HTML - Hyper text Markup language

Hyper text → Text that have links to another text/data

Markup → Annotation to contains as header footer etc.

language → Html is having certain syntax.

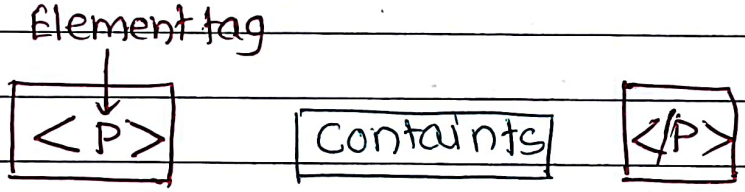
It's not case sensitive.

HTML	CSS	Javascript
↓	↓	↓
Structure of web page	Style	Behaviour

HTML - 1) Annotations to contaiint
2) structure to page.

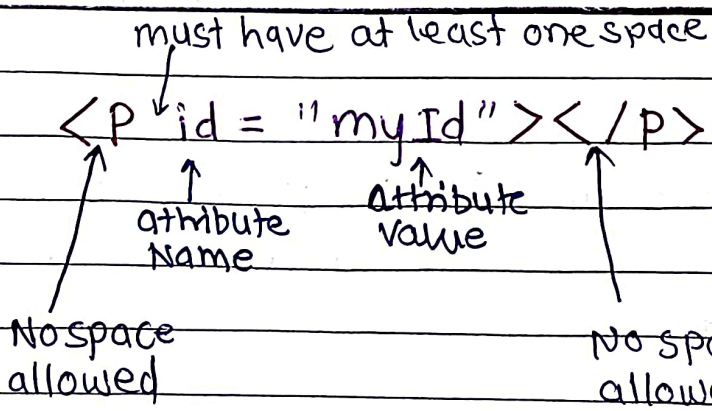
Anatomy of Tags

1)



Every opening tag doesn't have closing tag
e.g.
 , <hr>

2)



space is allowed anywhere else and ignored by browser.

attribut value is not compulsory to be in goutes but best practise to.

3) ✓ <P> </P> ✗ <P/>

In HTML5 - for empty tag only as a placeholde

Declaration

<!doctype html>

No space

Declaration is used to inform browser that wheath Page following HTML Standerds or not.

Rendering

Rendering in HTML is Top to bottom everything runs from top to bottom.

HTML Content Models

Block level Elements	Inline Elements
1) Render to begin on new line (By default)	1) Render on the same li (by default)
2) May contaiint inline element	2) Cannot have Block level elements in it.
3) It also pushes next elements also to next line to be alone on same line.	

HTML Elements

<!DOCTYPE html> - All HTML documents starts with document type declaration which specify that html doc. follows standerd format which helps browser to display webpage correctly.

<html> - everything/every element present insideit

Header

<head> - It is the element specified between <html> and <body> tags
- It is the container for following elements.

i) <title> - It provide title to webpage to be displayed in browser's tab, search engine results, when page added to favourite etc.
- Important in SEO point of view.

ii) <style> - It is used for styling with css
css commands are written inside this element.

iii) <script> - Javascript commands are written in <script> element and <noscript> for <noscript> specifying what should displayed when javascript not supported by browser.

<base href="_____" target="_____">

targets are - _blank

_

<

v) <link> - It has two attributes -

rel - It defines relationship between document and external resource. It can be "stylesheet" for css file

href - link of file.

eg

<link rel="stylesheet" href="URL">

<meta> - It is used to specify different data. It's data not displayed on page but used by browser, search engine an other web services.

1) character sets

a) <meta charset="UTF-8">

2) keyword for SEO

b) <meta name="keywords" content="HTML JS CSS

3) Description of content

c) <meta name="description" content="html tutori

4) author name

d) <meta name="author" content="shubham">

5) viewport for different device support

e) <meta name="viewport" content="width=device-wid initial-scale=1.0

6) Page refresh after 30 sec.

f) <meta http-equiv="refresh" content="30">

width = device-width - default screen size.
initial-scale = 1.0 - Default zoom level

Body

<body> - It defines the documents body inside <html> tag. Everything that is visible on webpage is specified in this body

Elements that falls inside Body are -

Headers (importance by default decrease and size ↓)

i) <h1>
ii) <h2>
iii) <h3>
iv) <h4>
v) <h5>
vi) <h6>

- head tags have Titles or subtitles of contents, proper use of heads from h1 to h6 is required as per SEO.

