HackSeries 01

HTML

Introduction

HTML (Hypertext Markup Language) is a markup language used to define the structure of web content. It declares what content is presented, while CSS (Cascading Style Sheets) defines how it looks. HTML is not a programming language since it lacks logic.

index.html

practice react > src > index.html > ...

```html
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Introduction</title>
</head>
<body>
  <h1>Welcome to HTML Basics</h1>
  <p>Learn the foundation of web development.</p>
</body>
</html>

```

Tags and Their Meaning:

1. <!DOCTYPE>: Defines the HTML version (HTML5 in this case).
2. <html>: Opens the page. The lang attribute sets the page's primary language (e.g., en for English). Closes with </html>.
3. <head>: Contains metadata and imports (e.g., stylesheets and scripts). Closes with </head>.
4. <meta>: Provides metadata, like character encoding (charset="UTF-8"). No closing tag needed.
5. <title>: Sets the page's title, shown on the browser tab. Closes with </title>.
6. <body>: Contains visible/audible content for the user. Closes with </body>.
7. <h1>: Represents a main heading.
8. <p>: Represents a paragraph of text.

Using Headings

Headings (<h1> to <h6>) organize content and indicate its importance.

- <h1>: Most important heading.
- <h6>: Least important heading.

Using Headings

Headings (<h1> to <h6>) organize content and indicate its importance.

- <h1>: Most important heading.
- <h6>: Least important heading.

Importance of Structure

Search engines use headings to index content and generate tables of contents. Proper hierarchy ensures clarity:

1. One <h1> per article for the main title.
2. Use <h2> for subtitles and go deeper (<h3>, <h4>, etc.) as needed.
3. Avoid skipping levels or misusing <h1> for lower-level content.

Tip: Use headings to structure content logically for both readers and search engines.

Program:

```
<p>Introduction</p>
<h2>Reasons</h2>
<h3>Reason 1</h3>
<p>Paragraph</p>
<h3>Reason 2</h3>
<p>Paragraph</p>
<h2>In conclusion</h2>
<p>Paragraph</p>
```

Paragraphs in HTML

- <p>: Defines a paragraph.
-
: Adds a single line break.
- <pre>: Displays pre-formatted text.

Example:
Anchor Tag (<a>)

The anchor tag (<a>) is used to create hyperlinks, allowing users to navigate between web pages, sections of a page, or external websites.

Key Attributes:

1. href: Specifies the URL of the link destination.
2. target: Specifies where to open the link (e.g., _blank for a new tab).
3. title: Adds a tooltip when the user hovers over the link.

Anchors & Hyperlink

Key Attributes of <a> (Anchor Tag):

1. href: Specifies the destination URL (absolute or relative).
   - Absolute: Full URL (e.g., http://example.com/).
   - Relative: Path within the same site (e.g., /about-us/).
2. target: Determines where the link opens (_blank for a new tab, _self for the same tab, etc.).
3. title: Adds extra information as a tooltip.

Example:

Link to example.com

Anchor tags link pages, navigate within documents, or trigger downloads.

Lists in HTML

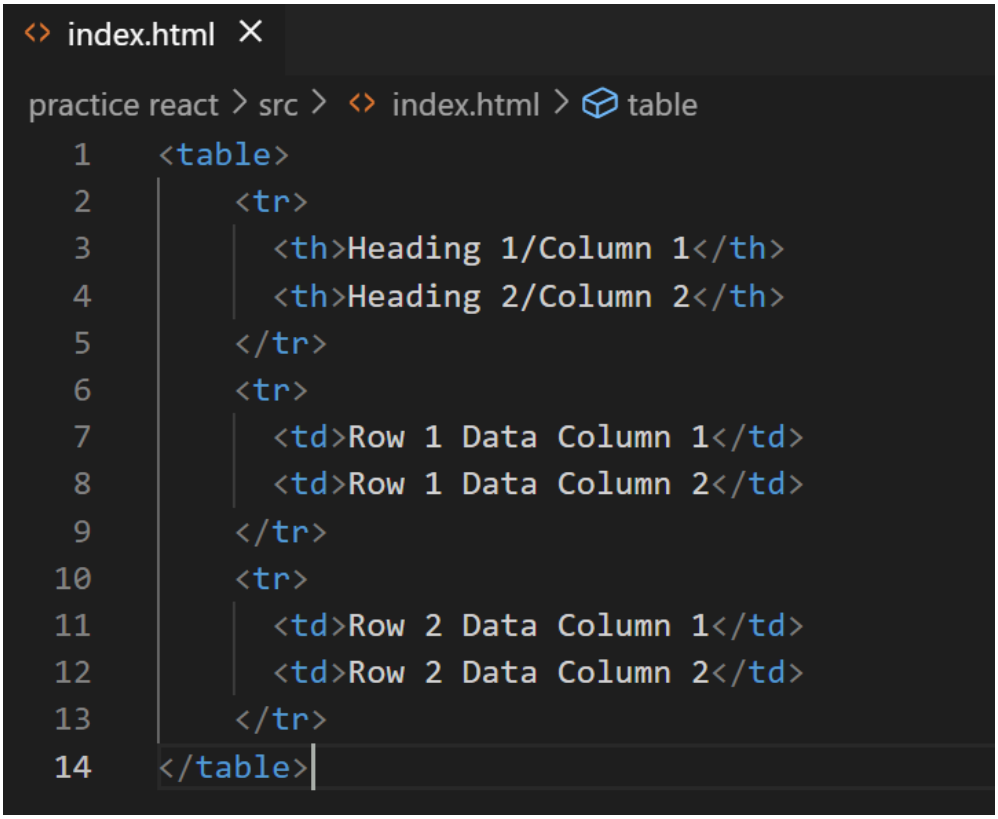
HTML provides two main types of lists to organize content:

1. Unordered List (<ul>)
   - Uses bullet points.
   - Example: Item
2. Ordered List (<ol>)
   - Uses numbers or letters.
   - Example: Item
3. Description List (<dl>)

- For terms and definitions.
- Example: <dl><dt>Term</dt><dd>Definition</dd></dl>

Tables

The HTML element allows web authors to display tabular data (such as text, images, links, other tables, etc.) in a two dimensional table with rows and columns of cells



This will render a <table> consisting of three total rows (<tr>): one row of header cells (<th>) and two rows of content cells (<td>). <th> elements are tabular headers and <td> elements are tabular data. You can put whatever you want inside a <td> or <th>

HTML comments can be used to leave notes to yourself or other developers about a specific point in code. They can be initiated with <!-- and concluded with -->, like so:

<!-- I'm an HTML comment! -->

Classes and IDs

Parameter class id Details Indicates the Class of the element (non-unique) Indicates the ID of the element (unique in the same context) Classes and IDs make referencing HTML elements from scripts and stylesheets easier. The class attribte can be used on one or more tags and is used by CSS

for styling. IDs however are intended to refer to a single element, meaning the same ID should never be used twice. IDs are generally used with JavaScript and internal document links, and are discouraged in CSS. This topic contains helpful explanations and examples regarding proper usage of class and ID attributes in HTML

```
<div class="example-class"></div>
```

```
<div id="example-id"></div>
```

Linking Resources

Linking Resources in HTML:
Used to connect external files (like CSS, JavaScript, or icons) to your HTML document.

Common Example:

CSS : Links a stylesheet for styling the page:

```
<link rel="stylesheet" href="styles.css">
```

Favicon : Sets a small icon for the browser tab:

```
<link rel="icon" href="favicon.ico" type="image/x-icon">
```

JavaScript : Links an external script file:

```
<script src="script.js"></script>
```

These links enhance the functionality and design of your page.

Images

The **<img>** tag in HTML is used to display images on a webpage. It is a self-closing tag, meaning it doesn't require a closing tag. The most important attribute for the <img> tag is src, which specifies the path to the image file. Additionally, the alt attribute provides descriptive text if the image fails to load, which is also important for accessibility.

Key Attributes:

1. **src** (source): Defines the path to the image file.
2. **alt** (alternative text): Describes the image when it cannot be displayed or for screen readers.
3. **width and height**: Set the size of the image.

Example:

```
<img src="logo.png" alt="Company Logo" width="200" height="100">
```

This example will display an image named logo.png, and if the image cannot be displayed, the alternative text "Company Logo" will appear. The image will be displayed with a width of 200px and a height of 100px.

Input Control Elements

Input control elements in HTML allow users to interact with web forms by providing data. These elements include text fields, checkboxes, radio buttons, and buttons, among others.

1. **<input>**

The most versatile form element. It can be used for text, checkboxes, radio buttons, and more, depending on the type attribute.

