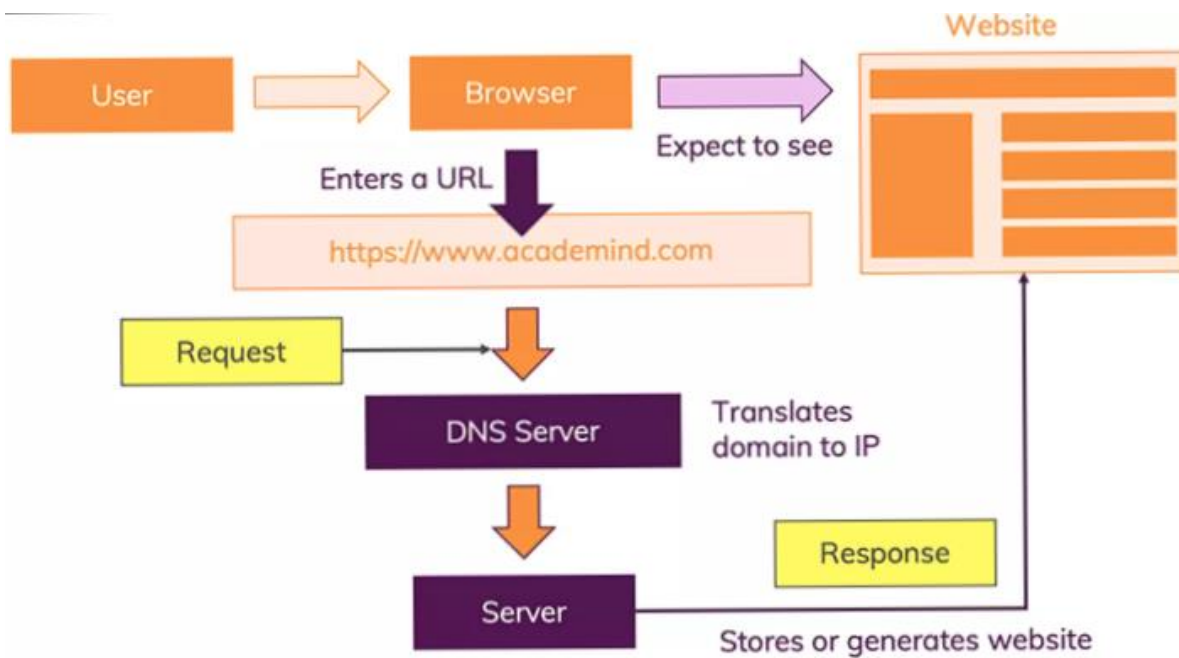**WEB TECHNOLOGY**

TERMINOLOGIES

- **WEB :** The world wide web is also called as web and it is interconnection of public websites which can be accessible through internet

- **INTERNET :** It is system of interconnected computer networks that allows users to access and share the information

- **CLIENT :** User

- **BROWSER** : It is a standalone application through which we can access data with a help of internet

- **SERVER :** It is a combination of software and hardware that receives request and response to a request over a network

- **WEBPAGES :** It is document that is accessible by browser and it contains text, images, hyperlinks and these are also called as building blocks of websites

- **WEBSITES** : It is collection of related or interconnected webpages

HOW WEB WORKS

Difference between static and dynamic websites

Static Website	Dynamic Website
• User can't modify the content . • Contents are static to all the user and same. • Is has more reloading time. • Most of the static websites are connected to server, Interaction will be between browser and server. • Multi-page applications. • Ex : w3schools	• User can modify the content. • Contents are dynamic to all the user and different to individual user. • Comparatively less reloading time. • Most of the dynamic websites follows 3 tier architecture and N TIRE ARCHITECTURE, is browser -> server -> database. • Single page application. • Ex : Instagram, Facebook

Html

- HTML stands for Hyper Text Markup Language.

- HTML is the language of the web. It is used to create websites.

- We use HTML tags to define look and feel of a website. With understanding of these tags and how to put them together, we can create beautiful websites easily.

- A reference / link created by developers to provide the data / information to the users which is designed by pre-defined tags and it communicable with browsers.

- This will be first page to rendered on the browsers.

- HTML is not case sensitive.

- .html/.htm are the extensions for HTML.

- HTML was introduced in 1991 by Tim Berners Lee

- First version of HTML is released in 1993—html 1.0

- Html 2.0----1995

- Html 3.2----1997

- Html 4.02----1999

- Html 5.0----2014

- Current version of html means now we are using html 5.0

Then Why CSS and JavaScript

Html is used to define the layout of a page – A arebone of page structure.

