🎯 Objectives

By the end of this tutorial, you will:

- 🖼️ Use advanced HTML5 elements to enrich web content.
- ⚒️ Build interactive and accessible forms with validation.

📚 Content Overview

Lists

HTML provides different types of lists to organize content. The three main types are:

1. Ordered Lists (`<ol>`)

Ordered lists are used when the order of items matters. Each item is automatically numbered.

Syntax:

```
<ol>
  <li>First item</li>
  <li>Second item</li>
  <li>Third item</li>
</ol>
```

You can change the numbering style using the `type` attribute:

```
<ol type="A">
  <li>Item A</li>
  <li>Item B</li>
</ol>
```

2. Unordered Lists (`<ul>`)

Unordered lists are used when the order of items doesn't matter. Each item is marked with a bullet point.

Syntax:

```
<ul>
  <li>Milk</li>
  <li>Eggs</li>
  <li>Bread</li>
</ul>
```

You can customize the bullet style using the `type` attribute (`disc`, `circle`, `square`):

```
<ul type="square">
  <li>Apples</li>
  <li>Bananas</li>
</ul>
```

3. Definition Lists (`<dl>`)

Definition lists pair terms with their descriptions.

Syntax:

```
<dl>
  <dt>HTML</dt>
  <dd>HyperText Markup Language</dd>
  <dt>CSS</dt>
  <dd>Cascading Style Sheets</dd>
</dl>
```

Nested Lists

Lists can be nested inside each other.

```
<ul>
  <li>Fruits
    <ul>
      <li>Apple</li>
      <li>Banana</li>
    </ul>
  </li>
  <li>Vegetables
    <ul>
      <li>Carrot</li>
      <li>Spinach</li>
    </ul>
  </li>
</ul>
```

HTML Images

Images are added to a webpage using the `<img>` tag. This tag does not require a closing tag.

Basic Syntax

```
<img src="image.jpg" alt="Description of image">
```

- `src` (source): Specifies the image file's URL or path.
- `alt` (alternative text): Displays text if the image cannot load and improves accessibility.

Setting Image Width and Height

```
<img src="image.jpg" alt="A sample image" width="300" height="200">
```

- `width` and `height` define the image size in pixels.

Using Images as Links

```
<a href="https://example.com">
  <img src="image.jpg" alt="Click to visit example" width="200">
</a>
```

Clicking the image will take the user to the specified link.

Adding a Favicon (Small Icon in Browser Tab)

```
<link rel="icon" type="image/png" href="favicon.png">
```

This line goes inside the `<head>` section of the HTML document.

HTML Tables

Tables in HTML are used to display data in a structured format using rows and columns.

Basic Table Structure

The `<table>` tag is used to define a table, with rows (`<tr>`) and cells (`<td>` for data, `<th>` for headers).

Using `<thead>` and `<tbody>` makes tables more structured and easier to style.

```
<table border="1">
  <thead>
    <tr>
      <th>Name</th>
      <th>Age</th>
      <th>Country</th>
    </tr>
  </thead>
  <tbody>
    <tr>
      <td>John</td>
      <td>25</td>
      <td>USA</td>
    </tr>
    <tr>
      <td>Jane</td>
      <td>30</td>
      <td>Canada</td>
    </tr>
  </tbody>
</table>
```

Why Use `<thead>` and `<tbody>`?

1. **Better Readability** – Separates table headers from content.

2. **Improved Styling** – You can style the header differently from the body.
3. **Accessibility** – Enhances support for screen readers.
4. **Easier Scripting** – JavaScript can target specific sections more efficiently.

Adding a Table Caption

```
<table border="1">
  <caption>Employee Data</caption>
  <tr>
    <th>Name</th>
    <th>Position</th>
  </tr>
  <tr>
    <td>Sarah</td>
    <td>Manager</td>
  </tr>
</table>
```

Merging Cells

- **colspan** (Merges columns)

```
<tr>
  <td colspan="2">Merged Column</td>
</tr>
```

- **rowspan** (Merges rows)

```
<tr>
  <td rowspan="2">Merged Row</td>
  <td>Data 1</td>
</tr>
<tr>
  <td>Data 2</td>
</tr>
```

Embedding Multimedia with `<audio>`, `<video>`, and `<canvas>`

HTML5 brings multimedia to life, allowing you to add audio, video, and graphics directly into your web pages! 🎥🎵

✨ Adding Audio

The <audio> tag embeds audio files, with options for playback controls:

```
<audio controls>
    <source src="song.mp3" type="audio/mpeg">
    Your browser does not support the audio element.
</audio>
```

Key Attributes:

- `controls`: Displays playback options (play, pause).
- `autoplay`: Starts the audio automatically.
- `loop`: Repeats the audio.

🎥 **Embedding Video**

The `<video>` tag brings videos to your pages:

```html
<video controls width="640" height="360">
    <source src="video.mp4" type="video/mp4">
    Your browser does not support the video element.
</video>
```

🔑 Key Attributes:

- `width` & `height`: Set the video dimensions.
- `poster`: Displays an image before the video starts.
- `muted`: Starts the video muted.

🌀 Vibe Coding Session + AI Spark

"Make content pop—with the help of some creative AI support."

🛠️ **AI Tools + Prompts**:

Tool	Use Case	Sample Prompts
ChatGPT	Generate lists, table examples, alt text	- "Generate a table showing 5 programming languages and their use cases." - "Create a bulleted list of healthy snacks." - "Give me descriptive alt text for an image of a person hiking."
Claude	Content enhancement, ethical writing	- "Refine this HTML table to be more accessible and meaningful." - "Can you generate content for a simple pricing table?"
Gemini	Content + SEO suggestions	- "What are some best practices for accessible image use?" - "Give me a sample list of 5 SEO keywords for a travel blog."
DALL·E / Midjourney	Generate visuals	- "Create an illustration of a laptop on a wooden desk." - "Show a group of icons for productivity tools."
Notion AI	Writing content for lists or image captions	- "Write 3 image captions for a portfolio gallery." - "Make a list of reasons to use tables in websites."

✅ **Challenge**:
Build a fun page showcasing:

- A pricing or comparison table
- Two creative lists
- Three images with helpful `alt` text
  Let AI help brainstorm or enhance wherever needed!