UNIT I

Web Technologies

Global Attributes in HTML5

- HTML global attributes are those attributes which are common for all HTML elements.
- The global attributes can be used with all elements, although it may not have any effect on some elements.

Example attributes:

- id:It specifies a unique id for the element. It can be used with CSS and JavaScript.

    <h1 id="myid">heading</h1>

- hidden:It is used to hide the element from view.

    <p hidden>hidden paragraph</p>

- lang:It specifies the primary language for the content of an element.

    <p lang="en">content in English</p>

- style:It is used to apply inline CSS to the current element.

    <p style="color:red; text-align:center">paragraph</p>

- spellcheck:It specifies whether the content should be checked for spelling errors or not.(true/false)

- title:It is used to provide the title, name, or some extra information about the element. The title is shown as a tooltip text when the mouse moves over the element.

    <abbr title="World Health Organization">WHO</abbr>

- data-*:It is used to store element-specific private data which can be accessed by Javascript.

HTML attributes:

- HTML attributes provide additional information about HTML elements.
- All HTML elements can have **attributes**
- Attributes are always specified in **the start tag**
- Attributes usually come in name/value pairs like: **name="value"**

- The href Attribute
- The `<a>` tag defines a hyperlink. The **href** attribute specifies the URL of the page the link goes to: `<a href="https://www.anu.com">`Visit anu`</a>`
- The src Attribute
- `<img>` tag is used to embed an image in an HTML page. The src attribute specifies the path to the image to be displayed:
- `<img src="img_girl.jpg">`

The width and height Attributes

The `<img>` tag should also contain the `width` and `height` attributes, which specify the width and height of the image (in pixels):

```
<img src="img_girl.jpg" width="500" height="600">
```
OR
```
<img src="img_girl.jpg" alt="Girl in a jacket" style="width:500px;height:600px;">
```



```
<!DOCTYPE html>
<html>
<body>

<h2>Width and Height Attributes</h2>

<p>The width and height attributes of the img tag, defines the
width and height of the image:</p>

<img src="img_girl.jpg" width="500" height="600">

</body>
</html>
```

The alt Attribute

The required `alt` attribute for the `<img>` tag specifies an alternate text for an image, if the image for some reason cannot be displayed. This can be due to a slow connection, or an error in the `src` attribute, or if the user uses a screen reader.

```
<img src="img_girl.jpg" alt="Girl with a jacket">
```

The style Attribute

The `style` attribute is used to add styles to an element, such as color, font, size, and more.

```
<p style="color:red;">This is a red paragraph.</p>
```

The lang Attribute

You should always include the `lang` attribute inside the `<html>` tag, to declare the language of the Web page. This is meant to assist search engines and browsers.
The following example specifies English as the language:

```
<!DOCTYPE html>
<html lang="en">
<body>
...
</body>
</html>
```

The title Attribute

The `title` attribute defines some extra information about an element.
The value of the title attribute will be displayed as a tooltip when you mouse over the element:

```
<p title="I'm a tooltip">This is a paragraph.</p>
```

Background Color

You can set the background color for HTML elements:

<h1 style="background-color:DodgerBlue;">Hello World</h1>

Lorem ipsum dolor sit amet, consectetuer adipiscing elit, sed diam nonummy nibh euismod tincidunt ut laoreet dolore magna aliquam erat volutpat. Ut wisi enim ad minim veniam, quis nostrud exerci tation ullamcorper suscipit lobortis nisl ut aliquip ex ea commodo consequat.

```
<h1 style="background-color:DodgerBlue;">Hello World</h1>
<p style="background-color:Tomato;">Lorem ipsum...</p>
```

Text Color

You can set the color of text:

```
<h1 style="color:Tomato;">Hello World</h1>
<p style="color:DodgerBlue;">Lorem ipsum...</p>
<p style="color:MediumSeaGreen;">Ut wisi enim...</p>
```

Hello World

Lorem ipsum dolor sit amet, consectetuer adipiscing elit, sed diam nonummy nibh euismod tincidunt ut laoreet dolore magna aliquam erat volutpat.

