

Unit - 01 Web Designs

Origins and Evolution of HTML:-

- * HTML stands on Hyper Text Markup Language.
- * HTML was created by / developed in the early 1990's by Tim Berners-Lee.
- * A British computer scientist, the early 1990's while he was working at CERN, the European Organization for Nuclear Research.
- * HTML Markup Language is the foundation of the World Wide Web.

The Evolution of HTML:-

1. HTML 1.0:-

- * HTML 1.0 was first released of HTML to the World in 1993.
- * The language was very limiting.

2. HTML 2.0:-

- * HTML 2.0 version was released in November 1995.

* Introduced new features such as tables, image maps and form elements.

3. HTML 3.2:-

* This version was released in January 1997.

* Added supports for Style Sheets, frames & improved table support.

4. HTML 4.01:-

* This version was released in December 1999.
* Introduced new features such as Cascading Style Sheets(CSS), scripting languages like JavaScript and multimedia support.

5. XHTML 1.0 (Extensible HyperText Markup Language):-

* Released by January 2000.

* As a reformation of HTML using XML syntax.
* XHTML 1.0 is three standards: Strict, Transitional and Frameset.

6. XHTML 1.1:-

* XHTML 1.1 is released in May 2001.

* Modularization of XHTML 1.0, drops some of the features of its predecessor such as frames.

Basic Syntax of HTML:-

HTML 5:- HTML 5 was released in 2014 and is the latest and most widely used version of HTML. It introduced many new features such as multimedia support, improved form handling and semantic elements.

An example of basic HTML Syntax:-

```
<!DOCTYPE html>
<html>
  <head>
    <title>Page Title</title>
  </head>
  <body>
```

1. <!DOCTYPE html>:-

This is the document type declaration which tells the web browser that this is an HTML5 document.

2. <html>:-

This is the root element of the HTML document. It contains all other elements.

3. <head>:-

This element contains metadata about the document, such as the page title and any links to external stylesheets or scripts.

4. <title>:-

This element sets the page title that appears in the browser tab or window.

5. <body>:-

This element contains the visible content of the web page.

6. <h1>:-

This is a heading element, which defines a top-level heading on the page.

7. <p>:-

This is a paragraph element, which defines a block of text.

* Each element is enclosed in angle brackets (<>) and may have attributes that provide additional information about how the element should be displayed or behave.

* Fundamental syntactic units of HTML are called tags.

* Elements are defined by tags.

Tag Format:-

Opening tag. <name>

Closing tag. </name>

Basic Text Markup:-

1. Paragraphs
2. Line Breaks
3. Headings
4. White Space
5. Quotation / Block Quotes.
6. Font Size & Style
7. Character Entities.
8. Horizontal Rules / Line
9. Meta Element.

HTML is another markup language used for creating web pages.

1. Paragraphs:-

- * Text is normally organised into the paragraphs in the HTML.
- * It can't insert text directly in the body.
- * All the text document are inserted within its tag.
- * It is denoted by `<p>.....</p>`.

Ex:-

```
<html>
```

```
<title>Hello World</title>
```

```
<body>
```

<p> This paragraph contains a lot of lines in the source code, but the browser ignores it. </p>

```
</body>
```

```
</html>
```

2. Link Breaks:-

* Normally write the paragraphs in several lines and if want break point and start at next line, then should we the break tag.

* Break tag doesn't have any content so starting the tag and then closing that one is not necessary in this case.

* It is denoted by tag `
`.

Ex:-

```
<html>
```

```
<title>Hello World</title>
```

```
<body>
```

```
<p> Hi this is Holcarn <br/>
```

here you will learn about all basic
about html

ohh wait not only html, we will cover
all programming languages <p>
</body>
</html>

3. Headings :-

* Heading tags are one of the most used

tag in html.

* Beginning of every section need to be

highlighted and it should be represented in

large text so use the heading tag.

* There are 6 levels of heading tags <h1>,
<h2>, <h3>, <h4>, <h5>, <h6>.

Ex:-

```
<h1> Hello World </h1>
<h2> Hello World </h2>
<h3> Hello World </h3>
<h4> Hello World </h4>
<h5> Hello World </h5>
<h6> Hello World </h6>
```

4. White Space:-
* Browser will not consider spaces in between
words.
* For preserving spaces can use pre tag.
Ex:-

```
<html>
  <title>Hello World</title>
  <body>
    <p><pre> How are you </pre></p>
  </body>
</html>
```

5. Block Quote:-

* The Block Quote tag is used to define
long quotes inside the document.

* This is a block-level element and can
include tags for text formatting.
* The <blockquote> tag is placed within the
<body> tag.

* The <blockquote> tag comes in pair.

