Unit 1 : Introduction to Html and CSS

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CSS

- **What is CSS?**
  - **CSS** stands for **C**ascading **S**tyle **S**heets
  - CSS defines **how HTML elements are to be displayed**
  - Styles were added to HTML 4.0 **to solve a problem**
  - CSS saves a lot of work
  - External Style Sheets are stored in **CSS files**

- **Uses of CSS**
  - **CSS saves time** because with CSS, we only have to specify content setting details once for any element. CSS automatically apply the specified styles whenever that element occurs.
  - The file size of the CSS is very small hence your website takes **minimal loading time**.
  - **Easy maintenance**: To change the style of an element, we only have to make an edit in one place only.
  - CSS has much wider array of attribute than HTML so by creating the CSS; **you can make the web design flexible.**

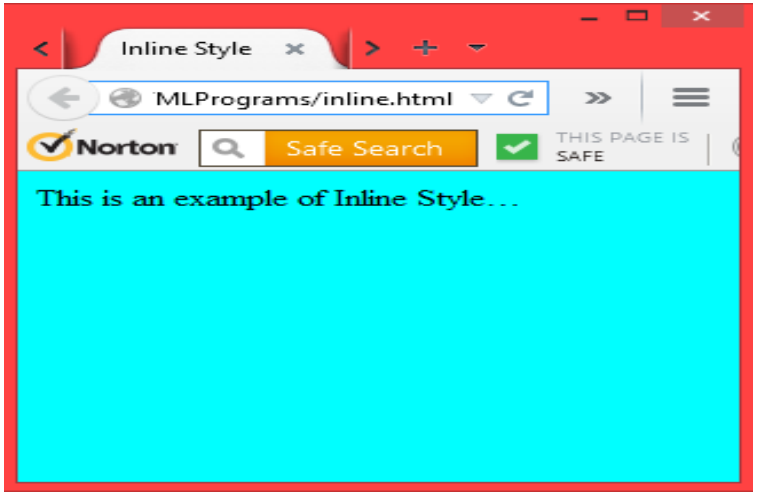
CSS

- **Syntax of CSS**
  - The CSS syntax is made up of three parts: **a selector, a property and a value.**
  - **Syntax:** selector {property: value;}
  - The selector is normally the HTML element/tag that you want to define.
  - The property is the attribute that you want to change and each property can take a value. The property and value separated by a colon.
  - A CSS declaration always ends with a semicolon and declaration groups are enclosed by curly braces.
  - By using the below code, all <p> elements will be center-aligned, with a green text color.
  - **Example**: p { color: red; text-align: center; }
- **Types of CSS**
  - There are three ways to implement css command into your site:
    1. Inline style
    2. Embedded/Internal style
    3. External/Linked style sheet

CSS: Inline Style

- Inline styles are styles that are **written directly in the tag on the document**. Inline styles affect only the tag they are applied to.
- **Syntax:** <tag style=property1: value; property2: value;> </tag>

```
<html>
<head>
<title>Inline Style</title>
</head>
<body bgcolor=#ffffff>
<p style="color:blue; font-family:arial;">
This is an example of Inline Style…
</p>
</body>
</html>
```

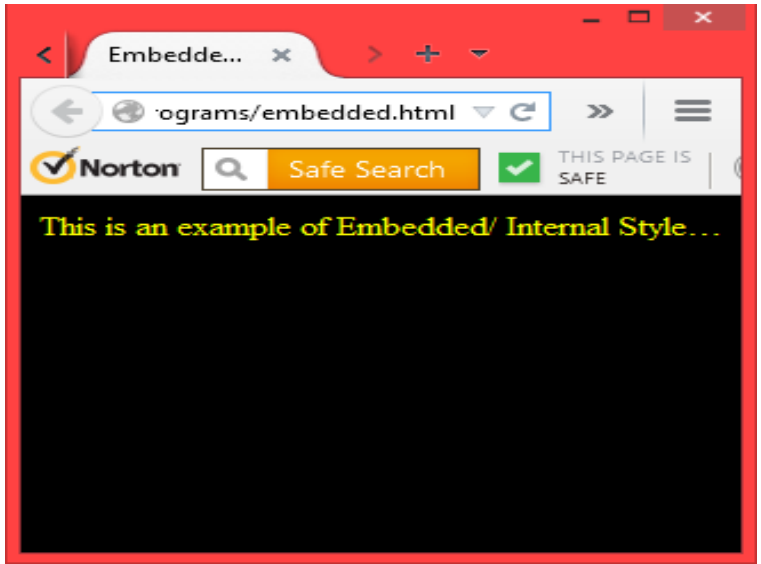


CSS: Embedded/Internal Style

- When using internal/embedded CSS, you must add a new tag, <style>, inside the <head> tag.
- **Syntax:**
- <style type=text/css>

