Introduction to Website Design and HTML Basics

1. **Explain the structure of an HTML document and the purpose of DOCTYPE.**

   An HTML document is structured in a hierarchical manner, composed of nested elements that define the content and layout of a web page. Below is a typical structure

```
1    <!DOCTYPE html>
2    <html lang="en">
3      <head>
4        <meta charset="UTF-8" />
5        <meta name="viewport" content="width=device-width, initial-scale=1.0" />
6        <title>HTML Structure</title>
7      </head>
8      <body>
9        <header></header>
10       <main></main>
11       <footer></footer>
12     </body>
13   </html>
14
```

   Key Components:

   1. <!DOCTYPE html>
      - Declares the document type and version of HTML being used.
      - Ensures browsers render the page in standards-compliant mode.
   2. <html> Element
      - The root element of the HTML document.
      - Contains all other elements and includes a Lang attribute specifying the language.
   3. <head>Element
      - Contains metadata about the document, such as character encoding, title, styles, and scripts.
      - Elements commonly found in <head> include:
        o <meta>: Defines metadata like charset, viewport, etc.
        o <title>: Specifies the title of the document shown on the browser tab.
        o <link>: Links to external resources like stylesheets.
        o <script>: Links or embeds JavaScript.
   4. <body> Element
      - Contains all the visible content, such as text, images, and interactive elements.
      - Common elements inside <body> include:
        o <header>: Represents introductory content or navigation links.
        o <main>: Represents the primary content of the document.
        o <footer>: Represents footer information.
        o Other elements like <div>, <p>, <a>, <img>, <ul>, and more.

Purpose of <!DOCTYPE>:

1. **Specifies the HTML Version**:
   - Historically, different versions of HTML (like HTML 4.01, XHTML) required specific <!DOCTYPE> declarations.
   - Modern HTML5 uses a simple and universal <!DOCTYPE html> declaration.
2. **Enables Standards Mode**:
   - Without <!DOCTYPE>, browsers may render the document in "quirks mode," which emulates outdated behavior for older web pages.
   - With <!DOCTYPE>, browsers use "standards mode," ensuring the page adheres to modern web standards.
3. **Improves Compatibility**:
   - Helps ensure consistent rendering across different browsers.

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2. **List and explain at least five common HTML tags used in website design.**

- **<h1> to <h6>**
  - **Purpose**: Define headings on the page.
  - **Function**: <h1> is the largest and most important, <h6> is the smallest and least important.
  - **Example**:

    ```
    <h1>Main heading</h1>
    <h1>Subheading</h1>
    ```

- **<p>**
  - **Purpose**: Creates a paragraph of text.
  - **Function**: Used for blocks of text in the body of the webpage.
  - **Example**:

    ```
    <p>paragraph tag in html</p>
    ```

- **<a> (Anchor Tag)**: Creates links.
  - The most important attribute of the <a> element is the href attribute, which indicates the link's destination.
  - **Example:**

    ```
    <a href="https://example.com">Click here</a>
    ```

- **<img>**: Embeds images.
  - Images are not technically inserted into a web page; images are linked to web pages. The <img> tag creates a holding space for the referenced image.
  - **Example**

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

- **\<div\>**: Defines a container or section.
    - The \<div\> tag defines a division or a section in an HTML document.
    - The \<div\> tag is used as a container for HTML elements - which is then styled with CSS or manipulated with JavaScript.
    - The \<div\> tag is easily styled by using the class or id attribute.
    - **Example**

```
<div class="container">Content here</div>
```

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3. **Describe the difference between block-level and inline elements in HTML.**

- **Block-Level Elements**
    - Start on a new line and take up the full width of the parent container (by default).
    - Stack vertically on the page.
    - Used to create larger structures or sections of content.
    - **Examples**:
        - \<div\>: A generic container for grouping content.
        - \<p\>: A paragraph of text.
        - `<h1>` to `<h6>`: Headings.
        - \<ul\>/\<ol\>: Lists.
        - \<section\>, \<article\>, \<footer\>, \<header\>: Semantic structural elements.
- **Inline Elements**
    - Do not start on a new line; they only take up as much width as their content.
    - Can appear next to other inline elements on the same line.
    - Used to style or define smaller portions of content within block-level elements.
    - **Examples**:
        - \<span\>: A generic container for inline content.
        - \<a\>: Links.
        - \<img\>: Images.
        - \<strong\>: Bold text.
        - \<em\>: Italicized text.