Introduction to HTML

Overview :-

- HTML stands for Hyper Text Markup Language.
- It describe the structure of any webpage using markup. It is tag-based language and are defined with (<>) brackets.
- The extension used to save these html files is .html or .htm.

Sample of HTML Document

```
<!DOCTYPE html>  /*tell the browser, that the field being displayed is HTML5 page*/
<html>  /*to contain all the html data and start of an html document */
<head>  // provide information about the document.
  <title> Any title /* provides title for the document */.
  </title>
</head>
<Body>  /* It contain everything which will be displayed on webpage */.
</Body>
</ html>
```

The above is called the source code of a website.

HTML Element:-

Elements are the things that makes up the web page. Tags just define the beginning and end of the element. Everything that a webpage includes is an HTML element.

Example:- Hello Ishita ! .
<h1> Hello Ishita ! </h1>.

Empty Elements:- Some html tags have no content like
 element. These are called empty element.

 is used to introduce a single line break between the contents.

For Example: <h3> I am learning
 html </h3>
Output:- I am learning
html

HTML Tags and Elements:-

Tags:-

- Tags defines all element of the document, i.e, they give meaning to the plain text of html.
- They are surrounded by < and > (angle brackets).
- The Tag name can be started from an alphabet or an underscore(_).
- Tags with an opening and closing can have any number of tags within themselves.
- HTML tags are not case sensitive. means same as <P>. They usually comes in pairs.

Comments:-

The comment tag <!--> is used to insert comments in the source code. Comments are not displayed in the browser.
You can use comments to explain code, which can help you when you have have a lot of code to implement.

Note:- If you are using Visual studio code then there is shortcut key to add line comment: Ctrl+K+ctrl+C

Paragraph:-

Paragraphs are blocks of text separated from each other by some space. They are defined using the and tags. When the p elements ends, the next elements appear in the next line.

Example:-

```
<body>
  <p>This is our First document</p>
  <p>This is our second document
   This is our third document</p>
</body>
```

Output: This is our First document
This is our second document. This is our third document.

Headings

These are tags in HTML to mark some content as heading. In fact there are six different level of headings $h_1, h_2, h_3, h_4, h_5, h_6$ among while h_1 is largest and h_6 is smallest.

```
<body>
  <h1> Hello! </h1>
  <h2> Hello! </h2>
  <h3> Hello! </h3>
  <h4> Hello! </h4>
    :
  <h6> Hello! </h6>
```

Output

Hello!
Hello!
Hello!
Hello!
Hello!
Hello!

Line Breaks

There are multiple ways to provide line breaks or move the content to the next line!

Example

```
<p>
Hello Ishita!
How are you?
Welcome to the course of HTML!
</p>
```

Display on browser

Hello Ishita! How are you? Welcome to the course of HTML!

HTML Horizontal Rules

The <hr> tag defines a thematic break in an HTML Page and is often displayed as a horizontal line.
The <hr> element is used to seprate content in an HTML page

Example:-

```
<p>
Hello! Welcome to the HTML course :)
<hr>
Let's start
</p>
```

Display

Hello! Welcome to the HTML course

Let's start

Break tag

 is used to introduce a single line break between the content.

Example:

```
<p> I am learning HTML! <b>
    Let's start </p>
```

Display

I am learning HTML!
Let's start.

Images in HTML

Overview

With HTML, you can also display images in a document.
In HTML, images are defined with the <img> tag.
∴ <img> tag is a self closing tag which means that it doesn't contain the closing tag.

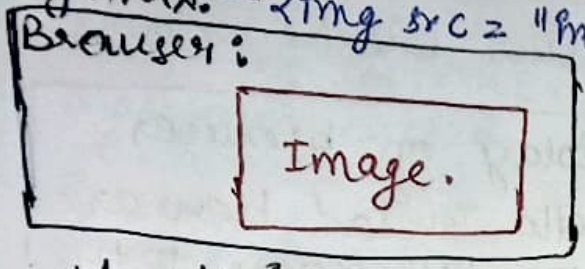
src attribute

src stands for "source". The value of the src attribute is the URL of the image you want to display on your page.

- The src tag contain both relative and absolute path, as well as internet image links.

Syntax:— <img src = "Images/logo.png">

Browser:

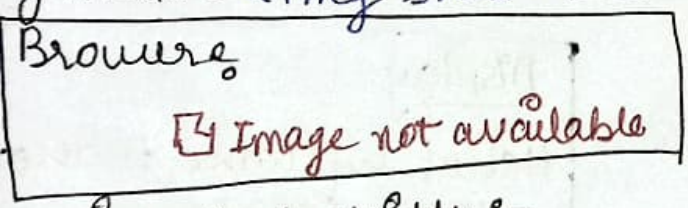


alt attribute

The alt attribute or alternate text tells the reader what they are missing on a page if the browser can't load images.
The browser will then display the alternate text instead of the image.

