Web Technology

HTML Introduction

HTML is the standard markup language for creating Web pages.

- HTML stands for Hyper Text Markup Language
- HTML describes the structure of Web pages using markup
- HTML elements are the building blocks of HTML pages
- HTML elements are represented by tags
- HTML tags label pieces of content such as "heading", "paragraph", "table", and so on

Example:

<!DOCTYPE html>

<html>

<head>

<title>Page Title</title>

</head>

<body>

<h1>My First Heading</h1>

<p>My first paragraph.</p>

</body>

</html>

Example Explained

- The <!DOCTYPE html> declaration defines this document to be HTML5
- The <html> element is the root element of an HTML page
- The <head> element contains meta information about the document
- The <title> element specifies a title for the document
- The <body> element contains the visible page content
- The <h1> element defines a large heading
- The <p> element defines a paragraph

HTML Tags

HTML tags are element names surrounded by angle brackets:

<tagname>content goes here...</tagname>

- HTML tags normally come in pairs like <p> and </p>
- The first tag in a pair is the start tag, the second tag is the end tag
- The end tag is written like the start tag, but with a forward slash inserted before the tag

Name

HTML Documents

All HTML documents must start with a document type declaration: <!DOCTYPE html>.

The HTML document itself begins with <html> and ends with </html>.

The visible part of the HTML document is between <body> and </body>.

Example

<!DOCTYPE html>

<html>

<body>

<h1>My First Heading</h1>

<p>My first paragraph.</p>

</body>

</html>

HTML Headings

HTML headings are defined with the <h1> to <h6> tags.

<h1> defines the most important heading. <h6> defines the least important heading:

Example

<h1>This is heading 1</h1>

<h2>This is heading 2</h2>

<h3>This is heading 3</h3>

HTML Paragraphs

HTML paragraphs are defined with the <p> tag:

Example

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

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

HTML Links

HTML links are defined with the <a> tag:

<!DOCTYPE html>

<html>

<body>

This is a link

</body>

</html>

The link's destination is specified in the href attribute.

Attributes are used to provide additional information about HTML elements.

HTML Images

HTML images are defined with the <img> tag.

The source file (src), alternative text (alt), width, and height are provided as attributes:

Example

<img src="w3schools.jpg" alt="W3Schools.com" width="104" height="142">

HTML Elements

An HTML element usually consists of a start tag and end tag, with the content inserted in between:

<tagname>Content goes here...</tagname>

The HTML element is everything from the start tag to the end tag:

<p>My first paragraph.</p>

Empty HTML Elements

HTML elements with no content are called empty elements.

 is an empty element without a closing tag (the <br> tag defines a line break).

Empty elements can be "closed" in the opening tag like this: <br />.

HTML5 does not require empty elements to be closed. But if you want stricter validation, or if you

need to make your document readable by XML parsers, you must close all HTML elements

properly.

- Attributes provide additional information about an element
- Attributes are always specified in the start tag
- Attributes usually come in name/value pairs like: name="value"

The width and height Attributes

Images in HTML have a set of size attributes, which specifies the width and height of the image:

Example

<img src="img_girl.jpg" width="500" height="600">

The style Attribute

The style attribute is used to specify the styling of an element, like color, font, size etc.

Example

<p style="color:red">I am a paragraph</p>

HTML Headings

Headings are defined with the <h1> to <h6> tags.

<h1> defines the most important heading. <h6> defines the least important heading.

Example

<h1>Heading 1</h1>

<h2>Heading 2</h2>

<h3>Heading 3</h3>

<h4>Heading 4</h4>

<h5>Heading 5</h5>

<h6>Heading 6</h6>

Bigger Headings

Each HTML heading has a default size. However, you can specify the size for any heading with the

style attribute:

Example

<h1 style="font-size:60px;">Heading 1</h1>

HTML Horizontal Rules

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

horizontal rule.

The <hr> element is used to separate content (or define a change) in an HTML page:

Example

<h1>This is heading 1</h1>

<p>This is some text.</p>

<hr>

<h2>This is heading 2</h2>

<p>This is some other text.</p>

<hr>

View HTML Source Code:

To find out, right-click in the page and select "View Page Source" (in Chrome) or "View Source"

(in IE), or similar in other browsers. This will open a window containing the HTML source code of the page.

Inspect an HTML Element:

Right-click on an element (or a blank area), and choose "Inspect" or "Inspect Element" to see what elements are made up of (you will see both the HTML and the CSS). You can also edit the HTML or CSS on-the-fly in the Elements or Styles panel that opens.

HTML Line Breaks

The HTML <br> element defines a line break.

Use <br> if you want a line break (a new line) without starting a new paragraph:

Example

<p>This is
a paragraph
with line breaks.</p>

The HTML <pre> Element

The HTML <pre> element defines preformatted text.

The text inside a <pre> element is displayed in a fixed-width font (usually Courier), and it preserves both spaces and line breaks:

Example

<pre>

My Bonnie lies over the ocean.

