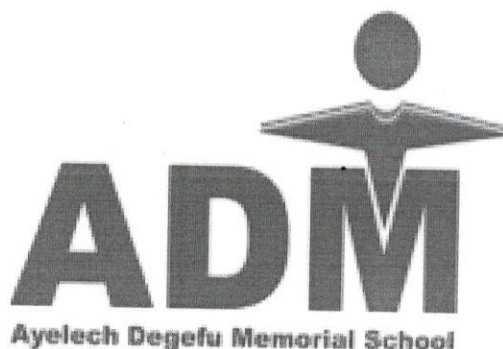


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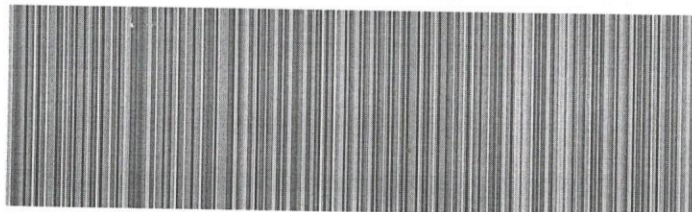


**ICT Lecture Notes  
For Grade 11**

**Introduction To CSS**



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## ICT Lecture Notes For Grade 11

### What is CSS?

Cascading Style Sheets, fondly referred to as CSS, is a simple design language intended to simplify the process of making web pages presentable.

CSS handles the look and feel part of a web page. Using CSS, you can control the color of the text, the style of fonts, the spacing between paragraphs, how columns are sized and laid out, what background images or colors are used, layout designs, variations in display for different devices and screen sizes as well as a variety of other effects.

CSS is easy to learn and understand but it provides powerful control over the presentation of an HTML document. Most commonly, CSS is combined with the markup languages HTML or XHTML.

### Why to Learn CSS?

Cascading Style Sheets, fondly referred to as CSS, is a simple design language intended to simplify the process of making web pages presentable.

CSS is a MUST for students and working professionals to become a great Software Engineer specially when they are working in Web Development Domain. I will list down some of the key advantages of learning CSS:

- **Create Stunning Web site** - CSS handles the look and feel part of a web page. Using CSS, you can control the color of the text, the style of fonts, the spacing between paragraphs, how columns are sized and laid out, what background images or colors are used, layout designs, variations in display for different devices and screen sizes as well as a variety of other effects.
- **Become a web designer** - If you want to start a career as a professional web designer, HTML and CSS designing is a must skill.
- **Control web** - CSS is easy to learn and understand but it provides powerful control over the presentation of an HTML document. Most commonly, CSS is combined with the markup languages HTML or XHTML.
- **Learn other languages** - Once you understand the basic of HTML and CSS then other related technologies like javascript, php, or angular are become easier to understand.

### Applications of CSS

As mentioned before, CSS is one of the most widely used style language over the web. I'm going to list few of them here:

- **CSS saves time** - You can write CSS once and then reuse same sheet in multiple HTML pages. You can define a style for each HTML element and apply it to as many Web pages as you want.
- **Pages load faster** - If you are using CSS, you do not need to write HTML tag attributes every time. Just write one CSS rule of a tag and apply it to all the occurrences of that tag. So less code means faster download times.
- **Easy maintenance** - To make a global change, simply change the style, and all elements in all the web pages will be updated automatically.





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- **Superior styles to HTML** - CSS has a much wider array of attributes than HTML, so you can give a far better look to your HTML page in comparison to HTML attributes.
- **Multiple Device Compatibility** - Style sheets allow content to be optimized for more than one type of device. By using the same HTML document, different versions of a website can be presented for handheld devices such as PDAs and cell phones or for printing.
- **Global web standards** - Now HTML attributes are being deprecated and it is being recommended to use CSS. So its a good idea to start using CSS in all the HTML pages to make them compatible to future browsers.

## CSS – Syntax

A CSS comprises of style rules that are interpreted by the browser and then applied to the corresponding elements in your document. A style rule is made of three parts –

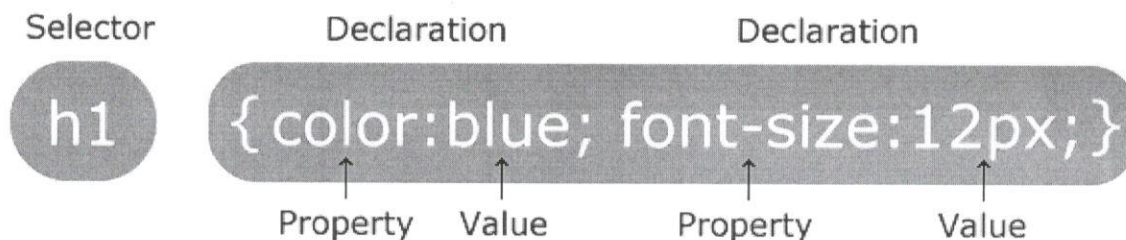
- **Selector** – A selector is an HTML tag at which a style will be applied. This could be any tag like <h1> or <table> etc.
- **Property** – A property is a type of attribute of HTML tag. Put simply, all the HTML attributes are converted into CSS properties. They could be color, border etc.
- **Value** – Values are assigned to properties. For example, color property can have value either red or #F1F1F1 etc.

A CSS rule-set consists of a selector and a declaration block:

The declaration block contains one or more declarations separated by semicolons.

Each declaration includes a CSS property name and a value, separated by a colon.

A CSS declaration always ends with a semicolon, and declaration blocks are surrounded by curly braces.



Example 1: You can define a table border as follows:

```
Table {border :1px solid #C00; }
```

Here table is a selector and border is a property and the given value 1px solid #C00 is the value of that property.





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all `<p>` elements will be center-aligned, with a red text color:

```
P {  
  color: red;  
  text-align: center;  
}
```

**P** is a selector in CSS (it points to the HTML element you want to style: `<p>`).

**Color** is a property, and red is the property value

**Text-align** is a property, and center is the property value

### The Type Selectors

This is the same selector we have seen above. Again, one more example to give a color to all level 1 headings –

```
h1 { color: #36CFFF; }
```

### The Universal Selectors

Rather than selecting elements of a specific type, the universal selector quite simply matches the name of any element type –

```
* {  
  color: #000000;  
}
```

This rule renders the content of every element in our document in black.

### The Descendant Selectors

Suppose you want to apply a style rule to a particular element only when it lies inside a particular element. As given in the following example, style rule will apply to `<em>` element only when it lies inside `<ul>` tag.

```
ul em { color: #000000;  
}
```





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### The Class Selectors

You can define style rules based on the class attribute of the elements. All the elements having that class will be formatted according to the defined rule.

```
.black {  
  
    color: #000000;  
  
}
```

This rule renders the content in black for every element with class attribute set to black in our document. You can make it a bit more particular. For example –

```
h1.black {  
  
    color: #000000;  
  
}
```

This rule renders the content in black for only <h1> elements with class attribute set to *black*.

You can apply more than one class selectors to given element. Consider the following example –

```
<p class = "center bold">
```

This para will be styled by the classes center and bold.

```
</p>
```

### Multiple Style Rules

You may need to define multiple style rules for a single element. You can define these rules to combine multiple properties and corresponding values into a single block as defined in the following example –

```
h1 { color: #36C;  
  
    font-weight: normal;  
  
    letter-spacing: .4em;  
  
    margin-bottom: 1em;  
  
    text-transform: lowercase;  
  
}
```





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Here all the property and value pairs are separated by a **semicolon (;)**. You can keep them in a single line or multiple lines. For better readability, we keep them in separate lines.

