

3

HTML5 Overview and Markup

Objectives

After completing this lesson, you should be able to:

- History of HTML5
- HTML5 Page Structure
- HTML5 DOCTYPE
- Different Types of Elements

- HTML stands for HyperText Markup Language. HTML is the basic building block of World Wide Web.
- Apart from text, hypertext may contain tables, lists, forms, images, and other presentational elements.
- Markup languages use sets of markup tags to characterize text elements within a document, which gives instructions to the web browsers on how the document should appear.
- HTML was originally developed by Tim Berners-Lee in 1990. He is also known as the father of the web. In 1996, the World Wide Web Consortium (W3C) became the authority to maintain the HTML specifications. HTML also became an international standard (ISO) in 2000.

- **HTML5 is the latest iteration of that markup language, and includes new features, improvements to existing features, and scripting-based APIs.**
- HTML5 includes redefinitions of existing markup elements, and new elements that allow web designers to be more expressive in the semantics of their markup.
- Why litter your page with `divs` when you can have `articles`, `sections`, `headers`, `footers`, `<canvas>` element, offline storage, the new `<video>` and `<audio>` elements, drag-and-drop functionality, Microdata, embedded fonts and others.

What You Can Do with HTML ?

There are lot more things you can do with HTML.

- You can publish documents online with text, images, lists, tables, etc.
- You can access web resources such as images, videos or other HTML document via hyperlinks.
- You can create forms to collect user inputs like name, e-mail address, comments, etc.
- You can include images, videos, sound clips, flash movies, applications and other HTML documents directly inside an HTML document.
- You can create offline version of your website that work without internet.
- You can store data in the user's web browser and access later on.
- You can find the current location of your website's visitor.

Would the real HTML5 spec please stand up?

- HTML5 originally began as two different specifications: Web Forms 2.0 and Web Apps 1.0.
- Forms and app-like functionality are at the heart of web apps, so this was the natural direction for the HTML5 spec to take. Eventually, the two specs were merged to form what we now call HTML5.
- Because the HTML5 specification is being developed by two different bodies (the WHATWG and the W3C), there are two different versions of the spec.

- The WHATWG (aka the Web Hypertext Application Technology Working Group) includes Apple, Mozilla and Opera
- The W3C (or World Wide Web Consortium) organization that maintains the original HTML and CSS specifications.
- Both Had Differences later W3C eventually gave in and created its own HTML5 specification based on the WHATWG's spec.
- WHATWG Provided [Microdata](#), [Canvas 2D Context](#), [Web Workers](#), [Web Storage](#)

- HTML is written in the form of HTML elements consisting of markup tags. These markup tags are the fundamental characteristic of HTML. Every markup tag is composed of a keyword, surrounded by angle brackets, such as `<html>`, `<head>`, `<body>`, `<title>`, `<p>`, and so on.
- HTML tags normally come in pairs like `<html>` and `</html>`. The first tag in a pair is often called the opening tag (or start tag), and the second tag is called the closing tag (or end tag).
- An opening tag and a closing tag are identical, except a slash (/) after the opening angle bracket of the closing tag, to tell the browser that the command has been completed.

Sample

```
1  <!DOCTYPE html>
2  <html>
3
4  <head>
5      <title>Elements Demonstration</title>
6      <meta charset="UTF-8" />
7      <meta name="viewport" content="width=device-width, initial-scale=1.0" />
8
9  <body>
10     <p>This is a paragraph.</p>
11     <!-- Paragraph with nested element -->
12     <p>
13         |   This is <b>another</b> paragraph.
14     </p>
15 </body>
16
17 </html>
```