CSS is used to add styling to that barebone page created using HTML.

JavaScript is used to program logic for the page layout Eg. What happens whem a user hovers on a text, when to hide or show element etc.

Structure of html page

```html
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Document</title>
</head>
<body>

</body>
</html>
```

- <!DOCTYPE HTML>--Represents the version of html
- <html>--Root element of the html page
- <head>--Contains meta information about the html page
- <title>--It will give the title for the webpage
- <body>--It is a document's body and it is the container for all the visible contents such as headings, paragraphs, images etc.

TAGS IN HTML

TAG : Tag is predefined word or keyword which is enclosed within angular braces

<html> </html>

Types of Tags

1) Paired Tags: These are the tags that will have an opening and closing tags

Ex: <p> </p>,<head> </head> etc.....

2) Unpaired tags: These are the tags that will not having any closing tags and these are also called as self-closing tags

Ex: </br>,<hr>,<input>,<img> etc.....

BASIC HTML TAGS

HTML Documents:
- All HTML documents must start with a document type declaration: <!DOCTYPE html>.
- The HTML document itself begins with <html> and ends with </html>.
- The visible part of the HTML document is between <body> and </body>.

HTML Headings:

- HTML headings are defined with the <h1> to <h6> tags.

- <h1> defines the most important heading. <h6> defines the least important heading

```
<h1>Heading                                                        1</h1>
<h2>Heading                                                        2</h2>
<h3>Heading                                                        3</h3>
<h4>Heading                                                        4</h4>
<h5>Heading                                                        5</h5>
<h6>Heading 6</h6>
```

HTML Paragraphs:

- HTML paragraphs are defined with the <p> tag

HTML Links:

- HTML links are defined with the <a> tag

Ex: This is a link

HTML Images:

- HTML images are defined with the <img> tag.

- The source file (src), alternative text (alt), width, and height are provided as attributes:

Ex: <img src="w3schools.jpg" alt="W3Schools.com" width="104" height="142">

ELEMENTS IN HTML

ELEMENTS

An HTML element is defined by a start tag, some content, and an end tag.

- Tags along with the content is known as element

Ex: <h1>Hello World</h1>

- **BLOCK LEVEL ELEMENTS :** It will take entire width of the browser and these are starts from new line

Ex:<div>,<table>,<form>,<nav><nav>

- **INLINE ELEMENTS :** It will take only content width

These are starts from the same line means next to each other

Ex:<span>,<b>,<i>,<u>

ATTRIBUTE IN HTML

- **ATTRIBUTES:**

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

- ✓ Values of an attributes are case sensitive
- ▪ **Core Attributes:**
- ➢ Id
- ➢ Title
- ➢ Class
- ➢ Style

Core attributes

- ▪ Id : It is used to target a particular element uniquely.
- ▪ Class : The class attribute specifies one or more classnames for an element
- ▪ Title : The title attribute gives a suggested title for the element. It is used to give tooltip for the element.
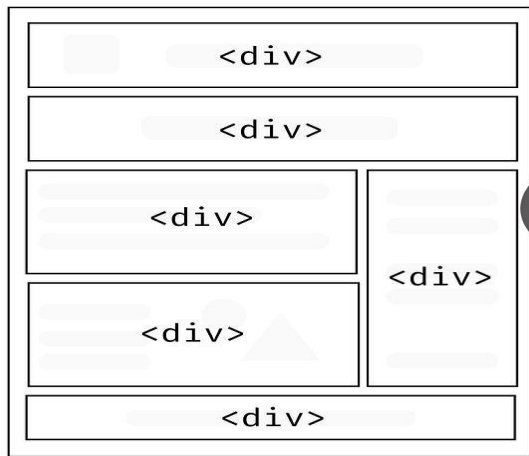- ▪ Style : It specifies an inline style for an element.

HTML Formatting tags

Formatting elements were designed to display special types of text:

- ▪ <b> - Bold text
- ▪ <strong> - Important text
- ▪ <i> - Italic text
- ▪ <em> - Emphasized text
- ▪ <mark> - Marked text
- ▪ <ins> - Inserted text
- ▪ <sub> - Subscript text
- ▪ <sup> - Superscript text
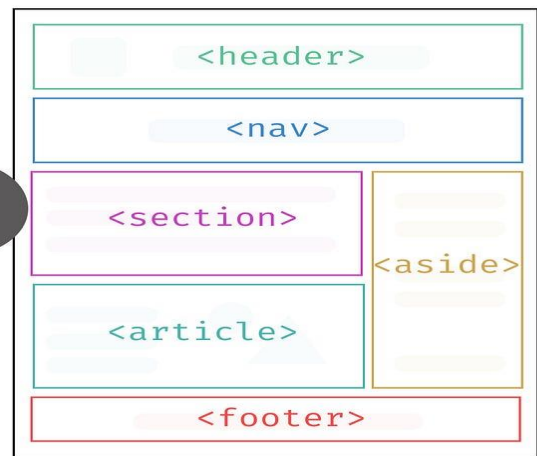
Sectioning Elements/semantic elements

What are Semantic Elements?