Ut wisi enim ad minim veniam, quis nostrud exerci tation ullamcorper suscipit lobortis nisl ut aliquip ex ea commodo consequat.

Border Color

You can set the color of borders:

Hello World

Hello World

Hello World

```
<h1 style="border:2px solid Tomato;">Hello World</h1>
<h1 style="border:2px solid DodgerBlue;">Hello World</h1>
<h1 style="border:2px solid Violet;">Hello World</h1>
```

HTML style attribute

- Styles in HTML are basically rules that describe how a document will be presented in a browser.

- Style information can be either attached as a separate document or embedded in the HTML document.

- There are 3 ways of implementing style in HTML:
  - **Inline Style**: In this method, the style attribute is used inside the HTML start tag.
  - **Embedded Style**: In this method, the style element is used inside the <head> element of the document.
  - **External Style**: In this method, the <link> element is used to point to an external CSS file.

Inline style

- **Inline Style:** In Inline styling, the CSS rules are directly written inside the starting tag using the style attribute. The style attribute includes a series of CSS property and value pairs. Each ' **property: value** ' pair is separated by a semicolon (;). This attribute will override the style properties globally for any relevant style set.

- **Color:** This property is used to specify the font color of the text using the color name, HEX code, or the RGB code of the color.

```
<h1 style="color:blue;">This is a header</h1>
```

This is a header

- **background-color:** This property is used to set the background color of various HTML elements like div, span, body, etc. Use the HEX code or RGB code or the color name of the color you want.

```
<h1 style="background-color:blue; color:white">This is a header</h1>
```

This is a header

- **font-size:** This property is used to set the font size of the text.

```
<h1 style="font-size:56px">This is a header</h1>
```

This is a header

- **border:** This property is used to set the border width, border type, and border color.

```
<h1 style="border:1px solid red">This is a header</h1>
```

This is a header

- **background-image:** This property is used to set a background image to a div, HTML body, etc. We use url() and paste the image URL link inside the brackets.

```
<div style="background-image:url(https://www.gigacalculator.com/img/calculators/random-numbers-dice.jpg);
height:400px">
<div style="background-color: cyan; width:50px; height:50px"></div> </div>
```

- Font-family:The font-family property specifies the font family of the HTML tag

```
<h3 style="font-family:times new roman">This is times new roman font family</h3>
<p style="font-family:arial">This is arial font family</p>
```

This is times new roman font family

This is arial font family

- font-size:The font-size property is used to HTML

```
<h3 style="font-size:200%">This is 200% h3 tag</h3>
<p style="font-size:200%">This is 200% p tag</p>
```

This is 200% h3 tag of the

This is 200% p tag

- text-align:The text align property is used to define the horizontal text

```
<h3 style="text-align:right;background-color:pink;">This text is located at right side</h3>
<p style="text-align:center;background-color:pink;">This text is located at center side</p>
```

This text is located at right side

This text is located at center side

- **text-decoration:**This property is used to set decorations like underline, line-through, or overline, over text in HTML.

```
<p style="text-decoration:underline; text-align:center; padding:10px 0; border: 1px solid red; font-size:32px">This is a paragraph aligned center</p>
```

<u>This is a paragraph aligned center</u>

- **letter-spacing:**This property is used to define the spacing between characters in a word. It can be assigned a positive pixel value to increase or a negative pixel value to decrease the spacing between letters.

```
<p style="letter-spacing:4px; text-align:center; padding:10px 0; border: 1px solid red; font-size:32px">
This is a paragraph aligned center</p>
```

- **line-height**

This is a paragraph aligned center

- This property is used to define the distance between vertical lines. To increase the distance we use a positive pixel value and to decrease the distance we use a negative pixel value.

```
<p style="line-height:80px; text-align:center; border: 1px solid red;
font-size:32px">This is a paragraph aligned center
<br> This id second line of the paragraph</p>
```

> This is a paragraph aligned center
>
> This id second line of the paragraph

text-shadow: This property is used to add shadow to the text. In the **text-shadow** property's value, the first value defines the horizontal position and the second value defines the vertical position of the text-shadow concerning the text. These two values are required, the third value is for the blur radius and the fourth value is for the color of the radius. These two values are optional.   text-shadow: (horizontal shadow) (vertical shadow) (blur-radius)(color)

```
<p style="text-shadow: 5px 2px 2px gray; text-align:center; padding:20px 0;
border: 1px solid red; font-size:32px">This is a paragraph aligned center</p>
```

> This is a paragraph aligned center

- **background-repeat:** This property is used to control the repeat behavior of the background image used. It controls whether the background image will be repeated or not to fill the background if the image is smaller than the background.

```
<div style="background-image:url(https://bfba.jpg);background-repeat:no-repeat;
height:800px"></div>
```

- **background-position:** This property is used to define the position of the background image.

```
<div style="background-image:url(https://bfba.jpg);background-repeat:no-
repeat; background-position:bottom;height:800px"></div>
```

- **margin**: CSS allows us to set margins on all four sides of an HTML element or add margin to only desired sides of the elements.

  Margin property allows us to have a margin on our elements, and it follows the TOP-LEFT-BOTTOM-RIGHT rule to add the margins, we could modify this to define only two values for the margin rule. It would automatically set those for both TOP-Bottom and Left-Right considering the same values for this collective group.

`<h1 style="background-color: white; color:blue; border: 2px solid rgb(253, 0, 0); margin: 40px 30px;">margins</h1>`

- **padding**: This property defines the space between the contents of the elements and the border of the element. We can use padding in a similar way we used the margin property. We could use it for all the directions collectively or either direction using padding-top, padding-bottom, padding-left, or padding-right. We can define padding properties in pixels, percentages, and pt, etc.

`<h1 style="background-color: antiquewhite; color:blue; border: 2px solid rgb(253, 0, 0); margin: 40px 30px; padding: 3%;">padding</h1>`

- Width and height: to set the height and width of an element.

`<h1 style="width=300px;height=200px;">height and width</h1>`

Embedded Style sheets

- Embedded or internal style sheets only affect the document they are embedded in. Embedded style sheets are defined in the <head> section of an HTML document using the <style> tag.

Example of Embedded Style

First paragraph.

Embedded Style

```html
<!DOCTYPE html>
<html lang="en">

<head>
    <style type="text/css">
    body {
        background-color: powderblue;
    }

    h1 {
        color: black;
        font-family: arial;
    }

    p {
        color: yellow;
        font-family: verdana;
    }
    </style>
    <title>Embedded Styling</title>
</head>

<body>
    <h1>Example of Embedded Style</h1>

<p>First paragraph.</p>

</body>

</html>
```

```
<!DOCTYPE html>
<html>
<head>
<style>
div {
  border: 1px solid black;
  padding: 25px 50px 75px 100px;
  background-color: lightblue;
}
</style>
</head>
<body>

<h2>The padding shorthand property - 4 values</h2>

<div>This div element has a top padding of 25px, a right
padding of 50px, a bottom padding of 75px, and a left padding
of 100px.</div>

</body>
</html>
```

The padding shorthand property - 4 values

This div element has a top padding of 25px, a right padding of 50px, a bottom padding of 75px, and a left padding of 100px.

External Style Sheet

- External Style Sheets method can be useful when the CSS has to be applied to various web pages.

- An external style sheet holds all the style rules in a separate document that you can link from an HTML file.

