

Oromia development association special boarding

school bishoftu branch

**ICT club Instructor's work  
book**

# Project 1: HTML & CSS

**Instructor's**

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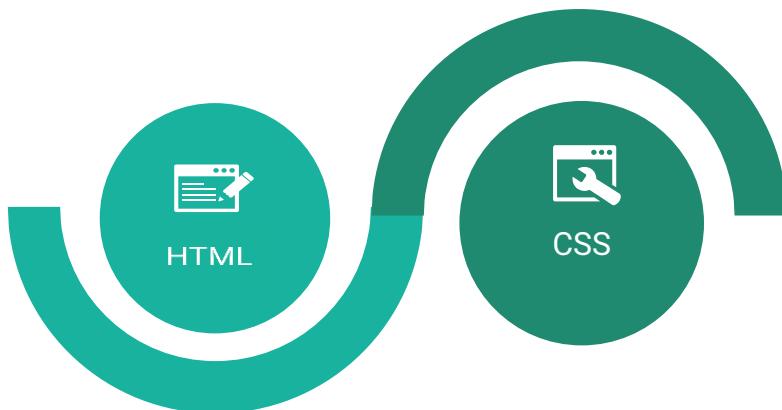
Lesson 1      HTML and basic elements

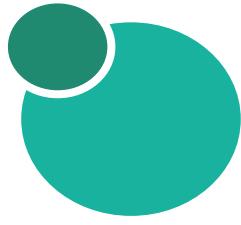
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## Chapter 1: HTML and basic elements

### What is HTML?

HTML stands for Hyper Text Markup Language  
HTML is the standard markup language for creating Web pages  
HTML describes the structure of a Web page  
HTML consists of a series of elements

### HTML elements

What is an HTML Element?

An HTML element is defined by a start tag, some content, and an end tag:

<tagname> Content goes here... </tagname>

The HTML element is everything from the start tag to the end tag:

Ex

```
First Heading</h1>
rst paragraph.</p>
```

#### HTML Document

```
<!DOCTYPE html>
<html>
  <head>
    <title>Page Title</title>
  </head>
  <body>
```

```
<h1>My First Heading</h1>
```

```
  <p>My first paragraph.</p>
</body>
</html>
```

### Explain

The <!DOCTYPE html> declaration defines that this document is an HTML5 document

The <html> element is the root element of an HTML page

The <head> element contains meta information about the HTML page



The `<title>` element specifies a title for the HTML page (which is shown in the browser's title bar or in the page's tab)

The `<body>` element defines the document's body, and is a container for all the visible contents, such as headings, paragraphs, images, hyperlinks, tables, lists, etc.

The `<h1>` element defines a large heading

The `<p>` element defines a paragraph

## HTML Elements

An HTML element is defined by a start tag, some content, and an end tag.

The HTML element is everything from the start tag to the end tag:

```
<tagname>Content goes here...</tagname>
```

Examples of some HTML elements:

```
<h1>My First Heading</h1>
```

```
<p>My first paragraph.</p>
```

In HTML, start tags (or opening tags) and end tags (or closing tags) are used to define elements.

### Start Tag

A start tag marks the beginning of an element. It is enclosed in angle brackets (`<>`) and includes the element name.

### End Tag

An end tag marks the end of an element. It is also enclosed in angle brackets, but it includes a forward slash (/) before the element name

### Nested HTML Elements

HTML elements can be nested (this means that elements can contain other elements).

All HTML documents consist of nested HTML elements.

The following example `<title>` element nested inside `<head>` element

```
<head>
```

```
  <title>Welcome</title>
```

```
</head>
```



In an HTML document, tags are generally placed within two main sections: the `<head>` and the `<body>`. Each serves a different purpose.

---

## 1. Tags Typically Inserted in the `<head>` Section

Specifies the title of the webpage (shown in the browser tab).

Defines metadata such as character encoding, viewport settings, or search engine keywords.

Links to external resources like CSS stylesheets

Embeds internal CSS styles.

---

## 2. Tags Typically Inserted in the `<body>` Section

Content Tags:

Media Tags:

Used for embedding images, videos, or audio.

Interactive Elements:

Forms, buttons, and links for user interaction.