  selector{property: value;}

  selector{property: value;}…….
- </style>

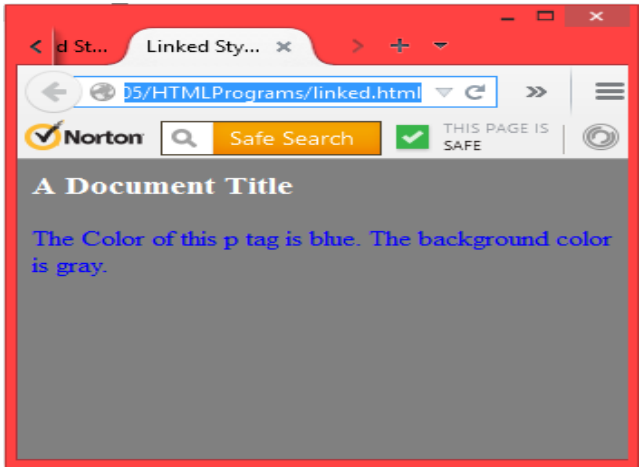



```
<html>
<head>
<title>Embedded Style</title>
<style>
p{color: yellow;}
body{background-color: black;}
</style>
</head>
<body>
<p>
This is an example of Embedded/ Internal Style...
</p>
</body>
</html>
```

CSS: External/Linked Style Sheet

- External styles are styles that are written in a **separate document and then attached to various Web documents**. External style sheets can affect any document they are attached to.
- External CSS file that contains only CSS code and is saved with **a .css file extension**. This file is used in you HTML document using the **<link>** tag instead of <style>.
- let's create **style.css** file having below code.
- Body { background-color: gray; }
- p{ color: blue; }
- H3 { color: white; }

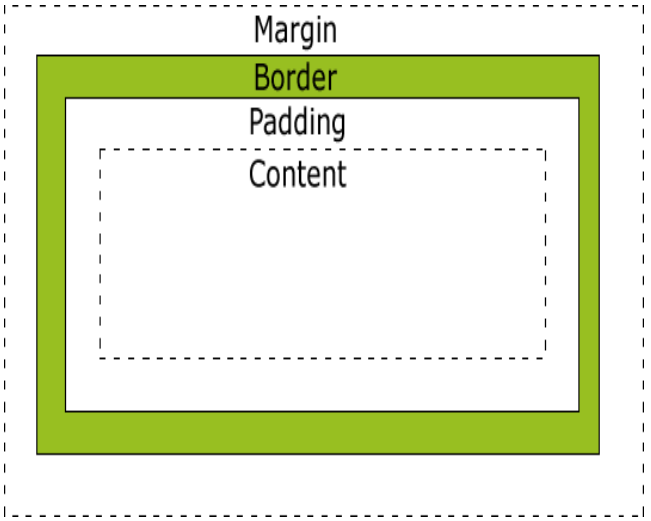
```
<html>
<head>
<title>Linked Style Sheets</title>
<link rel="stylesheet" href="style.css"
type="text/css"/>
</head>
<body>
<h3> A Document Title </h3>
<p>
The Color of this p tag is blue. The
background color is gray.
</p>
</body>
</html>
```



The CSS Box Model

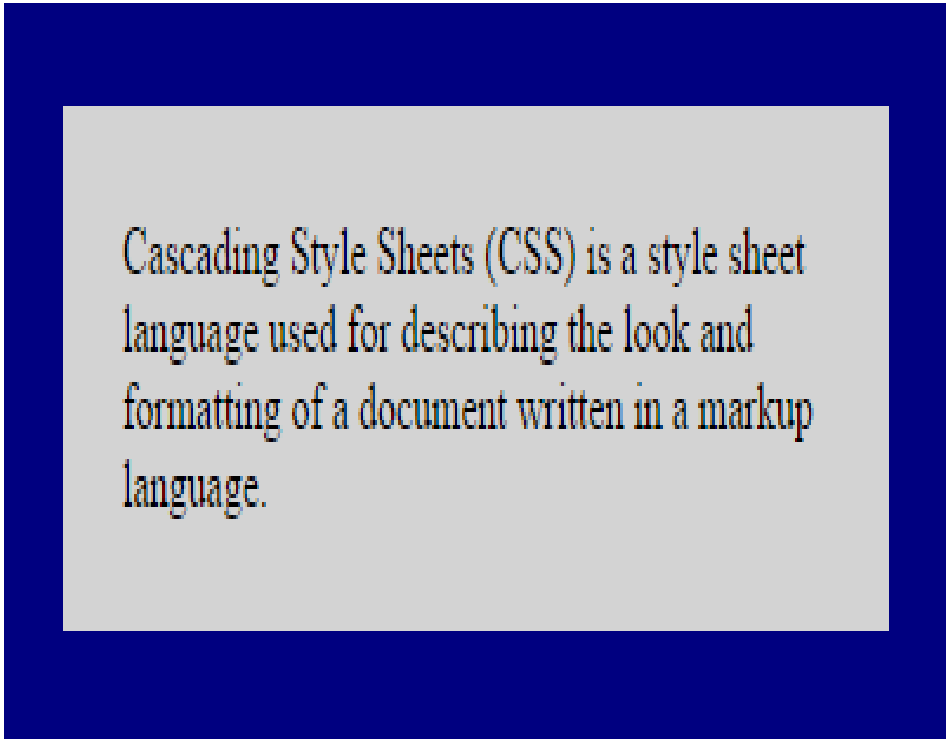
- The CSS box model is a box that wraps around HTML elements, and it consists of: margins, borders, padding, and the actual content.
- The box model allows us to add a border around elements, and to define space between elements.