HTML5 Documents

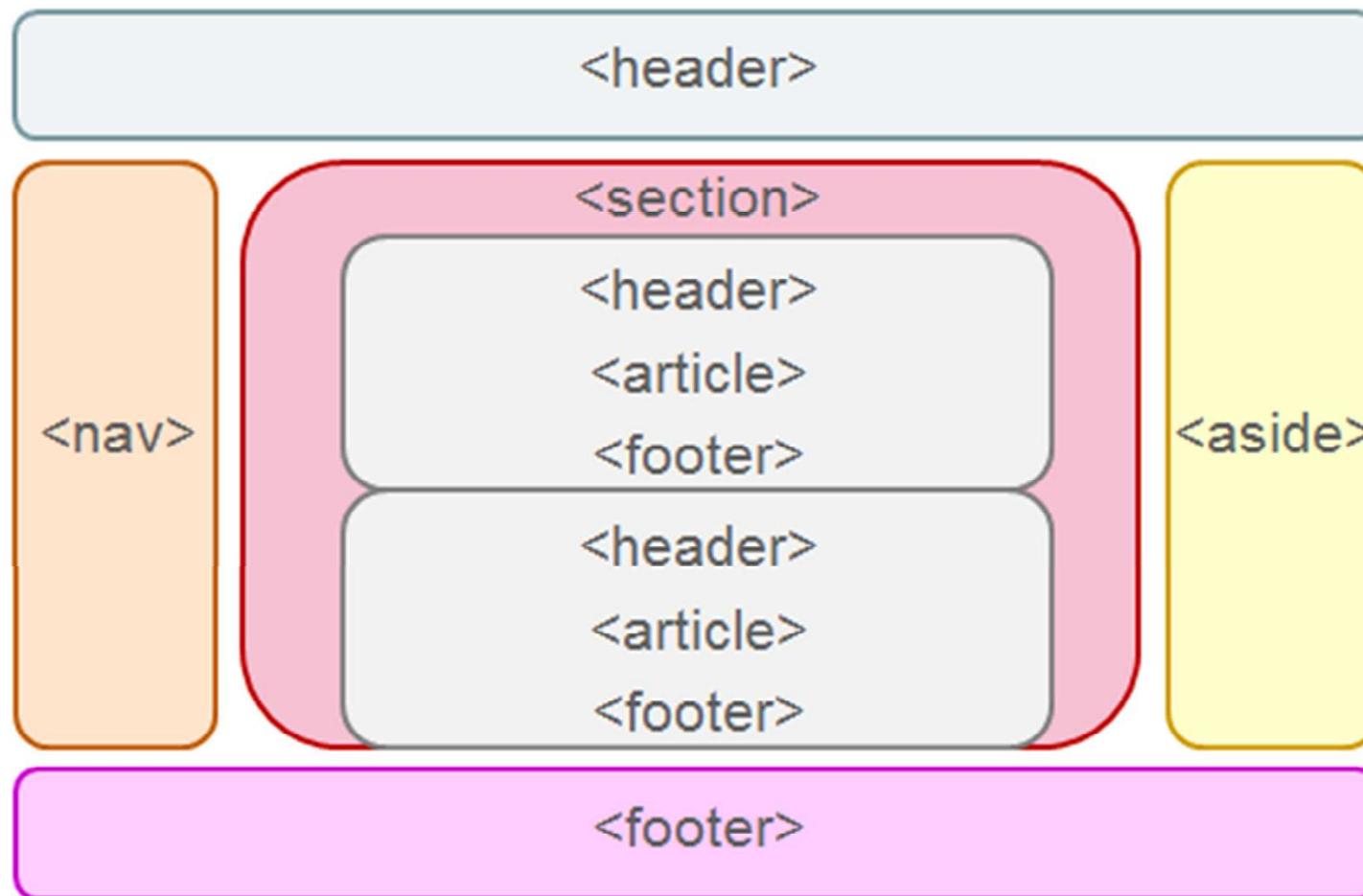
Basic HTML5 Structure:

```
<!DOCTYPE html>
<html>
  <head>
    <meta charset="utf-8">
    <title>My HTML5 page</title>
    <link rel="stylesheet" href="styles.css">
    <script src="script.js"></script>
  </head>
  <body>
    <h1>My first HTML5 page</h1>
    <p>This is a paragraph</p>
    <!-- comment -->
  </body>
</html>
```



HTML5 Sections

HTML



The Next Big Conference for Front-End Developers

Join us this year

- [Home](#)
- [Speakers](#)
- [Workshops](#)
- [Submit Proposal](#)