Paragraphs

i) <P> - It has paragraph content anything separated by spaces are ignored by browser and appears as single line as possible.

ii) <pre> - It solves 'Poem Problem' as every thing inside is shown in browser with predef formats like spaces, line breaks or new lines without use of
 <hr> tags.

iii) <hr> – Horizontal Rule It is empty tag used within two paragraphs to separate them. in html page.

iv)
 – Line Break without starting new para It is empty tag. It starts content next line.

Formatting the texts inside paragraphs or somewhere else.

i) <b> – Bold text
ii) – strong text just like strong
iii) <i> – Italic text
iv) – emphasized text just like italic
v) <mark> – Marked i.e. Background is highlig
vi) <small> – small text
vii) <del> – Deleted i.e. line through text.
viii) <ins> – Inserted text
ix) <sub> – subscripted – X_2
x) <sup> – supercripted – X^2

We can define the styles for this tags also inside stylesheets.

i) <blockqoute> – used to qoute the content from a site or resource browser Indent this qoutes.

e.g.

<blockqoute cite="URL" > qoute </blockq

ii) <q> – Inserts qoutation marks " " for in between it.

iii) <abbr> – used for abbrevation, after hovering gives title / long form of abbrevation

e.g. <p> The <abbr title="Ticket checker"> TC </abbr>

abbrevation with title useful for SEO's, translators.

iv) <address> - It's used to qoute address info of author, browser renders it as Italic.

e.g. <address>
Written by : Shubham
Visit us at : address
Phone no. : xxxxxx84
</address>

v) <cite> - It is used to qoute title of certain work or sculpture or artwork etc. It is used to qoute the name of of picture, special text like poem below it.

vi) <bdo> - used to override direction of text eg following reverses direction as shubham to mahbuhs

e.g. <bdo dir="rtl">Shubham</bdo>

Comments

<!-- this is commented text will not be shown in browser & will not affect code. -->

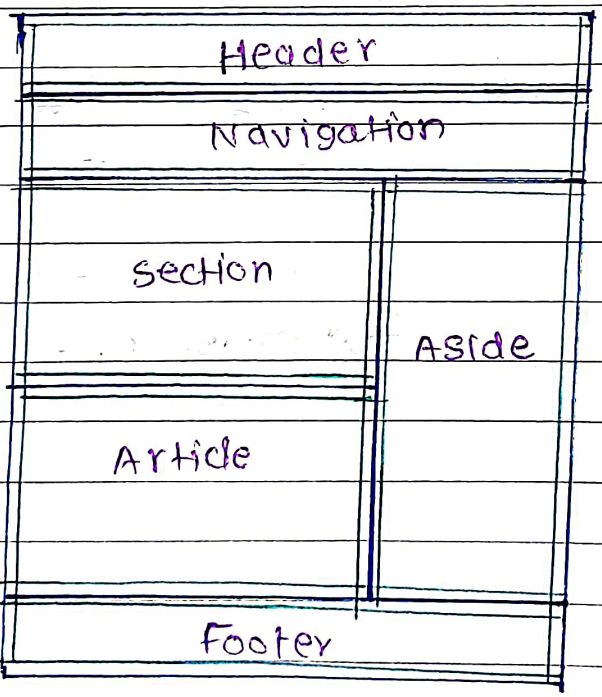
Footer

<footer> - It defines footer of webpage w includes contact information, link addresses etc.

Aside

<aside> - It is used to display side elems on the webpage. like sidebar.

Webpage layout



HTML semantics

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semantic elements - It clearly describes its meaning to browser and devloper.

e.g. semantic elements which clearly defines its contents are - <form>, <table>, <article>

Non semantic elements which do not clearify mean are - ,

<article> Specifies independent, self contained content and should be possible to distribute it independently from rest of the website.
eg. blog post, Newsarticle.

<section> Defines section in document
can be nested in <article> or <article> can be nested to <section>.

<header> Represent introductory contents
- 1) Icon, picture, logo
2) Heading elements (h1 - h6)
3) Authorship info.

There can be many headers but one header cannot be placed inside <footer> another <header> or <address>

<footer> Represent contents like -
1) Related docs 2) Authorship info
3) Copyright 4) Back to top links
5) Contact info.

There can be many footer elements.

