**HTML (Hypertext Markup Language)**

**1) Introduction:**

* Tim Berners-Lee invented HTML in 1995
* Current version of HTML is HTML5(Released in 2014)

**What is HTML?**

HTML (HyperText Markup Language) is the standard language used to create and design web pages. It structures the content on a webpage using elements like headings, paragraphs, links, images, and more.

**2) Features of HTML**

* **Simple and Easy to Learn:** HTML has a simple syntax and is easy to understand.
* **Platform Independent:** HTML files can run on any browser and operating system.
* **Supports Multimedia:** You can add images, audio, and videos easily.
* **Hyperlinking:** Allows linking to other web pages using <a> tags.
* **Structured Documents:** Organizes content using headings, lists, tables, etc.
* **Forms Support**: Helps collect user input using <form>, <input>, <button>, etc.
* **SEO Friendly:** HTML allows proper structuring of content, which is good for search engines.

**3) HTML Elements**

* **Description:** HTML elements are building blocks of HTML pages. They include a start tag, content, and an end tag.
* **Usage:** To structure and display content on a webpage.
* **Example:**

<p>This is a paragraph</p>

There are two types of html elements in HTML:

* **Block-level elements:** Elements that take up the full width and start on a new line.  
  **Examples:** <div>, <p>, <h1>–<h6>, <section>, <article>, <ul>, <table>
* **Inline elements:** Elements that flow within a line and only take up as much space as needed.  
  **Examples:** <span>, <a>, <strong>, <em>, <img>, <label>, <input>

**4) HTML Tags**

* **Description**: Tags are predefined keywords enclosed in angular brackets like <h1>, <div>, <a>, etc.
* **Usage**: Define the type and purpose of the content inside them.
* **Example**: <h1>Main Heading</h1>

**There are two types of tags in HTML:**

**1. Container Tags**

* **Description:** These tags have both opening and closing tags and wrap around content.
* **Example:**

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

<div>This is a container</div>

**2. Non-Container Tags (Empty Tags)**

* **Description:** These tags do not have a closing tag and are self-closing. They are used alone.
* **Example:**

<br>

<img src="image.jpg" alt="Image">

<hr>

**5) HTML Comments**

* **Description**: Comments are notes in the code that are not shown on the webpage.
* **Usage**: Used to explain the code or hide parts of it during testing.
* **Example**:

<!-- This is a comment -->

**6) Formatting Tags**

**Definition:**   
Formatting tags in HTML are used to change the appearance of text — such as making it **bold**, *italic*, *underlined*, or highlighted — to improve readability and emphasis on web pages.

**1. <b> – Bold Text**

**Definition**: Makes the text bold without adding any extra meaning.  
**Example**: <b>This is bold</b>

**2. <strong> – Important Text**

**Definition**: Makes the text bold and shows it's important.  
**Example**: <strong>Important!</strong>

**3. <i> – Italic Text**

**Definition**: Makes the text italic for styling only.  
**Example**: <i>This is italic</i>

**4. <em> – Emphasized Text**

**Definition**: Italicizes the text and adds importance.  
**Example**: <em>Don't forget this!</em>

**5. <u> – Underlined Text**

**Definition**: Underlines the text for highlighting.  
**Example**: <u>Underline this text</u>

**6. <mark> – Highlighted Text**

**Definition**: Highlights the text with a yellow background.  
**Example**: <mark>Highlighted text</mark>

**7. <small> – Smaller Text**

**Definition**: Displays the text in a smaller font.  
**Example**: <small>Footnote text</small>

**8. <del> – Deleted Text**

**Definition**: Shows text with a strikethrough to indicate deletion.  
**Example**: <del>Old price</del>

**9. <ins> – Inserted Text**

**Definition**: Underlines text to show it was added.  
**Example**: <ins>New content</ins>

**10. <sub> – Subscript Text**

**Definition**: Displays text slightly below the normal line.  
**Example**: H<sub>2</sub>O

**11. <sup> – Superscript Text**

**Definition**: Displays text slightly above the normal line.  
**Example**: x<sup>2</sup>

**7) HTML Heading**

**Definition**:  
Heading tags are used to define headings or titles on a webpage. HTML provides six levels of headings, from <h1> (most important) to <h6> (least important). These tags are **container tags**.