Ex:-

```
<h1> Hello World </h1>
<h2> Hello World </h2>
<h3> Hello World </h3>
<h4> Hello World </h4>
<h5> Hello World </h5>
<h6> Hello World </h6>
```

Ex:-

```
<!DOCTYPE html>
<html>
  <head>
```

```
<title>Title of the document</title>
</head>
<body>
<p> A quote from the Cheshire Cat, in the
    popular children's book, Alice In
    Wonderland, written by Lewis Carroll</p>
<blockquote cite="https://en.wikipedia.org/wiki/Alice%27s_Adventures_in_Wonderland">
    I'm not crazy, my reality is just
    different than yours,
</blockquote>
<q cite="https://www.wikiquote.org/">
    He who can, does, he who cannot,
    teaches </q>
</body>
</html>
```

6. Font Styles and Sizes:

- * There are a few tags for fonts that are in widespread use, called content based style tags.
- * They indicates the particular kind of text that appears in their content.
- * Three most commonly used content based

tags are the.

1. emphasis tag ``

2. strong tag

3. code tag.

1. emphasis tag:-

* Emphasis tag, specifies that its textual content is special and should be displayed in some way that indicates this distinctiveness.

2. Strong tag:-

* The strong tag, Browsers often set of the content of strong elements in bold.

3. Code tag:

* The code tag `<code>`, is used to specify a monospace font, usually for program code.

Ex:-

`<body>` the following code is about the calculation of price`</p>`

`` The main content is ``

`` Equation, ``

`<code>` cost = quantity * price `</code>`

`</body>`

7 Characters Entitles:

* HTML provides a collection of special characters.

in a successor, " who - became as a successor.

*In other cases, the characters do not appear

8. Horizontal Rule:-

* The
 tag causes a line break and

* Browsers display lines that are three places a line across the screen.

* The slash in the <hr> tag, including that pixels thick.

This tag has no content and no closing.

Ex:- tag.

<!DOCTYPE html>

<html>

Example $\langle \ddot{t} \ddot{t} \rangle$

</head>

<body>

<hr> My Website</hr>

<P> Welcome to my website! </P>

卷之四

100

100

7. Character Entities:-

- * XHTML provides a collection of special characters that are sometimes needed in a document but cannot be typed as themselves.
- * In other cases, the characters do not appear on keyboards.
- * Such as the small raised circle that represents "degrees" in reference temperature.
- * There is the non-breaking space, which browsers regard as a hard space - they do not squeeze them out, as they do other multiple spaces.
- * Special characters are defined as entities, which are code for these characters.

8. Horizontal Rule:-

- * The `<hr>` tag causes a line break and places a line across the screen.
- * Browsers display lines that are three pixels thick.
- * The slash in the `<hr/>` tag, including that tag, has no content and no closing tag.

Ex:-

```
<!DOCTYPE html>
<html>
<head>
<title> HTML Character Entities </title>
</head>
<body>
<h3> Indian rupee sign = ₹ </h3>
<h3> Euro sign : € </h3>
```

Q. Meta Element:

- * The meta element is used to provide additional information about a document.
- * The meta tag has no content.
- * All of the information provided is specified with attribute.
- * The two attributes that are used to provide information are name and content.
- * Web search engines use the information provided with the meta element to categorize Web documents in their indices.

Image:

- * HTML img tag is used to display image on the web page.
- * HTML img tag is an empty tag that contains attributes only.
- * Closing tags are not used in HTML image element.
- * The image tag includes a link to the image file as well as pertinent information used to display the image.
- * In HTML document by using the image tag ,
- * The src and alt are important attribute of HTML image tag.

1. Src:-

- <head>
- <meta charset="UTF-8">
- <meta name = "description">
- content = "Free Web tutorials">
- <meta name = "Keywords">
- Content : "HTML,CSS,JavaScript">
- <meta name = "author">
- Content = "John Doe">
- </head>.

* It is a necessary attribute that describes the source or path of the image.

* It instructs the browser where to look for the image on the server.

* The location may be on the same directory or another server.

2. alt:-

* The alt attribute defines an alternate text for the image if it can't be displayed.

* The value of the alt attribute describe the image in words.

* The alt attribute is considered good for SEO prospective.

Ex:-

```
<h2> HTML Image Example</h2>

```

Ex:-

```
<!DOCTYPE html>
<html>
<head>
<title> My Image </title>
</head>
<body>
<h1> My Image</h1>

</body>
</html>
```

Image Formats:-

1. GIF (Graphic Interchange Format).-
8 bit color (256 different colors).

2. JPEG (Joint Photographic Experts Group).-
24 bit color (16 million different colors).

Both use compression.

3. PNG (Portable Network Graphics).-
It is relatively new. Should eventually replace both gif and jpeg.

Lists:-

* HTML Lists are used to specify lists of information.

* All lists may contain one or more list elements.

* Lists are slightly more complex than the other two types of lists.

* It represents set of terms and their definition.

Lists are three different types:-

1. Ordered List or Numbered List (ol)
2. Unordered List or Bulleted List (ul)
3. Description List or Definition List (dl)

List items starts with the `` tag.
Ex:-

```
<ul>
    <li> Aries </li>
    <li> Bingson </li>
    <li> Leo </li>
    <li> Oracle </li>
</ul>
```

1. Ordered List or Numbered List (ol):-
 - * In the ordered HTML lists, all the list items are marked with numbers by default.
 - * It is known as numbered list also.
 - * The ordered lists starts with `` tag and the list item start with `` tag.