<nav> Defines set of navigation links. The set of links provides inside which are in the form of Navigation like. | HTML | CSS | JS | jquery |

<aside> It include content which is dire related to main content idea an represented as cell or row or co as sidebar. like in newspaper.

e.g.

<figure> **<figCaption>** **<img>** <figure> tag has self contained co like diagrams, illustrations, photo code listing etc while <figcapti has caption for that figure an defined inside <figure> tag. <Img> defines actual image.

<details> **<summary>** <details> tag specifies additional d that user can open close on der it is offenly used with <summa

```
<details>
    <summary> Expands </summary>
    <P> this is expanded view </P>
</details>
```

Output

▶ Expands ⇒ on click ▼ Expands this is expanded vi

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Sematintic comments

1) Well choosen content of H1 element is crucial for SEO (search engine optimization)

<h1>	</h1>	most important
<h2>	</h2>	↓
<h3>	</h3>	Least important.

Browser shows this elements in different style But this elements are just to define structure of webpage and not for styling.

<h1> tag should have the central idea of topic as it is upmost important in SEO point of view. Gives better ranking in SEO

2) semantic elements allow for a more meanigfull expression of the structure of HTML page.

<section>
<article>
</article>
</section>

article tag inside/nested to section tag much more sense but their is such hard rule to use the same structure always.

This thigs dont gives more functinality to webpage just used to specify the structuse of webpage in a meaningful way.

semantic elements makes Human & computer better understand the structure and improve ranking in SEO.

HTML - Lists

Typical list made by spaces and new line are not lists as spaces ignored by HTML.

1) Ordered Lists

```
<ol>                                   ← ordered list start
    <li> Element 1 </li>
    <li> Element 2 </li>               ← list items.
    <li> Element with sublist
        <ol>                           ← nested ordered list
            <li> ele 1 </li>
            <li> ele 2 </li>
        </ol>
    </li>
    <li> Element 3 </li>
</ol>                                  ← ordered list end
```

Output

1) Element 1
2) Element 2
3) Element 3 with sublist
    1) ele 1
    2) ele 2
4) Element 4

2) Unorderd List

use of unordered lists. `<ul> </ul>` don't order the items according to numbers.

```
<ul>
    <li>        </li>
    <li>        </li>
</ul>
```

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3) Description List

<dl>		decription list
<dt>	</dt>	dlist element title
<dd>	</dd>	list element description
<dt>	</dt>	list element title
<dd>	</dd>	list element description
</dl>		

HTML Links - Hyperlinks

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Internal links (Relative links) – The links which are giving local pages from same website.

Absolute links (External links) – The links for other websites.

Link <a>

```
<a href = "URL" title = "Title"> Name to link </a>
```

- URL with or without (www)
- For extra info of website when we hover over it.
- Name that appear on which we click.

Attributes of link

- **<a>** = Hyperlink
- **<href>** - URL
- **<title>** - It gives title for link seen by Hovering.
- **<target>** - specifies where to open the linked document It has following values.
  1) _self - opens the documents in same tab/window
  2) _blank - opens the documents in new tab/window
  3) _parent - opens the documents in parent tab/window
  4) _top - opens the documents in full body of window

e.g.

```
<a href = "URL" title = "Title" target = "_blank">
    Name of link
</a>
```

<img> - Used for image as link it is used inside <a><img> tag

mailto - Used inside href to send email.

```
<a href = "mailto : someone @example.com"> send email </a>
```

Links to sections - Links to different sections of same page. also known as Bookmark

```
<ul>
    <li><a href = "# section1"> #section1 </a></li>
    <li><a href = "# section2" > # section2 </a></li>
</ul>
```

```
< section id ="section1">                </section>
< section  id="section2">                </section>
```

// #section is similar to selector by identity

Button as Link - For button we need to add some JavaScript codes.

```
<button  onclick = "document.location = 'default.asp'">
                HTML Tutorial
                                    </button>
```

HTML - Iframes

It is used to display a webpage within webp

```
<iframe  src ="url"   title ="Iframe"> </iframe
```

OR

```
< iframe  src ="url"   name ="iframe" title ="Name
                                    </ifr
<p> <a   href ="url to display"   target ="iframe">
                                    </a></p>
```

Displaying Images

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1) Image <Img>

```
<img  src = "URL"      alt = "Image name"
      height = "1000"  width = "500" >
```

</img> - closing tag is not used.

style attribute can also used for styles.
e.g. style = "width: 24px height: 10px"
It also supports .gif files for animations.

