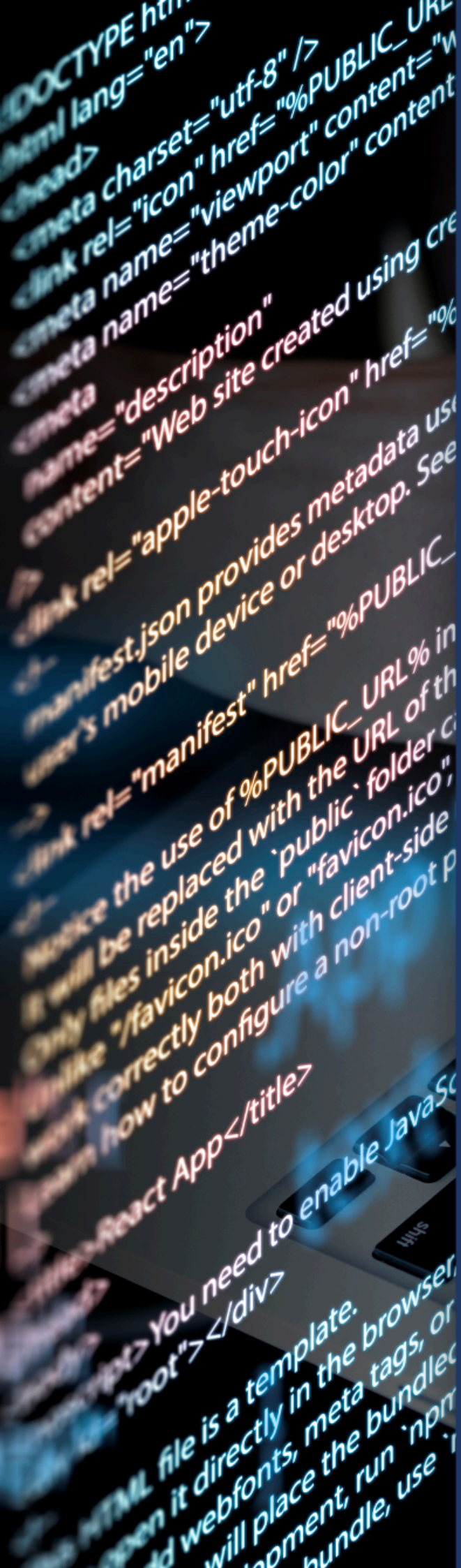


FULL STACK
FRONTEND

HTML

SHAI
Share Artificial Intelligence

1st version, 2025 @SHAI

Full Stack Track

HTML

Content Team

- **Subject Matter Expert:** Roaa Abu-Shaqrah
- **Instructional Design:** Dyala Alrefai , Jumana Hamad, Maroom Alrefai

Note: Some parts of the content were generated using AI tools and have undergone thorough review and verification by the expert SHAI team to ensure accuracy.

This self-evaluation table is designed to help you assess their knowledge, skills, and performance in HTML both before and after completing the chapter. It includes a list of key HTML competencies, covering foundational concepts, practical applications, and best practices. You will rate your confidence level for each skill or knowledge area on a scale of 1 to 5, where:

- **1** = Not Confident
- **5** = Highly Confident

Before beginning the unit, complete the Pre-Self Evaluation column. After finishing the unit, revisit the table to reflect on your learning progress. This process will help you assess your development and identify any concepts or skills that may need further improvement.

Skills/ Knowledge	Pre-Self Evaluation	Post-Self Evaluation
Understanding the definition and purpose of HTML		
Recognizing how browsers interpret HTML to display content		
Structuring a basic HTML document (using <!DOCTYPE>, <html>, <head>,<title> and <body> tags)		
Using paragraph tags (<p>) to organize text content		
Creating headings with <h1> to <h6> for content hierarchy		
Constructing ordered and unordered lists with , , and tags		
Embedding images using <img> with proper attributes (src, alt, width, height)		
Applying semantic HTML elements (e.g., <header>, <footer>, <article>, <section>)		
Understanding and using meta tags for SEO and page descriptions		
Creating forms with various input types (text, email, password, etc.)		
Ensuring accessibility through semantic tags and proper attributes		
Embedding multimedia elements like <audio> and <video>		

Learning objectives	Getting started
This chapter will walk you through the core concepts and practices essential for mastering HTML and creating structured, accessible, and visually appealing web pages. By the end of the chapter, you will be able to: **Understand HTML**: Grasp the basics of HTML, its significance in web development, and how it organizes web content. **Master HTML Structure:** Explore the mechanics of HTML, including the role of tags in rendering web pages. **Recognize the Importance of HTML:** Learn why HTML is fundamental for accessibility, SEO, and user interactivity. **Work with Lists and Paragraphs:** Understand how to use <p>, , , and tags for structured text and lists. **Embed Images and Use Meta Tags:** Learn to embed visuals with the <img> tag and optimize web pages using meta tags for better SEO. **Enhance Web Content with Headings and Best Practices:** Discover the role of headings for content organization and explore effective practices for using images, lists, and meta tags.	Imagine stepping into a bustling city square, surrounded by vibrant market stalls, each offering something unique—spices, textiles, handmade jewelry. A vendor turns to you with a challenge: "Can you help me organize my stall? I want sections for spices, textiles, and accessories, with some items listed under multiple categories, like spice-infused candles or embroidered bags with beadwork."  *Figure 1: Spice market where your friend buys the exaggeration he adds to his stories* Excited by the task, you start creating labels, arranging items, and ensuring the layout is clear for customers. Congratulations! You've just tackled a real-world HTML problem—structuring content so that it's easy to navigate and understand. Now, imagine scaling this task to a digital market: creating a webpage where customers can browse, search, and interact. HTML (HyperText Markup Language) is your toolkit for building that page, giving structure to your content just as you gave structure to the stall. Whether you're organizing a digital shop, crafting a blog, or developing a portfolio, HTML is your gateway to creating order in the vast online marketplace.

1. Introduction

If you decided to start learning programming but didn't have a teacher or resources available, what would you do? You'd probably start searching the internet to find materials for your learning journey. As you explore, you might wonder how the website you're on is so well-organized, where the information comes from, and how you were able to find the site through a search engine.

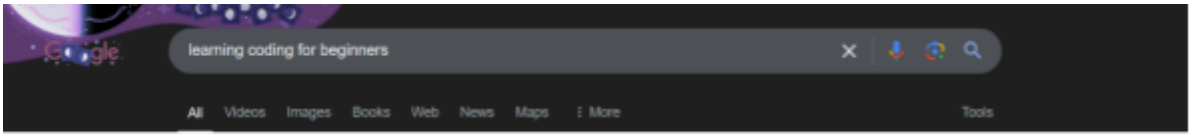


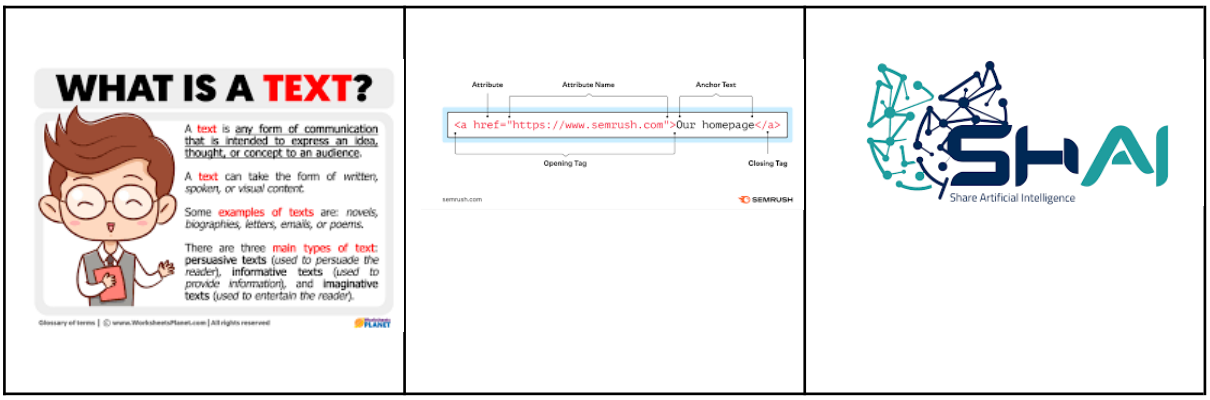
Figure 2: Step 1: Search 'learn coding for beginners' Step 2: Search 'how to get relax' .

