



SNS COLLEGE OF TECHNOLOGY

Coimbatore-35
An Autonomous Institution

Accredited by NBA – AICTE and Accredited by NAAC – UGC with 'A++' Grade
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

DEPARTMENT OF COMPUTER APPLICATIONS

23CAT605 – WEBSTACK DEVELOPMENT

I YEAR – II SEMESTER

UNIT – I OVERVIEW OF WEB TECHNOLOGIES AND HTML 5

NEW ELEMENTS – HTML SEMANTICS – MIGRATION FROM HTML TO HTML 5





INTRODUCTION TO HTML 5



- HTML5 is the latest version of HTML (HyperText Markup Language).
- Released in **2014** by **W3C (World Wide Web Consortium)** and **WHATWG (Web Hypertext Application Technology Working Group)**.
- Introduced to make web development **faster, more efficient, and mobile-friendly**.
- Unlike HTML4, HTML5 provides **better structure, multimedia support, and interactive features**.



WHY HTML 5 HAS INTRODUCED?

HTML4 had several limitations that required third-party solutions like Flash, JavaScript, and plugins. HTML5 eliminates these problems by:

- ✓ Providing native support for audio, video, and graphics.
- ✓ Reducing reliance on JavaScript for common features.
- ✓ Enhancing mobile compatibility for better performance.
- ✓ Making webpages more accessible with semantic tags.



WHAT'S NEW IN HTML 5



HTML5 introduces **three major improvements**:

- 1 **New Structural Elements:** <header>, <section>, <article>, <footer>, etc.
- 2 **New Multimedia Elements:** <video>, <audio>, <canvas>.
- 3 **New Form Controls and APIs:** <datalist>, <output>, <progress>, etc.

Each of these **improves usability, accessibility, and efficiency** for developers and users.



NEW STRUCTURAL ELEMENTS IN HTML 5

- ✓ HTML4 relied on `<div>` for everything, making the code **messy and difficult to read**.
- ✓ Search engines and screen readers **couldn't understand** the structure of a webpage properly.
- ✓ **Semantic HTML** helps **improve SEO, readability, and accessibility**.

Element	Purpose	Example
<code><header></code>	Top section, logo, heading	<code><header><h1>My Website</h1</header></code>
<code><nav></code>	Navigation links	<code><nav>Home Contact</a</nav></code>
<code><section></code>	Groups related content	<code><section><h2>Our Services</h2</section></code>
<code><article></code>	Independent content (blog, news)	<code><article><h2>Blog Post</h2</article></code>
<code><aside></code>	Sidebar content	<code><aside>Related Links</aside></code>
<code><footer></code>	Footer section	<code><footer>© 2025 My Site</footer></code>
<code><figure></code>	Contains images, captions	<code><figure><figcaption>Image caption</figcaption</figure></code>
<code><mark></code>	Highlights text	<code><p>This is <mark>important</mark>.</p></code>



EXAMPLE

✓ Example Before (HTML4 - Using <div> Only):

```
<div id="header">Welcome to My Site</div>
<div id="nav"><a href="#">Home</a> | <a href="#">Contact</a></div>
<div id="main">Main Content</div>
<div id="footer">Copyright 2025</div>
```

✗ This is non-semantic, hard to read!

✓ Example After (HTML5 - Using Semantic Elements):

```
<header>Welcome to My Site</header>
<nav><a href="#">Home</a> | <a href="#">Contact</a></nav>
<main>Main Content</main>
<footer>Copyright 2025</footer>
```

🎯 Benefits:

- ✓ Clean & Readable Code
- ✓ Better SEO (Google understands the content better)
- ✓ Improved Accessibility



NEW MULTIMEDIA ELEMENTS IN HTML 5

 **HTML5 replaces Flash with native support for audio and video.**

Element	Purpose	Example
<code><audio></code>	Adds audio	<pre><audio controls><source src="song.mp3" type="audio/mpeg"> </audio></pre>
<code><video></code>	Adds video	<pre><video controls width="400"><source src="video.mp4" type="video/mp4"></video></pre>
<code><canvas></code>	Draws graphics using JavaScript	<pre><canvas id="myCanvas"></canvas></pre>

Advantages Over Flash:

- ✓ Works on all modern browsers (Chrome, Firefox, Edge, etc.).
- ✓ Uses less CPU and battery compared to Flash.
- ✓ Mobile-friendly (Flash is not supported on iPhones and iPads).