2) Picture <Picture> - used to display different images for different fits according to device or window size.

```
<Picture>
   <source  media = "(min-width: 650px)" srcset = "URL" >
   <source  media = "(min-width: 465px)" srcset = "URL" >
   <img  src = "URL" >
</picture>
```

<Picture> can be also used when some browser don't support every img format we can define every format of same image.

```
<Picture>
    <source srcset = "img_girl.jpg" >
    <source srcset = "img_girl.png" >
    <img src = "img_girl.gif" alt = "Girl" >
</picture>
```

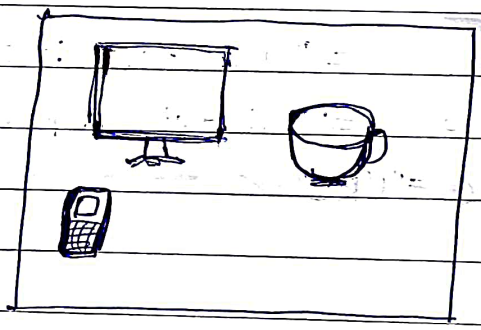
Browser pick first matching image and ignores other elements (Top to bottom approach).

img always specified as last child element when other elements don't match last one applied.

3) Image Map - It allows to click over specific areas of image and go to respective lin

```
<img src="URL"  alt="workspace" usemap="#works
    width="400"  height="379">

<map
   <area shape="rect" coords="..." alt="comp" href="comp
   <area shape="rect" coords="..." alt="phone" href="phon
   <area shape="rect" coords="..." alt="cup" href="cup
</map>
```



we can click on computer, cup, phon and go to respecti links.

HTML Tables

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Table tags- used to create table.

```
<table><caption>_____</caption>// define table
    <tr>                          // define row
        <th>_____</th>            // define row data as
        <th>_____</th>              heads
        <th>_____</th>            // caption defines
    </tr>                           name to table.

    <tr>
        <td>_____</td>            //define row data as
        <td>_____</td>              data cells
        <td>_____</td>
    </tr>

</table>
```

HTML Iframe

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Iframes are used to display a webpage within a webpage.

```
<iframe  src = "link"  style = "border : 2px solid red;"
         title = "Iframe example">
</iframe>
```

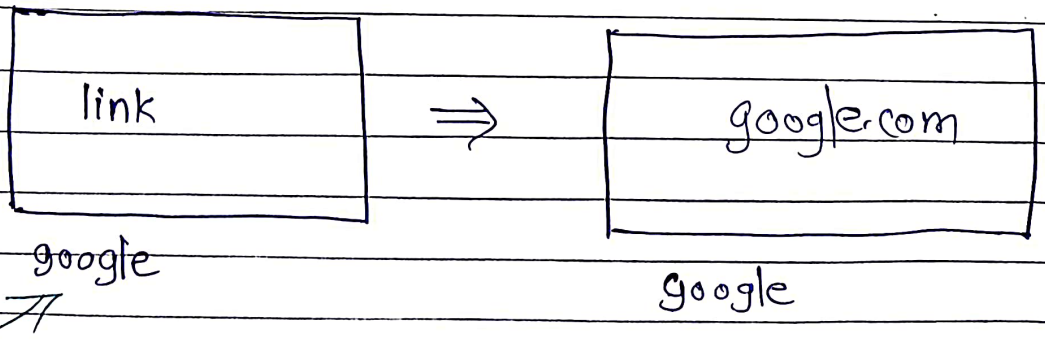
src attribute take link to display inside iframe
style attribute defines style applied to iframe
title attribute defines title for iframe it is not compulsory but good practise to mention it.

We can use Iframe as target window for link to open as follows-

```
<iframe  src = "link"          style = "border : 2px solid
         name = "iframe_a"     title = "Iframe example"
</iframe>

<P><a  href = "https://www.google.com"
       target = "iframe_a" > Google </a></P>
```

output



when clicked google word.

HTML Block & Inline

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 - - It is blocklevel element used as container for other HTML elements

- It starts ~~block~~ new line and take up as much width as necessary.

 - It is Inline element starts next to element and also next element starts from same line.

- Used as markup at specific test.

HTML File Path

File paths are used when linking to external files like -

i) Web pages
ii) Images
iii) Style sheets
iv) Javascripts.

1) Absolute file paths - It takes full URL

e.g. "https://www.google.com/images/picture.

