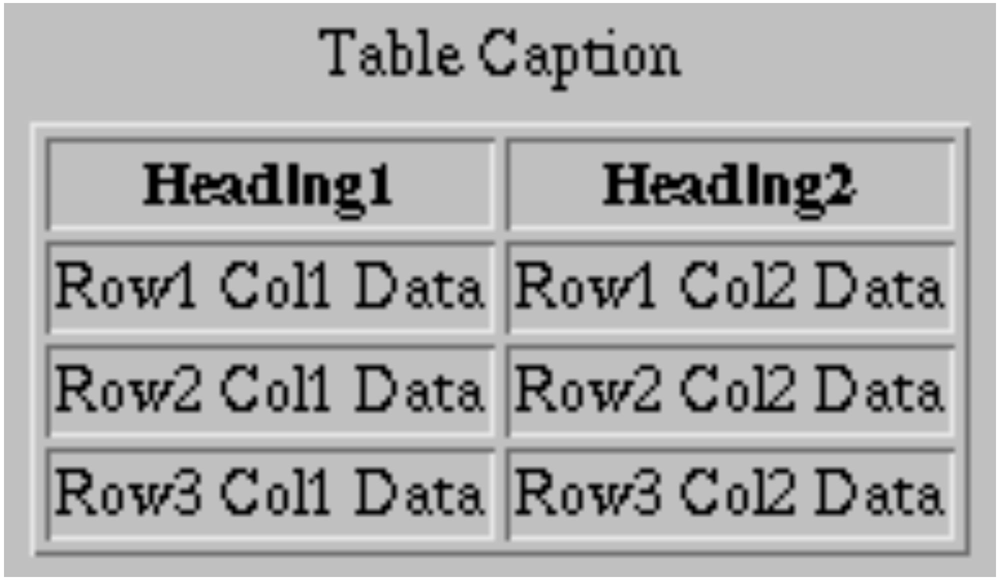


Table Caption

Heading1	Heading2
Row1 Col1 Data	Row1 Col2 Data
Row2 Col1 Data	Row2 Col2 Data
Row3 Col1 Data	Row3 Col2 Data

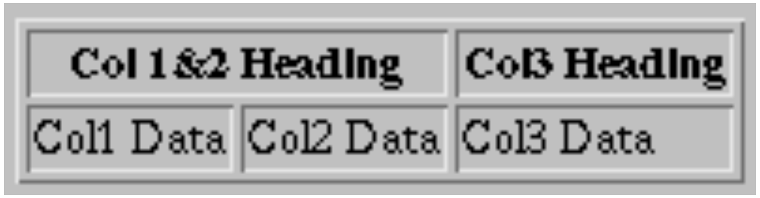
TR: Table Row

- TR is used to define each row in the table
- Each row will then contain TH and/or TD entries
- ALIGN
  - ALIGN (legal values LEFT, RIGHT, or CENTER) is used to set the default horizontal alignment for table cells
- VALIGN
  - VALIGN (legal values TOP, MIDDLE, or BOTTOM) is used to set the default vertical alignment for table cells
- BGCOLOR
  - Sets the color for the table row, overriding any values set for the table as a whole via the BGCOLOR attribute of TABLE
- BORDERCOLOR, BORDERCOLORDARK,
- BORDERCOLORLIGHT
  - Supported only by Internet Explorer, these specify the colors to use for the row borders

Table Cells: TH and TD

- COLSPAN
  - COLSPAN defines a heading or cell data entry that spans multiple columns

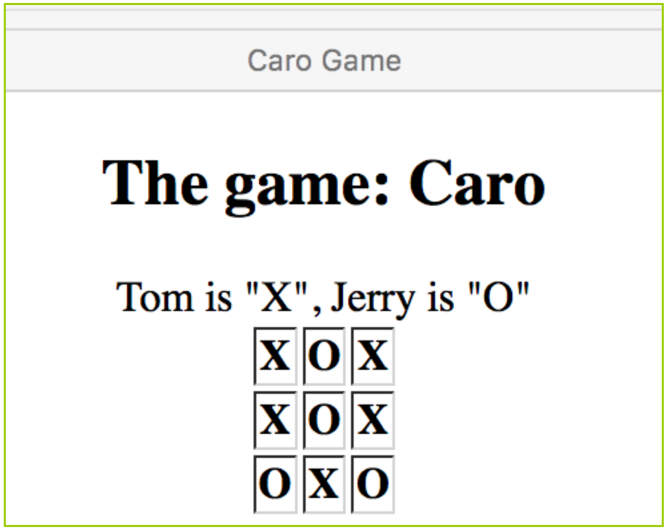
```
<TABLE BORDER=1>
<TR><TH COLSPAN=2>Col 1&2 Heading
     <TH>Col3 Heading
  <TR><TD>Col1 Data
     <TD>Col2 Data
     <TD>Col3 Data
</TABLE>
```



Col 1&2 Heading		Col3 Heading
Col1 Data	Col2 Data	Col3 Data

Table Cells: TH and TD

```html
<HTML>
    <HEAD>
        <TITLE>Caro Game</TITLE>
        <meta http-equiv="content-type" content="text/html; charset=utf-8" />
    </HEAD>
    <BODY>
        <H2 ALIGN="CENTER">The game: Caro</H2>
        <center>Tom is "X", Jerry is "O"</CENTER>
        <TABLE ALIGN="CENTER" BORDER=1 FRAME="VOID" >
            <TR><TH>X<TH>O<TH>X
            <TR><TH>X<TH>O<TH>X
            <TR><TH>O<TH>X<TH>O
        </TABLE>
    </BODY>
</HTML>
```



Caro Game

The game: Caro

Tom is "X", Jerry is "O"

X	O	X
X	O	X
O	X	O

Table Cells: TH and TD (Continued)

- ROWSPAN
  - ROWSPAN defines a heading or cell data entry that spans multiple rows; similar to COLSPAN
- ALIGN
  - LEFT, RIGHT, CENTER, JUSTIFY and CHAR.
  - E.g., the following aligns entries on a decimal point

    <TD ALIGN="CHAR" CHAR=".">
- VALIGN
  - TOP, BOTTOM, MIDDLE
- WIDTH, HEIGHT
  - Values in pixels only (no percentages officially allowed)
- NOWRAP
  - Use with caution
- BGCOLOR, BACKGROUND
  - Same as for TABLE and TR

Summary

- A DOCTYPE is required to validate the document
- HTML document should have an enclosing HTML element, a HEAD (TITLE is required) and a BODY
- Documents are composed of block-level and text-level elements
  - Text-level elements must be inside block-level elements, not vice versa
- Hypertext links, <A HREF="…">, can be absolute or relative
  - A link to a named section is denoted by #*section*
- Tables are composed of main table element, <TABLE>; rows, <TR>; table headers, <TH>; and table data, <TD>
  - Use BGCOLOR to give background colors to tables, rows, or cells
  - Use ROWSPAN or COLSPAN to join cells

Thank for your attention!

- Question?
- Exercises:

1) Refer the website and do some quizs at: https://www.w3schools.com/html/html_quiz.asp
2) Present your CV on an html page.

HTML Frames Layouts (option)

Agenda

- Advantages and disadvantages of frames
- FRAME template
- Defining rows and cols in a FRAMESET
- Common FRAME and FRAMESET attributes
- Nested frames
- Targeting a document to a named FRAME cell
- Dynamic inline frame tag: IFRAME
- Another common layout tag: DIV

Frame Advantages

- Certain parts of the interface (e.g., a TOC) are always on the screen
- Can avoid retyping common sections of multiple Web pages
- Consistent use across a large site sometimes simplifies user navigation
- A convenient way to mix text-oriented HTML with Java applets
- Image maps are more convenient if the map image remains on screen and only the results section changes

Frame Disadvantages

- The meaning of the “Back” and “Forward” buttons can be confusing (for old version)
- Poorly designed frames can get the user lost
- Hard to find real URL of a page you want
    - Printing problems!
- Hard to bookmark "configuration"
- Some very old browsers do not support frames
- Security
    - Hackers can insert frame cells into your pages in some circumstances, perhaps stealing information intended for your site

