HTML

HTML – HyperText Markup Language

HyperText: one web page is linked to other

Markup: Annotations/tags used to markup content

What is HTML ?

* Basic building block.
* It describes the structure of a Web page.
* It is a skeleton of Web page.
* It tells browser how to render the content.
* It is not case sensitive.

Explained

`<!DOCTYPE html>` It defines that this document is an HTML 5 document.

`<html>` It is a root element of HTML page.

`<head>` It contains metadata about HTML page.

metadata: data about data

`<title>` It specifies a title for the HTML page. (Which is shown in the browser's title bar)

`<body>` It defines the document's body, and is container for all the visible contents, such as headings, paragraphs, images, hyperlinks, lists, etc.

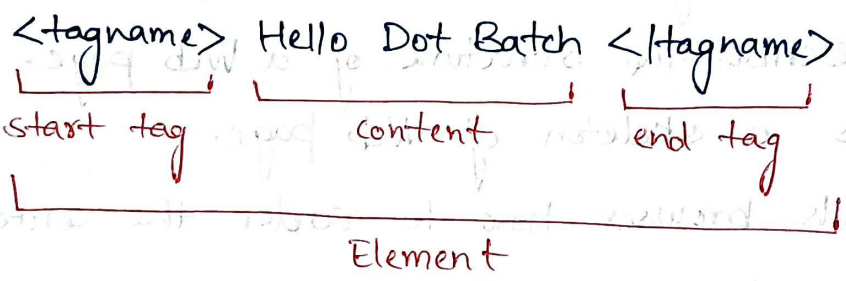
<h1> It defines a large heading.

<h6> It defines a small heading.

<p> It defines a paragraph.

What is an HTML Element ?

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



The HTML element is everything from the start tag to the end tag.

Tags in HTML

HTML tags are keywords which defines that how web browser will format & display the content.

* Tags are enclosed within <> brackets.

Ex- <p> <img> <a>

↓ ↓ ↓

Paragraph Image Link

Exceptions in HTML elements. [Homework]

There are some tags which do not have any closing tag.

HTML elements with no content are called empty elements.

Ex -
 — It defines a line break.
{It has no closing tag.}

Self Closing tag.

* A self closing tag in HTML is kind of HTML tag that does not need to be closed manually by its closing tag.
* It does not have a seperate closing tag as </tag>.
* Some of few self- closing tags are —
  - <input/>
  - <hr/>
  -
  - <img/>
  - <col/>
  - <link/>
  - <meta/>
  - etc.

When we try to close the empty tag

HTML Attributes

* All HTML elements can have attributes.
* Attributes provide additional information about elements.
* Attributes are always specified in the start tag.
* Attributes usually come in name/value pair like: name = "value".

href Attribute

The <a> tag defines a hyperlink.

Ex- Atal Satya

src Attribute

src attribute specifies the path to the image to be displayed.

Ex- <img src = "dot_batch.jpg">

alt Attribute

The required alt attribute for the <img> tag specifies an alternative text for an image, if the the image for some reason can't be displayed.

Ex- <img src = "dot_batch.jpg" alt = "Dot batch thumbnail">

title Attribute

* The title attribute defines some extra info" about an element.
* The value of the title attribute will be displayed as a tooltrip when your mouse is hovered over the element.

Ex — `<p title="I'm a tooltrip">This is a para.</p>`

HTML Styles [will learn more in CSS]

The HTML styles attribute is used to add styles to an element, such as color, font, size.

Syntax — `<tagname style="property:value;">`

HTML Text Formatting

HTML contains several elements for defining text with a special meaning.

Ex —

- `<b>` - Bold text
- `<strong>` - Important text
- `<i>` - Italic text
- `<em>` - Emphasized text
- `<mark>` - Marked text
- `<small>` - Smaller text
- `<del>` - Deleted text
- `<ins>` - Inserted text
- `<sub>` - Subscript text
- `<sup>` - Superscript text

HTML Quotation and Citation Elements

HTML <blockquote>

The HTML <blockquote> element defines a section that is quoted from another source.

Ex-
```
<p> Here is a quote from WWF's website! </p>
<blockquote cite="http://www.wwf.org/who/index.html">
For 60 years, WWF has worked - - - - -
- - - - .
</blockquote>
```

HTML <q> for short notes

The HTML <q> tag defines a short quotation.

Ex-
```
<p> Our goal is to : <q> Learn Web Dev. </q></p>
```

HTML <address> for contact information

Ther HTML <address> tag defines the contact information for the auther of a document.