2) Relative file paths - It is best practise to relative file paths by this all links works in own compture as well as current pub domain and future public domains.

src = "picture.jpg" - Picture located in th same folder as th current Page.

src = "images/picture.jpg" - Picture located in im folder in the curre folder.

src = "/images/Picture.jpg" - Picture located in im folder at the root current web.

src = "../picture.jpg - Picture is located in images folder one up from the curre folder.

HTML Forms

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Form

<form> - all the form element are enclosed inside it.

Form elements

i) <input> - For taking inputs. have many attributes.

Input attributes

i) type =

ii) "button" - It has functions like giving pop up

e.g.

```
<input type = "button" onclick = "alert("Hello")"
       value = "click here" >
```

ii) "text" - for single line input field.

e.g.

```
<input type = "text" id = "username" name = "username">
```

iii) "password" - defines password fill shown by astersk or filled dots.

iv) "Submit" - To submit data inside form elements to form handler
Form handler is server page for processing data it is specified in action attribute of form element

```
<form action = "/action_page.php">
    <input type = "text" id = "fname" name = "fname">
    <input type = "submit" value = "submit">
</form>
```

v) "reset" - It reset all form elements to de
values. In the form of button.

<input type="reset">

vi) "radio" - user select only one choice out
all radio type input elements
form elements.

e.g.

<form>
<input type = "radio" id = "m" name = "gender" Valu
<input type = "radio" id = "f" name = "gender" Valu
</form>

Combination of elements grouped with name at
one of option selected out of this grouped e

vii) "checkbox" - Allows user select multiple
Similar to radio

viii) "color" - Allow user to select colour from

ix) "date" - Allow user to select date from

<input type="date" id = "bday" name = "Birthda

OR

<form>
<input type="date" id="max" name = "max"
max = "1972-

<input type="date" id="min" name = "min"
max = "1989-

</form>

Date:

x) "datetime-local" - Specifies date and time input field, with no time zone.

xi) "email" - Depending upon browser support email is validated and submitted automatic

e.g.

```
<input type="email" id="email" name="email">
```

xii) "file" - To choose file upload from pc./phone storage.

e.g.

```
<input type="file" id="myfile" name="myfile">
```

xiii) "month" - allow user pick month and year.

xiv) "number" - To enter numbers and according to specified restrictions.

e.g.

```
<input type="number" id="quantity" name="quantity"
min="0" max="100" step="10"
value="30">
```

xv) "range" - Slider provided with min, max, & steps by default min and max are at 0 to 100.

```
<input type="range" id="vol" name="vol"
min="50" max="100" step="2">
```

xvi) "search" - To search with default search engine of browser.

```
<input type="search" id="gsearch" name="gsearch">
```

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xvii) "tel" – To enter phone number

<input type = "tel" id = "phone" name= "
pattern = "[0-9]{3} -[0-9]{3} - [0-9]{3

123-45-678

xviii) "time" – Pick time from time picker.

xix) "url" – Depending upon browser supp
Url is validated and submitted.

<input type = "url" id = "page" name='p

xx) "week" – select week and year.

<input type = "week" id = "week" name= "w

ii) Value = specify initial value / default value to any type field according to that type field.

iii) id = It has nothing to do with element data it used by CSS & JS

iii) name = It is variable name associated with data input and hence used common name for many elements grouped like radio where only one item selected.

iv) readonly for read only value, specified after value attributes at last and have no value. Just specifies

v) disabled specifies after value attributes. the space is unusable undickable.

vi) size = specify width of Box in terms of no. of characters default value is 20.

vii) max length = max no. of characters as input.

viii) max = min = step = max and min is specified with different elements incase of date and in same element in case of numbers, range etc.

vij) multiple - for multiple file for type like file, email

x) Pattern = "[A-Za-z]{3}"
"[0-9]{3}-[0-9]{2}-[0-9]{3}"
works with data, time, search, Url
password, tel, text.

xi) Placeholder = It is a short hint displayed in
Box used for - number, data, time,
placeholder = "12-34-5678"

12-3-4-5678

xii) required - It is defined for inputs whi
compulsory to fill and prompt
not filled.

xiii) autofocus - The element to be filled fir
when page loaded is highlight
to get focus first.
e.g. Box is having thick border.

xiv) list = list is provided as from which in
is selected.

```
<form>
    <input list = "browser"
    <datalist id = "browser".
        <option>value = "chrome">
        <option value = "safari">
        <option value = "opera">
    </datalist>
</form>
```

XV) autocomplete = Depending upon initial inputs browser predicts values. to insert this values are initially inserted once,

Values are = "on" or "off"

Entity References

1) To avoid Rendering issues -

Instead of	Use
1) < - less than	<
2) > - greater than	>
3) & - ampercent	&

2) provide characters not available on keyboard.

