

# The HTML Boilerplate (Document Structure)

## Overview

Before we start writing the content of our website, we must build a proper foundation. In HTML, this foundation is called a **Boilerplate** or a **Skeleton**. Every valid web page on the internet must contain this exact basic structure. Without it, web browsers (like Chrome or Safari) will not know how to read or render your code correctly.

---

## 1. The DOCTYPE Declaration

The very first line of any HTML document is the declaration.

```
<!DOCTYPE html>
```

- **What it does:** It is not actually an HTML tag; it is an instruction to the web browser.
- **Why we need it:** It tells the browser, "*I am using HTML5 (the latest version of HTML).*" If you forget to include this, the browser might load your website in "Quirks Mode" (an older rendering standard), which can completely break your design.

## 2. The Root Element & Language Attribute

Immediately after the declaration, we open the HTML root element.

```
<!DOCTYPE html>
<html lang="en">
</html>
```

- **<html>:** This is the root element. Every other tag, text, and piece of code in your entire website will go *inside* these two tags.
- **lang="en":** This is an **attribute** that specifies the primary language of the document (English). This is highly important for SEO (Search Engine Optimization) and for Screen Readers used by visually impaired users.

### 3. The Two Main Sections: Head and Body

Inside the <html> root element, the document is split into two primary sections: the Head and the Body.

```
<!DOCTYPE html>
<html lang="en">
<head>

</head>
<body>

</body>
</html>
```

#### The <head> Section (The Brain)

- Nothing written inside the <head> tag is visible to the user on the actual web page.
- It contains the **Metadata** (data about data).
- This is where we put the website's title, Google search keywords, and links to our CSS (styling) and JavaScript (logic) files.

#### The <body> Section (The Visible Content)

- This is where everything the user sees goes.
- If you want a button, an image, a video, or text to appear on the screen, it **must** be written inside the <body> tags.

---

### 4. The Professional Workflow: Emmet Abbreviations

In the software engineering industry, developers do not manually type out this skeleton every time they create a new file. Instead, we use a built-in VS Code tool called **Emmet**.

#### How to use it:

1. Delete everything in your index.html file so it is completely blank.
2. Type a single exclamation mark !
3. Press Enter or Tab.

VS Code will instantly generate the complete, industry-standard boilerplate:

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Document</title>
</head>
<body>

</body>
</html>
```

---

## 5. Understanding the Auto-Generated Meta Tags

When you use the ! shortcut, Emmet adds a few important `<meta>` tags inside the `<head>` section. Here is what they do:

### Character Encoding

```
<meta charset="UTF-8">
```

- This tells the browser to use the UTF-8 character encoding. UTF-8 includes almost all characters and symbols in the world. It ensures that English letters, Sinhala characters, and even Emojis render perfectly without showing up as weird symbols.

### Mobile Responsiveness (The Viewport)

```
<meta name="viewport" content="width=device-width, initial-scale=1.0">
```

- This is crucial for modern web development. It tells the browser to match the width of the website to the width of the user's device.
- Without this line, a mobile phone will try to load the desktop version of the site and zoom way out, making the text unreadable.

## The Document Title

```
<title>My First Website</title>
```

- The <title> tag dictates the text that appears in the very top tab of your web browser. It is also the large blue link that people click on when your website appears in a Google Search.
- 

## 6. Testing the Boilerplate

To test our skeleton, we write a simple Heading 1 (<h1>) tag inside the <body> section, save the file, and open it with Live Server.

```
<body>
  <h1>Hello Sri Lanka</h1>
</body>
```

If you look at the browser, you will see "Hello Sri Lanka" displayed on the screen, and "My First Website" displayed in the browser tab at the top. Your foundation is now 100% correct and ready for real web development!