

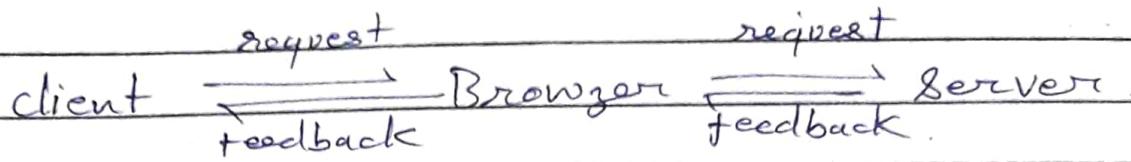
~~SECRET~~

~~TOP SECRET~~

VISION

DATE  
PAGE 1

## Web Dev



frontend

HTML

CSS

JS

# tag :- used to Basic structure.

# Attributes :- Basic Attributes to tags.

Basic structure

```

<!DOCTYPE html>
<html>
<head>
<meta> - -
<title> </title> } head
<Link --->
</head>
<body> → content
</body>
  
```

txt styling in html.

<tagname style="property : value;">

properties

- \* background-color
- \* color
- \* font-family
- \* font-size
- \* text-align

(left-4 se)

# Favicon.

inside the <head> tag.

`Link rel="icon" type="image/x-icon" href="/images/favicon.ico"`

~~Header tag~~

# linking html & CSS  
using link tag.

```
<link rel="stylesheet" href="style.css">
```

# linking html & JS

```
<script src="script.js"></script>
```

# head tag. <head> </head>

includes meta data, title and ~~base~~ stylesheet  
<title> title </title>

<meta> includes all meta data:  
like charset, viewport, content width, etc.  
description, etc.

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

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

# <body> tag.

includes all contents of the body.

## # meta description.

```
<meta name="description" content="This is the  
description">
```

## # &lt;body&gt; tag

includes all contents of the body.

## # heading tags.

```
<tagname style="property:value">
```

```
<h1></h1>
```

We have h1 to h6 i.e. 6 types of headings.

formatting tags in HTML (Pair type)

## # &lt;p&gt; tag

<b> → Bold

<small> Smaller txt

paragraph tag.

<strong> → Imp txt

<del> Deleted txt

<i> Italic

<ins> Inserted txt

```
<p> </p>
```

<em> Emphasized

<sub> Subscript

Attributes

<mark> Marked

<sup> Superscript

① style = "background-color: color"

## # Anchor tag

link.

```
<a href="#"></a>
```

→ Mandatory Attribute.

used to create links.

Attributes

① target = "blank"

# for opening the link in new tab.

## # img tag

used for image in web page.

<img src="" alt="" />  
↓                              ↳ name of image.  
Source                        (alt txt.)  
location.

## Attributes

width = "230"

height = "230"  
                            ↳ px

## # tables tag. in html

<table>  
  <tr> → table row  
    <th> Name </th> → table heading  
    <th> Phone </th>  
  </tr>  
  <tr>  
    <td> Atharva </td> → table data  
    <td> 940 XXX XXXX </td>  
  </tr>  
</table>

for merging col or row

colspan = " " or rowspan = " " Attributes

are used in <td> tag.

Caption tag in table tag is used to give caption to the table.

→ <caption> Table name </caption>

More tags can be used to group the table:-

<thead> </thead> → heading or heading row

<tbody> </tbody> → body

<tfoot> </tfoot> → footer.

#

Lists in html.

types :-

① Unordered lists &lt;ul&gt; &lt;/ul&gt;

② ordered lists &lt;ol&gt; &lt;/ol&gt;

③ definition lists. &lt;dl&gt; &lt;/dl&gt;

# Unordered lists. type = " \* " or " square " or etc. # ordered lists. type = " 1 " or " I " or " a " or etc.

&lt;ul&gt;

&lt;li&gt; a &lt;/li&gt;

&lt;li&gt; b &lt;/li&gt;

&lt;li&gt; c &lt;/li&gt;

&lt;/ul&gt;

&lt;ol&gt;

&lt;li&gt; a &lt;/li&gt;

&lt;li&gt; b &lt;/li&gt;

&lt;li&gt; c &lt;/li&gt;

&lt;/ol&gt;

# definition lists.

&lt;dl&gt;

&lt;dt&gt; D1 &lt;/dt&gt;

&lt;dd&gt; Content 1 &lt;/dd&gt;

&lt;dt&gt; D2 &lt;/dt&gt;

&lt;dd&gt; Content 2 &lt;/dd&gt;

&lt;/dl&gt;

let - b se.

# SEO (Web Dev)

Search engine optimization.

Developing a website in such a way, that search engine gives it more preferences over other similar content.

# Core Web Vitals.

\* 1) CLS (Cumulative Layout Shift)

→ CLS is measure of shifting of the layout of the web page while loading.  
→ Should be minimised.

\* 2) LCP (Largest Contentful Paint)

time required to load the largest element to load.

good LCP score → 2.5 sec

needs improvement → 2.5 to 4 sec.

Poor > 4 sec.

\* 3) FID (First Input delay)

\* time taken by website to process the input (i.e. text box or a button, etc.) given by user is FID

\* Should be less than 100 ms.

★ It is a good practice to give height & width in HTML to minimize CLI.

## # Lighthouse Report

This Report gives the information about optimizations, core web vitals & scope of improvement

This can be generated by

Right click > Inspect > Lighthouse > Analyze page load

## # Meta tag & Meta description

★ title should depict the contents of the page

★ Meta description

<meta name="description" content="This is the desc">

## # Form

<form> </form>

Attributes :-

action = " " (Get or Post)

<input> type \* pattern = " +91xxx" use of patterns etc.

