

Tutorial 1: Introduction to HTML

1. What is HTML?

HTML (Hypertext Markup Language) is the standard markup language used to create and structure web pages. It provides the basic building blocks for web content, including headings, paragraphs, images, links, and more.

HTML describes the content of a web page. HTML documents contain elements (tags) that describe different types of content: paragraphs, images, videos, etc. A browser interprets these elements and displays HTML documents in a graphical form.

2. HTML Structure

All HTML documents have a specific structure:

```
<!DOCTYPE html>
<html>
  <head>
    <title>My Web Page</title>
  </head>
  <body>
    <h1>Welcome to my website!</h1>
    <p>This is a paragraph of text.</p>
  </body>
</html>
```

- The `<!DOCTYPE html>` declaration specifies the version of HTML being used.
- The `<html>` tags enclose the entire document.
- The `<head>` section contains metadata about the page, such as the title.
- The `<body>` section contains the visible content of the webpage.

3. HTML Elements

HTML elements are the building blocks of web pages. Some common elements include:

- `<h1>`, `<h2>`, `<h3>`, `<h4>`, `<h5>`, `<h6>`: Headings, from largest to smallest.
- `<p>`: Paragraphs of text.
- `<a>`: Links, used to create hyperlinks.
- ``: Images, to display visual content.
- `` and ``: Unordered and ordered lists.
- `<div>` and ``: Generic container elements for styling and layout.

Proper Nesting of Elements

Elements must be properly nested:

```
<p><b>INCORRECT</p></b>
<p><b>CORRECT</b></p>
```

4. HTML Attributes

Elements in HTML can have attributes, which provide additional information or modify the behavior of the element. For example:

```
<a href="https://www.example.com">Visit Example Website</a>
```

The `href` attribute specifies the URL that the link should point to.

Attributes can be:

- Global (can be associated with any element - `id`, `class`, etc.)
- Specific to certain elements (`href` for `a` and `link`, `src` for `img` and `iframe`, etc.)

5. HTML Entities

HTML entities are special characters that are represented by their name or numeric code, starting with an ampersand `&` and ending with a semicolon `;`. This is necessary for characters that have special meaning in HTML, such as `<` and `>`.

For example, `<` represents the less-than symbol `<`, and `&` represents the ampersand `&`.

6. Semantic Elements

Semantic elements (like `<header>`, `<section>`, etc.) are used for code clarity and to better structure a page. They help various applications (e.g., text-to-speech) better understand the content. Examples of semantic elements include:

- `<header>`: Represents the header of a document or section.
- `<nav>`: Defines a set of navigation links.
- `<main>`: Specifies the main content of a document.
- `<article>`: Defines an independent, self-contained content.
- `<section>`: Defines a section in a document.
- `<aside>`: Defines content aside from the page content.
- `<footer>`: Represents the footer of a document or section.

Using semantic elements helps improve the structure and accessibility of web pages.

7. Further Resources

- W3Schools HTML Tutorial
- Mozilla Developer Network HTML Documentation
- HTML5 Specification