Syntax: <img src = " ___ " alt = "Image not available" >

Browser:

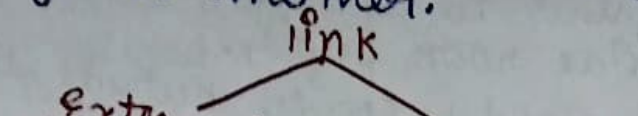


Height and Width:—

The Height and Width of any image can be set directly by using the height = "value" and width = "value" attributes.
By default the value provided is in pixels.

Anchor tag in html:-

The <a> tag defines a hyperlink, which is used to link from one page to another. We see that when we click on any link, it opens a new page may be on the same page or another.



They give us the ability to go to a different webpage without each time entering its URL. These are called external links i.e. they help in connecting to external web page.

They will be linking the content within the same page. Eg. link to the top of the page or any link to any specified content on any page.

- An unvisited link is underlined, and blue
- A visited link is underlined, and purple.
- An active link is underlined, and red.

href attribute

It indicates the links destination. The href attribute is used to address the document to link to.

Example;

```
<h2> Let's start ! </h2>
<p> Solve your problems at
<a href = " www.doubtnut.in/students/problems/solution " > problem
    solution </a>.
```

Browser:

Let's start!

solve your problems at Problem solution.

It can point to any resources on the web: an HTML page, an image, a sound file, a movies, etc. These all are knows as external Links

Note: We need to remember that here also, we can provide the relative URL of a file as a value to href attribute. Eg: href = "/home/my PC/Documents/test.html"

Relative and Absolute Linking :-

Relative link is used to specify local link. i.e. link to files inside root folder.
Absolute linking is used to specify outside links. i.e. URL of the webpages
Relative link works relative to the page. So, when a user click a relative link, the browser looks for the location of the file relative to the current page.
There are four situation :-

(1) File is present in the same folder
Eg: click me

(2) File is present in the sub folder
Eg: Click me

3) File is present somewhere in the parent folder
 click me

4) File is present in another subfolder of the parent folder
 click me .

target attribute

With this attribute, we can define where the linked document will be opened.
The target attribute has the following values :-

- _self : load the URL into the current tab itself.
- _blank : load the URL into a new tab or browser window.
- _parent : Load the URL into the parent browsing context. If there is no parent this behaves the same as _self.
- _top : load the URL into the top level browsing context. If there is not parent, this behaves the same

Note :- By default, the page will be displayed in the current browser window.

Attributes in HTML:-

HTML attributes can provide additional information about the HTML elements on your page and control their behaviour.

Example:

<tag-name attribute_name="Value_Value"> content enclosed </tag_name>.

Some points to remember:-

- Attributes always come in name/value pairs like this: attribute_name="Value".
- Attributes are always added to the start tag of an HTML element.
- Attribute values should always be enclosed in qotes. Double style qoutes (" ") are the most common, but single style qoutes (' ') are also allowed.
- In some rare situations, like when the attribute value itself contain quotes, it is necessary to use single quotes: name='John's hotGun' Nelson' and vice versa.

Styling in HTML

Styling on HTML element can be done by using the style attribute and providing some specific value to it. styling could be done on color, font, text, size, etc.,

Syntax: <tagname style="property:Value;">

Text color:-

It is used to change the color of the text.

Example:

```
<h1 style="color:red"> I am Good! </h1>
```

Browser

I am Good

Text size

It is used to set the text size for an HTML element.

```
<p style="font-size:30px;">Welcome to Learning World</p>
<p style="font-size:20px;">Hello</p>
```

Browser

Welcome to Learning World

Hello

We can use various styling element in the same way like Text Alignment, Fonts, Background color, Multiple styles, etc.

Text Formatting in HTML

HTML provides us with the ability for formatting text just like we do it in MS word or any text editing software.

The following html tags are used to format the appearance of the text on your web page.

This can jazz up to the look of the page. However, too much variety in the text formatting can also look displeasing. HTML also defines special elements for defining text with a special meaning.

Tag	Description
<b>	Defines bold text.
	Defines emphasized text.
<i>	Defines italic text
<small>	Define smaller text
	Define important text
<sub>	Define subscripted text
<sup>	Define superscripted text
<u>	Define underlined text.

<ins>	Define inserted text by underlying the text.
<del>	Defines deleted text by striking through the text
<s>	Defines text that is no longer correct, accurate or relevant by striking through it.
<mark>	Define marked/highlighted text.
<pre>	Define preformatted text, which is presented exactly as written in HTML.
<tt>	Define text appears as typed by a typewriter.
<code>	Defines piece of computer code.
<q>	Define short quoted text.
<cite>	Define reference to a cited work.
<abbr>	Defines an abbreviation or acronym.