3. Description List or Definition List:-
 - * HTML Description List is also a list style which is supported by HTML & XHTML.
 - * It is also known as definition list where entries are listed like a dictionary or encyclopedia.

Ex:-

```
<ol>
    <li> Aries </li>
    <li> Bingson </li>
    <li> Leo </li>
    <li> Oracle </li>
</ol>
```

The HTML definition list contains three tags:

1. `<dt>` tag - defines the start of the list.
2. Unordered List or Bulleted List (ul):-
 - * In HTML Unordered list, all the list items are marked with bullets.
 - * It is also known as bulleted list also.
 - * The Unordered list starts with `` tag and

Ex:-

```
<ul>
<li>
<dt> Aries </dt>
<dd> One of the 12 horoscope signs</dd>
<dt> Bingo </dt>
<dd> One of my evening snacks</dd>
<dt> Leo </dt>
<dd> It is also one of the 12 horoscope signs </dd>
```

Tables:-

Tag	Description
<table>	It defines a table.
<tr>	It defines a row in a table.
<th>	It defines a header cell in a table
<td>	It defines a cell in a table
<caption>	It defines the table caption.
<colgroup>	It specifies a group of one or more columns in a table for formattting.

Ex:-

```
<table>
<tr>
  <td> Email </td>
  <td> Tobias </td>
  <td> Linus </td>
</tr>
</table>
```

Forms::

- * Forms are used to collect user input.
- * To create a form, we use the `<form>` tag.
- * Add form elements such as text boxes, radio buttons, checkboxes, and buttons.
- * Forms facilitates the user to enter data.
- * That is to be sent to the server for processing such as name, email address, password, phone number, etc.

Form Controls::

Tag	Description
<code><thead></code>	adds a separate header to the table
<code><tbody></code>	shows the main body of the table.
<code><tfoot></code>	creates a separate footer for the table.

1. Text Inputs.

2. Buttons.

3. Check Box

4. File Select.

5. Radio Box

6. Form Tag.

* HTML forms provides a way for users to interact with a website or web application.

Form Tags:-

Form	Description
<code><form></code>	It defines an HTML form to entire inputs by the user side.
<code><input></code>	It defines an input control.
<code><textarea></code>	It defines a multi-line input control.
<code><label></code>	It defines a label for an input element.
<code><fieldset></code>	It groups the related elements in a form.
<code><legend></code>	It defines a caption for a <code><fieldset></code> element.
<code><select></code>	It defines a drop-down list.
<code><optgroup></code>	It defines a group of related options in a drop-down list.
	<p><code><option></code> It defines an option in a drop-down list.</p> <p><code><button></code> It defines a clickable button.</p> <p><code><form></code></p> <p>// Form Elements</p> <p><code></form></code></p> <p><code>
</code></p> <p><code><input type="checkbox" id="cricket" name="cricket" value="cricket" /></code></p> <p><code><label for="cricket">Cricket</label>
</code></p> <p><code><input type="checkbox" id="football" name="football" value="football" /></code></p> <p><code><label for="football">Football</label>
</code></p> <p><code><input type="checkbox" id="hockey" name="hockey" value="hockey" /></code></p> <p><code><label for="hockey">Hockey</label></code></p> <p><code></form></code>.</p>

Frames:-

- * Frames are used to divide a web page into multiple sections or windows, each displaying a separate HTML document.
- * Frames allow developers to display multiple pages on a single web page.
- * Which can be useful for displaying content from different sources or organizing large amounts of information.
- * They separate section, then load differently.
- * A-frame displays content independent of its container.
- * Multiple frames from a collection are known as a frameset.
- * The arrangement can be considered similar to the orientation of rows and columns in a table.
- * The frame tag has been deprecated in HTML5.
- * Each frame has a frame tag to indicate.
- * The horizontal frame is defined by the row attribute of the frame tag.
- * The vertical attribute / frame is defined by the column attribute.

Attributes:-

Attribute	Value	Description
frameborder	0	It specifies whether to display a border around the frame or not, and its default value is 1.
2. Longdesc	URL	It specifies a page which contains the long description of the content of the frame.
3. marginheight	pixels	It specifies the top and bottom margins of the frame.
4. marginwidth	pixels	It defines the height of the margin between frames.
5. name	text	It is used to prevent resizing of the frame by the user.
6. scrolling	yes no auto	It specifies the existence of the scrollbar for overflowing content.
7. src	URL	It specifies the URL of the document which want to display in a frame.

Syntax:-

```
<frame src = "URL">
```

Ex-

```
<!DOCTYPE html>
<html>
<head>
<meta charset="UTF-8" >
<title> My Webpage </title>
</head>
<body>
<header>
<h1> Welcome to my webpage </h1>
</header>
<main>
<p> This is the main content of my webpage </p>
<ul>
<li> List item 1 </li>
<li> List item 2 </li>
<li> List item 3 </li>
</ul>
</main>
<footer>
<p> Copyright © copy, 2023 My Webpage </p>
</footer>
</body>
</html>
```

Overview of HTML5:-

* HTML5 is the latest version of the Hyper Text Markup Language (HTML).

