Build a Strong MERN Foundation



HTML and CSS



A Day in the Life of a MEAN Stack Developer

You are a MERN stack developer, but your current focus is on mastering HTML and CSS. Your task involves creating a basic website using these foundational web technologies.

To succeed, you must learn key concepts related to HTML structure, basic tags, CSS styling, and layout techniques.

To achieve these objectives, you will be learning essential HTML and CSS concepts in this lesson, equipping you to create appealing and functional web pages as part of your web development journey.



Learning Objectives

By the end of this lesson, you will be able to:

- Comprehend the basics of HTML to create and structure web content
- Define the structure of the HTML document to establish the foundational framework for web content
- Implement the various attributes, tables, and forms in HTML to enhance the functionality and presentation of web content
- Describe the forms in HTML to create interactive and dynamic user interfaces



Introduction

What Is HTML?

HTML is a standard markup language for developing web pages.



HTML stands for Hyper Text Markup Language.

What Is CSS?

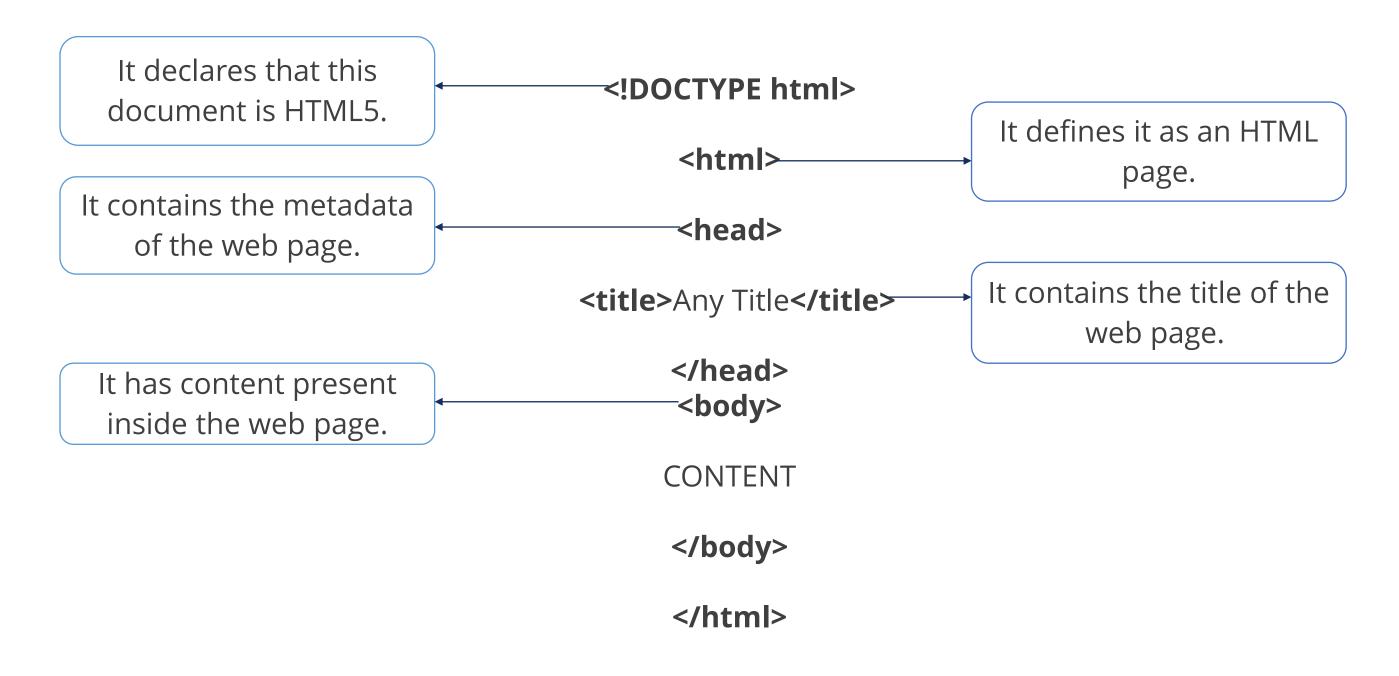
CSS (Cascading Style Sheet) is a language used to style web pages.



It helps users to alter the font, color, size, and so on.

Structure of Website

The basic structure of an HTML document is as follows:



HTML DOCTYPE

```
<!DOCTYPE html>
<html>
<head>
<title> Home</title>
</head>
<body> The Welcome Page</body>
</html>
```

- In HTML, each document starts with **DOCTYPE**> declaration.
- It tells the browser how to interpret the code and how to render the page.
- If the DOCTYPE tag is not included or is incorrect, the browser may not know how to correctly display the page, which can lead to layout and display issues.

Page Title

The **<title>** tag defines the title of the document.

```
<!DOCTYPE html>
<html>
<head>
<title> My first Web page</title>
</head>
<body> The Welcome Page</body>
</html>
```

It offers a concise and descriptive title that helps easier website navigation by helping users and search engines in understanding a web page's content.

HTML Heading

Heading tags <h></h> is used to define the heading.

```
<h1>This is heading 1</h1>
<h2>This is heading 2</h2>
<h3>This is heading 3</h3>
-
-
<h6>This is heading 6</h6>
```

Heading tags range from h1 to h6, arranged in descending order according to their text weight or size.

HTML Paragraph

In HTML, paragraphs are written inside the tag.

This is a paragraph tag.

HTML Tag

The tag is used to define the emphasized text. The text inside the tag is displayed in italic.

Hi, Good Morning how are you

HTML Tag

The tag is used to give semantic meaning to text.

While Driving please put on your seatbelts

It indicates that the enclosed text should be given more importance or emphasis than the surrounding text.

HTML Parent and Child Element

HTML is written in tree format. Head and body are the children of HTML.

```
<html>
<head>
<title>Hi! This is my Web page </title>
</head>
<body> I am a Web page Developer </body>
</html>
```

An element can have many children but has only one parent element. https://www.ncbi.nlm.nih.gov/ the root of the tree.

Creating the First Web Page

Duration: 10 min.

Problem Statement:

You have been assigned a task to develop a web page using HTML.

Assisted Practice: Guidelines

Steps to be followed:

- 1. Creating an HTML file
- 2. Viewing the result in the local browser

Title, Headings, Paragraphs, and Emphasis



Duration: 15 min.

Problem Statement:

You have been assigned a task to add titles, headings, paragraphs, and emphasis tags to your web page.