- There are two ways of attaching external style sheets:
  - **Linking External Style Sheets**
  - **Importing External Style Sheets**

- **Linking External Style Sheets**: In this method, an external style sheet is linked to an HTML document using the <link> tag.

```html
<head>
    <link rel="stylesheet"
          type="text/css"
          href="/html/css/externalstyle.css">
    <title>External Styling</title>
</head>
```

- **Importing External Style Sheets**: External style sheets can be loaded into an HTML document using "@import".
- The "@import" statement instructs the browser to load the CSS file.
- Other CSS rules can also be included using the <style> element.

```
<head>
    <style type="text/css">
    @import url("/html/css/importstyle.css");
    p {
        color: powderblue;
        font - size: 30px;
    }
    </style>
    <title>Importing external Styling</title>
</head>
```

Creating Tables in HTML

- HTML tables allow web developers to arrange data into rows and columns.

- An HTML table is defined using the "table" tag in the HTML page.

- Each table row is defined with the "tr" tag.

- A table header is defined with the "th" tag.

- By default, table headings are bold and centered.

- A table data or cell is defined with the "td" tag.

Syntax:

<table> Content </table>

- The <caption> tag defines a caption.

- The <caption> tag must be inserted immediately after the <table> tag.

- By default table caption will be centre aligned above a table.

- Table attributes: width, align, bgcolor, border, cellpadding, cellspacing
- width(pixels or %) width of the table
- bgcolor(rgb(x,x,x),#hexcode,colorname)
- align(right,left,center,justify):how the table must be aligned inside the containing document
- border(pixels): specifies border width(0 means no border)
- cellpadding(pixels or %): space between cell border and its content
- cellspacing(pixels or %): space between the cells

```html
<!DOCTYPE html>
<html>
<body bgcolor="pink">
    <table bgcolor="silver" align="center"
        border="5" cellspacing="5"
        cellpadding="5">
        <caption align="top">
                <h2 style="color: #ff3300;">
                    Train
                </h2>
            </caption>
          <tr bgcolor="purple">
             <th bgcolor="magenta">train number</th>
             <th bgcolor="magenta">departure</th>
             <th bgcolor="magenta">arrival</th>
             <th bgcolor="magenta">category</th>
        </tr>
        <tr>
             <td>12267</td>
             <td>23:25</td>
             <td>05:15</td>
             <td>duronto</td>
        </tr>
        <tr>
             <td>12426</td>
             <td>19:40</td>
             <td>05:05</td>
             <td>rajdhani</td>
        </tr>
        <tr>
             <td>12019</td>
             <td>06:05</td>
             <td>13:15</td>
             <td>shatabdi express</td>
        </tr>
    </table>
</body>
</html>
```

Train

train number	departure	arrival	category
12267	23:25	05:15	duronto
12426	19:40	05:05	rajdhani
12019	06:05	13:15	shatabdi express

```html
<table style="float:right">
  <caption style="text-align:right;float:right">My savings</caption>
  <tr>
    <th>Month</th>
    <th>Savings</th>
  </tr>
  <tr>
    <td>January</td>
    <td>$100</td>
  </tr>
  <tr>
    <td>February</td>
    <td>$200</td>
  </tr>

</table>
<br>

<table>
  <caption style="caption-side:bottom">My savings</caption>
  <tr>
    <th>Month</th>
    <th>Savings</th>
  </tr>
  <tr>
    <td>January</td>
    <td>$100</td>
  </tr>
  <tr>
    <td>March</td>
    <td>$100</td>
  </tr>

</table>
```
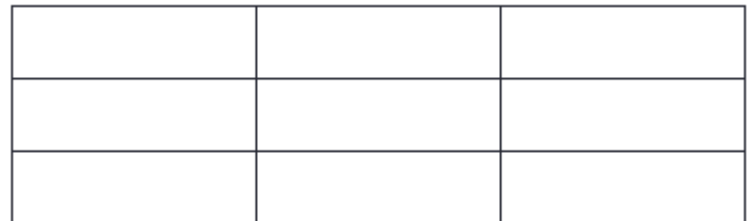
HTML Table Borders

- HTML tables can have borders of different styles and shapes.
- When you add a border to a table, you also add borders around each table cell.
- Use the CSS border property on table, th and td elements.

- ```
  table, th, td {
      border: 1px solid black;
  }
  ```