Colors in HTML

The color property is used to the set the foreground color of an element's text content and its decoration.

Background color

The background-color property sets the background color of an element. It has the same value as that of the colour property.

Example:-

```
<p style = "background color: Yellow;">Hello!</p>
```

Text color

The color property sets the colour of an element. It has the same value as that of the color property.

Example:-

```
<p style= "color: red;">Hello!</p>
```

Border

It is used to make borders around an element which have some specific width, type and colour. We will cover borders later in the CSS module.

Example: `<p style= "border: 2px solid green;">Hello!</p>`

Colour Values

The colour property can be specified in 6 different ways.

(1) **by name**

All modern browser support 140 different colours named in CSS. Unlike HTML, CSS will completely ignore unknown keywords.

The color keywords all represent plain, solid colors, without transparency.

(2) **Using rgb**

RGB stands for Red, Green and Blue. It is a color model where a combination of Red, Green and Blue forms a color. The intensity of each color has values ranging from 0 to 255. This provides a very large number of colours dataset.

Black color → rgb(0,0,0)

White color → rgb(255,255,255).

(3) **By hex code:-**

The colors can be represented by 6 digits hexadecimal code. The code are made using 3 colors (Red, Green and Blue). The first two digit are red, the next 2 are green and last 2 are blue. Syntax is #RRGGBB.

Each hexadecimal value between 00-FF is similar to 0-255.

#000000 - Black #FFFFFF - White

(4) **Using Hsl:-**

- Hue is a degree on the colour wheel from 0 to 360. 0 is red, 120 is green, 240 is blue.
- Saturation, represent the amount of saturation in the colour. It is a percentage value, 0% means a shade of grey, and 100% is the full color.
- Lightness, represent the amount of light in the color. It is also a percentage, 0% is black, 50% is neither light nor dark, 100% is white.

5) Using RGBA

RGBA (Red, Green, Blue, Alpha) is an extension of RGB, provided with alpha transparency. This alpha value determines the opacity of the RGB defined color. The alpha parameter is a number between 0.0 to 1.0.

(6) Using hsla

HSLA (Hue, Saturation, Light, Alpha) is also an extension of HSL, provided with alpha transparency. The alpha value and property is the same as that in RGBA.

Lists in HTML:-

Lists are used to group together related pieces of information, so they are clearly associated with each other and easy to read. Lists are good from a structural point of view as they help create a well-structured, more accessible, easy maintain document. It support ordered, unordered and definition lists.

* Unordered lists

It is used to group a set of related items in no particular order. Unordered lists are used when the numbering of items is not required. By default, they are followed by bullets.

They are defined using <ul> tag and the <li> tag.

It provides an interesting feature to change the style of the list item maker.

There are 4 types of styles in unordered lists:-

- type="disc"
- type="circle"
- type="square"
- type="none"

Note:
The above style used "type" attribute which is not supported in HTML5, and we need to change the style using CSS.

Example:

```
<body>
<h1> Lists </h1>
<ul>
  <li> first </li>
  <li> second </li>
  <li> third </li>
</ul>
</body>
</html>.
```

Browser

Lists

- first
- second
- third

Ordered lists

It is used to group a set of related items in a specific order. Ordered lists are used when the numbering of items is required. By default, the items are followed by numerical numbering.

They are defined using the <ol> tag, and the <li> tag is used for each list item.

They are different ways to number the ordered list using the type attribute

1. type = "1".
A. type = "A".
a. type = "a".
I. type = "I".
i. type = "i".

Note:—
Start attribute is the attribute which is used to change the starting numbering.

Example:-

```
<h1> Lists </h1>
<ol>
  <li> Burger </li>
  <li> Pizza </li>
  <li> Oreoshake :) </li>
</ol>
```

Browser

1. Burger
2. Pizza
3. Oreoshake :)

Description lists

A definition list is not a list of items. This is a list of terms and explanations of the terms. A definition list starts with the <dl> tag. Each definition list term starts with <dt> tag. Each definition list definition starts with the <dd> tag.

Description lists are very specific in use compared to ordered and unordered lists and hence are significantly less used. But whenever, a structure like a list of terms and their description is required, the description list are the perfect elements.

Example:

```
<h2> Description List </h2>
<dl>
  <dt> coffee </dt>
    <dd> - black hot drink </dd>
  <dt> Milk </dt>
    <dd> - white cold drink </dd>
</dl>.
```

Output:

A Description List
coffee
- black hot drink
Milk
- white cold drink