HTML Fundamentals

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1 Overview

- **Topics**:
  - Basic structure of a web page
  - HTML elements and tags
  - Hands-on exercise to create simple web pages

2 What is HTML?

- **HTML: The Building Blocks of the Web**

  HTML stands for **HyperText Markup Language**.

  - It's the standard language for creating web pages.
  - It's only about semantics and structure, not about style.

- **Key Points:**

  - **Elements:** Building blocks of a web page.
    - Example: `<p>This is a paragraph.</p>`
  - **Tags:** Define the start and end of elements.
    - Example: `<h1>` and `</h1>`
  - **Structure:** Provides the basic tree layout of a web page.
    - Example: `<ul><li>Item 1</li><li>Item 2</li></ul>`
  - **Content:** Contains text but also references images, and other media.
    - Example: `<img src="image.jpg" alt="Description">`

3 Minimal HTML Example

- A document can be validated using the W3C Markup Validation Service

```
<!DOCTYPE html>
<html lang="en">
<head>
    <title>Minimal HTML Example</title>
</head>
<body>
    <p>This is a simple web page created using HTML.</p>
```

```
</body>
</html>
```

4 General Structure of an HTML Document

- **HTML Document Structure:**
  - An HTML document is structured with a series of nested elements.
  - The basic structure includes the `<!DOCTYPE>`, `<html>`, `<head>`, and `<body>` tags.
- **Key Components:**
  - **`<!DOCTYPE html>`:**
    - Declares the document type and version of HTML.
    - Ensures the document is parsed correctly by the browser.
  - **`<html>`:**
    - The root element that contains all other elements.
    - Example: `<html lang="en">`
    - The `lang` attribute specifies the language of the document.
- **HTML is a standard syntax for creating web pages. See https://html.spec.whatwg.org/multipage/**

4.1 `<head>`

- Contains meta-information about the document, such as the title, character set, and links to stylesheets.
- Example:

```
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <meta name="description" content="A simple HTML example">
  <title>My First HTML Page</title>
  <link rel="stylesheet" href="styles.css">
</head>
```

5 Key Elements in `<head>`:

The `<head>` section of an HTML document contains meta-information about the document, such as its title, character encoding, and links to external resources like stylesheets.

- **`<meta charset="UTF-8">`**: Specifies the character encoding.
- **`<meta name="viewport" content="width=device-width, initial-scale=1.0">`**: Ensures responsive design.

- `<meta name="description" content="A simple HTML example">`: Provides a description for search engines.
- `<title>`: Sets the title of the document, displayed in the browser tab.
- `<link rel="stylesheet" href="styles.css">`: Links to an external CSS file.

5.1 `<body>`

The `<body>` section of an HTML document contains all the content that is displayed to the user, such as headings, paragraphs, images, and links.

```
<body>
    <h1>Welcome to HTML Basics</h1>
      <p>This is a simple HTML page to demonstrate the structure of a web
document.</p>
    <ul>
      <li>Item 1</li>
      <li>Item 2</li>
      <li>Item 3</li>
    </ul>
    <a href="https://www.example.com">Visit Example</a>
    <img src="path/to/image.jpg" alt="Sample Image">
</body>
```

6 Common HTML Elements

6.1 Essential Elements for Web Pages

- **Headings:** `<h1>`, `<h2>`, `<h3>`, `<h4>`, `<h5>`, `<h6>`
  - Define the title and structure of the page.
  - `<h1>` is the main heading, and `<h6>` is the least important heading.

```
<h1>Main Heading</h1>
<h2>Subheading</h2>
<h3>Sub-subheading</h3>
```

- **Paragraphs:** `<p>`
  - Used for regular text content.
  - Example:

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

- **Opening Links in a New Tab:**
  - Use the `target="_blank"` attribute to open the link in a new tab.
  - Example:

```
<a href="https://www.example.com" target="_blank">Visit Example in New Tab</
a>
```

6.2 Other protocols

- **Email Links:**
  - Use the `mailto:` scheme in the `href` attribute to create a link that opens the user's email client.
  - Example:

```
<a href="mailto:someone@example.com">Send Email</a>
```

- **Telephone Links:**
  - Use the `tel:` scheme in the `href` attribute to create a link that initiates a phone call on supported devices.
  - Example:

```
<a href="tel:+1234567890">Call Us</a>
```

6.3 Images

- **Images:** `<img>`
  - Insert images into the page.
  - Use the `src` attribute to specify the image's source.
  - Use the `alt` attribute to provide an alternative text description for accessibility.

```
<img src="path/to/image.jpg" alt="Description of the image">
```

7 HTML Tables

Organizing Data with HTML Tables

HTML tables are used to present data in a structured format, with rows and columns. They are often used for displaying tabular information such as schedules, data comparisons, or product catalogs.

Key Elements:

- `<table>`: Defines the table.
- `<thead>`: Contains the table header row.
- `<tr>`: Defines a table row.
- `<th>`: Defines a table header cell.
- `<tbody>`: Contains the table body rows.

- `<td>`: Defines a table data cell.