\* type = " " define the type of Input. (unique)

\* id = " " use same as label that of label to make label responsive

\* name = " " use to group or to define the type of input

\* value = " " use to define the value .

\* placeholder = " " use to give txt at the place of the txt will be entered by the user.

\* required for, if the input is mandatory.

\* autofocus

## # &lt;label&gt; tag }

Attributes

for = "" here the id of the related input should be entered so that label is also responsive

## # &lt;textarea&gt; name tag. }

for resizable text box with rows & cols attributes

<textarea name = "comment" rows = "4" cols = "34">

Enter your comments.

</textarea>

## # Select tag. }

<select name = "fruits">

<option value = "apple"> Apple </option>

<option value = "Banana"> Banana </option>

<option value = "cherry"> cherry </option>

</select>

## # \$inline or Block \$elements. }

Block

① Elements which takes full width  
ex div

② Inline.

Elements which takes <sup>only</sup> width which is required by them.

Ex span.

# ID & class

ID & class are attributes given to the elements or tags.

ID → Unique Identification

- \* Any element can't have multiple IDs
- \* Multiple elements can't have same ID

class → grouping of elements for some properties.

- \* Any element can have multiple classes.
- \* Multiple elements can have same class.

```
<table id="firstTable" class="red by-color">
```

The diagram illustrates the mapping between an HTML attribute and its corresponding CSS concept. An arrow originates from the 'id' attribute in the HTML code and points to the handwritten note 'unique ID'. Another arrow originates from the 'class' attribute and points to the handwritten note 'multiple classes.'

## # in CSS

```
class = {
```

```
  .red {
```

```
}
```

```
  .by-color {
```

```
}
```

```
ids)
```

```
# firstTable {
```

```
}
```

## # &lt;Video&gt; tag

```
<video src="video.mp4" > </video>
```

## Attributes

- #1) src:- specifies the path to the video.
- #2) controls:- Adds video controls.
- #3) autoplay:- Automatically starts playing the video when the page loads.
- #4) loop:- Repeats the video once it ends.
- #5) muted:- Mutes the video by default.
- #6) poster:- specifies an image to be displayed as thumbnail of the video.
- #7) width & height.

## #

## &lt;audio&gt; tag.

attr attributes same as video.

## # Preload attribute

used to preload the video.

- 1) none:- This is the default value. It indicates that the browser should not preload the audio file.
- 2) metadata:- This value tells the browser to preload only the metadata of the audio file, such as its duration & basic info about it. This is useful when you want to display duration of the audio without fully loading it.)
- 3) auto:- This value tells the browser to preload the entire audio.

## # SVG (for logos & Icons)

Example.

```
<svg height="100" width="100">  
  <circle cx="50" cy="50" r="40" stroke="black"  
        stroke-width="3" fill="red" />  
</svg>
```

or.

```

```

or

& with CSS

.background{

```
background-image: url('image.svg');
```

}

## # <iframe> tag

used to bring or display any other webpage or youtube video in your webpage.

Attributes.

- ① src : location.
- ② height & width : - resize.
- ③ frameborder : Indicates whether to display border
- ④ name : for targeting the iframe in JS.

## # Semantic tags.

Used to enhance SEO, improve accessibility, and make your code easier to read & maintain.

- 1) `<header>`: Used to represent the top section of a web page.
- 2) `<nav>`: Signifies a navigation menu on a web page.
- 3) `<article>`: Indicates a self-contained piece of content, such as a blog post or an article.
- 4) `<section>`: Represents a thematic grouping of content on a webpage.
- 5) `<aside>`: Typically used for sidebars or content that is tangentially related to the main content.
- 6) `<footer>`: Represents the footer of a webpage, usually containing copyright information & contact details.
- 7) `<figure>` and `<figcaption>`: used for embedding images, diagrams, or charts, along with a caption.
- 8) `<main>`: Signifies the main content area of a web page.
- 9) `<time>`: Used to represent time-related information like dates & times.

## Q) Exercise → 1

You are given 6 audio & 6 video files. Design a website using HTML only which shows these 12 files.

## # Misc.

### # <code> tag.

It is a semantic HTML tag used to display a code snippet. (It is used with <pre>)

Syntax

<pre><code> Multiline code snippet

Here.

</pre> </code> </pre>

### # <canvas>

Container for graphics, which can be rendered via scripting.

### # HTML entities

&lt; for <

&gt; for >

&amp; for &

&nbsp; for non-breaking space

&copy; for ©

### # Quotation tag

<blockquote cite = "source-wl"> quotation </blockquote>

<q cite = "source-wl"> quotation </q>

## # character sets

why do we define charset?

- Accurate Rendering: To ensure that browser correctly display your txt.
- Multi-language Support: To display txt in various language and alphabets
- Data Integrity: To make sure the data sent and received remains consistent.

## Common Character Sets

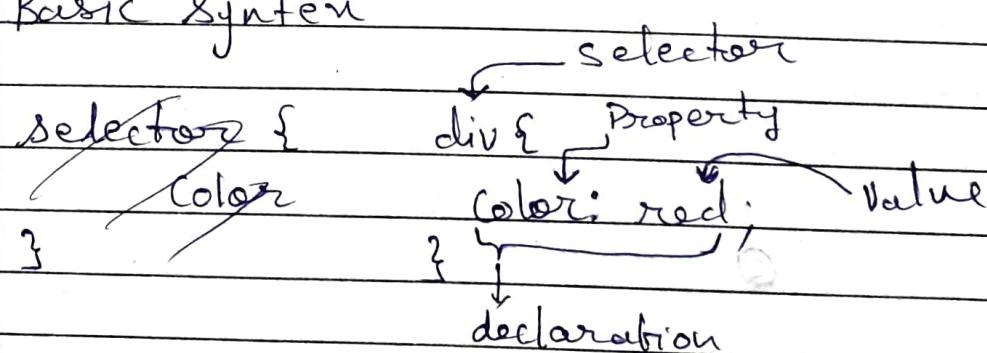
- UTF-8 Universal 8-bit char set
- ISO-8859-1 Western Alphabet
- ASCII American standard code for Info Interchange.