Speakers

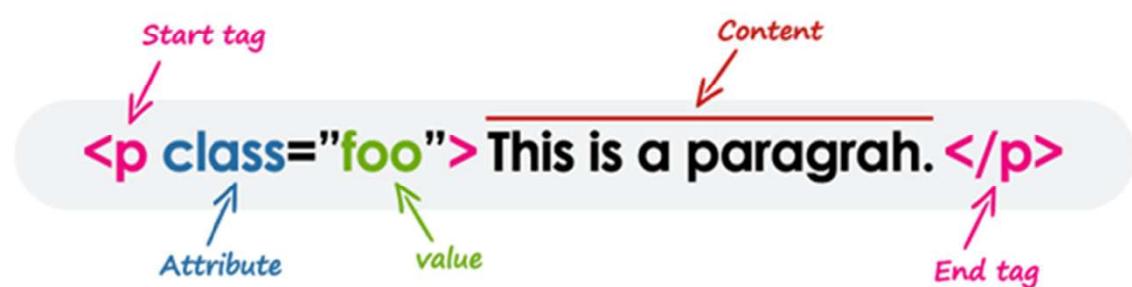
Loreum ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum

Curabitur pretium tincidunt lacus. Nulla gravida orci a odio. Nullam varius, turpis et commodo pharetra, est eros bibendum elit, r
sollicitudin mauris. Integer in mauris eu nibh euismod gravida. Duis ac tellus et risus vulputate vehicula. Donec lobortis risus a e
ullamcorper, ligula eu tempor congue, eros est euismod turpis, id tincidunt sapien risus a quam. Maecenas fermentum consequ
Pellentesque malesuada nulla a mi. Duis sapien sem, aliquet nec, commodo eget, consequat quis, neque. Aliquam faucibus, ell
adipiscing sapien, sed malesuada diam lacus eget erat. Cras mollis scelerisque nunc. Nullam arcu. Aliquam consequat. Curabit
laoreet et, pretium ac, nisi. Aenean magna nisl, mollis quis, molestie eu, feugiat in, orci. In hac habitasse platea dictumst.



HTML Elements

- Most HTML elements are written with a *start tag* (or opening tag) and an *end tag* (or closing tag), with content in between. Elements can also contain attributes that defines its additional properties



HTML Tags Vs Elements

- Technically, an HTML element is the collection of start tag, its attributes, an end tag and everything in between.
- However, in common usage the terms HTML element and HTML tag are interchangeable i.e. a tag is an element, an Element is a tag.

Case Insensitivity in HTML Tags and Attributes

- In HTML, tag and attribute names are not case-sensitive (but most attribute values are case-sensitive). It means the tag `<P>`, and the tag `<p>` defines the same thing in HTML which is a paragraph.

```
1  <!DOCTYPE html>
2  <html lang="en">
3  <head>
4  |   <title>Case Insensitivity in HTML</title>
5  </head>
6  <body>
7  |   <p>This is a paragraph.</p>
8  |   <P>This is also a valid paragraph.</P>
9  </body>
10 </html>
```

Empty HTML Elements

- Empty elements (also called self-closing or void elements) are not container tags — that means, you can not write `<hr>some content</hr>` or `
some content</br>`. Other Elements ``, `<input>`, `<link>`, `<meta>`

```
1  <!DOCTYPE html>
2  <html lang="en">
3  <head>
4  |   <title>HTML Empty Elements</title>
5  </head>
6  <body>
7  |   <p>This paragraph contains <br> a line break.</p>
8  |   
9  |   <input type="text" name="username">
10 </body>
11 </html>
```

Nesting HTML Elements

- Most HTML elements can contain any number of further elements (except empty elements), which are, in turn, made up of tags, attributes, and content or other elements.

```
1  <!DOCTYPE html>
2  <html lang="en">
3  <head>
4  |   <title>Nesting HTML Elements</title>
5  </head>
6  <body>
7  |   <p>Here is some <b>bold</b> text.</p>
8  |   <p>Here is some <em>emphasized</em> text.</p>
9  |   <p>Here is some <mark>highlighted</mark> text.</p>
10 </body>
11 </html>
```