Frame Template

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

<FRAMESET ...>
  <!-- FRAME and Nested FRAMESET Entries -->
  <NOFRAMES>
    <BODY>
      <!-- Stuff for non-Frames browsers -->
    </BODY>
  </NOFRAMES>
</FRAMESET>
</HTML>
```

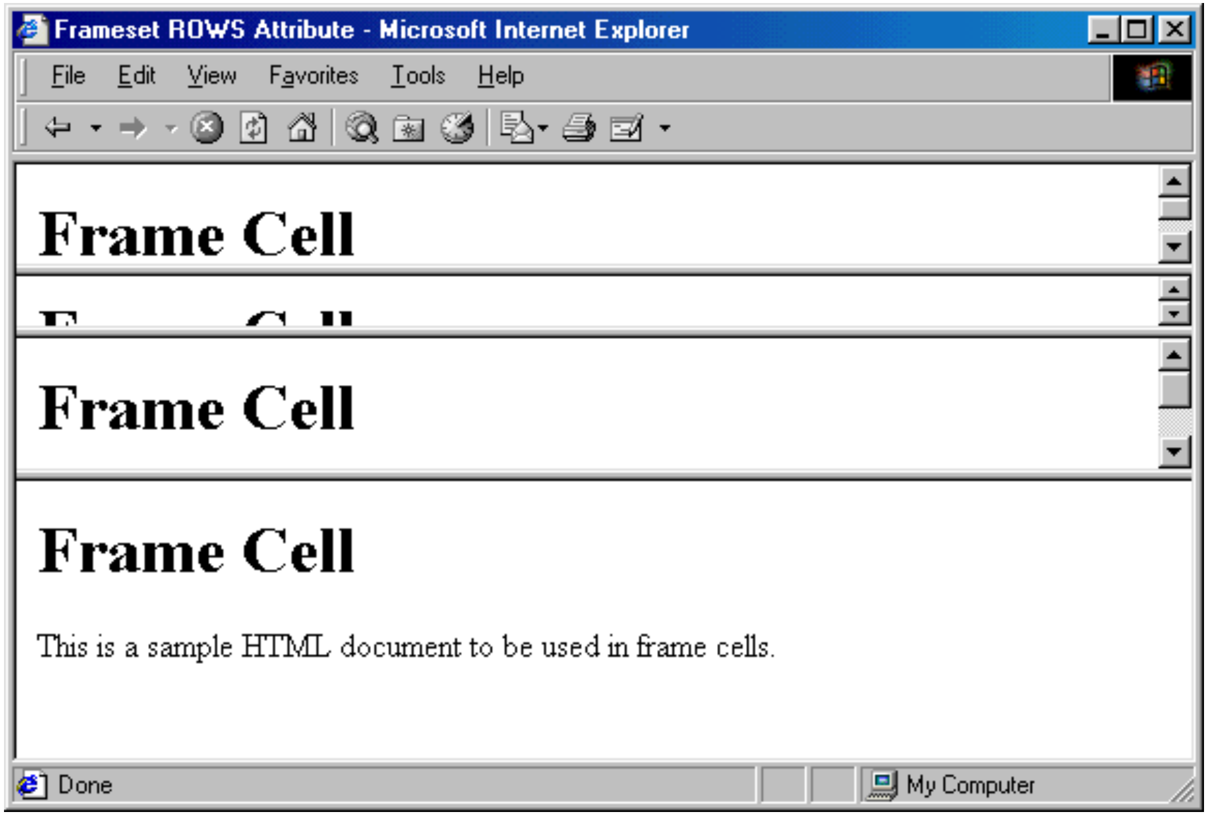
FRAMESET Attributes

- COLS, ROWS
  - A comma-separated list of pixel values, percentages, and weighted remainders
  - FRAMESET entries should *always* specify at least two rows or columns. Netscape problems if not!
  - Examples

```
<FRAMESET ROWS="50,10%,*,2*">
  ...
</FRAMESET>
```

```
<FRAMESET COLS="25%,*,*">
  ...
</FRAMESET>
```

FRAMESET ROWS, Example



Frameset ROWS Attribute - Microsoft Internet Explorer
File Edit View Favorites Tools Help

Frame Cell

Frame Cell

Frame Cell

Frame Cell

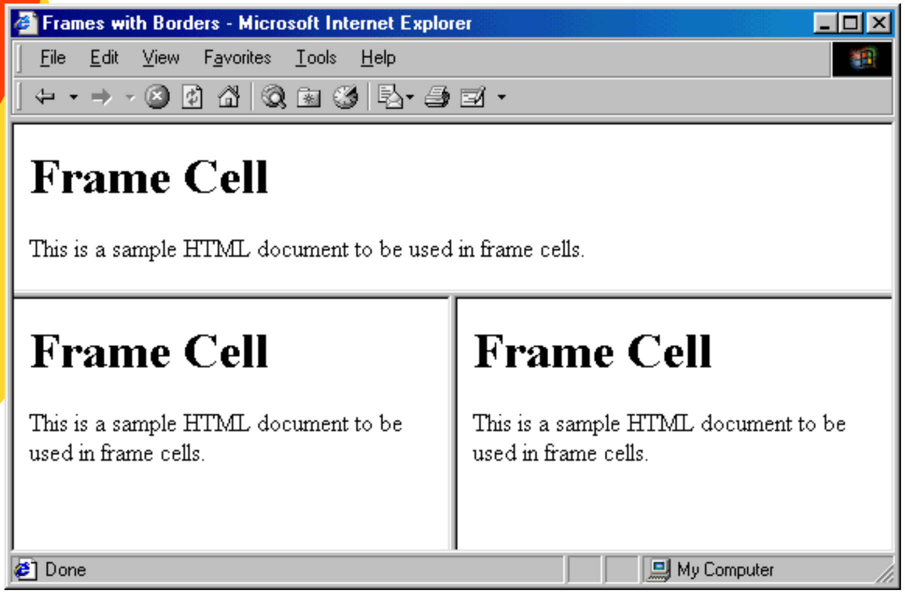
This is a sample HTML document to be used in frame cells.