<meta charset = "UTF-8">

Introduction to CSS

Cascading Style Sheet

## Basic Syntax



# Multiple selectors can also be written.

```
div, span {  
    color: red;  
    background-color: yellow;  
}
```

# Linking CSS with HTML.

~~Linking style~~

# Inline CSS

- \* using style attribute in ~~HTML tag~~. individual tag
- \* this is not considered as a good practice.

#

# Internal CSS

- \* using <style> tag inside <head> tag and making all css declaration in it
- \* better than Inline CSS, but not recommended

# External CSS

- \* Making a .css file, then including it in HTML using <link> tag in <head> inside head tag.

~~Link type = "stylesheet"~~

```
<link rel = "stylesheet" href = "location of .css file">
```

- \* best Practice, Most used.

## # Selectors in CSS

1) Element selector (for a tag)

div {

background-color: red;

}

2) Class selector (for a class)

.class {

Property: value;

}

3) Id selector (for a particular element with an id)

#id {

Property: value;

}

4) Child selector (for ~~a~~ tags inside a tag)  
Directly only

div > p {

Property: value;

}

\* Here this is declared for all `<p>` tags inside all `<div>` tags.

\* When `<p>` is directly inside `<div>` only then this will work.

Ex:-

`<div><article><p> ABC </p></article></div>` X

`<div><p> ABC </p></div>` ✓

Attribute selector  
[n=a]{  
  property: value;  
}

<tag n="a">  
  user defined attribute  
DATE  
PAGE (17)

### 5) Descendant selector (for tags inside tags)

div p{  
  property: value;  
}

- \* Here, This is ~~class~~ declared for all <p> tags inside all <div> tags.
- \* Unlike child selector, this will work even when <p> is not directly inside <div>.

<div> <article> <p> abc </p> <article> </div> ✓  
<div> <p> abc </p> </div> ✓

### 6) Universal selector (for all)

\* {  
  property: value;  
}

### 7) Pseudo selector (Used for styling ~~an~~ elements like <a> ~~tags~~ @ any action like link visited, hovered, etc)

a:hover{  
  property: value;  
}  
a:visited{  
  property: value;  
}

div p:first-child{  
  } → 1<sup>st</sup> p in div

div p:nth-child{  
  } → n<sup>th</sup> p in div.

a:link{  
  property: value;  
}

used when link is not visited.

a:active {

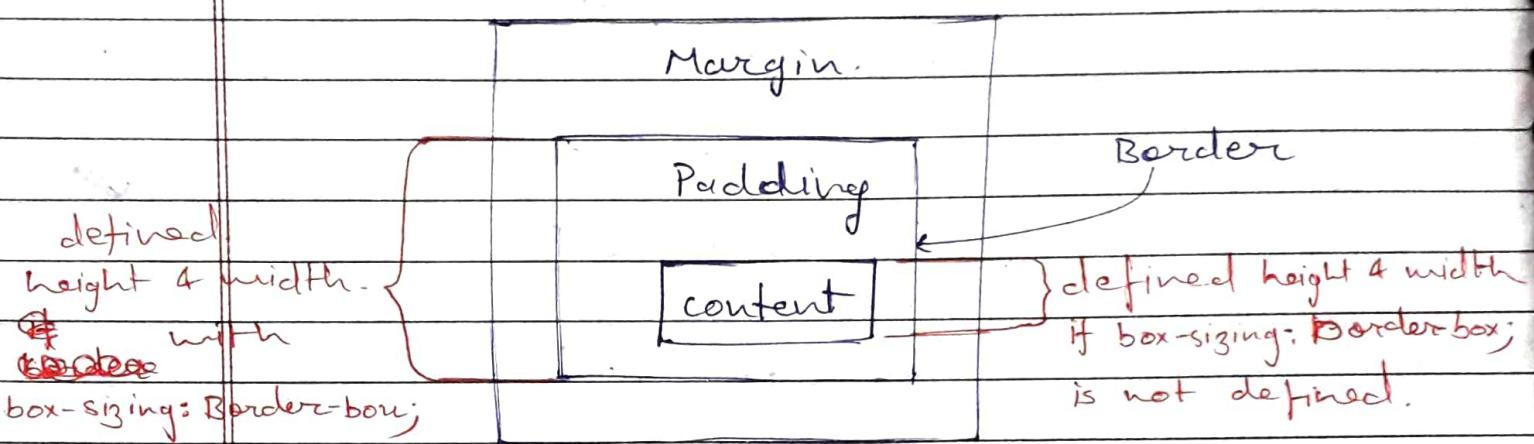
// when the link is active.

    property: value;

}

let - 18

## ~~#~~ CSS BOX Model



The CSS Box model defines how elements are rendered and how their dimensions are calculated. It describes the structure of an element as a rectangular box that has content, padding, a border, and a margin.

Everything in the html is described as a rectangular box in CSS which has content (innermost main content), padding (space b/w content and border), border, margin (space outside margin).