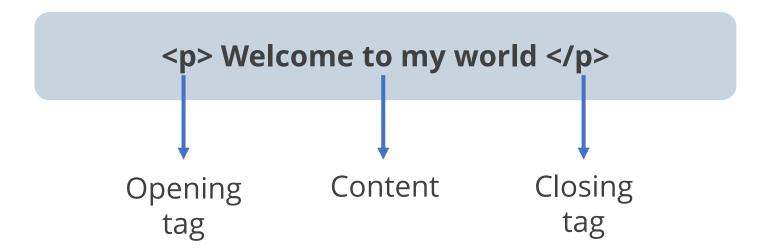
Assisted Practice: Guidelines

Steps to be followed:

- 1. Creating the index.html file
- 2. Adding titles, headings, and paragraphs in the web page
- 3. Viewing the result in the local browser

HTML Tags

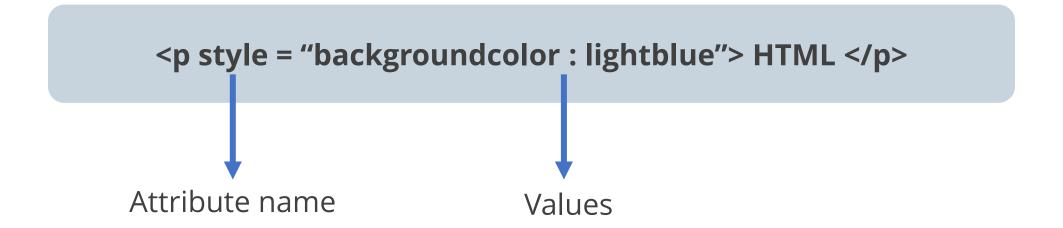
HTML tags are similar to keywords which helps to differentiate the HTML content and other content.



HTML tags are classified into three parts such as opening tags, content, and closing tags.

HTML Attributes

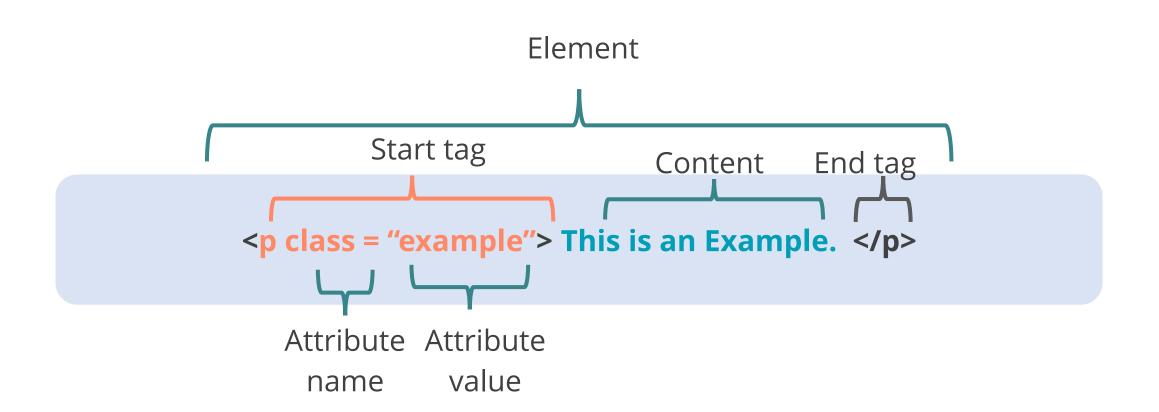
HTML attributes offer more details about an HTML element and help in defining its characteristics.



It is the combination of attribute names and values.

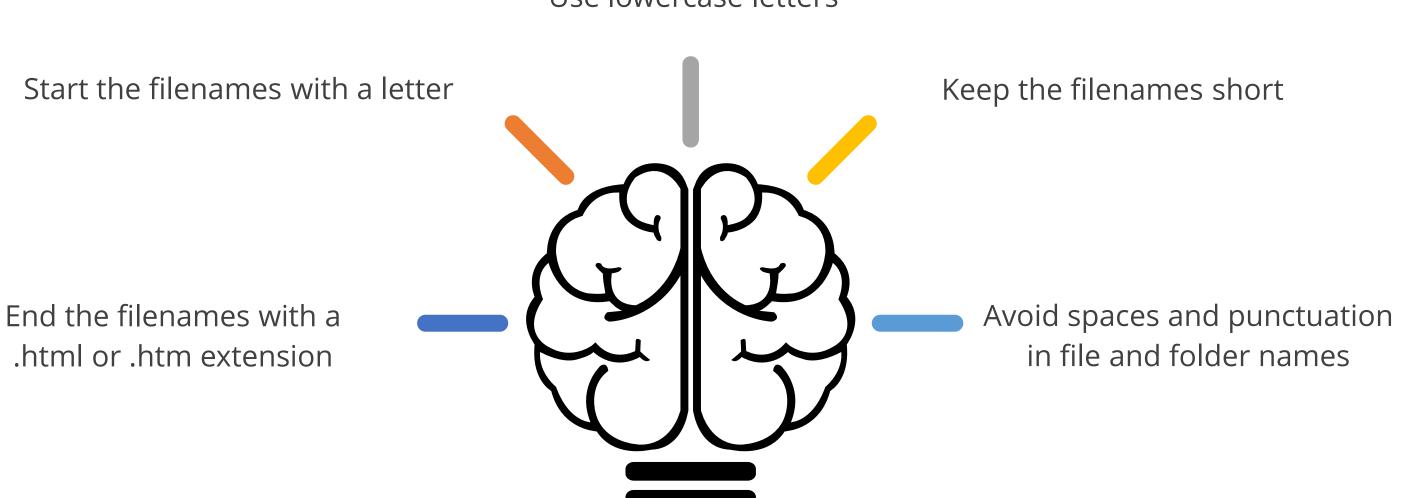
HTML Elements

HTML elements are the building blocks of an HTML document. They are used to define the structure and content of a web page.



