**1. What is a Website?**

A website is a collection of web pages that users can access through the internet using a web browser. Websites are categorized into:

* **Static Websites:** Simple pages with fixed content (e.g., portfolio websites).
* **Dynamic Websites:** Websites that update content dynamically (e.g., social media platforms, e-commerce sites).

A website consists of three core parts:

**A. Frontend (Client-Side)**

* **HTML (HyperText Markup Language):** The structure of a webpage.
* **CSS (Cascading Style Sheets):** Styling and layout.
* **JavaScript:** Adds interactivity and dynamic behavior.

**B. Backend (Server-Side)**

* The logic and database management behind the website.
* Backend languages: **Node.js, Python, PHP, etc.**

**C. Database**

* Stores user data, transactions, and other content.
* Examples: **MongoDB, MySQL, PostgreSQL.**

**2. How a Website Loads: Step-by-Step Process**

**Step 1: User Requests a Web Page**

* The user enters a URL (e.g., www.example.com) in their browser.
* The browser contacts the **DNS (Domain Name System)** to get the website’s IP address.
* An **HTTP/HTTPS request** is sent to the web server.

**Step 2: Server Processes the Request**

* If it’s a **static website**, the server sends back an HTML file.
* If it’s a **dynamic website**, the server runs backend code, fetches data from the database, and then generates an HTML response.

**Step 3: Browser Receives and Renders the Page**

* The browser downloads the **HTML, CSS, and JavaScript** files.
* It processes them in the following order:
  1. **Parses HTML** and builds the **DOM (Document Object Model)**.
  2. **Processes CSS** and creates the **CSSOM (CSS Object Model).**
  3. **Combines DOM and CSSOM** to form the **Render Tree.**
  4. **Executes JavaScript** to modify the page dynamically.
  5. **Paints the final webpage** on the screen.

**Section 1: HTML Basics**

**Chapter 1: Introduction to HTML**

**1. What is HTML?**

HTML (**HyperText Markup Language**) is the standard language used to create web pages. It defines the structure and content of a webpage using **tags and elements**.

**Key Points:**

* HTML is not a programming language; it is a **markup language** used for structuring web content.
* It consists of a series of **elements** that tell the browser how to display content.
* HTML works alongside **CSS (for styling)** and **JavaScript (for interactivity).**

**Example of an HTML element:**

<p>This is a paragraph.</p>

**2. Role of HTML in Web Development**

HTML forms the **backbone of web development** by structuring content on the web. It provides:

* **Text Formatting:** Headings, paragraphs, lists, and links.
* **Media Embedding:** Images, videos, and audio.
* **Forms and Input Fields:** Collecting user data.
* **Navigation & Layout:** Links, sections, and divs to organize content.

**How HTML Works with CSS & JavaScript:**

* **HTML** provides the structure.
* **CSS** styles the content (colors, fonts, layout).
* **JavaScript** adds interactivity (buttons, animations, user interactions).

**3. Structure of an HTML Document**

Every HTML document follows a **basic structure** with essential tags:

**Basic HTML Template:**

<!DOCTYPE html>

<html>

<head>

<title>My First Webpage</title>

</head>

<body>

<h1>Welcome to My Website</h1>

<p>This is my first webpage using HTML.</p>

</body>

</html>

**Explanation of Tags:**

1. <!DOCTYPE html> → Defines the document type and version of HTML.
2. <html> → The root element that wraps all content.
3. <head> → Contains metadata (title, styles, scripts, etc.).
4. <title> → Sets the webpage title (visible on the browser tab).
5. <body> → Contains the main content (headings, paragraphs, images, links, etc.).

**4. Understanding DOCTYPE and HTML Versions**

The <!DOCTYPE> declaration specifies which version of HTML the document is using.

**Common HTML Versions:**

* **HTML4 (1997-2014)** – Older version with strict rules.
* **XHTML (2000s)** – Stricter version of HTML4.
* **HTML5 (2014-Present)** – Modern and widely used.