Now, what if you were asked to design a website with bright colors and an attractive layout to sell clothes? What steps would you take, and which programming languages would you need to learn?

Let's dive into learning the Front-end Track ***starting with HTML***!

1.1 Definition of HTML

HTML stands for **HyperText Markup Language**, and it is the standard language used to create web pages. HTML consists of a series of elements or tags that tell the browser how to display content like text, images, and links. Think of it as the skeleton of a webpage—it structures everything from titles to images and videos.



1.2 A Brief History of HTML

Origins of HTML

HTML was first created by Tim Berners-Lee in 1991 as a simple way to link documents together on the World Wide Web. The original version of HTML had limited tags and functionality.

Figure 3: Tim Berners-Lee is proud and ready to welcome you to the HTML

Major HTML Versions

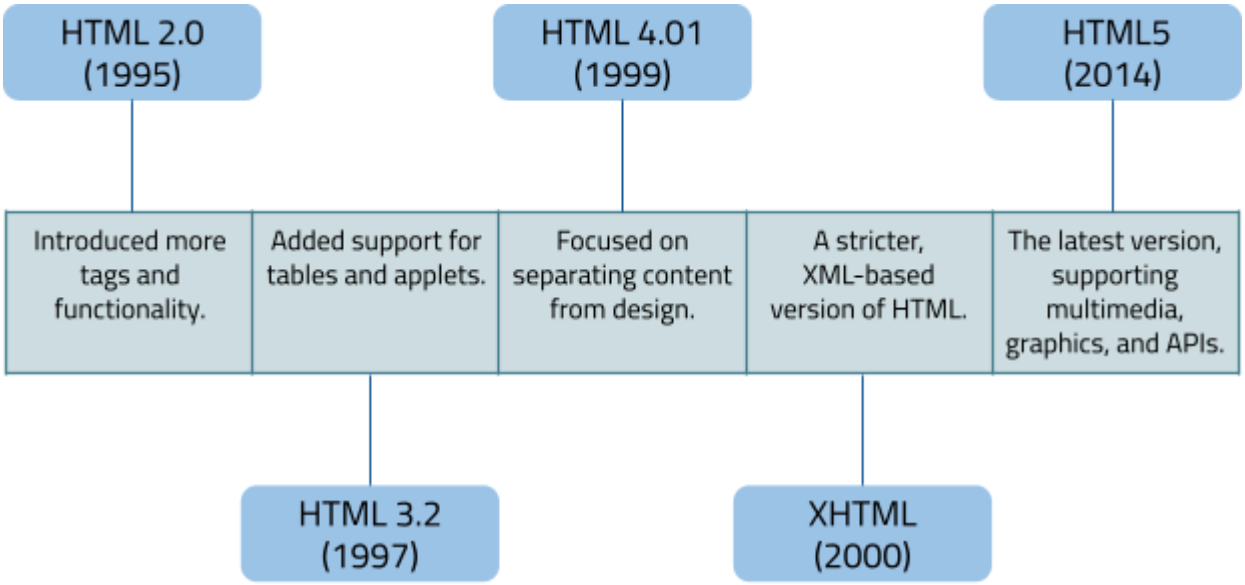


Chart 1: Great things take time, even with combined efforts. So don't feel discouraged if your progress seems slow

HTML5 brought major advancements like video embedding, canvas for drawing, and new form controls, making web development much more powerful and flexible.

One of the most important skills that helps us develop is **searching** for everything new in the programming world. Now we will start strengthening this skill.

Can you find out what the first web page ever created looked like and what it contained? Who created it, and where can you view it today?

1.3 How HTML Works?

HTML is the standard language used to create and structure content on the web. It works by using a system of tags to define elements that make up a webpage. Here's a detailed look at how HTML works.

As we mentioned in the introduction, HTML is basically a text file containing a series of elements, organized in a hierarchical structure. The basic structure of an HTML document looks like this:

```
<!DOCTYPE html>
<html>
<head>
      <title> Page Title <\title>
<\head>
<body>
      <h1> Welcome to My Website <\h1>
      <p> This is a paragraph of text. <\p>
<\body>
<\html>
```

The webpage of the above HTML will look like this:

This structure includes:

`<!DOCTYPE html>`	This declaration defines the document type and version of HTML (HTML5 here).
`<html>`	The root element contains all other HTML elements.
`<head>`	Contains meta-information about the document, like its title, links to stylesheets, and scripts.
`<title>`	The **<title>** tag in HTML is used to define the title of a webpage. The title is displayed in the browser's title bar or tab, and it is also used by search engines to understand the content of the page for indexing.
`<body>`	Contains the actual content of the webpage, like text, images, and links.

How many body tags can be used on an HTML file?

1.4 Why HTML is Important?

After explaining the definition and structure of HTML, why is HTML important?

Write down 3 points explaining why you think HTML is important.

1._____

2._____

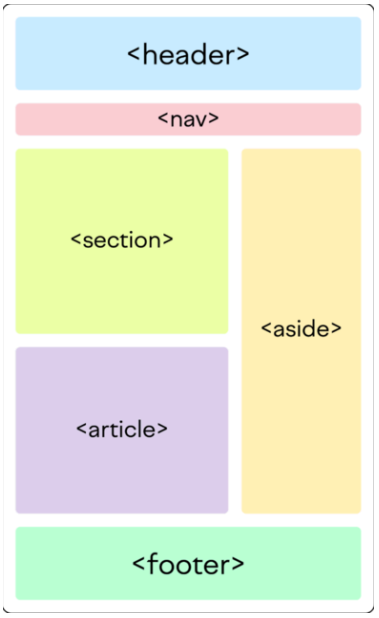
3._____

Now, let's look at the importance of HTML and see if your predictions were correct:

HTML is important for web development because it serves as the foundational structure for all websites.

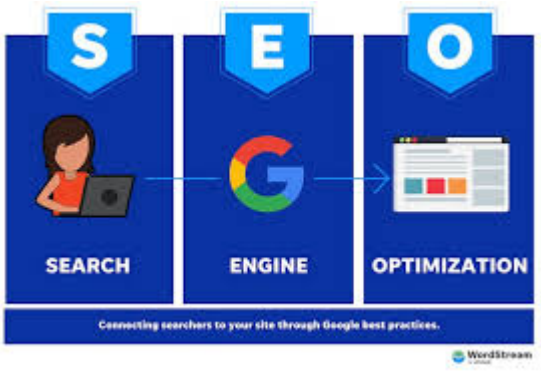
Here are several reasons why HTML is important:

1. **Foundation of Web Development**
   HTML is the basic building block of web pages. Without it, there would be no way to organize and display content on the web. All websites are built on HTML, and it provides the structure for content like text, images, links, and multimedia elements.



2. **Role in Accessibility**
   Proper use of HTML tags ensures that websites are accessible to people with disabilities, by using semantic HTML elements (like <header>, <footer>, <nav>, and <article>), web pages become easier to navigate for screen readers, improving accessibility for those with visual impairments. Additionally, attributes like alt for images help provide context for non-visual content.