* HTML used for building web pages and web applications.

* It was released in 2014.

* It offers several new features and enhancements compared to its predecessor, HTML4.

* It is easier to create modern and responsive web pages.

* It improved to multimedia support and a more streamlined coding process.

Features of HTML5:-

1. Improved Multimedia Support:-

HTML5 provides native support for multimedia elements such as audio and video, eliminating the need for third-party plug-ins like Flash.

2. Canvas Element:-

HTML5 includes a new element called the canvas, which allows for dynamic graphics and animations to be created on the fly, using java script.

3. Offline Storage:-

HTML5 introduces a new API that allows web applications to store data locally on the user's device, even when they are offline.

4. Geolocation:-

HTML5 includes a new API that allows web applications to access the user's location information, enabling location-based services.

5. Improved Forms:-

HTML5 introduces new form elements and attributes that make it easier to create forms that are accessible and user-friendly.

6. Semantic Markup:-

HTML5 includes new semantic elements that provide more meaningful information about the content of a web page, making it easier for search engines to understand and index the content.

7. Mobile Support:-

HTML5 is designed to work well on mobile devices, with features like responsive design and touch events built in.

8. Accessibility:-

HTML5 includes new features that make it easier to create accessible websites, such as the ability to add captions and subtitles to video and audio content.

CSS:-

- * CSS stands for Cascading Style Sheet.
- * CSS is used to design HTML tags.
- * CSS is a widely used language on the web.
- * CSS is style sheet language used for describing the presentation of a document written in HTML/XML.
- * It was first introduced in 1996 and since became an essential tool for web designers and developers.
- * It allows developers to separate the content of a web page from its presentation, making it easier to make changes to the design without affecting the underlying element.
- * CSS works by selecting HTML elements and applying style to them.
- * Styles can include properties such as font size, color, background color, and positioning.
- * CSS also includes advanced features such as animations, transitions and responsive design.

Levels of Style Sheets:-

1. CSS 1:- The first level of CSS, introduced in 1996, included basic styling properties such as font size, color, and background color.
2. CSS 2:- Introduced in 1998, CSS2 added more advanced features such as positioning borders, and background images. It also introduced media types, which allow styles to be applied to specific devices or screen sizes.
3. CSS3 :- The latest level of CSS, introduced in 1999 and still being developed, includes even more advanced features such as animations, transitions, and responsive design. It also includes modules for specific areas of styling, such as typography and layout.

In addition to the three style level of style sheets in CSS, there are also three ways to apply CSS styling to HTML elements.

Style Specification Formats:-

1. Inline CSS:-

* Inline CSS contains the CSS property in the body section attached to the element.

* This kind of style is specified within an HTML tag using the "style" attribute.

* Specified for specific occurrence of a tag and apply only to that tag.
* To apply CSS in a single element by inline CSS technique.

Ex:-

```
<!DOCTYPE html>
<html>
<head>
<style>
  selector {
    CSS property: value;
  }
</style>
</head>
```

2. Internal CSS:-

* This method involves adding CSS styling within the head section of an HTML document using the <style> tag.

* Internal CSS is useful for applying style to multiple elements within a single HTML document.

* Multiple web pages can be styled using the same code.

* Webpage is stored in an internal stylesheet in the files head section.

* This allows to define styles that apply only to specific elements on that particular page

Ex:-

```
<!DOCTYPE html>
<html>
<head>
<style>
```

```
body {
  background-color: linen;
}
h1 {
  color: red;
}
margin-left: 80px;
```

<style>

</style>

<head>

</head>

<body>

</body>

</html>

<h1> the internal style sheet is applied on %
heading <h1>

<p> This paragraph will not be affected by

</p>

</body>

</html>

3. External CSS:-

- * This method involves creating a separate CSS file and linking it to an HTML document using the <link> tag.
- * It is ideal for this condition.
- * It facilitates to change the look of the entire web site by changing just one file.
- * The <link> tag should be put inside the head section.
- * The external style sheet may be written in any text editor but must be saved with a .css extension.

<h1> Hello World! <h1>

<p> CSS </p>

</body>

</html>

4. Selector Forms:-

* Selector Form is used to select the content want to style

* Selectors are the part of CSS rule set.

* CSS selectors select HTML elements

* according to its id, class, type, attributes etc

* Selectors are used to target specific

HTML elements and apply styles to them.

Selectors Forms:-

1. Element Selectors.

2. ID Selectors.

3. Class Selectors.

4. Attribute Selectors.

1. Element Selector:-

* The element selector is a type of CSS selector that targets HTML elements based on their tag name.

* It is written in selector form using the `*` symbol followed by the tag name.

* For example, to target all paragraphs in a webpage, you would use the element selector `p` in selector form like this:

```
# header
```

```
| * CSS styles go here |
```

* It is written in selector form using the tag name of the element.

* For example, to target all paragraphs in a webpage, you would use the element selector `p` in selector form like this:

```
# header
```

```
| * CSS styles go here |
```

2. ID Selector:-

* An ID selector is a type of CSS selector that targets HTML elements based on their unique ID attribute.