Ex-
```
<address>
112, <br>
Thana, <br>
Police station, <br>
UP, <br>
</address>
```

HTML Comments

HTML comments are not displayed in the browser, but they can help in documentation of your ~~HMTL~~ HTML source code.

Ex - `<!-- This is a comment -->`

HTML Favicon

A favicon is a small image displayed next to the page title in the browser tab.

⇒ In order to display favicon, we need to add a `<link>` element to your "index.html" file, after the `<title>` element.

```
Ex - <!DOCTYPE html>
     <html>
     <head>
        <title> Favicon </title>
        <link rel = "icon" type = "image/x-icon" href = "img.jpg">
     </head>
     </html>
```

HTML Images

Images can improve the design and the appearance of a web page.

Ex - `<img src = "img.png" alt = "Image is there">`

HTML Lists

HTML lists allow web developers to group a set of related items in lists.

Types of Lists

It is of 3 types—

1) Ordered List
2) Unordered List
3) Description List

* Ordered List

An ordered list starts with the <ol> tag.

Each list item starts with the <li> tag.

Ex—
```
<ol>
    <li> Tea </li>
    <li> Milk </li>
</ol>
```

Output—

1. Tea
2. Milk

* Unordered List

An unordered list starts with the <ul> tag.

Each list items start with the <li> tag.

Ex—
```
<ul>
    <li> Water </li>
    <li> Tea </li>
</ul>
```

Output—

- Water
- Tea

* Description List

⇒ A description list is a list of terms, with a description of each items.

⇒ The <dl> tag defines the description list, the <dt> tag defines the term (name), and the <dd> tag describes each term.

Ex-
```
<dl>
    <dt> Coffee </dt>
    <dd>- Black hot drink. </dd>
    <dt> Milk </dt>
    <dd>- White cold drink. </dd>
</dl>
```

Output -

Coffee
- Black hot drink.

Milk
- White cold drink.

* Description List

⇒ A description list is a list of terms, with a description of each items.

⇒ The <dl> tag defines the description list, the <dt> tag defines the term (name), and the <dd> tag describes each term.

Ex- <dl>
<dt> Coffee </dt>
<dd>- Black hot drink. </dd>
<dt> Milk </dt>
<dd>- White cold drink. </dd>
</dl>

Output - Coffee
-Black hot drink.

Milk
-White cold drink.

HTML Responsive Web Design

* Responsive web design is about creating web pages that look good on all devices!
* A responsive web design will automatically adjust for different screen sizes and viewpoints.

Ex- <meta name="viewpoint" content "width=device-width, initial-scale=1.0">

HTML Block and Inline Elements

Every HTML element has a display value, depending on what type of element it is.

* Block-level Elements

A block-level element always starts on a new line, and the browsers autometically add some space (a margin) before and after the element.

Ex - `<p> Dot Batch </p>`
`<div> Dot Batch </div>`

Output

Hello
Dot Batch

Dot Batch

Some block-level elements

<address>	<article>	<aside>	<blockquote>
<dl>	<dt>	<fieldset>	<figure>
<footer>	<form>	<h1>-<h6>	<table>

* Inline Elements

⇒ An inline element does not start on a new line.

⇒ An inline element only takes us as much width as necessary.

Ex - A `<span> good </span>` boy.

Output

A good boy.

Some inline elements

<a>	<abbr>	<b>	<bdo>	<big>	
<input>	<cite>	<code>		<i>	<img>

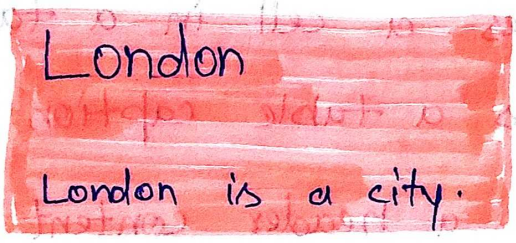
The Element

⇒ The element is often used as a container for other HTML elements.

⇒ The element has no required attributes, but style, class and id are common.

```
Ex- <div style="background-color:pink;>
      <h2> London </h2>
      <p> London is a city. </p>
    </div>
```

Output



The Element

The element is an inline container used to mark up a part of a text, or a part of a document.

The element has no required attributes, but style, class and id are common.

```
Ex - <p> I am <span style="color:green;"> green </span> </p>
```

Output I am green

HTML Tables

HTML tables allow web developers to arrange data into rows and columns.

