

HTML Part 1

ITCS 210 Web Programming



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Section 1 : Friday 31st August 2018, 1.00-4.00p.m., IT106

Section 2 : Monday 27th August 2018, 1.00-4.00p.m., IT106

Section 3 : Thursday 30th August 2018, 9.00-12.00p.m., IT106

Class Objectives

- To understand important components of HTML documents.
- To learn the **basic tags**, and how they are used, including creating **hyperlinks** to navigate web pages, creating **tables** with rows and columns of data and control table formatting.
- To use HTML to create web pages.

Web design basic concept

- Discover the website content
- Design your layout
 - <https://designschool.canva.com/>
- Define website color theme:
 - <http://colorschemedesigner.com/>
- Example of website builder tools:
 - <http://www.creativebloq.com/web-design/best-website-builder-8133804>

Introduction to HTML

- HTML (HyperText Markup Language) is a markup language for creating web pages
- Documents written in HTML format are in plain text format.
They are also called HTML documents.
- HTML documents contain information content with **markup tags** to instruct a browser **how to display the content** in web pages.

Introduction to HTML

- In order to write an HTML document, you need just a text editor. The resulting file should have either .html or .htm extension
- Many commercial tools provide **WYSIWYG HTML editor**.
 - Dreamweaver, FrontPage, Bracket
- Note – If you want to be a skillful web developer, you should use the text editor to learn HTML
 - Notepad, Notepad++, SubLime, Brackets

Basic HTML Tags

- An HTML document consists of:
 - Content: material which a user sees when visiting the page
 - Tag: formatting instruction
- HTML tags are enclosed in angle brackets (<>). Tags usually come in pairs: an opening tag and a closing tag, which is the same tag-name preceded by a slash.

`<tag-name>Content inside a tag</tag-name>`

- HTML tags are **not case sensitive**,
`` means the same as ``

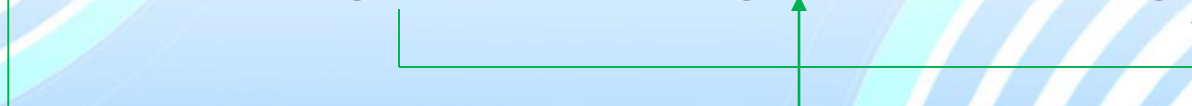
Tags Rules: Nesting

- Opening and closing tags define regions affected by the tags. These regions can be *nested*, but *not overlap*.

`<tag1>Some text <tag2>more text</tag2> and more.</tag1>`



`<tag1>Some text <tag2>more text</tag1> and more.</tag2>`



Tags Rules: Closing Tags

- Not all tags need closing tag
 - For some tags, a closing tag is optional:
`<p>` paragraph. Implies closing of previous paragraph tag.
 - For some tags, a closing tag is never used:
`
` line break. Marks a location, not a region.
- Unknown tags are ignored. This rule allows new tags to be introduced without causing problems for old browsers. But it also means you need to be careful to spell tag names correctly!

Basic Tags: Document Structure

- Tags specify overall structure of a document

<html> ... </html> encloses the entire document.

<head> ... </head> defines the *head* portion of the document. Everything in the head portion is meta-information, not contents so they are not displayed in a browser.

<body> ... </body> defines the *body* portion of the document. The body portion contains the document's content. Between these two tags is where most of your contents go: Text, headlines, graphics, and so forth

Basic Tags

| Tag | Description |
|---|-------------------------------|
| <code><html></code> | Defines an HTML document |
| <code><head></code> | Defines the document's head |
| <code><body></code> | Defines the document's body |
| <code><title></code> | Defines title of the document |
| <code><h1> to <h6></code> | Defines header 1 to header 6 |
| <code><p></code> | Defines a paragraph |
| <code> </code> | Inserts a single line break |
| <code><hr></code> | Defines a horizontal rule |
| <code><!-- (Your comments) --></code> | Defines a comment |

<http://www.w3schools.com/tags/default.asp>

Sample HTML document

Indenting nested elements → Readability

```
<html>
```

```
  <head>
```

```
    <title>I Love HTML</title>
```