#### **Grouping Selectors**

You can apply a style to many selectors if you like. Just separate the selectors with a comma, as given in the following example –

```
h1, h2, h3 {
  color: #36C;
  font-weight: normal;
  letter-spacing: .4em;
  margin-bottom: 1em;
  text-transform: lowercase;
}
```

This define style rule will be applicable to h1, h2 and h3 element as well. The order of the list is irrelevant. All the elements in the selector will have the corresponding declarations applied to them.

## **CSS – INCLUSION**

### **Embedded CSS -The <style> Element**

You can put your CSS rules into an HTML document using the <style> element. This tag is placed inside the <head>...</head> tags. Rules defined using this syntax will be applied to all the elements available in the document. Here is the generic syntax:

<head>

<style type="text/css" media="..."> Style Rules .....

</style>

</head>

### **Attributes**

Attributes associated with

| Attribute | Value                                                        | Description                                                                                                   |
|-----------|--------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|
| type      | text/css                                                     | Specifies the style sheet language as a content-type (MIME type). This is a required attribute.               |
| media     | screen tty tv projection<br>handheld print Braille aural all | Specifies the device, the document will be displayed on. Default value is all. This is an optional attribute. |





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Example

```
<head>

<style type="text/css" media="all">

h1 {

color: #36C;

}

</style>

</head>
```

### Inline CSS -The style Attribute

You can use style attribute of any HTML element to define style rules. These rules will be applied to that element only. Here is the generic syntax:

```
<element style="...style rules....">
```

### Attributes

| Attribute | Value       | Description                                                                                     |
|-----------|-------------|-------------------------------------------------------------------------------------------------|
| style     | style rules | The value of style attribute is a combination of style declarations separated by semicolon (;). |

Example

Following is the example of inline CSS based on the above syntax:

```
<h1 style ="color:#36C;"> This is inline CSS </h1>
```

## CSS – COLORS

CSS uses color values to specify a color. Typically, these are used to set a color either for the foreground of an element (i.e., its text) or for the background of the element. They can also be used to affect the color of borders and other decorative effects. You can specify your color values in various formats. Following table lists all the possible formats:

| Format       | Syntax              | Example                    |
|--------------|---------------------|----------------------------|
| Hex Code     | #RRGGBB             | p{color:#FF0000;}          |
| Short Hex    | Code #RGB           | p{color:#6A7;}             |
| RGB %        | rgb(rrr%,ggg%,bbb%) | p{color:rgb(50%,50%,50%);} |
| RGB Absolute | rgb(rrr,ggg,bbb)    | p{color:rgb(0,0,255);}     |
| keyword      | aqua, black, etc.   | p{color:teal;}             |

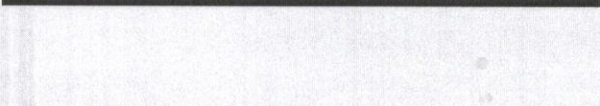
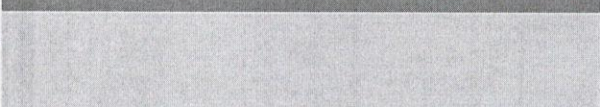




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**CSS Colors -Hex Codes**

A hexadecimal is a 6 digit representation of a color. The first two digits (RR) represent a red value, the next two are a green value (GG), and the last are the blue value (BB). A hexadecimal value can be taken from any graphics software like Adobe Photoshop, Jasc Paintshop Pro, or even using Advanced Paint Brush. Each hexadecimal code will be preceded by a pound or hash sign '#'. Following are the examples to use Hexadecimal notation.

| Color                                                                               | Color HEX |
|-------------------------------------------------------------------------------------|-----------|
|    | #000000   |
|    | #FF0000   |
|    | #00FF00   |
|   | #0000FF   |
|  | #FFFF00   |
|  | #00FFFF   |
|  | #FF00FF   |
|  | #C0C0C0   |
|  | #FFFFFF   |

**CSS Colors -Short Hex Codes**

This is a shorter form of the six-digit notation. In this format, each digit is replicated to arrive at an equivalent six-digit value. For example: #6A7 becomes #66AA77.





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**Working with Text in CSS**

**A. Emphasizing Text (Bold and Italic)**

To bold text in a CSS style rule, use the FONT-WEIGHT property. You can use the default value of “bold” or you can assign a degree of boldness with a numerical value in multiples of 100, with 100 being the lightest and 900 being the darkest bold.

To italicize text in a CSS style rule, use the FONT-STYLE property. There are three values that can be attributed to the FONT-STYLE property: italic, oblique and normal. “Italic” defines the italic version of the assigned font. If the font you are using does not have an italic version, you can use “oblique” to tell the browser to make an attempt to slant the font to mimic italics. If the element has inherited italics from a previous element and you want to remove the italics, use the value “normal”.

|                  |                                                                       |                        |
|------------------|-----------------------------------------------------------------------|------------------------|
| <b>Property:</b> | font-weight                                                           | Used to bold text      |
| <b>Value:</b>    | bold or 100, 200...900                                                |                        |
| <b>Example:</b>  | p {font-weight: 300;}                                                 |                        |
| <b>Result:</b>   | Sets the CSS rule to apply boldness of 300 to the text of paragraphs. |                        |
| <b>Property:</b> | font-style                                                            | Used to italicize text |
| <b>Value:</b>    | Italic, oblique <i>or</i> normal                                      |                        |
| <b>Example:</b>  | p {font-style: italic;}                                               |                        |
| <b>Result:</b>   | Sets the CSS rule to italicize the text of paragraphs.                |                        |

**B. Decoration:**

The TEXT-DECORATION property is used to add strike-through marks, underline and overstrike marks to your text. Generally this property is used to remove underlines from links.





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|                  |                                                                                                          |  |
|------------------|----------------------------------------------------------------------------------------------------------|--|
| <b>Property:</b> | text-decoration                                                                                          |  |
| <b>Value:</b>    | overline <i>or</i> line-through <i>or</i> underline <i>or</i> none                                       |  |
| <b>Example:</b>  | p {text-decoration: underline;}<br>a {text-decoration: none;}                                            |  |
| <b>Result:</b>   | Sets the CSS rule to underline all text of your paragraphs and sets the rule to NOT underline any links. |  |

**C. Indenting:**

To indent the first line of a paragraph use the TEXT-INDENT property. The value you assign can be in the form of pixels (px), inches (in), millimeters (mm), centimeters (cm), points (pt), picas (pc) or x-height (ex). The most commonly used is pixels (px).

|                  |                                                                        |  |
|------------------|------------------------------------------------------------------------|--|
| <b>Property:</b> | text-indent                                                            |  |
| <b>Value:</b>    | px, in, mm, cm, pt, pc <i>or</i> ex                                    |  |
| <b>Example:</b>  | p {text-indent: 35px;}                                                 |  |
| <b>Result:</b>   | Sets the CSS rule to indent the first line of paragraphs by 35 pixels. |  |