```
<FRAMESET ROWS="50,10%,*,2*">
   . . .
</FRAMESET>
```

FRAMESET Attributes (Continued)

- FRAMEBORDER
  - Indicates whether borders will be drawn *between* frame cells
  - YES or 1 specifies borders; NO or 0 specifies no border
  - Can be overridden by FRAMEBORDER settings in individual FRAME entries
  - Often used in conjunction with BORDER=0 and FRAMESPACING=0
- BORDER (Netscape), FRAMESPACING (IE)
  - Specify the thickness of the border between cells
  - Apply to outermost FRAMESET only
- BORDERCOLOR
  - Sets the color of the border between cell, using either a hex RGB value or color name

Frame Border, Examples


Frames with Borders - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Done
My Computer

Frame Cell

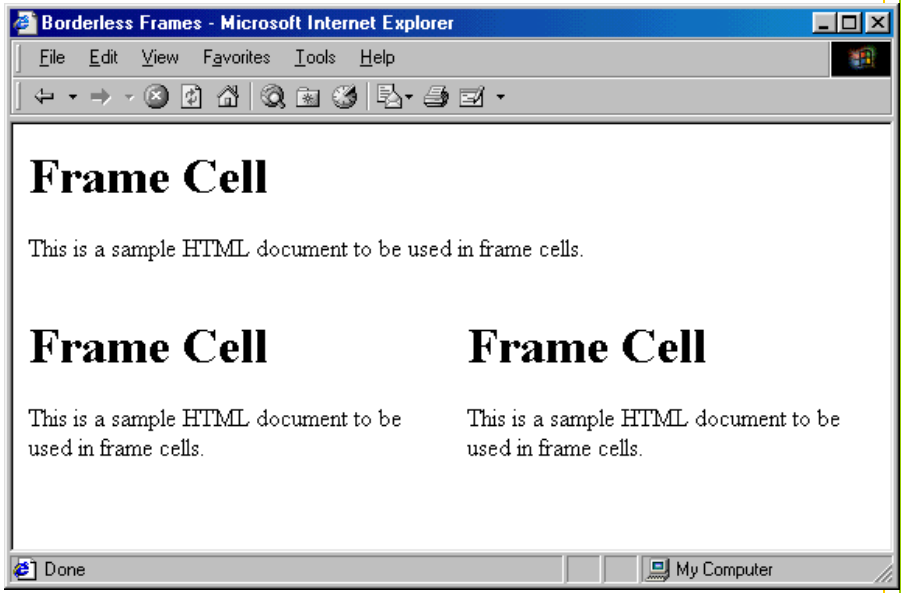
This is a sample HTML document to be used in frame cells.

Frame Cell

This is a sample HTML document to be used in frame cells.

Frame Cell

This is a sample HTML document to be used in frame cells.


Borderless Frames - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Done
My Computer

Frame Cell

This is a sample HTML document to be used in frame cells.

Frame Cell

This is a sample HTML document to be used in frame cells.

Frame Cell

This is a sample HTML document to be used in frame cells.

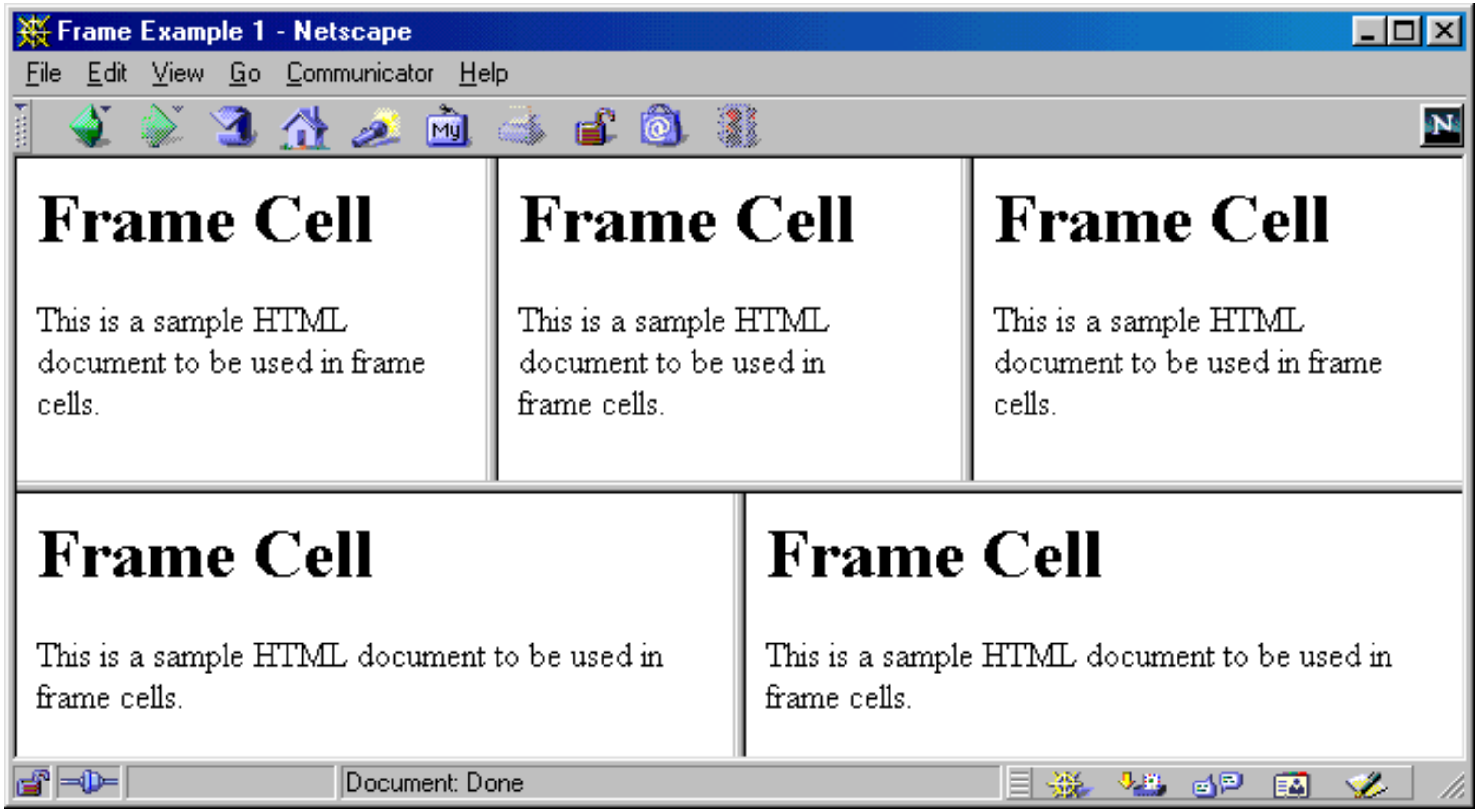
FRAME:
Specifying Content of Frame Cells

- SRC
  - URL of the document to place in the frame cell
- NAME
  - Supplies destination for TARGET attribute of hypertext links
- FRAMEBORDER, BORDERCOLOR
- MARGINWIDTH, MARGINHEIGHT
  - Specifies the left/right and top/bottom cell margins, respectively
- SCROLLING
  - Indicates whether cells should have scrollbars
- NORESIZE
  - Disables the ability to resize the frame cells

Frame Example 1

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0 Frameset//EN">
<HTML>
<HEAD><TITLE>Frame Example 1</TITLE></HEAD>
<FRAMESET ROWS="55%,45%">
  <FRAMESET COLS="*,*,*">
    <FRAME SRC="Frame-Cell.html">
    <FRAME SRC="Frame-Cell.html">
    <FRAME SRC="Frame-Cell.html">
  </FRAMESET>

  <FRAMESET COLS="*,*">
    <FRAME SRC="Frame-Cell.html">
    <FRAME SRC="Frame-Cell.html">
  </FRAMESET>

  <NOFRAMES>
    <BODY>
      Your browser does not support frames. Please see
      <A HREF="Frame-Cell.html">non-frames version</A>.
    </BODY>
  </NOFRAMES>
</FRAMESET>
</HTML>
```

Frame Example 1, Result



Frame Example 1 - Netscape
File Edit View Go Communicator Help

Frame Cell

This is a sample HTML document to be used in frame cells.

Frame Cell

This is a sample HTML document to be used in frame cells.

Frame Cell

This is a sample HTML document to be used in frame cells.

Frame Cell

This is a sample HTML document to be used in frame cells.

Frame Cell

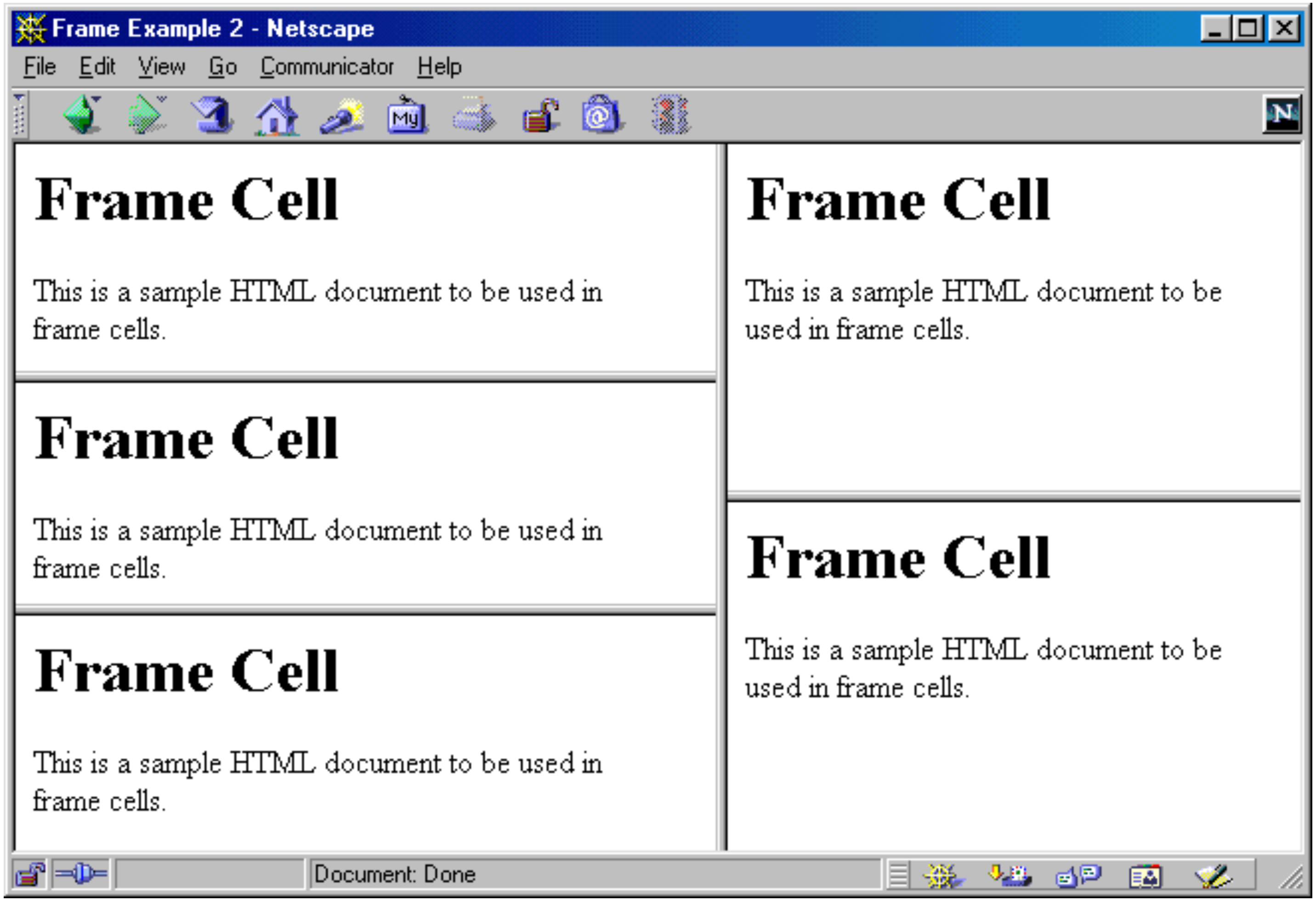
This is a sample HTML document to be used in frame cells.