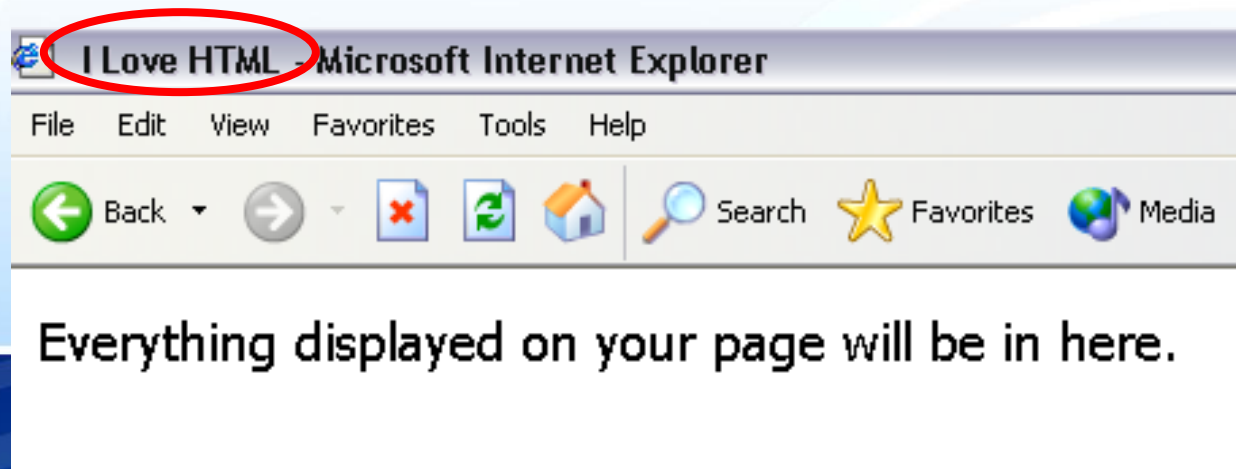
```
  </head>
```

```
  <body>
```

Everything displayed on your page will be in here.

```
  </body>
```

```
</html>
```



Heading Tags

- Headings are defined with the `<h1>` to `<h6>` tags.
`<h1>` defines the largest heading.
`<h6>` defines the smallest heading.

`<h1>This is a heading</h1>`

`<h2>This is a heading</h2>`

`<h3>This is a heading</h3>`

`<h4>This is a heading</h4>`

`<h5>This is a heading</h5>`

`<h6>This is a heading</h6>`

- Browsers automatically add an extra blank line before and after a heading.

Paragraphs Tags

- Creating new paragraphs are defined with the `<p>` tag.

`<p>This is a paragraph</p>`

`<p>This is another paragraph</p>`

- Browsers will do automatic line arrangement for the content of a paragraph so that several blanks are reduced into a single space and line wrapping occurs where appropriated.
- Browsers automatically add an extra blank line before and after a paragraph.

Line Breaks Tags

- Usually, a browser will go to the next line only when it reaches the end of current line. So typing the following in your text editor will display only one line of text in the browser:

Hello,
I want
a new line.

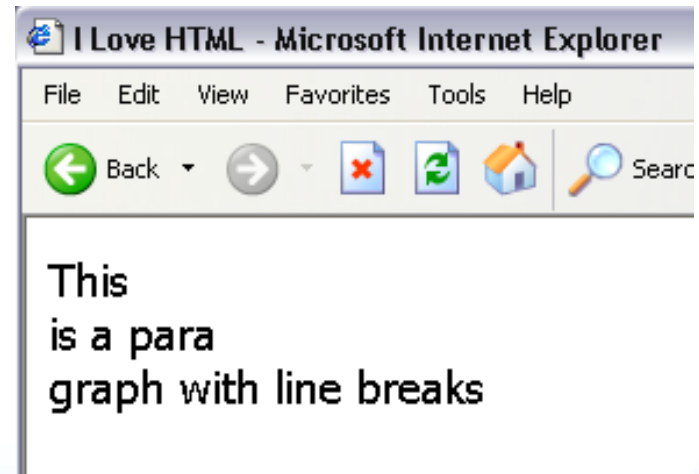
- The `
` tag forces a line break wherever you place it.

`<p>This
 is a para
graph with line breaks</p>`

- The `
` tag is an empty tag. It has no closing tag.

Line Breaks Tags

```
<html>
<head>
<title>I Love HTML</title>
</head>
<body>
<p>This <br> is a para<br>graph with line breaks</p>
</ body >
</html>
```



Text Style Tags

`Boldfaced text
`
`<i>Italicized text</i>
`
`<u>Underlined text</u>
`
`Strikethrough text`

Boldfaced text
Italicized text
Underlined text

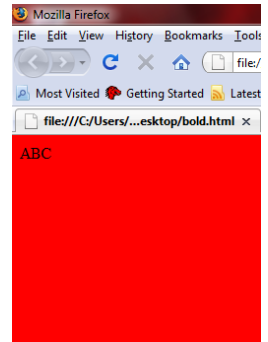
``
Howdy!
`<I>`
I am bold AND Italic,
which makes me cool!
`</I>`
``

Howdy! ***I am bold AND Italic, which makes me cool!***

Tag Attributes

- Start tags can have attributes which can provide additional information to your page.
- E.g. 'bgcolor' attribute in <body> tag can be used to change the background color of the page

`<body bgcolor="red">`



- Attributes usually come in as **name="value"**.
- The complete set of attributes for each tag can be found on many on-line "HTML reference", e.g.

https://www.w3schools.com/tags/ref_attributes.asp

Quote Styles, "red" or 'red'?