Example:

- **Text Input:** `<input type="text" placeholder="Enter your name">`
- **Password Input:** `<input type="password" placeholder="Enter password">`
- **Checkbox:** `<input type="checkbox" id="subscribe" name="subscribe" value="newsletter"><label for="subscribe">Subscribe to newsletter</label>`
- **Radio Button:** `<input type="radio" name="gender" value="male"> Male<input type="radio" name="gender" value="female"> Female`
- **Submit Button:** `<input type="submit" value="Submit">`

2. **<select>**

Used for creating dropdown menus.

Example:

```
<select>
 <option value="apple">Apple</option>
 <option value="banana">Banana</option>
 <option value="cherry">Cherry</option>
</select>
```

3. **<textarea>**

Used to create multi-line text input fields, like for comments or descriptions.

Example:

```
<textarea rows="4" cols="50" placeholder="Enter your message"></textarea>
```

4. **<button>**

Defines a clickable button.

Example:

```
<button type="button">Click Me</button>
```

5. **<label>**

Defines a label for an <input> element, improving accessibility by linking the label text with the input control.

Example:

```
<label for="name">Name:</label>

<input type="text" id="name" name="name">
```

These elements help collect user data in forms, making the interaction intuitive and functional.

Forms

Forms in HTML let users put information on a server. They are declared using the `<form>` tag and have several input elements including `<input>`, `<textarea>`, `<select>`, and `<button>`. The form can use either `GET` or `POST` to send data. Key attributes include `action` (it shows where data is sent), `method` (it shows how data is being sent), and `name` (where it identifies form data).

Basic Example:

```
<form action="submit.php" method="POST">
 <label for="username">Username:</label>
 <input type="text" id="username" name="username">
 <button type="submit">Submit</button>
 </form>
```

HTML forms are used in various activities like user registration, feedback, and so much more. It supports validation, file uploads, and input type customizations.

Selecting Elements

Detailed Explanation of Sectioning Elements in HTML

Sectioning elements in HTML are elements that help define the structure of a webpage. These elements organize content into logical sections, making it easier for both developers and browsers to understand and style the content. Sectioning elements also improve accessibility by enabling screen readers and search engines to better interpret the content's structure.

Here are the key **sectioning elements** in HTML:

1. <header>

Purpose: Represents introductory content or navigational links. It can contain logos, titles, or navigation links.

Usage: The <header> element is typically placed at the top of a page or a section.

Example:

```
<header>
 <h1>Welcome to My Website</h1>
 <nav>
 <ul>
 <li><a href="#home">Home</a></li>
 <li><a href="#about">About</a></li>
 <li><a href="#contact">Contact</a></li>
 </ul>
 </nav>
</header>
```

2. <footer>

Purpose: Represents the footer of a document or a section. It often contains information like copyright notices, links to terms of service, privacy policy, or contact information.

Usage: Typically placed at the bottom of a page or a section.

Example:

```
<footer>

 <p>&copy; 2025 My Website</p>

 <a href="#privacy">Privacy Policy</a>

</footer>
```

3. <section>

Purpose: Represents a thematic grouping of content, typically a section of a document that has its own heading. It is useful for grouping related content, like a section in an article or a distinct part of a webpage.

Usage: Commonly used for breaking the content of a page into sections.

Example:

<section>

<h2>Our Services</h2>

We provide a wide range of web development services including custom website design, SEO optimization, and e-commerce solutions.

</section>

Media Elements in HTML

Theory: Media elements in HTML are used to embed multimedia content like images, audio, and video. These elements help display media files on web pages, providing a better user experience.

Common Media Elements:

1. **<video>**: Embeds a video file.
2. **<audio>**: Embeds an audio file.
3. **<img>**: Embeds an image file.

Short Example:

index.html

practice react > src > index.html > audio

```
<video width="320" height="240" controls>
    <source src="movie.mp4" type="video/mp4">
    Your browser does not support the video tag.
</video>

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

<img src="image.jpg" alt="A beautiful scenery" width="500" height="300">

- The <video> element plays a video.
- The <audio> element plays audio.
- The <img> element displays an image.

Iframe

<iframe> Element in HTML

Theory: The <iframe> element is used to embed another HTML document within the current document. It is commonly used for embedding content such as other web pages, videos, maps, or interactive elements.

Short Example:

- The <iframe> embeds the webpage from the URL https://www.example.com within the current page, with specified dimensions of 600px width and 400px height.

Resources

https://developer.mozilla.org/en-US/docs/Web/HTML

https://www.w3schools.com/html/

https://youtu.be/kUMe1FH4CHE?feature=shared