- **Content** - The content of the box, where text and images appear.
- **Padding** - Clears an area around the content.
- **Border** - A border that goes around the padding and content.
- **Margin** - Clears an area outside the border.



The CSS Box Model

```
<style>
div {
background-color: lightgrey;
   width: 300px;
padding: 25px;
border: 25px solid navy;
   margin: 25px;
}
</style>
<div>
Cascading Style Sheets (CSS)
   is a style sheet language
   used for describing the look
   and formatting of a
   document written in a
   markup language.
</div>
```



CSS Margin

- The CSS margin defines the space around elements. The margin clears an area around an element (outside the border). The margin does not have a background color, and is completely transparent
- **Example: Applying margins for paragraph tag.**
- p { margin-top: 100px; margin-bottom: 100px; margin-right: 150px; margin-left: 150px; }
- **margin: 25px 50px 75px 100px;** //top margin is 25px, right margin is 50px, bottom margin is 75px and left margin is 100px
- **margin: 25px 50px 75px;** // top margin is 25px, right and left margins are 50px and bottom margin is 75px
- **margin**: **25px 50px;** // top and bottom margins are 25px and right and left margins are 50px
- **margin: 25px;** // all four margins are 25px

Value	Description
auto	The browser calculates a margin
length	Specifies a margin in px, pt, cm, etc. Default value is 0px
%	Specifies a margin in percent of the width of the containing element
inherit	Specifies that the margin should be inherited from the parent element

CSS Padding

- The CSS padding properties define the space between the element border and the element content. The padding clears an area around the content (inside the border) of an element. The padding is affected by the background color of the element.
- Example: Applying padding for paragraph tag.

```
p { padding-top: 100px; padding-bottom: 100px; padding-right: 150px; padding-left: 150px; }
```

- **padding: 25px 50px 75px 100px;** //top padding is 25px, right padding is 50px,bottom padding is 75px and left padding is 100px
- **padding: 25px 50px 75px;** //top padding is 25px, right and left paddings are 50px and bottom padding is 75px
- **padding: 25px 50px;** //top and bottom paddings are 25px and right and left paddings are 50px
- **padding: 25px;** //all four paddings are 25px

Value	Description
length	Defines a fixed padding (in pixels, pt, em, etc.)
%	Defines a padding in % of the containing element

CSS Text and its properties

Property	Description	Example

color	It is used to set the color of the text. With CSS, a color is specified by:
	a HEX value
	a **RGB** value
	a **Color** value
		body { color: black; } h1 {
		color: #ff00ff;
		}

text-align	It is used to specify the horizontal alignment of the text. The text can be **centered,** or **aligned to the left or right,** or **justified.**	p.main { text-align: justify; } h1 { text-align: right; }

text-decoration	It is used to set or remove decoration from text. It is mostly used to remove underlines from links for design purposes. This property has following values:
	(1) none: Defines a normal text. This is default.
	(2) underline: Defines a line below the text.
	(3) overline: Defines a line above the text.
	(4) line-through: Defines a line through the text.
		a {
		text-decoration: none;
		}
		h1 {
		text-decoration: underline;
		}

text-transform	It is used to controls the capitalization of text. This property specify uppercase and lowercase letters in a text. This property has following values:
	(1) none: No capitalization. The text renders as it is.
	(2) capitalize: Transforms the first character of each word to uppercase.
	(3) uppercase: Transforms all characters to uppercase.
	(4) lowercase: Transforms all characters to lowercase.
		p.uppercase {
		text-transform: uppercase;
		}
		p.lowercase {
		text-transform: lowercase;
		}
		p.capitalize {
		text-transform: capitalize;
		}

CSS Text and its properties

text-indent	It is used to specifies the indentation of the first line in a text-block.	p { text-indent: 50px; }

text-shadow	This property adds shadow to text. This property has following values:
	(1) h-shadow(Required): The position of the horizontal shadow.
	(2) v-shadow(Required): The position of the vertical shadow.
	(3) blur-radius(Optional): The blur radius. Default value is 0.
	(4) color(Optional): The color of the shadow.
	(5) none: Default value. No shadow.
		h1 {
		text-shadow: 2px 2px 8px #FF0000;
		}

letter-spacing	This property increases or decreases the space between characters in a text.	h1 { letter-spacing: 2px; } h2 { letter-spacing: -3px; }
line-height	This property specifies the line height.	p.small { line-height: 70%; }