Scripting Tags:

### Headings

Tags are titles or subtitles that you want to display on a webpage.

```
<h1>Heading 1</h1>
<h2>Heading 2</h2>
<h3>Heading 3</h3>
<h4>Heading 4</h4>
<h5>Heading 5</h5>
<h6>Heading 6</h6>
```

## Heading 1

## Heading 2

Heading 3

Heading 4

Heading 5

Heading 6

## HTML Paragraphs

The HTML `<p>` element defines a paragraph.

```
<html>
  <body><h1>history of html</h1>
  <p>HTML, created by Tim Berners-Lee in 1991, is the
  standard language for structuring web content. It has
  evolved over time, with HTML5 enabling modern multimedia and
  interactivity. Today, it remains the foundation of the internet.
  </p>
  </body>
</html>
```

## history of html

HTML, created by Tim Berners-Lee in 1991, is the standard language for structuring web content. It has evolved over time, with HTML5 enabling modern multimedia and interactivity. Today, it remains the foundation of the internet.

### Bonus

1. The **<b>** element makes the text bold, typically used for stylistic purposes

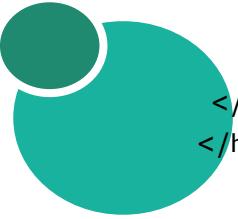
<p>This is a **bold** word.</p>
2. The **<em>** element emphasizes text, often changing its appearance to italic. It's used to indicate importance.

<p>This is an *important* word.</p>
3. The **<strong>** element indicates strong importance, often styled as bold text.

<p>This is a **very important** word</p>
4. Italic Text (**<i>**)

The **<i>** element makes text italic, often for stylistic purposes.

```
This is an italic word.</p>
text (<mark>)
> element highlights text, like using a highlighter.
This is a highlighted word.</p>
<html>
  <head>
    <title>HTML Elements Example</title>
  </head>
  <body>
    <p>This is a bold word.</p>
    <p>This is an important word.</p>
    <p>This is a very important word.</p>
```



```
<p>This is an <i>italic</i> word.</p>
<p>This is a <mark>highlighted</mark> word.</p>
</body>
</html>
```

## Chapter 2: HTML Attributes

### What is HTML Attributes?

HTML attributes provide additional information about HTML elements.

Attributes are always specified in the start tag

Attributes usually come in name/value pairs like: name="value"

The [tag defines a hyperlink. The href attribute specifies the URL of the page the link goes to:](#)

All HTML elements can have attributes

The href attribute of [specifies the URL of the page the link goes to](#)

The src attribute of specifies the path to the image to be displayed

The width and height attributes of provide size information for images

The alt attribute of provides an alternate text for an image

The style attribute is used to add styles to an element, such as color, font, size, and more

The lang attribute of the  tag declares the language of the Web page

The title attribute defines some extra information about an element

### Difference between element and attributes

#### 1. HTML Element

✓ An element represents a part of the webpage structure, such as a heading, paragraph, image, or link.

✓ It consists of an opening tag, content (optional), and a closing tag.

#### 2. HTML Attributes

✓ Attributes provide additional information about an element, such as its behavior or appearance.

✓ They are included inside the opening tag and usually come as name-value pairs.

### HTML Links

HTML links are hyperlinks.

You can click on a link and jump to another document.

When you move the mouse over a link, the mouse arrow will turn into a little hand

The HTML [tag defines a hyperlink. It has the following syntax:](#)

```
<a href="url">link text</a>
```

The most important attribute of the `<a>` element is the `href` attribute, which indicates the link's destination.

The link text is the part that will be visible to the reader.

Clicking on the link text, will send the reader to the specified URL address.

HTML Links - Use an Image as a Link

To use an image as a link, just put the `<img>` tag inside the `<a>` tag:

Link to an Email Address

Use `mailto:` inside the `href` attribute to create a link that opens the user's email program (to let them send a new email):

## **HTML Images**

HTML Images Syntax

The HTML `<img>` tag is used to embed an image in a web page.

Images are not technically inserted into a web page; images are linked to web pages. The `<img>` tag creates a holding space for the referenced image.