#

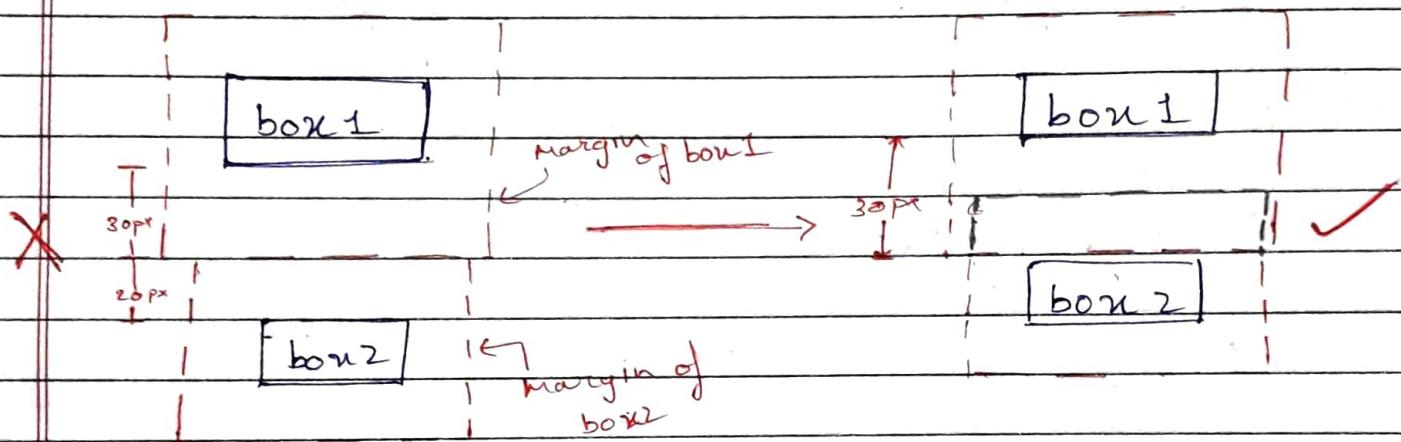
box-sizing: border-box;

If this is used, then defined height or width will include border & padding and without this defined height or width only include the dimensions of the content (with padding & border exclusive).

#

Margin Collapse.

If margins of two elements are overlapped, they will collapse. i.e., only the greater margin will exist.



#

FONTS.

- \* font-family: (for selecting font)
- \* font-style: italic;
- \* font-weight: 500;
- \* text-decoration: underline; (none, if you want to remove)  
by default text decorations
- \* font-size: ; line-height: ; (for spacing.)  
also can be imported through google fonts
- \* letter-spacing: ; letter spacing

to Capitalize 1<sup>st</sup> letter :-

\* font-transform: capitalize;

or

lowercase; (to lowercase)

or

uppercase; (to uppercase)

\* font-decoration-color;

for color of underline.

\* font-overflow: ; } to manage the overflow:

#

## Colors

### Ways of Represent

\* Keywords

\* hex code

\* rgb RGB or RGBA

\* HSL or HSLA

## # Exercise 2

Write html & css code to style a paragraph inside a div which contains 5 other paragraphs. The first paragraph must have background color yellow and text color red. ~~The HTML is written below.~~

~~for~~ the other paragraphs must have background color blue & text color white.

## # Specificity.

# to solve any type of conflict, css uses cascade algorithm

#

- 1) Position & order of appearance.  
(only if selector type is same)

the order in which your css rules appear.

- 2) Specificity Preference

Inline > ID Selector > class or Attribute > Element > Universal

- 3) origin

the order in which css appears and where it comes from, whether that is a browser style, css from a browser extension, or your authored css.

- 4) Important

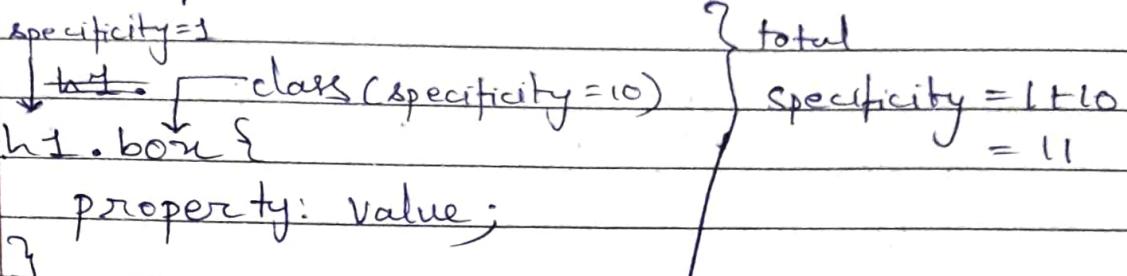
when used !important, it has ~~not~~ highest specificity score.

## # Specificity Score Calculation.

- Universal Selector = 0
- Element Selectors & pseudo-elements = 1
- Class Selector, attribute Selector & pseudo-class = 10
- Inline styles : 1000.

if complex selector used, specificity should be added. ex is @ back.

Example :-



#

## Sizing Units.

① px → pixel is a fixed unit.

② vw → (for width)      vh → (for height) } responsive units.

③ em (non-responsive)  
 'n times of.

~~em~~ n em ⇒ n times of inherited value.

④ rem (non-responsive)

n rem ⇒ n times of inherited value from root element

⑤ vmin vmin (responsive)

~~HTML~~

# min- or max-height are ~~width~~-width (responsive)

- \* used to define maximum or minimum dimensions

# : %

- \* Used to set a % of parent width or height  
Note :- dimensions of the parent is defined

## # Display Properties

display: "Property";

#

# 1) Inline Element (display: inline;)

- \* to make any element inline
- \* Padding top is not respected.
- \* Margin top is not respected.
- \* width property is not respected.