Writing Comments in HTML

- Comments are usually added with the purpose of making the source code easier to understand. Comments are not displayed in the browser.
- An HTML comment begins with <!--, and ends with -->

```
1  <!DOCTYPE html>
2  <html lang="en">
3  <head>
4  |   <title>Creating Horizontal Lines in HTML</title>
5  </head>
6  <body>
7  |   <!-- This is an HTML comment -->
8  |   <!-- This is a multi-line HTML comment
9  |       | that spans across more than one line -->
10 |   <p>This is a normal piece of text.</p>
11 |   <p><strong>Note:</strong> Comments are not displayed by the browsers.</p>
12 </body>
13 </html>
```

- Elements can be placed in two distinct groups: block level and inline level elements. The former make up the document's structure, while the latter dress up the contents of a block.
- Also, a block element occupies 100% of the available width and it is rendered with a line break before and after. Whereas, an inline element will take up only as much space as it needs.
- The most commonly used block-level elements are <div>, <p>, <h1> through <h6>, <form>, , , , and so on. Whereas, the commonly used inline-level elements are , <a>, , , , , <i>, <code>, <input>, <button>, etc.



HTML Attributes

What are Attributes

- Attributes define additional characteristics or properties of the element such as width and height of an image.
- Attributes are always specified in the start tag (or opening tag) and usually consists of name/value pairs like name="value".
- Attribute values should always be enclosed in quotation marks.

```
1  <!DOCTYPE html>
2  <html lang="en">
3  <head>
4  |   <title>Using HTML Attributes</title>
5  </head>
6  <body>
7  |   <p></p>
8  |   <p><a href="https://www.google.com/" title="Search Engine" target="_blank">Google</a></p>
9  |   <p><abbr title="Hyper Text Markup Language">HTML</abbr></p>
10 |   <p><input type="text" value="John Doe"></p>
11 </body>
12 </html>
```

Boolean Attributes

- There are several attributes in HTML5 that do not consist of name/value pairs but consists of just name. Such attributes are called Boolean attributes.

```
1  <!DOCTYPE html>
2  <html lang="en">
3  <head>
4  |   <title>Using HTML Boolean Attributes</title>
5  </head>
6  <body>
7  |   <p><input type="email" required></p>
8  |   <p><input type="submit" value="Submit" disabled></p>
9  |   <p><input type="checkbox" checked></p>
10 |  <p><input type="text" value="Read only text" readonly></p>
11 </body>
12 </html>
```

General Purpose Attributes

- There are some attributes, such as id, title, class, style, etc. that you can use on the majority of HTML elements.

The id Attribute

- The id attribute is used to give a unique name or identifier to an element within a document. This makes it easier to select the element using CSS or JavaScript.

```
1  <!DOCTYPE html>
2  <html lang="en">
3  <head>
4      <title>HTML id Attribute</title>
5      <style>
6          #firstName{
7              border: 1px solid red;
8          }
9          #container{
10             background: #ccc;
11         }
12         #infoText{
13             color: blue;
14         }
15     </style>
16 </head>
17 <body>
18     <p><input type="text" id="firstName"></p>
19     <div id="container">Some content</div>
20     <p id="infoText">This is a paragraph.</p>
21 </body>
22 </html>
```



Organizing Content with Headings

- Headings help in defining the hierarchy and the structure of the web page content.
- HTML offers six levels of heading tags, `<h1>` through `<h6>`; the higher the heading level number, the greater its importance — therefore `<h1>` tag defines the most important heading, whereas the `<h6>` tag defines the least important heading in the document.

```
1  <!DOCTYPE html>
2  <html lang="en">
3  <head>
4  |  <meta charset="UTF-8">
5  |  <title>Example of HTML headings tag</title>
6  </head>
7  <body>
8  |  <h1>Heading level 1</h1>
9  |  <h2>Heading level 2</h2>
10 |  <h3>Heading level 3</h3>
11 |  <h4>Heading level 4</h4>
12 |  <h5>Heading level 5</h5>
13 |  <h6>Heading level 6</h6>
14 </body>
15 </html>
```

Importance of Headings

- HTML headings provide valuable information by highlighting important topics and the structure of the document, so optimize them carefully to improve user engagement.
- Don't use headings to make your text look BIG or bold. Use them only for highlighting the heading of your document and to show the document structure.
- Since search engines, such as Google, use headings to index the structure and content of the web pages so use them very wisely in your webpage.
- Use the `<h1>` headings as main headings of your web page, followed by the `<h2>` headings, then the less important `<h3>` headings, and so on.