3. **Search Engine Optimization (SEO)**
   HTML plays a crucial role in SEO. Search engines crawl and index websites by analyzing the HTML structure of a page. Proper use of tags, such as headings (<h1>, <h2>), meta descriptions, and keyword-rich content, helps search engines understand the relevance of a page's content and improve its ranking in search results.



One of the most valuable skills for growth in the programming field is preparing for real-world opportunities. Let's enhance this skill by diving into potential interview questions.

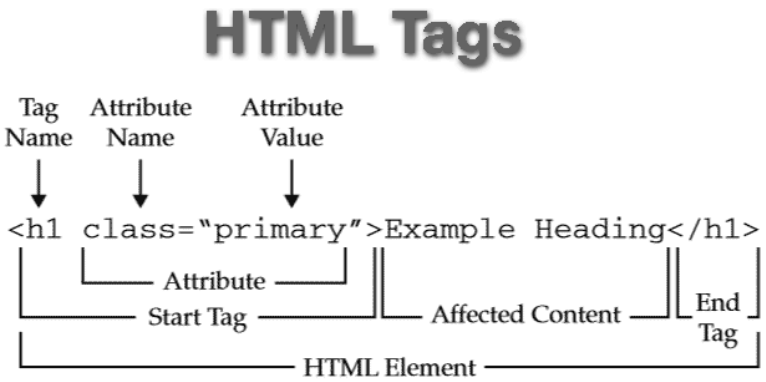
Why is the correct use of heading tags (<h1>, <h2>, etc.) important?

1.5 HTML Elements and Attributes

Figure #: white car lined up away and well arranged building blocks

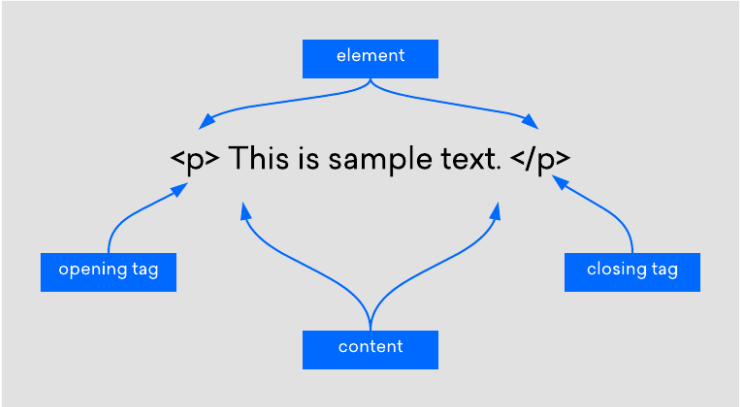
If we were to organize a webpage like a building, brick by brick, which HTML elements would represent these building blocks?

In HTML, elements and attributes are fundamental concepts that define how content is structured and presented on the web. Let's break them down:



An HTML element is a building block of HTML that represents the content or structure of a web page. It consists of a start tag, content, and an end tag (sometimes the end tag is optional).

Structure of an HTML Element:



This structure includes

Start Tag	The opening tag is where the element begins. For example, is the start tag for a paragraph.
End Tag	The closing tag marks the end of the element. It is written as </tagname>. For example, closes the paragraph.
Content	The content is what is placed between the start and end tags. For example, in This is a paragraph. , the content is "This is a paragraph."

HTML Attributes

Attributes

Just as each person has certain characteristics, such as height, skin color, etc., each HTML element has specific properties called attributes.

What is the function of attributes in HTML?

An attribute provides additional information about an element. Attributes are added to the start tag of an element and provide more control over its behavior or appearance.

Structure of an Attribute

Attribute name	This is the name of the attribute (e.g., src, href, alt, width).
Attribute value	This is the value assigned to the attribute. It provides the necessary information for the attribute (e.g., the source URL of an image, the link URL for a hyperlink, or the alternative text for an image).

Now let's start learning about the elements.

2. The Paragraph Tag (<p>)

The <p> tag in HTML is used to define paragraphs of text. It automatically adds some spacing before and after the text to separate it from other elements.

```
<!DOCTYPE html>
<html>
<head>
      <title> Page Title <\title>
<\head>
<body>
      <h1> Welcome to My Website <\h1>
      <p> >Lorem ipsum dolor sit amet consectetur adipisicing elit. Aliquam
vitae minus id unde numquam laudantium. <\p>
<\body>
<\html>
```

	Can you find out how to create a paragraph with a line break inside it without starting a new <p> tag? What HTML element would you use?

3. Headings in HTML

3.1 Importance of Headings

Headings help structure your content, making it easier for both users and search engines to understand the hierarchy of information on your webpage. Search engines, like Google, use headings to index your content for search results.

3.2 Different Heading Levels

HTML provides six levels of headings, from <h1> to <h6>. The <h1> is the highest or most important heading, while <h6> is the least important.

<h1>: Main title of the page (used only once per page).

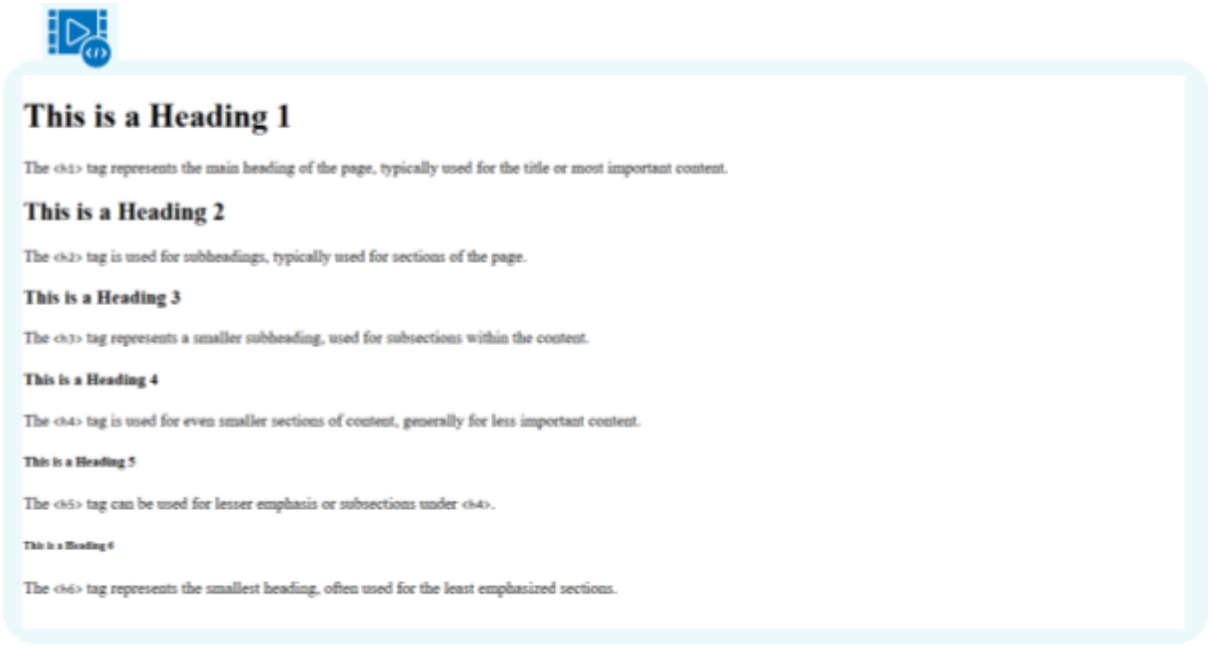
<h2>: Major subheadings.

<h3> to <h6>: Sub-sections.

Note
Use <h1> Only Once per Page To maintain clear structure and accessibility.