**HTML5 DOCTYPE Declaration:**

<!DOCTYPE html>

* This tells the browser to use **HTML5**, the latest standard with new features.

**Project: Create a Simple "Hello World" Webpage**

**Objective:**

Create your first webpage using HTML that displays "Hello, World!" on the screen.

**Steps:**

1. Open a **text editor** (Notepad, VS Code, Sublime Text, etc.).
2. Create a new file and save it as index.html.
3. Write the following code:

<!DOCTYPE html>

<html>

<head>

<title>Hello World</title>

</head>

<body>

<h1>Hello, World!</h1>

<p>This is my first webpage.</p>

</body>

</html>

1. Save the file and open it in a **web browser** (Chrome, Firefox, Edge).
2. You should see the text "Hello, World!" displayed on the screen.

**Conclusion**

* HTML is the foundation of every website.
* It structures content using tags like <h1>, <p>, and <a>.
* HTML5 is the latest and most powerful version.
* Creating a simple webpage is the first step in web development.

### Difference between Programing and Markup Language

| **Feature** | **Markup Language** | **Programming Language** |
| --- | --- | --- |
| **Purpose** | Used to structure and present content (e.g., text, images) | Used to develop logic and functionality for applications |
| **Execution** | Not executed, but interpreted by browsers or parsers | Executed by a compiler or an interpreter |
| **Logic & Operations** | Lacks control structures like loops and conditions | Supports conditions, loops, variables, and functions |
| **Example Languages** | HTML, XML, Markdown | JavaScript, Python, C++, Java |
| **Output** | Defines structure and styling | Generates dynamic output, computations, and interactions |
| **Complexity** | Simpler, mainly for content formatting | More complex, handling calculations, events, and data processing |

**Chapter 2: HTML Elements & Tags**

**1. Understanding Elements and Tags**

* An **HTML element** consists of an opening tag, content, and a closing tag.
* Tags are enclosed in angle brackets (<>).
* Example:

<p>This is a paragraph.</p>

* + <p> is the **opening tag**.
  + This is a paragraph. is the **content**.
  + </p> is the **closing tag**.

**2. Common HTML Tags**

Here are some commonly used HTML tags:

|  |  |
| --- | --- |
| **Tag** | **Description** |
| **<p>** | Defines a paragraph |
| <h1> to <h6> | Defines headings (h1 is the largest, h6 is the smallest) |
| <br> | Inserts a line break |
| <hr> | Inserts a horizontal line |
| <pre> | Displays preformatted text |

**Example Usage:**

<h1>Main Heading</h1>

<h2>Subheading</h2>

<p>This is a paragraph.</p>

<br>

<p>Another paragraph with a line break above.</p>

<hr>

<pre>

This text is preformatted

and preserves spacing.

</pre>

**3. HTML Comments**

* Comments are used to add notes in the code, which are ignored by the browser.
* They help developers understand the code.
* Syntax:

<!-- This is a comment -->

* Example:
* <p>This is visible text.</p>

<!-- This is a hidden comment -->

**💡 Project: Create a Personal Introduction Webpage**

**Objective:**

Create a simple webpage introducing yourself.

**Steps:**

1. Open a text editor and create a new file named about\_me.html.
2. Write the following code:

<!DOCTYPE html>

<html>

<head>

<title>About Me</title>

</head>

<body>

<h1>My Name</h1>

<p>Hello! My name is [Your Name]. I am a web development enthusiast.</p>

<hr>

<h2>Hobbies</h2>

<p>I enjoy coding, reading, and playing video games.</p>

<br>

<h2>Contact</h2>

<p>You can reach me at: email@example.com</p>

</body>

</html>

1. Save the file and open it in a web browser.
2. You should see a basic webpage displaying your introduction.

**Conclusion**

* HTML elements define content and structure using tags.
* Common tags include <p>, <h1>-<h6>, <br>, <hr>, and <pre>.
* Comments (<!-- -->) are useful for adding notes in the code.
* Building a simple introduction page is a great way to practice using elements.