# 2) inline-block (display: inline-block;)

- \* to make any element inline.
- \* top-(margin, Padding) & width is respected, unlike display: inline.

# 3) none (display: none;)

- \* to hide any element with all its space acquired

# Visibility: hidden;

- \* to hide any element, but unlike (display: none;) it hides only the element while the space acquired by it remains intact.

## #

## Shadow Syntax

box-shadow: h-offset v-offset blur spread color inset;

Shadow's horizontal & vertical positions

larger this value more blurry shadow

expands or shrinks the shadow size

color of the shadow

inset = Makes the shadow inner

text-shadow: h-offset v-offset blur color;

## #

## outline & Border

## 1.) Position:-

~~outline~~ outlines don't take spaces, they're drawn around the element, at outside of any border

2) offset: Using the outline-offset property, you can set the space b/w an outline & the edge or border of an element.

3) Width: Borders can have varying widths on different sides, outlines have a uniform width.

4) Rounded corners: Border ✓ (with border-radius)  
outline ✗

## # List Styling.

### List Style

→ none (for removing the marker)

- \* list-style: ↓ ; to style the marker of the list.  
any language ~~;" \* " (Special Symbol)~~  
~~or emoji~~
- ( by default marker isn't included in styling like background-color, border, etc.)
- \* list-style-position: inside ;  
used to include the marker in styling like background-color, border, etc.
- ..
- \* list-style-image: url("");;  
used to set any image as marker.
- \* list-style-type: "any emoji or special symbol".  
used to set any emoji or special symbol as marker.

## # overflow

### # overflow: scroll;

to give a (mandatory) scroll bar at both x & y.

### # overflow: auto;

to give a scroll bar only where it required.

# `text-overflow: ellipsis;`

to hide overflow data, like this

data of...

# `overflow-x: hidden;`

# `overflow-y: scroll;`

# `overflow: hidden auto;`

} Controlling overflow individually

# Position Property.

→ to control the z-index, `z-index = ;` can be used by default → static (doesn't allow top, bottom etc)

# `position: relative;`

- \* Elements are positioned relative to their normal position in the document.
- \* you can use top, right, bottom, & left properties to move the element from its original position.

# `position: absolute;`

- \* Elements are positioned relative to the positioned ancestor (parent), which means we need to have a parent element with a position other than 'static'.

\* An absolutely positioned element is removed from the normal flow

transform, filter or perspective properties can also make an element appear as positioned.

### # position: fixed;

Elements are positioned relative to viewport (screen) and do not move when the page is scrolled.

### # position: sticky;

(hybrid of 'relative' & 'fixed')

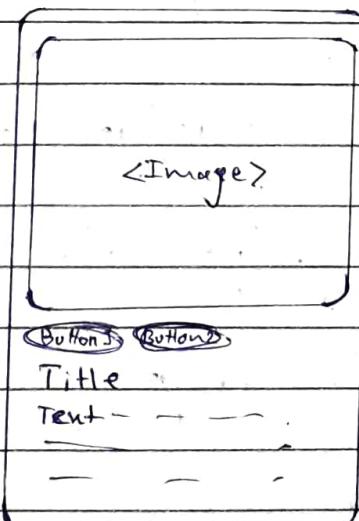
- \* It allows an element to become "stuck" to the top or bottom of its container when scrolling, but it ~~beha~~ behaves like relative positioning within the container until it reaches a specified offset.

### # position: floating;

(More details after)

## Exercise 3

Write html & css code to design this card.



## #

## css variables

We can define global & local variables in CSS which can hold various properties and then we can use the variables in the place of the properties. So that we can change many properties of many selectors @ a by just changing the variable values.

Ex use case

Multiple themes of a webpage

Syntax:-

```
:root {  
    --variable: value;  
}
```

} all the global variables are defined here.

## #

## Media Queries

It is used to make your website work efficiently across various devices (different sizes of screens).

It makes your website adapt different screen &

Syntax:- responsive to different screen sizes

~~@media not/only mediatype and (expressions) {css-code}~~

~~@media not/only mediatype and (expressions) {css-code}~~

~~@media not/only mediatype and (expressions) {~~

css-code;

}

Example :-

@ media only screen and (max-width: 455px) {

css properties, etc.

}

@ media only screen and (orientation: portrait) {

or

landscape

css properties, etc.

}

#### Exercise 4

design a ~~color~~ multi-color nav bar colored & themed using CSS variables.

# Float & clear (let → 34) (not so used in modern websites)

Float → Just like how "wrap through" works in MS Word, the float property allows the balance b/w txt & the image shown beside it.

float: right;  
or

left

or center or none.

use display: flow-root;  
with floated elements  
to resolve any  
layout issues

→ When we want to remove it,

[clear: right; or left or both or none]

## # More of CSS Selectors

# 1<sup>st</sup> child selector:-

```
.box :first-child {  
    property: value;  
}
```

# follow up.

.box + p { } to select the next of a element  
`<div class="box></div>  
<p> </p>`

# 1<sup>st</sup> line selector:-

```
.box :first-line {  
    property: value;  
}
```

:not( ) any id or class or element  
 select all the elements which don't match.

# Universal selector in a element

```
.box * {  
    property: value;  
}
```

# Attribute selector.

```
[attribute="value"] {  
    property: value;  
}
```

# n<sup>th</sup> child selector.

```
.box :nth-child (<nth child>) {  
    property: value;  
}
```

This can be 1, 2, 3, etc or even, odd. for every even or every odd children

content can be

✓ ~~iv.~~ # before (dynamically inserted by any element) ..