* It is written in selector form using the `#` symbol followed by the ID value.

* For example, if you wanted to use the ID selector `# header` in selector form like this:

```
# header
```

```
| * CSS styles go here |
```

* This would apply the CSS styles to all paragraphs in the webpage.

* Element selector can also be combined with other types of selector to target specific elements within a webpage.

* For example, to target all elements with the class attribute "button", you would use the class selector `.button` in

3. Class Selector:-

* A Class Selector is a type of CSS selector that targets HTML elements based on their class attributes.

* It is written in selector form using the `.` symbol followed by the class name.

* For example, to target all elements with

the class attribute "button", you would use the class selector `.button` in

Selector form like this:

.button

/* CSS style go here */

- * This would apply the CSS style to all element with the class attribute "button".
- * Class Selector can be used for multiple elements on a webpage, as the class attribute can be assigned to multiple elements.

4. Attribute Selection

- * An attribute selector is a type of CSS selector that target HTML elements based on any attribute value.
- * It is written in selector form using square bracket and the attribute name and value.
- * For example, to target all input element with the "required" attribute, you would use the attribute selector "[required]" in selector form like this:

```
input [required]
```

/* CSS style go here */

You can specify the duration of an animation. The default length is 300 ms.

* This would apply the CSS style to all input element with the "required" attribute.

* Attribute Selector can be used for any attribute on way to target specific element based on their attributes.

Property Value Form:

* The Property Animation System is a robust framework that allows you to animate almost anytime.

* Define an animation to change any object property over time regardless whether it draws to the screen or not.

* The property animation change to property value over a specified length of time.

* It is used to ensure that all properties are consistent and accurate throughout a project.

* The property animation system lets you define the following characteristics of animation.

-> Time Interpolation:-

You can specify how the value for property are calculate as a function of animation current elapsed time.

-> Repeat Count and Behavior:-

You can specify whether or not to have an animation repeat when it reaches the end of a duration and how many times to repeat the animation.

-> Animator Sets:-

You can group animations into logical sets that play together or sequentially or after specified delays.

-> Frame Refresh Delays:-

You can specify how often to refresh frames of your information,

Font Properties:-

* Font Properties in multimedia and animation refer to the specific characteristics of a form that can be adjusted or customized to suit the projects needs.

* These Properties include:-

1. Font Family:-

Refers to the typeface or font style used Roman, and Helvetica.

2. Font Examples:-

Includes Arial, Times new Roman, and Helvetica.

3. Font Weight:-

Refers to the thickness of the font. It can be adjusted to create emphasis or to make the text stand out.

4. Font Style:-

Refers to the style of the font, such as bold, italic or underline. This can be used to create visual interest or to highlight important information.

5. Font Size:-

Refers to the size of the font in points, pixels or ems, it determines how large or small the text appears on the screen.

5. Line Height:-

Refers to the vertical space between lines of text. It can be adjusted to improve readability and legibility.

* By adjusting these font properties, multimedia and animation designers can create visually appealing and engaging project that effectively communicate their message to the audience.

2. List Style Position:-

Refers to the position of the bullet or marker relative to the text. It can be set to appear before, after, or inside the text.

3. List Item Indentation:-

Refers to the amount of space between the left margin and the start of each list item. It can be adjusted to create a more visually appealing layout.

4. List Item Spacing:-

Refers to the spacing between each list item. It can be adjusted to improve readability and legibility.

* List properties in multimedia and animation offer the specific characteristic of the list that can be customized or adjusted to suit the project needs.

* These properties includes:

1. List Style Type:-

Refer to the type of bullet or marker used to indicate each list item. Example include circle, squares or numbers.

Color:

- * Color is an essential element in multimedia and animation as it can convey emotions, set the mood and enhance the overall visual appeal of a project.
- * It can be used to create contrast, highlight important elements, or create a specific tone or atmosphere.
- * In multimedia and animation, color can be adjusted and customized in several ways, including:

1. Color palette:-

Refers to the range of colors used in a project. Designers can choose from a variety of color palettes, including monochromatic, complementary, or analogous, depending on the desired effect.

2. Color Saturation:-

Refers to the intensity of a color. Designers can adjust the saturation to create a more vibrant or subdued effect.

3. Color Contrast:

Refers to the difference between two colors. High contrast can create a bold and striking effect, while low contrast can create a more subtle and harmonious effect.

4. Color Transparency:-

Refers to the degree of opacity or transparency of a color. Designers can adjust transparency to create a layered effect or to highlight specific elements.

* Overall, color is an important aspect of multimedia and animation design as it can significantly impact the audience's reception and engagement with the projects.

Alignment of text:-

* Text alignment is a paragraph formatting attribute that determines the appearance of the text in a whole paragraph.

* Ex:- In a paragraph that is left aligned, text is aligned with the left margin.