- Attribute **values** should always be **enclosed in quotes**.
- **Double** style quotes are the **most** common, but **single** style quotes are **also allowed**.
- In some rare situations, like **when the attribute value itself contains quotes**, it is **necessary to use single quotes**:

name='John "ShotGun" Nelson'

John "ShotGun" Nelson

Hypertext Links

- Hypertext Links (Hyperlinks) in an HTML document connect one document to another.
- Hyperlinks allow you to navigate other HTML documents on your own or others' servers by clicking on the linked text or phrase.
- In order to create a hyperlink, you enclose the linked text with opening and closing **anchor** tags `<a>` ``.
- Within the start anchor tag `<a>`, set **HREF** attribute to point to the URL of the target page to link to.
- HREF can point to any resource on the Web: an HTML page, an image, a sound file, a movie, etc.

Hypertext Links

- The syntax of creating an anchor:

`Text to be displayed`

- “URL” is the URL of the document to link to.
- The words between the `<a>` and `` tags will be displayed as a hyperlink (often in blue and underline).
- This anchor defines a link to Mahidol University:

`Visit Mahidol`

[Visit Mahidol](http://www.mahidol.ac.th)

After click this link, we go to www.mahidol.ac.th web site

Hypertext Links:

Absolute and Relative Paths

- Use absolute paths when linking to Web pages that are on another domain than your own, e.g.

```
<A href="http://www.google.com/intl/en/about.html">About  
google</A>
```

- Otherwise, use form of URLs for relative paths
 - links to specific directory

```
<A href="filename.htm">click here</A>
```

Text Alignment

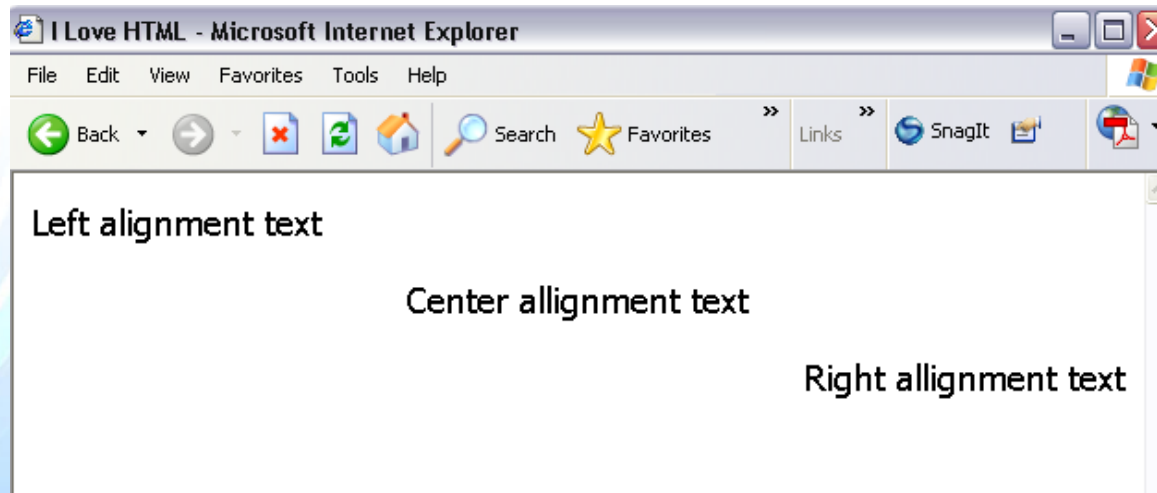
<body>

<p align=Left>Left alignment text</p>

<p align=Center>Center alignment text</p>

<p align= Right>Right alignment text</p>

</body>



Graphic Elements

- Beside text and links, one of the most common contents of web pages are graphic elements.
- There are three types of bitmapped or painted image types that all browsers recognize by default:
 - GIF (Graphic Interchange Format).
 - JPEG (Joint Photographic Experts Group).
 - PNG (Portable Network Graphics).
- The image tag `` is used to add an image to a web page. The attribute **SRC** specifies the URL or path of the image file to be displayed.

Graphic Elements: Inserting Image

- The **** tag has no closing tag.

The syntax: ****

Keep the aspect ratio

- The URL points to the location where the image is stored.
- We can resize the image using **width** and **height** attributes.
- We can set image alignment using the **align** attribute.
- The **alt** attribute makes web pages more accessible to users with disabilities, especially vision impairments

Example:

```

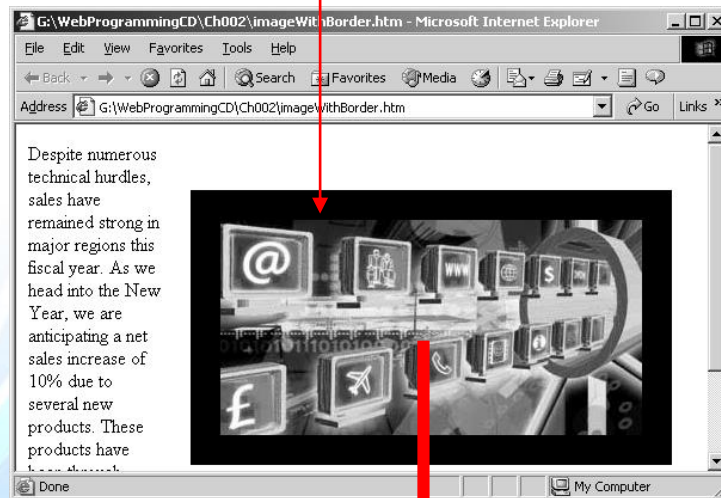
```

- Display image named "logo.gif" located in the directory "images" on "www.mahidol.ac.th" and resize to 45 X 45 pixels

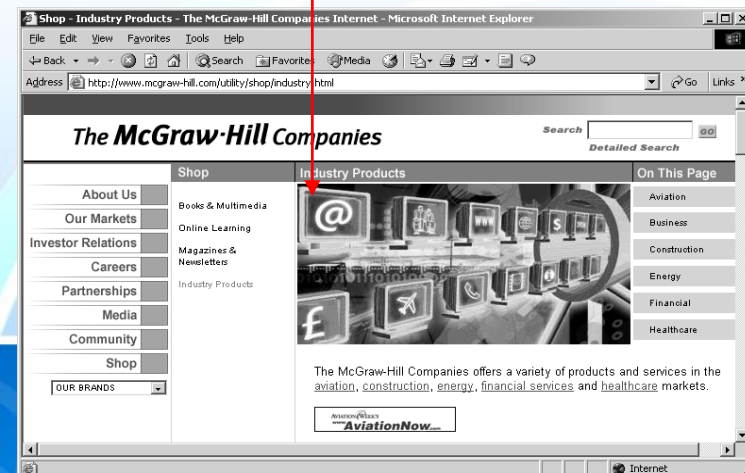


Graphic Elements: Clickable Images

```
<html>
<head></head>
<body>
  <a href="http://www.mcgraw-hill.com/utility/shop/industry.html">
    
  </a>
</body>
</html>
```



After click the industry_main.jpg image, the industry.html is opened.



Graphic Elements: Background Image

- `<body background="src"> </body>`
- For example
 - `<body background="old-lamp-wallpaper.jpg"> </body>`



Lists in HTML

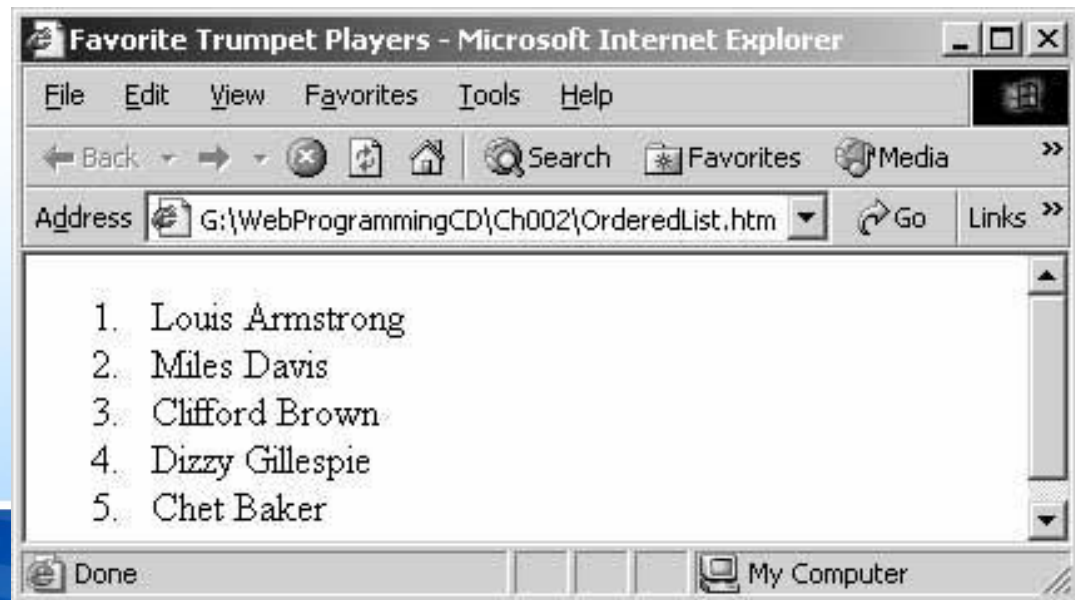
- Several different types of lists are supported by HTML.
 - **Ordered lists** duplicate a style in word processor that are typically called numbered lists, the list items are marked with numbers .
 - **Unordered lists** place bullets instead of numbers in front of each listed item. Another name for an unordered list is a bulleted list.
 - **Definition lists** pair the contents of the tag as a title with a description, the result of which is a listing that looks a lot like a glossary or dictionary.

http://www.w3schools.com/tags/tag_dl.asp

List Elements: Ordered List

An ordered list starts with the `` tag. Each list item starts with the `` tag.

```
<html>
<head>
<title>Favorite Trumpet Players</title>
</head>
<body>
<ol>
  <li> Louis Armstrong</li>
  <li> Miles Davis</li>
  <li> Clifford Brown</li>
  <li> Dizzy Gillespie</li>
  <li> Chet Baker</li>
</ol>
</body>
</html>
```



List Elements: Unordered List

An unordered list starts with the `` tag. each list item starts with the `` tag.

| | |
|--|--|
| <pre> Coffee Milk </pre> | <ul style="list-style-type: none">• Coffee• Milk |
| <pre><ul type="circle"> Apples Bananas </pre> | <ul style="list-style-type: none">○ Apples○ Bananas |
| <pre><ul type="square"> Lemons Oranges </pre> | <ul style="list-style-type: none">■ Lemons■ Oranges |

List Elements: Nested unordered List

```
<HTML>
<BODY>
  <UL>
    <LI> A few New England states:</LI>
      <UL>
        <LI> Vermont</LI>
        <LI> New Hampshire</LI>
        <LI> Maine</LI>
      </UL>
    <LI> Two Midwestern states:</LI>
      <UL>
        <LI> Michigan</LI>
        <LI> Indiana</LI>
      </UL>
    </UL>
  </BODY>
</HTML>
```

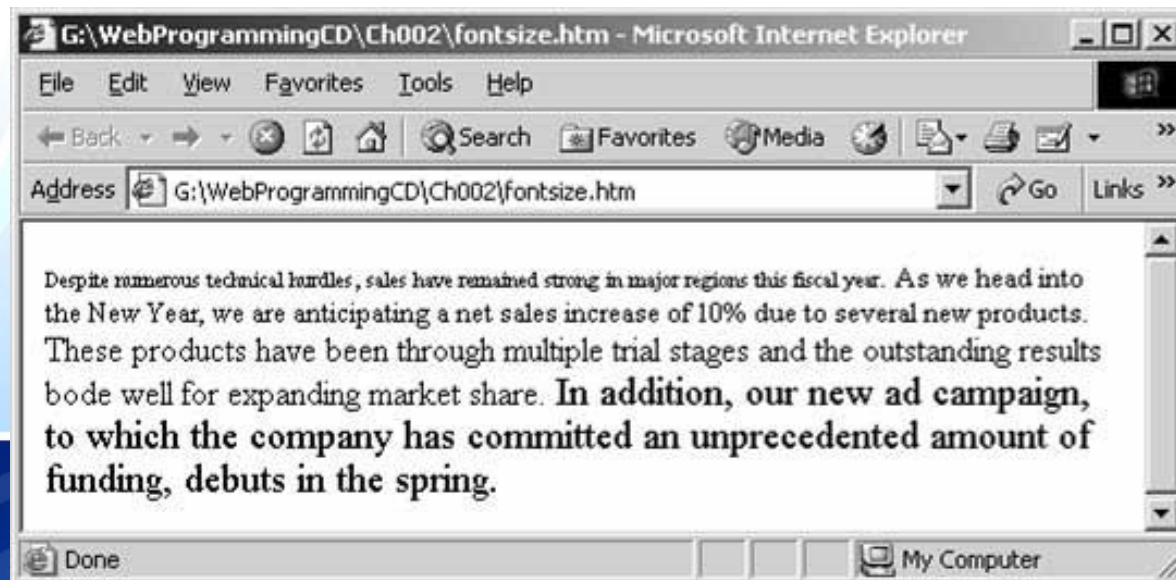
- A few New England states:
 - Vermont
 - New Hampshire
 - Maine
- Two Midwestern states:
 - Michigan
 - Indiana

Text Sizes and Fonts

- Manipulating fonts and sizes involves using the font tag ****, and its attributes size and face.
- The **size** attribute has values from 1 to 7, from smallest to largest.
- The default font size is 3. The **face** attribute contains the actual name of the typeface you wish to use.

Text Sizes and Fonts: Change Text Size

```
<html>
<head></head>
<body>
<font size="1">Despite numerous technical hurdles, sales have remained strong in major
    regions this fiscal year. </font>
<font size="2">As we head into the New Year, we are anticipating a net sales increase of
    10% due to several new products. </font>
<font size="3">These products have been through multiple trial stages and the
    outstanding results bode well for expanding market share.</font>
<font size="4">In addition, our new ad campaign, to which the company has committed an
    unprecedented amount of funding, debuts in the spring. </font>
</body>
</html>
```



Text Sizes and Fonts: Change Font Type

```
<html>  
<head></head>  
<body>
```

```
<font size="1" face="Springfield, Extra Bold">
```

Despite numerous technical hurdles, sales have remained strong in major regions this fiscal year.

```
<font size="2" face="Arial">
```

As we head into the New Year, we are anticipating a net sales increase of 10% due to several new products.

```
<font size="3" face="Verdana ">
```

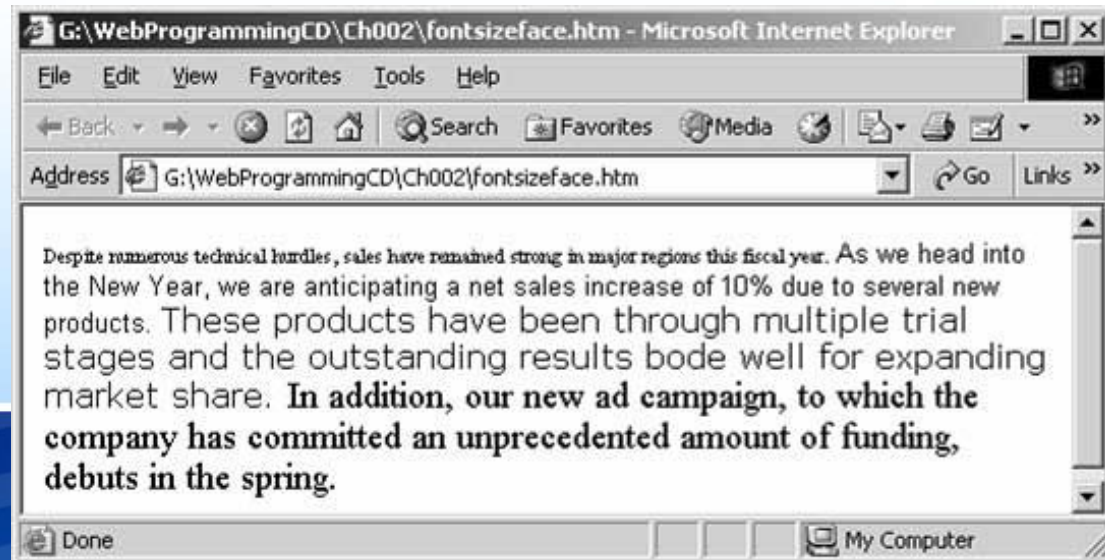
These products have been through multiple trial stages and the outstanding results bode well for expanding market share.

```
<font size="4" face="Times New Roman ">
```

In addition, our new ad campaign, to which the company has committed an unprecedented amount of funding, debuts in the spring.

```
</body>
```

```
</html>
```



Text Sizes and Fonts: Change Text Color

```
<html>  
<head></head>  
<body>
```

```
<font size="1" face="Springfield, Extra Bold" color="red">
```

Despite numerous technical hurdles, sales have remained strong in major regions this fiscal year.

```
<font size="2" face="Arial" color="mediumvioletred">
```

As we head into the New Year, we are anticipating a net sales increase of 10% due to several new products.

```
</font>
```

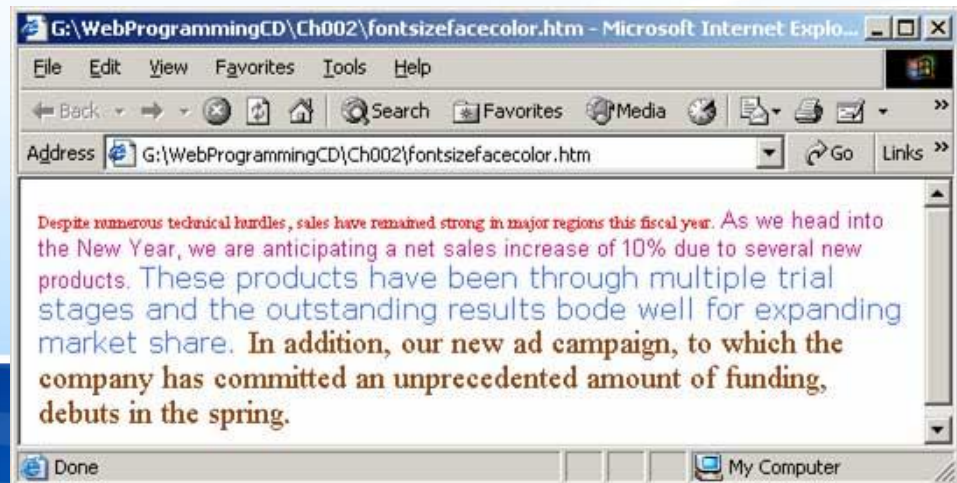
```
<font size="3" face="Verdana" color="royalblue">
```

These products have been through multiple trial stages and the outstanding results bode well for expanding market share.

```
<font size="4" face="Times New Roman" color="saddlebrown">
```

In addition, our new ad campaign, to which the company has committed an unprecedented amount of funding, debuts in the spring.

```
</body>  
</html>
```



RGB Color Codes

- Colors in HTML can be specified with RGB hexadecimal value codes as follows:

| | | | |
|---------|-----------|--------|------------|
| red | : #FF0000 | orange | : #FFA500 |
| green | : #00FF00 | gold | : #FFD700 |
| blue | : #0000FF | ivory | : #FFFFFF0 |
| magenta | : #FF00FF | maroon | : #800000 |
| cyan | : #00FFFF | etc... | |

Example

`<body bgcolor="green">` or `<body bgcolor="#00FF00">`

http://www.w3schools.com/html/html_colornames.asp

Character Entities

- Some characters have a special meaning in HTML, like the less than sign (<) that defines the start of an HTML tag. If we want the browser to actually display these characters we must insert character entities in the HTML source.
- A character entity has three parts:
 1. An ampersand (&)
 2. An entity name or a # and an entity number
 3. A semicolon (;)
- To display a less than sign in an HTML document we must write:
< or **<**

Note that the entities are case sensitive.

Character Entities: Common Entities

| Result | Description | Entity Name | Entity Number |
|--------------------|----------------|-------------|---------------|
| non-breaking space | | : | |
| < | less than | : < | < |
| > | greater than | : > | > |
| & | ampersand | : & | & |
| " | quotation mark | : " | " |
| ' | apostrophe | : ' | ' |

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

Character Entities: Common Entities

| Result | Description | Entity Name | Entity Number |
|--------|----------------|-------------|---------------|
| ¢ | cent | : ¢ | ¢ |
| £ | pound | : £ | £ |
| ¥ | yen | : ¥ | ¥ |
| § | section | : § | § |
| © | copyright | : © | © |
| ® | trademark | : ® | ® |
| × | multiplication | : × | × |
| ÷ | division | : ÷ | ÷ |

Comments in HTML

- The comment tag is used to insert a comment in the HTML source code. A comment will be ignored by the browser. You can use comments to explain your code, which can help you when you edit the source code next time.

`<!-- This is a comment -->`

Understanding, Debugging, Revisiting

- Note that you need **an exclamation point** after the opening bracket, but not before the closing bracket.

Horizontal Rules

- The **<hr>** tag inserts a horizontal rule.
- The hr element also inserts a line break above and below the horizontal line

This is some text.

`<hr>`

This is another text.

This is some text.

This is another text.

Table Tags

- Tables are defined with the `<table> ... </table>` tags.
- A table is divided into rows, and each row is divided into columns (cells).

| | | |
|--|--|--|
| | | |
| | | |

- Rows are determined by `<tr></tr>` tags and columns by `<td></td>` tags
- Data has to be put between `<td></td>` tags which can contain text, images, lists, paragraphs, tables, etc.

Table Tags: Example

- By default, tables are drawn without border lines. You need the BORDER attribute to draw the lines. The value specifies the size of the border.

```
<table border="1">  
  <tr>  
    <td>478812</td>  
    <td>John Smith</td>  
    <td>A</td>  
  </tr>  
  <tr>  
    <td>479821</td>  
    <td>Mary Jane</td>  
    <td>B</td>  
  </tr>  
</table>
```

| | | |
|--------|------------|---|
| 478812 | John Smith | A |
| 479821 | Mary Jane | B |

Table Tags: Heading Cells

- Heading Cells in a table are defined with the `<th></th>` tags.

```
<table border="1">  
  <tr>  
    <th>ID</th>  
    <th>Name</th>  
    <th>Grade</th>  
  </tr>  
  <tr>  
    <td>478812</td>  
    <td>John Smith</td>  
    <td>A</td>  
  </tr>  
  ...  
</table>
```

| ID | Name | Grade |
|--------|------------|-------|
| 478812 | John Smith | A |
| 479821 | Mary Jane | B |

Table Tags: Row and Column Alignments

- Each `<tr>` tag can set the **ALIGN** attribute for horizontal alignment of the entire row. The possible values for ALIGN are “left”, “center”, and “right”. The default is left.
- The attribute ALIGN can be set in `<td>` tag for each individual cell. If ALIGN attribute is set in `<td>` tag, it overrides row alignment.

```
<tr align="center">  
  <td>478812</td>  
  <td>John Smith</td>  
  <td>A</td>  
</tr>  
<tr align="center">  
  <td>479821</td>  
  <td>Mary Jane</td>  
  <td align="right">B</td>  
</tr>
```

| ID | Name | Grade |
|--------|------------|-------|
| 478812 | John Smith | A |
| 479821 | Mary Jane | B |

Table Tags: Empty and Spanning Cells

- If a cell has no data, put ** ** (no-breaking space), i.e. `<td> </td>`
- Cells can span across more than one columns or rows. The attributes **COLSPAN** and **ROWSPAN** indicate how many columns or rows a cell must occupy.

| Student Grade Report | | |
|----------------------|------------|-------|
| ID | Name | Grade |
| 478812 | John Smith | A |
| 479821 | Mary Jane | B |

```
<table border="1">
  <tr>
    <th colspan="3">Student Grade Report</th>
  </tr>
  <tr>
    <th>ID</th>
    <th>Name</th>
    <th>Grade</th>
  </tr>
  <tr align="center">
    <td>478812</td>
```

...

Table Tags: Spanning Cells

```

<table border = "1">
  <tr>

    <td rowspan = "2">
      <img src = "camel.gif" width = "205"
        height = "167" alt = "Picture of a camel" />
    </td>
    <!-- merge four columns -->
    <th colspan = "4">
      <h1>Camelid comparison</h1>
      <p>Approximate as of 6/2007</p>
    </th>
  </tr>
  <tr>
    <th># of Humps</th>
    <th>Indigenous region</th>
    <th>Spits?</th>
    <th>Produces Wool?</th>
  </tr>
  <tr>
    <th>Camels (bactrian)</th>
    ...
    <td>Yes</td>
  </tr>
  ...
</table>

```

Makes the header cell span 2 rows

Makes the header cell span 4 columns

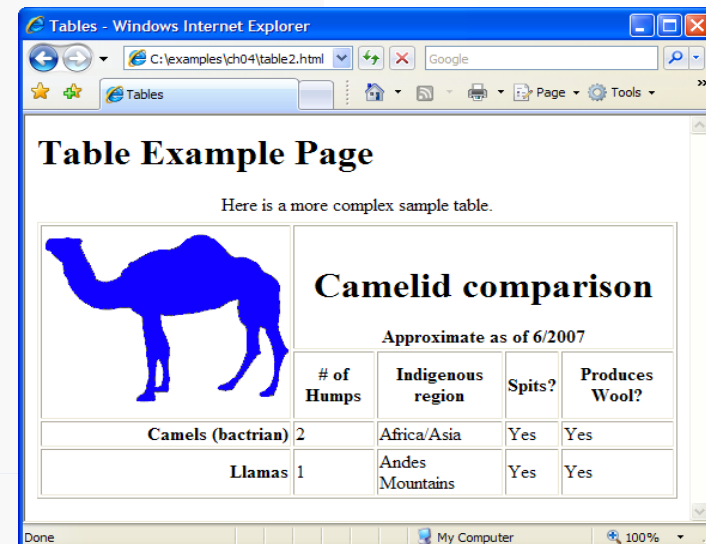


Table Tags: Tags Inside a Table

- Data can contain text, images, lists, paragraphs, tables, etc.

```
<html>
<body>
<table border="1">
<tr>
<td>
<p>This is a paragraph</p>
<p>This is another paragraph</p>
</td>
<td>This cell contains a list
<ul>
<li>apples</li>
<li>bananas</li>
<li>pineapples</li>
</ul>
</td>
</tr>
</table>
</body>
</html>
```

| | |
|--|---|
| This is a paragraph This is another paragraph | This cell contains a list <ul style="list-style-type: none">• apples• bananas• pineapples |
|--|---|

Table Tags: Edit Table Color

- Table can edit using many different colors

```
<table border="1">
  <tr>
    <th colspan="3" bgcolor="blue"><font
color="white">Student Grade Report</font></th>
  </tr>
  <tr>
    <th bgcolor="lightblue">ID</th>
    <th bgcolor="lightblue">Name</th>
    <th bgcolor="lightblue">Grade</th>
  </tr>
  ...

```

My Caption

| Student Grade Report | | |
|----------------------|------------|-------|
| ID | Name | Grade |
| 478812 | John Smith | A |
| 479821 | Mary Jane | B |