.box :: before {  
content: "Abc";  
}

} this will place the  
"Abc" b4 the box

.box :: after {  
content: "Abc";  
}  
Same as b4. but  
content is inserted  
after the box.

.box:: selection {  
for, when user selects  
any txt.  
}

input :: placeholder & to style placeholder in  
input

### Exercise 5

Q) Design layout (see the video 37 for details)

#

## Flexbox (AKA Flexible box)

display: flex;  
it makes

it makes it easier to layout, align & style items in the container while maintaining the responsiveness of the website.

### # Properties (container)

① justify-content: value;

\* [works with] \* ↓ flex-end, flex-start  
main-axis

flex-end, flex-start, center

space-around, space-between

\* used to align elements horizontally. \*

② align-items: value; \* [works with] \*

(used to align elements vertically)

↓ cross-axis

Top, Bottom, flex-start, flex-end, center, etc.

③ align-content: value; \* [works with] \*

↓ cross-axis

flex-end, flex-start, center

(used to align the content inside the elements present inside the flexbox)

Used to align the elements when multiple lines (wrap).

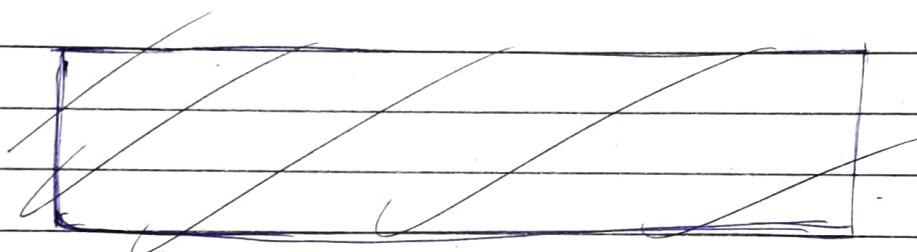
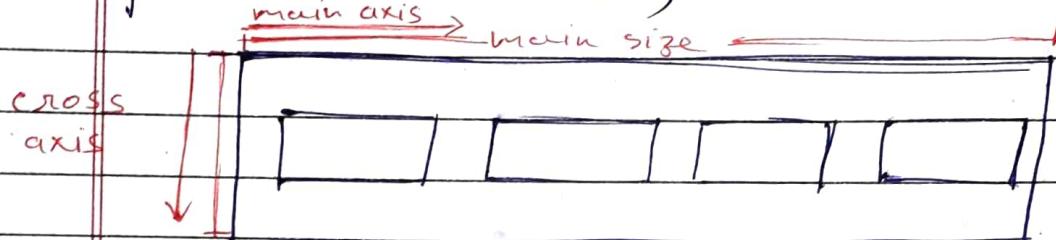
(4) flex-direction: value;



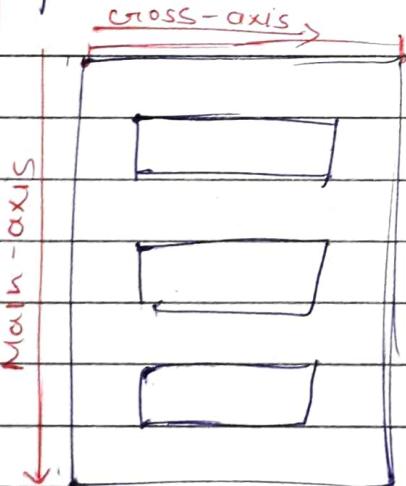
row, row-reverse, column, ~~column-~~  
column-reverse.

It defines in which direction the flex elements would be displayed. i.e. row or column, etc.

flex-direction: row;



flex-direction: column;



⑤ flex-wrap: wrap;  
(used to wrap ~~the~~ elements in case of overflow)

flex-wrap: wrap-reverse;  
to reverse-wrap.

flex-wrap: no-wrap; (default)

⑥ flex-flow: row ~~reverse;~~  
<sup>wrap</sup>  
<sub>flex-direction</sub> <sup>reverse;</sup> <sub>wrap</sub>.

This property is used to set two properties @ a time.

⑦ gap: 30px;

used to make gap b/w all the elements horizontally & vertically both,

column-gap: value; or gap: 10px 20px;  
(for only vertically)

row-gap: value;  
(for only horizontally)

It is highly recommended to use gap instead of margin/padding inside the flexbox or grid.

## # Flex item properties.

① `order: 100;`

used to set order, move the order ~~time~~ of the elements in which they are displayed.

② `flex-grow: value` → (1, 2, etc).  
(by default → 0)

③ `flex-shrink: value;` (1, 2, etc).

ability of a flex item to shrink if ~~necessary~~ necessary.

④ `align-self: value;`

↓ `flex-start, flex-end, centre, etc.`

(Used to align a particular element in a flex-box)

## # Grid.

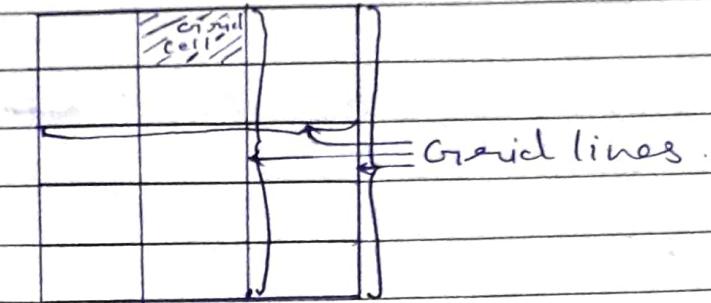
Just like flexbox, CSS Grid with the use of rows and ~~columns~~ columns, make it easier to style website elements

`display: grid;`

# `grid-template-columns: 120px 100px auto;`

no. of columns, size of columns can be defined.