The `<img>` tag is empty, it contains attributes only, and does not have a closing tag.

The `<img>` tag has two required attributes:

`src` - Specifies the path to the image

`alt` - Specifies an alternate text for the image

The `src` Attribute

The required `src` attribute specifies the path (URL) to the image

The `alt` Attribute

The required `alt` attribute provides an alternate text for an image, if the user for some reason cannot view it (because of slow connection, an error in the `src` attribute, or if the user uses a screen reader).

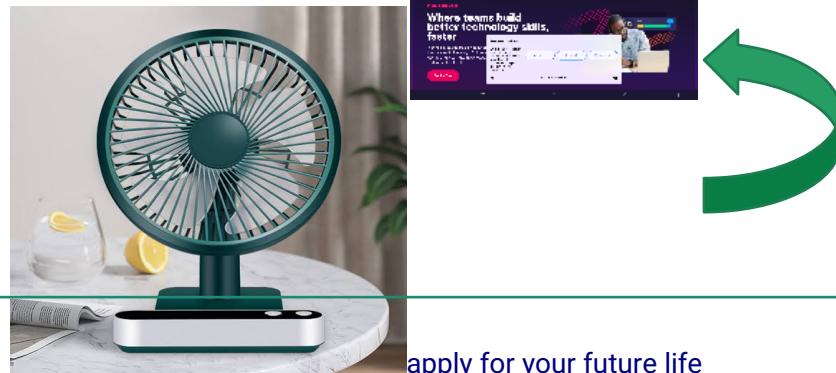
The value of the `alt` attribute should describe the image::

Note: When a web page loads, it is the browser, at that moment, that gets the image from a web server and inserts it into the page. Therefore, make sure that the image actually stays in the same spot in relation to the web page, otherwise your visitors will get a broken link icon. The broken link icon and the `alt` text are shown if the browser cannot find the image.

```
<!DOCTYPE html>
<html>
<body>

<a href="https://www.pluralsight.com">apply for your future life</a>

</body>
</html>
```



[apply for your future life](https://www.pluralsight.com)

## HTML Lists

HTML lists allow web developers to group a set of related items in lists.

### Example

An unordered HTML list:

- Item
- Item
- Item
- Item

An ordered HTML list:

1. First item
2. Second item
3. Third item
4. Fourth item

### Unordered HTML List

An unordered list starts with the `<ul>` tag. Each list item starts with the `<li>` tag. The list items will be marked with bullets (small black circles) by default:

Example

```
<ul>
  <li>Coffee</li>
  <li>Tea</li>
  <li>Milk</li>
</ul>
```

### Ordered HTML List

An ordered list starts with the `<ol>` tag. Each list item starts with the `<li>` tag. The list items will be marked with numbers by default:

Example

```
<ol>
  <li>Coffee</li>
  <li>Tea</li>
  <li>Milk</li>
</ol>
```

```
<html>
  <head>
    <style>table,th,td{border:1px solid black;}</style>
  </head>
  <body>
    <table>
      <tr>
        <th>name</th>
        <th>sex</th>
        <th>age</th>
      </tr>
      <tr>
        <td>Chala Guta</td>
        <td>M</td>
        <td>25</td>
      </tr>
      <tr>
        <td>Gelane Dirriba</td>
        <td>F</td>
        <td>18</td>
      </tr>
    </table>
  </body>
</html>
```

## Table Cells

Each table cell is defined by a `<td>` and a `</td>` tag.

✓`td` stands for table data.

Everything between `<td>` and `</td>` are the content of the table cell.

Note: A table cell can contain all sorts of HTML elements: text, images, lists, links, other tables, etc

## Table Rows

Each table row starts with a `<tr>` and ends with a `</tr>` tag.

✓`tr` stands for table row

## Table Headers

Sometimes you want your cells to be table header cells. In those cases use the `<th>` tag instead of the `<td>` tag:

✓`th` stands for table header.