Example:

```
<!DOCTYPE html>
<html lang="en">
<head>
      <meta charset="UTF-8">
     <meta name="viewport" content="width=device-width, initial-scale=1.0">
      <title>Headings Example</title>
</head>
<body>
      <h1>This is a Heading 1</h1>
      <p> The <code>&lt;h1&gt;</code> tag represents the main heading of the page,
typically used for the title. </p>
      <h2>This is a Heading 2</h2>
      <p> The <code>&lt;h2&gt;</code> tag is used for subheadings, typically used for
sections of the page. </p>
      <h3>This is a Heading 3</h3>
      <p> The <code>&lt;h3&gt;</code> tag represents a smaller subheading, used for
subsections within the page.</p>
      <h4>This is a Heading 4</h4>
      <p> The <code>&lt;h4&gt;</code> tag is used for even smaller sections of content,
generally for less prominent subsections.</p>
      <h5>This is a Heading 5</h5>
      <p> The <code>&lt;h5&gt;</code>tag can be used for lesser emphasis or subsections
under</p>
      <h6>This is a Heading 6</h6>
      <p> The <code>&lt;h6&gt;</code>tag represents the smallest heading, often used
for the least emphasis.</p>
</body>
</html>
```



In **HTML**, a **comment** is used to add notes or explanations within the code that are not visible to the user in the web browser. Comments are primarily used to make the code more readable and to explain certain sections for developers or collaborators working on the project. They can also be used to temporarily disable parts of the code.

```
<!DOCTYPE html>
<html lang="en">
<head>
      <meta charset="UTF-8">
      <meta name="viewport" content="width=device-width, initial-scale=1.0">
      <title>Unordered List Example</title>
</head>
<body>
<!--- use list -->
      <h1>My Favorite Fruits</h1>
      <ul>
            <li>Apple</li>
            <li>Banana</li>
            <li>Orange</li>
            <li>Grapes</li>
      </ul>
</body>
</html>
```

4. Lists in HTML

Figure #: Try to remind you of your unfinished to-do list

We have many tasks to manage throughout the day—some of us write them on paper, while others use our phones. But how can we design our to-do list using HTML?

4.1 Unordered Lists (<ul>)

Is a way to group a set of related items in no specific order, meaning the order in which they are listed does not matter. This is commonly used when you want to display a list of items like bullet points, rather than a numbered list.It is represented by the <ul> tag and each item is enclosed in <li> tags (list items).

Watch Out
Ensure all list content is wrapped inside <li> tags, rather than placing elements directly within <ul> or <ol>.

Example:

```html
<!DOCTYPE html>
<html lang="en">
<head>
      <meta charset="UTF-8">
      <meta name="viewport" content="width=device-width, initial-scale=1.0">
      <title>Unordered List Example</title>
</head>
<body>
      <h1>My Favorite Fruits</h1>
      <ul>
            <li>Apple</li>
            <li>Banana</li>
            <li>Orange</li>
            <li>Grapes</li>
      </ul>
</body>
</html>
```

My Favorite Fruits

- Apple
- Banana
- Orange
- Grapes

4.2 Ordered Lists (<ol>)

Watch Out
Always close your list tags (, ,) properly to avoid rendering issues.

A type of list used to display items in a specific sequence, where the order of the items is important. Order lists are used when the order of items does matter. It is represented by the <ol> tag.

Example:

```
<!DOCTYPE html>
<html lang="en">
<head>
      <meta charset="UTF-8">
      <meta name="viewport" content="width=device-width, initial-scale=1.0">
      <title>Ordered List Example</title>
</head>
<body>
      <h1>Steps to Bake a Cake</h1>
      <ol>
            <li>Preheat the oven to 350°F (175°C).</li>
            <li>Mix flour, sugar, eggs, and butter into bowl</li>
            <li>Pour the mixture into a cake pan.</li>
            <li>Bake for 30 minutes or until golden brown.</li>
            <li>Let the cake cool before serving.</li>
      </ol>
</body>
</html>
```

Steps to Bake a Cake

1. Preheat the oven to 350°F (175°C).
2. Mix flour, sugar, eggs, and butter in a bowl.
3. Pour the mixture into a cake pan.
4. Bake for 30 minutes or until golden brown.
5. Let the cake cool before serving.

4.3 Nested Lists

Refers to a list placed within another list. Both unordered (<ul>) and ordered (<ol>) lists can be nested inside each other to create hierarchical structuresYou can create lists inside lists (nested lists) by placing a <ul> or <ol> inside an <li> element.:

Watch Out
Ensure all list content is wrapped inside <li> tags, rather than placing elements directly within <ul> or <ol>.

```
<!DOCTYPE html>
<html lang="en">
<head>
      <meta charset="UTF-8">
      <meta name="viewport" content="width=device-width, initial-scale=1.0">
      <title>Nested Ordered List Example</title>
</head>
<body>
      <h1>Steps to Organize a Party</h1>
      <ol>
            <li>Plan the Party
                  <ol>
                        <li>Choose a theme</li>
                        <li>Create a guest list</li>
                        <li>Pick a date and time</li>
                  </ol>
            </li>
            <li>Send Invitations
                  <ol>
                        <li>Design invitation cards</li>
                        <li>Send invitations via email or post</li>
                  </ol>
            </li>
            <li>Prepare Food and Drinks
                  <ol>
                        <li>Order food</li>
                        <li>Set up a drinks station</li>
                  </ol>
            </li>
      </ol>
</body>
</html>
```

Steps to Organize a Party

1. Plan the Party
    1. Choose a theme
    2. Create a guest list
    3. Pick a date and time
2. Send Invitations
    1. Design invitation cards
    2. Send invitations via email or post
3. Prepare Food and Drinks
    1. Order food
    2. Set up a drinks station

Find another type of list in HTML that gives this output.

HTML Tags Glossary

<h1> to <h6>
: Defines HTML headings. The numbers indicate the level of the heading, with <h1> being the most important.

<p>
: Defines a paragraph of text in HTML.

<a>
: Defines a hyperlink, allowing users to click and navigate to another page or resource.

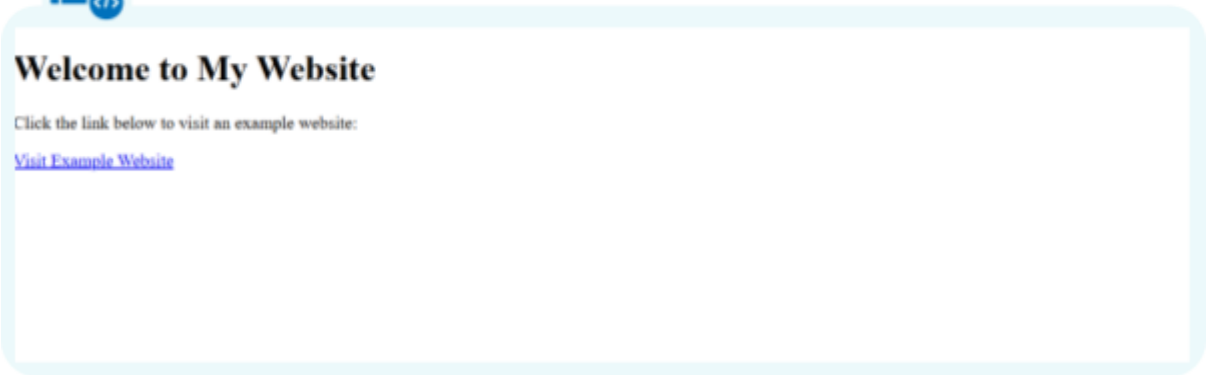
<img>
: Defines an image. The source is specified using the src attribute, and alternative text can be added using the alt attribute.

5. HTML Links - Hyperlinks

Each of us used Wikipedia, there were words in blue, and as soon as we clicked on them we were transferred to our last page.

