Modern Web Design

HTML   : Structure
CSS   : Presentation
JavaScript : Behavior

HTML

Hyper **T**ext **M**arkup **L**anguage

Markup Language

Unlike a scripting or programming language that uses scripts to perform functions, a markup language uses tags to identify content

HTML Structure

```
<!DOCTYPE html>
<html lang="en">
<head>
    <title>Document</title>
</head>
<body>

</body>
</html>
```

The HTML File

blahblah.html

HTML Elements

Written using a start tag and an end tag, and with the content in between

*There are some exceptions

Car as an element?

What if **<car>** was an element?

If **<car>** was an element, then you'd naturally want to write some markup like this:

With no attributes, all we can supply is a descriptive name for the car.

```
<car>My Red Mini</car>
```

But this **<car>** element only gives a descriptive name for your car − it doesn't tell us the make, precise model, whether it is a convertible, or a zillion other details we might want to know. So, if **<car>** were really an element, we might use attributes like this:

But with attributes, we can customize the element with all kinds of information.

```
<car make="BMW" model="Mini Cooper" convertible="no">My Red Mini</car>
```

The <html> Tag

HTML ~= Sandwich

The <head> Tag

Contains all of the non-visual elements / meta info that help make the page work

The <body> Tag

All visual-structural elements are contained within the body tag

The <title> Tag

To place a title on the tab describing the web page

Exercise

Create your first HTML file to print a greeting message with a page title and open it using browser to see your webpage.

Paragraph : The <p> Element

Paragraph tag.

Paragraph : Single Line Break

Inserts a line-break.
Empty HTML element. It has no end tag.

Exercise

Create an HTML file to demonstrate pragraphs and line-breaks inside a paragraph.

Text Formatting

- \ bold text \
- \<big> big text \</big>
- \<i> italic \</i>
- \ emph \
- \<small> small \</small>
- \ strong \
- _{subscript \}
- \^{superscript \}
- \<ins> inserted \</ins>
- \<del> deleted \</del>

HTML Headings

HTML includes six levels of headings, which are ranked according to importance.
<h1> to <h6>

(Not recommended to make text bold)

Horizontal Lines

<hr />

To create a horizontal line

Comments

<!-- Your comment goes here -->

The browser does not display comments, but they help document the HTML and add descriptions, reminders, and other notes

Exercise

Create an HTML file to demonstrate text formatting(bold,italic,sup,sub) , different headings and separate them with an horizontal line. Insert proper comments in both the sections.

HTML Attributes

Attributes provide additional information about an element or a tag, while also modifying them.

<p align="center"> This text is aligned to center</p>

Attributes are always specified in the start tag, and they appear in name="value" pairs

The <img> Tag

The <img> tag is used to insert an image. It contains only attributes, and does not have a closing tag.

Image Resizing

To define the image size, use the width and height attributes.

The value can be specified in pixels or as a percentage

```
<img src="tree.jpg" height="150px" width="150px" alt="" />
<img src="tree.jpg" height="50%" width="50%" alt="" />
```

Exercise

Create an HTML file to demonstrate aligning paragraph to right side of your web page and insert an image with reducing size of the image to 60px width and 50px height also insert proper alternate text.

Links : The <a> Tag

Enable the user to click on text/img in order to be directed to another file or web page

Links : href and target

href - can be either absolute or relative URL
target - where to open the linked document

Lists : Ordered Lists

An ordered list starts with the <ol> tag, and each list item is defined by the <li> tag

Lists : Unordered lists

An ordered list starts with the <ul> tag, and each
list item is defined by the <li> tag

Exercise

Create and HTML file to demonstrate link tag on image, generate unordered list of month names and ordered list of day names.

Table : Creating a Table

```
<table>
    <tr>
        <td></td>
        <td></td>
    </tr>
</table>
```

Tables are defined by using the <table> tag.
Tables are divided into table rows with the <tr> tag.
Table rows are divided into table columns (table data) with the <td> tag.

Table : The Border and Colspan Attributes

<table border="2">

A border can be added using the border attribute

colspan – merge columns (<td colspan="2"> </td>)

rowspan – merge rows

Name	Telephone	
James	55577854	55577855

Exercise

Create an HTML page to demonstrate a timetable which has a morning and afternoon merged cell and each contain three hours of class.

Element Types

<h1>, <li>, <ol>, <p> ,..
Block level elements start from a new line

<a> , <img> ,..
Inline elements are normally displayed without line breaks

<div>

The <div> element is a block-level element that is often used as a container for other HTML elements

When used together with some CSS styling, the <div> element can be used to style blocks of content:

<span>

The <span> element is an inline element that is often used as a container for some text.
When used together with CSS, the <span> element can be used to style parts of the text

Forms

```
<body>
    <form>…</form>
</body>
```

HTML forms are used to collect information from the user.

