**Module 1**

**Topic 1: Course Introduction**

**1. Introduction to Web Content**

* **User Perspective**: Most users are unaware of how web content is rendered, but developers use **HTML** and **CSS** to control what is displayed.
* **Core Technologies**:
  + **HTML**: The foundational markup language for structuring web content (since 1990).
  + **CSS**: Stylesheet language for defining visual presentation and layout.

**2. HTML (HyperText Markup Language)**

* **Purpose**: Originally designed to share information over the Internet via text and basic images.
* **Evolution**: Modern HTML supports:
  + **Multimedia**: Native embedding of audio/video (e.g., <video>, <audio> tags).
  + **Responsive Design**: Adapts layouts to different devices (e.g., mobile-first design).
  + **Form Enhancements**: New input types (e.g., date, color, range sliders) and validation features.
  + **Text Tools**: Built-in spell-checking and editing capabilities.

**3. CSS (Cascading Style Sheets)**

* **Role**: Separates **content (HTML)** from **style (CSS)**, enabling visual changes without altering HTML structure.
* **Key Features**:
  + **Variables**: Store reusable values (e.g., --primary-color: #2ecc71;).
  + **Media Queries**: Apply styles conditionally based on device properties (e.g., @media (max-width: 768px)).
  + **Advanced Styling**:
    - **Box Sizing**: Control padding/border inclusion in element dimensions (box-sizing: border-box).
    - **Multiple Backgrounds**: Layer images in a single element.
    - **Border Images**: Use images instead of solid borders.
    - **Text Shadows**: Add depth to text (e.g., text-shadow: 2px 2px 4px rgba(0,0,0,0.5)).
  + **Animations**: Transform/transition properties for dynamic effects (e.g., hover animations).

**4. Standards & Governance**

* **W3C**: Manages HTML/CSS specifications to ensure compatibility with modern requirements.
* **Continuous Improvement**: Regular updates to enhance capabilities (e.g., HTML5, CSS3).

**5. Cross-Device Compatibility**

* **Responsive Design**: HTML/CSS adapt layouts to devices (e.g., phones, tablets, smart TVs).
* **Beyond Browsers**: Used in **non-traditional platforms** like video game consoles and IoT devices.

**6. Impact of HTML & CSS**

* **Device Agnosticism**: Content is accessible across diverse screen sizes and hardware.
* **Future-Proofing**: Ongoing updates ensure relevance in evolving tech ecosystems.

**Example Workflow**:

*<!-- HTML Structure -->*

<video controls>

<source src="video.mp4" type="video/mp4">

</video>

*<!-- CSS Styling -->*

<style>

video {

width: 100%;

box-shadow: 0 4px 8px rgba(0,0,0,0.1);

border-radius: 8px;

}

@media (max-width: 480px) {

video { margin: 10px; }

}

</style>

**Topic 2: Semantic and Meta Tags**

**1. Importance of Semantic HTML**

* **Purpose**: Describes the *meaning* of content (beyond visual layout).
* **Benefits**:
  + Enhances accessibility (e.g., screen readers).
  + Improves SEO (search engines understand content better).
* **Example**: Use <h1> for headings, <ul>/<ol> for lists.

**2. Basic Structure of an HTML Page**

* **Core Tags**:
  + <head>: Metadata (not visible on the page).
  + <body>: Visible content.
* **Semantic Layout**:
  + **Header** (<header>): Logos, navigation links.
  + **Main Content** (<main>): Primary content (e.g., articles, sections).
  + **Footer** (<footer>): Contact info, social links.

**3. Semantic Elements for Navigation**

* **Nav Tag** (<nav>):
  + Contains primary navigation links (e.g., menus).
  + Often placed after <header>.
  + Common practice: Use an unordered list (<ul>) inside <nav>.

**4. Structuring Main Content**

* **Article Tag** (<article>):
  + Represents *self-contained* content (e.g., blog post, forum comment).
  + Example: A blog entry about a summer holiday.
  + Can include nested <header> (title, author, date) and <section> elements.
* **Section Tag** (<section>):
  + Defines thematic groups within content.
  + Requires a heading (<h2>, <h3>, etc.) to describe the section.
  + Can exist independently (outside <article>).

**5. Nesting Semantic Elements**

* **Flexible Structure**:
  + Semantic elements can be nested to reflect content hierarchy.
  + Example:

html

Copy

Download

Run

<article>

<header>

<h1>Blog Title</h1>

<p>Date and Author</p>

</header>

<section>

<h2>Subheading</h2>

<p>Content...</p>

</section>

</article>

**6. Footer Element**

* **Usage**:
  + Contains secondary info (e.g., copyright, additional links).
  + Can appear at the end of the page or within <article>/<section>.

**7. Key Takeaways**

* **Best Practices**:
  + Use semantic tags to add meaning (not just for styling).
  + Prioritize <header>, <nav>, <main>, <article>, <section>, and <footer>.
* **Impact**:
  + Improves accessibility and SEO.
  + Creates a well-structured, maintainable codebase.