CSS Font

Property	Description	Example
font	Sets all the font properties in one declaration.	p { font: italic bold 12px/30px Georgia, serif; }

font-family	Specifies the font family for text. There are two types of font family names:
	(1) **family-name** like "times", "courier", "arial", etc.
	(2) **generic-family** like "serif", "sans-serif", etc.
		p.serif {
		font-family: "Times New Roman", Times, serif;
		}

font-size	Specifies the font size of text. Different Property values for font- size are **medium, xx-small, x-small small, large, x-large, xx-large, smaller, larger, length, initial and inherit;**	h1 { font-size:150%; } div
		{
		font-size:larger;
		}

font-style	Specifies the font style for text. This propery has three values:
	(1) **normal**: The text is shown normally
	(2) **italic**: The text is shown in italics
	(3) **oblique**: This text is very similar to italic but less supported.
		p.normal {
		font-style: normal;
		}

CSS Font

Property	Description	Example

font-variant	Specifies whether or not a text should be displayed in a small- caps font. It has four property values:
	(1)normal: Displays a normal font**. (2)small-caps:** Displays a small-caps font
	(3)initial: Sets this property to its default value
	(4)inherit: Inherits this property from its parent element.
		p.normal {
		font-variant: normal;
		}
		p.small {
		font-variant: small-caps;
		}

font-weight	The font-weight property sets how thick or thin characters in text should be displayed. It has following property values: normal, bold, bolder, lighter, 100, 200, 300, 400,
	500, 600, 700, 800, 900, initial and inherit.
		p.normal {
		font-weight: normal;
		}
		p.thick {
		font-weight: bold; }

CSS Link

- Links can be styled with any CSS property (e.g. color, font-family, background, etc.).
  - It has four links states:
    - **a:link**: an unvisited link.
    - **a:visited**: a link the user has visited.
    - **a:hover**: a link when the user mouse over it.
    - **a:active**: a link the moment it is clicked.

Example:

```
/* unvisited link */
a:link {
color: #FF0000;
}

/* visited link */
a:visited {
color: #00FF00;
}

/* mouse over link */
a:hover { color: #FF00FF;
}

/* selected link */
a:active { color: #0000FF;
}
```

CSS Background

Property	Description	Example
background	Sets all the background properties in one declaration	background: #00ff00 url("smiley.gif")
background-attachment	Sets whether a background image is fixed or scrolls with the rest of the page	background- attachment: fixed;
background-color	Sets the background color of an element	background-color: yellow;
background-image	Sets the background image for an element	background-image: url("paper.gif");
background-position	Sets the starting position of a background image	background-position: center;
background-repeat	Sets how a background image will be repeated	background-repeat: no- repeat;

CSS Border Properties

- **Border Style**
- The border-style property specifies what kind of border to display. border-style values:

none: Defines no border

dotted: Defines a dotted border

dashed: Defines a dashed border

solid: Defines a solid border

double: Defines two borders. The width of the two borders are the same as the border-width value

groove: Defines a 3D grooved border. The effect depends on the border-color value

ridge: Defines a 3D ridged border. The effect depends on the border-color value

inset: Defines a 3D inset border. The effect depends on the border-color value

outset: Defines a 3D outset border. The effect depends on the border-color value

CSS Border Properties

- **Border Width**
  - The border-width property is used to set the width of the border.
  - The width is set in pixels, or by using one of the three pre-defined values: thin, medium, or thick.
  - **Example:** border-width: medium;

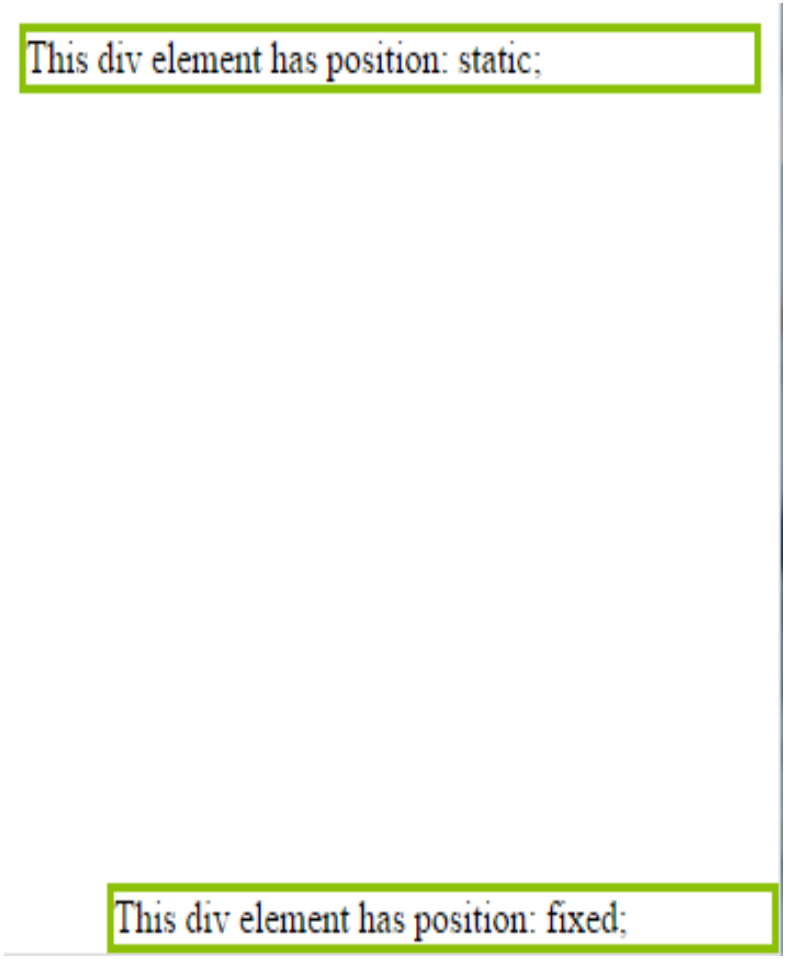
- **Border Color**
  - The border-color property is used to set the color of the border. The color can be set by:
    - name - specify a color name, like "red"
    - RGB - specify a RGB value, like "rgb(255,0,0)"
    - Hex - specify a hex value, like "#ff0000"
  - **Example:** border-color: red;