1) © copyright ©
2)
2) ® Registered trademark ®
3) &pBund; Pound £
4) € euro €

3) safeguard against more limited character encoding.

1)   Non breaking Space - It doesn't allow the space to be split when line ends. characters on either side are always together.

2) " whole paragraph are contained inside two " so that they displayed well in different browsers otherwise

4) Greek letters

i) &Alpha α
ii) &Beta β
iii) &Gamma γ
iv) &Delta Δ
v) &Epsilon ε
vi) &Zeta ζ

5) Symbols

i) &larr ←
ii) &rarr →
iii) &uarr ↑
iv) &darr ↓
v) &spades ♠
vi) &clubs ♣
vii) &hearts ♥
viii) &diams ♦

Entities are also specified by entity number

UTF-8 - character set is detaut in HTML n
not be set. it includes character
for all symbols entities or emojis

e.g.,

😊 is 128516 ⇒ &#128512
💝 is 128157 ⇒ &#128157

i) UTF-8 shares same character to ASCII from
ii) UTF-8 shares samp character to ANSI & 8859
for values 160 to 255
iii) UTF-8 have different characters from 256
10,000 characters.

Responsive Design

Responsive design - site's layout adapts to the size of the device for this adaptability we use @media query.

1) Different screen sizes of different devices
2) screen modes. (landscape / poertrait),

Syntax

```
@media ( conditions ) and/, (condition) {
                       ↑    ↑
                      and   OR
    p {
                      ← stylsheet when condition
      }                 of media query gets
                        satisfied.
    div {

      }
}
```

Conditions are - (min-width : -- px);
(max-width : --px);
(orientation : Landscape/Poerrait);

Example

```
@media (min-width:900px) and (max-width : 1000px){
  p {
     font-size: 17px;
    }
 div{
     font-size : 17px;
    }
  }
```

this example changes font size of p and div elements to 17 px when screen size become in between of (900 - 1000 px).

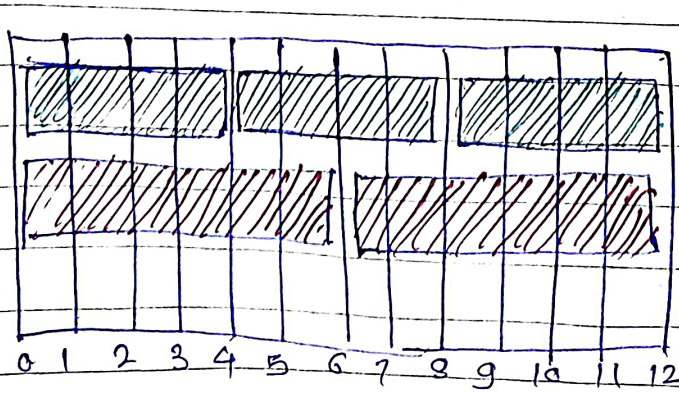
Breakpoint overlapping - when conditions of media query such that it becomes ambigous to set style overlapping of breakpoint said to happen and it should be avoid carefully

The Alternative to Responsive design

1) There are alternatives like - server detects the type of browser compatability and respective loads version of site as there are already two versions (mobile/desktop) But
2) Even then mobile devices has different screen configurations hence to fit the page content properly Responsive design is important,

12-Column Grid Responsive layout.

Screen size/width is splitted into 12 columns (Because of ease of operating with factors of 12) and design is made with respect to these 12 parts



Steps -

1) We define media query for specific screen size
2) Inside that mediaquery we define 12 classes
3) For each class we define the width size
4) According to need this classes are assigned to the elements. i.e. when perticular screen size is their that width is given to element.
5) We define many such mediaquery with each having 12 classes and this classes are assigned to element only one condition is true at a time hence only one class is active for an element.

