HTML –HyperText Markup Language

❖ **HTML is a format description language**
- ◆ **Web publishing file format**
  - ◆ Processor Independence
  - ◆ Browser Independence
- ◆ **Provides layout information for:**
  - ◆ Text, Images, Animation, Sound
  - ◆ Interaction with server forms and programs
- ◆ **HTML Element Tags**
  - ◆ ASCII text based
  - ◆ Denoted by enclosing in < >
  - ◆ Not case sensitive – May use upper or lower case
- ◆ **HTML is NOT a programming language**

Copyright © 2019 R.M. Laurie   1
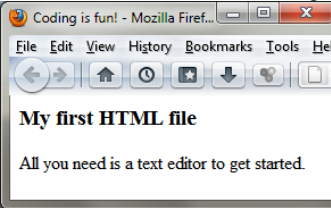

HTML: Document Elements

❖ **<html>**   *Beginning of html code*

❖ **<head>**   *Beginning of head*

❖ **<title>**My Page**</title>**   *Document title*

❖ **</head>**   *End of head closing tag*

❖ **<body>**   *Beginning of body*

❖ **</body>**   *End of body closing tag*

❖ **</html>**   *End of html code closing tag*

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HTML: Simple Document Example

HTML Tag nesting order:
Last Open is First Closed

Coding is fun! - Mozilla Firef...
File Edit View History Bookmarks Tools Hel

My first HTML file

All you need is a text editor to get started.

```
<html>
  <head>
    <title>Coding is fun!</title>
  </head>
  <body>
    <h3>My first HTML file</h3>
    <p>All you need is a text editor to get
       started.</p>
  </body>
</html>
```

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HTML5 –HyperText Markup Language

❖ **HTML5, CSS3, and JavaScript**
- ◆ HTML5 is document structure language
- ◆ CSS3 is document presentation language
- ◆ JavaScript does the rest

❖ **HTML5 is now and future so we will learn it!**
- ◆ HTML5 is the hopeful candidate to eliminate plugins
- ◆ HTML5 is not as strict as XHTML or XML
  - ◆ Lets hope XHTML dies away quickly and quietly
  - ◆ <!DOCTYPE html>
  - ◆ <html lang="en">
  - ◆ <meta charset="utf-8">
  - ◆
 or <hr>   no need to close or mark empty elements
  - ◆ <script> Fires up JavaScript and no attribute required

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HTML5: Simple Document Example

Tag nesting order: Last Open is First Closed

```
<!DOCTYPE html>     <!-- Specifies document type html5 -->
<html lang="en">    <!-- Specifies Language English -->
  <head>
    <meta charset="utf-8"> <!-- Specifies encoding -->
    <title>Coding is fun!</title>
  </head>
  <body>
    <h3>My first <em>HTML5</em> file</h3>
    <p>A text editor is needed to get started.</p>
  </body>
</html>
```

**DOCTYPE specification is required
for validation at http://validator.w3.org/
Either copy and paste code or upload file**

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HTML: Block Level Elements

- ❖ **Paragraph = Normal text**
  - ◆ **<p>This is a paragraph</p>**
- ❖ **Headings = Bold text**
  - ◆ **<h1>XX-Largest</h1>**   = XX-Large
  - ◆ **<h2>X-Larger</h2>**   = X-Large
  - ◆ **<h3>Large</h3>**   = Large
  - ◆ **<h4>Medium</h4>**   = Medium
  - ◆ **<h5>Small</h5>**   = Small
  - ◆ **<h6>X-Small</h6>**   = X-Small
- ❖ **The Horizontal Rule <hr>**
  - ◆ **Represents element placement not text markup**
  - ◆ **Therefore, <hr> is an *empty element***
  - ◆ **In XHTML empty element written as <hr />**
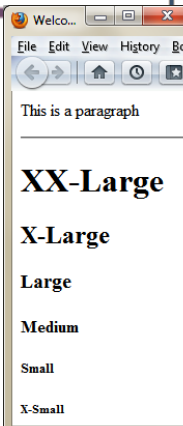- ❖ **Do not nest block level elements**

