

1. Structure of an HTML document:

An HTML document typically consists of three main parts: the doctype declaration, the head section, and the body section. Here's an example of a basic HTML structure:

```
<!DOCTYPE html>
<html>
  <head>
    <title>Page Title</title>
  </head>
  <body>
    <h1>Heading</h1>
    <p>Paragraph content goes here.</p>
  </body>
</html>
```

2. HTML tags and elements:

HTML tags are used to define different elements within the document. Here's an example of a paragraph (`<p>`) and a heading (`<h1>`):

```
<p>This is a paragraph.</p>
<h1>This is a heading</h1>
```

3. HTML attributes:

HTML attributes provide additional information about an element. They are placed within the opening tag of an element. Here's an example using the `id` attribute:

```
<p id="my-paragraph">This is a paragraph with an ID attribute.</p>
```

4. HTML doctype declaration:

The doctype declaration is used to specify the version of HTML being used in the document. It should be placed at the very beginning of the HTML file. Here's an example using HTML5:

```
<!DOCTYPE html>
```

5. HTML comments:

HTML comments are used to add notes or explanations within the HTML code. They are not displayed on the web page. Here's an example:

```
<!-- This is an HTML comment -->
```

6. Headings (h1 - h6):

HTML provides six levels of headings, from `

` (the highest level) to `` (the lowest level). Here's an example:

```
<h1>Main Heading</h1>  
<h2>Subheading</h2>
```

7. Paragraphs (p):

The ``<p>`` tag is used to define paragraphs of text. Here's an example:

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

8. Line breaks (br):

The ``
`` tag is used to create line breaks within a paragraph or a line of text. Here's an example:

```
<p>This is the first line.<br>This is the second line.</p>
```

9. Text formatting (bold, italic, underline, etc.):

HTML provides tags to apply various text formatting styles. Here are some examples:

```
<p><b>Bold</b>, <i>Italic</i>, <u>Underline</u></p>
```

10. Lists (unordered and ordered):

HTML allows you to create both unordered lists (````) and ordered lists (````). Here's an example of each:

```
<ul>  
<li>Item 1</li>
```

```
<li>Item 2</li>
</ul>

<ol>
  <li>Item 1</li>
  <li>Item 2</li>
</ol>
```

11. Hyperlinks (a):

The `<a>` tag is used to create hyperlinks. You can specify the URL using the `href` attribute. Here's an example:

```
<a href="https://www.example.com">Visit Example</a>
```

12. Form structure and elements (input, textarea, select, button, etc.):

HTML provides various form elements for user input, such as `<input>`, `<textarea>`, `<select>`, and `<button>`. Here's an example:

```
<form>
  <input type="
text" name="username" placeholder="Username">
  <textarea name="message" placeholder="Message"></textarea>
  <select name="country">
    <option value="us">United States</option>
    <option value="ca">Canada</option>
  </select>
  <button type="submit">Submit</button>
```

```
</form>
```

13. Form attributes (action, method, enctype):

Forms have attributes that control their behavior. The `action` attribute specifies the URL where the form data is sent, the `method` attribute defines the HTTP method to use (e.g., GET or POST), and the `enctype` attribute specifies the encoding type for the form data. Here's an example:

```
<form action="/submit-form" method="post" enctype="multipart/form-data">  
  <!-- Form elements go here -->  
</form>
```

14. Form validation and error handling:

HTML5 introduces built-in form validation features using attributes like `required`, `pattern`, `min`, `max`, etc. You can also customize validation using JavaScript. Here's an example of a required field:

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

15. Form submission and handling:

Form submission can be handled using server-side technologies like PHP or client-side JavaScript. The `action` attribute of the form specifies the URL to which the form data is sent. Here's an example:

```
<form action="/submit-form" method="post">
  <!-- Form elements go here -->
  <button type="submit">Submit</button>
</form>
```

16. Inserting images (img):

The `` tag is used to insert images into an HTML document. The `src` attribute specifies the image URL, and the `alt` attribute provides alternative text for accessibility. Here's an example:

```

```

17. Image attributes (src, alt, width, height):

In addition to `src` and `alt`, the `` tag supports attributes like `width` and `height` to control the size of the image. Here's an example:

```

```

18. Adding audio and video (audio, video):

HTML5 introduced the `<audio>` and `<video>` tags for embedding audio and video content. Here's an example of adding a video:

```
<video src="video.mp4" controls></video>
```

19. Media attributes and controls:

Both ``<audio>`` and ``<video>`` tags support attributes like ``controls``, ``autoplay``, ``loop``, etc., to control the media playback. Here's an example:

```
<audio src="audio.mp3" controls autoplay></audio>
```

20. Creating tables (table, tr, td, th):

HTML tables are created using the ``<table>``, ``<tr>``, ``<td>``, and ``<th>`` tags. Here's an example:

```
<table>
  <tr>
    <th>Header 1</th>
    <th>Header 2</th>
  </tr>
  <tr>
    <td>Data 1</td>
    <td>Data 2</td>
  </tr>
</table>
```

21. Table headers and captions:

The ``<th>`` tag is used to define table headers, while the ``<caption>`` tag provides a caption for the table. Here's an example:

```
<table>
  <caption>Table Caption</caption>
  <tr>
    <th>Header 1</th>
    <th>Header 2</th>
  </tr>

  <tr>
    <td>Data 1</td>
    <td>Data 2</td>
  </tr>
</table>
```

22. Table formatting and styling:

You can apply CSS styles to tables and their elements to customize their appearance. Here's an example of applying a border to the table:

```
<style>
  table {
    border: 1px solid black;
  }
</style>
```

23. Spanning rows and columns:

HTML tables allow you to span rows or columns using the `rowspan` and `colspan` attributes on `<td>` or `<th>` elements. Here's an example:


```
<table>
  <tr>
    <th rowspan="2">Header 1</th>
    <th>Header 2</th>
  </tr>
  <tr>
    <td>Data 1</td>
  </tr>
</table>
```

24. Header (header), Navigation (nav), Main content (main), Sections (section), Footer (footer):

HTML5 introduced semantic elements to provide more meaningful structure to web documents. Here's an example using these elements:

```
<header>
  <h1>Website Header</h1>
</header>

<nav>
  <ul>
    <li><a href="#">Home</a></li>
    <li><a href="#">About</a></li>
  </ul>
</nav>

<main>
  <section>
    <h2>Section 1</h2>
    <p>Content of section 1</p>
  </section>
  <section>
    <h2>Section 2</h2>
```

```
<p>Content of section 2</p>
</section>
</main>

<footer>
  <p>Footer content</p>
</footer>
```

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