The position Property

- The position property specifies the type of positioning method used for an element.
- There are four different position values: static, relative, fixed, absolute
- Elements are then positioned using the top, bottom, left, and right properties. However, these properties will not work unless the position property is set first.
- **Position: static**
    - HTML elements are positioned static by default.
    - Static positioned elements are not affected by the top, bottom, left, and right properties.
    - An element with position: static; is not positioned in any special way; it is always positioned according to the normal flow of the page.
- **Position: fixed**
    - An element with position: fixed; is positioned relative to the viewport, which means it always stays in the same place even if the page is scrolled. The top, right, bottom, and left properties are used to position the element.
    - A fixed element does not leave a gap in the page where it would normally have been located.

The position Property

```
<html>
<head><title>Title of your web
   page</title></head>
<style> div.static {
position: static;
border: 3px solid #8AC007;
}
div.fixed { position: fixed; bottom: 0;
   right: 0; width: 300px;
border: 3px solid #8AC007;
}
</style>
</head><body>
<div class="static">
This div element has position: static;
   </div>
<div class="fixed">
This div element has position: fixed;
   </div>
</body></html>
```

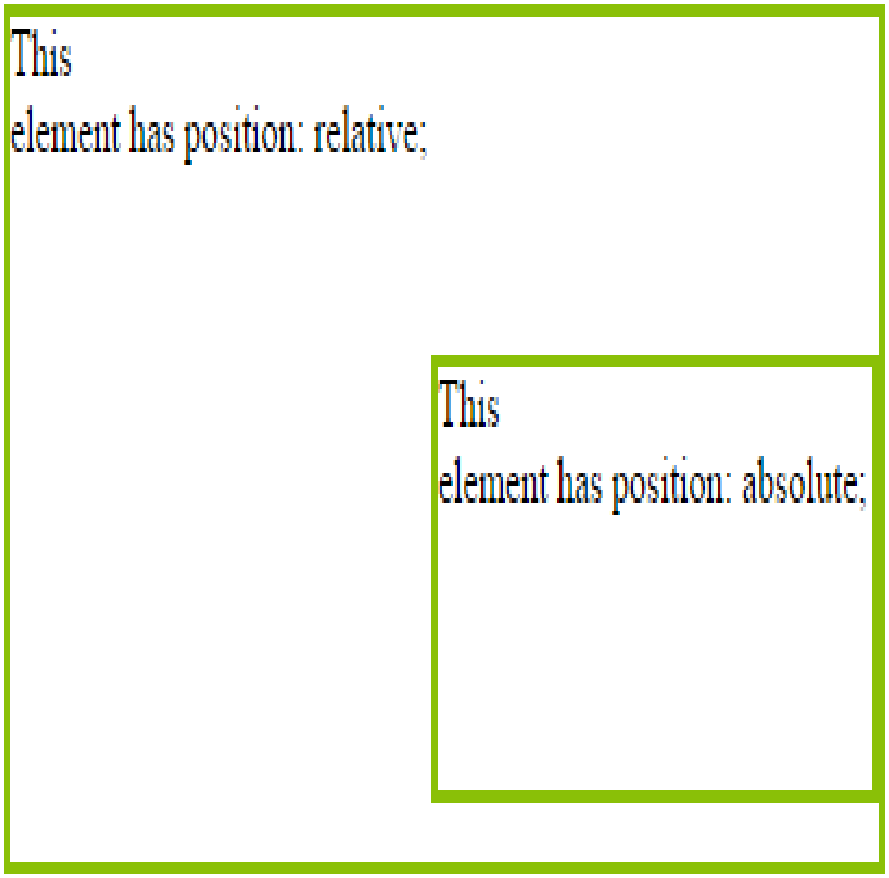


The position Property

- **Position: relative**
  - An element with position: relative; is positioned relative to its normal position.
  - Setting the top, right, bottom, and left properties of a relatively-positioned element will cause it to be adjusted away from its normal position. Other content will not be adjusted to fit into any gap left by the element.
- **Position: absolute**
  - An element with position: absolute; is positioned relative to the nearest positioned ancestor (instead of positioned relative to the viewport, like fixed).
  - However; if an absolute positioned element has no positioned ancestors, it uses the document body, and moves along with page scrolling.

