

HTML stands for HyperText Markup Language is the standard language used to create and structure content on web. It provides the basic building blocks to define headings, paragraphs, links, images etc;

Why we need HTML ?

We need HTML to structure and format content on webpages so browsers can render and display it correctly.

Features of HTML

- Easy to learn and easy to use
- It is platform independent.
- case insensitive

HTML Semantic Elements:

HTML5 introduced several semantic elements that provide better structure and meaning to web Pages. Some of the most commonly used semantic elements include:

- `<header>` : Represents the header section of document
- `<nav>` : Represents a section of navigation links.
- `<main>` : Represents the main content section of a document
- `<section>` : Represents a self-contained section of related content.
- `<article>` : Represents an independent piece of content, such as blog post or news article
- `<aside>` : Represents a piece of content that is related to the main content, but not essential to its understanding.
- `<footer>` : Represents the footer section of a document or section.

These semantic elements helps to improve the accessibility and readability of web pages .

Form and input elements :

HTML5 introduced several input form and input elements that provide better user interaction and data validation. Some of the most commonly used form and input elements include:

- `<form>` : The form element is a container for different types of input elements.
- `<button>` : Represents a control that allows users to enter data.
- `<select>` : Represents a control that provides a menu of options

- `<textarea>` : Represents a multi-line text input control.
- `<label>` : The label element is linked to a specific form control like `<input>` , `<textarea>` etc using `for` attribute.
- `<input>` : It is used to create various types of user input fields within a form .

Example include

- `type="text"` : Single-line text input.
- `type="password"`
- `type="email"`
- `type="checkbox"`

Form and input Attributes:

Provide additional information or control the behavior of form and input elements.

- `name` : Specifies the name of an input element, used to identify form data on the server.
- `value` : Specifies the initial value of an input element.
- `placeholder` : Displays a hint in the input field before the user enters a value.
- `required` : Marks an input field as mandatory for form submission.

Form and input Events:

Actions or occurrences that can be detected and handled using JavaScript

- `onsubmit` : Triggers when the form is submitted.
- `onchange` : An event that occurs when the value of an element has been changed.

Form and input validation:

Ensures that user input meets specific criteria before form submission. HTML5 provides built-in validation using attributes.

- `required` : Ensures the field is not left blank.
- `pattern` : Specifies a regular expression that the input field's value must match.
- `minlength` and `maxlength` : Specifies the minimum and maximum length of the input field.

Graphics and multimedia :

Graphics and multimedia elements are used to enhance the visual appeal and interactivity of web pages. Some common graphics and multimedia elements include:

- Images: Used to add visual interest and illustrate points.

- Videos: Embed video files directly into a webpage, with support for playback controls, autoplay, and other features.
- Audio: Used to provide background music or voiceovers.
- Animations: Used to add dynamic effects and illustrate points.
- 3D and VR: HTML5 supports creating 3D graphics and Virtual Reality (VR) experiences directly in web browsers.
- `<embed>` The element is used to embed external content, like PDFs or multimedia, into a web page.

HTML Entities:

HTML entities are used to represent special characters in HTML that have a reserved meaning, such as `<`, `>`, or `&`. They ensure these characters are displayed correctly on the webpage instead of being interpreted as HTML code.

Some common HTML entities include:

- `<` : Represents the less-than sign (`<`)
- `>` : Represents the greater-than sign (`>`)
- `&` : Represents the ampersand sign (`&`)
- `"` : Represents the double quote sign (`"`)
- `'` : Represents the single quote sign (`'`)
- ` ` : Represents a non-breaking space

SEO & Meta Tags:

SEO (Search Engine Optimization) refers to the practice of optimizing web pages to rank higher in search engine results and attract more organic traffic.

Meta tags are HTML tags that provide metadata about the web page, which can help search engines understand the content and improve the page's SEO.

Examples:

```
<meta name="description" content="...">:
```

- **Purpose:** Provides a brief summary of the page content. This description often appears in search engine results below the page title.

```
<meta name="viewport" content="...">:
```

- **Purpose:** Controls the layout on mobile browsers. It's crucial for responsive design and can impact SEO by improving user experience on mobile devices.****

```

<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Document Title</title>
</head>
<body>
  <h1>Main Heading</h1>
</body>
</html>

```

- `<meta charset="UTF-8">` : Specifies the character encoding.
- `<meta name="viewport" content="width=device-width, initial-scale=1.0">` : Ensures proper scaling on mobile devices.

```

<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Form Example</title>
</head>
<body>
  <h1>Example Form</h1>
  <form action="/submit-form" method="POST" id="exampleForm">
    <!-- Text Input -->
    <label for="textInput">Text Input:</label>
    <input type="text" id="textInput" name="textInput" placeholder="Enter
text here" required>
    <br><br>

    <!-- Email Input -->
    <label for="emailInput">Email Input:</label>
    <input type="email" id="emailInput" name="emailInput"
placeholder="Enter your email" required>
    <br><br>

    <!-- Password Input -->
    <label for="passwordInput">Password Input:</label>
    <input type="password" id="passwordInput" name="passwordInput"
placeholder="Enter your password" required>

```

```
<br><br>

<!-- Radio Buttons -->
<fieldset>
  <legend>Gender:</legend>
  <input type="radio" id="male" name="gender" value="male" checked>
  <label for="male">Male</label>
  <input type="radio" id="female" name="gender" value="female">
  <label for="female">Female</label>
</fieldset>
<br><br>

<!-- Checkbox -->
<input type="checkbox" id="subscribe" name="subscribe"
value="newsletter" checked>
<label for="subscribe">Subscribe to newsletter</label>
<br><br>

<!-- Select Dropdown -->
<label for="country">Country:</label>
<select id="country" name="country">
  <option value="usa" selected>United States</option>
  <option value="canada">Canada</option>
  <option value="uk">United Kingdom</option>
</select>
<br><br>

<!-- Textarea -->
<label for="message">Message:</label>
<textarea id="message" name="message" rows="4" cols="50"
placeholder="Enter your message" required></textarea>
<br><br>

<!-- Submit Button -->
<button type="submit">Submit</button>
</form>
</body>
</html>
```