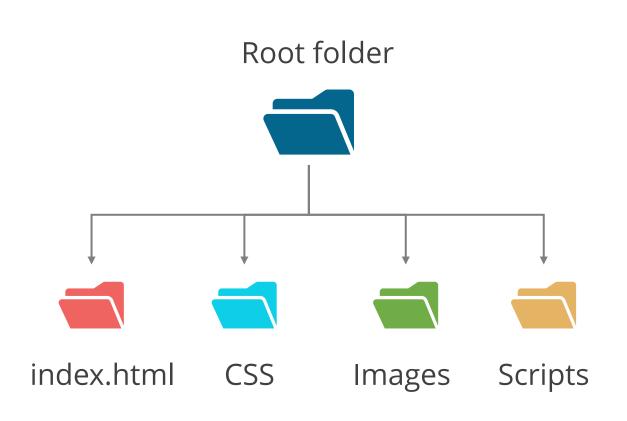
Best Practices for Naming Files and Folders





Typical Website File and Folder Structure

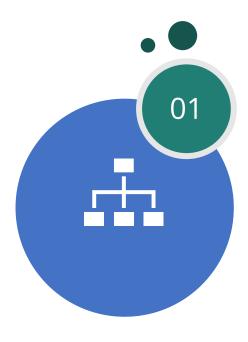
Users can organize their files by creating separate subfolders. The following is the basic website folder structure:



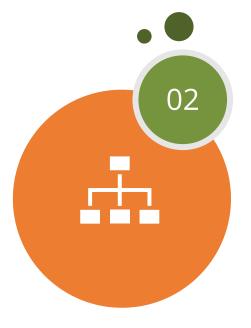
- **Root folder**: All the additional files and folders are found in this folder.
- **HTML folder**: The files must be saved in the root folder with the **.html** extension and not in the subfolder.
- Images folder: All the images are in this folder.
- **JavaScript folder**: All the JavaScript files are saved in this folder with the **.js** extension.

Organize the Website Files and Folders

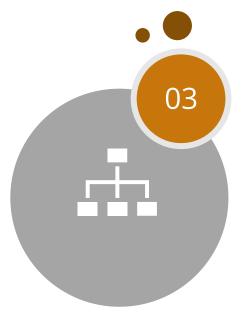
Users can organize their files and folders using the following methods:



Organize by type



Organize by component



Organize by hybrid approach

Organize by Type

Most web developers organize the files and folders by their type.

Example:

```
/js
  /classes
  /libs
  /app.js
/css
  /screen.css
  /print.css
/images
  /icons
  /logo.png
/templates
  /mobile
  /base.html
```

This approach is useful in the following situations:

- Users require a structure for each folder as the website grows.
- Users require subfolders for the folders.

Organize by Components

In this type, each folder contains the code for a specific piece of functionality.

```
/components
/navigation
/navigation.css
/navigation.html
/navigation.js
/section
/section.css
/section.html
/section.js
```

This type of approach is a good choice if the users are organized web developers.

Organize by Hybrid Approach

The hybrid approach provides maximum flexibility for any type of web development.

Example:

- Users can bundle global CSS and JavaScript into a single folder, along with folders for reusable components.
- Users can reuse the bundled folder for new projects and save time while searching for components.

Links, Lists, and Images

HTML Links

href attribute is used to add links into any HTML elements, followed by the URL inside the anchor tag <a>.

Google

HTML Plug-ins

Plug-ins (Helper applications) extend the functionalities of a web browser. They can be added to web pages with the <object> or <embed> tags.

Example 1:

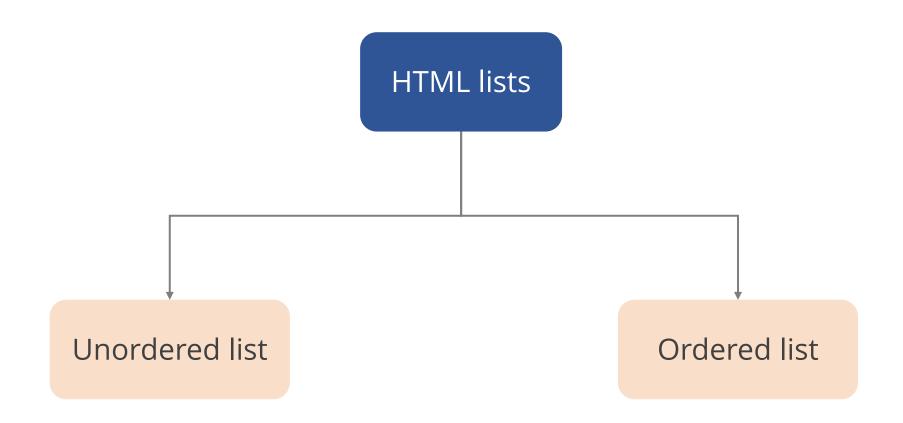
<object data="sample.jpeg"></object>

Example 2:

<embed src="sample.jpeg">

HTML Lists

HTML lists allow users to group a set of related items in a list.



Unordered List in HTML

An unordered list begins with tag followed by tag for each content of the list.

```
    Apple
    Mango
    Pineapple
```

Output:

- Apple
- Mango
- Pineapple

By default, an unordered list starts with a bullet point.

Ordered List in HTML

An ordered list begins with a tag followed by a tag for each content of the list.

Output:

- 1. Apple
- 2. Mango
- 3. Grapes

By default, the ordered list starts with numbers.

HTML Images

The tag is used to include an image on the web page.

```
<body>
<img src = "img1.jpg" alt = "HTML Demo" height =
"150" width = "140" />
</body>
```



Duration: 10 min.

Problem Statement:

You are given a project to add hyperlinks, lists, and images to your web page.

Assisted Practice: Guidelines

Steps to be followed:

- 1. Creating the index.html file
- 2. Adding hyperlinks, lists, and images in the index.html file
- 3. Viewing the result in the local browser



Duration: 10 min.

Problem Statement:

You are given a project to add plug-ins to your web page.

Assisted Practice: Guidelines

Steps to be followed:

- 1. Creating the index.html file
- 2. Adding plug-ins in the index.html file
- 3. Viewing the result in the local browser

Tables and Forms

Tables in HTML

HTML tables are used to arrange information like images, text, and links into rows and columns.

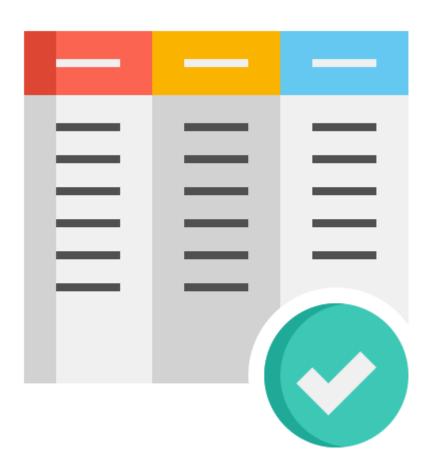


Table Structure

A table consists of cells inside rows and columns.

Example:

- The table is defined by and tags.
- The table cell is defined by and tags.
- The table row is defined by and tags.
- The table header cells are defined by **>** and **>** tags.

Table Data

The table data tags and are used to create data cells in a table.

Table Rows

The table row tags and are used to create rows in a table.

Table Headers

The table header tags **>** and **>** are used to create header data cells in a table.