**Example**:

<h1>This is Heading 1</h1>

<h2>This is Heading 2</h2>

<h3>This is Heading 3</h3>

<h4>This is Heading 4</h4>

<h5>This is Heading 5</h5>

<h6>This is Heading 6</h6>

**Output:**

# **Heading 1**

## **Heading 2**

### **Heading 3**

#### **Heading 4**

##### **Heading 5**

###### **Heading 6**

**8) HTML Paragraph**

**Definition:**  
The <p> tag is used to display a block of text as a paragraph. It automatically adds space before and after the text to separate it from other elements. It is a container tag.

**Example:**

<p>Mirafra Technologies</p>

<p>Vijayanagara, Bangalore</p>

**Output:**  
Mirafra Technologies  
Vijayanagara, Bangalore

**9) HTML Attributes**

**Definition**:  
HTML attributes provide **additional information** about an element. They are always written **inside the opening tag** and usually come in **name-value pairs** like name="value".

Attributes help define things like element behavior, appearance, and more.

**Common Attributes:**

| **Attribute** | **Purpose** | **Example** |
| --- | --- | --- |
| href | Specifies the URL in <a> tag | <a href="https://example.com">Link</a> |
| src | Specifies image source in <img> | <img src="image.jpg"> |
| alt | Alternate text for image | <img src="img.jpg" alt="Description"> |
| style | Adds inline CSS styling | <p style="color: red;">Hello</p> |
| title | Shows tooltip text on hover | <p title="Info">Hover me</p> |
| id | Assigns a unique ID to an element | <div id="header"> |
| class | Assigns one or more class names | <div class="box"> |

**10) Image Tag**

**Definition:**The <img> tag is used to display images on a webpage. It is a self-closing tag and needs the src (image path) and alt (alternative text) attributes.

**Common Attributes:**

* **src:** Path or URL of the image (required)
* **alt:** Text shown if the image doesn’t load
* **width / height:** Sets image dimensions

**Example:**

<img src="logo.png" alt="Website Logo" width="150" height="100">

**11) Anchor tag**

**Definition:**HTML links are created using the <a> (anchor) tag. They allow users to navigate to other webpages, files, or sections within the same page. It is a container tag and uses the href attribute to define the destination.

**Common Attributes:**

* **href:** URL or path of the destination (required)
* **target:** Defines where to open the link
  + **\_self (default):** same tab
  + **\_blank:** new tab

**Example:**

<a href="https://www.google.com" target="\_blank">Visit Google</a>

**Output:**A clickable link labeled “Visit Google” that opens in a new tab.

**12) HTML Lists**

HTML lists are a collection of related items used to display information in a structured and meaningful way.

There are 3 types of lists in HTML:

1. Unordered List
2. Ordered List
3. Description List

**Unordered List**

Used to display list items with bullets. <ul> is used for the list, and <li> is used for each item.

**Example:**

<ul>

<li>Coffee</li>

<li>Tea</li>

<li>Milk</li>

</ul>

**Output:**  
• Coffee  
• Tea  
• Milk

The type attribute is used to change the bullet style. Possible values: disc (default), circle, square, none

**Ordered List**

Used to display list items with numbers or letters. <ol> is used for the list, and <li> is used for each item.

**Example:**

<ol>

<li>Coffee</li>

<li>Tea</li>

<li>Milk</li>

</ol>

**Output:**

1. Coffee
2. Tea
3. Milk

The type attribute is used to change the numbering style. Possible values: 1 (default), A, a, I, i

**Description List**

Used to list terms and their descriptions. <dl> defines the list, <dt> defines the term, and <dd> defines the description.

**Example:**

<dl>

<dt>Coffee</dt>

<dd>Black hot drink</dd>

<dt>Milk</dt>

<dd>White cold drink</dd>

</dl>

**Output:**  
Coffee  
  Black hot drink  
Milk  
  White cold drink

**13) HTML Tables**

HTML tables are used to display data in rows and columns. They help organize and present information clearly.

HTML Table Tags:

* <table>: Defines the table
* <tr>: Defines a row
* <th>: Defines a header cell
* <td>: Defines a data cell

**Example:**

<table>

<tr>

<th>Name</th>

<th>Age</th>

<th>City</th>

</tr>

<tr>

<td>John</td>

<td>25</td>

<td>Bangalore</td>

</tr>

<tr>

<td>Priya</td>

<td>28</td>

<td>Chennai</td>

</tr>

</table>

**Output:**

Name  Age  City  
John  25  Bangalore  
Priya  28  Chennai

**Table Attributes**

* **border:** Adds a border to the table  
  <table border="1">
* **cellpadding:** Adds space inside each cell  
  <table cellpadding="10">
* **cellspacing**: Adds space between cells  
  <table cellspacing="5">
* **width and height:** Set table size  
  <table width="100%" height="200">

**Merging Cells**

* colspan: Merges multiple columns  
  <td colspan="2">Merged Column</td>
* rowspan: Merges multiple rows  
  <td rowspan="2">Merged Row</td>

**Example with Colspan**

<table border="1">

<tr>

<th colspan="2">Employee Info</th>

</tr>

<tr>

<td>Name</td>

<td>Rahul</td>

</tr>

</table>

**Output:**

Employee Info  
Name  Rahul

**Example with Rowspan**

<table border="1">

<tr>

<th rowspan="2">Name</th>

<td>John</td>

</tr>

<tr>

<td>Priya</td>

</tr>

</table>

**Output:**

Name  John  
     Priya

**14) HTML Forms**

In HTML form is used to collect user input.

* Form tag is used to create a basic form in html
* <form> </form> it is a container tag.

**<input> Tag:**

* A **non-container tag** used to add input fields in the form.
* We can display inputs in different ways using the type attribute.

**1) type="text"**

Used to take text as input.

<form>

Enter the name: <input type="text">

</form>

**Output:** Enter the name:

**2) type="password"**

Used to enter passwords in a hidden format.

<form>

Enter the password: <input type="password"> </form>

**3) type="email"**

Used to enter email addresses.

<form>

Enter the email: <input type="email">

</form>

**4) type="number"**

Used to input numerical values.

<form>

Enter the phone: <input type="number">

</form>

**Output:** Enter the phone: [ ]

**5) type="submit"**

Used to define a submit button to send form data to the server.  
**Attributes:**

* action: Specifies where to send the data.
* value: Changes the button label.

<form action="login">

Enter the name: <input type="text"><br>

Enter the email: <input type="email"><br>

Enter the phone: <input type="number"><br>

<input type="submit" value="Submit">

</form>

**6) type="reset"**

Used to reset all form fields.

<form>

<input type="reset" value="Reset"><br>

Enter the name: <input type="text"><br>

Enter the email: <input type="email"><br>

Enter the phone: <input type="number"><br>

</form>

**7) type="radio"**

Used to select only one option from multiple.

<form>

<input type="radio" name="favlang">HTML<br>

<input type="radio" name="favlang">CSS<br>

<input type="radio" name="favlang">JS<br>

<input type="submit" value="Submit">

</form>

**8) type="checkbox"**

Used to select multiple values.

<form>

<input type="checkbox">HTML<br>

<input type="checkbox">CSS<br>

<input type="checkbox">JS<br>

<input type="submit" value="Submit">

</form>

**9) type="button"**

Used to define a general button.

<form>

<input type="button" value="Click Here">

</form>

**10) type="date"**

Used to select a date using a calendar.

<form>

<input type="date">

</form>

With restrictions using min and max:

<form>

<input type="date" min="2000-01-02" max="2024-12-31">

</form>

**Note:** The format for min and max is YYYY-MM-DD.

**11) type="file"**

Used to upload files.

html

Copy code

<form>

Select a file: <input type="file">

</form>

**12) type="hidden"**

Used to include hidden values (not visible to user).

<form>

<input type="hidden" value="1">

</form>

**13) type="range"**

Used to create a slider.

<form>

<input type="range">

</form>

**15) <fieldset>**

It is used to group related elements in a form.

It draws a border around the grouped elements for better structure and clarity.

**Example:**

<form>

<fieldset>

<legend>User Details</legend>

Enter the name: <input type="text"><br>

Enter the email: <input type="email"><br>

</fieldset>

</form>

**Output:**

A box titled **User Details** containing the name and email input fields.

**16) Legend tag**

**<legend>**

It is used to provide a caption or title for the <fieldset> group.

It appears at the top of the box created by <fieldset>.

**Example:**

<form>

<fieldset>

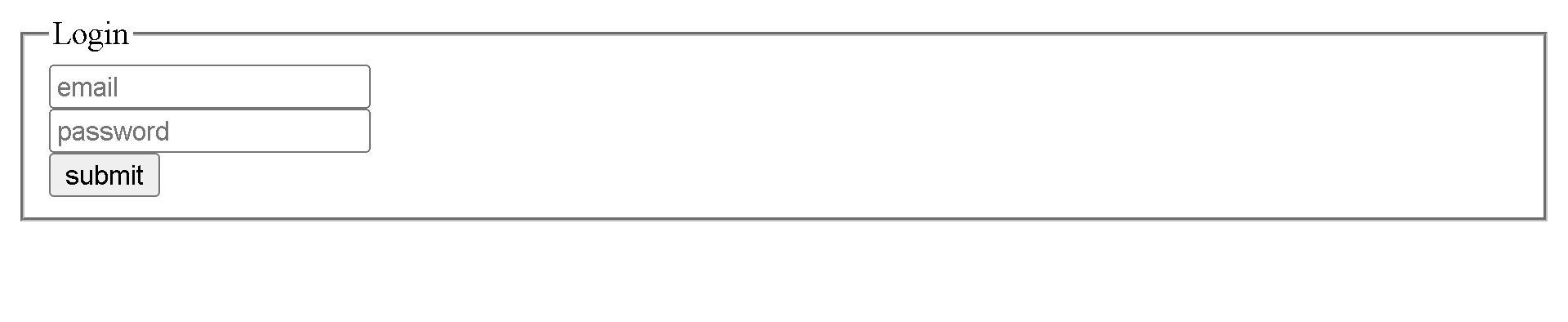
<legend>Contact Info</legend>

<input type="email"><br>

<input type="password"><br>

</fieldset>

</form>



**17) method Attribute**

It tells how to send the form data to the server.

**1) method="GET"**

Data is sent in the URL. Best for simple search forms.

<form method="GET">

Enter name: <input type="text" name="username">

<input type="submit" value="Submit">

</form>

If you enter Shruthi and submit, the URL becomes: yourpage.html?username=Shruthi

**2) method="POST"**

Data is sent secretly in the request body. Best for passwords, login, registration.

<form method="POST">

Enter password: <input type="password" name="pass">

<input type="submit" value="Login">

</form>

**17) action Attribute**

It tells where to send the form data (the target file or server page).

<form action="login.php">

Email: <input type="email" name="email">

<input type="submit" value="Submit">

</form>

On submit, data is sent to login.php for processing.

**18) HTML Dropdown List**

Dropdown list is used to let the user choose one option from a list. It is created using the <select> tag with <option> tags inside.

<form>

<label for="cars">Choose a car:</label>

<select>

<option>Bangalore</option>

<option>Chennai</option>

<option>Kolkata</option>

<option>Pune</option>

<option>Ahmadabad</option>

</select>

</form>

**Output:**



**19) HTML Multimedia Tags**

Multimedia tags are used to add audio and video content to web pages.

**1) <audio>**

Used to embed audio files. Use the controls attribute to display play/pause buttons.

<audio controls>

<source src="song.mp3" type="audio/mpeg">

</audio>

**2) <video>**

Used to embed video files. Use the controls attribute to show video controls.

<video width="320" height="240" controls>

<source src="movie.mp4" type="video/mp4">

</video>

**3) <source>**

Used inside <audio> or <video> to specify multiple file formats.

**4) <embed>**

Used to embed external resources like PDFs, videos, or flash content.

<embed src="file.pdf" width="500" height="375">

**5) <iframe>**

Used to embed another HTML page or external content like YouTube videos.

<iframe src="https://www.youtube.com/embed/video\_id" width="560" height="315"></iframe>

**20) Semantic Tags in HTML**

Semantic tags clearly describe the meaning of the content inside them, making the HTML more readable and accessible.

**1) <header>**

Defines the top section of a page or section.

<header><h1>Welcome</h1></header>

**2) <nav>**

Defines a navigation menu.

<nav>

<a href="#home">Home</a>

<a href="#about">About</a>

</nav>

**3) <section>**

Defines a separate section in the document.

<section>

<h2>Services</h2>

<p>Web design, development</p>

</section>

**4) <article>**

Defines independent, self-contained content like blog posts or news.

<article>

<h2>Blog Title</h2>

<p>Blog content...</p>

</article>

**5) <aside>**

Defines content that is indirectly related to the main content, like sidebars.

<aside>

<p>Related links</p>

</aside>

**6) <footer>**

Defines the bottom section of a page or section.

<footer>

<p>&copy; 2025 MySite</p>

</footer>

**7) <main>**

Defines the main content of the document.

<main>

<h1>Main Content</h1>

</main>

**21) class Attribute**

Used to apply the same style to multiple elements. Defined with a . in CSS.

<p class="highlight">This is a paragraph.</p>

<p class="highlight">This is another paragraph.</p>

<style>

.highlight {

color: red;

}

</style>

**22) id Attribute**

Used to uniquely identify a single element. Defined with a # in CSS.

<p id="unique">This is a unique paragraph.</p>

<style>

#unique {

font-weight: bold;

} </style>