## Bonus

Tag	Description
<code>&lt;table&gt;</code>	Defines a table
<code>&lt;th&gt;</code>	Defines a header cell in a table
<code>&lt;tr&gt;</code>	Defines a row in a table
<code>&lt;td&gt;</code>	Defines a cell in a table
<code>&lt;caption&gt;</code>	Defines a table caption
<code>&lt;colgroup&gt;</code>	Specifies a group of one or more columns in a table for formatting
<code>&lt;col&gt;</code>	Specifies column properties for each column within a <code>&lt;colgroup&gt;</code> element
<code>&lt;thead&gt;</code>	Groups the header content in a table
<code>&lt;tbody&gt;</code>	Groups the body content in a table
<code>&lt;tfoot&gt;</code>	Groups the footer content in a table

## HTML Forms

An HTML form is used to collect user input. The user input is most often sent to a server for processing.

### The <form> Element

The HTML <form> element is used to create an HTML form for user input:

```
<form>form elements</form>
```

The <form> element is a container for different types of input elements, such as: text fields, checkboxes, radio buttons, submit buttons, etc.

### The <input> Element

The HTML <input> element is the most used form element.

An <input> element can be displayed in many ways, depending on the **type** attribute.

Here are some examples:

Type	Description
<input type="text">	Displays a single-line text input field
<input type="radio">	Displays a radio button (for selecting one of many choices)
<input type="checkbox">	Displays a checkbox (for selecting zero or more of many choices)
<input type="submit">	Displays a submit button (for submitting the form)
<input type="button">	Displays a clickable button

### Text Fields

The <input type="text"> defines a single-line input field for text input.

### The <label> Element

The <label> tag defines a label for many form elements.

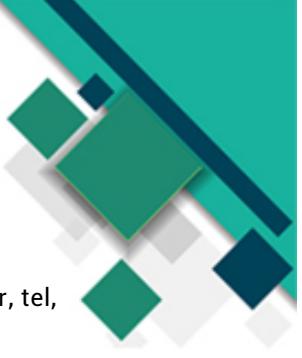
The <label> element is useful for screen-reader users, because the screen-reader will read out loud the label when the user focuses on the input element.

The <label> element also helps users who have difficulty clicking on very small regions (such as radio buttons or checkboxes) - because when the user clicks the text within the <label> element, it toggles the radio button/checkbox.

The for attribute of the <label> tag should be equal to the id attribute of the <input> element to bind them together.

### The **placeholder** Attribute

The input placeholder attribute specifies a short hint that describes the expected value of an input field (a sample value or a short description of the expected format).



The short hint is displayed in the input field before the user enters a value.

The placeholder attribute works with the following input types: text, search, url, number, tel, email, and password.

### **The required Attribute**

The input required attribute specifies that an input field must be filled out before submitting the form.

The required attribute works with the following input types: text, search, url, tel, email, password, date pickers, number, checkbox, radio, and file.

### **The maxlength Attribute**

The input maxlength attribute specifies the maximum number of characters allowed in an input field.

**Note:** When a maxlength is set, the input field will not accept more than the specified number of characters. However, this attribute does not provide any feedback. So, if you want to alert the user, you must write JavaScript code. Also minlength

### **Radio Buttons**

The <input type="radio"> defines a radio button.

Radio buttons let a user select ONE of a limited number of choices.

### **Checkboxes**

The <input type="checkbox"> defines a checkbox.

Checkboxes let a user select ZERO or MORE options of a limited number of choices.

### **The Submit Button**

The <input type="submit"> defines a button for submitting the form data to a form-handler.

The form-handler is typically a file on the server with a script for processing input data.

The form-handler is specified in the form's action attribute.

### **The <button> Element**

The <button> element defines a clickable button:

### **Input Type Color**

The <input type="color"> is used for input fields that should contain a color.

Depending on browser support, a color picker can show up in the input field.

## Summmirize

```
<input type="button">
<input type="checkbox">
<input type="color">
<input type="date">
<input type="datetime-local">
<input type="email">
<input type="file">
<input type="hidden">
<input type="image">
<input type="month">
<input type="number">
<input type="password">
<input type="radio">
<input type="range">
<input type="reset">
<input type="search">
<input type="submit">
<input type="tel">
<input type="text">
<input type="time">
<input type="url">
<input type="week">
```

## Some important elements

### Block and inline

#### Block Elements

Behavior:

Block elements occupy the full width of their container and start on a new line. They are used to structure the main layout of a webpage.