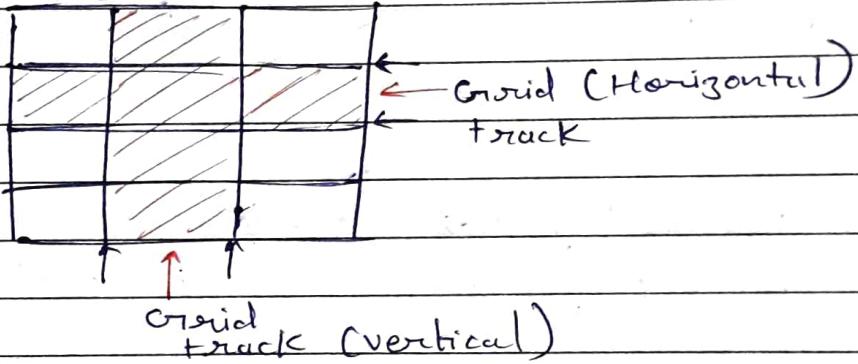
## # Grid Line & Grid Cell



## # Grid track & Grid Area

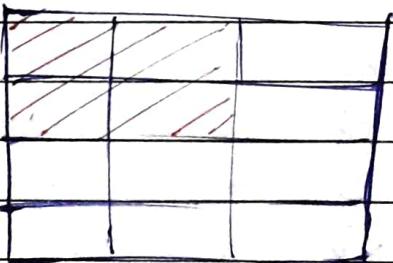
### # Grid track

space b/w two grid lines.



### # Grid area.

any area in grid.



#

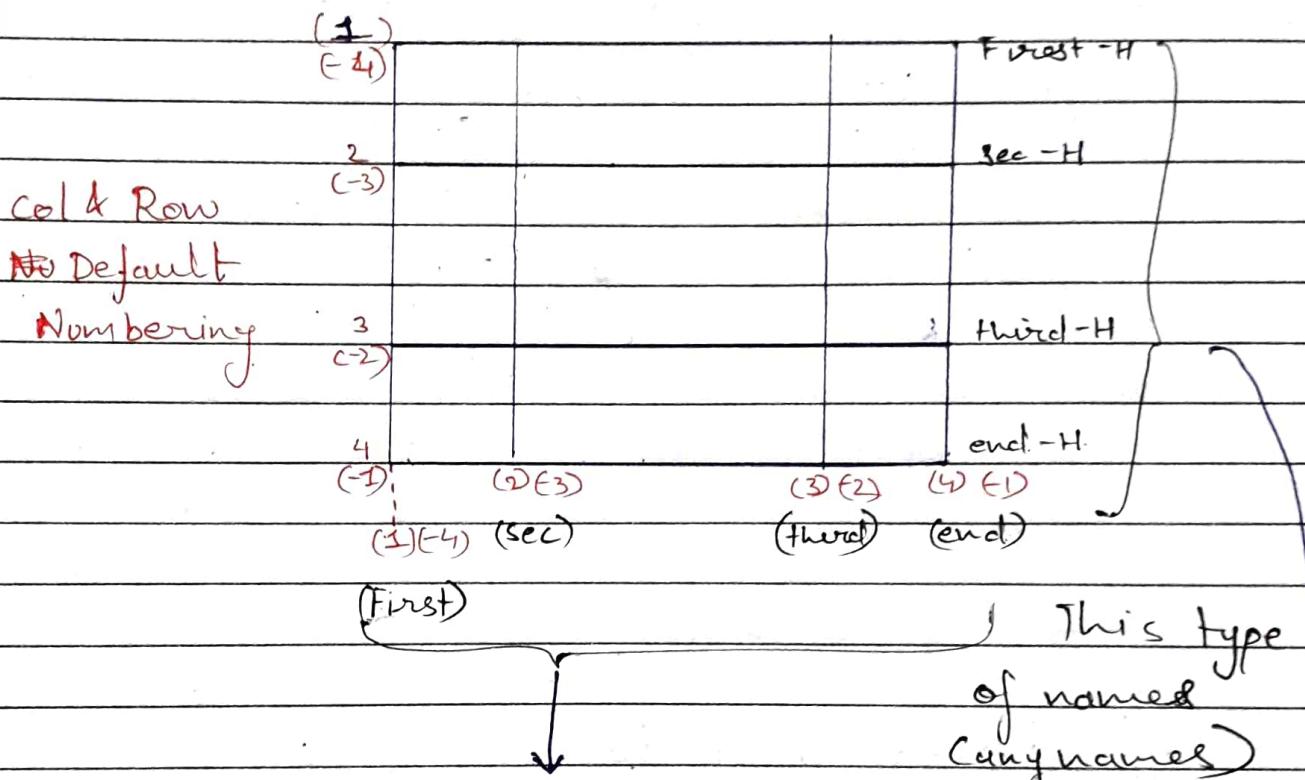
## Grid Template Rows & Columns.

\* This is Container Property.

grid-template-columns: 100px 200px auto;

grid-template-rows: 200px 200px 200px auto;

by this property, we can define no. of cols & rows and their size as well.



grid-template-columns: First 100px Sec 200px Third 100px end;

This type  
of named  
(cugnames)  
can be  
given through  
by

grid-template-rows: First-H 100px Sec-H 200px  
Third-H 100px end-H;

they can be used in positioning an item inside grid.

grid-column: sec / third;

- # Positioning any element in the grid.  
★ this is item property.

grid-row: 1/2;  
or

grid-row-start: 1;  
grid-row-end: 2;

} item  
This means the grid will  
occupy space from ~~row~~ of  
rows from 1 to 2. in  
grid.

grid-column: 1/3;  
or

grid-column-start: 1;  
grid-column-end: 3;

} item  
This means the grid will  
occupy space of columns  
from 1 to 3 in grid.