HTML Table Tags

Tag	Description
<table>	Defines a table
<th>	Defines a header cell in a table
<tr>	Defines a row in a table
<td>	Defines a cell in a table
<caption>	Defines a table caption
<thead>	Groups a header content in a table.
<tbody>	Groups a body content in a table
<tfoot>	Groups a footer content in a table

A Simple HTML Table

```
<style>
table, th, td {
    border: 1px solid black;
    border-collapse: collapse;
}
</style>
<table>
    <tr>
        <th> Company </th>
        <th> Contact </th>
    </tr>
    <tr>
        <td> Codehelp </td>
        <td> Babbar </td>
    </tr>
```

```
    <tr>
        <td> Notes Co. </td>
        <td> Rishabh </td>
    </tr>
</table>
```

Output

Company	Contact
Codehelp	Babbar
Notes Co.	Rishabh

Table Cells

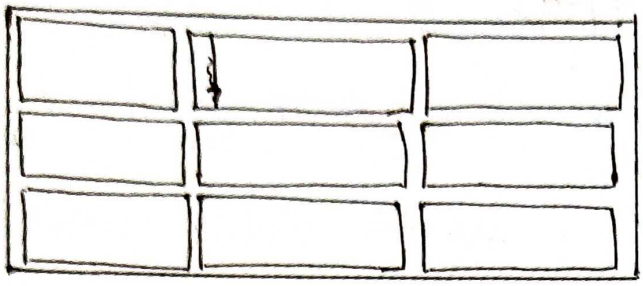
Each table cell is defined by a <td> and a </td> tag.

Example
```
<table>
    <tr>
        <td> Rishabh </td>
        <td> Babbar </td>
        <td> Lakshy </td>
    </tr>
</table>
```

Output

Rishabh	Babbar	Lakshy

Default Table



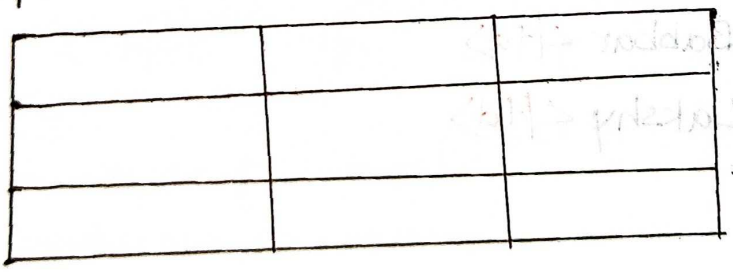
Collapsed Table Borders

To avoid having double borders like in the example above, set the CSS border-collapse property to collapse.

Example –

```
table, th, td {
    border: 1px solid black;
    border-collapse: collapse;
}
```

Output –



Dotted Table Borders

With the border-style property, you can set the appearance of the border.

The following values are allowed:

dotted dashed solid double

hidden groove ridge inset

Border Color

With the border-color property, you can set the color of the border.

Ex-
```
table, th, td {
    border-color: red;
    border-collapse: collapse;
}
```

Output

Round Table Border

With the border-radius property, the borders get rounded corners.

Ex-
```
table, th, td {
    border: 1px solid black;
    border-radius: 10px;
}
```

Output

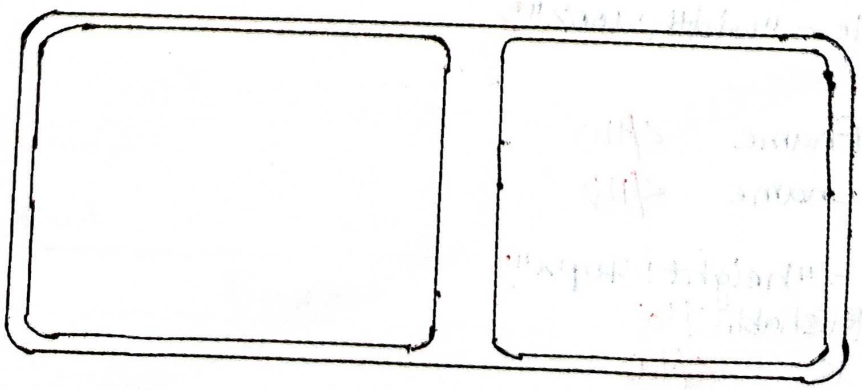
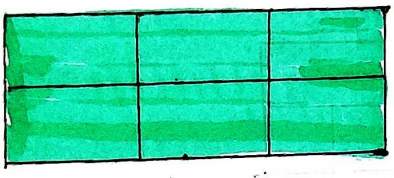


Table Color

You can set the background color of each cell or of whole table.

