Introduction to HTML

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https://github.com/yasirbhutta/html-css3-examples

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HTML

- HTML (HyperText Markup Language) is the most basic building block of the Web. It defines the meaning and structure of web content. Other technologies besides HTML are generally used to describe a web page's appearance/presentation (CSS) or functionality/behavior (JavaScript).
- "HyperText" refers to links that connect web pages to one another, either within a single website or between websites. Links are a fundamental aspect of the Web. By uploading content to the Internet and linking it to pages created by other people, you become an active participant in the World Wide Web.

Basic Syntax ...

- The fundamental syntactic units of HTML are called **tags**. In general, tags are used to specify categories of content. For each kind of tag, a browser has default presentation specifications for the specified content.
- The syntax of a tag is the tag's name surrounded by angle brackets (< and >). Tag names must be written in all lowercase letters.
- Most tags appear in pairs: an opening tag and a closing tag. The name of the closing tag, when one is required, is the name of its corresponding opening tag with a slash attached to the beginning. For example, if the tag name is p, its closing tag is **</p>**. Whatever appears between a tag and its closing tag is the content of the tag.

Basic Syntax …

- Whatever appears between a tag and its closing tag is the content of the tag. A browser display of an HTML document shows the content of all the document's tags; it is the information the document is meant to portray. Not all tags can have content.
- The opening tag and its closing tag together specify a container for the content they enclose. The container and its content together are called an **element**.
- For example, consider the following element:

<p> This is simple stuff. </p>

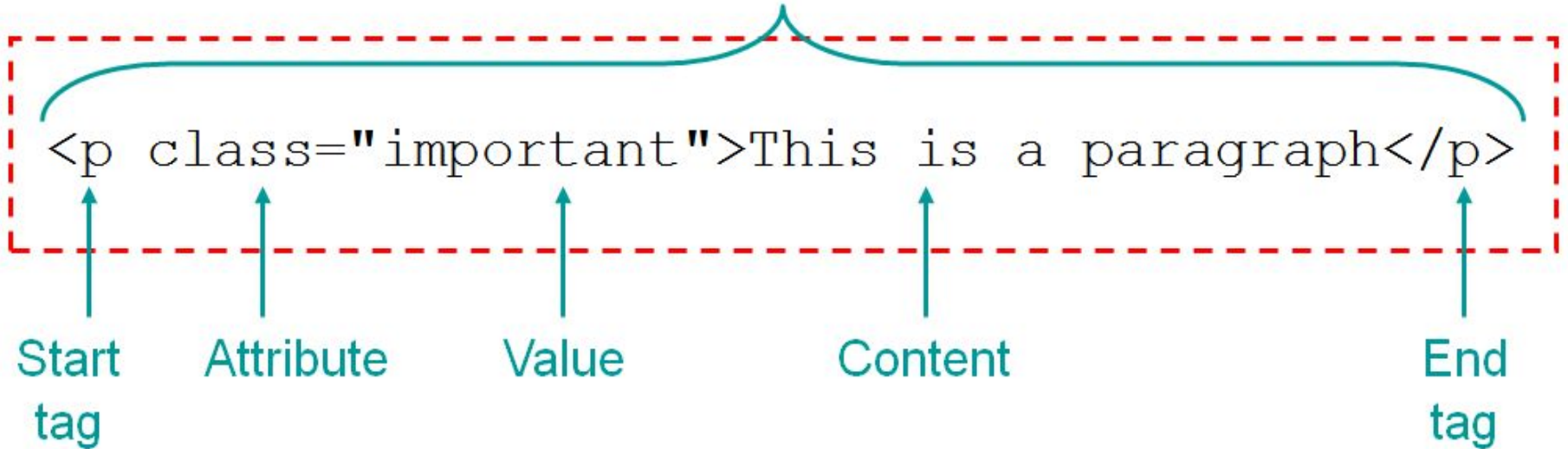# Sample Paragraph

https://www.lipsum.com/

Basic Syntax ...

Attribute

- **Attributes**, which are used to specify alternative meanings of a tag, are written between the opening tag name and its right-angle bracket.
- They are specified in keyword form, which means that the attribute's name is followed by an equals sign and the attribute's value.
- Attribute names, like tag names, are written in lowercase letters. Attribute values must be delimited by double quotes.

Image source: https://www.onlinedesignteacher.com/2016/03/html-attributes.html

Note: In HTML, some attribute values, for example, numbers, need not be quoted.

