

# 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