HTML Paragraphs

Creating Paragraphs

- Paragraph element is used to publish text on the web pages.
- Paragraphs are defined with the <p> tag. Paragraph tag is a very basic and typically the first tag you will need to publish your text on the web pages.

```
1  <!DOCTYPE html>
2  <html lang="en">
3  <head>
4  |   <title>Creating Paragraphs in HTML</title>
5  </head>
6  <body>
7  |   <p>This is a paragraph.</p>
8  |   <p>This is another paragraph.</p>
9  </body>
10 </html>
```

Creating Line Breaks

- The
 tag is used to insert a line break on the web page.
- Since the
 is an empty element, so there is no need of corresponding </br> tag.

```
1  <!DOCTYPE html>
2  <html lang="en">
3  <head>
4      <title>Inserting Line Breaks in HTML</title>
5  </head>
6  <body>
7      <p>This is a paragraph <br> with line break.</p>
8      <p>This is <br>another paragraph <br> with line breaks.</p>
9  </body>
10 </html>
```

Creating Horizontal Rules

- You can use the `<hr>` tag to create horizontal rules or lines to visually separate content sections on a web page. Like `
`, the `<hr>` tag is also an empty element.

```
1  <!DOCTYPE html>
2  <html lang="en">
3  <head>
4  |   <title>Creating Horizontal Lines in HTML</title>
5  </head>
6  <body>
7  |   <p>This is a paragraph.</p>
8  |   <hr>
9  |   <p>This is another paragraph.</p>
10 </body>
11 </html>
```

Managing White Spaces

- Normally the browser will display the multiple spaces created inside the HTML code by pressing the *space-bar key* or *tab key* on the keyboard as a single space. Multiple line breaks created inside the HTML code through pressing the *enter key* is also displayed as a single space.
- Insert for creating extra consecutive spaces, while insert
 tag for creating line breaks on your web pages

```
1  <!DOCTYPE html>
2  <html lang="en">
3  <head>
4  |   <title>Preserving White Space in HTML</title>
5  </head>
6  <body>
7  |   <p>This paragraph has multiple&nbsp;&nbsp;&nbsp;spaces.</p>
8  |   <p>This paragraph has multiple<br><br>line<br><br><br>breaks.</p>
9  </body>
10 </html>
```

Defining Preformatted Text

- Sometimes, using ,
, etc. for managing spaces isn't very convenient. Alternatively, you can use the <pre> tag to display spaces, tabs, line breaks, etc. exactly as written in the HTML file. It is very helpful in presenting text where spaces and line breaks are important like poem or code.

```
1  <!DOCTYPE html>
2  <html lang="en">
3  <head>
4  |   <title>HTML Preformatted Text</title>
5  </head>
6  <body>
7  <pre>
8  |   Twinkle, twinkle, little star,
9  |   How I wonder what you are!
10 |   Up above the world so high,
11 |   Like a diamond in the sky.
12 </pre>
13 </body>
14 </html>
```



Creating Links in HTML

- A link or hyperlink is a connection from one web resource to another. Links allow users to move seamlessly from one page to another, on any server anywhere in the world.
- A link has two ends, called anchors. The link starts at the source anchor and points to the destination anchor, which may be any web resource, for example, an image, an audio or video clip, a PDF file, an HTML document or an element within the document itself, and so on.