- ★ if the grid cell where u place an item is already occupied by another item, the existing item will shift and the cleared item will be placed without overlapping unless both items have the same defined position.

## // Alternative way to use a Grid. Grid Template Areas.

defines & name areas so that they can be used efficiently.

	navigation Bar		
	side bar	main content	
Footer			

example.

Syntax - (for above example)

.container {

display: grid;

grid-template-areas: "nav nav nav"  
"side Main Main"  
"side main main"

" Foot Foot Foot";

}

.nav-item {

grid-area: nav;

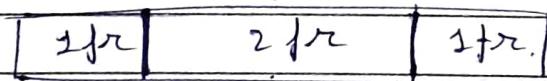
}

--- and so on.

# Some imp misc properties of grid

① fr unit (fraction unit)

grid-template-columns: 1fr 2fr 1fr;



# also can be used with rows.

② gap.

# gap: 10px;

row-gap: 10px;

column-gap: 10px;

} this creates gap b/w items

} it is ~~second~~ highly recommended

not to use this instead of margin, padding inside the grid or flexbox.

# alignment -  
justify-items: center; → Horizontal } container properties  
align-items: center; → vertical } item properties  
used to align items in their cell

vertical. align-self: start; } item properties  
Horizontal justify-self: end; } used to align any particular item.

{ justify-content: ; } container properties  
align-content: ; } used when grid size & container size mismatch, to align the whole grid w.r.t the container.  
→ place-content: ;

# using some functions  
example syntax:-

grid-template-columns: repeat(4, minmax(100px, 1fr));  
repeat this 4 times!

# Exercise 6 :

Design a navbar using flexbox (like ultraedit website)

#

## Transformers

This property allow you to move, rotate, scaley and skew elements.

transform: rotate( );  
↓

# used to rotate the element 90deg or 0.25turn.  
element

[1 turn is  $360^\circ$ ]

transform: rotateX();

used to rotate the element about x-axis.

similarly:-

:rotateY();

:rotateZ();

transform: scale(x, y);

transform: scale(n);

used to resize the element n times the original size

transform: scalex(n);

used to resize the elements ~~not~~ about x-axis, n times the original size

similarly:-

:scaleY();

:scaleZ();

# multiple transform properties

transform: scalex() rotatex();

# transform : skew(x, y);  
→ deg.

it skews an element along the x & y-axis  
by given angles.

for separate skew for x & y.

: skewX();

: skewY();

# transform: translate(x, y);

it moves an element from its current position  
according to the parameters given  
for the x-axis & y-axis )

similarly:-

: translateX();

: translateY();

# transform-origin: x y;

used to set origin co-ordinates about which  
other transformations are applicable.

Q)

Exercise 7

develop a grid like UltraEdit website.

## # Transition Property (used to add smooth Animation)

transition: properties duration function delay;

~~Transition~~

Example:-

transition: transform 3s ease-in-out 1s;

## # Animation Property

Syntax:-

~~@Keyframes available hand~~

~~@Key~~ Definition

@Keyframes any-name {  
from {  
property: value;  
}}

to {  
property: value;  
}

call.

@Keyframes any-name {  
0% {  
}  
10% {  
}  
50% {  
}  
:  
end so on.  
}

animation: name duration timing-function delay iteration-count direction  
fill-mode;

multiple calls:-

animation: name duration function1 name2 duration2  
function2.

## Exercise 8

Q) Refer let 48

## # Object-fit &amp; object-position.

- \* used to fit & position any object in certain dimensions.
- \* this property applies on dimensions declared in the same selector in which these properties are declared.

## # object-fit: cover;

to cover up dimensions defined in the selector, crops certain part of image to fit it.

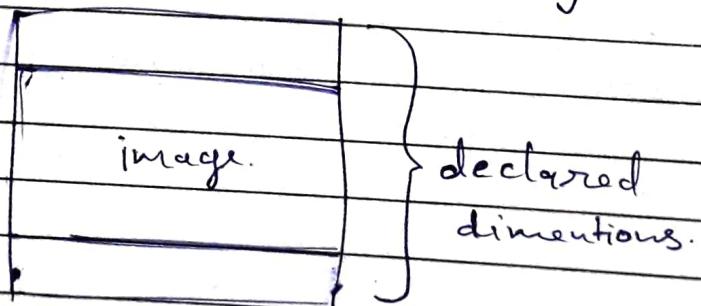
## # object-position: top right;

top left;  
bottom right,  
bottom left;

used to position the part of image to display when object-fit: cover; is used.

## # object-fit: contain;

original used to display the image in fit with the dimensions without crop or stretching the image. Keep space to display image.



## # background-image

# background-image: url(*(location)*);

→ Set image as background of any container.

# background-position: top right;

to set which part of image to display as background and the position of background image.

# background-repeat: no-repeat;

repeat-x;

repeat-y;

to manage the repetition of the image in case of image is shorter than the container.

# background-clip: border-box;

padding-box;

content-box;

## # Filter Properties

filter: blur(10px);

→ to blur any element

filter: brightness(200%); contrast(9.5);

→ to set brightness & contrast of elements.  
( $\frac{1}{2}$  full, 0 none)

filter: opacity(1);

: invert(1); → to invert colors of images.