Ex- th, td {
    background-color: cyan;
}

Output



HTML Table Sizes

HTML table can have different sizes for each row, column or entire table.

* HTML Table Row Height

To set the height of a specific row, add the style attribute on a table row element.

Code
```
<table style="width:100%">
  <tr>
    <th> Fname </th>
    <th> Lname </th>
  </tr>
  <tr style="height:70px">
    <td> Rishabh</td>
    <td> K.    </td>
  </tr>
  <tr>
    <td> Love  </td>
    <td> B     </td>
</table></tr>
```

Output

Fname	Lname
Rishabh	K
Love	B

* HTML Table Column Width

To set the size of a specific column, add the style attribute on a <th> or <td> element.

Code

```
<table style="width:100%">
  <tr>
    <th style="width:70%"> Fname </th>
    <th> Lname </th>
  </tr>
  <tr>
    <td> Rishabh, </td>
    <td> K </td>
  </tr>
  <tr>
    <td> Love </td>
    <td> B </td>
  </tr>
</table>
```

Output

Fname	Lname
Rishabh	K
Love	B

Padding & Spacing

HTML table can adjust the padding inside the cell, and also space between the cells.

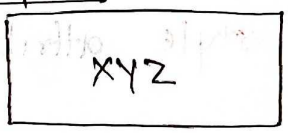
* Cell Padding

⇒ It is the space b/w the cell edge and cell content.

⇒ By default the padding is set to 0.

Ex-
```
th, td {
    padding: 50px;
}
```

Output



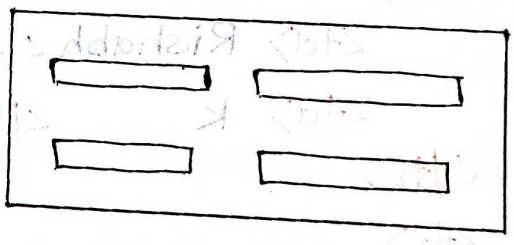
* Cell Spacing

⇒ It is the space b/w each cell.

⇒ By default the space is set to 2px.

Ex-
```
table {
    border-spacing: 50px;
}
```

Output



Colspan & Rowspan

* Colspan

To make a cell span over a multiple column, use colspan attribute.

Ex

```
<table style="width:50%">
    <tr>
        <th colspan="2">Name</th>
        <th>Age</th>
    </tr>
    <tr>
        <td>Love</td>
        <td>Babbar</td>
        <td>25</td>
    </tr>
</table>
```

Output

Name		Age
Love	Babbar	25

* Rowspan

To make a cell span over multiple rows, use the rowspan attribute.

Ex

```
<table style="width:50%.">
    <tr>
        <th>Name</th>
        <td>Rishabh</td>
    </tr>
    <tr>
        <th rowspan="2">Phone</th>
        <td>100</td>
    </tr>
    <tr>
        <td>112</td>
    </tr>
</table>
```

Output

Name	Rishabh
Phone	100
	112

HTML <colgroup> Tag

* The <colgroup> tag specifies a group of one or more than one columns in a table for formatting.

* The <colgroup> tag is usefull for applying styles to entire columns, instead of repeating the styles for each cell, for each row.

Ex- Refer to w3schools.com

Q. Is there any <rowgroup> tag ?

Ans No, but table row may be grouped into a table head, table foot, and one or more table body sections using thead, tfoot and tbody elements.

HTML Symbols

Symbols are not present on your keyboard but can be added by using entities.

Ex-

```
<p> I will display &euro </p>
<p> I will display &copy </p>
<p> I will display &hearts </p>
<p> I will display &dollar </p>
```

Output

€
©
♥
$

HTML Forms

An HTML form is used to collect user input.

The <form> Element

* The HTML <form> element is used to create an HTML form for user input.
* The <form> element is a container for different types of input elements, such as: text fields, checkboxes, radio buttons, submit buttons, etc.

The <input> Element

* The HTML <input> element is the most used form element.
* An <input> element can be displayed in many ways, depending on the type attribute.

Type	Description
<input type="text">	Displays single-line text input field.
<input type="radio">	Displays a radio button.
"checkbox"	Displays a checkbox.
"submit"	Displays a submit button.
"button"	Displays a clickable button.