Forms : The method and name Attributes

The action attribute to point to a webpage that will load after the user submits the form.

Usually the form is submitted to a web page on a web server.

Forms : The method Attribute

<form action="url" method="POST">

The method attribute specifies the HTTP method (GET or POST) to be used when forms are submitted

Forms : The name attribute

```
<form>
    <input type="text" name="username" />
</form>
```

The name attribute specifies a name for a form element.

Forms : Input types

To take in user input, you need the corresponding form elements, such as text fields.

The <input> element has many variations, depending on the type attribute. It can be a text, password, radio, checkbox, URL, submit, etc.

Forms : radio type

<input type="radio" name="gender" value="male" /> Male

<input type="radio" name="gender" value="female" /> Female

Forms : checkbox

<input type="checkbox" name="gender" value="1" /> Male

<input type="checkbox" name="gender" value="2" /> Female

Forms : submit

```
<form method="POST" action="#">
    <input type="text" name="name" >
    <input type="submit" name="submit">
</form>
```

The submit button submits a form to its action attribute

Exercise

Create an HTML page to demonstrate an contact me form which takes name, email and multiline text as inputs and submit to a remote page using post method.

HTML5

<article>, <aside>, <audio>, <canvas>, <datalist>, <details>, <embed>, <footer>, <header>, <nav>, <output>, <progress>, <section>, <video>, and even more!

<nav>

This tag represents a section of a page that links to other pages or to certain sections within the page

<audio>

```
<audio controls>
    <source src="http://developer.mozilla.org/@api/deki/files/2926/=AudioTest_(1).ogg" type="audio/mpeg">
    <source src="http://developer.mozilla.org/@api/deki/files/2926/=AudioTest_(1).ogg" type="audio/ogg"> Your browser does not support the audio element.
</audio>
```

<video>

```
<video controls>
   <source src="http://www.sololearn.com/uploads/video.mp4"
type="video/mp4">
   <source src="http://www.sololearn.com/uploads/video.ogg" type="video/ogg">
   Video is not supported by your browser
</video>
```

CSS

Cascading Style Sheet

CSS

- Cascading refers to the way CSS applies one style on top of another.
- Style Sheets control the look and feel of web documents.

CSS

HTML sorts out the page structure

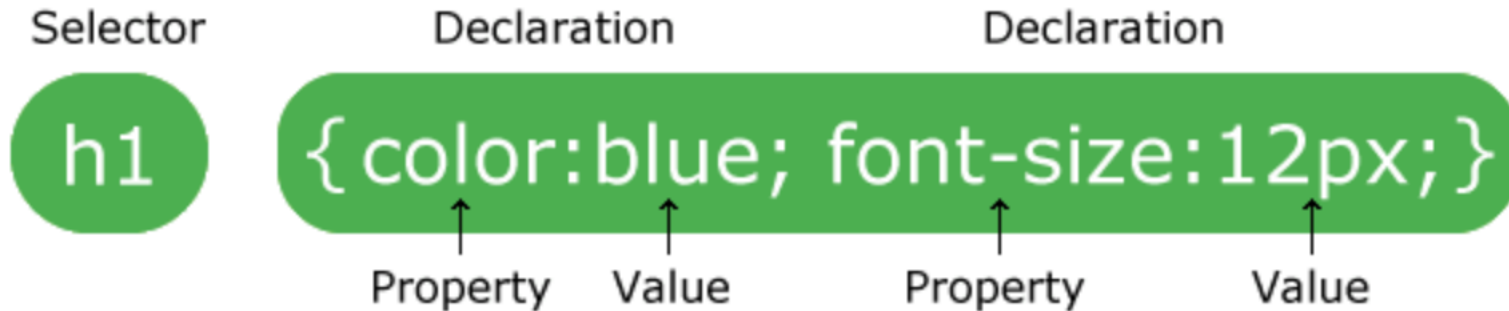CSS defines how HTML elements are displayed

Why ?

Allows you to apply specific styles to specific HTML elements.

Allows you to separate style from content.

CSS Syntax

A style rule has three parts: selector, property, and value.