The position Property

```
<html>
<head>
<style> div.relative {
position: relative; width: 400px; height:
    200px;
border: 3px solid #8AC007;
}
div.absolute { position: absolute; top:
    80px;
right: 0; width: 200px; height: 100px;
border: 3px solid #8AC007;
}
</style>
</head>
<body>
<div class="relative">This <div> element
    has position: relative;</div>
<div class="absolute">This <div> element
    has position: absolute;</div>
</body></html>
```



Overlapping Elements

- When elements are positioned, they can overlap other elements.
- The z-index property specifies the stack order of an element (which element should be placed in front of, or behind, the others).
- An element can have a positive or negative stack order.

```
<html>
<head>
<title>Linked Style Sheets</title>
<style>
img {  position: absolute; left: 0px; top: 0px; z-index: -1; }
</style>
<img src="Penguins.jpg" width="100" height="140">
<p>Because the image has a z-index of -1, it will be placed behind the text. </p></body>
</html>
```

Float Properties

- Float property can be used to wrap text around images.
- All CSS Float Properties

Property	Description	Values
clear	Specifies on which sides of an element where floating elements are not allowed to float	left, right, both, none, inherit
float	Specifies whether or not an element should float	left, right, none, inherit

```
<html>
<head>
<title>Linked Style Sheets</title>
<style> img { float: left;      } </style>
<p><img src="Penguins.jpg"
alt="W3Schools.com" width="100"
height="140">
Cascading Style Sheets (CSS) is a style sheet
language used for describing the look and
formatting of a document written in a
markup language. </p>></body>
</html>
```

Cascading Style Sheets (CSS) is a style sheet language used for describing the look and formatting of a document written in a markup language.

Difference between CSS2 and CSS3

- CSS3 is divided into many different documents called Modules. Every module adds new capability or extends features defined in CSS2. Work on CSS3 started around the time of publication of the original CSS2 recommendation.
- Because of the modularization in CSS3, every modules has different stability and is in different status. The CSS3 version supports many more browsers than CSS2.
- CSS3 has other added features such as new combinator, new CSS selectors, new pseudo-elements and new style properties

Opacity (Transparency)

- **The opacity** property sets the opacity level for an element. The CSS3 property for transparency is opacity.
- IE9, Firefox, Chrome, Opera, and Safari use the property opacity for transparency. The opacity property can take a value from 0.0 - 1.0. A lower value makes the element more transparent.
- The opacity-level describes the transparency-level, where 1 is not transparent at all, 0.5 is 50% see- through, and 0 is completely transparent

```
<html>
<head>
<style>
img {  opacity: 0.4; }
</style></head>
<body>
<img src="klematis.jpg" width="150"
height="150">
</body></html>
```

Original Image:

Transparent Image:

Box-shadow (Shadows)

- **The box-shadow property** allows designers to easily implement multiple drop shadows (outer or inner) on box elements, text, etc by specifying values for color, size, blur and offset. The property of box- shadow is a comma-separated list of shadows, each specified by 2-4 length values, an optional color, and an optional inset keyword. Omitted lengths are 0.
- **Syntax:** box-shadow: none|h-shadow v-shadow blur spread color |inset|initial|inherit;

```
div {
width: 300px; height: 100px; padding: 15px;
background-color: yellow;
box-shadow: 10px 10px 5px grey;
}
<div>This is a div element with a box-shadow</div>
```

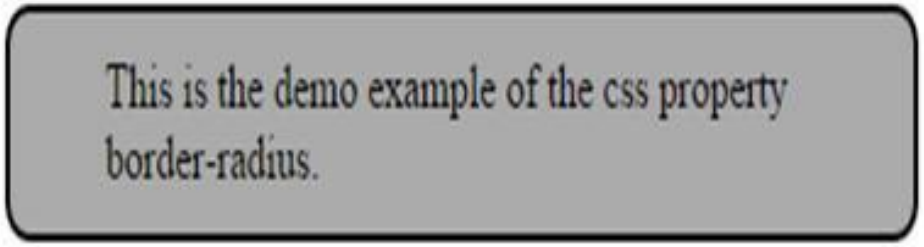
Output:

Border-radius (Rounded Corners)

- **The border-radius** property is a shorthand property for setting the four border -*-*- radius properties. This property allows you to add rounded borders to elements.
- **Syntax:** border-radius: 1-4 length|% / 1-4 length|%|initial|inherit;

```
<style>
div {
border: 2px solid #000000; padding: 10px 40px; background: #abababab; width: 300px; border-radius: 10px;
}</style>
<div id="BorderRadiusDemo">This is the demo example of the css property border-radius. </div>
```