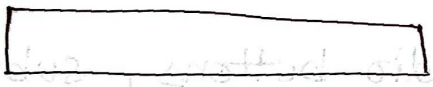
* Text Fields

The <input type="text"> defines a single-line input field for text input.

Ex-
```
<form>
    <label for="fname">First Name</label><br>
    <input type="text" id="fname" name="fname"><br>
</form>
```

Output

First Name



* The <label> Element

The <label> tag defines a label for many form elements

The <label> element is helpful for screen-reader users, because the screen-reader will read out loud the label when the user focus on the input element.

* Radio Buttons

⇒ The <input type="radio"> defines a radio button.

⇒ It lets a user to select one ~~or many~~ of a limited no. of choices.

Ex- ○ HTML
○ CSS
○ JS

* Checkboxes

⇒ The <input type="checkbox"> defines a checkbox.

⇒ Checkboxes let a user select ZERO or MORE options of a limited no. of choices.

Ex- ☐ I have a bike.
☐ I have a car.
☐ I have a mother.

* The Submit Button

⇒ The <input type="submit"> defines a button for submitting the form data to a form-handler.

⇒ The form-handler is specified in the form's action attribute.

Ex- Name
Rishabh
Gender
Male

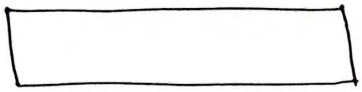
Submit

* The Reset Button

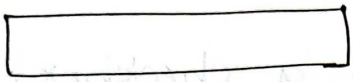
The <input type="reset"> defines a reset button that will reset all form values to their default values

Ex-

Name



Gender



Submit Reset

* Input Type Date

The <input type="date"> is used for input field that should contain a date.

* Input Type Email

The <input type="email"> is used for input fields that should contain an e-mail address.

* Input Type Number

The <input type="number"> defines a numeric input field.

* Input Type Hidden

The <input type="hidden"> defines a hidden input field. (Not visible to a User).

* Input Type File

The <input type="file"> defines a file-select field and a "Browse" button for file upload.

* Input Type Image

The <input type="image"> defines an image as a submit button.

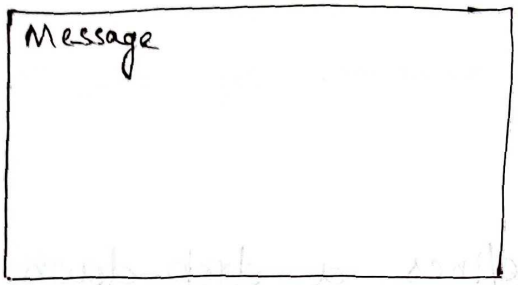
The path to the image is specified in the src attribute

* The <textarea> Element

⇒ The <textarea> element defines a multiline input field.

⇒ The rows & cols attribute specifies the ~~the~~ height & width of the text area.

Ex –

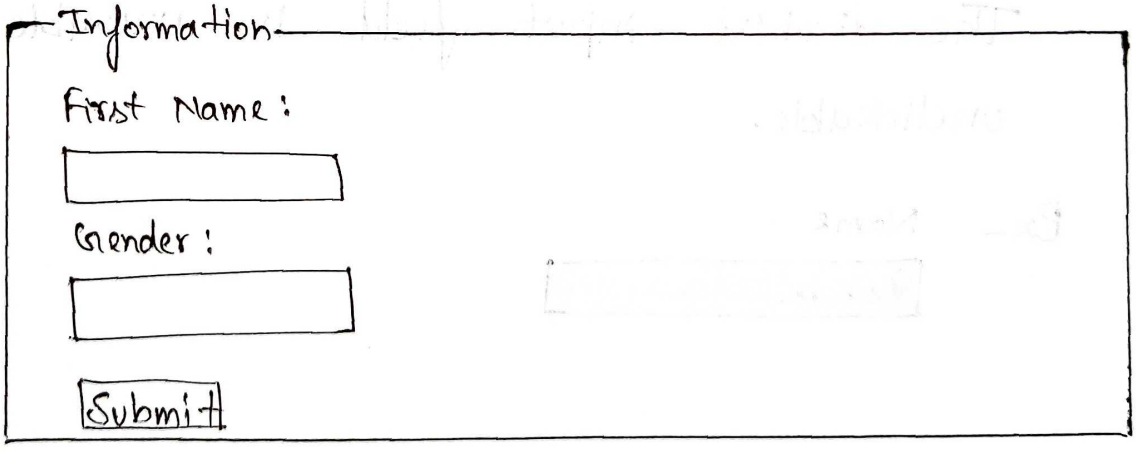


* The <fieldset> and <legend> Elements

⇒ The <fieldset> element is used to group related data in a form.