Examples:

<div>, <section>, <header>, <footer>, <article>, <nav>, <aside>, <p>, <h1>–<h6>, <ul>, <ol>, <li>.

Use Case:

Ideal for grouping or creating large sections of content.

#### Inline Elements

Behavior:

Inline elements only take up as much width as their content. They do not start on a new line and can be nested within block elements.

Examples:

<span>, <a>, <strong>, <em>, <img>, <label>, <code>, <small>, <b>, <i>.

Use Case:

Best for styling or emphasizing specific parts of text or content within a block element.

Key Differences:

Feature	Block Element	Inline Element
<b>Width</b>	Takes up the full width of the container.	Only takes up as much space as content.
<b>Starts on New Line</b>	Yes	No
<b>Nesting</b>	Can contain both block and inline elements.	Can only contain other inline elements.

Understanding these distinctions is key to designing clean and structured webpages!

Your outline is well-structured! Here's a polished version of the sections you've outlined, with slight adjustments for clarity:

### **Comments**

<!-- ... -->: Used to add comments in HTML, which are not displayed in the browser.

Example: Documenting sections of code for clarity or debugging

### **Styling and Resources**

<style>: Embeds CSS directly within an HTML document to define styles.

Example: Changing colors, fonts, and layouts.

### **Scripting and Interactivity**

<script>: Embeds or links JavaScript to add interactivity to a webpage.

Example: Form validation, interactive buttons, dynamic content updates.

<link>: Links to external resources, such as CSS files or icons, to keep styling organized and reusable.

### **Div and span element**

The <div> and <span> elements are both used as generic containers in HTML, but they serve different purposes:

#### **1. <div> (Block-level element):**

Used to group block-level content (e.g., paragraphs, headings).

Creates a new block on the page, taking up the full width.

Often used for layout and structuring the page.

Example:

<div>

```
<h1>Heading</h1>
<p>Paragraph inside a div.</p>
</div>
```

## 2. **<span> (Inline element):**

Used to group inline content (e.g., text, part of a sentence).  
Does not create a new block and stays within the same line.  
Commonly used to style specific parts of text.  
In summary, `<div>` is for block-level grouping, while `<span>` is for inline grouping.

## Semantic elements

**Semantic elements** in HTML are tags that clearly describe their meaning and purpose in a way that is understandable to both developers and browsers. These elements provide better structure to the webpage and improve accessibility and SEO.

### **Common Semantic Elements in HTML:**

1. `<header>`  
Represents the header of a document or a section. It usually contains navigation links, logos, or introductory content.
2. `<nav>`  
Represents a section of the document used for navigation links.
3. `<main>`  
Represents the main content of a document. It should only contain content unique to the page.
4. `<section>`  
Represents a thematic grouping of content, typically with a heading. Used for dividing a page into sections.
5. `<article>`  
Represents self-contained content that could stand alone, such as a blog post or news article.
6. `<aside>`  
Represents content indirectly related to the main content, like sidebars or advertisements.
7. `<footer>`  
Represents the footer of a document or section, often containing copyright, contact information, or navigation links.
8. `<figure>`  
Represents self-contained content, such as an image, diagram, or illustration, along with its caption.
9. `<figcaption>`  
Provides a caption or description for the content inside the `<figure>` element.
10. `<mark>`  
Represents text that is highlighted or marked for reference.



## **Id and class element**

In HTML, id and class are attributes used to identify and style elements. Here's a breakdown:

### **id Attribute**

The id is a unique identifier for an HTML element.

Each element can only have one id, and an id must be unique within a page.

It's used to target specific elements for styling, scripting (e.g., JavaScript), or linking.

Syntax:

```
<div id="uniqueId">This is a div with an id.</div>
```

CSS:

```
#uniqueId {  
    color: blue;  
}
```

### **class Attribute**

The class attribute can be shared among multiple elements.

It is used to group elements together for styling or scripting.

Syntax:

```
<div class="commonClass">This is a div with a class.</div>  
<div class="commonClass">Another div with the same class.</div>
```

CSS:

```
.commonClass {  
    color: green;  
}
```





