

# Web development

## lesson 1

Aug 25, 2024

# Introduction to HTML

HTML (HyperText Markup Language) is the standard language for creating web pages.

It structures web content using elements represented by tags.

## **Why HTML?**

- Provides the foundation for web development.
- Easy to learn and widely supported across browsers.
- Allows integration with CSS and JavaScript for full-stack web development.

# HTML Language Essentials



The diagram illustrates various HTML syntax elements with color-coded annotations and arrows:

- Tag name:** Points to `<div>` (yellow).
- attributes:** Points to `id="main"` (blue).
- comment:** Points to `<!-- this is a comment -->` (green).
- text tag:** Points to `This is text without a tag.` (grey).
- self-closing tag:** Points to `` (pink).

```
<div id="main">  
  <!-- this is a comment -->  
  This is text without a tag.  
  <button class="mini">press me</button>  
    
</div>
```

# HTML Syntax: Introduction

- HTML uses elements defined by tags, which are enclosed in angle brackets.
- Tags generally come in pairs: an opening tag and a closing tag.
- Example:

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

# HTML Syntax: Elements and Attributes

- Elements may contain attributes that provide additional information.
- Example of an element with an attribute:

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

- The `href` attribute specifies the link's destination.

# HTML Syntax: Self-Closing Tags

- Some HTML elements do not require closing tags.
- These are known as self-closing tags.
- Example:

```

```

# HTML Syntax: Nested Elements

- HTML elements can be nested within each other.
- Example:

```
<div>  
  <p>This is a paragraph inside a div.</p>  
</div>
```

- The nested structure defines the relationship between elements.

# HTML Page Structure: The Doctype

- The `<!DOCTYPE html>` declaration defines the document type.
- It helps browsers understand the version of HTML being used.
- Always place the `DOCTYPE` at the beginning of the HTML document.



# HTML Page Structure: The Root Element

- The `<html>` tag is the root of the HTML document.
- All other elements are contained within this tag.
- The `<html>` element also includes the `lang` attribute to specify the language.

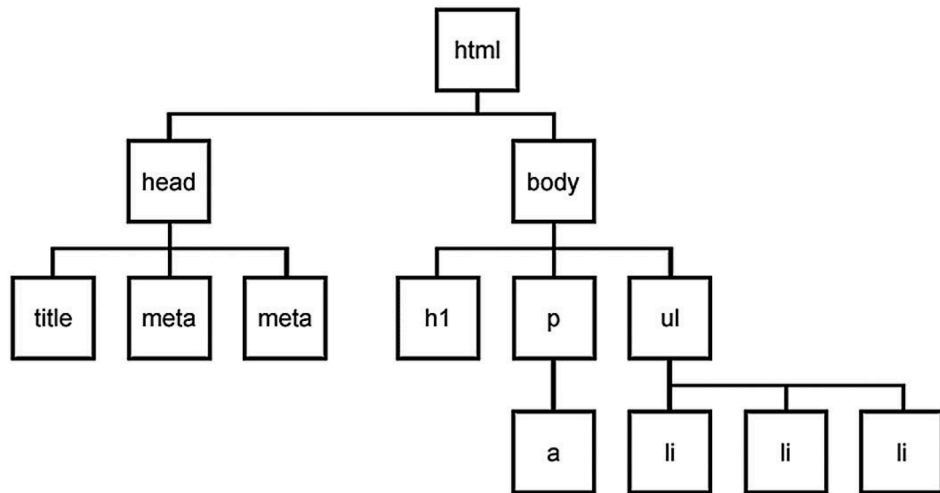
```
<html lang="en">
```

```
<html>
  <head>
  </head>
  <body>
    <div>
      <p>Hi</p>
    </div>
  </body>
</html>
```

```
<html>
  <head>
  </head>
  <body>
    <div>
      <p>Hi</p>
    </div>
  </body>
</html>
```

# DOM is a tree

Every node can only have one parent, and every node can have several children, so the structure looks like a tree



# HTML Page Structure: The Head Section

- The `<head>` section contains meta-information about the document.
- It typically includes:
  - `<title>` : The title of the document.
  - `<meta>` tags: Metadata such as character set and viewport settings.
  - `<link>` : References to external resources like stylesheets.

# HTML Page Structure: The Body Section

- The `<body>` section contains the content visible to users.
- Everything inside the `<body>` tag is rendered on the page.
- Example structure:

```
<body>  
  <h1>Welcome to My Website</h1>  
  <p>This is the main content area.</p>  
</body>
```

# Head Information: Title Element

- The `<title>` element sets the title of the webpage, which appears on the browser tab.
- Example:

```
<title>My Awesome Webpage</title>
```

# Head Information: Meta Tags

- Meta tags provide metadata such as character encoding, author, and viewport settings.
- Example:

```
<meta charset="UTF-8">  
<meta name="viewport" content="width=device-width, initial-scale=1.0">
```

# Head Information: Link and Style Tags

- The `<link>` tag connects external resources like stylesheets.
- Example:

```
<link rel="stylesheet" href="styles.css">
```

- The `<style>` tag allows for internal CSS styles directly in the HTML.

```
<style>  
  body { font-family: Arial, sans-serif; }  
</style>
```

# Head Information: Script Tag

- The `<script>` tag is used to include JavaScript in an HTML document.
- Example:

```
<script src="script.js"></script>
```

- You can also write inline JavaScript within a `<script>` tag.