The `` and `<div>` tags:

- * In a paragraph that is justified, text is aligned with both margins. Align text left.
- * Alignment of text in multimedia and animation refers to the arrangement of text elements in a project.
- * Proper alignment can enhance readability, create visual hierarchy, and improve the overall aesthetics of a design.
- * For example, in a presentation slide, aligning the text to the left or right can create a clear and organized layout, while center-aligned text can create a more balanced and symmetrical design.
- * By using proper alignment techniques, you can create visually appealing multimedia and animation projects that effectively communicate your message to your audience.
- (``):**
 - * The `` tag is used for inline elements and content.
 - * It is used to group elements for styling purposes or to use it when no other semantic element is available.
 - * The `` tag is very similar to the `<div>` tag, but `<div>` is a block-level tag and `` is an inline tag.
 - * The `` tag is used in multimedia and animation to define a small section of the text within a large block of text.
 - * This tag is often used to apply styling or formatting to specific words or phrases within a paragraph.
- (`<div>`):**
 - * The `<div>` tag, on the other hand, is used to create a container that can hold other HTML elements, such as images, videos, and animations.
 - * This tag is often used to structure web pages and separate different sections of content.
 - * The `<div>` tag is used to HTML to make divisions of content on the web page like

(Text, image, header, footer, navigation bar, etc.)

* Div tag has both opening (<div>) and closing(</div>) tags and its mandatory to close the tag.

* As we know Div tag is a block-level tag.

* In this example, the div tag contains the entire width.

* It will be displayed div tag each line on a new line, note on the same line.

Different b/w <div> and

<div>

* The <div> tag is a block level elements.

* The tag is an inline elements.

* It's best to attach it to a section of a web page.

a line in a web page.

* It accepts align attribute.

* It does not accept align attribute.

3. Text Effects:

CSS 3 includes several new text effects such

* This tag should be used to wrap a section, far highlighting that section, that you want to highlight in your web page.

Overview and Features of CSS:-

* CSS 3 is the latest version of Cascading Style Sheets which is used to style and layout web pages,

* It comes with several new features and improvement over its predecessor, CSS2.

* Here are some of the key features of CSS3:-

1. Selectors:-

CSS3 introduces new selector that allows developers to select element based on their attributes, position and relationship with other elements

2. Box Model:-

CSS3 provides a new-box-sizing property that allows developers to specify whether an element padding and border should be included in its total width and height.

as text-shadow, text-overflow, and word-wrap that allow developers to create more dynamic and need for visually appealing text.

4. Transition and Animation:-

CSS3 allows developers to create smooth transition and animations without the need for Java script or flash.

5. Flexbox Layout:-

CSS 3 introduce a new flexible box layout system that makes it easier to create responsive and flexible layout.

6. Media Queries:-

CSS 3 provides media queries that allow developers to create different style for different device and screen sizes.

7. Multiple Background:-

CSS3 allows developers to add multiple background images to an element, each with its own properties such as position, size, repeat.

*Overall, CSS3 provides a more powerful and flexible way to style and layout web page. Making it easier for developers to create dynamic and engaging websites.

Java Script:-

*Java Script is a dynamic computer programming language.

* It is light weight and most commonly used as a part of web pages, whose implementation allows client-side script to interact with user and make dynamic pages.

* It is an interpreted programming language with object-oriented capabilities.

* JavaScript was first known as LiveScript.

* The general-purpose core of the language has been embedded in Netscape, Internet Explorer and other web browsers.

* The ECMA-262 Specification defined a standard version of the core JavaScript

Language.

1. JavaScript is a light-weight, interpreted programming language.

2. Designed for creating network-centric applications.

3. Complementary to and integrated with Java.

4. Complementary to and integrated with HTML.

5. Open and cross-platform.

Object Orientation:-

- * Object Orientation in JavaScript refers to the ability to create objects that have properties and methods.
- * In JavaScript, everything is an object, including arrays and functions.
- * This means that can create objects that have their own properties and methods.
- * To create an object in JavaScript, can use either object literals or constructor functions.
- * Object literals are a convenient way to create objects with properties and methods directly in code.
- * Constructor functions are used to create objects that have more complex behavior and can be instantiated multiple times.
- * JavaScript also supports inheritance through the use of prototypes.
- * Object orientation in JavaScript provides a powerful way to organize and structure.
- * It easier to write and maintain complex applications.

General Syntactic Characteristics:-

1. Case Sensitivity:-

JavaScript is case-sensitive, so variables with different casing are considered distinct.

```
var myVariable = "Hello";
var myVariable = "World";
console.log(myVariable); //Output "Hello"
console.log(MyVariable); //Output "World"
```

2. Semicolons:-

JavaScript statements are typically terminated with a semicolon (;), although it's not always required.

```
var x=5;
var y=10;
```

3. Comments:-

JavaScript supports single-line and multi-line comments to add explanatory notes or disable code temporarily.

```
// This is a single-line comment
/*
This is a
multi-line comment
*/
```

Ex:-

4. Data Types:-
JavaScript supports various data types, including numbers, strings, booleans, arrays, objects, null, and undefined.

```
var number = 142;  
var message = "Hello, world!";  
var isActive = true;
```

```
var fruits = ["apple", "banana", "orange"];  
var person = {name: "John", age: 25};  
var emptyValue = null;
```

```
var notAssigned;
```