Document: Done

Frame Example 2

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0 Frameset//EN">
<HTML>
<HEAD><TITLE>Frame Example 2</TITLE></HEAD>

<FRAMESET COLS="55%,45%">
  <FRAMESET ROWS="*,*,*">
    <FRAME SRC="Frame-Cell.html">
    <FRAME SRC="Frame-Cell.html">
    <FRAME SRC="Frame-Cell.html">
  </FRAMESET>

  <FRAMESET ROWS="*,*">
    <FRAME SRC="Frame-Cell.html">
    <FRAME SRC="Frame-Cell.html">
  </FRAMESET>
  <NOFRAMES>
    <BODY>
      Your browser does not support frames. Please see
      <A HREF="Frame-Cell.html">nonframes version</A>.
    </BODY>
  </NOFRAMES>
</FRAMESET>
</HTML>
```

Frame Example 2, Result



Frame Example 2 - Netscape
File Edit View Go Communicator Help

Frame Cell

This is a sample HTML document to be used in frame cells.

Frame Cell

This is a sample HTML document to be used in frame cells.

Frame Cell

This is a sample HTML document to be used in frame cells.

Frame Cell

This is a sample HTML document to be used in frame cells.

Frame Cell

This is a sample HTML document to be used in frame cells.

Targeting Frame Cells

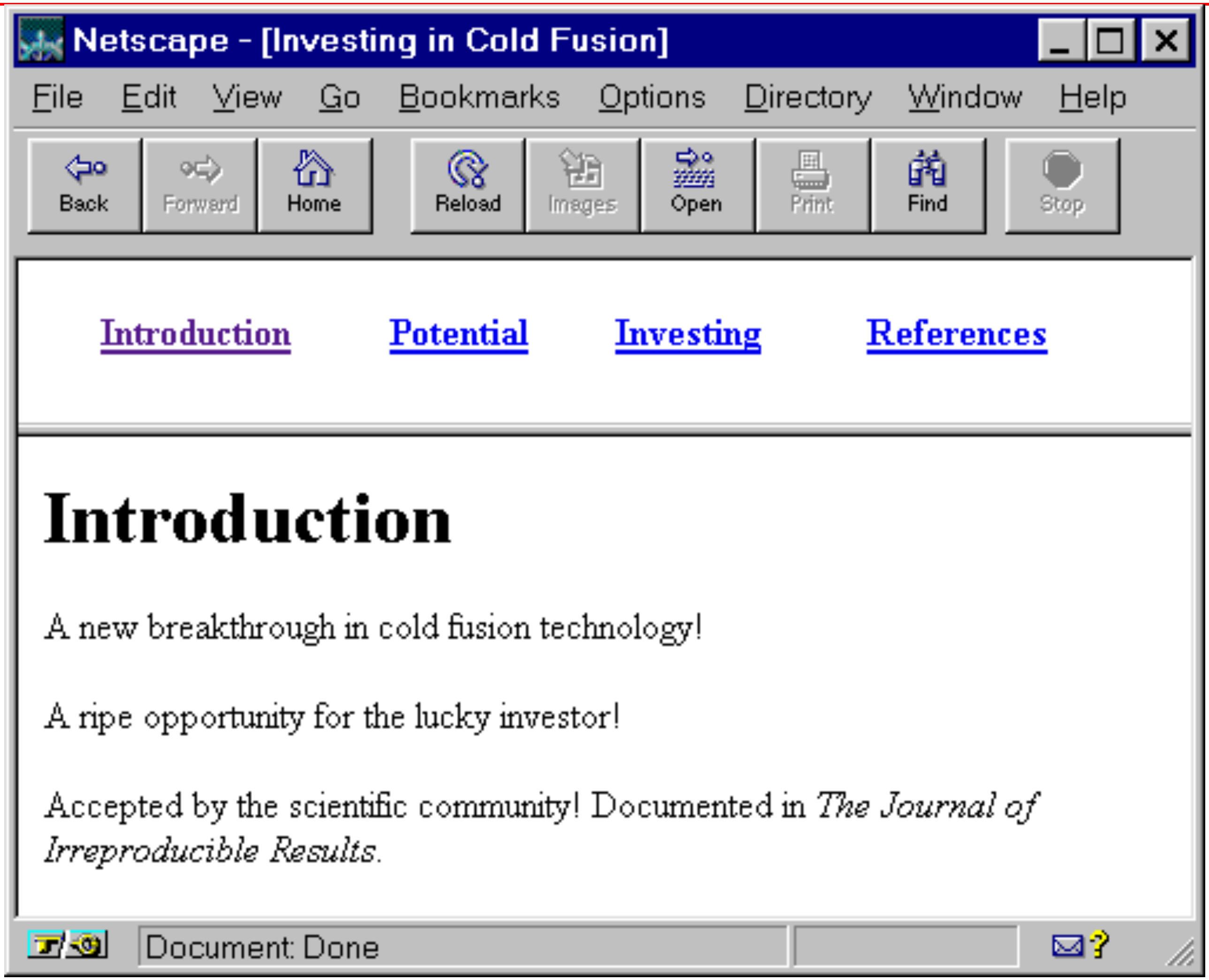
- Specify the cell in which to place a page referenced by a hyperlink
- The NAME Attribute of FRAME