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HTML: Comments

- ❖ **HTML Comments are considered hidden text**
  - ◆ **Comments are ignored by the web browser rendering engine and display nothing in client area**
  - ◆ **Permits writing notes to those that view xhtml code**
  - ◆ **Can be used for debugging by disabling sections of code which may extend across multiple lines.**
- ❖ **Syntax:**

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

  - ◆ **Can extend across multiple lines**
  - ◆ **Can not contain "-->" in comment**
  - ◆ **Can not nest comments**

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HTML: Block Elements Example

```
<!DOCTYPE html>
<html lang="en">
  <head> <!--Head section executes first-->
    <meta charset="utf-8">
    <title>Welcome to Block Level HTML</title>
  </head>
  <body> <!-- displayed in browser-->
      <p>This is a paragraph</p>
    <hr>
    <h1>XX-Large</h1>
    <h2>X-Large</h2>
    <h3>Large</h3>
    <h4>Medium</h4>
    <h5>Small</h5>
    <h6>X-Small</h6>
  </body>
</html>
```


Welco...
File Edit View History Boc

This is a paragraph

XX-Large

X-Large

Large

Medium

Small

X-Small

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Assignment 1 - Part A: HTML Block Elements

Block Element Assignment - Mozilla Firefox

File   Edit   View   History   Bookmarks   Tools   Help

file:///D:/_Documents/_v   Google

Freedom

Freedom is just another word for noting left to lose.

-- Janis Joplin

The chains that keep us from true freedom are bad experiences of the past, good experiences of the past, fears and anxieties about the future, ambitions for the future, clinging to present things, and delusions about our own importance.

-- Anthony DeMello

What is your concept of freedom?

-- Your name

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HTML: Inline -Text Markup Elements

❖ **Some of the Inline Text Markup Elements**
- ◆ ** Enclosed text is bold **
- ◆ **<i> Enclosed text is italics </i>**
- ◆ **^{Superscript text}**   = Superscript text
- ◆ **_{Subscript text}**   = Subscript text
- ◆ **<big> Big text </big>**   = Big text
- ◆ **<small> Small text </small>**   = Small text
- ◆ **<q> Quoted text</q>**   = "Quoted Text"
- ◆ ** Inline text marker **

❖ **Break Line is an *Inline* and *Empty* Element**
- ◆ **The line will break
here.**

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Inline Markup Example

Inline elements must be nested within block elements and can be nested within other inline elements

Inline Element Example - Mozilla Fi...

File   Edit   View   History   Bookmarks   Tools   Help

HTML Coding Recommendations:

Elements can be nested to create combined effects:

big bigger biggest
or **Bold** and ***bold-Italics***

Closing tags are reverse order of open tags:
Last Opened is First Closed!

The title element text **can not** be marked up.

```
<!DOCTYPE html>
<html lang="en">
  <head>
        <meta charset="utf-8">
        <title>Inline Element Example</title>
  </head>
<body>
  <h2>HTML Coding Recommendations:</h2>
  <p>Elements can be nested to create combined effects:<br>
  <big>big <big>bigger <big>biggest</big></big></big><br>
  or <b>Bold and <i>bold-Italics</i></b></p>
  <p>Closing tags are reverse order of open tags:<br>
  <i>Last Opened is First  Closed!</i></p>
  <p>The title element text <b>can not</b> be marked up.</p>
</body>
</html>
```

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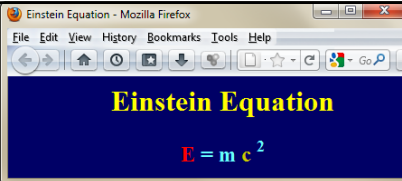
RGB Color Specifications