⇒ The <legend> element defines a caption for the <fieldset> element.

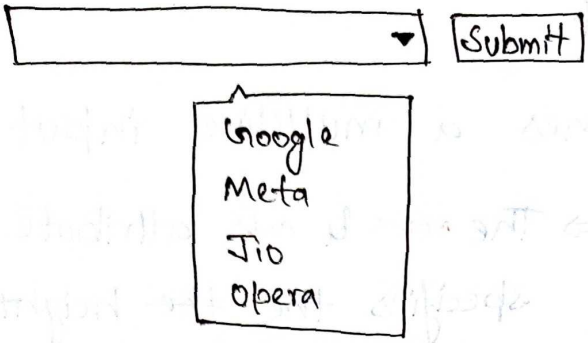
Ex –



* The <datalist> Element

The <datalist> element specifies a list of pre-defined options for an <input> element.

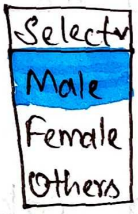
Ex –



* The <select> Element

The <select> element defines a drop-down list.

The <option> elements defines an option that can be selected.

Ex- Gender : 

* The disabled attribute

The disabled input field is unusable and unclickable.

Ex- Name

* Bookmarks

⇒ HTML links can be used to create bookmarks, so that readers can jump to specific parts of a web page.

⇒ To create a bookmark – first create the bookmark, then add a link to it.

⇒ When the link is clicked, the page will scroll down or up to the location with the bookmark.

Ex – `<h2 id="C4">Chapter 4</h2>`

`<a href="#C4">Jump to chapter 4</a>`

* HTML Links

Links are found in nearly all web pages. Links allow users to click their way from page to page.

* Email Link

Use `mailto:` inside the `href` attribute to create a link that opens the user's email program.

Ex – `<a href="mailto:xyz@gmail.com">Mail me</a>`

* Telephone Link

Use tele: inside the href attribute to create a link that opens the user's calling program.

Ex- ~~<a href=~~

```
<a href="tele:9988776655"> Call us </a>
```

Q. How to open link in new tab?

Ans Use _blank in the target attribute to open the link in the new tab.

Ex- `<a href="https://www.thecodehelp.in" target="_blank">`

```
Visit Us </a>
```

* Class Attribute

The class attribute is often used to point to a class name in a style sheet.

It can also be used by JavaScript to access and manipulate elements with the specific class name.

⇒ The class attribute is case sensitive

Different elements can share same class.

Syntax

```
.abc {
  <!-- css properties -->
}
```

* id Attribute

The HTML id attribute is used to specify a unique id for an HTML element.

The id attribute specifies a unique id for an HTML element.

⇒ The id name is case sensitive.

Syntax

```
#abc {
  <!-- css properties -->
}
```

* Semantic Elements

A semantic element clearly describes its meaning to both the browser and the developer.

Ex- <form>, <table> and <article> - clearly defines its content.

* Non-Semantic Element.

It tells nothing about its content.

Ex- and

* <section> Element

The <section> element defines a section in a document.

Example of where a <section> element can be used:

* Chapter
* Introduction
* Contact Info

* <article> Element

The <article> element specifies independent, self contained content.

Example of where the <article> element can be used:

* Forum posts
* Blog posts
* Newspaper article

* <header> Element

The <header> element represents a container for introductory content or a set of navigational links.

A <header> element typically contains:

* Heading Element
* Logo or icon

Imp 1) You can have several <header> elements in one HTML document.

2) <header> cannot be placed within a <footer>, <address> or another <header> element.

* <footer> Element

The <footer> element defines a footer of a document or section.

A <footer> element typically contains:

* Contact info
* copyright info
* Authorship info

Imp 1) You can have several <footer> elements in one document.

* <nav> Element

The <nav> element defines a set of navigation links.

Not all the links of a document should be inside a <nav> element.

The <nav> element is intended only for major blocks of navigation links.

* <aside> Element

The <aside> element defines some content aside from the content it is placed in.

The <aside> content should be indirectly related to the surrounding content.

* <figure> and <figcaption> Elements

The <figure> tag specifies self contained content, like diagrams, photos, etc.

The <figcaption> tag defines a caption for a <figure> element.

* Summary in one Diagram :)