- ▪ A semantic element clearly describes its meaning to both the browser and the developer.
- ▪ Examples of **semantic** elements: <form>, <table>, and <article> - Clearly defines its content.
- ▪ Examples of **non-semantic** elements: <div> and <span> - Tells nothing about its content.
- ▪ Semantic elements represent their meaning to both the browser and developer.
- ▪ All semantic elements are block level elements.

`<div>`		`<header>`
`<div>`		`<nav>`
`<div>` / `<div>`	**VS**	`<section>` / `<aside>`
`<div>`		`<article>`
`<div>`		`<footer>`

Ambiguous Sections   **Clear Sections**

Semantic elements in html

When we use right tag in right place, it results in a better page layout, better indexing by search engine and better user experience. We use the following tag to get the job done.

HDAMNSTAFF

H →HEADER

D →DETAILS

A →ASIDE

M →MAIN

N →NAV

S →SUMMARY AND SECTION

T →TABLE

A →ARTICLE

F →FIGURE

F →FIGCAPTION/FOOTER

HTML Lists

List are used to display content which represent a list

Unordered HTML List:

- An unordered list starts with the <ul> tag. Each list item starts with the <li> tag.
- The list items will be marked with bullets (small black circles) by default
- Attributes
    - Type : square, circle, none.

Ordered HTML List:

- An ordered list starts with the <ol> tag. Each list item starts with the <li> tag.
- The list items will be marked with numbers by default
- Attributes:
    - Type : numbers, alphabets(lower, upper),roman(lower, upper)
    - Start: number
    - reverse

Description Lists:

- A description list is a list of terms, with a description of each term.
- The <dl> tag defines the description list, the <dt> tag defines the term (name), and the <dd> tag describes each term

Nested Lists:

- List inside another list is called as nested list.

TABLES IN HTML

- <u>HTML Tables</u>: A table in HTML consists of table cells inside rows and columns.

- <table> tag is used to create a table in html

- <u>Table Headers</u>: Sometimes you want your cells to be table header cells. In those cases, use the <th> tag

- <u>Table Rows</u>: Each table row starts with a <tr> and ends with a </tr> tag.

- <u>Table Cells</u>: Each table cell is defined by a <td> and a </td> tag.

Table-Attributes

- **Border:** It is used give the border to table.(<table>)

- **Cell Padding**: It is the space between the cell edges and the cell content. (<table>)

    By default, the padding is set to 0

- **Cell Spacing**: It is the space between each cell.

    By default, the space is set to 2 pixels.   (<table>)

- **Colspan** : It is used to merge multiple columns.(<td>)

- **Rowspan** : It is used to merge multiple rows.(<td>)

IMAGES

- <img> tag is used to insert an image in webpage

- Image is inline element

Attributes

- **src** : It is an attribute of img tag, Inside this we will pass the path of the image.

- **alt**: It is used give the alternative name for the image

- When the image is not displaying on webpage this alternative name will be displayed

- **height**: It is used give the height for the image

- **width** : It is used give the width for the image

Absolute Url v/s Relative Url

Absolute URL	Relative URL
1) a full web address in the href attribute. 2) W3C	3) A local link (a link to a page within the same website) is specified with a **relative URL** (without the "https://www" part): 4) HTML Images

Anchor and Hyper Links

- The <a> tag defines a hyperlink, which is used to link from one page to another.
- The most important attribute of the <a> element is the href(hyper reference) attribute, which indicates the link's destination.
- By default, links will appear as follows in all browsers:
- An unvisited link is underlined and **blue**
- A visited link is underlined and **purple**
- An active link is underlined and **red**

Html anchor tag

Text as a Link

- To use a text as a link, just write the text inside the <a> tag with href attribute

Image as a Link

- To use an image as a link, just put the <img> tag inside the <a> tag:

Button as a Link

- To use a button as a link, just put the <button> tag inside the <a> tag:

HTML Links - The target Attribute

- By default, the linked page will be displayed in the current browser window. To change this, you must specify another attribute that is target for the link.
- The target attribute specifies where to open the linked document.
- The target attribute can have one of the following values:

➔ **_self - Default**. Opens the document in the same window/tab as it was clicked

➔ **_blank** - Opens the document in a new window or tab

➔ **_parent** - Opens the document in the parent frame

➔ **_top** - Opens the document in the full body of the window

HTML Form Elements

Tag	Description
\<form\>	Defines an HTML form for user input
\<input\>	Defines an input control
\<textarea\>	Defines a multiline input control (text area)
\<label\>	Defines a label for an \<input\> element
\<fieldset\>	Groups related elements in a form
\<legend\>	Defines a caption for a \<fieldset\> element
\<select\>	Defines a drop-down list
\<optgroup\>	Defines a group of related options in a drop-down list
\<option\>	Defines an option in a drop-down list
\<button\>	Defines a clickable button
\<datalist\>	Specifies a list of pre-defined options for input controls

Attributes

- \<form\>
  - **Action** : It defines action to be performed when the form is submitted.
  - **Method** : It specifies the http method to be used when submitting the form data.(get-Not secured and post-Secured)
- \<label\>
  - **for**: It is used to connect label and input text field.
- \<input\>
  - **Id** : It is used to connect label and input text field and the value passed in the id attribute should be same as the value passed in the for attribute.
  - **Name** : The value of name attributes acts like container, The form values with name attribute will be sent to a server when submitting the form.
  - **Type** : It represents the type of data

Form Validation Attributes

1) **Value :** The input value attribute specifies an initial value for an input field

2) **Read only :** The input read only attribute specifies that an input field is read-only.

3) **Disabled:** The input disabled attribute specifies that an input field should be disabled.

- A disabled input field is unusable and un-clickable.

4) **Size:** The input size attribute specifies the visible width, in characters, of an input field.

- The default value for size is 20.
- **Note:** The size attribute works with the following input types: text, search, tel, url, email, and password.

5) **Maxlength :** The input maxlength attribute specifies the maximum number of characters allowed in an input field.

6) **Min & Max:** The input min and max attributes specify the minimum and maximum values for an input field.

7) **Placeholder:** The input placeholder attribute specifies a short hint that describes the expected value of an input field (a sample value or a short description of the expected format).

8) **Required:** The input required attribute specifies that an input field must be filled out before submitting the form.

9) **Autofocus:** The input autofocus attribute specifies that an input field should automatically get focus when the page loads.

10) **Height & Width:** The input height and width attributes specify the height and width of an <input type="image"> element.

11) **List:** The input list attribute refers to a <datalist> element that contains pre-defined options for an <input> element.

Html media

- Multimedia on the web is sound, music, videos, movies.
- HTML media consist of audio, video, maps and QRcode.
- ❖ **Audio**:
    - <audio> tag is used to embed the audio into our web page.
    - The content which is written in side <audio></audio> will not display on the webpage

    - ❖ Attributes of audio tag:
    - **Src** : we will pass path of audio.
    - **Controls** : The controls attribute adds audio controls, like play, pause, and volume .

    - **Muted** : It will mute the audio when you open your file with browser
    - **Autoplay**: It will play the audio automatically when you open your file with browser.
    - **Loop** : The audio will start over again , every time it is finished.

Media tags

- ❖ **Video :**

  - ❖ <video> tag is used to embed the video into our web page.

  - ❖ The content which is written in side <video></video> will not display on the webpage

Attributes of audio tag:

  - ❖ **Src** : we will pass path of video.

  - ❖ **Controls** : The controls attribute adds video controls, like play, pause, and volume .

  - ❖ **Muted** : It will mute the video when you open your file with browser

  - ❖ **Autoplay**: It will play the video automatically when you open your file with browser.

  - ❖ **Loop** : The video will start over again , every time it is finished.

  - ❖ **iframe:**

    - o <iframe> tag is used to embedded another document within the current HTML document.

    - o An HTML iframe is used to display a web page within a web page.

    - o The HTML <iframe> tag specifies an inline frame.

    - o Height and width attributes are used to specify the height and width of th iframe

    - o Title attribute is used to give the title for the iframe

Maps and QRcode

- ▪ We can insert a QR code to our webpages using <img> tag.

  Syntax

  Root URL: https://chart.googleapis.com/chart?

- ▪ cht : qr (chat type)

- ▪ chs : width x height (height and width)

- ▪ chl : chat link (path or link)