```
<FRAME SRC="..." NAME="cellName">
```

- The TARGET Attribute of A HREF

```
<A HREF="..." TARGET="cellName">
```

Targeting Example


Netscape - [Investing in Cold Fusion]
File Edit View Go Bookmarks Options Directory Window Help
Back Forward Home Reload Images Open Print Find Stop

Introduction Potential Investing References

Introduction

A new breakthrough in cold fusion technology!

A ripe opportunity for the lucky investor!

Accepted by the scientific community! Documented in *The Journal of Irreproducible Results*.

Document: Done

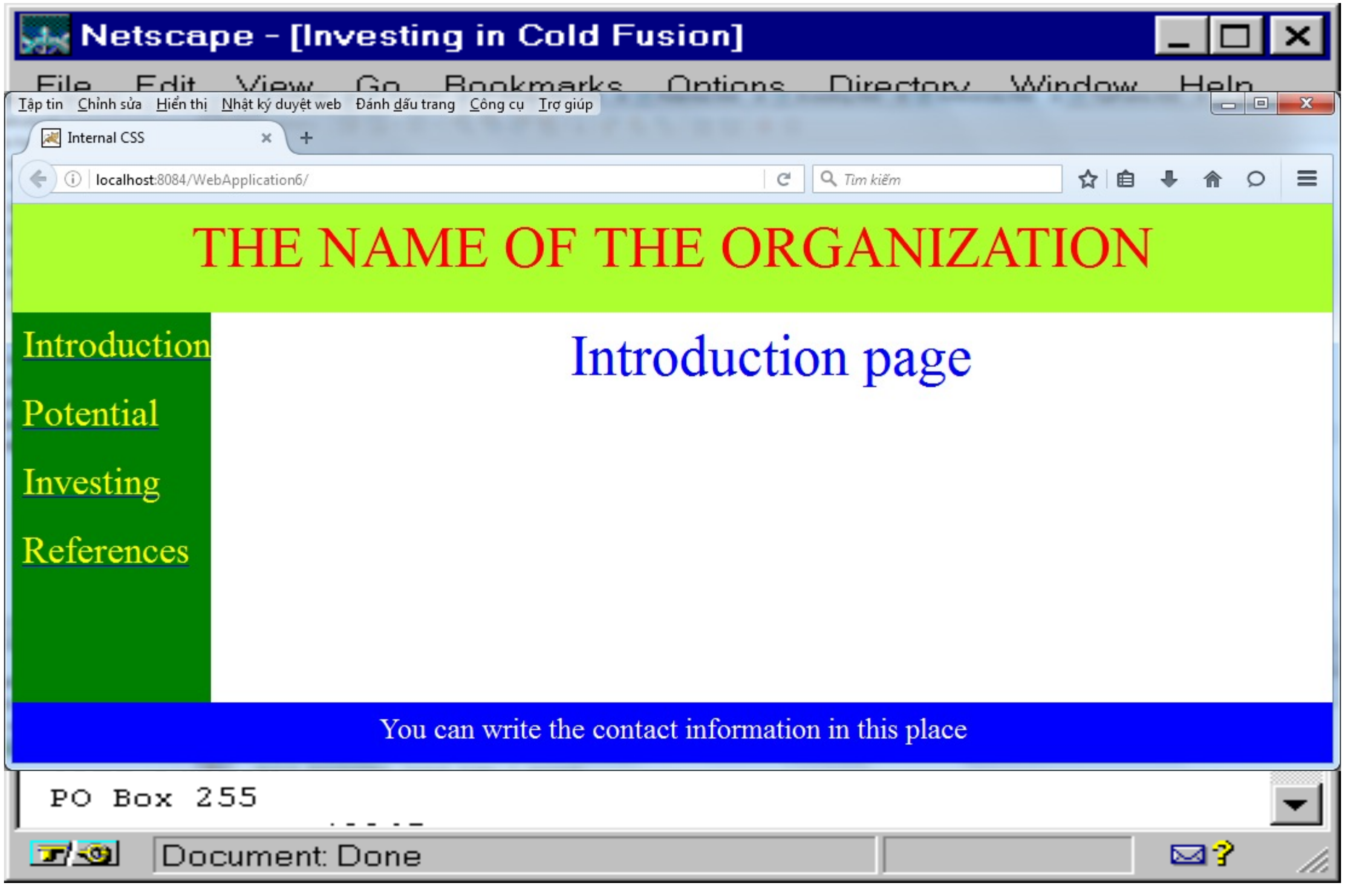
Cold-Fusion.html

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0 Frameset//EN">
<HTML>
<HEAD>
  <TITLE>Investing in Cold Fusion</TITLE>
</HEAD>
<FRAMESET ROWS="75,*">
  <FRAME SRC="TOC.html" NAME="TOC">
  <FRAME SRC="Introduction.html" NAME="Main">
  <NOFRAMES>
    <BODY>
      This page requires Frames. For a non-Frames version,
      <A HREF="Introduction.html">the introduction</A>.
    </BODY>
  </NOFRAMES>
</FRAMESET>
</HTML>
```

TOC.html

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0 Transitional//EN">
<HTML>
<HEAD>
 <TITLE>Table of Contents</TITLE>
</HEAD>
<BODY>
<TABLE WIDTH="100%">
 <TR><TH><A HREF="Introduction.html" TARGET="Main">
        Introduction</A></TH>
    <TH><A HREF="Potential.html" TARGET="Main">
        Potential</A></TH>
    <TH><A HREF="Investing.html" TARGET="Main">
        Investing</A></TH>
    <TH><A HREF="References.html" TARGET="Main">
        References</A></TH></TR>
</TABLE>
</BODY>
</HTML>
```

Targeting Example, Results


Netscape - [Investing in Cold Fusion]
File Edit View Go Bookmarks Options Directory Window Help
Tập tin Chỉnh sửa Hiển thị Nhật ký duyệt web Đánh dấu trang Công cụ Trợ giúp
Internal CSS
localhost:8084/WebApplication6/
Tìm kiếm

THE NAME OF THE ORGANIZATION

Introduction

Potential

Investing

References

Introduction page

You can write the contact information in this place

PO Box 255

Document: Done

Predefined Frame Names

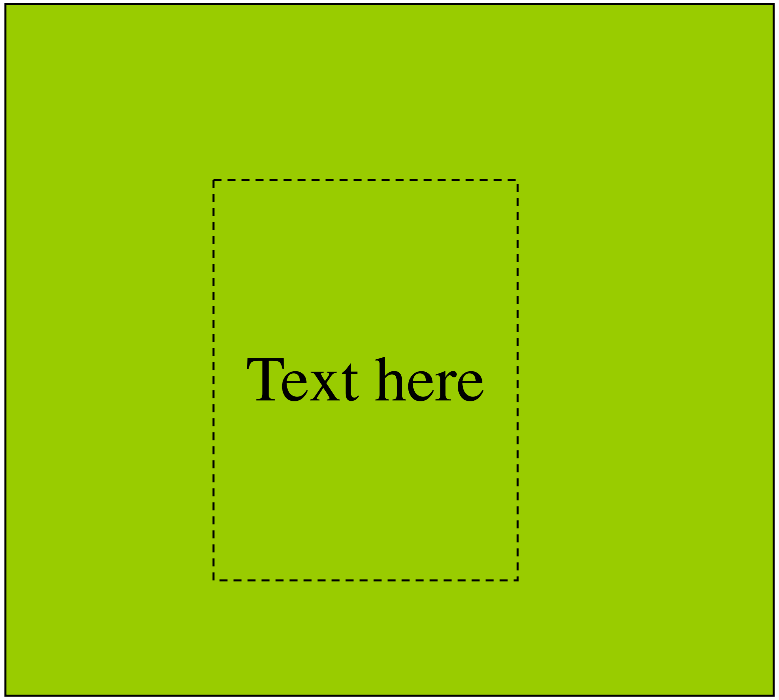
- _blank
  - Load document into a new browser window
- _top
  - Causes the linked document to take up the whole browser window
  - Document will not be contained in a frame cell
- _parent
  - Places document in the *immediate* FRAMESET parent
  - Same as _top if no nested frames
- _self
  - Place document in current cell
  - Only necessary to override a BASE entry

Floating Frames

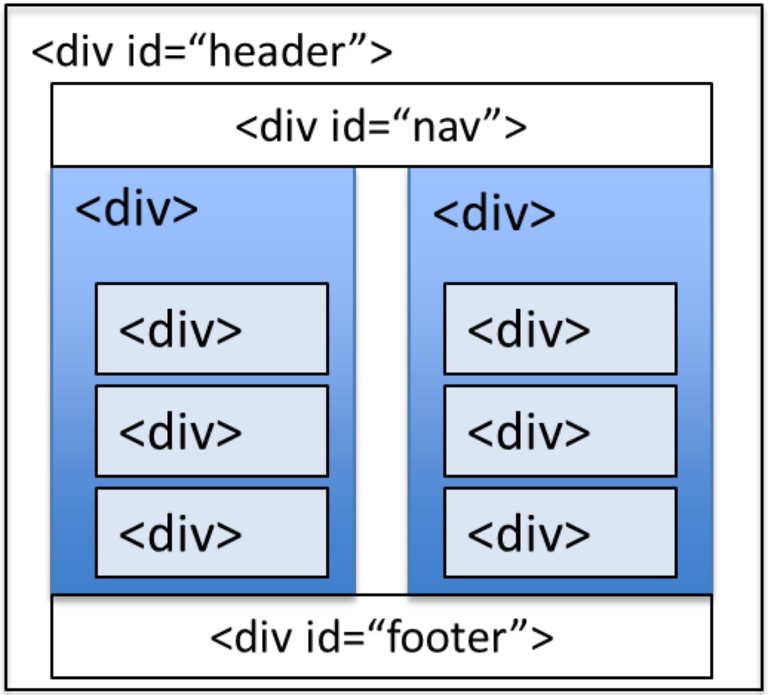
- Defines an inline frame that contains another document
- Don’t need frame set. Put anywhere in document
- <IFRAME attributes ></IFRAME>: is used to display a web page within a web page.
- Attributes
  - SRC=URL
  - HEIGHT=pixels|percent,
  - WIDTH=pixels|percent
  - HSPACE=pixels
  - VSPACE=pixels
  - ALIGN=left|right
  - FRAMEBORDER=0

DIV and ILAYER

- Allows you create a position within a block of content.



Text here



<div id="header">

<div id="nav">

<div>

<div>

<div>

<div>

<div>

<div>

<div>

<div>

<div id="footer">

DIV

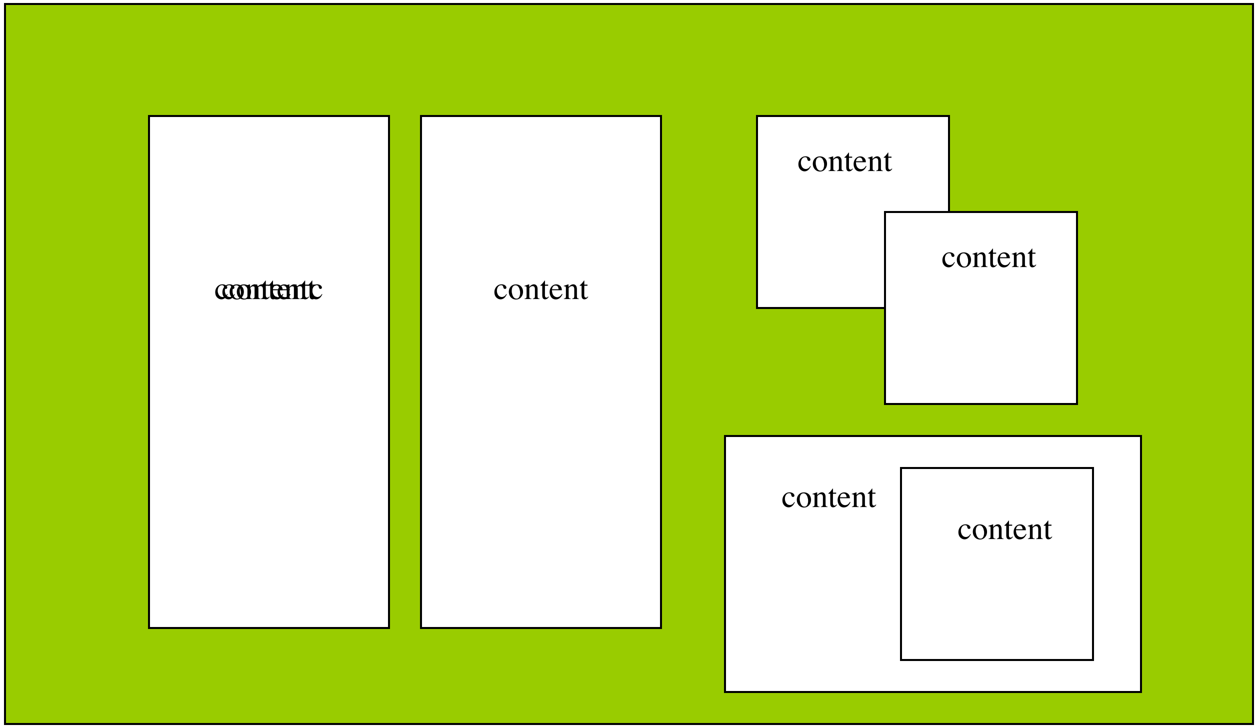
- <DIV attributes> content </DIV>
- Attributes
  - ID=“name”
  - STYLE = “style parameters: CSS”
- **Example: a section in a document that will have a light blue background color:**