Let's learn how to make a hyperlink in HTML.

```html
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Hyperlink Example</title>
</head>
<body>
    <h1>Welcome to My Website!</h1>
    <p>Click the link below to visit an example Website</p>
    <a herf="https://www.example.com" target ="_blank">Visit Example Website </a>
</body>
</html>
```



Structure of Hyperlink

<a>	The anchor tag is used to create a hyperlink.
herf	The attribute that defines the URL or destination of the link. In this case, it points to https://www.example.com
target ="_blank"	An optional attribute that specifies the link should open in a new tab or window.
Visit Example Website	is clickable, and it will navigate to the URL specified in the href attribute when clicked.

Now let's look for new information:

1._self vs _blank

2. Why after clicking the link the color change like

In the field of programming, we work as a team. How can we write a note for my colleagues so that they can understand information about the code without the user seeing it?

```
<!-- This is a note for the developer:
      Remember to update the like in the next sprint -->
    <p>Click <a herf="https://www.example.com">here</a>to visit Website</p>

<!-- End of the developer notes -->
```

Just for your information, it will be explained in detail in the CSS book.

What is the ID selector in HTML?

Every person has an identity card that contains a unique number, which cannot be repeated, or every device has an IP address that is unique and cannot be repeated.

What is the Class selector in HTML?

It is very possible that you and your colleague have the same blood type or even the same name.

In HTML, **block elements** and **inline elements** define how elements behave in terms of layout and spacing on a webpage.

Block Elements

- Block elements take up the full width available, stacking vertically, and starting on a new line.
- They create a "block" of content that separates itself from other elements.

Examples

, <h1>, <p>, <ul>, <section>

Inline Elements

- Inline elements only take up as much width as necessary and do not start on a new line.
- They are typically used for small parts of a document, like text or links.

Examples

, <a>, ,

6. Media

6.1 Images in HTML (<img> Tag)

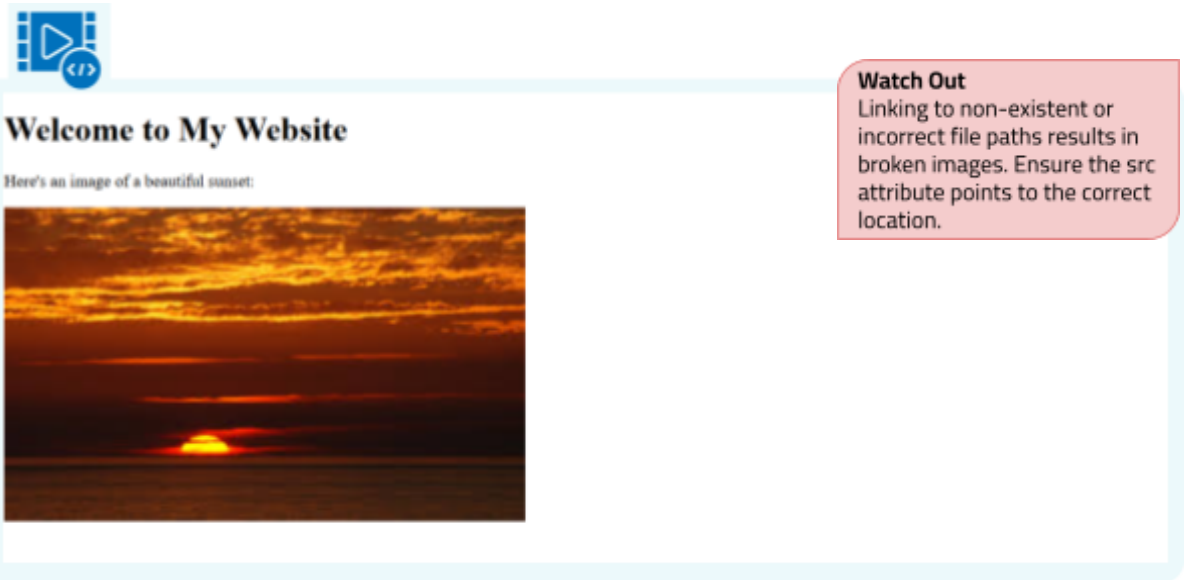
What adds beauty to websites is **media**. Now, let's learn how to add an image to your website.

6.2 Embedding Images in a Web Page

The <img> tag is used to embed images in an HTML document. The src attribute specifies the location of the image file, while the alt attribute provides alternative text in case the image cannot be displayed.

Example:

```html
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Image Example</title>
</head>
<body>
    <h1>Welcome to My Website!</h1>
    <p>Here's an image of a beautiful sunset:</p>
    <img src="">
</body>
</html>
```



Watch Out
Linking to non-existent or incorrect file paths results in broken images. Ensure the src attribute points to the correct location.

6.2 Attributes of the <img> Tag

src: Specifies the image source (URL or file path).

alt: Provides descriptive text if the image fails to load.

width and **height**: Control the size of the image.

> **Note**
> Including large images slows down page loading. Always compress images before using them.

In HTML, you can embed **audio** and **video** files using the <audio> and <video> elements. These elements allow you to easily incorporate multimedia into your webpage.

6.3 Audio in HTML

The <audio> element is used to embed audio files like MP3, WAV, or Ogg format.

```
<!DOCTYPE html>
<html lang="en">
<head>
      <meta charset="UTF-8"> <!-- Specifies the character encoding for the document -->
      <meta name="viewport" content="width=device-width, initial-scale=1.0">
      <!-- Ensures the page is responsive and adapts to different screen sizes -->
      <meta name="description" content="John Doe"> <!-- Describes the webpage -->
      <meta name="author" content="This is an example website showcasing HTML meta tags.">
      <!-- Provides information about the author of the page -->
      <meta name="X-UA-Compatible" content="index, follow">
      <!-- Tells search engines to indes the page and follow -->
      <title>Meta Tags Example</title>
</head> <body>
<audio controls>
 <source src="audio-file.mp3" type="audio/mp3">
</audio> </body></html>
```

6.4 Video in HTML

The <video> element is used to embed video files such as MP4, WebM, or Ogg format.

```
<!DOCTYPE html>
<html lang="en">
<head>
      <meta charset="UTF-8">
      <meta name="viewport" content="width=device-width, initial-scale=1.0">
      <meta name="description" content="John Doe">
      <meta name="author" content="This is an example website showcasing HTML meta tags.">
      <meta name="X-UA-Compatible" content="index, follow">
      <title>Meta Tags Example</title>
</head>
<body>
<video width="600" controls>
<source src="video-file.mp4" type="video/mp4"></video>
 </body> </html>
```

7. Meta Tags in HTML

7.1 What are Meta Tags?

Meta tags provide metadata about the webpage. Browsers and search engines use this metadata but are not visible to users. Meta tags are placed inside the <head> section of the HTML document.

7.2 Different Types of Meta Tags

```html
<!DOCTYPE html>
<html lang="en">
<head>
      <meta charset="UTF-8">
      <!-- Specifies the character encoding for the document -->
      <meta name="viewport" content="width=device-width, initial-scale=1.0">
      <!-- Ensures the page is responsive and adapts to different screen sizes -->
      <meta name="description" content="John Doe">
      <!-- Describes the webpage -->
      <meta name="author" content="This is an example website showcasing HTML meta tags.">
      <!-- Provides information about the author of the page -->
      <meta name="X-UA-Compatible" content="index, follow">
      <!-- Tells search engines to indes the page and follow -->
      <title>Meta Tags Example</title>
</head>
<body>
      <h1>Welcome to the Meta Tags Example</h1>
      <p> This page demonstrates how meta tags work in HTML</p>
</body>
</html>
```

The **meta tag for responsive design** is used to control the layout of a webpage on different screen sizes, particularly on mobile devices. It ensures that the page adjusts properly to the width of the device's screen, providing an optimal viewing experience.

