CSCI 3000 Web Programming

2.0 HTML

Dr. Luis Alberto Cueva-Parra

Simple HTML File

```
Simple HTML file:
              myFirst.html
<!DOCTYPE html>
<html>
<head>
  <title>This is my title</title>
</head>
<body>
  <h1>My first heading</h1>
  Hello world!
</body>
</html>
```

- <!DOCTYPE html> indicates that the document type is html (HTML5). It helps the browser to render the file correctly.
- HTML headings are defined with the <h1> to <h6> tags.

```
<h1>This is heading 1</h1><br/><h3>This is heading 3</h3><br/><h5>This is heading Five</h5>
```

HTML paragraphs are defined with the tag:

The first paragraph.
The second paragraph.

HTML links are defined with the <a> tag:

This is the link for my
school.

0001 2000 Chr. 00 - 1/F0

- HTML images are defined with the tag. Attributes: source file (src), alternative text (alt), and size (width and height).
 - <img src="myImage.jpg" alt="any image"
 width="104" height="142">
- An HTML element usually consists of a start/opening tag and end/closing tag, with the content inserted in between. It is everything from the start tag to the end tag.

<tagname>content goes here </tagname>

- Nested HTML Elements: HTML elements can be nested (elements can contain elements).
- Empty HTML Elements: HTML elements with no content.

 br> is an empty HTML element with no closing tag. It can be closed in the opening tag as

- HTML tags are not case sensitive. But W3C recommends lowercase in HTML, and demands lowercase for stricter document types like XHTML.

- HTML attributes provide additional information about HTML elements.
- Attributes are always specified in the start tag and usually come in name="value" pairs.
- The lang attribute can be declared in the html tag. It defines the language of the document.

```
<html lang="enUS">
```

The title attribute is added to the element. Its value will be displayed as a tooltip when you mouse over the paragraph.

```
 My
paragraph.
```

HTML links are defined with the <a> tag. The link address is specified in the href attribute:

```
<a href="http://www.google.com">This is a
link</a>
```

0001 2000 Chr. 02 - 8/F0

The element defines pre-formatted text. It displays its content in a fixed-width font (usually Courier), and it preserves both spaces and line breaks.

The
br> element defines a line break.

```
This is <br > a paragraph <br > with line breaks.
```

The <hr> tag defines a thematic break in an HTML page, and is most often displayed as a horizontal rule.

```
<h1>My heading</h1>
This is a paragraph
<hr>
<h2>Second heading</h2>
```

CCC1 2000 Chr. 00 - 10/F0

The HTML <head> element is a container for metadata. HTML metadata is data about the HTML document. Metadata is not displayed. The <head> element is placed between the <html> and the <body> tags. <head> <title>My First HTML</title> <meta charset="UTF8"> </head>

The HTML style attribute sets the style of an HTML element.

```
<tagname style="property:value;"> ... </tagname>
```

The background-color property defines the background color for an HTML element.

```
<body style="background-
color:powderblue;"> . . </body>
```

CCCI 2000 Chr. 00 - 10/50

■ The color property defines the text color for an HTML element.

```
<h1 style="color:blue;">This is a
heading</h1>
This is a
paragraph.
```

■ The font-family property defines the font to be used for an HTML element.

```
<h1 style="font-family:verdana;"> This is
a heading</h1>
This is a
paragraph.
```

The font-size property defines the text size for an HTML element.

```
<h1 style="font-size:300%;">This is a
heading</h1>
This is a
paragraph.
```

■ The text-align property defines the horizontal text alignment for an element.

```
<h1 style="text-align:center;">Centered
Heading</h1>
Centered
paragraph.
```

0001000001 00 14/5

HTML Text Formatting Elements

| TAG | DESCRIPTION | |
|-------------------|---------------------------------|--|
| | Defines bold text | |
| | Defines emphasized text | |
| <i>></i> | Defines italic text | |
| <small></small> | Defines smaller text | |
| | Defines important text | |
| | Defines sub-scripted text | |
| | Defines super-scripted text | |
| <ins></ins> | Defines inserted text | |
| | Defines deleted text | |
| <mark></mark> | Defines marked/highlighted text | |