```
<div style="background-color:lightblue">
  <h3>This is a heading</h3>
  <p>This is a paragraph.</p>
</div>
```

DIV Example

```
< DIV ID=“fred”
    STYLE = “POSITION:absolute|relative;
                    VISIBILITY:visible:hidden;
                    Z-INDEX:number;
                    WIDTH:width in pixels;
                    HEIGHT:height in pixels;
                    TOP:pixels from top of page or block;
                    LEFT:pixels from left edge of page or block;
                    PADDING:margin  in pixels;
                    other style attributes; “  >
    content
</DIV>
```

DIV Example (Cont.)

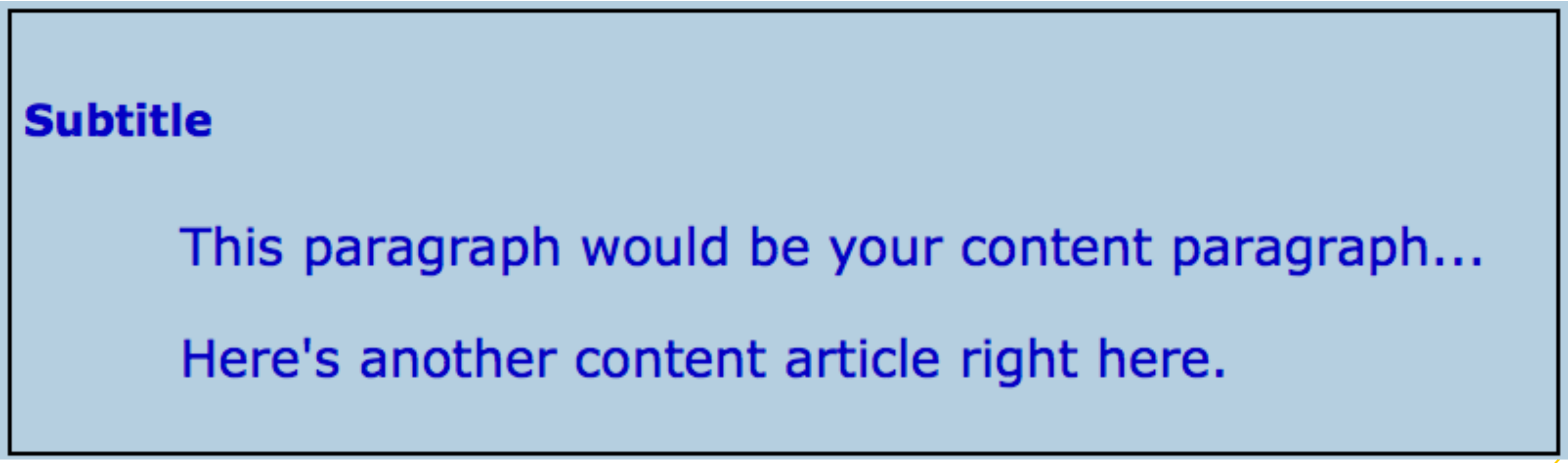


DIV Another Example

Source:

```
<div id="myDiv" name="myDiv" title="Example Div Element" style="color:
    blue; font: Helvetica 12pt;border: 1px solid black;"> <h5>Subtitle</h5>
    <p>This paragraph would be your content paragraph...</p>
    <p>Here's another content article right here.</p>
</div>
```

Result:



Subtitle

This paragraph would be your content paragraph...

Here's another content article right here.

Summary

- Frames require a Frameset DOCTYPE for validation
- A FRAMESET can be divided either into columns or rows
  - To create both rows *and* columns use nested FRAMESETs
- By giving a FRAME a name, documents can be targeted to the named frame cell
  - <FRAME … NAME="…">
  - <A HREF="…" TARGET="…">
- There are four predefined frame names
  - _blank, _top, _parent, and _self

Advance HTML

Forms &
Design Data Forms

https://www.w3schools.com/html/html_forms.asp

Forms

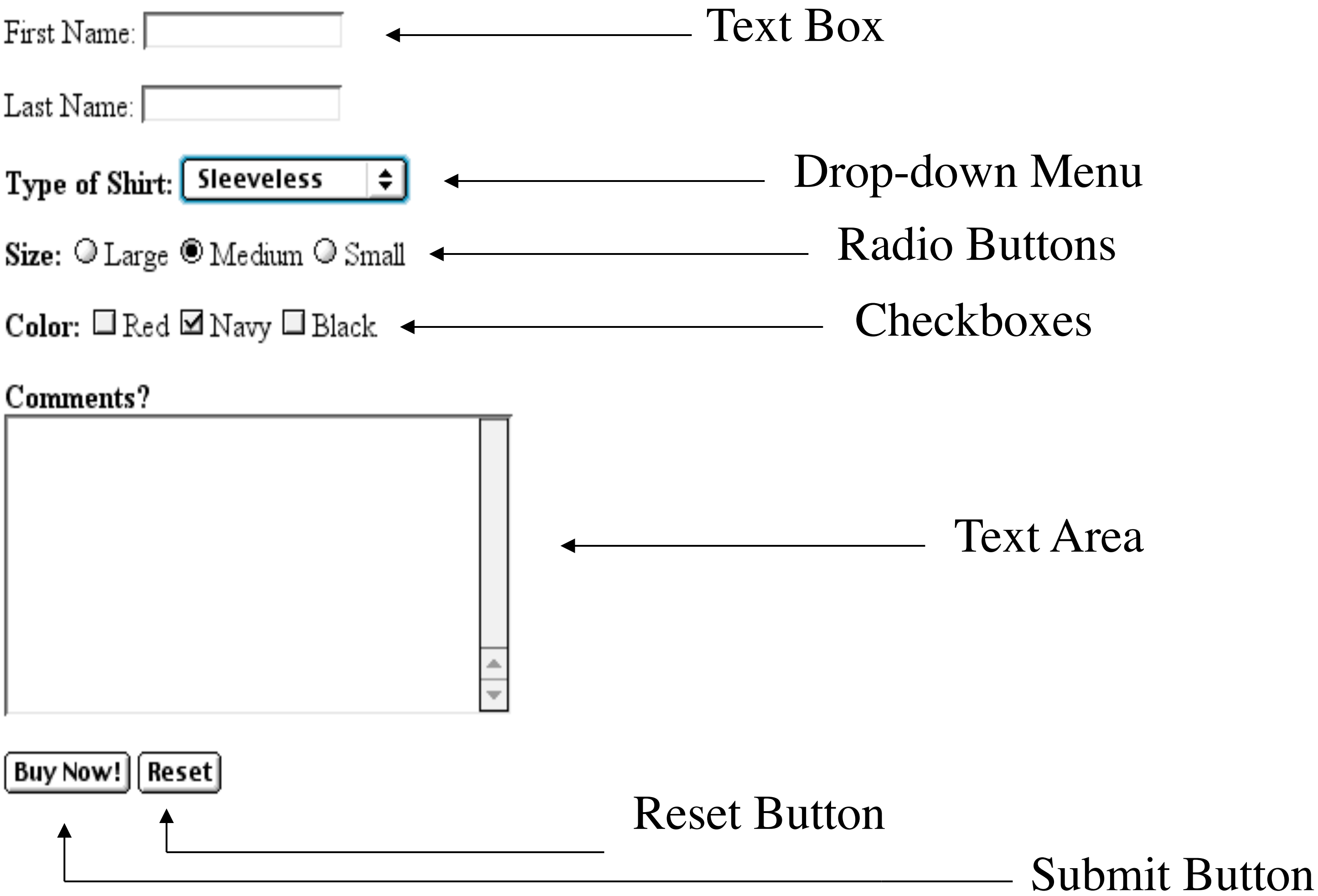
- What are forms?
  - An HTML form is an area of the document that allows users to enter information into fields.
  - A form may be used to collect personal information, opinions in polls, user preferences and other kinds of information.
  - An HTML form contains **form elements**.
  - Form elements are different types of input elements, like: text fields, checkboxes, radio buttons, submit buttons, and more.

Forms

- There are two basic components of a Web form: the shell, the part that the user fills out, and the script which processes the information
- HTML tags are used to create the form shell. Using HTML you can create text boxes, radio buttons, checkboxes, drop-down menus, and more...
- Example of form and elements tags