Inline CSS

A unique style is applied to a single element

Add the style attribute to the relevant tag

`<p style="color:white; background-color:gray;">`

Embedded / Internal CSS

Defined within the <style> element, inside the head section of an HTML page

```
<html>
    <head>
        <style>
            p {
                color:blue;  }
        </style>
    </head>
    <body>
        <p>This is my first paragraph. </p>
    </body>
</html>
```

External CSS

All styling rules are contained in a single text file, which is saved with the .css extension

This CSS file is then referenced in the HTML using the <link> tag. The <link> element goes inside the head section

External CSS

```
exmpl.css
p {
    color:white;
    background-color:gray;
}

html
<head>
    <link rel="stylesheet" href="exmpl.css">
</head>
<body>
    <p>This is my first paragraph.</p>
    <p>This is my second paragraph. </p>
    <p>This is my third paragraph. </p>
</body>
```

Exercise

Create an HTML page to demonstrate all type of styles.

Selectors : type

This selector targets element types on the page

```
p {
    color: red;
    font-size:130%;
}
```

Selectors : id

id selectors allow you to style an HTML element that has an id attribute, regardless of their position in the document tree

```
<div id="intro">
    <p> This paragraph is in the intro section.</p>
</div>

#intro {
    color: white;
    background-color: gray;
    }
```

Selectors : class

To select and apply style to group of elements. (General style)

```
<div>
    <p class="first">This is a paragraph</p>
    <p> This is the second paragraph. </p>
</div>
    <p class="first"> This is not in the intro section</p>
    <p> The second paragraph is not in the section. </p>



.first {font-size: 200%;}
```

Selectors : Descendant Selectors

Used to select elements that are descendants of another element

```
<div id="intro">
    <p class="first">This is a <em> paragraph.</em></p>
    <p> This is the second paragraph. </p>
</div>
<p class="first"> This is not in the intro section.</p>
<p> The second paragraph is not in the intro section. </p>

#intro .first em {
 color: pink;
 background-color:gray;
}
```

Comments

/* Comment goes here */

Exercise

Create a style rule for all paragraphs belonging to the element with id="test"

Inheritance

A child element will usually take on the characteristics of the parent element unless otherwise defined.

Text Styling : font-family

font-family: "Times New Roman", Times, serif;