HTML Link Syntax

- Links are specified in HTML using the `<a>` tag.
- A link or hyperlink could be a word, group of words, or image.

```
<a href="url">Link text</a>
```

- Anything between the opening `<a>` tag and the closing `` tag becomes the part of the link that the user sees and clicks in a browser.

```
1  <!DOCTYPE html>
2  <html lang="en">
3  <head>
4      <title>Creating Links in HTML</title>
5  </head>
6  <body>
7      <p><a href="https://www.google.com/" target="_blank">Google Search</a></p>
8      <p>
9          <a href="/examples/images/kites.jpg">
10             
11         </a>
12     </p>
13     <p><a href="https://www.oracle.com/">Oracle</a></p>
14 </body>
15 </html>
```

Setting the Targets for Links

The target attribute tells the browser where to open the linked document. There are four defined targets, and each target name starts with an underscore(_) character:

- `_blank` — Opens the linked document in a new window or tab.
- `_parent` — Opens the linked document in the parent window.
- `_self` — Opens the linked document in the same window or tab as the source document. This is the default, hence it is not necessary to explicitly specify this value.
- `_top` — Opens the linked document in the full browser window.

Creating Bookmark Anchors

- You can also create bookmark anchors to allow users to jump to a specific section of a web page. Bookmarks are especially helpful if you have a very long web page.
- Creating bookmarks is a two-step process: first add the id attribute on the element where you want to jump, then use that id attribute value preceded by the hash sign (#) as the value of the href attribute of the tag,

```
<body>
  <p><a href="#sectionA">Jump to Section A</a></p>
  <p><a href="#sectionB">Jump to Section B</a></p>
  <p><a href="#sectionC">Jump to Section C</a></p>

  <h2 id="sectionA">Section A</h2>
  <p>Lorem ipsum dolor sit amet, consectetur adipiscing elit. Nam eu sem tempor, varius quam at, luctus
  dui. Mauris
    magna metus, dapibus nec turpis vel, semper malesuada ante. Vestibulum id metus ac nisl bibendum
    scelerisque non
```

Creating Download Links

- You can also create the file download link in exactly the same fashion as placing text links. Just point the destination URL to the file you want to be available for download.

```
1  <!DOCTYPE html>
2  <html lang="en">
3  <head>
4  |   <title>HTML Download Links</title>
5  </head>
6  <body>
7  |   <p><a href="/examples/downloads/test.zip">Download Zip file</a></p>
8  |   <p><a href="/examples/downloads/masters.pdf">Download PDF file</a></p>
9  |   <p><a href="/examples/downloads/sample.jpg">Download Image file</a></p>
10 </body>
11 </html>
```



HTML Text Formatting

Formatting Text with HTML

- HTML provides several tags that you can use to make some text on your web pages to appear differently than normal text, for example, you can use the tag `` to make the text bold, tag `<i>` to make the text italic, tag `<mark>` to highlight the text, tag `<code>` to display a fragment of computer code, tags `<ins>` and `` for marking editorial insertions and deletions, and more.

```
1   <!DOCTYPE html>
2   <html lang="en">
3   <head>
4     <title>Formatting Text in HTML</title>
5   </head>
6   <body>
7     <p>This is <b>bold text</b>.</p>
8     <p>This is <strong>strongly important text</strong>.</p>
9     <p>This is <i>italic text</i>.</p>
10    <p>This is <em>emphasized text</em>.</p>
11    <p>This is <mark>highlighted text</mark>.</p>
12    <p>This is <code>computer code</code>.</p>
13    <p>This is <small>smaller text</small>.</p>
14    <p>This is <sub>subscript</sub> and <sup>superscript</sup> text.</p>
15    <p>This is <del>deleted text</del>.</p>
16    <p>This is <ins>inserted text</ins>.</p><p>This is <b>bold text</b>.</p>
17  </body>
18 </html>
```

Difference between and tag

- Both and tags render the enclosed text in a bold typeface by default, but the tag indicates that its contents have strong importance, whereas the tag is simply used to draw the reader's attention without conveying any special importance.

```
1  <!DOCTYPE html>
2  <html lang="en">
3  <head>
4  |  <title>HTML strong Vs b Tag</title>
5  </head>
6  <body>
7  |  <p><strong>WARNING!</strong> Please proceed with caution.</p>
8  |  <p>The concert will be held at <b>Hyde Park</b> in London.</p>
9  </body>
10 </html>
```

