HTML & CSS Fundamentals: The PureIoT Web Foundation Guide

Introduction

HTML (HyperText Markup Language) and CSS (Cascading Style Sheets) are the foundational languages of the web. HTML provides the structure and content, while CSS provides the visual styling and layout. Mastering these fundamentals is the first step to building modern, responsive websites.

1. HTML Fundamentals: Structure and Semantics

HTML uses tags to define the structure of a web page.

- **Basic Structure:** Every HTML document must include the following tags: `html <! DOCTYPE html> <html> <head> <title>Page Title</title> </head> <body> <!-- Content goes here --> </body> </html>`
- **Semantic HTML:** Use tags that clearly describe the content's purpose (e.g., `<header>`, `<nav>`, `<main>`, `<article>`, `<footer>`). This improves accessibility and Search Engine Optimization (SEO).
- **Key Tags:**
  - `<h1>` to `<h6>`: Headings (use only one `<h1>` per page).
  - `<p>`: Paragraphs.
  - `<a>`: Hyperlinks.
  - `<img>`: Images.

2. CSS Fundamentals: Styling and Presentation

CSS controls the look and feel of the HTML elements.

- **Selectors:** CSS uses selectors to target HTML elements for styling:
  - **Element Selector:** `p { color: blue; }` (Targets all `<p>` tags).
  - **Class Selector:** `.button { background-color: green; }` (Targets elements with `class="button"`).

    - **ID Selector:** `#main-nav { border: 1px solid black; }` (Targets the unique element with `id="main-nav"`).
- **Box Model:** Every HTML element is treated as a box with four properties: **Content**, **Padding** (space around the content), **Border**, and **Margin** (space outside the border). Understanding the box model is crucial for layout.
- **Flexbox and Grid:** Modern CSS layout techniques that allow for complex, two-dimensional page layouts that are easy to manage and responsive.

3. Responsive Design: Mobile-First Approach

Responsive Web Design (RWD) ensures your website looks and functions well on all devices (desktops, tablets, and phones).

- **Viewport Meta Tag:** This tag is essential and must be included in the `<head>` section: `html <meta name="viewport" content="width=device-width, initial-scale=1.0">`
- **Media Queries:** CSS rules that apply styles only when certain conditions are met (e.g., screen width). `css /* Styles for screens smaller than 600px */ @media screen and (max-width: 600px) { .container { width: 100%; } }`
- **Mobile-First:** Design and style your website for the smallest screen first, then use media queries to add styles for larger screens. This ensures fast loading on mobile devices.

HTML & CSS Checklist

Item	Status	Notes
Semantic HTML Used	[ ]	
Viewport Meta Tag Included	[ ]	
Layout Uses Flexbox or Grid	[ ]	
Mobile-First Approach Followed	[ ]	
CSS is External (Linked File)	[ ]	

Conclusion

A strong foundation in HTML and CSS is the key to building accessible, performant, and future-proof websites. PureIoT provides expert web development services to bring your vision to life.