specifies the font for an element

font-size

Sets the size of a font

xx-small, small, medium, large, larger

numerical values in pixels

color

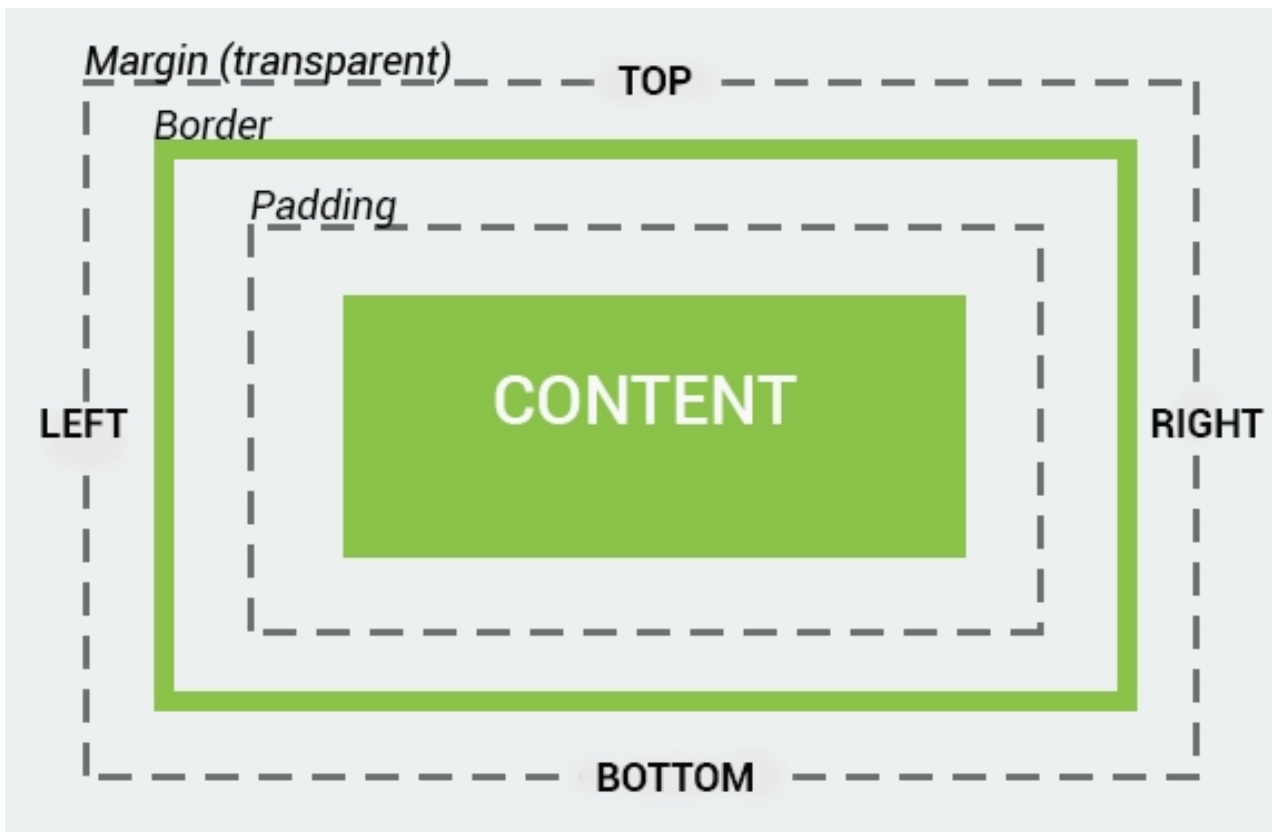specifies the color of the text

color name
rgb()
rgba()

text-align

specifies the horizontal alignment of text in an element

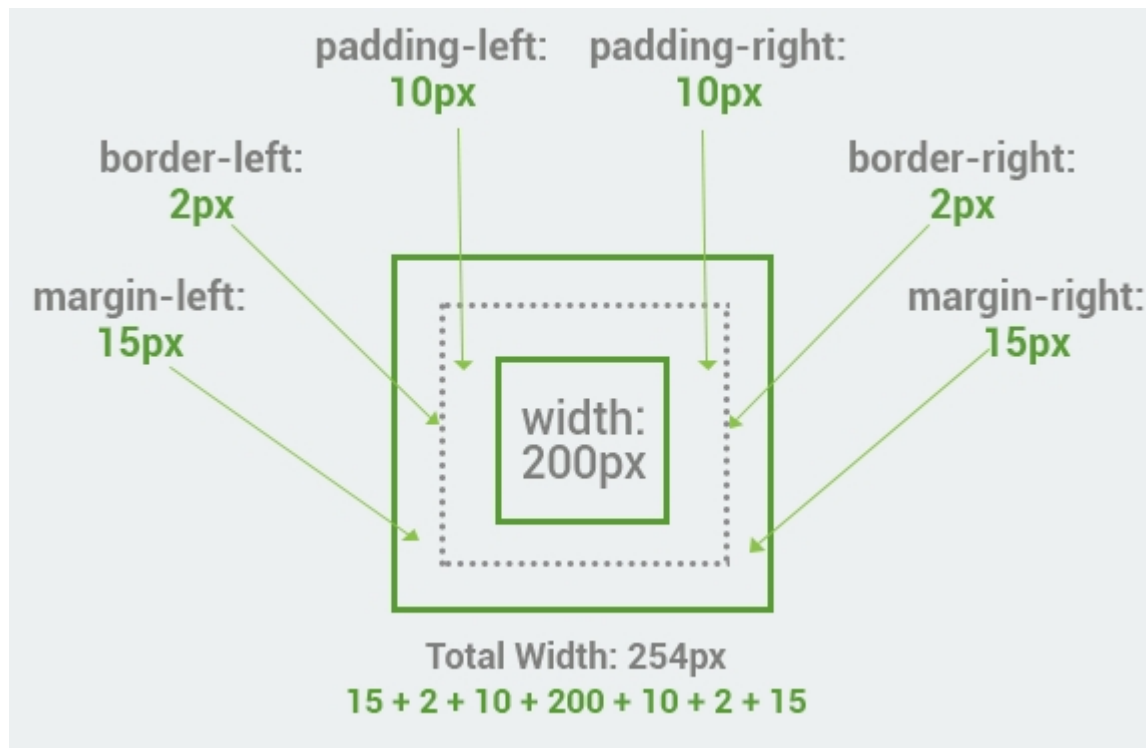text-align: center;

Box model

All HTML elements can be considered as boxes

It consists of margins, borders, paddings, and the actual content

The properties work in the same order: top, right, bottom, and left.

Element width

The total width is the sum of left and right margins, left and right borders, left and right paddings, and the actual width of the content.

CSS Width and Height

Width: 100%;
height: 90px;

min-width - the minimum width of an element
min-height - the minimum height of an element
max-width - the maximum width of an element
max-height - the maximum height of an element

Border

In order to add a border to the element, you need to specify the size, style, and color of the border.

```
<p>This is an example of a solid border.</p>

p {
    padding: 10px;
    border: 5px solid green;
}
```

background-color

background-color: LightGreen;
background-color: #C0C0C0;
background-color: rgb(135,206,235);

background-image

Sets one or several background images in an element

```
body {
    background-image: url("css_logo.png");
}
```