5. Functions:-

Functions in JavaScript are declared using the function keyword.

```
function sayHello() {  
    console.log("Hello!");  
}  
  
sayHello(); // Output: "Hello!"
```

6. Objects.

JavaScript objects are created using curly braces {} and can have properties and methods.

```
var person = {  
    name: "John",  
    age: 25,  
    greet: function()  
    {  
        console.log("Hello, my name is " + this.name);  
    }  
};  
  
person.greet(); //Output: "Hello, my name is John"
```

7. Conditional Statement:-

JavaScript provides statement like if, else if, and else for making decisions.

```
var age = 18;  
if (age < 18) {  
    console.log("You are underage");  
} else if (age >= 18 && age <= 65) {  
    console.log("You are an adult");  
} else {  
    console.log("You are a senior citizen");  
}
```

8. Loops:-

JavaScript offers loop constructs like for, while, and do-while for repetitive tasks.

```
for(var i = 0; i < 5; i++) {
    console.log(i);
}
var j = 0;
while(j < 5) {
    console.log(j);
    j++;
}
var k = 0;
do {
    console.log(k);
    k++;
} while(k < 5);

Primitive:
* The predefined data types provided by JavaScript language are known as Primitive Data Types.
* Int is also known as in-built data types.
* They includes:-
```

1. Number:-
Number data type in JavaScript can be used to hold decimal values as well as values without decimals.

```
let x = 250,
    y = 40.5;
console.log("value of x = " + x);
console.log("value of y = " + y);
```

4. Boolean:-

The boolean data type can accept only two values. It is either true or false.

```
console.log("value of bool = "+bool);
```

5. Null:-

This data type can hold only one possible value that is null.

```
let x=null;
```

```
console.log ("value of x = "+x);
```

6. BigInt:-
The number data type has some safe integer limit. However, by using BigInt, we can represent integers with arbitrary precision beyond the safe integer limit.

```
var bigNum = 12342222222n;
```

```
console.log (bigNum);
```

Operations and Expressions:-

1. Operations:-

*Operations in JavaScript are actions that can be performed on data value to produce a new value.
*There are several types of operation in JavaScript, including arithmetic, logical,

assignment.

2. Arithmetic Operations:-

*Arithmetic Operations are used to perform mathematical calculations on numerical values.
These operations includes addition (+), subtraction (-), multiplication (), division (/), and modulus (%).

7. Symbol:-

A symbol is a value created by invoking the symbol function which is guaranteed to create a unique value, it takes one parameter. It is always unique.

```
var sym = Symbol('Hello');
console.log (typeof(sym));
console.log(sym);
```

HTML (div) log:

S.No	Operator	Description	Q. Comparison Operators:-
1.	$+$ (Addition)	Adds two operand <u>Ex:-</u> $A+B$ will give 30	* Comparison operators are used to compare two values and return a boolean value(true or false)
2.	$-$ (Subtraction)	Subtract one the second operand from the first. <u>Ex:-</u> $A-B$ will give -10	* These operations include equal ($=$), not equal to (\neq), greater than ($>$), less than ($<$), greater than or equal to (\geq) and less than or equal (\leq)
3.	$*$ (Multiplication)	Multiply both operand <u>Ex:-</u> $A*B$ will give 200	Operator (\equiv) (Equal) Check if the value of two operand are equal or not, if yes, then the conditional becomes true.
4.	$/$ (Division)	Divide the numerator by denominator. <u>Ex:-</u> B/A will give 2	<u>Ex:-</u> ($A \equiv B$) is not true.
5.	$\%$ (Modulus)	Output the remainder of integer division <u>Ex:-</u> $B \% A$ will give 0.	$\%$ (Not equal) Checks if the value of two operand are equal or not, if the values are not equal, then the condition becomes true. <u>Ex:-</u> ($A \% B$) is true.
6.	$+($ Increment)	Increase an integer value by one <u>Ex:-</u> $A++$ will give 11.	$>$ (Greater Than) Checks if the value of the left operand is greater than the value of right operand, if yes, then the condition becomes true. <u>Ex:-</u> ($A > B$) is not true.
7.	$--$ (Decrement)	Decreases an integer value by one <u>Ex:-</u> $A--$ will give 9.	

		Operator	Description
$<$ (Less than)	Check if the value of the left operand is less than the value of left operand, if yes then the condition becomes true.	$\&$ (Logical AND)	If both the operator are non-zero, then the condition becomes true.
$>=$ (Greater than or equal to)	Check if the value of left operand is greater than or equal to the value of right operand. If yes, then the condition becomes true.	$\ $ (Logical OR)	If any of the two operands are non-zero, then the condition becomes true. Ex: $(A \ B)$ is true.
$<=$ (Less than or equal)	Check if value of left operand is less than or equal to value of right operand. If yes, the condition becomes true.	$!$ (Logical NOT)	Reverse the logical state of its operand. If a condition is true, then the logical NOT operator will make it false. Ex: $!(A \& B)$ is false.
$!=$ (Not equal)	Check if value of left operand is not equal to value of right operand. If yes, the condition becomes true.	4. Bitwise Operators:	* Bitwise Operator in JavaScript are used to manipulate the binary representation of numbers. * They work by performing operations on the individual bits of the number, rather than on the whole number itself. * There are six bitwise operators in JavaScript - and, OR, NOT, etc.
3. Logical Operators:			
* Logical Operators are used to combine two or more boolean values and return a new boolean value. These operations include AND($\&\&$), OR($\ $) and NOT($!$).			

