

Introduction to HTML

HTML (HyperText Markup Language) is the **structural layer of the web**.

It does not control logic (JavaScript) or styling (CSS). Its only job:

👉 **describe what content is and how it's organized.**

First-principle truth:

- Browsers don't "see" design — they read markup
- Search engines, screen readers, and AI agents rely on semantic HTML
- Bad HTML = fragile CSS, broken accessibility, poor SEO

HTML works by using elements (tags) to wrap content and give it meaning.

Structure of a Webpage

Every valid HTML page follows this exact high-level structure:

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <meta charset="UTF-8">
    <title>Page Title</title>
  </head>
  <body>
    <!-- Visible content -->
  </body>
</html>
```

1. <!DOCTYPE html>

- Tells the browser: use modern HTML5
- Without it → browser may enter "quirks mode" (layout bugs)
- Zero flexibility here — always include it

2. <html>

- Root element of the entire document
- lang attribute is critical for:
 - Accessibility
 - SEO
 - Screen reader

3. <head> (Invisible but Critical)

- This is machine-focused, not user-focused.
- Typical responsibilities:
 - Character encoding (<meta charset="UTF-8">)
 - Page title (<title>)
 - SEO metadata
 - Linking CSS files
 - Preloading fonts/scripts
 - No visible content belongs here.

4. <body> (User-Facing Content)

Everything the user sees lives here:

- Text
- Images
- Buttons
- Layout structure

This is where semantic structure matters.

Semantic Structure Inside <body>

Modern HTML is meaning-driven, not div-driven.

Core layout elements:

```
<header>  <!-- Intro / navigation -->
<nav>     <!-- Main navigation -->
<main>    <!-- Unique page content -->
```

```
<section> <!-- Thematic grouping -->
<article> <!-- Independent content -->
<aside>  <!-- Side content -->
<footer> <!-- Footer info -->
```

Why this matters:

- Improves accessibility
- Makes CSS simpler
- Helps search engines understand content hierarchy
- Required for professional-grade front-end work