```
<form>
        .
        form elements <input>
        .
</form>
```

Example: Form



First Name:

Last Name:

Type of Shirt: Sleeveless

Size: ○ Large ● Medium ○ Small

Color: □ Red ☑ Navy □ Black

Comments?

Text Box

Drop-down Menu

Radio Buttons

Checkboxes

Text Area

Reset Button

Submit Button

The Form Shell

- A form shell has three important parts:
  - the <FORM> tag, which includes the address of the script which will process the form
  - the form elements, like text boxes and radio buttons
  - the submit button which triggers the script to send the entered information to the server

Creating the Shell

- To create a form shell, type <FORM METHOD=POST ACTION=“script_url”> where “script_url” is the address of the script
- Create the form elements
- End with a closing </FORM> tag

Creating Text Boxes

- To create a text box, type <INPUT TYPE=“text” NAME=“name” VALUE=“value” SIZE=n MAXLENGTH=n>
- The NAME, VALUE, SIZE, and MAXLENGTH attributes are optional
- Example:

```
<form>
  <label for="fname">First name:</label><br>
  <input type="text" id="fname" name="fname"><br>
  <label for="lname">Last name:</label><br>
  <input type="text" id="lname" name="lname">
</form>
```

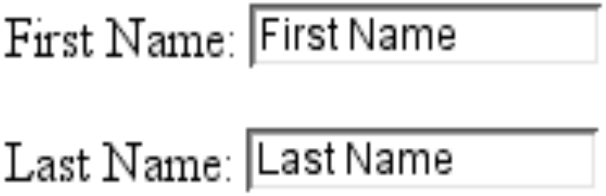
Text Box Attributes

- The NAME attribute is used to identify the text box to the processing script
- The VALUE attribute is used to specify the text that will initially appear in the text box
- The SIZE attribute is used to define the size of the box in characters
- The MAXLENGTH attribute is used to define the maximum number of characters that can be typed in the box

Example: Text Box

```
First Name: <INPUT
TYPE="text"
NAME="FirstName"
VALUE="First Name"
SIZE=20>
<BR><BR>

Last Name: <INPUT
TYPE="text"
NAME="LastName"
VALUE="Last Name"
SIZE=20>
<BR><BR>
```

- Here’s how it would look on the Web:



First Name: First Name

Last Name: Last Name

Creating Larger Text Areas

- To create larger text areas, type <TEXTAREA NAME=“name” ROWS=n1 COLS=n2 WRAP> Default Text </TEXTAREA>, where n1 is the height of the text box in rows and n2 is the width of the text box in characters
- The WRAP attribute causes the cursor to move automatically to the next line as the user types

Example: Text Area

```
<B>Comments?</B>
<BR>
<TEXTAREA NAME="Comments"
ROWS=10 COLS=50 WRAP>
</TEXTAREA>
```

Creating Radio Buttons

- To create a radio button, type <INPUT TYPE=“radio” NAME=“name” VALUE=“data”>Label, where “data” is the text that will be sent to the server if the button is checked and “Label” is the text that identifies the button to the user

Example: Radio Buttons

```
<B> Size: </B>
<INPUT TYPE="radio" NAME="Size"
  VALUE="Large">Large
<INPUT TYPE="radio" NAME="Size"

  VALUE="Medium">Medium
<INPUT TYPE="radio" NAME="Size"

  VALUE="Small">Small
```

Creating Checkboxes

- To create a checkbox, type <INPUT TYPE=“checkbox” NAME=“name” VALUE=“value”>Label
- If you give a group of radio buttons or checkboxes the same name, the user will only be able to select one button or box at a time

Example: Checkboxes

```
<B> Color: </B>
<INPUT TYPE="checkbox"
  NAME="Color"
      VALUE="Red">Red
<INPUT TYPE="checkbox"
  NAME="Color"
        VALUE="Navy">Navy
<INPUT TYPE="checkbox"
  NAME="Color"
      VALUE="Black">Black
```

Creating Drop-down Menus

- To create a drop-down menu, type <SELECT NAME="name" SIZE=n MULTIPLE>
- Then type <OPTION VALUE= "value">Label
- In this case the SIZE attribute specifies the height of the menu in lines and MULTIPLE allows users to select more than one menu option

Example: Drop-down Menu

```
<B>WHICH IS FAVOURITE FRUIT:</B>
<SELECT>
<OPTION VALUE="MANGOES">MANGOES
<OPTION VALUE="PAPAYA">PAPAYA
<OPTION VALUE="GUAVA">GUAVA
<OPTION VALUE="BANANA"> BANANA
<OPTION VALUE="PINEAPPLE">PINEAPPLE
</SELECT>
```

Creating a Submit Button

- To create a submit button, type <INPUT TYPE="submit">
- If you would like the button to say something other than submit, use the VALUE attribute
- For example, <INPUT TYPE="submit" VALUE="Buy Now!"> would create a button that says "Buy Now!"

Creating a Reset Button

- To create a reset button, type <INPUT TYPE=“reset”>
- The VALUE attribute can be used in the same way to change the text that appears on the button

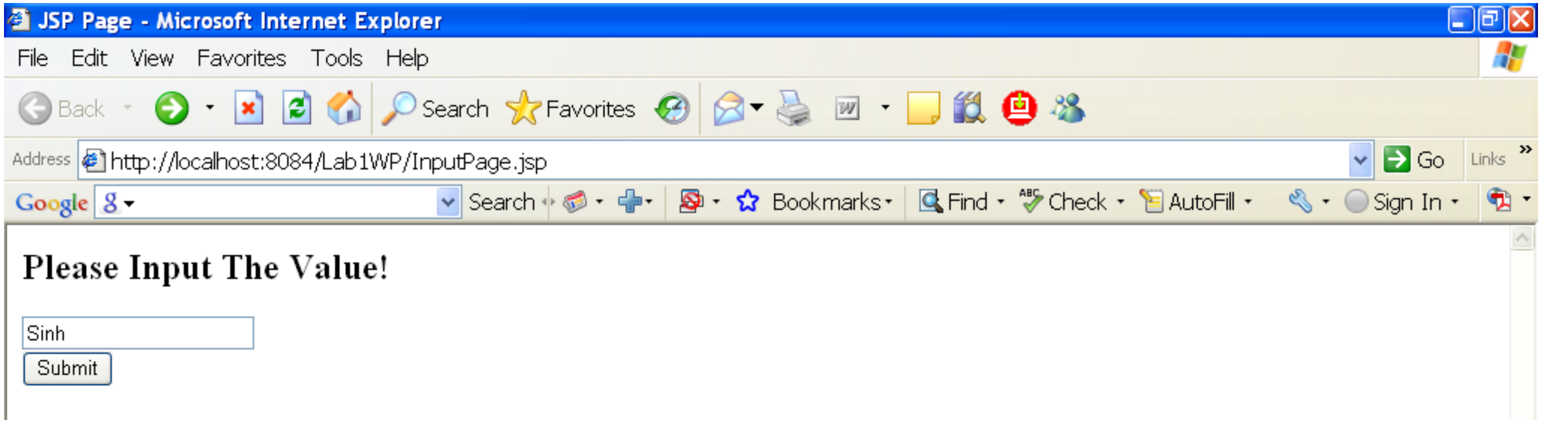
A complete example