Duration: 10 min.

Problem Statement:

You are given a project to add tables to your web page using HTML.

Assisted Practice: Guidelines

Steps to be followed:

- 1. Creating the index.html file
- 2. Adding tables to the web page
- 3. Viewing the result in the local browser

Form in HTML

An HTML form is used to collect user input. The **<form>** tag is used to create a form.

Example:

<form>

form elements

. / 6

</form>

It contains various types of elements such as:

- <input>
- <label>
- <select>
- <textarea>
- <button>
- <fieldset>

- <legend>
- <datalist>
- <output>
- <option>
- <optgroup>

Form Method

Method attribute states how the details of a form would be processed.



There are two types of form methods:

- GET
- POST

Form Method: Get

Get is a default method in which the form data gets attached to the URL with name-value pairs.

Form Method: Post

In the post method, the form data is carried in a message body like an HTTP post transaction.

// Example: <form method="post"> <label>First name: <input type="text">
 <label>Last name: <input type="text">
 <input type="text">
 <input type="submit" value="Submit">

Form in HTML

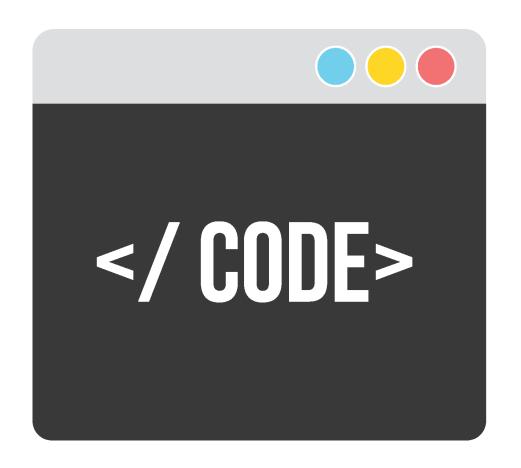
The following is an example of a simple form that takes username and password as user inputs:

```
<form>
    <label for="username">Username:</label><br>
        <input type="text" id="username" name="username"><br>
        <label for="pwd">Password:</label><br>
        <input type="password" id="pwd" name="pwd">
        </form>
```

Output:	
Username:	
Password:	

HTML Special Characters

In HTML, several characters are reserved and have particular meaning when used in HTML documents



HTML Special Characters

A few examples of HTML special characters are as follows:

Symbol	Description	Entity Name	Number code
***	Quotation mark	"	"
•	Apostrophe	'	'
&	Ampersand	&	&
<	Less-than	<	<
>	Greater-than	>	>



Duration: 15 min.

Problem Statement:

You are given a project to develop a form using HTML.

Assisted Practice: Guidelines

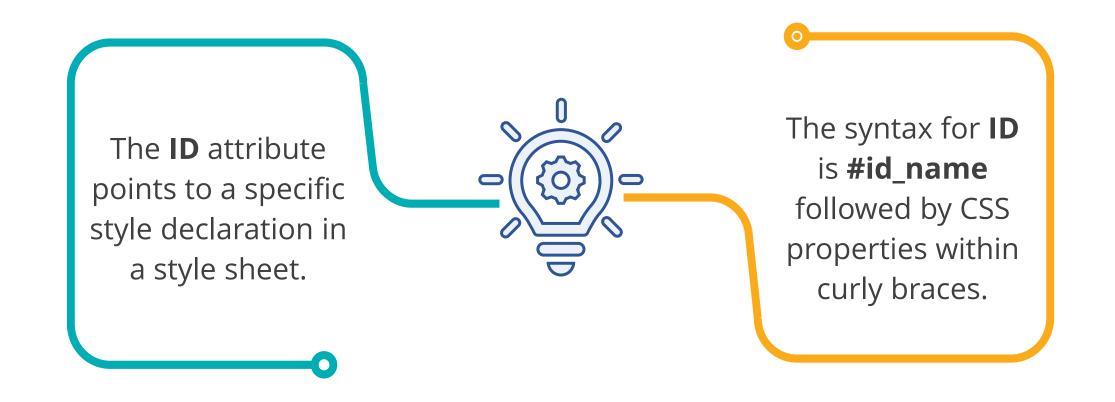
Steps to be followed:

- 1. Creating the index.html file
- 2. Adding forms to the web page
- 3. Viewing the result in the local browser

ID, Class, Header, and Footer

HTML ID

The HTML **ID** attribute is used to specify a unique identifier for an HTML element.



HTML ID

The following is an example of an **ID** attribute named **#myid** followed by CSS properties to change the color and padding:

```
<!DOCTYPE html>
<html>
<head>
<style>
#myid {
Backgroundcolor: lightblue;
color: black;
Padding: 40px;
}
</style>
</head>
<body>
<h1 id="my"> My filename</h>
</body>
</html>
```

HTML Class

The class attribute is used to specify a **class** for an HTML element. The syntax for class is **.class_name**, followed by CSS properties inside curly braces.



- Users can access and manipulate elements with the specific class name such as class = ".myclass".
- Users can specify one or more class names for an element.
- The same page can have multiple elements with the same class name, but the id should be unique for each element.

HTML Class

The following is an example of a class attribute named .my followed by CSS properties to change the color and padding:

```
<!DOCTYPE html>
<html>
<head>
<style>
 .myclass {
    Backgroundcolor: lightblue;
    color: black;
    Padding: 40px;
</style>
</head>
 <body>
 <h1 class="myclass"> My filename</h>
</body>
</html>
```

HTML Span

The tag is used as a generic container for inline elements.

Syntax:

Some Text

Example:

```
<!DOCTYPE html>
<html>
<head>
</head>
<body>
<h1 class="my"> My filename</h>
 Here is an <span> example of Span element.</span>
</body>
</html>
```

HTML Div

The **div** tag is used to group the large section of HTML elements.

Example:

- The <div> tag is styled by using a class or id attribute.
- The <div> tag is used to wrap large sections of elements.
- The <div> tag is similar to the tag, but <div> is a block-level element and is an inline element.

HTML Header

The **<header>** tag in the HTML element is used to define the header for a web page or a section.

A <header> element can contain:

- Heading elements (<h1> to <h6>)
- Logo or icon
- Authorship information

HTML Footer

The **<footer>** tag defines the footer of a web page or a section.

Example:

```
<!DOCTYPE html>
<html>
<head>
<title>Footer</title>
</head>
<body>
    <h1 class="my"> My filename</h>
HTML is used to develop web pages.
<footer>Contact no:34538568
About us</footer>
</body>
</html>
```

A **<footer>** element can contain:

- Authorship information
- Copyright information
- Contact information
- Sitemap
- Back to top links
- Related documents

ID, Class, Div, Header, and Footer



Duration: 15 min.