❖ **The colors Red, Green, and Blue are combined to produce specific colors**

❖ **24-bit code = 6 digit hexadecimal**
- ◆ White   = #FFFFFF
- ◆ Gray   = #999999
- ◆ Black   = #000000
- ◆ Red   = #FF0000
- ◆ Blue   = #0000FF
- ◆ Green   = #00FF00
- ◆ Yellow   = #FFFF00
- ◆ Violet   = #FF00FF

Red + Blue = Violet

❖ **style attributes define colors for web page**
- ◆ **<body style="background-color: #000099; color: #FFFF66;">**
- ◆ **<h1 style="color: #FF0000; text-align: center;">**
- ◆ **<span style="color: #990000;">**

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Color Example

Einstein Equation - Mozilla Firefox
File Edit View History Bookmarks Tools Help

Einstein Equation

$E = m\ c^{\ 2}$

```html
<!DOCTYPE html>
<html lang="en">
  <head>
    <meta charset="utf-8">
    <title>Einstein Equation</title>
  </head>
  <body style="background-color: #000066;">
    <h1 style="color: #FFFF00; text-align: center;">
      Einstein Equation</h1>
    <h2 style="color: #66FFFF; text-align: center;">
      <span style="color: #FF0000;">E </span> = m
      <span style="color: #CCCC00">c</span>
      <sup>2</sup></h2>
  </body>
</html>
```
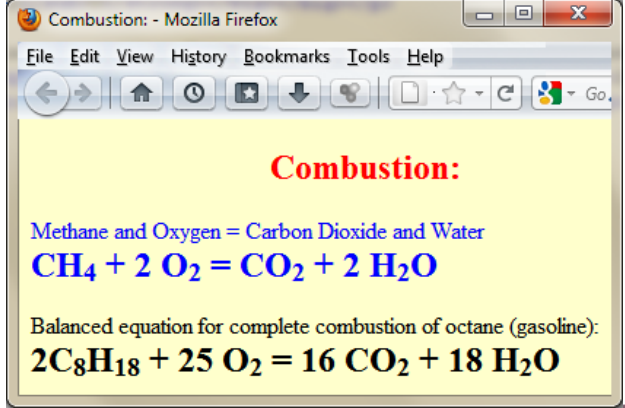
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Assignment 1 - Part B: HTML Inline Elements

Combustion: - Mozilla Firefox
File Edit View History Bookmarks Tools Help

Combustion:

Methane and Oxygen = Carbon Dioxide and Water

$$CH_4 + 2\ O_2 = CO_2 + 2\ H_2O$$

Balanced equation for complete combustion of octane (gasoline):

$$2C_8H_{18} + 25\ O_2 = 16\ CO_2 + 18\ H_2O$$

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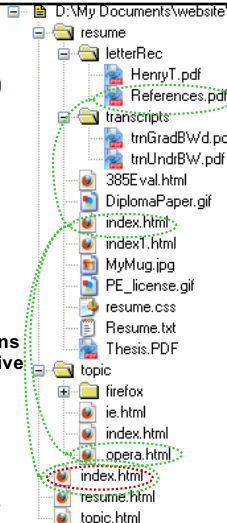
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HTML: Anchor Element

❖ **Anchor elements are considered inline elements and used to create hyperlinks**
❖ **The file index.html is the default web page file and is opened when no file is specified**
❖ **Link to file in same folder**
   `<a href="freedom.html">Freedom</a>`
   `<a href="index.html">Home</a>`
❖ **Link to file in different folder using relative path**
   `<a href="combustion/index.html">Combustion</a>`
   `<a href="../index.html">Home</a>`
❖ **Link to to file on different URL**
   `<a href="http://www.islandman.org">My Website</a>`
   `<a href="http://www.islandman.org/resume/index.html">`
   `Resume</a>`

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Specifying Relative Paths

❖ **Organize files with website folder structure**
❖ **2 files in a folder cannot have the same name**
❖ **Do not use spaces in names of folder or files**
❖ **Do use _ - or title case for names**
   ◆ **MyMug.jpg**
   ◆ **PE_license.gif**
   ◆ **DiplomaPaper.pdf**
❖ **Default webpage in each folder is index.html**
❖ **Home page is index.html stored in root folder**
❖ **File paths are relative to the folder that contains the active html document and are case sensitive**
❖ **Parent folder is designated by ..**
❖ **From `resume/index.html` to**
   ◆ `<a href="letterRec/References.pdf">`
   ◆ `<a href="../index.html">`
   ◆ `<a href="../topic/opera.html">`

```
D:\My Documents\website\
  resume
    letterRec
      HenryT.pdf
      References.pdf
    transcripts
      trnGradBWd.pdf
      trnUndrBW.pdf
    385Eval.html
    DiplomaPaper.gif
    index.html
    indexT.html
    MyMug.jpg
    PE_license.gif
    resume.css
    Resume.txt
    Thesis.PDF
  topic
    firefox
    ie.html
    index.html
    opera.html
  index.html
  resume.html
  topic.html
```

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Hyperlink Example

```
1.  <body>
2.   <h3 style="text-align:center">
3.     Robert Laurie
4.   </h3>
5.   <p>
6.    <strong>Objective:</strong> To teach for
7.     <a href="http://www.umgc.edu">UMUC</a>
8.   </p>
9.   <h4>
10.    <a href="letterRec/References.pdf">
11.     My References</a><br />
12.    <a href="../index.html">My Home Page</a>
13.   </h4>
14. </body>
```

Robert Laurie

Objective: To teach for UMUC

My References
My Home Page

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Bullet List Hyperlinks E[xample]

UMUC - Asia Division

Associate Professor
Guam, Iwakuni, and Sasebo Japan
January 1998 through Present
References
Taught courses with the following course content:

- C++ Programming
- Web Site Design
- JavaScript Programming

CMST386

```
<h3>UMUC - Asia Division</h3>
  <p>
    Associate Professor<br>
    Guam, Iwakuni, and Sasebo Japan<br>
    January 1998 through Present<br>
    <a href="letterRec/References.pdf">References</a><br>
    Taught courses with the following course content:
  </p>
  <ul>
    <li><a href="../_umuc/cmis140/index.html" title="CMIS141">
      Java Programming</a></li>
    <li><a href="../_umuc/cmst385/index.html" title="CMST385">
      Web Site Design</a></li>
    <li><a href="../_umuc/cmst386/index.html" title="CMST386">
      JavaScript Programming</a></li>
  </ul>
```

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HTML5: Image Element

❖ **The Image Element is an Inline Element**

❖ **<img src="filename.gif" alt="Bob's Mug">**

- ◆ **Source file in same folder as html file = "bob.gif"**
- ◆ **Source file in sub-folder photo = "photo/bob.gif"**
- ◆ **Source file in parent-folder = "../bob.gif"**
- ◆ **Source file at another URL**
  http://www.bob.com/photos/bob.gif
- ◆ **alt="Bob's Mug" Alternate text label**

❖ **Optional Attibutes:**

- ◆ **width="200" height="150" Image dimensions**

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HTML: Image Tag Example

```
<html>
  <head>
    <title>My Mug Shot</title>
  </head>
  <body>
    <p><a href="../index.html">
    <img src="btBack.gif" alt="Back">
    </p>
    <h1 style="text-align:center">
      <img src="Me.jpg"
        alt="My Photo">
      <br>
      This is Me!
    </h1>
  </body>
</html>
```
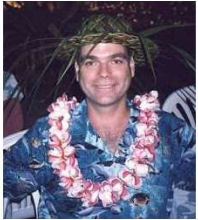
My Mug Shot - Microsoft Internet Explorer
File   Edit   View   Favorites   Tools   Help   Links

Back

This is Me!

Done   My Computer

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