```
<html>
<head>
<title>Get Identity</title>
<meta http-equiv="Content-Type" content="text/html;
          charset=iso-8859-1">
</head>
<body>
<p><b>Who are you?</b></p>
<form method="post" action="">
  <p>Name:
    <input type="text" name="textfield">
  </p>
  <p>Gender:
    <label><input type="radio" name="gender" value="m"  />Male<label>
    <label><input type="radio" name="gender" value="f"
/>Female</label>
  </p>
  </form>
</body>
</html>
```

A complete example

```
<html>
    <head>
        <meta http-equiv="Content-Type" content="text/html;
charset=UTF-8">
        <title>JSP Page</title>
    </head>
    <body>
        <h2>Please Input The Value!</h2>
        <form method="post" action="GetValue.jsp">
            <input type="text" name = "tx1"><br>
            <input type="Submit" value= “Submit”>
        </form>
    </body>
</html>
```

A complete example



http://localhost:8084/Lab1WP/InputPage.jsp

Please Input The Value!

Sinh

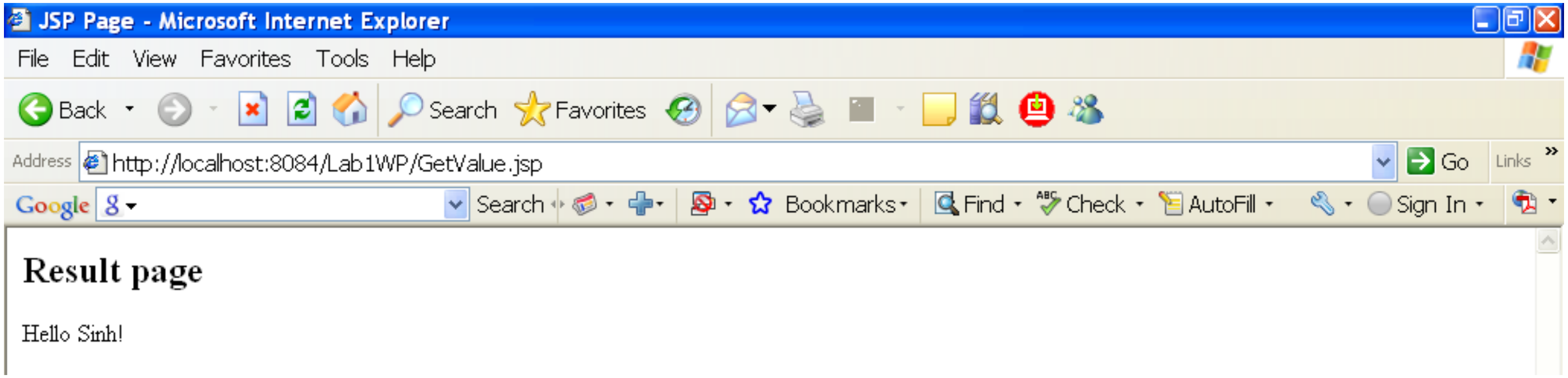
Submit

A complete example

This is the source code of file GetValue.jsp

```
<html>
    <head>
        <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
        <title>JSP Page</title>
    </head>
    <body>
        <h2>Result page</h2>
        <%
           String value = request.getParameter("tx1");
           out.print("Hello "+value+"!");
        %>
    </body>
</html>
```

A complete example



JSP Page - Microsoft Internet Explorer
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Address
http://localhost:8084/Lab1WP/GetValue.jsp
Go
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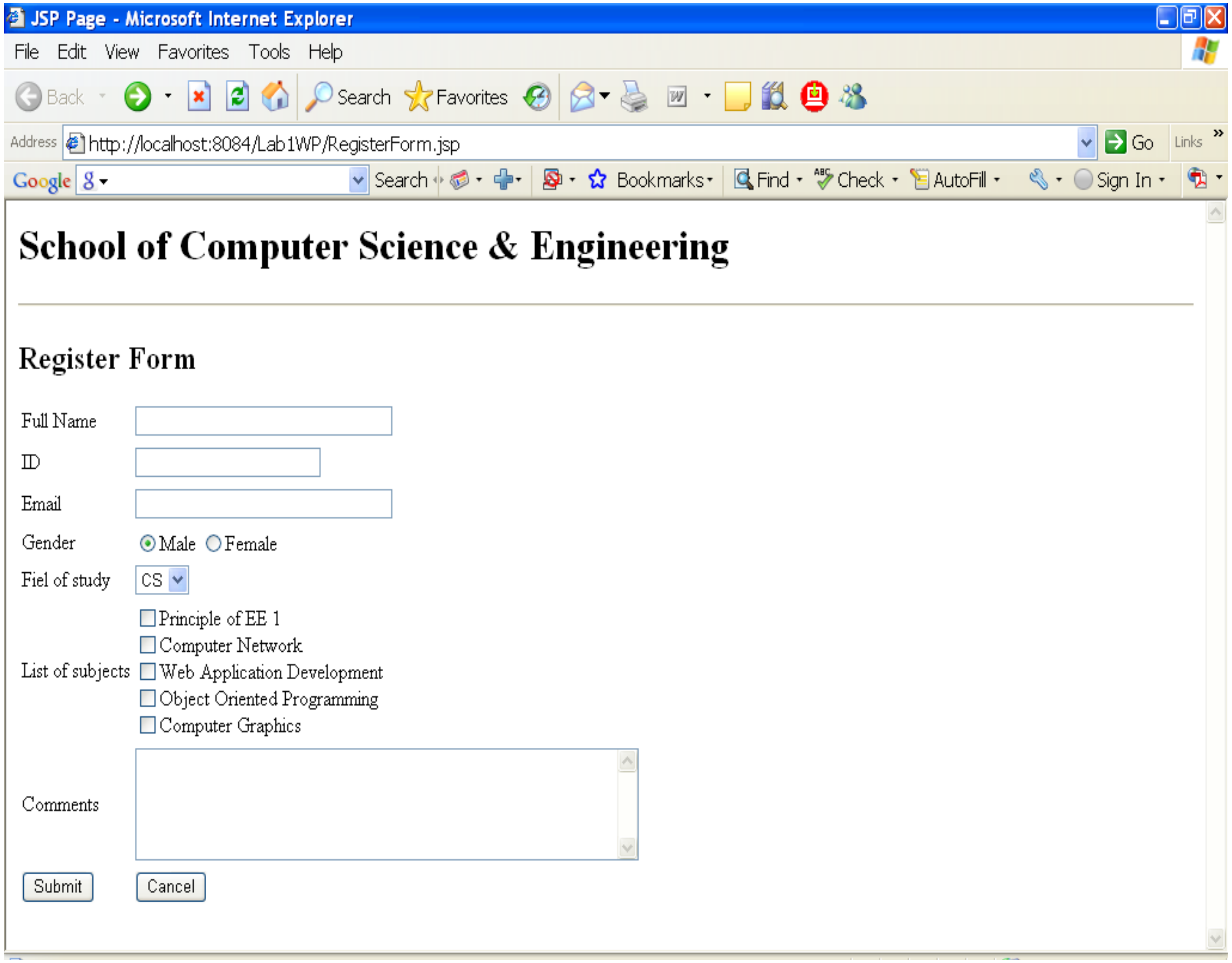
Google
Search
Bookmarks
Find
Check
AutoFill
Sign In

Result page

Hello Sinh!

Your exercise!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School of Computer Science & Engineering

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Gender	● Male ○ Female
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