Explanation:

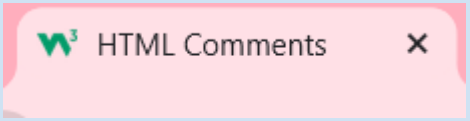
- width=device-width: Sets the width of the page to match the device's screen width.
- initial-scale=1.0: Sets the initial zoom level to 1, ensuring that the page is not zoomed in or out when it loads.

This meta tag is essential for making your website responsive and mobile-friendly.

7.3 Role of Meta Tags in SEO

Meta tags like descriptions and keywords can affect how your page appears in search results. A good meta description improves the click-through rate from search engines.

	Imagine that you have an online store and you want to increase its appearance on the search engine. Type your meta.

	 How can you put your logo and name on the search engine tab?

You are now starting your path to professionalism. We will start learning new things in HTML.(level2)

8. What is Semantic HTML?

8.1 Definition of Semantic HTML

Semantic HTML refers to the use of HTML tags that clearly describe their meaning and role in the structure of a web page. These elements convey the "semantics" or meaning of the content enclosed in them, helping both developers and browsers understand the structure and hierarchy of the page.

For example, a <header> tag defines a header section, while a <footer> tag represents the footer section of the page. These elements provide context to the content, rather than just serving as containers.

	A question to test your concentration, Why is HTML5 its Importance? _____ _____ _____

8.2 Common Semantic Elements

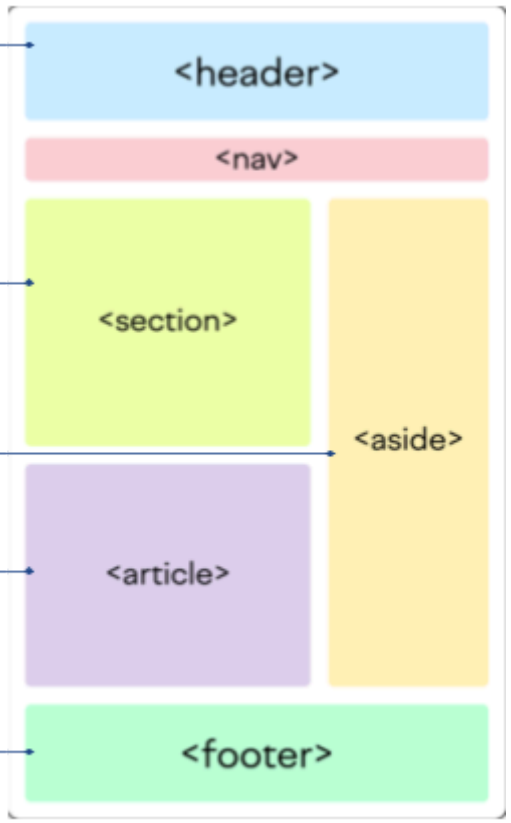
The <header> element defines a container for introductory content or navigational links. It typically includes elements like logos, main headings, and navigation bars.

The <section> element defines a section of a document. It is used to group related content, often with its own heading.

The <aside> element represents content that is tangentially related to the main content, like sidebars or pull quotes.

The <article> element represents a self-contained piece of content, such as a blog post, news article, or forum post. It can stand alone and still make sense outside of its context.

The <footer> element represents the footer section of a document or a section. It typically contains information like contact details, copyright notices, or links to privacy policies.



What about <nav> element? What does it represent?

9. Formatting

In the Word program there are formats for bold italic font and others. Now you have to use some elements to do the same effects:

```html
<!DOCTYPE html>
<html lang="en">
<body>
      <h1>HTML Formatting Tags Example</h1>
      <p>This is a <b>bold</b> and <i>italic</i> text.</p>
      <p><strong>Important</strong> and <em>emphasized</em> text.</p>
      <p>This is <u>underlined</u> and <mark>highlighted</mark> text.</p>
      <p>H<sub>2</sub>O and X<sup>2</sup> are examples of subscripts and superscripts.</p>
      <p>This is a <code>console.log("Hello, world!");</code> code snippet.</p>
      <p>Text with a <del>strike-through</del> and an <ins>inserted</ins> part.</p>

      <pre>
      This is a
      preformatted text
      that keeps line breaks and spaces.
      </pre>

      <p align="center">This text is centered.</p>

      <hr> <!-- Horizontal line -->
</body>
</html>
```

Here's a breakdown of HTML formatting tags explained as points:

9.1 Text Formatting Tags

Tag	Function	Example
`<b>`	Make the text **bold**.	This text is bold
`<i>`	Make the text *italic*.	This text is italic
`<u>`	Underline the text.	<u>This text is underlined</u>
`<strong>`	Represent strong **importance** (usually bold).	This is important text
`<em>`	Represent emphasized *text* (usually italic).	This is emphasized text
`<mark>`	Highlight text with a background color.	<mark>This text is highlighted</mark>
`<small>`	Make the text smaller.	This text is small
`<del>`	Strike through the text, used for ~~deleted content~~.	~~This text is deleted~~
`<ins>`	Underline the inserted text.	<ins>This text is inserted</ins>

9.2 Text Alignment and Layout

Tag	Function	Example
`<center>`	Centers the content (deprecated in HTML5, use CSS for better practices).	This text is centered
`<p align="center">`	Align a paragraph to the center using the align attribute.	This paragraph is centered

9.3 Text Decoration

Tag	Function	Example
<sub>	Displays text as subscript (lowered).	H₂O
<sup>	Displays text as superscript (raised).	X²

In an HTML file, spaces are not accepted even if they are present. How can I write HTML code while maintaining spaces? Search for an element that performs this function.

10. Table

In HTML, tables are used to display data in a structured, grid-like format. You can create tables using a combination of various HTML tags.

Structure of the Table:

<table>	Defines the table.
<tr>	Defines a table row.
<th>	Defines a table header cell (bold and centered by default).
<td>	Defines a table data (or table cell) element.

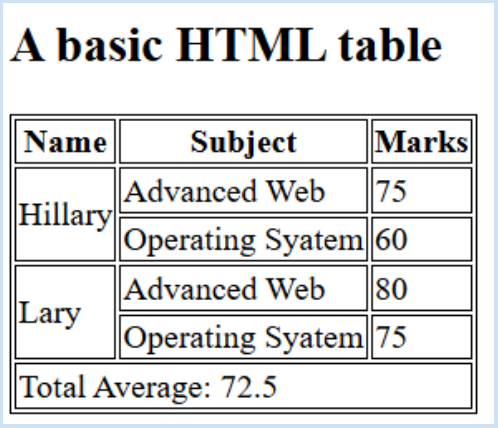
Here is a basic breakdown of how tables work in HTML, followed by examples:

```
<!DOCTYPE html>
<html lang="en">
<body> <table border="1">
        <tr>
                <td>John Doe</td>
                <td>16</td>
                <td>A</td>
            </tr>
            <tr>
                <td>Jane Smith</td>
                <td>17</td>
                <td>B</td>
            </tr>
            <tr>
                <td>Sam Brown</td>
                <td>16</td>
                <td>C</td>
            </tr>
        </table> </body> </html>
```

Student Information

Name	Age	Grade
John Doe	16	A
Jane Smith	17	B
Sam Brown	16	C

There are additional features available for tables in HTML. One of these is the ability to merge cells in a table. Research how to achieve this functionality



A basic HTML table

Name	Subject	Marks
Hillary	Advanced Web	75
	Operating Syatem	60
Lary	Advanced Web	80
	Operating Syatem	75
Total Average: 72.5		

11. Form advanced

In HTML, a form is an essential element used to collect user input on a web page. It allows users to enter data, which can then be submitted to a server for processing. Forms are crucial for interactive websites, as they are used for tasks like user registration, login, searching, and submitting comments.

11.1 Structure of a Form In HTML

A basic HTML form consists of the <form> element, which contains various input elements (such as text fields, radio buttons, checkboxes, etc.) to gather the required data. The form can send the collected data to a server for processing using the action attribute, and the method of submission can be specified using the method attribute.

11.2 Key Attributes of the <form> Tag

```
<form action = "URL_to_process_form_data" method = "POST">
    <!-- Form elements here -->
      <input type="submit" value="Submit">
</form>
```

Structure of an Attribute:

`action`	Specifies the URL where the form data will be sent for processing after submission. If left empty, the form data is sent to the same page.
`method`	Defines how data will be sent to the server. The two common methods are: `"GET"` : Appends the form data to the URL (not suitable for large data or sensitive information). `"POST"` : Sends the form data in the body of the request (more secure and suitable for large amounts of data).
`target`	Specifies where to open the response after submitting the form. Common values are _self, _blank, etc.
`name`	Assigns a name to the form, which can be used to refer to it in scripts.

11.3 Form Elements

1. Input Elements

Input elements are the building blocks of forms and allow users to enter data.

<input>: Used for creating various types of form controls like text fields, checkboxes, radio buttons, etc. The type of input is specified using the type attribute.

```
<input type = "text" name = "username" placeholder= "Enter your username">
```

a. Password:

```
<input type = "password" name = "password" placeholder= "Enter your password">
```

b. Radio Button: Allows the user to select one option from a set of options.

```
<input type = "radio" name = "gender" value= "male"> Male
<input type = "radio" name = "gender" value= "female"> Female
```

c. Check box: Allows the user to select one or more options.

```
<input type = "checkbox" name = "subscribe" value= "newsletter"> Subscribe to Newsletter
```

d. submit: Used to submit the form data.

```
<input type = "submit" value= "Submit">
```

e. Reset Button: Resets the form fields to their default values.

```
<input type = "reset" value= "Reset">
```

2. textarea

Creates a multi-line text input area for longer text.

```
<textarea name= "message" row= "4" cols= "50" placeholder= "Enter your message here"></textarea>
```

3. Select Elements

The <select> tag is used to create a dropdown list, and <option> is used to define the choices within the list.

```
<select name= "country">
      <option value= "usa"> United Stats </option>
      <option value= "uk"> United Kingdom</option>
      <option value= "canada"> Canada </option>
</select>
```

4. Labels

The <label> tag defines labels for form elements. It's important for accessibility, as it helps screen readers associate the label with its respective input.

```
<label for= "username"> Username: </label>
<input type= "text" id= "username" name= "username">
```

5. Fieldset and Legend

<fieldset>: Groups related elements in a form and visually organizes them.

<legend>: Provides a caption for the <fieldset>

```html
<fieldset>
      <legend> Personal Information </legend>
      <label for= "name"> Name: </label>
      <input type= "text" id= "name" name= "name">
      <label for= "email"> Email: </label>
      <input type= "email" id= "email" name= "email">
</fieldset>
```

What is the difference between the GET and POST methods in an HTML form? When would you use each?

11.4 Form Validation

HTML5 introduced form validation attributes that help ensure the form is filled out correctly before submission.

1. required: Ensures the field must be filled before submission.

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

2. pattern: Specifies a regular expression to validate the input.

```html
<input type= "text" name= "username" pattern= "[A-Za-z0-9]" required>
```

3. type="email": Ensures that the input is a valid email address.

```html
<input type= "email" name= "user_email" required>
```

4. min and max: Specify the minimum and maximum values for <input> fields of type number.

```
<input type= "number" name= "age" min= "18" max= "100" required>
```

12. Style

To link a **CSS** file to an **HTML** document, you use the <link> tag within the <head> section of the HTML. The <link> tag tells the browser where to find the external CSS file and apply its styles to the HTML content

Surely now you are thinking how you can modify the colors and font type, etc. Do not worry, there is a method that you can use only at this stage. Later in CSS, we will talk about other methods.

Inline styles in HTML are used to apply CSS directly within an HTML element using the style attribute. This method allows you to add CSS rules to individual elements without needing an external or internal stylesheet.

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <link rel="stylesheet" href="styles.css">
    <title>Image Example</title>
</head>
<body>
 <h1 style="color: blue; text-align: center;">Welcome to My Website</h1>

  <p>Here's an image of a beautiful sunset:</p>
  <img src="">
</body>
</html>
```

Think like a developer

In the context of HTML and web development, it's essential to approach the process with both creativity and logic. HTML forms the foundation of web content, enabling you to structure and display information effectively. As you begin building websites, think about how users will interact with the pages.

How can you use HTML elements like headings, paragraphs, links, and images to create a clean, user-friendly design?
Consider the importance of accessibility—can users with disabilities easily navigate your website?
As you write HTML code, think about the different devices and screen sizes your users may have.
How can you ensure that your website is secure from attacks?
Will your website remain relevant and easy to update as technologies evolve?
How can you use responsive design principles to ensure that your website looks good on both desktops and mobile phones?

By thinking critically about these aspects, you'll approach web development not just as a task of writing code, but as an opportunity to create engaging, accessible, and responsive experiences for users.

Capstone Project

Project Overview:

We all see a daily newspaper like Times News now doing their own journalism using the elements we used.

Hint 👍

- use Heading tags
- use Paragraph tag
- formatting tags like bold, mark, italic ..etc
- Meat tag for SEO.
- Use Table to organize new paper if you want

Project Requirements

redefine the project you plan to accomplish at the end of the training, and explain how HTML will support you in achieving your objective. Clearly outline your goal, and detail the steps you need to take at this stage to bring your ideas to life.

Don’t forget to revisit the self-evaluation page at the beginning of the chapter to assess your progress and maximize your learning.

Check points

Check Point	Your Answer
Can you define HTML and explain its purpose in web development?	
What are the key components of an HTML element?	
Can you explain the function of attributes in HTML?	
How do you use the <p> tag to create paragraphs?	
What are the differences between <h1> to <h6> tags?	
What is the difference between ordered (`<ol>`) and unordered (`<ul>`) lists?	
How do you create a hyperlink using the <a> tag?	
What attributes are essential for embedding images with the <img> tag?	
What are meta tags, and why are they important for SEO?	
Name three common semantic elements and their purposes.	
How do you validate form inputs using HTML5 attributes?	
How do you create a table in HTML?	
Can you design a simple webpage incorporating headings, paragraphs, images, and lists?	

HTML Cheat Sheet

HTML (HyperText Markup Language) is the standard language used to create and structure web pages.

```
<!DOCTYPE html>
<html>
<head>
      <title> Page Title <\title>
<\head>
<body>
      <h1> Welcome to My Website <\h1>
<\body>
<\html>
```

Paragraphs (<p>): Define a block of text.

```
      <p> This is a paragraph of text. <\p>
```

Headings (<h1> to <h6>): Organize content hierarchy.

```
      <h1>This is a Heading 1</h1>
      <h6>This is a Heading 6</h6>
```

Unordered List (<ul>)

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

Ordered List (<ol>)

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

Images (<img> Tag)

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

Semantic HTML

```
<header>: Defines a header section.
<footer>: Defines a footer section.
<article>: Defines self-contained content.
<nav>:Defines a navigation section for links
to other pages or parts of the page.
<section>: Represents a thematic grouping of
content, typically with its own heading.
<aside>: Represents content tangentially
related to the main content, often used for
sidebars.
```

Tables

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

Meta Tags

- Specifies the character encoding for the document

```
<meta charset="UTF-8">
```

- Ensures the page is responsive and adapts to different screen sizes

```
<meta name="viewport" content="width=device-width,
initial-scale=1.0">
```

- Describes the webpage

```
<meta name="description" content="John Doe">
```

- Provides information about the author of the page

```
<meta name="author" content="This is an
example website showcasing HTML meta tags.">
```

- Tells search engines to indes the page and follow

```
<meta name="X-UA-Compatible" content="index,
follow">
```

Text Formatting

- Make the text bold.

```
<b>This text is bold</b>
```

- Make the text italic.

```
<i>This text is italic</i>
```

- Underline the text.

```
<u>This text is underlined</u>
```

- Represent strong importance (usually bold).

```
<strong>This is important text</strong>
```

- Represent emphasized text (usually italic).

```
<em>This is emphasized text</em>
```

- Highlight text with a background color.

```
<mark>This text is highlighted</mark>
```

- Make the text smaller.

```
<small>This text is small</small>
```

- Strikethrough the text, used for deleted content.

```
<del>This text is deleted</del>
```

- Underline the inserted text.

```
<ins>This text is inserted</ins>
```

- Centers the content

```
<center>This text is centered</center>
```

- Align a paragraph to the center using the align attribute.

```
<p align="center">This paragraph is centered</p>
```

- Displays text as subscript (lowered).

```
H<sub>2</sub>O
```

- Displays text as superscript (raised).

```
X<sup>2</sup>
```

Forms

```
<form action = "URL_to_process_form_data"
method = "POST">
    <!-- Form elements here -->
      <input type="submit" value="Submit">
</form>
```

- Label

```
<label for= "username"> Username: </label>
```

- Password

```
<input type = "password" name = "password"
placeholder= "Enter your password">
```

- Radio Button

```
<input type = "radio" name = "gender" value=
"male">
```

- Check box

```
<input type = "checkbox" name = "subscribe"
value= "newsletter">
```

- submit

```
<input type = "submit" value= "Submit">
```

- Reset Button

```
<input type = "reset" value= "Reset">
```

- textarea

```
<textarea name= "message" row= "4" cols= "50"
placeholder= "Enter your message
here"></textarea>
```

- Select Box

```
<select name= "country">
      <option value= "usa"> option </option>
</select>
```

Text Formatting

- <fieldset>: Groups related elements in a form and visually organizes them.
  <legend>: Provides a caption for the <fieldset>

```
<fieldset>
      <legend> Personal Information </legend>
      <label for= "name"> Name: </label>
      <input type= "text" id= "name" name=
"name">
</fieldset>
```

- required: Ensures the field must be filled before submission.

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

- pattern: Specifies a regular expression to validate the input.

```
<input type= "text" name= "username" pattern=
"[A-Za-z0-9]" required>
```

- type="email": Ensures that the input is a valid email address.

```
<input type= "email" name= "user_email"
required>
```

- min and max: Specify the minimum and maximum values for <input> fields of type number.

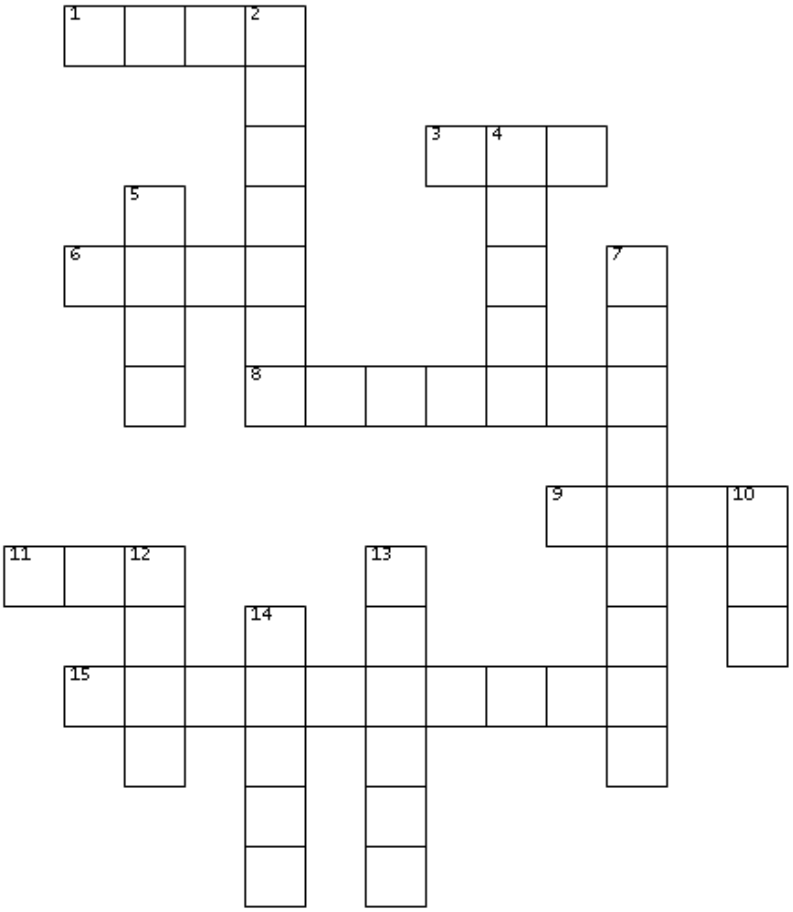
```
<input type= "number" name= "age" min= "18"
max= "100" required>
```

Glossary

1. **HTML (HyperText Markup Language)**: The standard language used to create and structure web pages. It uses a system of tags to define the content and layout of a webpage.
2. **Tag**: An HTML element that defines the structure or content of a webpage. Tags typically come in pairs, with a start tag and an end tag, e.g., ... Some tags, like <img>, are self-closing.
3. **Element**: The combination of an HTML tag and its content. For example, This is a paragraph is a paragraph element.
4. **Attribute**: Additional information about an HTML element that controls its behavior or appearance. Attributes are placed within the start tag, e.g., <img src="image.jpg" alt="Description">.
5. **DOCTYPE**: A declaration that defines the version of HTML being used in the document. For example, <!DOCTYPE html> declares the use of HTML5.
6. **Meta Tags**: Tags used to define metadata about a webpage, such as description, keywords, and author. These tags are placed in the <head> section.
7. **SEO (Search Engine Optimization)**: The practice of optimizing web content to rank higher in search engine results, often by using proper HTML tags, headings, and meta tags.
8. **Responsive Web Design**: An approach to web design that ensures web pages look good on all devices (desktops, tablets, and phones) by using flexible layouts, images, and CSS media queries.
9. **HTML5**: The latest version of HTML, introduced new features such as support for video and audio embedding, local storage, and new semantic elements like <article>, <section>, and <header>.
10. **CSS (Cascading Style Sheets)**: A style sheet language used to describe the look and formatting of a document written in HTML.
11. **Validation**: The process of checking the data entered into a form to ensure it meets the required format before submitting it. This can be done using HTML attributes like required or through JavaScript.
12.

HTML Puzzle

- Use the clues to fill in the words above.
- Words can go across or down.
- Letters are shared when the words intersect.



ACROSS	DOWN
1. The section of an HTML document that contains metadata and links to stylesheets and scripts. **3**. An HTML element used to create a section or container for grouping content. **6**. The part of the HTML document where the visible content is written. **8**. A combination of a start tag, content, and an end tag in HTML. **9**. A structure in HTML to organize items in an ordered or unordered manner. **11**. A stylesheet language used to describe the presentation of an HTML document.	**2**. This declaration defines the HTML version used in the document. **4.** A tag in HTML to embed pictures in a webpage. **5**. An HTML element used to collect user input. **7**. Provides additional information about an HTML element and is defined inside the opening tag. **10**. This is the basic building block of HTML, enclosed within angle brackets < >. **12**. An inline container for marking up part of a text or document. **13**. The HTML element used to create hyperlinks.

Contact Us

00962788482211

shaiforai

SHAI 2025