7.1 Basic Table Structure

```
<table>
<thead>
  <tr>
    <th>Product Name</th>
    <th>Price</th>
    <th>Quantity</th>
  </tr>
</thead>
<tbody>
  <tr>
    <td>Laptop</td>
    <td>$999</td>
    <td>10</td>
  </tr>
  <tr>
    <td>Smartphone</td>
    <td>$799</td>
    <td>20</td>
  </tr>
  <tr>
    <td>Tablet</td>
    <td>$499</td>
    <td>15</td>
  </tr>
</tbody>
</table>
```

Product Name	Price	Quantity
Laptop	$999	10
Smartphone	$799	20
Tablet	$499	15

7.2 Additional Table Attributes

- `colspan`: Specifies how many columns a cell should span.
- `rowspan`: Specifies how many rows a cell should span.
- `border`: Sets the width of the table border.

```
<table border="1">
    <tr>
        <th colspan="2">Header 1</th>
        <th rowspan="2">Header 2</th>
    </tr>
    <tr>
        <td>Row 1, Cell 1</td>
        <td>Row 1, Cell 2</td>
    </tr>
    <tr>
        <td colspan="3">Row 2, Cell 1 (spans 3 columns)</td>
    </tr>
</table>
```

Header 1		Header 2
Row 1, Cell 1	Row 1, Cell 2	
Row 2, Cell 1 (spans 3 columns)		

8 Introduction to Additional HTML Elements

- Expanding Your HTML Vocabulary
- HTML offers a variety of elements to structure and organize content beyond the basic tags.
- These elements help create more semantic and accessible web pages.

8.1 Lists

- **Unordered List (`<ul>`):**
  - Creates a list of items with bullet points.
  - Example:

```
<ul>
  <li>Item 1</li>
  <li>Item 2</li>
  <li>Item 3</li>
</ul>
```

- **Ordered List (`<ol>`):**
  - Creates a list of items with numbers.
  - Example:

```
<ol>
  <li>First item</li>
  <li>Second item</li>
  <li>Third item</li>
</ol>
```

- **List Item (`<li>`):**
  - Defines an item in a list.

8.2 Divisions

- **Divisions (`<div>`):**
  - Group elements together for styling or layout purposes.
  - No semantic meaning.
  - Example:

```
<div class="container">
  <h2>Section Title</h2>
  <p>This is a paragraph within a div.</p>
</div>
```

9 Additional Content

9.1 Headers

- **Headers (`<header>`):**
  - Contain page-level navigation or branding.
  - Example:

```
<header>
  <h1>Website Title</h1>
  <nav>
    <ul>
      <li><a href="#home">Home</a></li>
      <li><a href="#about">About</a></li>
      <li><a href="#contact">Contact</a></li>
    </ul>
  </nav>
</header>
```

9.2 Footers

- **Footers (`<footer>`):**

- Contain page-level information, such as copyright or contact details.
- Example:

```
<footer>
  <p>&copy; 2023 Your Company. All rights reserved.</p>
  <p>Contact us at <a href="mailto:info@example.com">info@example.com</a></
p>
</footer>
```

9.3 Main Content

- **Main (`<main>`):**
  - Represents the dominant content of the `<body>` of a document.
  - Example:

```
<main>
  <h2>Main Content Area</h2>
  <p>This is where the main content of the page goes.</p>
</main>
```

9.4 Sections

- **Sections (`<section>`):**
  - Represents a standalone section of content.
  - Example:

```
<section>
  <h2>Section Title</h2>
  <p>This is a section of content within the main content area.</p>
</section>
```

9.5 Articles

- **Articles (`<article>`):**
  - Represents a self-contained composition in a document, page, or site.
  - Example:

```
<article>
  <h2>Article Title</h2>
  <p>This is an article within the main content area.</p>
</article>
```

9.6 Asides

- **Asides (`<aside>`):**
  - Represents content that is tangentially related to the content around it.
  - Example:

```
<aside>
  <h2>Related Information</h2>
  <p>This is some additional information related to the main content.</p>
</aside>
```

9.7 Navigation

- **Navigation (`<nav>`):**
  - Represents a section of a page that links to other pages or to parts within the page.
  - Example:

```
<nav>
  <ul>
    <li><a href="#home">Home</a></li>
    <li><a href="#about">About</a></li>
    <li><a href="#services">Services</a></li>
    <li><a href="#contact">Contact</a></li>
  </ul>
</nav>
```

9.8 Figures

- **Figures (`<figure>`):**
  - Represents self-contained content, such as illustrations, diagrams, photos, code listings, etc.
  - Example:

```
<figure>
  <img src="image.jpg" alt="Description of image">
  <figcaption>Caption for the image.</figcaption>
</figure>
```

9.9 Captions

- **Captions (`<figcaption>`):**

- Represents a caption or legend for a figure.
- Example:

```
<figure>
  <img src="image.jpg" alt="Description of image">
  <figcaption>Caption for the image.</figcaption>
</figure>
```

9.10 Summary

- **Summary (`<summary>`):**
  - Represents a summary, caption, or legend for the content of a `<details>` element.
  - Example:

```
<details>
  <summary>More Information</summary>
  <p>This is additional information that can be toggled.</p>
</details>
```

9.11 Details

- **Details (`<details>`):**
  - Represents a disclosure widget from which the user can obtain additional information or controls.
  - Example:

```
<details>
  <summary>More Information</summary>
  <p>This is additional information that can be toggled.</p>
</details>
```

10 Key Takeaways

10.1 Semantic Structure

- **Use Semantic Elements:**
  - Improve readability and accessibility.
  - Examples: `<header>`, `<main>`, `<section>`, `<article>`, `<footer>`.

10.2 Metadata

- **Include Metadata:**
  - Provide information about the document.

- Examples:

```
<head>
  <title>Page Title</title>
  <meta charset="UTF-8">
  <meta name="description" content="Brief description of the page">
  <meta name="keywords" content="HTML, CSS, JavaScript">
  <meta name="author" content="Your Name">
</head>
```

10.3 SEO (Search Engine Optimization)

- **Optimize for Search Engines:**
  - Use descriptive and keyword-rich content.
  - Examples:

```
<h1>Main Title</h1>
<h2>Subheading</h2>
<p>Descriptive content with keywords.</p>
<a href="https://www.example.com" title="Example Website">Visit Example</a>
<img src="image.jpg" alt="Description of image">
```

11 Questions?

- Feel free to ask any questions or share your thoughts.