NEW INPUT TYPES IN HTML 5 FORMS

Input Type	Description	Example
email	Validates email format	<code><input type="email"></code>
url	Ensures a valid URL	<code><input type="url"></code>
number	Accepts only numbers	<code><input type="number" min="1" max="100"></code>
date	Provides a date picker	<code><input type="date"></code>
range	Creates a slider	<code><input type="range" min="1" max="10"></code>
search	Optimized for search fields	<code><input type="search"></code>



EXAMPLE



✓ Before (HTML4 - Manual Validation Required):

```
<input type="text" name="email">
```

✗ Requires JavaScript for validation!

✓ After (HTML5 - Built-in Validation):

```
<input type="email" name="email" required>
```

🎯 Benefits:

- ✓ Automatic validation (no JavaScript needed).
- ✓ Better user experience.



UNDERSTANDING HTML SEMANTICS



- **Semantics means "meaning."** In HTML, **semantic elements** clearly describe their purpose in a webpage.
- Instead of using generic `<div>` or ``, semantic elements **improve readability and SEO.**
- Helps **browsers, search engines, and screen readers** understand the content structure.



EXAMPLE



⊘ Non-Semantic HTML

```
<div id="header">Welcome to My Blog</div>
<div id="nav">
  <a href="#">Home</a> | <a href="#">About</a>
</div>
<div id="main">
  <div id="content">
    <h2>Article Title</h2>
    <p>Article content...</p>
  </div>
</div>
<div id="footer">© 2025 My Website</div>
```

☑ Semantic HTML

```
<header>Welcome to My Blog</header>
<nav>
  <a href="#">Home</a> | <a href="#">About</a>
</nav>
<main>
  <article>
    <h2>Article Title</h2>
    <p>Article content...</p>
  </article>
</main>
<footer>© 2025 My Website</footer>
```



MIGRATION FROM HTML TO HTML 5



HTML4	HTML5	Description
<code><div id="header"></code>	<code><header></code>	The <code><header></code> tag in HTML is used to define the header for a document or a section as it contains the information related to the title and heading of the related content.
<code><div id="menu"></code>	<code><nav></code>	The <code><nav></code> tag is used for declaring the navigational section in HTML documents.
<code><div id="footer"></code>	<code><footer></code>	The <code><footer></code> tag in HTML is used to define a footer of HTML document
<code><div id="content"></code>	<code><section></code>	The <code><Section></code> tag defines the section of documents such as chapters, headers, footers or any other sections. The section tag divides the content into section and subsections
<code><div id="post"></code>	<code><article></code>	The <code><article></code> tag is one of the new sectioning element in HTML5. The HTML <code><article></code> tag is used to represent an article



MIGRATION FROM HTML TO HTML 5



There are some more features of HTML5 than HTML4:

- The few old HTML tags have been removed in HTML5, such as `<blink>`, `<marquee>`, `<frame>`, `<applet>`, `<center>` and `<dir>` tags
- HTML5 comes with some new tags, like `<section>` and `<footer>`, that can be used to design the main body of the webpage & to add the basic page details at the end of the page, that make the webpage more readable for search engines. It is optional to use & depends on the usage to design the specific page.
- A few attributes have been deprecated, which are now accomplished by using CSS properties. For instance, in HTML4, we generally use the width or height, or color attributes with the `` tag in the HTML code. Now in HTML5, we can replace them with styling properties by specifying the width, height & color property with their values, which will work the same with the same output.
- HTML5 has `<audio>`, `<video>` for adding the media into the webpage & also supports the `<canvas>` tags as well as integration of SVG content. These tags or elements make the overall work easy along with dealing with multimedia and graphical content on the web without using third-party plugins.