Output:

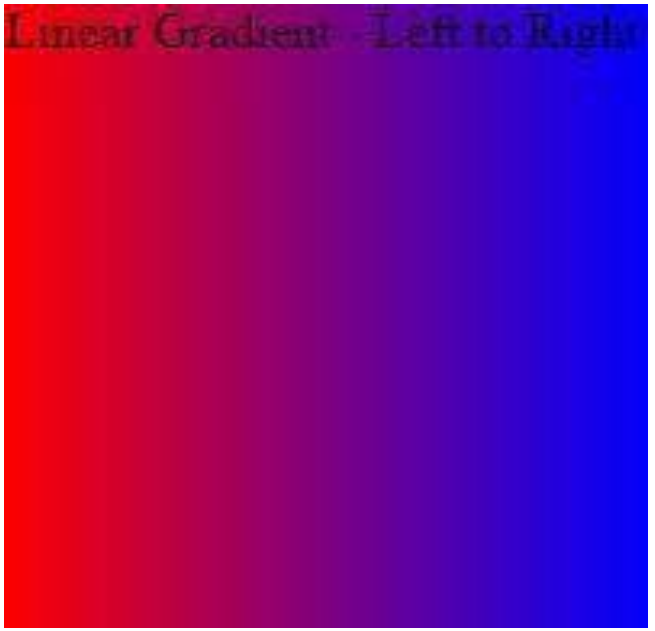


Gradients

- **A gradient is a sequence of colors**. Simple gradients flow from a foreground to a background color, but gradients can contain many other colors. **CSS3 gradients** let you display smooth transitions between two or more specified colors.
- By using CSS3 gradients you can reduce download time and bandwidth usage. In addition, elements with gradients look better when zoomed, because the **gradient is generated by the browser**.
- CSS3 defines **two types of gradients: (1). Linear Gradient and (2). Radial Gradient.**
- **Linear Gradients**
- **Linear Gradient** which flows in a straight line from one color to another.
- To create a linear gradient you **must define at least two color stops**. Color stops are the colors you want to render smooth transitions among. You can also **set a starting point and a direction (or an angle) along with the gradient effect.**
- **Syntax:** background: linear-gradient(direction, color-stop1, color-stop2, ...);

Linear Gradients

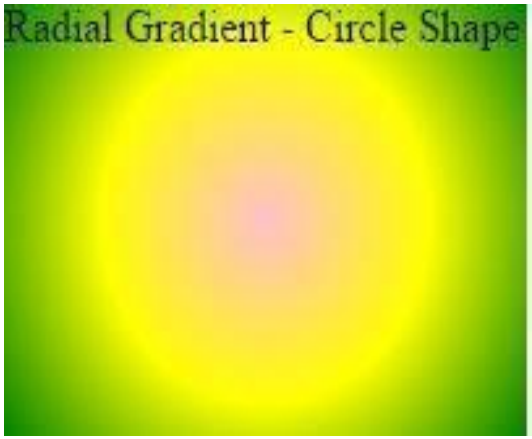
```
<html>
<head>
<style> div{
height: 200px; width:200px;
background: linear-gradient(to
  right, red , blue);
}</style>
</head>
<body>
<div id="ligrad">Linear
  Gradient - Left to Right</div>
</body>
</html>
```



Radial Gradients

- **Radial Gradient** where one color is concentrated at a specific point, and the other colors are visible farther from that point. By default, shape is ellipse, size is farthest-corner, and position is center. To create a radial gradient you must also define at least two color stops.
- Syntax: background: radial-gradient(shape size at position, start-color, ..., last-color);

```
<html>
<head>
<style>
div{ height: 150px;
width: 200px;
background: radial-gradient(circle, pink,
yellow, green);
}</style></head>
<body>
<div id="Radgrad">Radial Gradient - Circle
Shape</div>
</body>
</html>
```



Transition Animation

- **CSS3 transitions** allows you to change property values smoothly (from one value to another), over a given duration.

–**transition-property**: The type of animation defined by this tag. The default value is all, but other types are expected to work, including color, length, width, percentage, opacity, and number.

–**transition-duration**: The length of the animation in seconds.

–**transition-timing-function**: If you want the animation to occur at a constant speed, use linear.

–**transition-delay**: If you include a second time value, this will be considered a delay. The animation will not begin until after the delay.

```
<html><head>
<style>
div {      width: 100px;
height: 100px; background: red; transition-
property: width; transition-duration: 2s;
transition-delay: 2s;
transition-timing-function: linear} div:hover
{  width: 300px; }
</style>
</head>
<body>
<div>
</div>
</body>
</html>
```

Output:

Original Box

After Hover Effect

Transformations

- **A Transformation** is an effect that lets an element change shape, size and position.
- **The transform property** applies a 2D or 3D transformation to an element. This property allows you to rotate, scale, move, skewX, skewY and skew, etc., elements.
- **Syntax:**transform:none|transformfunctions|initial|inheri;
- When you apply transform to an element, you need to apply one or more of the following parameters to describe the type of transformation:
  - **translate:** The translate() method moves an element from its current position (according to the parameters given for the X-axis and the Y-axis).
  - **rotate:** The rotate() method rotates an element clockwise or counter- clockwise according to a given degree. Using negative values will rotate the element counter-clockwise.
  - **scale:** The scale() method increases or decreases the size of an element (according to the parameters given for the width and height).