Basic Syntax

Comments

- Comments in programs increase the readability of those programs. Comments in HTML serve the same purpose. They are written in HTML in the following form:

`<!-- anything except two adjacent dashes -->`

- Browsers ignore HTML comments—they are for people only. Comments can be spread over as many lines as are needed. For example, you could have the following comment:

```
<!-- PetesHome.html

This document describes the home document of

Pete's Pickles

-->
```

Basic Syntax …

Besides comments, several other kinds of text that are ignored by browsers may appear in an HTML document.

- Browsers ignore all unrecognized tags. They also ignore line breaks. Line breaks that show up in the displayed content can be specified, but only with tags designed for that purpose. The same is true for multiple spaces and tabs.
- However, a misspelled tag name usually results in the tag being ignored by the browser, with no indication to the user that anything has been left out. Browsers are even allowed to ignore tags that they recognize. Furthermore, the user can configure his or her browser to react to specific tags in different ways.

Standard HTML Document Structure

```html
<!DOCTYPE html>
<html lang="en">
<head>
    <title>Hello world</title>
</head>
<body>
    <p>
        "You only live once,
        but if you do it right, once is enough."
        – Mae West
    </p>
</body>

</html>
```
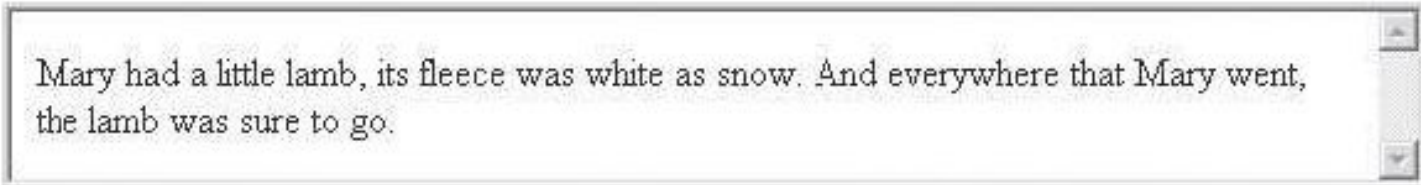
You, 33 minutes ago • html

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Basic Text Markup

Paragraphs

- Text is often organized into paragraphs in the body of a document.
- text is often placed in the content of a paragraph element, the name of which is **p**.
- In displaying text, the browser puts as many words as will fit on the lines in the browser window. The browser supplies a line break at the end of each line. The line breaks embedded in text are ignored by the browser.

```
<p>
   Mary had
a
   little lamb, its fleece was white as snow. And
 everywhere that
  Mary went, the lamb
 was sure to go.
</p>
```

Mary had a little lamb, its fleece was white as snow. And everywhere that Mary went, the lamb was sure to go.

Figure 2.1 Filling lines

```
<p> Mary had a little lamb, </p> <p> its fleece was white
    as snow. </p>
```

Mary had a little lamb,

its fleece was white as snow.

Figure 2.3 The paragraph element

Lorem Ipsum

Lorem Ipsum is simply dummy text of the printing and typesetting industry.

https://www.lipsum.com/

Line Breaks

The HTML **
** element produces a line break in text (carriage-return). It is useful for writing a poem or an address, where the division of lines is significant.

**
**

The slash indicates that the tag is both an opening and closing tag. The space before the slash represents the absent content.

In HTML, the break tag can be written as <br>, without a closing tag or slash.

```
<p>
Mary had a little lamb, <br />
    its fleece was white as snow.
</p>
```

This markup would be displayed as shown in Figure 2.4.

Mary had a little lamb,
its fleece was white as snow.

Figure 2.4 Line breaks

Preserving White Space ...

- Sometimes it is desirable to preserve the white space in text—that is, to prevent the browser from eliminating multiple spaces and ignoring embedded line breaks. This can be specified with the pre tag—for example,

```
<pre>

    Mary

        had a

            Little lamb   </pre>
```

Preserving White Space ...

A pre element can contain virtually any other tags, except those that cause a paragraph break, such as paragraph elements.

Headings ...

- Text is often separated into sections in documents by beginning each section with a heading. Larger sections sometimes have headings that appear more prominent than headings for sections nested inside them.
- In HTML, there are six levels of headings, specified by the tags <h1>, <h2>, <h3>, <h4>, <h5>, and <h6>, where <h1> specifies the highest-level heading.
- Headings are usually displayed in a boldface font whose default font size depends on the number in the heading tag.

Headings ...

- On most browsers, <h1>, <h2>, and <h3> use font sizes that are larger than that of the default size of text, <h4> uses the default size, and <h5> and <h6> use smaller sizes.
- The heading tags always break the current line, so their content always appears on a new line. Browsers usually insert some vertical space before and after all the headings.

```
<!DOCTYPE html>
<!-- headings.html
     An example to illustrate headings
     -->
<html lang = "en">
  <head>
    <title> Headings </title>
    <meta charset = "utf-8" />
  </head>
  <body>
    <h1> Aidan's Airplanes (h1) </h1>
    <h2> The best in used airplanes (h2) </h2>
    <h3> "We've got them by the hangarful" (h3) </h3>
    <h4> We're the guys to see for a good used airplane (h4) </h4>
    <h5> We offer great prices on great planes (h5) </h5>
    <h6> No returns, no guarantees, no refunds,
         all sales are final! (h6) </h6>
  </body>
</html>
```

Headings

Block Quotations

- Sometimes we want a block of text to be set off from the normal flow of text in a document. In many cases, such a block is a long quotation.
- The <blockquote> tag is designed for this situation. Browser designers are allowed to determine how the content of <blockquote> can be made to look different from the surrounding text. However, in most cases the block of text simply is indented on both sides.

```
<blockquote>
  <p>
    "Fourscore and seven years ago our fathers brought forth on
    this continent, a new nation, conceived in Liberty, and
    dedicated to the proposition that all men are created equal.
  </p>
  <p>
    Now we are engaged in a great civil war, testing whether
    that nation or any nation so conceived and so dedicated,
    can long endure."
  </p>
</blockquote>
```

Block Quotations

Lorem ipsum dolor sit amet consectetur adipisicing elit. Facilis, dolorum fugiat ad nostrum perspiciatis debitis consequuntur qui expedita excepturi repellat fuga blanditiis mollitia asperiores quis modi sapiente vel tempora eligendi.

> "Do what you can, with what you have, where you are."
> — Theodore Roosevelt

> "Happiness is not something ready made. It comes from your own actions."
> — Dalai Lama XIV

Lorem ipsum dolor sit amet consectetur adipisicing elit. Odit illum aperiam, nulla tempore iusto recusandae magnam voluptatem expedita ipsam eveniet sint quae, voluptatum deserunt veniam explicabo? Est natus cum aperiam.

HTML5

https://codepen.io/pen/

Online Tool

Font Styles and Sizes

- There are a few tags for fonts that are still in widespread use, called content-based style tags.
- These tags are called content based because they indicate the style of the text that appears in their content.
- <em>
- <strong>
- <code>
- <mark>
- <sup>
- <sub>

\<em\>

- Three of the most commonly used content-based tags are the emphasis tag, the strong tag, and the code tag.
- The emphasis element, em, specifies that its textual content is special and should be displayed in some way

<strong>

The strong element, strong, is like the emphasis tag, but more so. Browsers often set the content of strong elements in bold.

<code>

- The code element, code, is used to specify a monospace font, usually for program code. For example, consider the following element:

<code> cost = quantity * price </code>

Figure 2.8 The code element

<mark>

The <mark> HTML element represents text which is marked or highlighted for reference or notation purposes, due to the marked passage's relevance or importance in the enclosing context.

<sup> and <sub>

Subscript and superscript characters can be specified by the sub and sup elements, respectively. These are not content-based tags. For example,

example: sub + sup

$x_2^3 + y_1^2$

X₂³ + y ₁ ²

block or inline

Elements are categorized as being either block or inline.

- Inline element
- Block element

Inline element

- The content of an inline element appears on the current line (if it fits). So, an inline element does not implicitly include a line break.
- One exception is br, which is an inline element, but its entire purpose is to insert a line break in the content.
- em and strong are inline elements.

Block element

- A block element breaks the current line so that its content appears on a new line.
- a block element can never be nested directly in an inline element. Also, inline elements and text cannot be directly nested in body or form elements. Only block elements can be so nested.
- The heading and block quote elements are block elements,

Character Entities

- HTML provides a collection of special characters that are sometimes needed in a document but cannot be typed as themselves.
- In some cases, these characters are used in HTML in some special way—for example, > and < are used to delimit element names.

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Character	Entity	Meaning
&	&	Ampersand
<	<	Is less than
>	>	Is greater than
"	"	Double quote
'	'	Single quote (apostrophe)
$\frac{1}{4}$	¼	One-quarter
$\frac{1}{2}$	½	One-half
$\frac{3}{4}$	¾	Three-quarters
°	°	Degree
(space)		Nonbreaking space
©	©	Copyright
€	€	Euro

For example, the following text:

The price is < 10 Euros

could be placed in the content of a document as given:

The price is < 10 &euro

Horizontal Rules

- Two parts of a document can be separated from each other by placing a horizontal line between them, thereby making the document easier to read.
- Such lines are called horizontal rules, and the block element that creates them is hr.
- The **<hr />** tag causes a line break (ending the current line) and places a line across the screen.
- The browser chooses the thickness, length, and horizontal placement of lines.Typically, browsers display lines that are three pixels thick.

  Note: the slash in the <hr /> tag, indicating that this tag has not content and no closing tag.

Other Uses of the the meta Element

- The meta element, which we have been using to specify the character set used in documents, is often used to provide information about the document, primarily for search engines.
- The two attributes that are used for this are name and content.The user makes up a name as the value of the name attribute and specifies information through the content attribute.

- One commonly chosen name is keywords; the value of the content attribute associated with the keywords is that which the author of a document believes characterizes his or her document.
- An example is as follows:

<meta name = "keywords" content = "binary trees,

linked lists, stacks" />

- Web search engines use the information provided with the meta element to categorize Web documents in their indices.
- So, if the author of a document seeks widespread exposure for the document, one or more meta elements are included to ensure that it will be found by Web search engines.

For example, if an entire book were published as a Web document, it might have the following meta elements:

```
<meta name = "Title" content = "Don Quixote" />

<meta name = "Author" content = "Miguel Cervantes" />

<meta name = "keywords" content = "novel,

 Spanish literature, groundbreaking work" />
```

Images

Image formats

- .jpg
- .gif
- .png

The Image Element

- The image element, whose tag is <img />, is an inline element that specifies an image that is to appear in a document.
- Attributes
  - SRC, which specifies the file containing the image
  - ALT, which specifies text to be displayed when it is not possible to display the image.
- If the file is in the same directory as the HTML file of the document, the value of src is just the image's file name.
- "images/stars.jpg" , the image file is stored in the images subdirectory.

https://placeholder.com/

- Placeholder.com is a free image placeholder service for web designers, serving billions and billions of images each year.
- You can specify image size & format (.GIF, .JPG, .PNG, .WEBP), background color & text color, as well as the text.

https://www.freepik.com/

Hypertext Links

Links

- A link that points to a different resource specifies the address of that resource. Such an address might be a file name, a directory path and a file name, or a complete URL. If a link points to a specific place in any document other than its beginning, that place somehow must be marked.
- Links are specified in an attribute of an anchor element, a, which is an inline element. The anchor element that specifies a link is called the source of that link. The document whose address is specified in a link is called the target of that link.

Links

- the anchor element can include many different attributes. However, for creating links, only one attribute is required: href (an acronym for hypertext reference).
- The value assigned to href specifies the target of the link. If the target is in another document in the same directory, it is just the document's file name. If the target document is in some other directory, the UNIX path name conventions are used.

For example, suppose we have a document in the public_html directory (which stores servable documents) that is linked to a document named C210data.html, which is stored in the airplanes subdirectory of public_html. The value of the href attribute of the anchor element would be "airplanes/c210data.html".

This is the relative method of document addressing, which means the address is relative to the address of the document currently being displayed. Absolute file addresses could be used in which the entire path name for the linked-to file is given.

- The content of an anchor element, which becomes the clickable link the user sees, is usually text or an image, and cannot be another anchor element.
- Links are usually implicitly rendered in a different color than that of the surrounding text. Sometimes they are also underlined.
- When the mouse cursor is placed over the content of the anchor element and the left mouse button is pressed, the link is taken by the browser. If the target is in a different document, that document is loaded and displayed, replacing the currently displayed document. If the target is in the current document, the document is scrolled by the browser to display the part of the document in which the target of the link is defined.

Links can include images in their content, in which case the browser displays the image together with the textual link:

 Information on the Cessna 210

An image itself can be an effective link (the content of an anchor element). For example, an image of a small house can be used for the link to the home document of a site. The content of the anchor element for such a link is just the image element.

Targets within Documents

f the target of a link is not at the beginning of a document, it must be some element within the document, in which case there must be some means of specifying that target element. If the target element has an id attribute, that value can be used to specify the target. Consider the following example:

<h2 id = "avionics"> Avionics </h2>

Nearly all elements can include an id attribute. The value of an id attribute must be unique within the document.

If the target is in the same document as the link, the target is specified in the href attribute value by preceding the id value with a pound sign (#), as in the following example:

 What about avionics?

link is taken, the browser moves the display so that the element whose id is avionics is at the top.

When the target is an element in another document, the value of that element's id is specified at the end of the URL, separated by a pound sign (#), as in the following example:

 Avionics

HTML Lists

Read more: https://html.com/lists/

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Video and audio content

The audio Element

```
<audio attributes>
   <source src = "filename_1">
   . . .
   <source src = "filename_n">
   Your browser does not support the audio element
</audio>
```

- A browser chooses the first audio file it can play and skips the content of the audio element. If it cannot play any of the audio files that appear in the source elements, it does nothing other than displaying its content.

```
This is a test of the audio element
<audio controls = "controls" >
   <source src = "nineoneone.ogg" />
   <source src = "nineoneone.wav" />
   <source src = "nineoneone.mp3" />
   Your browser does not support the audio element
</audio>
```

The video Element

```
<video attributes>
  <source src = "filename₁">
  . . .
  <source src = "filenameₙ">
  Your browser does not support the video element
</video>
```

```
This is a test of the video element.....
<video width = "600" height = "500" autoplay = "autoplay"
        controls = "controls"  preload = "preload">
   <source src = "NorskTippingKebab.mp4" />
   <source src = "NorskTippingKebab.ogv" />
   <source src = "NorskTippingKebab.webm" />
   Your browser does not support the video element
</video>
```

- https://sample-videos.com/

Video and audio content

For more details:

https://developer.mozilla.org/en-US/docs/Learn/HTML/Multimedia_and_embedding/Video_and_audio_content

<div>: The Content Division element

- The HTML Content Division element (<div>) is the generic container for flow content. It has no effect on the content or layout until styled using CSS.
- The <div> element has no particular semantic meaning. It simply defines a block of content which can be styled as a single unit on a page.

https://html.com/tags/div/

https://developer.mozilla.org/en-US/docs/Web/HTML/Element/div

- <header>
- <nav>
- <article>
- <main>
- <aside>
- <footer>
- <section>

\<header\> HTML Tag

The \<header\> element is used to identify content that precedes the primary content of the web page and often contains website branding, navigation elements, search forms, and similar content that is duplicated across all or most pages of a website.

Read more: https://html.com/tags/header/

<nav> HTML Tag

The <nav> element identifies a group of navigation links. Links in a <nav> element may point to other webpages or to different sections of the same webpage.

Read more: https://html.com/tags/nav/

HTML

<footer> HTML Tag

The <footer> element is a structural element used to identify the footer of a page, document, article, or section. A <footer> typically contains copyright and authorship information or navigational elements pertaining to the contents of the parent element.

Read more: https://html.com/tags/footer/

<main> HTML Tag

- The <main> element is used to denote the content of a webpage that relates to the central topic of that page or application. It should include content that is unique to that page and should not include content that is duplicated across multiple webpages, such as headers, footers, and primary navigation elements.

Read more: https://html.com/tags/main/

Example

```
<body>
<header>
<a src="/" id="logo">Site Title</a>
<nav>
 <ul>
 <li><a href="/">Home</a></li>
 <li><a href="/about">About</a></li>
<li><a href="/contact">Contact</a></li>
 </ul> </nav>
 </header>
<main> . . . </main>
<footer> . . . </footer>
 </body>
```

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<section> HTML Tag

The <section> element is a structural HTML element used to group together related elements. Each <section> typically includes one or more heading elements and additional elements presenting related content.

Read more: https://html.com/tags/section/

<article> HTML Tag

The <article> element identifies a self-contained piece of content which could theoretically be distributed to other websites and platforms as a stand-alone unit. The <article> element is a good choice to contain entire blog posts, news articles, and similar content.

Read more: https://html.com/tags/article/

The time Element

```
<time datetime = "2011-02-14T08:00" pubdate = "pubdate">
  February 14, 2011 8:00am MDT
</time>
```

HTML elements reference

This page lists all the HTML elements, which are created using tags. They are grouped by function to help you find what you have in mind easily. An alphabetical list of all elements is provided in the sidebar on every element's page as well as this one.

https://developer.mozilla.org/en-US/docs/Web/HTML/Element

HTML attribute reference

Elements in HTML have attributes; these are additional values that configure the elements or adjust their behavior in various ways to meet the criteria the users want.

https://developer.mozilla.org/en-US/docs/Web/HTML/Attributes

References

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- HTML5 Differences from HTML4 - W3C
-
-