**D. Transformation:**

The TEXT-TRANSFORM property is used to define the case your text is displayed in. There are three values available: uppercase, lowercase and capitalize. Uppercase turns all letters into uppercase (similar to using the caps lock key), lowercase turns all letters into lowercase, and capitalize sets the rule to capitalize the first letter of each word.

|                  |                                                                 |  |
|------------------|-----------------------------------------------------------------|--|
| <b>Property:</b> | text-transform                                                  |  |
| <b>Value:</b>    | uppercase <i>or</i> lowercase <i>or</i> capitalize              |  |
| <b>Example:</b>  | p {text-transform: uppercase;}                                  |  |
| <b>Result:</b>   | Sets the CSS rule to capitalize every letter in the paragraphs. |  |





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### **E. Alignment:**

You can use the TEXT-ALIGN property to control the horizontal alignment of any block-level text. Block-level text are paragraphs, tables and other elements that have a blank line before and after them. The value you assign to the alignment is either “left”, “right”, “center” or “justify”

|                  |                                                   |  |
|------------------|---------------------------------------------------|--|
| <b>Property:</b> | text-align                                        |  |
| <b>Value:</b>    | left, right, center <i>or</i> justify             |  |
| <b>Example:</b>  | h1 {text-align: center;}                          |  |
| <b>Result:</b>   | Sets the CSS rule to center all level 1 headings. |  |

### **F. Fonts:**

To control the fonts in a CSS style rule, use the FONT-FAMILY property. When using the FONT-FAMILY property you want to list several fonts as not all fonts are supported by all browsers. Your user's browser will attempt each of the fonts, in the order they are listed. When listing multiple fonts they are separated by a comma. For example: listing Arial, Helvetica, “Times New Roman” will display Arial, if available, then try Helvetica, then Times New Roman, and so on. When adding font values to the FONT-FAMILY property, you only need to use quotes with multiple word fonts, like “Times New Roman”.

|                  |                                                                                            |  |
|------------------|--------------------------------------------------------------------------------------------|--|
| <b>Property:</b> | font-family                                                                                |  |
| <b>Value:</b>    | font name                                                                                  |  |
| <b>Example:</b>  | p {font-family: verdana, georgia;}                                                         |  |
| <b>Result:</b>   | Sets the CSS rule to apply the verdana font first, then georgia to the text of paragraphs. |  |

### **G. Font Sizes:**

The FONT-SIZE property allows you to create a CSS rule that controls the size of the font. The value you assign can be a numerical value in the form of pixels (px), inches (in), millimeters (mm), centimeters (cm), points (pt), picas (pc), x-height (ex), em (the height of the current font, 1 em is equal to 16px) or in a percentage. The default font size for browsers is 16px. It is generally a good idea to use the em value, as this allows the browser to correctly display your text when the zoom tool is used to resize your webpage.





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|                  |                                                                    |  |
|------------------|--------------------------------------------------------------------|--|
| <b>Property:</b> | font-size                                                          |  |
| <b>Value:</b>    | px, in, mm, cm, pt, pc, ex, em <i>or</i> percentage                |  |
| <b>Example:</b>  | p {font-size: 1.5em;}                                              |  |
| <b>Result:</b>   | Sets the CSS rule to display all paragraph text in 1.5 em or 24px. |  |

#### **H. Letter Spacing (Kerning):**

Kerning is a term that refers to controlling the horizontal spacing between characters of text. You can control the kerning of text by using the LETTER-SPACING property. The value you assign can be in the form of points (pt), pixels (px), inches (in), millimeters (mm), centimeters (cm), picas (pc), x-height (ex), em.

|                  |                                         |                                                         |
|------------------|-----------------------------------------|---------------------------------------------------------|
| <b>Property:</b> | letter-spacing                          |                                                         |
| <b>Value:</b>    | pt, px, cm, mm, in, pc, ex <i>or</i> em |                                                         |
| <b>Example:</b>  | h1 {letter-spacing: 5pt;}               |                                                         |
| <b>Result:</b>   | W e l c o m e t o T e a c h U c o m p   | Sets the CSS rule to kern level 1 headings by 5 points. |

#### **I. Line Spacing (Leading):**

Leading (pronounced *ledding*) is a term that refers to controlling the vertical spacing between lines of text. You can control the leading of text by using the LINE-HEIGHT property. The value you assign is typically expressed as a multiple of the height of the font. However, you can also assign spacing as a percentage of the font, or an absolute value measured in the form of point (pt), pixels (px), centimeters (cm), millimeters (mm), inches (in), picas (pc), x-height (ex), or em.

|                  |                                          |                                                    |
|------------------|------------------------------------------|----------------------------------------------------|
| <b>Property:</b> | line-height                              |                                                    |
| <b>Value:</b>    | x.x                                      | Where "x.x" is expressed as a multiple of the font |
|                  | x%                                       | Where "x" is a percentage of the font.             |
|                  | pt, px, cm, mm, in, pc, ex, <i>or</i> em |                                                    |





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|                 |                                                                                        |                                                |
|-----------------|----------------------------------------------------------------------------------------|------------------------------------------------|
| <b>Example:</b> | <code>p {line-height: 2.0;}</code>                                                     | Expressed as two times the height of the font. |
| <b>Result:</b>  | Sets the CSS rule to apply a level of two times the height of the font as the leading. |                                                |

**J. Text Color:**

You can use the COLOR property to control the color of text. You can assign either a hexadecimal value or use the name of a color. The COLOR property can also be applied to other elements such as tables, borders and lines

|                  |                                                                         |  |
|------------------|-------------------------------------------------------------------------|--|
| <b>Property:</b> | color                                                                   |  |
| <b>Value:</b>    | color name or hexadecimal color                                         |  |
| <b>Example:</b>  | <code>h1 {color: maroon;}</code>                                        |  |
| <b>Result:</b>   | Sets the CSS rule to apply a maroon font color to all level 1 headings. |  |

**K. Margins:**

If you want to control the margins of elements within your HTML pages, you can use the MARGIN property in your style sheets. You can change all four margins of an element with the MARGIN property, so you must also add a dash (-) and the name of the margin you want to change (left, right, top or bottom). The value you assign can be in points (pt), pixels (px), centimeters (cm), millimeters (mm), inches (in), picas (pc), x-height (ex), or em.

|                  |                                                                                |                                                                          |
|------------------|--------------------------------------------------------------------------------|--------------------------------------------------------------------------|
| <b>Property:</b> | margin-x                                                                       | Where "x" is the margin you want to change (left, right, top or bottom). |
| <b>Value:</b>    | pt, px, cm, mm, in, pc, ex or em                                               |                                                                          |
| <b>Example:</b>  | <code>h2 {margin-left: 30px;}</code>                                           |                                                                          |
| <b>Result:</b>   | Sets the CSS rule to apply a left margin of 30 pixels to all level 2 headings. |                                                                          |





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#### **L. Padding:**

The PADDING property is used when you want to add padding (blank spaces) around the content of an element. The value you assign can be in points (pt), pixels (px), centimeters (cm), millimeters (mm), inches (in), picas (pc), x-height (ex), or em.

|                  |                                                                              |  |
|------------------|------------------------------------------------------------------------------|--|
| <b>Property:</b> | padding                                                                      |  |
| <b>Value:</b>    | pt, px, cm, mm, in, pc, ex or em                                             |  |
| <b>Example:</b>  | h1 {padding: 30px;}                                                          |  |
| <b>Result:</b>   | Sets the CSS rule to apply padding of 30 pixels around all level 1 headings. |  |

#### **M. Borders:**

Adding a border to a webpage element can add emphasis and make the element stand out on your page. The property you use in your CSS rule is BORDER. You can assign a thickness to the border by using a value of “thin”, “medium” or “thick”. In addition, in order for Web browsers to display your border you must also specify a border style; “solid”, “double”, “groove”, “ridge”, “inset”, “outset”, “dotted” or “dashed”. After you have indicated which border style you want, you can also add a space and color value to change the border’s color. Additionally, it is generally a good idea to add some padding to elements surrounded by a border so that the text is easy to read. Remember to separate the BORDER property and its assigned values and the PADDING property with a semicolon.