Operator	Description:	>> (Right Shift)
$\&$ (B bitwise AND)	Returns a 1 in each bit position where both operands have a 1.	Shift the bits of a number to the right by a specified number of positions.
$ $ (B bitwise OR)	It performs a boolean OR operation on each bit of the two integer arguments. Ex:- $(A B)$ is 3.	
XOR / Bitwise XOR	It performs a boolean exclusive OR operations on each of bits of integer arguments. Exclusive OR means that either operand one is true or operand two is true, but not both. Ex:- $(A \oplus B)$ is 1.	
\sim (B bitwise NOT)	It is bitwise not is unary operator and operates by reversing all the bits in the operand. Ex:- $(\sim B)$ is -4.	
\ll (left Shift)	Shifts the bits of a number to the left by a specified number of positions.	

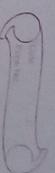
5 Assignment Operators:

* Assignment Operators is assigns a value to its left operand based on the value of its right operand.

* The simple assignment operator is equal (=), which assignment the assign the value of the right operand to its left operand.

* There are six assignment operators.

Operator	Description
$=$ (Simple Assignment)	Assigns value from the right side operand to left side operand.
$\sim C = A + B$	will assign the value of $A + B$ into C .
$+ =$ (Add and Assignment)	It adds the right operand to the left operand and assigns the result of left operand.
$C += A$	is equivalent to $C = C + A$.



- $=$ (Subtract and assignment)
It subtract the right operand from the left operand and assign the result to left operand.

Ex:- $C = A$ is equivalent to $C = A$

* $*$ (Multiply and Assignment).
It multiply the right operand with the left operand and assign the result to the left operand.
Ex:- $C * = A$ is equivalent to $C = A$

/ $=$ (Divide and Assignment).
It divide the left operand with the right operand and assign the result to the left operand.
Ex:- $C / = A$ is equivalent to $C = A$

Expressions:-

* Expressions is valid unit of code that resolve to a value.
* Expression can be used in many different contexts in JavaScript, such as assigning value to variable, passing arguments to functions, or testing conditions in control structures.
* JavaScript expressions are combinations of values, variables and operators that produce a resulting value.
* There are Four Expressions:-

Q. Conditional Operator ($? :$):-

* The Conditional Operator first evaluates an expression for a true or false value and then executes one of the two given statement depending upon the result of evaluation.

* There are 3 Operands. A condition followed by a question mark (?), then an expression to execute if the condition is true followed by a colon (:) and finally the expression to execute if the condition is false.

* $? :$ (Conditional):-

If condition is true? Then the value x;
otherwise than value y.

1. Arithmetic Expression:-

Arithmetic Expression are used as operands of certain conditional and arithmetic statements. It consists of any of following items: An identifier of any of the following items. A numeric literal.

```
var x=5;  
var y=3;  
var sum=x+y; //Result :8  
var produce=x*y; //Result :15.
```

3. Conditional Expressions:-

A Conditional Expressions in an expression you can use to select one of two values based on a boolean condition, the conditional operator is also called the ternary operator.

```
var age = 20;
```

```
var isAdult = age >= 18 ? "Adult" : "Minor";  
//Result : "Adult".
```

4. Function Call Expressions:-

Function Call expression can be used to execute a specified function with the provided arguments and it include the name of function being called or the value of a function pointer and optionally, the arguments being passed to the functions

```
function add(a,b){  
    return a+b;  
}  
  
var result = add(2,3); //Result:5.
```

2. String Concatenation:-

- * String Concatenation in JavaScript simply means appending one or more string to the end of another string.
- * You Concatenate string by using the + operation for string literals and string constants, concatenation occurs at compile time; no run-time concatenation occurs.

```
var firstname = "John";  
var lastname = "Doe";  
var fullName = firstName + " " + lastName;  
//Result : "John Doe".
```

Screen Output:-

- * Screen Output in JavaScript refers to the process of displaying information on the user's screen, such as text, image, or iterative elements.
- * This can be done using various methods, such as the document.
- * Write() method, which writes text directly to the HTML document, or the console.log() method, which outputs message to the browser's console.
- * A display device the most common form of output devices which present output visually on computer screen.

Keyboard Input:-

- * Keyboard Input in JavaScript refers to the process of capturing user input from the keyboard, such as typing text or pressing keys.
- * This can be done using event listeners, which listen for specific keyboard events such as key presses or key releases.
- * The keyboard is an input device that allows you to enter letters, numbers and symbols into your computer.