Problem Statement:

You are given a project to create an HTML web page using ids, classes, headers, and footers.

Assisted Practice: Guidelines

Steps to be followed:

- 1. Creating the index.html file
- 2. Adding ids, classes, headers, and footers to the web page
- 3. Viewing the result in the local browser

HTML Nav

The **<nav>** tag defines a set of navigation links that help show users and search engines some type of navigation menu (primary, pagination, breadcrumbs etc).

```
<nav>
<a href="/English">ENGLISH</a> |
<a href="/Science">SCIENCE</a> |
<a href="/hindi">HINDI</a> |
<a href="/maths">MATHEMATICS</a>
</nav>
```

HTML Section

The HTML **<section>** is used to create standalone sections within a web page.

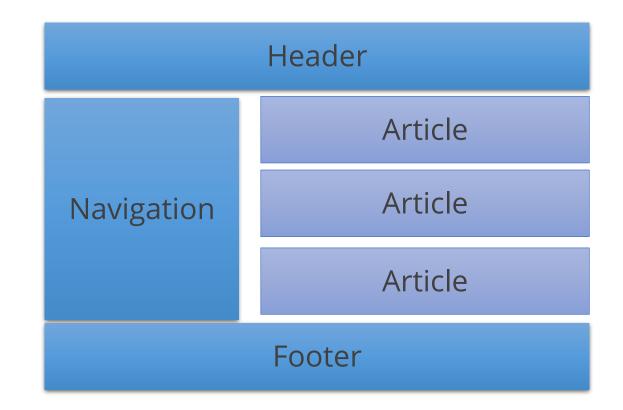
Example:

```
<section>
<h3>Welcome to the HTML World</h3>
HTML is the hypertext markup language for creating the web page.
</section>
```

HTML Article

The **<article>** element represents a standalone composition in a document, page, application, or site that is intended to be distributed or reused independently.

Example:



HTML Time

The HTML <time> tag is used to define a specific time or date on a web page. It can be used in conjunction with the datetime attribute to specify the exact date and time

chtml> <head> <title>Time</title> </head> <body> <h3>Welcome to the HTML World</h3> We are going to meet up at <time>10:00 am to 12:00pm</time></body> </html>

HTML Abbreviations

HTML <abbr> tag define the abbreviation of the acronym.

Example:

```
<html>
<head>
<title>Time</title>
</head>
<body><h1>CSS <abbr title = Cascading Styling
Sheet></abbr>CSS is an language used to style the
sheet.</h1></body>
</html>
```



Duration: 45 min.

Problem Statement:

You are given a project to develop an HTML document using nav, section, time, and abbreviation tags.

Assisted Practice: Guidelines

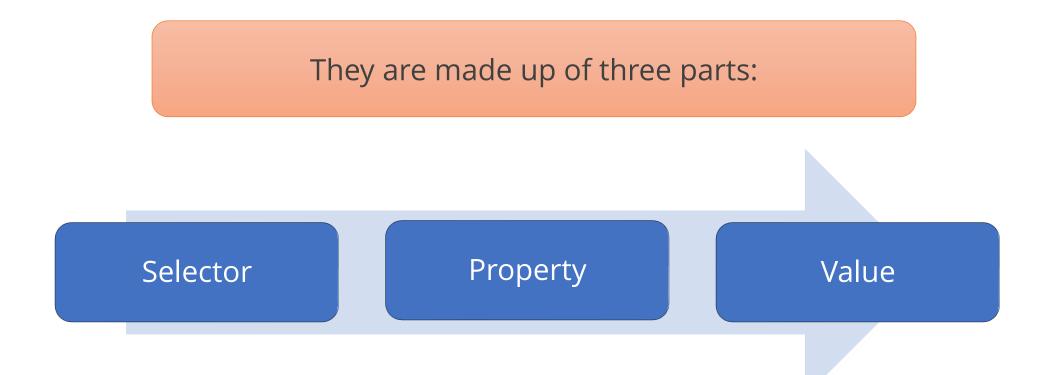
Steps to be followed:

- 1. On the HTML folder, create a file with a .html extension
- 2. Create and save a code for nav, section, time, and abbreviations
- 3. Use the Chrome browser to open the saved file

CSS Foundation

Style Rule

The browser uses style rules to understand and then apply them to the related components on the user's page.



Types of CSS

CSS is used to set the style of web pages that contain HTML elements. It sets the background color, font size, font family, and color of a web page.

There are three types of CSS, which are listed below:

Inline

Internal

External

Inline Style

Inline styling is used to apply a unique style to a single HTML document.

Internal Style

Internal CSS is used to define a style for a single HTML page.

Example:

```
<head>
<style>
body {background-color:lightyellow;}
h1 {color: blue;}
p {color: black;}
</style>
</head>
```

Internal CSS is contained within an <style> element in an HTML page's <head> section.

External Style

The external style sheet is used to specify the style for many HTML pages or to maintain stylistic information in a separate file from the content for better management.

Example

```
body {
  background-color: lightblue;
}
h1 {
  color: blue;
}
p {
  color: red;
}
```

- External CSS includes a separate CSS file with only style properties using tag attributes.
- CSS properties are written in separate files with a .css extension which should be linked to the HTML content using the link tag.



Duration: 45 min.

Problem Statement:

You are given a project to develop an HTML document using inline styling.

Assisted Practice: Guidelines

Steps to be followed:

- 1. On the HTML folder, create a file with a .html extension
- 2. Create and save a code for inline styling
- 3. Viewing the result in the local browser



Duration: 45 min.

Problem Statement:

You are given a project to develop an HTML document using an external styling tag.

Assisted Practice: Guidelines

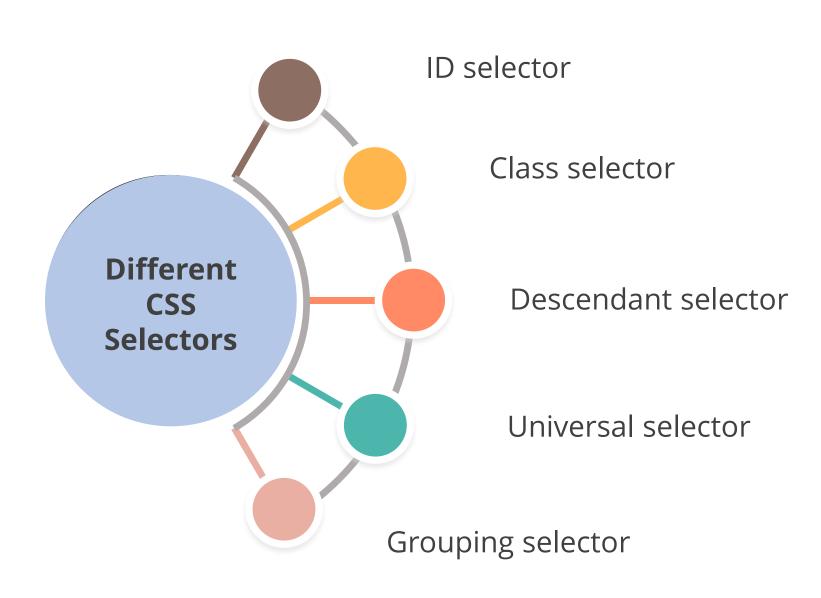
Steps to be followed:

- 1. On the HTML folder, create a file with a .html extension
- 2. Create and save a code for external styling
- 3. Viewing the result in the local browser



CSS Selectors

CSS selectors are used for styling the content, and it is a part of the CSS rule set.



ID Selector

Example:

```
<style>
#paral {
  text-align: center;
  color: red;
}
</style>
```

- The ID selector selects a specific HTML element based on its ID attribute.
- The ID attribute's value is used by the CSS ID selector to match an element.
- The element's ID attribute must exactly match the value specified in the selector for it to be selected.

Class Selector

Example:

```
.center {
  text-align: center;
  color: red;
}
```

- The class selector is used to select HTML items that have a specified class attribute.
- A period (.) character followed by the class name is used to select the element of the specific class.

Descendant Selectors

All elements that are descendants of the specified element are matched by the descendant selector.

```
div p {
  text-align: center;
  color: red;
}
```

ID, Class, and Descendant Selectors



Duration: 45 min.

Problem Statement:

You are given a project to develop an HTML document using ID, class, and descendant selectors.

Assisted Practice: Guidelines

Steps to be followed:

- 1. On the HTML folder, create a file with a .html extension
- 2. Create and save the code for ID, class, and descendant selectors
- 3. Viewing the result in the local browser

CSS Universal Selector

The universal selector is a unique type of selector.

Example:

```
/* Selects all elements */
  * {
  color: green;
}
```



- It can be a namespace when using @namespace.
- This helps with documents containing several namespaces, such as HTML with embedded SVG or MathML, or XML that combines different vocabularies.

CSS Grouping Selector

Multiple items can be chosen and styled together using the CSS grouping selector.

Example:

```
<head>
  <style>
article, p, img {
    display: block;
    margin: auto;
    text-align: center;
    border-bottom: double orange;
}
</style>
</head>
```

- Declaring common styles for each element saves time and decreases the amount of code that must be written.
- Each selector is separated from the others by a space to form groups.



Duration: 45 min.

Problem Statement:

You are given a project to develop an HTML document using grouping selectors.

Assisted Practice: Guidelines

Steps to be followed:

- 1. On the HTML folder, create a file with a .html extension
- 2. Create and save a code for grouping selectors
- 3. Viewing the result in the local browser

Text, Colour, and Forms Styling

CSS Color Property

The color property in CSS is used to add color to the text, web page's background, and borders.



Example:

```
<style>
body {
 color: red;
h1 {
 color: #00f099;
p.ex {
 color: rgb(0,221,255);
</style>
</head>
```

CSS Color

Color in CSS can be added by using the hex, RGB, or HSL value of the required color.

The hexadecimal code is #RRGGBB, where RR (red), GG (green), and BB (blue).



CSS color using HEX value:

style="background-color:#3cb371;"

The following formula can be used to specify an RGB value for a color: RGB (red, green, blue)



CSS color using RGB value:

style="background-color:rgb(255, 165, 0);"

A color can be specified using hue (HSL) using the following formula: HSL (hue, saturation, lightness)

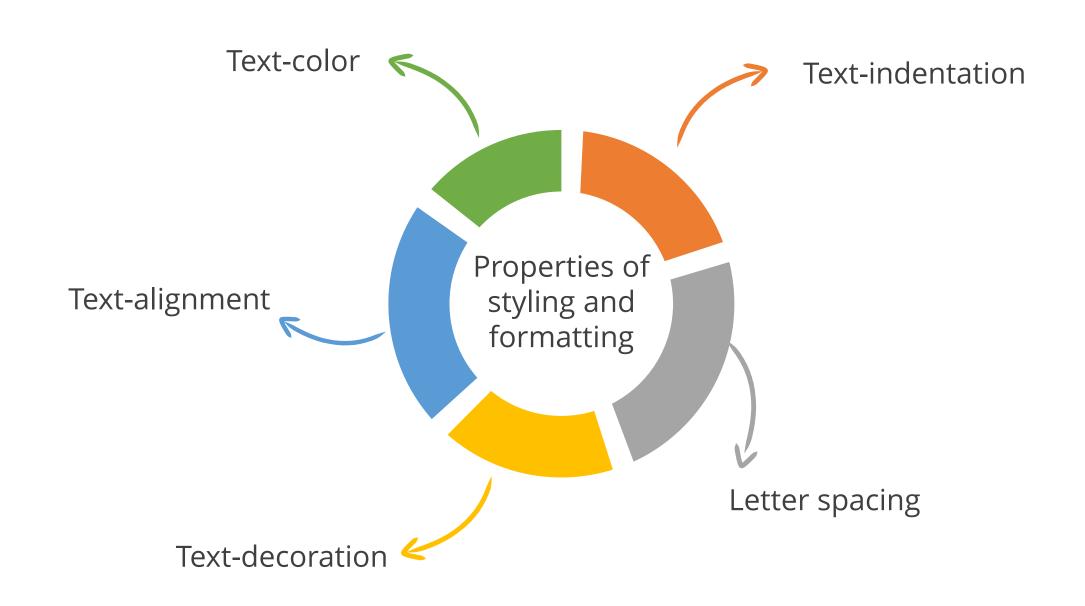


CSS color using HSL value:

style="background-color:hsl(0, 20%, 50%);"

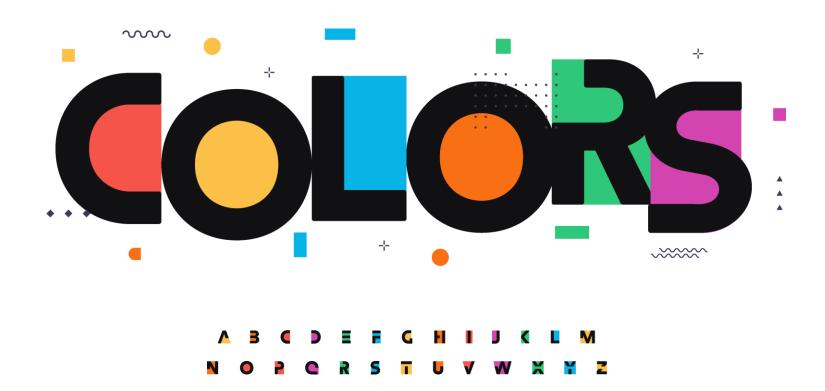
Text Styling and Formatting

Text may be styled and formatted using CSS text formatting attributes. The properties are as follows:



Typography

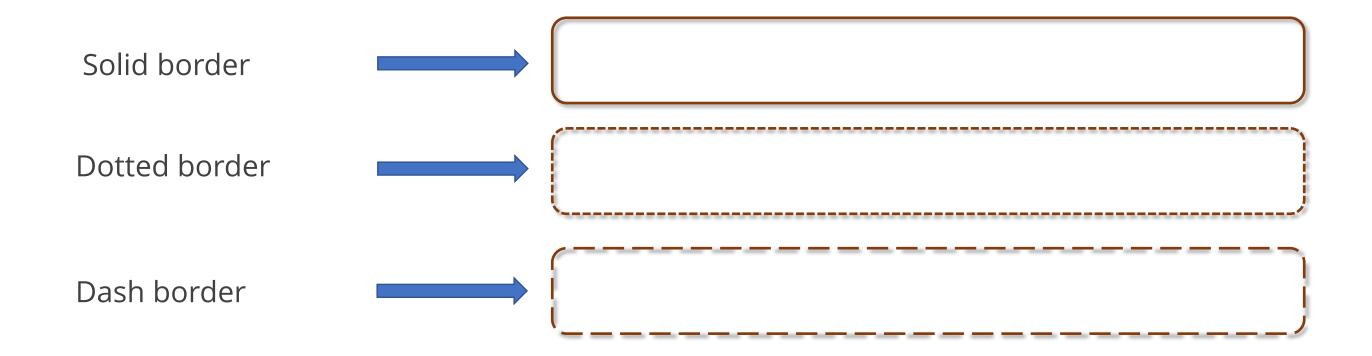
Typography is the art of arranging letters and phrases to enhance a website's readability and even navigation.



Two groups of CSS properties that can control typography: font and text.

CSS Border

The style, width, and color of an element's border may be customized using the CSS border properties. A few example are as follows:



Background Images

The background picture of an HTML page or table can be specified using the background attribute in the HTML document.



To add a background image, use the HTML style attribute and the CSS background-image property

Text styling, Borders, BG images



Duration: 45 min.

Problem Statement:

You are given a project to develop an HTML document with CSS by text styling, borders, and background images.

Assisted Practice: Guidelines

Steps to be followed:

- 1. On the HTML folder, create a file with a .html extension
- 2. Create and save text styling, borders, and background images
- 3. Viewing the result in the local browser



Duration: 45 min.

Problem Statement:

You are given a project to develop an HTML document with styling form.

Assisted Practice: Guidelines

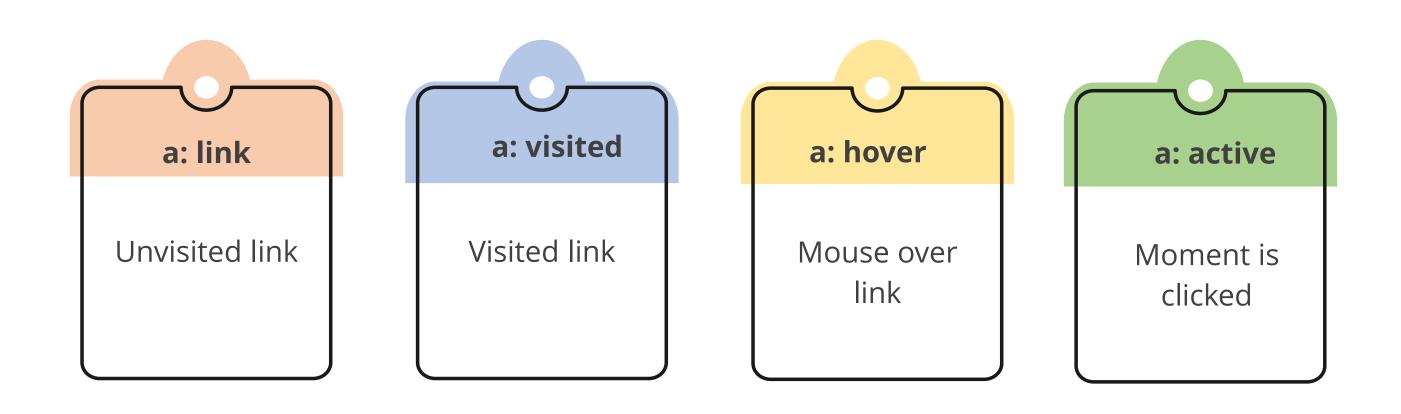
Steps to be followed:

- 1. On the HTML folder, create a file with a .html extension
- 2. Create and save a code for styling forms
- 3. Viewing the result in the browser

Links and Positioning

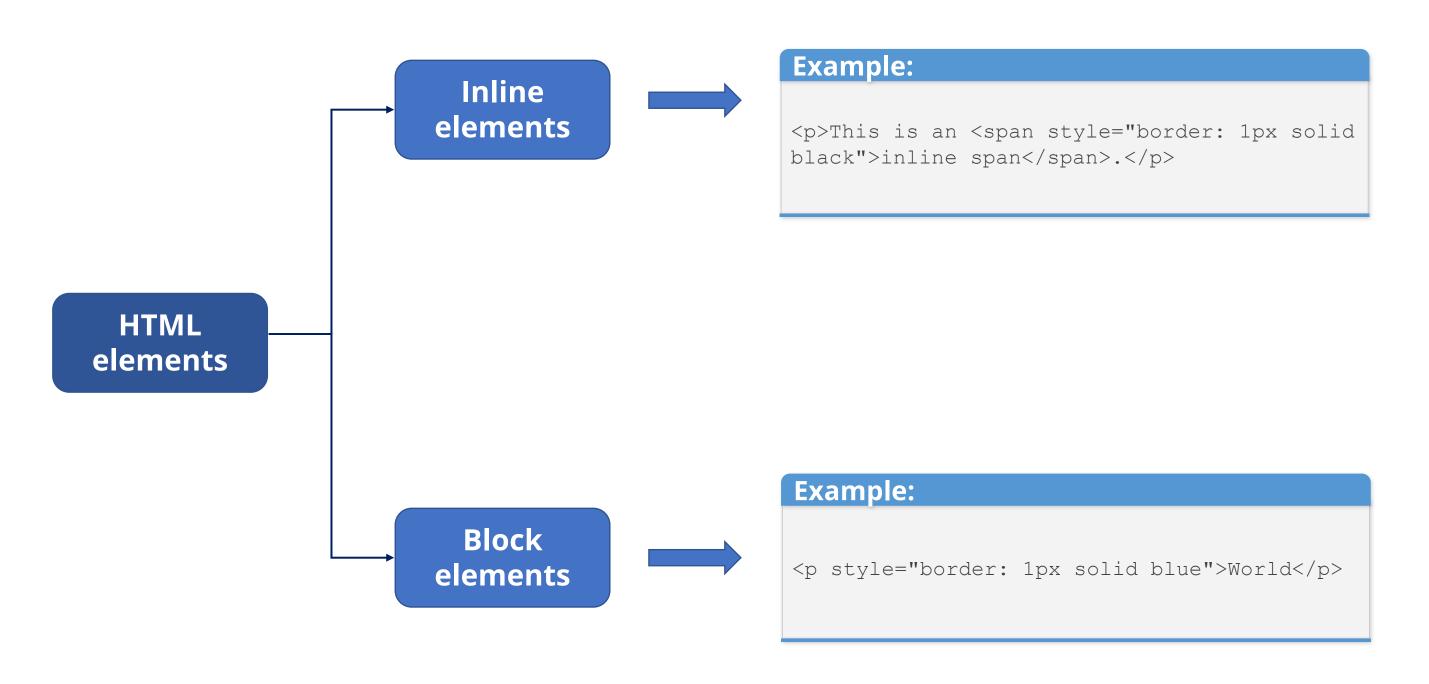
Styling Links

The user can style links using any CSS attribute. There are four types of style links:



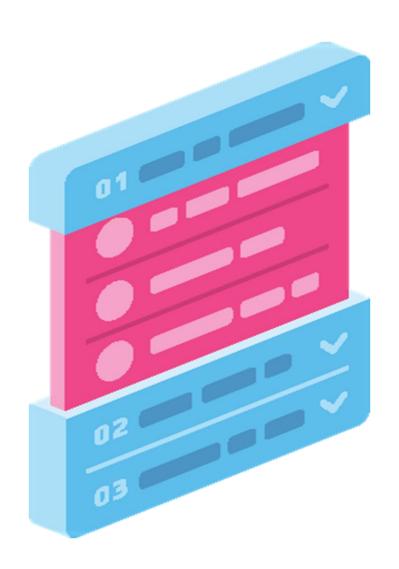
Block and Inline Elements

HTML elements are divided into two types:



Block Element

A block-level element always begins on a new line, and browsers add a margin (a space) before and after the element by default.



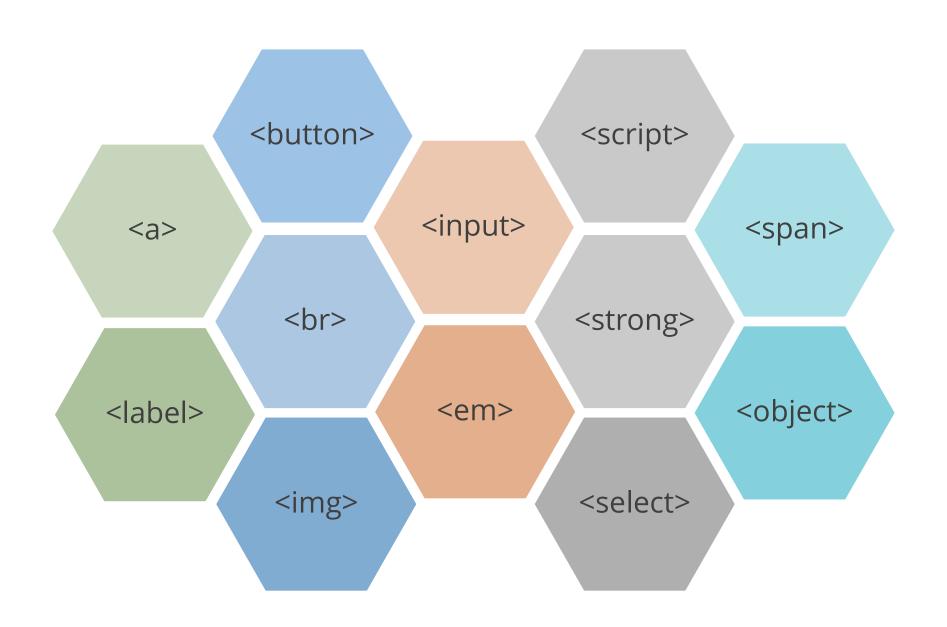
Block Element

The features of block elements are as follows:

01	Every element at the block level will begin a new line and stack down the page.
02	An example of a block-level element is the p element.
03	Every new paragraph tag will have its own line and display vertically.
04	The best example is the <div> tag, which groups the components and adds CSS style to the group of elements.</div>

Inline Element

Inline elements appear in a single line. A few examples of inline elements are as follows:



Float

CSS **float** element is used to float images and text, but float property is also used to build layouts using div.

Example:

```
<style>
 *{margin}
  .wrap(width :800px; border:1px solid)
.aside{
  width:200px;
  height:200px;
</style>
}
```

Clear

To prevent the following element from wrapping over the surrounding floating components, use the CSS **clear** attribute.

```
Example:

<style>
 *{margin:0}
    .wrap(width :800px; border:1px solid)
.aside{
    width:200px;
    height:200px;
</style>
}
```

The values of clear might be clear left, clear right, or clear both.

CSS Positioning

The position attribute describes the kind of positioning technique that is applied to an element (static, relative, absolute, fixed, or sticky).





Duration: 45 min.

Problem Statement:

You are given a project to develop an HTML document with CSS styling like links, block elements, and float.

Assisted Practice: Guidelines

Steps to be followed:

- 1. On the HTML folder, create a file with a .html extension
- 2. Create and save a code for links, blocks, float
- 3. Viewing the result in the local browser

Key Takeaways

- The CSS style rule is made up of three types such as selector, value, and property.
- There are different types of CSS selectors, such as ID selectors, class selectors, and descendant selectors.
- Get is a default method in which the form data gets attached to the URL with name-value pairs.
- The position attribute describes the kind of positioning technique that is applied to an element.



Thank You