You can give your borders rounded corners by using the BORDER-RADIUS property. The value you assign can be in points (pt), pixels (px), centimeters (cm), millimeters (mm), inches (in), picas (pc), x-height (ex), or em.

|                  |                                                                                                 |                                                       |
|------------------|-------------------------------------------------------------------------------------------------|-------------------------------------------------------|
| <b>Property:</b> | border                                                                                          |                                                       |
| <b>Value:</b>    | thin, medium, thick                                                                             | Changes thickness of the border.                      |
|                  | Solid, double, groove, ridge, inset, outset, dotted or dashed                                   | <b>Required value.</b><br>Identifies the border type. |
| <b>Example:</b>  | h1 {border: solid navy; padding: 10px;}                                                         |                                                       |
| <b>Result:</b>   | Sets the CSS rule to apply a solid navy border around all level 1 headings with a 10px padding. |                                                       |
| <b>Property:</b> | border-radius                                                                                   |                                                       |





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|                 |                                                                                                     |  |
|-----------------|-----------------------------------------------------------------------------------------------------|--|
| <b>Value:</b>   | pt, px, cm, mm, in, pc, ex or em                                                                    |  |
| <b>Example:</b> | h1 {border: solid navy; border-radius: 25px;}                                                       |  |
| <b>Result:</b>  | Sets the CSS rule to apply a solid navy border, with a 25px rounded corner to all level 1 headings. |  |

**N. Number and Bullet Styles**

If your goal is to change the look of your ordered or unordered lists, you can use the LIST-STYLE- TYPE property. Value choices for ordered lists are: “decimal” (the default), “lower-alpha”, “upper-alpha”, “lower-roman” and “upper-roman”. Value choices for unordered lists are: “disc” (the default), “circle” or “square”.

You can also use an image as a list marker using the LIST-STYLE-IMAGE property. The value choice for this property is the file name of the image you want to use.

|                  |                                                                            |                      |
|------------------|----------------------------------------------------------------------------|----------------------|
| <b>Property:</b> | list-style-type                                                            |                      |
| <b>Value:</b>    | decimal, lower-alpha, upper-alpha, lower-roman or upper-roman              | For ordered lists.   |
|                  | disc, circle or square                                                     | For unordered lists. |
| <b>Example:</b>  | ul {list-style-type: circle;}                                              |                      |
| <b>Result:</b>   | Sets the CSS rule to apply circles as the bullets for all unordered lists. |                      |
| <b>Property:</b> | list-style-image                                                           |                      |
| <b>Value:</b>    | url(sample.jpg)                                                            |                      |
| <b>Example:</b>  | ul {list-style-image: url(sample.jpg);}                                    |                      |
| <b>Result:</b>   | Sets all unordered lists to use the image as bullet.                       |                      |

**O. Sizing Elements:**

If you want to control the sizing of certain elements in your pages, you can use the WIDTH and HEIGHT properties in your style sheets. The value you assign can be in points (pt), pixels (px), centimeters (cm), millimeters (mm), inches (in), picas (pc), x-height (ex), em or as a percentage of the page size.





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|                  |                                                                         |  |
|------------------|-------------------------------------------------------------------------|--|
| <b>Property:</b> | width, height                                                           |  |
| <b>Value:</b>    | pt, px, cm, mm, in, pc, ex, <i>or</i> em<br>or a percentage of the page |  |
| <b>Example:</b>  | img {width: 167px; height: 145px;}                                      |  |
| <b>Result:</b>   | All image tags are resized to 167 x 145 pixels.                         |  |

**P. Shadowing:**

If you are looking to add greater impact to any of your text you can use the TEXT-SHADOW property. The value you assign can be in points (pt), pixels (px), centimeters (cm), millimeters (mm), inches (in), picas (pc), x-height (ex) or em. You also need to set a value for the color of the shadow, using either a color name or hexadecimal value. When defining text shadows you need to set a value for the horizontal shadow, the vertical shadow, the blur distance, and the color of the shadow.

|                  |                                                                             |  |
|------------------|-----------------------------------------------------------------------------|--|
| <b>Property:</b> | text-shadow                                                                 |  |
| <b>Value:</b>    | pt, px, cm, mm, in, pc, ex, <i>or</i> em<br>and a color name or hexadecimal |  |
| <b>Example:</b>  | h1 {text-shadow: 5pt 5pt 5pt blue;}                                         |  |
| <b>Result:</b>   | Sets the CSS rule to show all level 1 headings with a 5pt shadow in blue.   |  |

**Creating Backgrounds in CSS**

**A. Colors:**

To set the background color in your webpage you want to use the BACKGROUND-COLOR property. Like other color selection properties you can use either a hexadecimal value or color name. The background of your whole page is defined using the body selector

|                  |                                                                            |  |
|------------------|----------------------------------------------------------------------------|--|
| <b>Property:</b> | background-color                                                           |  |
| <b>Value:</b>    | color name or hexadecimal value                                            |  |
| <b>Example:</b>  | body {background-color: #ADD8E6;}                                          |  |
| <b>Result:</b>   | Sets the CSS rule to make the background color of your webpage light blue. |  |





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### B. Images:

To set an image as the background of your webpage you want to use the BACKGROUND-IMAGE property. You can use this property to set the background of your whole page using the body selector or you can use it for any element you'd like to have an image as the background, like a table or paragraph.

When using an image as a background, the default setting is for the image to repeat itself to fill the available space. You can specify how you would like the image to repeat or to not repeat at all using the BACKGROUND-REPEAT property with the values: repeat-x (repeats only horizontally), repeat-y (repeats only vertically) or no-repeat.