**8. Semantic HTML cheat sheet**

There are hundreds of semantic tags available to help describe the meaning of your HTML documents. Below is a cheat sheet with some of the most common ones you’ll use in this course and in your development career.

**8.1 Sectioning tags**

Use the following tags to organize your HTML document into structured sections.

**<header>**

The header of a content section or the web page. The web page header often contains the website branding or logo.

**<nav>**

The navigation links of a section or the web page.

**<footer>**

The footer of a content section or the web page. On a web page, it often contains secondary links, the copyright notice, privacy policy and cookie policy links.

**<main>**

Specifies the main content of a section or the web page.

**<aside>**

A secondary set of content that is not required to understand the main content.

**<article>**

An independent, self-contained block of content such as a blog post or product.

**<section>**

A standalone section of the document that is often used within the body and article elements.

**<details>**

A collapsed section of content that can be expanded if the user wishes to view it.

**<summary>**

Specifies the summary or caption of a <details> element.

**<h1><h2><h3><h4><h5><h6>**

Headings on the web page. <h1> indicates the most important heading whereas <h6> indicates the least important.

**8.2 Content tags**

**<blockquote>**

Used to describe a quotation.

**<dd>**

Used to define a description for the preceding <dt> element.

**<dl>**

Used to define a description list.

**<dt>**

Used to describe terms inside <dl> elements.

**<figcaption>**

Defines a caption for a photo image.

**<figure>**

Applies markup to a photo image.

**<hr>**

Adds a horizontal line to the parent element.

**<li>**

Used to define an item within a list.

**<menu>**

A semantic alternative to <ul> tag.

**<ol>**

Defines an ordered list.

**<p>**

Defines a paragraph.

**<pre>**

Used to represent preformatted text. Typically rendered in the web browser using a monospace font.

**<ul>**

Unordered list

**8.3 Inline tags**

**<a>**

An anchor link to another HTML document.

**<abbr>**

Specifies that the containing text is an abbreviation or acronym.

**<b>**

Bolds the containing text. When used to indicate importance use <strong> instead.

**<br>**

A line break. Moves the subsequent text to a new line.

**<cite>**

Defines the title of creative work (for example a book, poem, song, movie, painting or sculpture). The text in the <cite> element is usually rendered in italics.

**<code>**

Indicates that the containing text is a block of computer code.

**<data>**

Indicates machine-readable data.

**<em>**

Emphasizes the containing text.

**<i>**

The containing text is displayed in italics. Used to indicate idiomatic text or technical terms.

**<mark>**

The containing text should be marked or highlighted.

**<q>**

The containing text is a short quotation.

**<s>**

Displays the containing text with a strikethrough or line through it.

**<samp>**

The containing text represents a sample.

**<small>**

Used to represent small text, such as copyright and legal text.

**<span>**

A generic element for grouping content for CSS styling.

**<strong>**

Displays the containing text in bold. Used to indicate importance.

**<sub>**

The containing text is subscript text, displayed with a lowered baseline.

**<sup>**

The containing text is superscript text, displayed with a raised baseline.

**<time>**

A semantic tag used to display both dates and times.

**<u>**

Displays the containing text with a solid underline.

**<var>**

The containing text is a variable in a mathematical expression.

**8.4 Embedded content and media tags**

**<audio>**

Used to embed audio in web pages.

**<canvas>**

Used to render 2D and 3D graphics on web pages.

**<embed>**

Used as a containing element for external content provided by an external application such as a media player or plug-in application.

**<iframe>**

Used to embed a nested web page.

**<img>**

Embeds an image on a web page.

**<object>**

Similar to <embed> but the content is provided by a web browser plug-in.

**<picture>**

An element that contains one <img> element and one or more <source> elements to offer alternative images for different displays/devices.

**<video>**

Embeds a video on a web page.

**<source>**

Specifies media resources for <picture>, <audio> and<video> elements.

**<svg>**

Used to define Scalable Vector Graphics within a web page.

**8.5 Table tags**

**<table>**

Defines a table element to display table data within a web page.

**<thead>**

Represents the header content of a table. Typically contains one <tr> element.

**<tbody>**

Represents the main content of a table. Contains one or more <tr>elements.

**<tfoot>**

Represents the footer content of a table. Typically contains one <tr> element.

**<tr>**

Represents a row in a table. Contains one or more <td> elements when used within <tbody> or <tfoot>. When used within <thead>, contains one or more <th> elements.

**<td>**

Represents a cell in a table. Contains the text content of the cell.

**<th>**

Defines a header cell of a table. Contains the text content of the header.

**<caption>**

Defines the caption of a table element.

**<colgroup>**

Defines a semantic group of one or more columns in a table for formatting.

**<col>**

Defines a semantic column in a table.