My Bonnie lies over the sea.

My Bonnie lies over the ocean.

Oh, bring back my Bonnie to me.

</pre>

HTML Formatting Elements

In the previous chapter, you learned about the HTML style attribute.

HTML also defines special elements for defining text with a special meaning.

HTML uses elements like <b> and <i> for formatting output, like bold or italic text.

HTML <b> Elements

The HTML <b> element defines bold text, without any extra importance.

Example

<!DOCTYPE html>

<html>

```
<body>

<p>This text is normal.</p>

<p><b>This text is bold.</b></p>

</body>

</html>
```

HTML Comment Tags

You can add comments to your HTML source by using the following syntax:

```
<!-- Write your comments here -->
```

Notice that there is an exclamation point (!) in the opening tag, but not in the closing tag.

Note: Comments are not displayed by the browser, but they can help document your HTML source code.

With comments you can place notifications and reminders in your HTML:

Example

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

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

<!-- Remember to add more information here -->
```

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

Color Names

In HTML, a color can be specified by using a color name:

- Tomato
- Orange
- DodgerBlue
- MediumSeaGreen
- Gray
- SlateBlue
- Violet
- LightGray

Example

```
<h1 style="background-color:DodgerBlue;">Hello World</h1>

<p style="background-color:Tomato;">Lorem ipsum...</p>
```

Text Color

Example

```
<h1 style="color:Tomato;">Hello World</h1>
```

```
<p style="color:DodgerBlue;">Lorem ipsum...</p>
```

```
<p style="color:MediumSeaGreen;">Ut wisi enim...</p>
```

Border Color

Example

```
<h1 style="border:2px solid Tomato;">Hello World</h1>
```

```
<h1 style="border:2px solid DodgerBlue;">Hello World</h1>
```

```
<h1 style="border:2px solid Violet;">Hello World</h1>
```

Styling HTML with CSS

CSS stands for Cascading Style Sheets.

CSS describes how HTML elements are to be displayed on screen, paper, or in other media.

CSS saves a lot of work. It can control the layout of multiple web pages all at once.

- 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

The most common way to add CSS, is to keep the styles in separate CSS files. However, here we

will use inline and internal styling, because this is easier to demonstrate, and easier for you to try it

yourself.

Inline CSS

An inline CSS is used to apply a unique style to a single HTML element.

An inline CSS uses the style attribute of an HTML element.

This example sets the text color of the <h1> element to blue:

Example

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

Internal CSS

An internal CSS is used to define a style for a single HTML page.

An internal CSS is defined in the <head> section of an HTML page, within a <style> element:

Example

```
<!DOCTYPE html>
```

```
<html>
```

```
<head>
```

```
<style>
body {background-color: powderblue;}
h1 {color: blue;}
p {color: red;}
</style>
</head>
<body>
<h1>This is a heading</h1>
<p>This is a paragraph.</p>
</body>
</html>
```

External CSS

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

With an external style sheet, you can change the look of an entire web site, by changing one

file!

To use an external style sheet, add a link to it in the <head> section of the HTML page:

Example

```
<!DOCTYPE html>
<html>
<head>
<link rel="stylesheet" href="styles.css">
</head>
<body>
<h1>This is a heading</h1>
<p>This is a paragraph.</p>
</body>
</html>
```

An external style sheet can be written in any text editor. The file must not contain any HTML code,

and must be saved with a .css extension.

Here is how the "styles.css" looks:

```
body {
```

```css
background-color: powderblue;

}

h1 {

color: blue;

}

p {

color: red;

}
```

CSS Fonts

The CSS color property defines the text color to be used.

The CSS font-family property defines the font to be used.

The CSS font-size property defines the text size to be used.

Example

```html
<!DOCTYPE html>

<html>

<head>

<style>

h1 {

color: blue;

font-family: verdana;

font-size: 300%;

}

p {

color: red;

font-family: courier;

font-size: 160%;

}

</style>

</head>

<body>

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

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

</body>

</html>
```

CSS Border

The CSS border property defines a border around an HTML element:

Example

```css
p {

border: 1px solid powderblue;

}
```

CSS Margin

The CSS margin property defines a margin (space) outside the border:

Example

```css
p {

border: 1px solid powderblue;

margin: 50px;

}
```

The id Attribute

To define a specific style for one special element, add an id attribute to the element:

```html
<!DOCTYPE html>

<html>

<head>

<style>

#p01 {

color: blue;

}

</style>

</head>

<body>

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

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

<p id="p01">I am different.</p>
```

</body>

</html>

The class Attribute

To define a style for a special type of elements, add a class attribute to the element:

<p class="error">I am different</p>

then define a style for the elements with the specific class:

Example

p.error {

color: red;

}

HTML Links - Syntax

In HTML, links are defined with the <a> tag:

link text

Example

Visit our HTML tutorial

The href attribute specifies the destination address (https://www.w3schools.com/html/) of the link.

The link text is the visible part (Visit our HTML tutorial).

Clicking on the link text will send you to the specified address.

Note: Without a forward slash on subfolder addresses, you might generate two requests to the

server. Many servers will automatically add a forward slash to the address, and then create a new

request.

HTML Images

Images can improve the design and the appearance of a web page.

Example

<img src="pulpitrock.jpg" alt="Mountain View">

Image Maps

Use the <map> tag to define an image-map. An image-map is an image with clickable areas.

HTML Tables

Defining an HTML Table

An HTML table is defined with the <table> tag.

Each table row is defined with the <tr> 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 <td> tag.

Example

```
<!DOCTYPE html>
<html>
<body>
<table style="width:100%">
<tr>
<th>Firstname</th>
<th>Lastname</th>
<th>Age</th>
</tr>
<tr>
<td>kishore</td>
<td>Ram</td>
<td>50</td>
</tr>
<tr>
<td>kishan</td>
<td>shesh</td>
<td>94</td>
</tr>
<tr>
<td>alok</td>
<td>Deepak</td>
<td>80</td>
</tr>
</table>
</body>
</html>
```

Note: The <td> elements are the data containers of the table. They can contain all sorts of HTML elements; text, images, lists, other tables, etc.

HTML Table - Adding a Border

If you do not specify a border for the table, it will be displayed without borders.

A border is set using the CSS border property:

```
<!DOCTYPE html>

<html>

<head>

<style>

table, th, td {

border: 1px solid black;

}

</style>

</head>

<body>

<table style="width:100%">

<tr>

<th>Firstname</th>

<th>Lastname</th>

<th>Age</th>

</tr>

<tr>

<td>kishore</td>

<td>Ram</td>

<td>50</td>

</tr>

<tr>

<td>kishan</td>

<td>shesh</td>

<td>94</td>

</tr>

<tr>

<td>alok</td>
```

```html
<td>Deepak</td>
```

```html
<td>80</td>
```

```html
</tr>
```

```html
</table>
```

```html
</body>
```

```html
</html>
```

HTML Lists

HTML List Example

An Unordered List:

- Item
- Item
- Item
- Item

An Ordered List:

- First item
- Second item
- Third item
- Fourth item

Unordered HTML List

An unordered list starts with the <ul> tag. Each list item starts with the <li> tag.

The list items will be marked with bullets (small black circles) by default:

Example

```html
<ul>
```

```html
<li>Coffee</li>
```

```html
<li>Tea</li>
```

```html
<li>Milk</li>
```

```html
</ul>
```

Ordered HTML List

An ordered list starts with the <ol> tag. Each list item starts with the <li> tag.

The list items will be marked with numbers by default:

Example

```html
<ol>
```

```html
<li>Coffee</li>
```

```
<li>Tea</li>
```

```
<li>Milk</li>
```

```
</ol>
```

Ordered HTML List - The Type Attribute

The type attribute of the <ol> tag, defines the type of the list item marker:

Type Description

type="1" The list items will be numbered with numbers (default)

type="A" The list items will be numbered with uppercase letters

type="a" The list items will be numbered with lowercase letters

type="I" The list items will be numbered with uppercase roman numbers

type="i" The list items will be numbered with lowercase roman numbers

Numbers:

```
<ol type="1">
```

```
<li>Coffee</li>
```

```
<li>Tea</li>
```

```
<li>Milk</li>
```

```
</ol>
```

The <div> Element

The <div> element is often used as a container for other HTML elements.

The <div> element has no required attributes, but both style and class are common.

When used together with CSS, the <div> element can be used to style blocks of content:

Example

```
<div style="background-color:black;color:white;padding:20px;">
```

```
<h2>London</h2>
```

```
<p>London is the capital city of England. It is the most populous city in the United Kingdom, with
```

```
a metropolitan area of over 13 million inhabitants.</p>
```

```
</div>
```

The <span> Element

The <span> element is often used as a container for some text.

The <span> element has no required attributes, but both style and class are common.

When used together with CSS, the <span> element can be used to style parts of the text:

Example

```
<h1>My <span style="color:red">Important</span> Heading</h1>
```

HTML Iframes

An iframe is used to display a web page within a web page.

Iframe - Set Height and Width

Use the height and width attributes to specify the size of the iframe.

The attribute values are specified in pixels by default, but they can also be in percent (like "80%").

Syntax

An HTML iframe is defined with the <iframe> tag:

```
<iframe src="URL"></iframe>
```

The src attribute specifies the URL (web address) of the inline frame page.

```
<!DOCTYPE html>

<html>

<body>

<iframe src="demo_iframe.htm" height="200" width="300"></iframe>

</body>

</html>
```

Iframe - Remove the Border

By default, an iframe has a border around it.

To remove the border, add the style attribute and use the CSS border property:

Example

```
<iframe src="demo_iframe.htm" style="border:none;"></iframe>
```