HTML Quotation & Citation

| TAG | DESCRIPTION | EXAMPLE |
|--------------------------------------|------------------|--|
| <d>></d> | Defines short | My goal is to: |
| | inline quotation | <q>Learn to sail.</q> |
| <pre><blockquote></blockquote></pre> | Defines section | |
| | quoted from | • • |
| | another source | |
| <abbr></abbr> | Defines | The <abbr <="" p="" title="World"></abbr> |
| | abbreviations | Health Organization"> WHO |
| | | |
| <address></address> | Defines contact | <address> PO Box</address> |
| | information | > |
| <cite></cite> | Defines title | <cite>The Scream</cite> |
| | of a work | by E. M. |
| <bdo></bdo> | Defines text | <pre><bdo dir="rtl">Text will be written</bdo></pre> |
| | direction | from right to left |

000100001

HTML Computer Code

| TAG | DESCRIPTION | EXAMPLE |
|---------------|-----------------|-------------------------------|
| <kbd></kbd> | Defines | <kbd> File Open </kbd> |
| | keyboard input | |
| <samp></samp> | Defines section | <samp>demo.example.com</samp> |
| | computer output | login: Apr 12 09:10:17 |
| | | |
| <pre> +</pre> | Defines | <pre><pre></pre></pre> |
| <code></code> | computer code | <code></code> |
| | and preserves | |
| | spaces | |
| <var></var> | Defines a | Einstein wrote: |
| | variable | <var>E</var> = |
| | | <var>m</var> <var>c</var> |
| | | ² . |

HTML Comments

You can add comments to your HTML source

```
<!-- This is a comment -->
This is a paragraph.
<!--Remember to add more info here -->
```

 Conditional comments defines some HTML tags to be executed by Internet Explorer only

```
<!--[if IE 8]>
... some HTML here ... <![endif]-->
```

HTML Lists

Unordered Lists: ()

```
Physics
Chemistry
Biology
```

Ordered Lists: ()

HTML Unordered Lists

The CSS list-style-type property defines the style of the list item marker:

| VALUE | LIST ITEM MARKER |
|--------|------------------|
| disc | Bullet (default) |
| circle | Circle |
| square | Square |
| none | No item marker |

```
     Physics
     Chemistry
     Biology
```

HTML Ordered Lists

The type attribute of < 01> defines the type of the list item marker:

| TYPE | LIST ITEM MARKERS |
|----------|-------------------------|
| type="1" | Numbers (default) |
| type="A" | Uppercase letters |
| type="a" | Lowercase letters |
| type="I" | Uppercase roman numbers |
| type="i" | Lowercase roman numbers |

```
    Red
    Blue
    Green
```

HTML Colors

HTML colors are specified using predefined color names, or RGB, HEX, HSL, RGBA, HSLA values (1/2).

HTML Colors

HTML colors are specified using predefined color names, or RGB, HEX, HSL, RGBA, HSLA values (2/2).

```
<h1 style="background-color:rgb(100%, 65%, 0%);">
Orange! </h1>
<h1 style="background-color:rgb(255, 165, 0);">
Orange too</h1>
<h1 style="background-color:rgba(255, 0, 0, 0, 0.5);"> alpha Ch</h1>
<h1 style="background-color:hsl(120, 100%, 50%);"> Green </h1>
<h1 style="background-color:hsl(120, 100%, 50%);"> Green </h1>
<h1 style="background-color:hsl(120, 100%, 50%, 0.5);"> Green semitransparent </h1>
```

Wikipedia: Web Colors (https://en.wikipedia.org/wiki/Web_colors)

- Cascading Style Sheets (CSS) describes how HTML elements are to be displayed on screen, paper, or in other media.
- CSS can be added to HTML elements in 3 ways:
 - Inline by using the style attribute in HTML elements.
 - Internal by using a <style> element in the <head> section.
 - External by using an external CSS file.