It is important to select an image that does not compete with the text or other elements of your webpage. Using a complex image may result in difficulties when users are trying to view your webpage.

|                             |                                                                                                               |                              |
|-----------------------------|---------------------------------------------------------------------------------------------------------------|------------------------------|
| <b>Property:</b>            | background-image                                                                                              |                              |
| <b>Value:</b>               | url("X")                                                                                                      | The link to your image file. |
| <b>Supporting Property:</b> | background-repeat                                                                                             | To define image repetition   |
| <b>Value:</b>               | repeat-x; repeat-y or no-repeat.                                                                              |                              |
| <b>Example:</b>             | body {background-image: url("background.jpg"); background-repeat: repeat-y;}                                  |                              |
| <b>Result:</b>              | Applies the CSS rule to make your background the selected image and to have the image repeat vertically only. |                              |

### C. Fixed Images:

When using an image as a background you can also control whether or not it scrolls with the other elements of your webpage. Using the BACKGROUND-ATTACHMENT property and the values: scroll or fixed. Scroll is the default setting and allows the background image to move when your user is navigating your webpage and fixed sets the background image to not move. For example, when the image is set to fixed, the position of the image will always be in the background, no matter what part of the page your user is currently viewing.

|                  |                                                                               |  |
|------------------|-------------------------------------------------------------------------------|--|
| <b>Property:</b> | background-attachment                                                         |  |
| <b>Value:</b>    | scroll or fixed                                                               |  |
| <b>Example:</b>  | body {background-image: url("background.jpg"); background-attachment: fixed;} |  |





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|                |                                                                                                           |  |
|----------------|-----------------------------------------------------------------------------------------------------------|--|
| <b>Result:</b> | Sets the CSS rule to make the background the image you selected and to have a fixed position on the page. |  |
|----------------|-----------------------------------------------------------------------------------------------------------|--|

**Images in CSS**

**A. Opacity**

You can adjust an image's opacity using CSS by implementing the OPACITY property and assigning a value from 0.0 – 1.0. The lower the value the more transparent your image or element.

|                  |                                                         |                                                     |
|------------------|---------------------------------------------------------|-----------------------------------------------------|
| <b>Property:</b> | opacity                                                 |                                                     |
| <b>Value:</b>    | 0.0 to 1.0                                              | The lower the value the more transparent the image. |
| <b>Example:</b>  | img {opacity: 0.5;}                                     |                                                     |
| <b>Result:</b>   | Sets the CSS rule to display all images at 50% opacity. |                                                     |

**B. Floating Images**

When you want an image to be placed to the left or right of another element you use the FLOAT property. The FLOAT property uses the values: left and right. The floated image will move to the farthest point left or right that it can, allowing any elements that come after it to "flow" around the image. For example, an image floated to the right will allow the text of the following element to wrap around the left side of the image. Any elements that come before the floated image will not be affected.

|                  |                                                                                                                                               |  |
|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|--|
| <b>Property:</b> | float                                                                                                                                         |  |
| <b>Value:</b>    | left or right                                                                                                                                 |  |
| <b>Example:</b>  | img {float: left;}                                                                                                                            |  |
| <b>Result:</b>   | Sets the CSS rule for all images to be on the left-hand side of your page with any following elements wrapped on the right side of the image. |  |





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**C. Image Galleries:**

Image galleries can be created in CSS using the DIV element. You will be using the CLASS property and values that correspond with your HTML code. In order for the values to work properly the images and descriptions you are using must correspond with the images and image descriptions in your HTML code. For instance, in your HTML code, the images you want to display in your gallery need to be in the `<div class="img">` (where "img" is the name you choose for your div element) and your CSS will use the DIV element and a value of `img (div.img)`. In the same way your image descriptions need to be labeled with `<div class="desc">` (where "desc" is the name you assign to the div element containing your image descriptions). It is important to note that spelling and case are important when labeling classes in HTML and CSS as they must match exactly.

Only the images and descriptions that are in the labeled `<div>` tags on your HTML code will be displayed in a gallery. Any other images you have will be displayed in the order or position they appear in your HTML code. You can set as many different div tags as you would like, if your goal is to display all your images in galleries.

You will also need to assign height, width, margin, padding, border, display, float and text-align properties to assure proper positioning of your images and descriptions. You can also assign an `a:hover` property and class to your images, so that when you mouse over the image a different border surrounds just the image allowing it to stand out.

|                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |
|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <b>Property:</b> | div                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |
| <b>Value:</b>    | class, desc                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |
| <b>Example:</b>  | <div> <div>div.img {margin: 5px; padding: 5px; border: 1px solid #C0C0C0; height: 250px; width: 250px; float: left; text-align: left;} <i>(this code sets the size, position and border for the image and text as a whole)</i></div> <div>div.img img {display: inline; margin: 3px; border: 2px solid blue;} <i>(this code sets the images to display one after the other in a row and sets the border around each image)</i></div> <div>div.img a:hover img {border: 2px dotted red;} <i>(this code set the hover border around the image)</i></div> <div>div.desc {text-align: left; font-weight: bold; width: 150px; margin: 2px;} <i>(this code sets the weight and size of the text)</i></div> </div> |  |
| <b>Result:</b>   | Sets the CSS rules to display images in a row with each image and description being contained in a silver border and showing a dotted red border when you mouse over each image.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |





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### CSS Tables

#### **A. Borders:**

It's easy to control the borders of your tables using CSS. You only have to specify your styling using the BORDER property and the attributes of size in pixels, border style: solid, double, groove, ridge, inset, outset, dotted *or* dashed and a color value as a color name or hexadecimal number. You can assign a single border style to the table, table header (th) and table data (td) elements or you can have a different size, style and color for each element.

When styling borders this way your table will have a "double" border as each element has its own border. To have a single table border you use the border-collapse property, covered in the next lesson.

|                 |                                                                               |  |
|-----------------|-------------------------------------------------------------------------------|--|
| <b>Example:</b> | table, th, td {border: 2px solid black;}                                      |  |
| <b>Result:</b>  | Sets all tables, th and td elements to have a 2 pixel, solid border in black. |  |

#### **B. Collapsed Borders:**

The BORDER-COLLAPSE property allows you to have a single border around your table, by ignoring the exterior border properties of the table header (th) and table data (td) elements. while still allowing interior borders for each header and data cell.

|                 |                                                                                                                                                        |  |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <b>Example:</b> | table.one {border-collapse: collapse;}<br>table.one, th, td {border: 2px solid blue;}                                                                  |  |
| <b>Result:</b>  | Sets the table with class="one" to have a single, solid exterior border, 2 pixels wide in blue and an interior th and td border 2 pixels wide in blue. |  |

#### **C. Table Width and Cell Height:**

You can control the total table width using the WIDTH property and the height of your th and td elements by applying the HEIGHT property. These values can be set using: pixels (px), inches (in), centimeters (cm), millimeters (mm), points (pt) or em. The table WIDTH property can also be expressed in a percentage of the browser window.

|                 |                                                                                                                                        |  |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------|--|
| <b>Example:</b> | Table{width:100%; }<br>th{height:50px;} td {height: 25px;}                                                                             |  |
| <b>Result:</b>  | Sets the table width to span the browser window, the headers have a height of 50 pixels and the data cells have a height of 25 pixels. |  |





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#### **D. Table Background Color:**

You can control the background color of your th and td elements separately by defining a BACKGROUND-COLOR property for each element. You can also set the background color of the whole table using the same property.

|                 |                                                                                                                                                                          |  |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <b>Example:</b> | table, th, td {border: 1px solid black;}<br>th {background-color: green;}<br>td {background-color: yellow;}                                                              |  |
| <b>Result:</b>  | Sets the table, th and td elements to have a solid, 1 pixel black border and all th elements to have a green background and all td elements to have a yellow background. |  |
| <b>Example:</b> | table, th, td {border: 1px solid black; background-color: yellow;}                                                                                                       |  |
| <b>Result:</b>  | Sets all borders to a solid, 1 pixel black line with all backgrounds in yellow.                                                                                          |  |

#### **E. Table Text Alignment:**

You can control the horizontal and vertical alignment of the text in your table by using the TEXT- ALIGN property to control the horizontal alignment and the VERTICAL-ALIGN property to control the vertical alignment. TEXT-ALIGN has the values of left, right and center. The VERTICAL-ALIGN property has the values of top, bottom and center.

You can set the whole table to have the same alignment, by setting the alignment values under the table element styling. You can also control the th and td elements individually for more visual interest or readability.

|                 |                                                                                                                                                                          |  |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <b>Example:</b> | table {text-align: left; vertical-align: center;}                                                                                                                        |  |
| <b>Result:</b>  | Sets all elements in the table with left horizontal alignment and centered vertically.                                                                                   |  |
| <b>Example:</b> | th {text-align: center; vertical-align: top;} td<br>{text-align: left; vertical-align: bottom;}                                                                          |  |
| <b>Result:</b>  | The th element text is centered horizontally and at the top of the cell and the td element text is set horizontally to the left and aligned with the bottom of the cell. |  |





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### **F. Table Padding:**

You can control the space between the content and border of your th and td elements by applying the PADDING property to your style code. This allows for greater readability in your table.

|                 |                                                                                                                                                                                              |  |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <b>Example:</b> | th {padding: 10px;}<br>td {padding: 20px;}                                                                                                                                                   |  |
| <b>Result:</b>  | Sets the th element to have a blank space of 10 pixels around the content inside the border and sets the td element to have a blank space of 20 pixels around the content inside the border. |  |

## **Working with Transforms in CSS**

### **What are Transforms?:**

The CSS TRANSFORM property allows you to turn, spin, stretch, scale and move your elements in two or three dimensions. This will give your webpage more visual interest and allows you to position elements where you want them to be.

When using the TRANSFORM property, you need to use a different syntax for the Web browsers Chrome, Safari and Opera, as they do not support the basic syntax. To allow your code to work with these browsers you need to supply a prefix to the TRANSFORM property. This prefix is: -webkit-. You do not need to add an additional line of code. The separate coding can be contained in the same set of curly brackets as your basic TRANSFORM coding. Your code will look like the following example (using the translate method as an example): {transform:translate(50px,100px); -webkit-transform:translate(50px,100px);}.

### **A. 2D Transforms:**

When using the 2D TRANSFORM property there are many different values you can ascribe to make changes to your elements. The syntax to achieve a 2D transform is as follows: {transform: *method*(X- axis value,Y-axis value);} (**NOTE:** There cannot be a space between any of the different sections of the coding when using transform).

There are eleven different methods you can use with the 2D TRANSFORM property, they are listed in the table below.





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| Method                | Description                                                                                                                                                                      |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| translate(x,y)        | Sets the rule to translate (move) the element along the X-axis and the Y-axis (x,y defined in pixels)                                                                            |
| translateX(n)         | Sets the rule to translate the element along the X-axis only (n defined in pixels)                                                                                               |
| translateY(n)         | Sets the rule to translate the element along the Y-axis only (n defined in pixels)                                                                                               |
| scale(x,y)            | Sets the rule to scale the element by changing its width and height (x defines the multiples of width, and y defines the multiples of height)                                    |
| scaleX(n)             | Sets the rule to change the elements width only (n describes the multiples of width)                                                                                             |
| scaleY(n)             | Sets the rule to change the elements height only (n describes the multiples of height)                                                                                           |
| rotate(angle)         | Sets the rule to rotate the element to the specific angle defined (angle is defined in degrees (deg))                                                                            |
| skew(x-angle,y-angle) | Sets the rule to skew the element along the X-axis and Y-axis (x-angle, y-angle defined in degrees (deg))                                                                        |
| skewX(angle)          | Sets the rule to skew the element along the X-axis by the defined angle (angle defined in degrees (deg))                                                                         |
| skewY(angle)          | Sets the rule to skew the element along the Y-axis by the defined angle (angle defined in degrees (deg))                                                                         |
| matrix(n,n,n,n,n,n)   | The matrix method combines all 2D transform methods into one, using six parameters, containing mathematic functions, to allow you to rotate, scale, translate and skew elements. |





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**B. 2D Transforms- (cont.):**

|                 |                                                                                                                |                                                 |
|-----------------|----------------------------------------------------------------------------------------------------------------|-------------------------------------------------|
| <b>Method:</b>  | translate                                                                                                      | Moves element relative to its original position |
|                 | rotate                                                                                                         | Rotates element to the defined angle            |
| <b>Example</b>  | div {transform:translate(50px,100px); -webkit-transform:translate(50px,100px);}                                |                                                 |
| <b>Result:</b>  | Translates (moves) div element 50 pixels from the left and 100 pixels from the top from it's original position |                                                 |
| <b>Example:</b> | div.one {transform:rotate(30deg); -webkit-transform:rotate(30deg);}                                            |                                                 |
| <b>Result:</b>  | Rotates div.one element 30 degrees clockwise                                                                   |                                                 |

**C. 3D Transforms**

Where 2D transforms interact with only the x- and y-axes, the 3D transforms also act along the z- axis of your webpage. For example, the rotate method in 3D, set at 180 deg, will show the “back-side” or a reverse of your element, as opposed to your element appearing upside down.

Along with the basic TRANSFORM property, there are several more properties available to use with 3D transforms. They are listed in the following table.

| Property            | Description                                                                           |
|---------------------|---------------------------------------------------------------------------------------|
| transform-origin    | Sets the rule to allow you to change the position of transformed elements             |
| transform-style     | Sets the rule to specify how nested elements are rendered in 3D space                 |
| perspective         | Sets the rule that specifies the perspective of 3D elements                           |
| perspective-origin  | Sets the rule that specifies the bottom position of 3D elements                       |
| backface-visibility | Sets the rule on whether an element should be visible when it's not facing the screen |





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## Transitions and Animations in CSS

### A. Transitions:

Transitions allow you to change the state of an element, over a specific time, without having to use any other programs like Flash or JavaScript. For example, you can change the width of an element when a user hovers over it. Transitions are heavily dependent on the timing of the change. The default for TRANSITION-DURATION property is zero, so it is important to set a time, otherwise your transitions will not work. There are several transition properties, listed in the table that follows.

You can apply transitions to any property in your HTML coding that can be translated into a mathematical reference. For example, you can transition the font-weight of your text but not the font-face.

The syntax for transitions is as follows: {transition: property\_name duration timing\_function delay;}. This example is for setting all the properties in one line (shorthand), where each property is listed separately using the full property name, separated by semicolons in the same curly brackets, as with any other CSS coding.

| Property                   | Description                                                                                                                                 |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| transition                 | Sets the rule to change the setting for the four transition properties into a single property.                                              |
| transition-property        | Sets the rule to name the property the transition is applied to. (for example; width, font-weight, height, border, etc.)                    |
| transition-duration        | Sets the rule to define the duration of the transition. (in seconds (s) or milliseconds (ms))                                               |
| transition-timing-function | Sets the rule to define how the speed of transition is calculated. (ease (default), linear, ease-in, ease-out, ease-in-out, cubic-bezier()) |
| transition-delay           | Sets the rule to define when the transition will start. (default is 0, in seconds (s) or milliseconds (ms))                                 |

|                |                                                                                                                                                                                                                 |  |
|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <b>Example</b> | div {width:100px; height:100px; background: blue; transition:width height; transition-duration:2s;} div:hover {width: 200px; height:200px;}                                                                     |  |
| <b>Result:</b> | Sets the div element to a size of 100px by 100px with a background color in blue and sets the transition of width and height to 200 px by 200 px to be changed over two seconds, when user hovers over element. |  |





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#### **B. Animations:**

Animations allow you to add visual interest to your webpage by creating elements and images that move around the page, spin, change colors, etc. automatically. Animations allow you to gradually change an element from one style to another. You can change as many styles as you would like and as many times as you want in an element. When using animations you have options for specifying when the change will happen: either in percentages 0% to 100% or “from” and “to”, which is the same as the percentages.

