# HTML

HTML, or **HyperText Markup Language** is the standard markup language used to create web pages. It is a combination of Hypertext, and Markup language. The Hypertext defines the link between web pages, and Markup is used to define the text document within tags to structure the web pages. This language is used to annotate text so that machines can understand and manipulate it accordingly. HTML is human-readable and uses tags to define what manipulation has to be done on the text. This guide will help you understand the workings of HTML and explain it with examples.

The various major versions of HTML are as follows:

## 1. HTML 1.0

One of the first versions of HTML, HTML 1.0, was released in 1993, laying down the foundations for building web pages. Some of its primary characteristics were:

**Structuring Elements:** HTML 1.0 introduced elements that made it possible to add structure to the content on web pages. These included headings, lists, paragraphs, and images.

**Comparatively Simpler:** HTML 1.0 was very simple in comparison to later versions of HTML. It didn't have styling options or the ability to control how content would display in a web browser. Additionally, HTML 1.0 lacked any support for tables.

**Font Support:** Although HTML 1.0 introduced fonts, it was limited. In other words, there was minimal scope for changing the text style or size.
Nonetheless, HTML 1.0 initiated the field of web development, and its features kept advancing with every updated version.

## 2. HTML 2.0

The HTML 2.0 version was released in 1995 and had considerable improvements from the previous version. Some of them were:

**Standardisation of HTML:** This version made HTML into a standard by establishing common rules and regulations that all web browsers had to follow.

**Forms:** Most importantly, HTML 2.0 introduced the concept of forms, which allowed users to input data on web pages. However, the forms were still basic and only contained text boxes and buttons.

**Tables:** HTML 2.0 introduced the <table> tag for creating tabular data on web pages, contributing to better organisation of data.

**Formation of the W3C:** During HTML 2.0, browsers started making their own tags, because of which there was inconsistency across different browsers. To resolve the issue and establish standardisation, the W3C (World Wide Web Consortium) was formed. This helped web browsers to render tags in a consistent manner.

## 3. HTML 3.2

HTML 3.2 was the next major successor to HTML 2.0 and was developed in 1997. The updated features included in it are:

**Upgraded Form Elements:** HTML 3.2 brought better ways to create interactive forms on websites. Developers could make forms that were more interactive and dynamic for users.

**CSS Support**: Another important feature included in HTML 3.2 was support for CSS (Cascading Style Sheets). It helped designers improve the look of web pages by styling and customising HTML elements.

**Enhanced Image Features:** Handling images became easier with HTML 3.2. It allowed for better control over image size, alignment, and text descriptions.

**Extended Character Set**: HTML 3.2 also expanded the available characters for web pages. It included special symbols and international characters for a more diverse presentation of the content.

## 4. HTML 4.01

HTML 4.01, released in 1999, brought several advancements to the HTML language. Here are some of the updated features:

**CSS Linking:** Previously, one had to place CSS on each page to apply the styles. However, with 4.01, CSS files could be linked and included in each HTML page using the <link> tag. This helped maintain consistent styles across web pages without repeating CSS code.
New Tags: HTML 4.01 also introduced some new tags like "<fieldset>", "<header>", "<footer>", and "<legend>". These tags consequently enhanced the presentability of the content.

**Table Enhancement:** In addition, HTML 4.01 made tables more powerful. We could use attributes like 'colspan' and 'rowspan' to make cells in a table span across multiple columns or rows. This made it easier to create more complicated and interesting tables.

## 5. XHTML 1.0

XHTML 1.0 stands for Extensible HyperText Markup Language 1.0 and was released in 2000.

**Strict Standards and Compatibility:** XHTML 1.0 is similar to HTML but has a stricter version with more stringent rules for elements, attributes, and syntax. Due to such strict criteria, a common standard was created for web pages. This reduced the scope for incompatibility between browsers.

**Compatibility with XML**: XHTML 1.0 offered compatibility with XML tools. It meant that XML parsing libraries and transformation tools, commonly used for working with XML documents, could also be utilized with XHTML documents.

Future Adaptability: Furthermore, XHTML 1.0 documents were easily adaptable to any future versions of HTML or XML without any significant changes.

## 6. HTML5

WHATWG released the initial public draft of HTML5 in 2008, but it officially became a W3C recommendation on October 28, 2014. The version brought extensive support for new HTML tags. Furthermore, HTML5 provided support for new form elements like input elements of different types and geolocations support tags, etc.

Here are some key features and tags added in HTML5:

**New Form Elements:** One important addition was the <input type=”email”> tag, which confirms whether the user input is a valid email address. Likewise, another form element was the <input type=”password”> tag, which was designed to capture passwords securely. The browser displayed special symbols as user input in the password field, thereby protecting the password from being revealed.

**Audio Tag:** HTML5 introduced the <audio> tag, allowing developers to embed audio content directly into web pages. This tag enabled the seamless integration of audio clips and allowed playing audio directly on the webpage.

**Semantic Tags:** Semantic tags, also known as structural tags, provide organization and structure to HTML pages. These tags provided a clearer hierarchy and meaning to different sections of a webpage. A few of the semantic tags introduced in HTML5 include <figcaption>, <header>, <footer>, etc. These tags also helped enhance the accessibility and search engine optimization of the webpage.

**Section Tag:** The <section> tag defines a distinct section within an HTML page. This helps in organising and delineating content, thereby providing logical divisions within the webpage. Using semantic tags with a Bootstrap Dashboard Template enhances web application design and usability, providing a responsive and visually appealing interface.