- To avoid double borders set the CSS border-collapse property to collapse to get the single border.

- ```
  table, th, td {
      border: 1px solid black;
      border-collapse: collapse;
  }
  ```
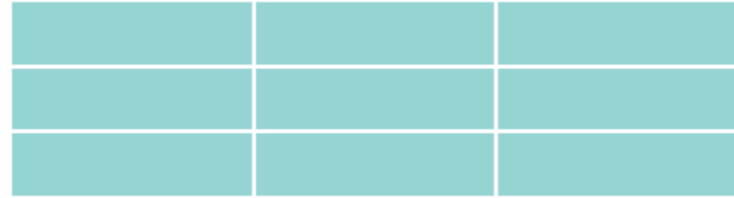
Add back ground color:

- ```
  th, td {
      background-color: #96D4D4;
  }
  ```

Round Table Borders

- With the border-radius property, the border get rounded corners.

- ```
  table, th, td {
      border: 1px solid black;
      border-radius: 10px;
  }
  ```

- Skip the border around the table by leaving out `table` from the CSS selector.

- ```
  th, td {
      border: 1px solid black;
      border-radius: 10px;
  }
  ```

Dotted Table Borders

With the `border-style` property, you can set the appearance of the border.

The following values are allowed:

- `dotted`
- `dashed`
- `solid`
- `double`
- `groove`
- `ridge`
- `inset`
- `outset`
- `none`
- `hidden`

```css
th, td {
    border-style: dotted;
    border-color: #96D4D4;
}
```

Spanning Multiple Rows and Columns

- We can use **rowspan** and **colspan** attributes to span multiple rows or columns in a table.

```html
<!DOCTYPE html>
<html lang="en">
<head>
    <title>Span Multiple Columns in an HTML Table</title>
    <style>
        table {
            width: 300px;
            border-collapse: collapse;
        }
        table, th, td {
            border: 1px solid black;
        }
        th, td {
            padding: 10px;
        }
    </style>
</head>
<body>
    <h2>Spanning Columns</h2>
    <table>
        <tr>
            <th>Name</th>
            <th colspan="2">Phone</th>
        </tr>
        <tr>
            <td>Ravi</td>
            <td>123456</td>
            <td>234567</td>
        </tr>
    </table>
</body>
</html>
```

Spanning Columns

Name	Phone	
Ravi	123456	234567

Spanning Multiple Rows and Columns

- We can use **rowspan** and **colspan** attributes to span multiple rows or columns in a table.

Cell that spans two rows

To make a cell span more than one row, use the rowspan attribute.

Name	Rani
Phone	12345678
	87654321

```html
<!DOCTYPE html>
<html>
<head>
<style>
table, th, td {
  border: 1px solid black;
  border-collapse: collapse;
}
</style>
</head>
<body>

<h2>Cell that spans two rows</h2>
<p>To make a cell span more than one row, use the rowspan attribute.</p>

<table width="40%">
  <tr>
    <th>Name</th>
    <td>Rani</td>
  </tr>
  <tr>
    <th rowspan="2">Phone</th>
    <td>12345678</td>
  </tr>
  <tr>
    <td>87654321</td>
  </tr>
</table>
</body>
</html>
```

Lists

- HTML Lists are used to specify lists of information.
- All lists may contain one or more list elements termed as nested list.
- There are three different types of HTML lists:
    1. Ordered List or Numbered List (ol)
    2. Unordered List or Bulleted List (ul)
    3. Description List or Definition List (dl)
- HTML Ordered List or Numbered List:
- In the ordered HTML lists, all the list items are marked with numbers by default. It is known as numbered list also.
- The ordered list starts with <ol> tag and the list items start with <li> tag.

```
<h2>An ordered HTML list</h2>

<ol>
  <li>Coffee</li>
  <li>Tea</li>
  <li>Milk</li>
</ol>
```

An ordered HTML list

1. Coffee
2. Tea
3. Milk

- Type attribute:

Type	Description
type="1"	The list items will be numbered with numbers (default)
type="A"	The list items will be numbered with uppercase letters
type="a"	The list items will be numbered with lowercase letters
type="I"	The list items will be numbered with uppercase roman numbers
type="i"	The list items will be numbered with lowercase roman numbers

```html
<h2>Ordered List with Letters</h2>

<ol type="A">
  <li>Coffee</li>
  <li>Tea</li>
  <li>Milk</li>
</ol>
```

Ordered List with Letters

A. Coffee
B. Tea
C. Milk

- By default, an ordered list will start counting from 1. If you want to start counting from a specified number, you can use the start attribute:

```
<ol start="50">
  <li>Coffee</li>
  <li>Tea</li>
  <li>Milk</li>
</ol>
```

50. Coffee
51. Tea
52. Milk

```
<ol type="I" start="50">
  <li>Coffee</li>
  <li>Tea</li>
  <li>Milk</li>
</ol>
```

L. Coffee
LI. Tea
LII. Milk

- Nested HTML Lists:

```
<!DOCTYPE html>
<html>
<body>

<h2>A Nested List</h2>
<p>Lists can be nested (list inside list):</p>

<ol>
  <li>Coffee</li>
  <li>Tea
    <ol>
      <li>Black tea</li>
      <li>Green tea</li>
    </ol>
  </li>
  <li>Milk</li>
</ol>

</body>
</html>
```

A Nested List

Lists can be nested (list inside list):

1. Coffee
2. Tea
    1. Black tea
    2. Green tea
3. Milk

```
<!DOCTYPE html>
<html>
<head>
<style>
body {
  background-color:#E7E9EB;
}
#myDIV {
  height:300px;
  background-color:#FFFFFF;
}
ul {
  list-style-type: upper-roman;
}
</style>
</head>
<body>

<h1>The list-style-type property</h1>

<div id="myDIV">
<ul>
  <li>Coffee</li>
  <li>Tea</li>
  <li>Coca Cola</li>
</ul>
</div>

</body>
</html>
```

The list-style-type property

  I. Coffee
 II. Tea
III. Coca Cola

Unordered lists:

- An unordered list is a collection of related items that have no special order or sequence.

- This list is created by using HTML **\<ul\>** tag.

- Each item in the list is marked with a bullet.

```
<ul>
    <li>Beetroot</li>
    <li>Ginger</li>
    <li>Potato</li>
    <li>Radish</li>
</ul>
```

- Beetroot
- Ginger
- Potato
- Radish

- type Attribute:You can use **type** attribute for \<ul\> tag to specify the type of bullet you like. By default, it is a disc.

```
<ul type = "square">
<ul type = "disc">
<ul type = "circle">
```

```
<!DOCTYPE html>
<html>
<body>

<h2>A Nested List</h2>
<p>Lists can be nested (list inside list):</p>

<ul>
  <li>Coffee</li>
  <li>Tea
    <ul>
      <li>Black tea</li>
      <li>Green tea</li>
    </ul>
  </li>
  <li>Milk</li>
</ul>

</body>
</html>
```

A Nested List

Lists can be nested (list inside list):

- Coffee
- Tea
  - Black tea
  - Green tea
- Milk

HTML Description List or Definition List

- In an HTML Description list or Definition List, the list items are listed like a dictionary or encyclopedia.

- Each item in the description list has a description.

- <dl> (Definition list) tag – Start tag of the definition list

- <dt> (Definition Term) tag – It specifies a term (name)

- <dd> tag (Definition Description) – Specifies the term definition

```html
<!DOCTYPE html>
<html lang="en">
<head>
    <title>HTML Description or Definition List</title>
</head>
<body>
    <h2>HTML Definition List</h2>
    <dl>
        <dt>Bread</dt>
        <dd>A baked food made of flour.</dd>
        <dt>Coffee</dt>
        <dd>A drink made from roasted coffee beans.</dd>
    </dl>
</body>
</html>
```

HTML Definition List

Bread
    A baked food made of flour.
Coffee
    A drink made from roasted coffee beans.