To use animations in CSS you have to use the `@keyframes` rule. This is where you create the animation by specifying the CSS style properties inside the `@keyframes` rule. This allows the style to change from the current style to the new style.

Like transitions, you must define durations for your animations otherwise they will not run. You also must “bind” an animation to an element or it will not work. You bind an animation to an element by defining the animation name and duration inside the styling rules of your element.

| Property                               | Description                                                                                                                                       |
|----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| <code>@keyframes</code>                | Sets the rule to specify the animation.                                                                                                           |
| <code>animation</code>                 | Sets the rule to define the property for all animation properties except the <code>animation-play-state</code> property.                          |
| <code>animation-name</code>            | Sets the rule to specify the name of the <code>@keyframes</code> animation                                                                        |
| <code>animation-duration</code>        | Sets the rule for how long an animation takes to complete one cycle (value in seconds (s) or milliseconds (ms) default is 0)                      |
| <code>animation-timing-function</code> | Sets the rule to describe how the animation will progress over one cycle (ease (default), linear, ease-in, ease-out, ease-in-out, cubic-bezier()) |
| <code>animation-delay</code>           | Sets the rule to define when the animation will start (in seconds (s) or milliseconds (ms), default is 0)                                         |
| <code>animation-iteration-count</code> | Sets the rule to define the number of times an animation is played. Default setting is 1, a number can be given or the term infinite              |
| <code>animation-direction</code>       | Sets the rule to define how the animation should play (normal, reverse, alternate, alternate-reverse, default is normal)                          |

### **CSS Shorthand**

#### **Shorthand Properties:**

CSS provides a few Shorthand Properties that allow you to group selectors within a single declaration instead of a separate one for each property, thus reducing the time and effort in coding, as well as reducing the size of your CSS file itself. To create the Shorthand





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code, you separate the selectors with a space within the declaration. It's important to note that you should always declare a value for each of the selectors in Shorthand code. If you do not define each selector in the correct order, web browsers will either ignore the declaration altogether, or use the default setting. So, be cautious when using Shorthand Properties, otherwise you may not achieve your desired outcome. The syntax for Shorthand Properties is as follows:

{Shorthand Property Name: Selector Selector;}

For Example, you can use:

{margin: 2px 1px 3px 4px;}

*Instead of:*

{margin-top:2px; margin-right:1px; margin-bottom:3px; margin-left:4px;}

The following table lists available Shorthand Properties and their selectors in the order they should appear:

| Shorthand Property | Selectors (Do not omit any and keep in order!)                             |
|--------------------|----------------------------------------------------------------------------|
| font               | font-size; line-height; font-weight; font-style; font-family               |
| background         | background-color; background-image; background-repeat; background-position |
| list-style         | list-style; list-style-type; list-style-position; list-style-image         |
| border             | border-width; border-color; border-style                                   |
| margin             | margin-top; margin-right; margin-bottom; margin-left                       |
| padding            | padding-top; padding-right; padding-bottom; padding-left                   |

The margin and padding Shorthand properties work a little differently due to the nature of the properties (four sides) that can result in different combinations of values. For example, you can have a different value for each of the four margins (top, right, bottom and left) as in the example above. Or, you might have just two different values for the four total sides. This type of shorthand notation can take one, two, three, or four values. If you specify four values, they are assigned to the appropriate sides in order (clockwise – top, right, bottom, left).





## Appendix

### Style Sheet Characteristics

| User Interface Properties |                                                                               |
|---------------------------|-------------------------------------------------------------------------------|
| <i>Characteristic</i>     | <i>Description</i>                                                            |
| box-sizing                | Sets the rule to define elements to fit in an area in a certain way           |
| content                   | Used with the pseudo-elements :before and :after, to insert generated content |
| cursor                    | Sets the rule to define type of cursor to be used                             |
| icon                      | Set the rule to allow author to style an element with an equivalent icon      |
| nav-down                  | Sets rule to define where to navigate when using down arrow key               |
| nav-index                 | Sets the rule to define tabbing order of elements                             |
| nav-left                  | Sets the rule to define where to navigate when using left arrow key           |
| nav-right                 | Sets the rule to define where to navigate when using right arrow key          |
| nav-up                    | Sets the rule to define where to navigate when using up arrow key             |
| outline                   | Sets rule to define all outline properties                                    |
| outline-color             | Sets the rule to define outline color                                         |
| outline-offset            | Sets rule to offset and outline and draw it beyond a border edge              |
| outline-style             | Sets the rule to define the style of outline                                  |
| outline-width             | Sets the rule to define width of outline                                      |
| resize                    | Sets the rule to define whether an element can be resized by user             |
| text-overflow             | Sets the rule to define what happens when text overflows containing element   |





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| <b>Background and Border Properties</b> |                                                                                    |
|-----------------------------------------|------------------------------------------------------------------------------------|
| <i>Characteristic</i>                   | <i>Description</i>                                                                 |
| background                              | Sets the rule to define all background properties in one set                       |
| background-attachment                   | Sets the rule for a fixed or scrolling background                                  |
| background-color                        | Sets the rule to define a background color for an element                          |
| background-image                        | Sets the rule to assign an image as a background for an element                    |
| background-position                     | Sets the rule for the starting position of a background image                      |
| background-repeat                       | Sets the rule for how a background image will repeat                               |
| background-clip                         | Sets the rule to specify the painting area of a background image                   |
| background-origin                       | Sets the rule for the positioning area of a background image                       |
| background-size                         | Sets the rule for the size of the background image                                 |
| border                                  | Sets the rule to define all border properties in one set                           |
| border-bottom                           | Sets the rule to define all bottom border properties                               |
| border-bottom-color                     | Sets the rule to define bottom border color                                        |
| border-bottom-left-radius               | Sets the rule to define the shape of bottom left corner of border                  |
| border-bottom-right-radius              | Sets the rule to define the shape of bottom right corner of border                 |
| border-bottom-style                     | Sets the rule to define the style of bottom border                                 |
| border-bottom-width                     | Sets the rule to define the width of the bottom border                             |
| border-color                            | Sets the rule to define the color of all four borders                              |
| border-image                            | Sets the rule to define all border-image- properties in one set                    |
| border-image-outset                     | Sets the rule to define the amount the border image extends outside the border box |
| border-image-repeat                     | Sets the rule to define image-border as repeated rounded or stretched              |
| border-image-slice                      | Sets the rule to define the inward offset of the image-border                      |
| border-image-source                     | Sets the rule to define the image used as a border                                 |