Example

```
<style>
  .row{ width : 100%}
@media (min-width : 1200px){
    .col-1-1, .col-1-2, .col-1-3,
    .col-1-4, .col-1-5, .col-1-6,
    .col-1-7, .col-1-8, .col-1-9,
    .col-1-10, .col-1-11, .col-1-12
    {
        float : left;
        border : 1px solid green;
    }

    .col-1-1 {
            width : 8.33%;
        }

    .col-1-2 {
            width : 16.66%;
        }

    .col-1-3 {
            width : 25%;
        }
```

Their are 12 such class declarations with width becomes 100%.

Another such media query is made for size less than 1199 px (less than 1200px) and greater than 800 px also.

one media query with less than 799 px and greater than 400 px they also have classes with widths like first media query.

e.g.

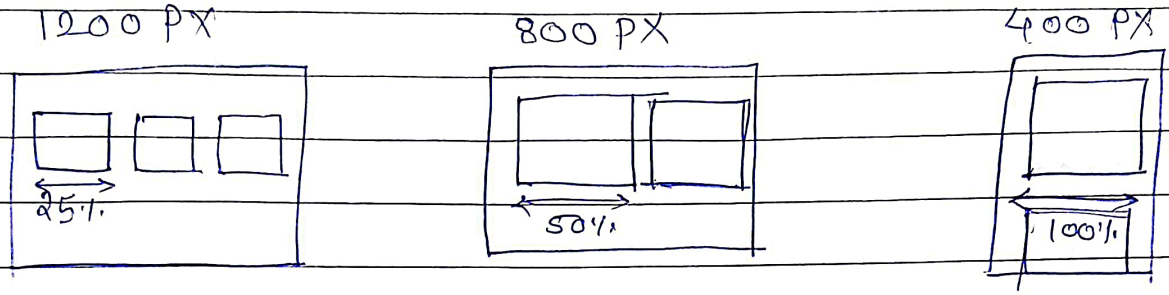
```
@media (min-width: 800px) and (max-width: 1199px){
        .col-m-1 , .col-m-2 ---------
    {
        float : left;
    }
.col-m-1 {
        width : 8.33%;
        }

.col-m-2{
        width : 16.66%;
        }
```

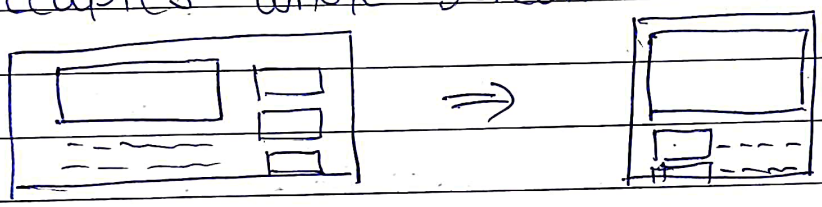
This classes are assigned to elements like

```
<div class = "row">
<div class = "col-1-3 col-m-6" col-s-12 ">---</div>
<div class = "col-1-3 col-m-6" col-s-12">---</div>
</div>
```

In this way when screen size changes elements gets different widths of screen. and they are aligned to left because of floating property



this is similar to youtube as we reduce size after certain point youtube video element occupies whole screen.



HTML URL ENCODE

URL - uniform resource locator

URL is used to address webpage or document on web means our browser requests document from web server using URL.

Web address follows syntax rule like -

```
Scheme :// Prefix . domain : Port / path / filename
```

Scheme - type of internet service (http / https / ft)

prefix - domain prefix (Default for http is www)

domain - Internet domain name

Port - port number at host (http is 80)

Path - path at server (if ommited : root directory)

filename - name of document.

Common URL Schemes

1)	http (hypertext transfer protocol)	Common webpage not Secure/Noencry
2)	https (secured hypertext transfer protocol)	secure webpage with encryption.
3)	ftp file transfer protocol	Downloading & uploading files
4)	file	A file on computer

HTML Computer Code

1) <kbd> - used to defines keyboard keys.

e.g.

```
<P> <kbd>Ctrl+S </kbd></P>
```

2) <code> - used for computer codes (programmes)

e.g.

```
<P><code>
        x+y = 5+6;
        Print (x+y);
    </code></P>
```

3) <samp> - used to define computer output

e.g.

```
<P> <samp>
        This page is not found
    </samp></P>
```

4) <var> - used to define variable in programming or in mathematical expression.

e.g.

```
<P> In area of triangle.
    <var> h </var> is height and
    <var> b </var> is breadth
</P>
```

5) <pre> is used to contain <code> inside it so that <code> have white spaces inside it otherwise <code> doesn't maintain white spaces.