Inline CSS: It is used to apply a unique style to a single HTML element.

```
<h1 style="color:blue;">This is a Blue
Heading</h1>
```

Internal CSS: It is used to define a style for a single HTML page.

```
<head>
<style>
  body {background-color:powderblue;}
  h1 {color:blue;}
  p {color:red;}
</style>
</head>
```

External CSS: An external style sheet is used to define the style for many HTML pages.

External CSS: The external CSS file does not contain any HTML code. It must be saved with a .css extension.

```
mySty.css
body { background-color: powderblue; }
h1 { color: blue; }
p { color: red; }
```

HTML Styles - CSS Fonts

- The CSS color property defines the text color.
- The CSS font-family property defines the font.
- The CSS font-size property defines the text size.

```
<head>
<style>
    h1 { color: blue;
        font-family: verdana;
        font-size: 300%; }
    p { color: red;
        font-family: courier;
        font-size: 160%; }
</style>
</head>
```

- The CSS border property defines the border.
- The CSS padding property defines the space between the text and the border.
- The CSS margin property defines the margin (space between the border and the end of the display or screen).

```
<head>
<style>
    p { border: 1px solid powderblue;
        padding: 30px;
        margin: 50px; }
</style>
</head>
```

- The CSS border property defines the border.
- The CSS padding property defines the space between the text and the border.
- The CSS margin property defines the margin (space between the border and the end of the display or screen).

```
<head>
<style>
    p { border: 1px solid powderblue;
        padding: 30px;
        margin: 50px; }
</style>
</head>
```

HTML Styles - CSS id and class

- The id attribute defines a specific style for one special element.
 - definition of the CSS id:

```
#p01 {
    color: blue; }
```

use in the HTML file:

```
I am different
```

- The class attribute defines a style for a special type of elements.
 - definition of the CSS class:

```
p.error {
    color: blue; }
```

use in the HTML file:

```
I am different
```

HTML - Navigation menu (Horizontal Lists)(1/2)

Lists can be styled with CSS to create a navigation menu.

```
    <a href="#home">Home</a>
    <a href="#news">News</a>
    <a href="#contact">Contact</a>
    <a href="#about">About</a>
```

CSS styling:

```
ul {
    list-style-type: none;
    margin: 0;
    padding: 0;
    overflow: hidden;
    background-color: #333333;
}
```

HTML - Navigation menu (Horizontal Lists)(2/2)

CSS styling (continued):

```
li {
   float: left;
li a {
   display: block;
   color: white;
   text-align: center;
   padding: 16px;
   text-decoration: none;
li a:hover {
   background-color: #111111;
```

HTML Tables (1/2)

- An HTML table is defined with the tag.
- Each table row is defined with the tag.
- A table header is defined with the th> tag. By default, table headings are bold and centered.
- A table data/cell is defined with the tag.

HTML Tables (2/2)

```
Student Name
 Final Grade
John Smith
 75
Mary Johnson
 88
```

HTML Table - Borders

- The default is that no border is displayed.
- A border is set using the CSS border property:

```
table, th, td {
    border: 1px sold blue;
}
```

The CSS border-collapse property collapses borders into one border.

```
table, th, td {
    border: 1px sold blue;
    border-collapse: collapse;
}
```

HTML Table - Borders

- Cell padding is the space between the cell content and its borders.
 If no padding is specified, then no padding is added.
- The CSS padding property sets the padding:

```
th, td {
    padding: 13px;
}
```

The CSS text-align property left-aligns the headings:

```
th {
    text-align: left;
}
```

The CSS border-spacing sets border spacing for a table:

```
table {
     border-spacing: 6px;
}
```

HTML Table - Cells that span many columns

The colspan attribute makes a cell span more than one column.

```
\langle tr \rangle
  Student Name
  Telephone
 \langle tr \rangle
  John Smith
   760 - 864 - 1611 
  760-867-5133
```

HTML Table - Cells that span many rows

The rowspan attribute makes a cell span more than one row.

```
\langle tr \rangle
  Student Name
  John Smith
 Telephone
   760 - 864 - 1611 
 \langle tr \rangle
   760 - 867 - 5133
```

HTML Table - Captions

The caption tag adds a caption to a table.

```
<caption>Student Information</caption>
 \langle tr \rangle
  Student Name
  Telephone
 John Smith
  760-864-1611
   760 - 867 - 5133
```

HTML Table - Special Style for one Table (1/2)

The id attribute defines special style fir a table.

```
<table id="t01" >
 First Name
  Last Name
  Height
 \langle tr \rangle
  John
  Smith
  7' 3"
```

HTML Table - Special Style for one Table (2/2)

Include the special style in the CSS style definition:

```
table#t01 {
    width: 80%;
    background-color: #f1ccd1;
}
```

More styles:

```
table#t01 tr:nth-child(even) {
    background-color: #eee;
}
table#t01 tr:nth-child(odd) {
    background-color: #fff;
}
table#t01 th {
    color: white;
    background-color: black;
}
```

HTML Images (1/3)

width and height attributes define the size of an image in pixels:

```
<img src="myImage.jpg" alt="any image"
width="104" height="142">
```

The style atribute can be used to specify the width and height of an image:

```
<img src="myImage.jpg" alt="any image"
style="width:104px; height:142px;">
```

It is suggested to use style attribute for sizing images.

HTML Images (2/3)

Images in another folder need its full path:

```
<img src="./images/myImage.jpg" alt="any
image" style="width:104px;
height:142px;">
```

Images on another server need its full address:

```
<img
src="https://www.w3schools.com/images/
w3schools_green.jpg" alt="W3Schools.com"
style="width:104px; height:142px;">
```

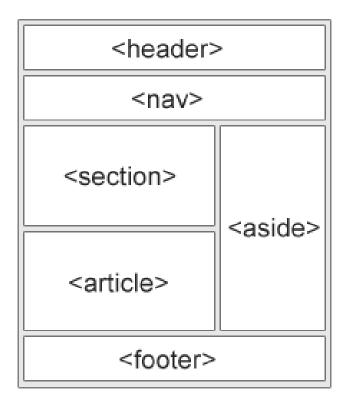
2001 2002 01 20 44/50

HTML Images (3/3)

■ To use and image as a link, put the tag inside of the <a> tag:

HTML Layouts

- Websites are organized in columns and blocks.
- HTML5 provides semantic elements that define the different parts of a web page.



HTML Layouts

HTML5 semantic elements:

| ELEMENT | DESCRIPTION |
|--------------------------------|---|
| <header></header> | Defines document or section header |
| <nav></nav> | Defines a container for navigation links |
| <pre><section></section></pre> | Defines document section |
| <article></article> | Defines an independent self-contained article |
| <aside></aside> | Defines content aside the main content (sidebar) |
| <footer></footer> | Defines document or section footer |
| <details></details> | Defines additional details |
| <summary></summary> | Defines a heading for the <details> element</details> |

0001000001 00 47/5

HTML Layouts Techniques

There are four different ways to create multicolumn layouts:

- HTML tables: Old technique, not recommended. element is designed to display tabular data, not to provide a layout.
- CSS float and clear properties: Elements are tied to the document flow (loss of flexibility)
- CSS flexbox: New layout mode in CSS3. Ideal for responsive design.
- CSS frameworks: Provide layouts for quick use. Examples are w3.css, Bootstrap, Foundation, Ulkit, Skeleton, etc.

HTML Responsive Web Design (1/2)

- Responsive Web Design: uses HTML and CSS to automatically resize, hide, shrink or enlarge website content, to make it look good on a variety of display sizes in modern and traditional devices (smart phones, tablets, laptops, desktops, etc.)
- To make a website responsive add the following <meta> element in the <head> block of the website.

```
<meta name="viewport"
content="width=device-width,
initial-scale=1.0">
```

HTML Responsive Web Design (2/2)

■ Responsive Images: Images that scale nicely on a variety of display sizes. Setting the CSS width property to 100% will make an image responsive.

```
<img src="myImage.jpg"
style="width:100%;">
```

A better approach to avoid unnecessary scaling up, is to use the max-width property:

```
<img src="myImage.jpg"
style="max-width:100%; height:auto;">
```