Module 3: HTML and CSS Fundamentals

Structure & Syntax of HTML pages

- HTML (Hyper Text Markup Language) is a scripting language used to create and structure web pages, defining their format and layout. You can view a webpage's HTML by right-clicking and selecting 'View Page Source' to understand how the page is constructed.
- An HTML page includes a DOCTYPE declaration, an html tag, a head tag, and a body tag, which together form the document's structure.
- The DOCTYPE indicates the document type and helps browsers interpret the HTML correctly; it's essential for compatibility.
- HTML tags typically appear in pairs (opening and closing), with some self-closing tags for void elements, indicating how elements are defined.
- Tags can have attributes enclosed in quotation marks that provide additional information, and Boolean attributes imply true if present.
- Comments are used to add notes or explanations in the code without displaying them on the webpage, useful during development.
- The head section contains information about the page, such as the title, meta tags for search engines, and links to CSS and JavaScript.
- The body section contains the visible content of the page, including text, hyperlinks, images, and forms, which make up the user interface.

Commonly Used HTML Tags

- Key text tags include headings (h1 to h6), paragraphs (p), and styling options (bold, italic), with attention to space and line formatting using BR or PRE tags.
- Visual Studio Code is recommended as a versatile code editor for HTML and CSS development, popular among developers.
- Hyperlinks are created using the anchor (a) tag with the HREF attribute and can open in a new window with the target="_blank" attribute.
- Lists (ordered and unordered) and tables help organise content, with lists defined using OL/UL tags and tables using TR, TD, and TH tags.
- Use DIV tags for block-level elements and SPAN tags for inline elements to structure content effectively.
- The IMG tag adds images using the SRC attribute, while the IFRAME tag allows embedding other webpages, like YouTube videos.

Working with URLs

- A URL (Uniform Resource Locator) locates web resources and includes components like scheme, host, path, query, and fragment. URLs link to other web pages and specify resources such as images and audio files, essential for web navigation.
- There are two main types of URLs: absolute URLs, which provide the full path, and relative URLs, which are based on the current document's location.
- Absolute URLs should be used for linking to external websites, offering clarity and consistent functionality.

- Relative URLs are ideal for internal links within the same website, allowing for simpler management during site migration. Relative URLs can link within the same directory, access subdirectories, navigate to the parent directory, or reference the root directory.

Working with Form-Related Tags

- Forms are vital for user input on websites. They are enclosed in a FORM tag and usually have ACTION and METHOD attributes, which specify where to send data and the HTTP method to use (GET or POST).
- The INPUT tag represents different input types based on its TYPE attribute, such as TEXT for textboxes, PASSWORD for masked inputs, and FILE for file uploads. HTML5 introduces new types like URL, EMAIL, DATE, TIME, and COLOR, along with new attributes like AUTOCOMPLETE, PLACEHOLDER, and REQUIRED.
- Labels are essential for linking descriptions to form elements, improving accessibility. The AUTOFOCUS attribute can automatically focus a field when the page loads, and HTML5 offers validation attributes like MIN, MAX, MINLENGTH, and MAXLENGTH to enforce input rules without JavaScript.

Introduction to CSS

- CSS is essential in web development for controlling the layout and presentation of web pages. CSS3, the latest version, includes new features for styling.
- HTML defines a web page's content, while CSS focusses on its presentation, playing a crucial role in enhancing UI/UX design. CSS can significantly transform a website's appearance, as demonstrated by the CSS Zen Garden, where multiple designs originate from the same HTML with different CSS.
- The three ways to declare CSS are:
    - Internal Stylesheets: CSS written within the style tags in the HTML document.
    - External Stylesheets: CSS rules stored in a separate file (e.g., styles.css) linked to the HTML.
    - Inline Styles: CSS applied directly to HTML elements using the style attribute.
- CSS rules consist of a selector and property-value pairs. You can apply the same styles to multiple selectors and add comments in CSS. Internal styles are placed in the head section of your webpage, while external styles are linked using the link tag. Inline styles target specific elements but are less efficient for larger projects.

Introduction to Document Object Model (DOM)

- The DOM is a programming interface that represents a web page as a structured group of nodes and objects, enabling developers to access and update its content, structure, and style.
- The HTML DOM is visualised as a tree of elements, making it easy to navigate and manipulate. You can access this tree using the browser's developer tools by pressing F12 on Firefox or Chrome. This tool lets you view and edit the DOM, providing insight into how the web page is structured.

- Changes made in the developer tool affect the DOM directly and can be seen immediately, but they are temporary and do not alter the original files on the server.
- By using the inspect element feature, you can examine and modify HTML and CSS, helping you debug and understand how elements are rendered.

Basic CSS Selectors

- Element selectors apply styles to all elements of a specific HTML tag. Class selectors target all elements with a given class attribute, allowing multiple classes to be used by separating them with spaces. ID selectors are used for a single element with a unique ID, marked by a hash sign.
- Universal selectors match all elements on the page and should be used cautiously to prevent unintended effects. Selectors can be combined to style specific elements, and you can apply the same style to multiple selectors using a comma.
- Inheritance in CSS means that parent elements often pass their styles to child elements. Not all properties are inherited by default, so you can check the W3C website for details on inheritance.

Common CSS Properties

- CSS properties are used to style HTML elements, consisting of a name and a value applied through a selector. For instance, you can set all paragraphs to blue.
- Key text-related properties include text-align, which controls horizontal alignment, and text-decoration, which adds decorative lines like underlining. The text-transform property changes text case, while text-indent specifies the indentation of the first line.
- For spacing, letter-spacing adjusts character space, word-spacing affects space between words, and line-height alters the space between lines.
- Colour properties are vital; the colour property sets text colour, while background-colour sets the background. You can define colours by name, RGB values, or hexadecimal codes. The background property allows shorthand for multiple background settings.

THE END

My notes...