Structure of HTML Document:

An HTML Document is mainly divided into two parts:
**HEAD:** This contains the information about the HTML document including the Title of the page, version of HTML, Meta Data, etc.
**BODY:** This contains everything you want to display on the Web Page.

## Essential HTML Tags:

**DOCTYPE Declaration (`<!DOCTYPE HTML>`):** It specifies the HTML version; typically indicates HTML5.
**<html>:** The root element that encompasses the entire HTML document structure. It serves as the parent to both the <head> and <body> tags.
**lang attribute:** Specifies the language using the "lang" attribute (e.g., lang="en" for English
**<head>:**Container for metadata, title, CSS, scripts, etc.
Content: While not directly displayed, it serves informational and structural purposes.
**<body>:** A body tag is used to enclose all the data which a web page has from texts to links. All the content that you see rendered in the browser is contained within this element.

## HTML <meta> Tag

The <meta> tag defines metadata about an HTML document. Metadata is data (information) about data.
<meta> tags always go inside the <head> element, and are typically used to specify character set, page description, keywords, author of the document, and viewport settings.
Metadata will not be displayed on the page, but is machine parsable.
Metadata is used by browsers (how to display content or reload page), search engines (keywords), and other web services.

Attributes:

| Attribute | Value | Description |
|---|---|---|
| charset | character_set | Specifies the character encoding for the HTML document |
| content | text | Specifies the value associated with the http-equiv or name attribute |
| http-equiv | content-security-policy<br>content-type<br>default-style<br>refresh | Provides an HTTP header for the information/value of the content attribute |
| name | application-name<br>author<br>description<br>generator<br>keywords<br>viewport | Specifies a name for the metadata |

## 3. Basic HTML Elements

### I. Headings(h1 to h6):

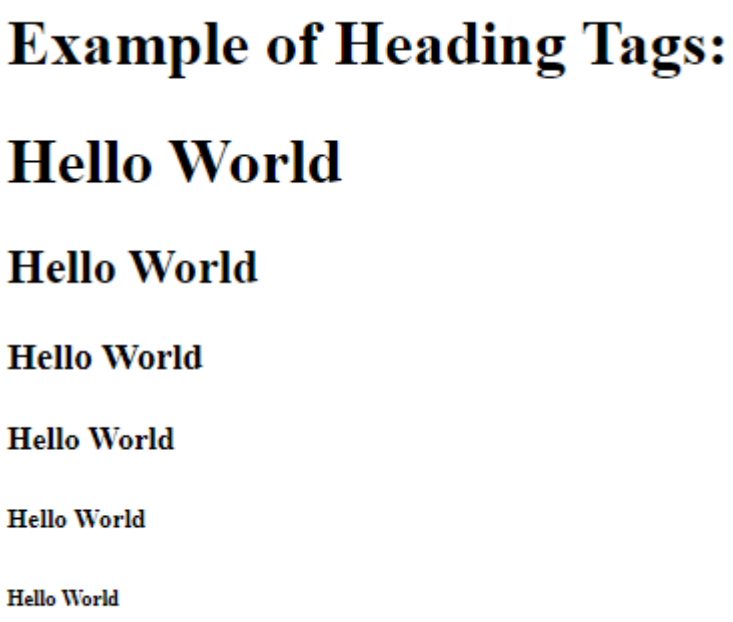
HTML header tags are used to differentiate the headings (h1) and subheadings (h2-h6) of a page from the rest of the content. These tags are also known to webmasters as heading tags or simply header tags.

Example:

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <meta charset="UTF-8" />
    <meta name="viewport" content="width=device-width,
```

```
initial-scale=1.0" />
    <title>Document</title>
  </head>
  <body>
    <h1>Example of Heading Tags:</h1>
    <h1>Hello World</h1>
    <h2>Hello World</h2>
    <h3>Hello World</h3>
    <h4>Hello World</h4>
    <h5>Hello World</h5>
    <h6>Hello World</h6>
  </body>
</html>
```

**Output:**



## II. Paragraphs(<p>):

The <p> HTML element represents a paragraph. Paragraphs are usually represented in visual media as blocks of text separated from adjacent blocks by blank lines and/or first-line indentation, but HTML paragraphs can be any structural grouping of related content, such as images or form fields.

```
<p>
  Geckos are a group of usually small, usually nocturnal lizards. They are
  found on every continent except Antarctica.
</p>
<p>
  Some species live in houses where they hunt insects attracted by
  artificial light.
</p>
```

Output:

Geckos are a group of usually small, usually nocturnal lizards. They are found on every continent except

Some species live in houses where they hunt insects attracted by artificial light.

## III. Line breaks and horizontal rules

<hr> and <br> tags are used in HTML to create a horizontal line and a single line break, respectively.
The <hr> tag creates a line across the page and has no closing tag.
The <br> tag creates a line break within a block of text, so the text will start on a new line.

Example:

```
<p>
  Geckos are a group of usually small, usually nocturnal lizards.<br />
```

```
    They are found on every continent except Antarctica.
  </p>
  <hr />
  <p>
    Some species live in houses where they hunt insects attracted by
    artificial light.
  </p>
```

Output:

Geckos are a group of usually small, usually nocturnal lizards.
They are found on every continent except Antarctica.

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Some species live in houses where they hunt insects attracted by artificial light.

**Comments in HTML:**

HTML comments are very important for developers, providing a way to annotate code without affecting the rendered webpage. HTML Comments enhance code readability, facilitate collaboration, and can be used to temporarily disable code segments. Enclosed within **<!--** and **-->**, HTML comments serve as invisible notes within the code.

Example:

**<!-- This is comment in HTML - - >**