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| <b>Background and Border Properties Cont.</b> |                                                                                                                                    |
|-----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| <i><b>Characteristic</b></i>                  | <i><b>Description</b></i>                                                                                                          |
| border-image-width                            | Sets the rule to define the image width used as border                                                                             |
| border-left                                   | Sets the rule to define all properties for left border in one set                                                                  |
| border-left-color                             | Sets the rule to define the color of left border                                                                                   |
| border-left-style                             | Sets the rule to define style of left border                                                                                       |
| border-left-width                             | Sets the rule to define the width of left border                                                                                   |
| border-radius                                 | Sets the rule to define the shape of all corners of border in one set                                                              |
| border-right                                  | Sets the rule to define all right border properties in one set                                                                     |
| border-right-color                            | Sets the rule to define color of right border                                                                                      |
| border-right-style                            | Sets the rule to define style of right border                                                                                      |
| border-right-width                            | Sets the rule to define width of right border                                                                                      |
| border-style                                  | Sets the rule to define style of all borders in one set                                                                            |
| border-top                                    | Sets the rule to define all to border properties in one set                                                                        |
| border-top-color                              | Sets the rule to define color of top border                                                                                        |
| border-top-left-radius                        | Sets the rule to define the shape of top left corner of border                                                                     |
| border-top-right-radius                       | Sets the rule to define the shape of top right corner of border                                                                    |
| border-top-style                              | Sets the rule to define the style of top border                                                                                    |
| border-top-width                              | Sets the rule to define width of top border                                                                                        |
| border-width                                  | Sets the rule to define width of all four borders                                                                                  |
| box-decoration-break                          | Sets the rule to define behavior of the background and border of an element at page-break, or, for in-line elements, at line-break |
| box-shadow                                    | Sets the rule to attach box shadows to a box                                                                                       |





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| Font Properties       |                                                                               |
|-----------------------|-------------------------------------------------------------------------------|
| <i>Characteristic</i> | <i>Description</i>                                                            |
| font                  | Defines all font properties in one set                                        |
| font-family           | Defines the font-family for text                                              |
| font-size             | Defines the size of the font for text                                         |
| font-style            | Defines the style of font for text                                            |
| font-variant          | Defines whether font should be displayed in small-cap format                  |
| font-weight           | Defines the weight of the font                                                |
| @font-face            | Sets the rule to allow webpages to download fonts that aren't "web-safe"      |
| font-size-adjust      | Sets the rule to allow font to preserve size regardless of font family        |
| font-stretch          | Sets the rule to define normal, condensed or expanded face from a font family |

| Text Decoration Properties |                                                          |
|----------------------------|----------------------------------------------------------|
| <i>Characteristic</i>      | <i>Description</i>                                       |
| text-decoration            | Sets the rule to define the decoration of text           |
| text-decoration-color      | Sets the rule to define color of text decoration         |
| text-decoration-line       | Sets the rule to define type of line in text decoration  |
| text-decoration-style      | Sets the rule to define style of line in text decoration |
| text-shadow                | Sets the rule to add shadow to text                      |





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| Text Properties       |                                                                                                                                       |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| <i>Characteristic</i> | <i>Description</i>                                                                                                                    |
| direction             | Sets the rule to specify text direction                                                                                               |
| hanging-punctuation   | Sets the rule to allow punctuation character to be placed outside a line box                                                          |
| hyphens               | Sets the rule to define how to split words in paragraphs                                                                              |
| letter-spacing        | Sets the rule to define space between character in text (kerning)                                                                     |
| line-height           | Sets the rule to define line spacing (leading)                                                                                        |
| tab-size              | Sets the rule to define length of tab-character                                                                                       |
| text-align            | Defines the horizontal alignment of text                                                                                              |
| text-align-last       | Defines how a line before a forced line break is aligned when text-align is set to "justify"                                          |
| text-indent           | Defines the indentation of first line of paragraph                                                                                    |
| text-justify          | Sets the rule to define justification of text                                                                                         |
| text-transform        | Sets the rule to define capitalization of text                                                                                        |
| unicode-bidi          | Used in conjunction with direction property to set rule to allow text to be overridden to support multiple languages in same document |
| white-space           | Sets the rule to define text wrapping in an element                                                                                   |
| word-break            | Sets the rule for line breaking of non-CJK scripts (CJK scripts are Chinese, Japanese Korean)                                         |
| word-spacing          | Sets the rule to increase or decrease white space between words                                                                       |
| word-wrap             | Sets rule to allow long, un-breakable words to break and wrap                                                                         |





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| <b>Table Properties</b> |                                                                                |
|-------------------------|--------------------------------------------------------------------------------|
| <i>Characteristic</i>   | <i>Description</i>                                                             |
| border-collapse         | Defines whether table borders should be collapsed                              |
| border-spacing          | Sets rule to define distance between border or adjacent cells                  |
| caption-side            | Sets rule to define placement of table caption                                 |
| empty-cells             | Sets rule to define whether border and background of empty cells are displayed |
| table-layout            | Sets the rule to define layout calculation used for a table                    |

| <b>List Properties</b> |                                                                              |
|------------------------|------------------------------------------------------------------------------|
| <i>Characteristic</i>  | <i>Description</i>                                                           |
| list-style             | Sets rule to define all list properties                                      |
| list-style-image       | Sets the rule to define image as list item marker                            |
| list-style-position    | Sets rule to define position of list markers, inside or outside content flow |
| list-style-type        | Sets the rule to define type of list item marker                             |

| <b>2D and 3D Transform Properties</b> |                                                                                           |
|---------------------------------------|-------------------------------------------------------------------------------------------|
| <i>Characteristic</i>                 | <i>Description</i>                                                                        |
| backface-visibility                   | Sets rule to define whether an element should be visible when it is not facing the screen |
| perspective                           | Sets the rule to define the perspective of 3D elements                                    |
| perspective-origin                    | Sets the rule to define the bottom position of 3D elements                                |
| transform                             | Sets the rule to apply a 2D or 3D transform to elements                                   |
| transform-origin                      | Sets the rule to define the position of transformed elements                              |
| transform-style                       | Sets the rule to define how nested elements are rendered in 3D space                      |





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| <b>Transition Properties</b> |                                                                                    |
|------------------------------|------------------------------------------------------------------------------------|
| <i>Characteristic</i>        | <i>Description</i>                                                                 |
| transition                   | Sets the rule to define all four transition properties                             |
| transition-property          | Sets the rule to define the name of the CSS property to apply transition effect to |
| transition-duration          | Sets the rule to define how long the transition effect is to take                  |
| transition-timing-function   | Defines the speed curve of the transition effect                                   |
| transition-delay             | Define when the transition effect is to start                                      |

| <b>Animation Properties</b> |                                                                                          |
|-----------------------------|------------------------------------------------------------------------------------------|
| <i>Characteristic</i>       | <i>Description</i>                                                                       |
| @keyframes                  | Sets the rule to specify the animation                                                   |
| animation                   | Sets the rule to define all animation properties except animation-play-state             |
| animation-delay             | Sets the rule to define when animation is to start                                       |
| animation-direction         | Sets the rule to define whether the animation should play in reverse or alternate cycles |
| animation-duration          | Sets the rule to define the length of time to complete one animation cycle               |
| animation-fill-mode         | Defines what values are applied by the animation outside the time it takes to execute    |
| animation-iteration-count   | Sets the rule to define the number of times an animation repeats                         |
| animation-name              | Sets the rule to define a name for the @keyframes animation                              |
| animation-timing-function   | Defines the speed curve of the animation                                                 |
| animation-play-state        | Sets the rule to define whether the animation is to run or not                           |