Difference between and <i> tag

- Similarly, both and <i> tags render the enclosed text in italic type by default, but the tag indicates that its contents have stressed emphasis compared to surrounding text, whereas the <i> tag is used for marking up text that is set off from the normal text for readability reasons, such as a technical term, an idiomatic phrase from another language, a thought, etc.

```
1  <!DOCTYPE html>
2  <html lang="en">
3  <head>
4  |   <title>HTML em Vs i Tag</title>
5  </head>
6  <body>
7  |   <p>Cats are <em>cute</em> animals.</p>
8  |   <p>The <i>Royal Cruise</i> sailed last night.</p>
9  </body>
10 </html>
```

Formatting Quotations

- You can easily format the quotation blocks from other sources with the HTML <blockquote> tag.
- Blockquotes are generally displayed with indented left and right margins, along with a little extra space added above and below.

```
1  <!DOCTYPE html>
2  <html lang="en">
3  <head>
4  |   <title>HTML Block Quotations</title>
5  </head>
6  <body>
7  |   <p>Lorem ipsum dolor sit amet, consectetur adipiscing elit. Nam eu sem tempor, varius quam at, luctus dui. Mauris magna metus,
8  |   dapibus nec turpis vel, semper malesuada ante. Vestibulum id metus ac nisl bibendum scelerisque non non purus. Suspendisse
9  |   varius nibh non aliquet sagittis. In tincidunt orci sit amet elementum vestibulum. Vivamus fermentum in arcu in aliquam.</p>
10 |   <blockquote>
11 |       <p>Learn from yesterday, live for today, hope for tomorrow. The important thing is not to stop questioning.</p>
12 |       <cite>&mdash; Albert Einstein</cite>
13 |   </blockquote>
14 |   <p>Pulvinar leo id risus pellentesque vestibulum. Sed diam libero, sodales eget sapien vel, porttitor bibendum enim. Donec
15 |   sed nibh vitae lorem porttitor blandit in nec ante. Pellentesque vitae metus ipsum. Phasellus sed nunc ac sem malesuada
16 |   condimentum. Etiam in aliquam lectus. Nam vel sapien diam. Donec pharetra id arcu eget blandit.</p>
```

- For short inline quotations, you can use the HTML <q> tag. Most browsers display inline quotes by surrounding the text in quotation marks.

```
1  <!DOCTYPE html>
2  <html lang="en">
3  <head>
4  |   <title>HTML Inline Quotations</title>
5  </head>
6  <body>
7  |   <p>According to the World Health Organization (WHO): <q>Health is a state of complete physical,
8  |   |   mental, and social well-being.</q></p>
9  </body>
</html>
```

Showing Abbreviations

- An abbreviation is a shortened form of a word, phrase, or name.
- You can use the `<abbr>` tag to denote an abbreviation. The `title` attribute is used inside this tag to provide the full expansion of the abbreviation, which is displayed by the browsers as a tooltip when the mouse cursor is hovered over the element.

```
1  <!DOCTYPE html>
2  <html lang="en">
3  <head>
4  |   <title>Showing Abbreviations in HTML</title>
5  </head>
6  <body>
7  |   <p>The <abbr title="World Wide Web Consortium">W3C</abbr> is the main international standards
     organization for the <abbr title="World Wide Web">WWW or W3</abbr>. It was founded by Tim
     Berners-Lee.</p>
8  </body>
9  </html>
```

Marking Contact Addresses

- Web pages often include street or postal addresses. HTML provides a special tag <address> to represent contact information (physical and/or digital) for a person, people or organization.
- This tag should ideally used to display contact information related to the document itself, such as article's author.

```
1  <!DOCTYPE html>
2  <html lang="en">
3  <head>
4  |   <title>Formatting Addresses in HTML</title>
5  </head>
6  <body>
7  |   <p>Lorem ipsum dolor sit amet, consectetur adipiscing elit. Nam eu sem tempor, varius quam at, luctus
8  |   dui. Integer faucibus ligula.</p>
9  <address>
10 |   Mozilla Foundation<br>
11 |   331 E. Evelyn Avenue<br>
12 |   Mountain View, CA 94041, USA
13 </address>
14 </body>
15 </html>
```

In this lesson, you should have learned how to:

- History of HTML5
- HTML5 Page Structure
- HTML5 DOCTYPE
- Different Types of Elements