Transformations

- **skew:** The skew() method skews an element along the X and Y-axis by the given angles.
- **skewX:** The skewX() method skews an element along the X-axis by the given angle.
- **skewY:** The skewY() method skews an element along the Y-axis by the given angle.
- **matrix:** The matrix() method combines all the 2D transform methods into one. The matrix() method take six parameters, containing mathematic functions, which allows you to rotate, scale, move (translate), and skew elements**.**

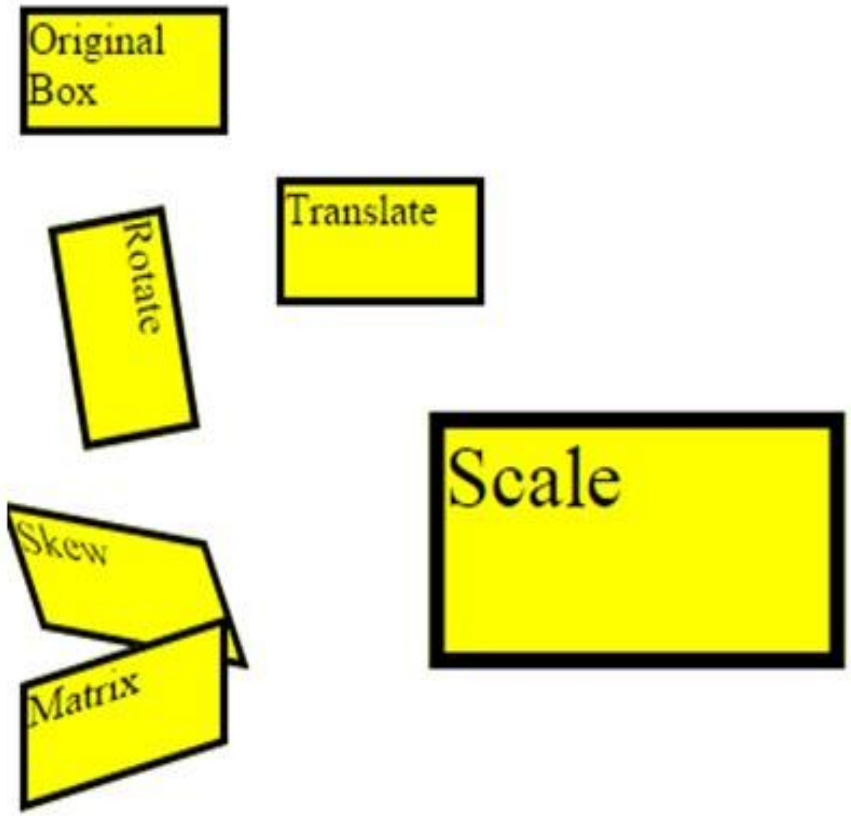
Transformations

```
#box1, #box2, #box3, #box4, #box5,
    #box6{ width: 75px;
height: 40px;
border: 3px solid black; background-
    color: yellow; }
#box2 { transform: translate(100px,15px);
    }
#box3 { transform: rotate(80deg); }
#box4 { transform: scale(2)
    translate(100px,15px); }
#box5 { transform: skew(20deg,10deg); }
#box6 { transform: matrix(1, -0.3, 0, 1, 0,
    0); }
```

In Body Tag:

```
<div id="box1">Original Box</div>
<div id="box2">Translate</div>
<div id="box3">Rotate</div>
<div id="box4">Scale</div>
<div id="box5">Skew</div>
<div id="box6">Matrix</div>
```

Output:



Animations

- An animation lets an element gradually change from one style to another.
- You can change as many CSS properties you want, as many times you want.
- To use CSS3 animation, you must first specify some keyframes for the animation.
- Keyframes hold what styles the element will have at certain times.

Key Frames

- **The @keyframes** rule specifies the animation code. The animation is created by gradually changing from one set of CSS styles to another.
- During the animation, you can change the set of CSS styles many times.
- Specify when the style change will happen in percent, or with the keywords "from" and "to", which is the same as 0% and 100%. **0% is the beginning of the animation, 100% is when the animation is complete.**
- For best browser support, you should always define both the 0% and the 100% selectors.
- **Syntax:** @keyframes animationname {keyframes-selector {css-styles;}}

Key Frames

```
<html>
<head>
<style> div {
width: 100px; height: 100px;
background-color: red; animation-
        name: example; animation-
        duration: 4s;
}
@keyframes example {
from {background-color: red;} to
        {background-color: green;}
}</style>
</head>
<body>
<div>Red to green</div>
</body>
</html>
```

Output: