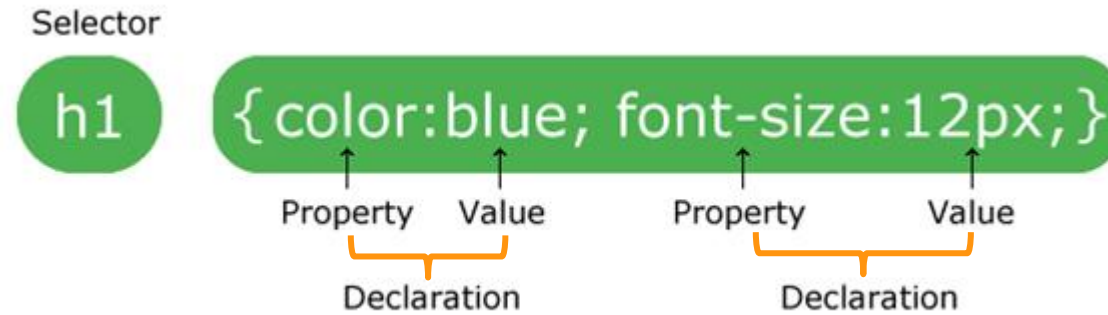

Cascading Style Sheets (CSS)

- CSS is an acronym for **C**ascading **S**tyle **S**heets
- Developed and maintained by W3C
- It is used to control the styling of a web page (HTML document).
- It was created to solve problems introduced in HTML 3.2
- It saves a lot of work, as it can control the layout of multiple web pages all at once

CSS Style Rule



A style rule is made of three parts –

- **Selector** – specifies the HTML element to be styled
- **Property** – specifies the HTML attribute being used for styling
- **Value** – specifies the value assigned to a property
- The declaration block can contain one or more declarations, which are separated by semicolons.
- A combination of a CSS property name and its value, separated by a colon, form one declaration.
- Declaration(s) are surrounded by curly braces.

CSS Inclusion

External CSS

```
<link rel="stylesheet" type="text/css" href="style.css">
```

Internal/ Embedded CSS

```
<style>  
selector { property: value; }  
</style>
```

```
<style>  
h1 { color: blue; text-transform: uppercase; }  
</style>
```

Inline CSS

```
<tag style="property: value;"></tag>
```

```
<h1 style="color:blue; text-transform:uppercase;">Lorem  
Ipsum is a dummy text</h1>
```

CSS Overriding

In case multiple properties are defined for the same element, then the value from the last read style sheet gets applied.

style.css

```
p { color: blue; }
```

```
<head>
<link rel="stylesheet" type="text/css"
      href="style.css">
<style>
p {
  color: green;
}
</style>
</head>
```

```
<head>
<style>
p {
  color: green;
}
</style>
<link rel="stylesheet" type="text/css"
      href="mystyle.css">
</head>
```

CSS Selectors

CSS selectors are used to select the HTML elements to be styled.

Selector	Description
Element	Selects HTML elements based on the element name
Id	Uses the id attribute of an HTML element to select an element Id selector is used to select one unique element! To select an element with a specific id, write a hash (#) character, followed by the id of the element.
Class	Selects HTML elements with a specific class attribute. To select elements with a specific class, write a period (.) character, followed by the class name. More than one styling class can be applied to a single HTML element.
Universal	Selects all HTML elements on the page.
Pseudo Selector	Gets applied on a special state of an element
Attribute Selector	Gets applied on a specific attribute of an element

Selector	Selects
*	All elements
p	All p tags
div, p	All div and p tags
div p	All p tags inside div tag
div > p	All p tags one level deep in div
div + p	p tags immediately after div
div ~ p	p tags preceded by div
.classname	All elements with given classname
#idname	Element associated with given id
p.classname	All p tags with given classname
p#idname	p tag associated with given id
#idname *	All elements inside #idname
a:hover	Link on mouse over
a:active	Active link
a[target=_blank]	Links with target set as _blank

- Many CSS properties such as **width**, **margin**, **padding**, **font-size**, etc. take *length* values
- Length value is a number followed by a length unit (10px, 2em)
- A whitespace cannot appear between the number and unit. However, if the value is 0, unit can be omitted
- For some CSS properties, negative lengths are allowed
- There are two types of length units: *absolute* and *relative*

PIXEL

Represents one pixel
on the device screen

Absolute

1 px = 1/96th of 1 inch

POINT

Used mostly for print
medium

Absolute

1 pt = 1/72th of 1 inch

EM

Relative to current font
size

Relative

1 em = current font size

PERCENT

Relative to font size of
parent element

Relative

1% = current font size

Format	Syntax	Example
Hex Code	#RRGGBB	color:#FF0000;
Short Hex Code	#RGB	color:#F00;
RGB Absolute	rgb(rrr,ggg,bbb, alpha)	color:rgb(255,0,0, 0.5);
Keyword	pink, blue, etc.	color:red;

```
<h1 style="background-color:red;">Hello There</h1>
```

```
<h1 style="color:#F00;">Hello There</h1>
```

```
<h1 style="border:2px solid #FF0000;">Hello There</h1>
```

```
<h1 style="background-color:rgb(255,0,0);">Hello There</h1>
```


CSS Background

Property	Use
background-color	specifies the background color of an element
background-image	specifies an image to be set as the background of an element
background-repeat	specifies repetition of the set background image, both horizontally and vertically
background-attachment	specifies whether a background image should scroll or remain fixed
background-position	specifies the position of the background image

```
body {  
    background-color:blue;  
    background-image:url('images/yellow-line.jpg');  
    background-repeat:repeat-x;  
    background-position:right bottom;  
}
```

```
/* Background shorthand */  
body { background:blue url('images/yellow-line.jpg') repeat-x right bottom; }
```

Ordering of property values is: *background-color, background-image, background-repeat, background-attachment, background-position*

- Used to display smooth transitions between two or more specified colors.
- Two types of gradients are – *linear* and *radial*

Linear Gradient

```
background-image: linear-gradient(direction, color-1, color-2, ...);  
/* direction - up | down | left | right | diagonal*/
```

```
background-image: linear-gradient(angle, color-1, color-2, ...);
```

```
background-image: linear-gradient(to bottom right, blue, orange);
```

```
background-image: linear-gradient(orange, white, green);
```

```
background-image: linear-gradient(180deg, blue, yellow);
```

```
background-image: linear-gradient(to right, rgba(0,255,0,0), rgba(0,255,0,1));
```

```
background-image: repeating-linear-gradient(red, yellow 10%, green 20%);
```

- Used to display smooth transitions between two or more specified colors.
- Two types of gradients are – *linear* and *radial*

Radial Gradient

```
background-image: radial-gradient(shape size at position, color-1, color-2, ...);  
/* shape - circle | ellipse  
   size - closest-side | farthest-side | closest-corner | farthest-corner */
```

```
background-image: radial-gradient(orange, white, green);
```

```
background-image: radial-gradient(circle, orange, white, green);
```

```
background-image: radial-gradient(closest-side at 60% 55%, orange, white, green);
```

```
background-image: repeating-radial-gradient(orange, white 10%, green 15%);
```

CSS Border

Property	Use
border-style	Specifies what kind of border to display [solid dotted dashed double none]
border-color	Specifies the color of the border
border-width	Specifies the width of the border
border-radius	Allows rounding of borders at the corners

```
p { border-width:5px; border-style:solid; border-color:blue; }
```

```
/* Border shorthand */
```

```
p { border:5px solid blue; }
```

Ordering of property values is: *border-width, border-style, border-color*

```
/* Border Radius */
```

```
p { border-radius: 10px; }
```

```
p { border-style: dotted solid double dashed; }      /* Four values */
```

```
p { border-style: dotted solid dashed; }           /* Three values */
```

```
p { border-style: none solid; }                   /* Two values */
```

```
p { border-style: dashed; }                       /* One value */
```

Lorem Ipsum is simply dummy text of the printing and typesetting industry. Lorem Ipsum has been the industry's standard dummy text ever since the 1500s, when an unknown printer took a galley of type and scrambled it to make a type specimen book.

```
p { border:5px solid blue; }
```

Lorem Ipsum is simply dummy text of the printing and typesetting industry. Lorem Ipsum has been the industry's standard dummy text ever since the 1500s, when an unknown printer took a galley of type and scrambled it to make a type specimen book.

```
p { border:5px double blue; }
```

Lorem Ipsum is simply dummy text of the printing and typesetting industry. Lorem Ipsum has been the industry's standard dummy text ever since the 1500s, when an unknown printer took a galley of type and scrambled it to make a type specimen book.

```
p { border:5px solid blue; border-radius:10px; }
```

Lorem Ipsum is simply dummy text of the printing and typesetting industry. Lorem Ipsum has been the industry's standard dummy text ever since the 1500s, when an unknown printer took a galley of type and scrambled it to make a type specimen book.

```
p { border-width:3px; border-style:dashed;  
border-color: blue red green orange; }
```

Property	Use
font-family	Specifies the font face Multiple font family names are separated by a comma
font-style	Font style can have one of the three value [normal italics oblique]
font-size	Specifies the font size [x em % vw pt]
font-weight	Specifies weight of font [normal bold]
font-variant	Specifies whether or not a text should be displayed in a small-caps font [normal small-caps]

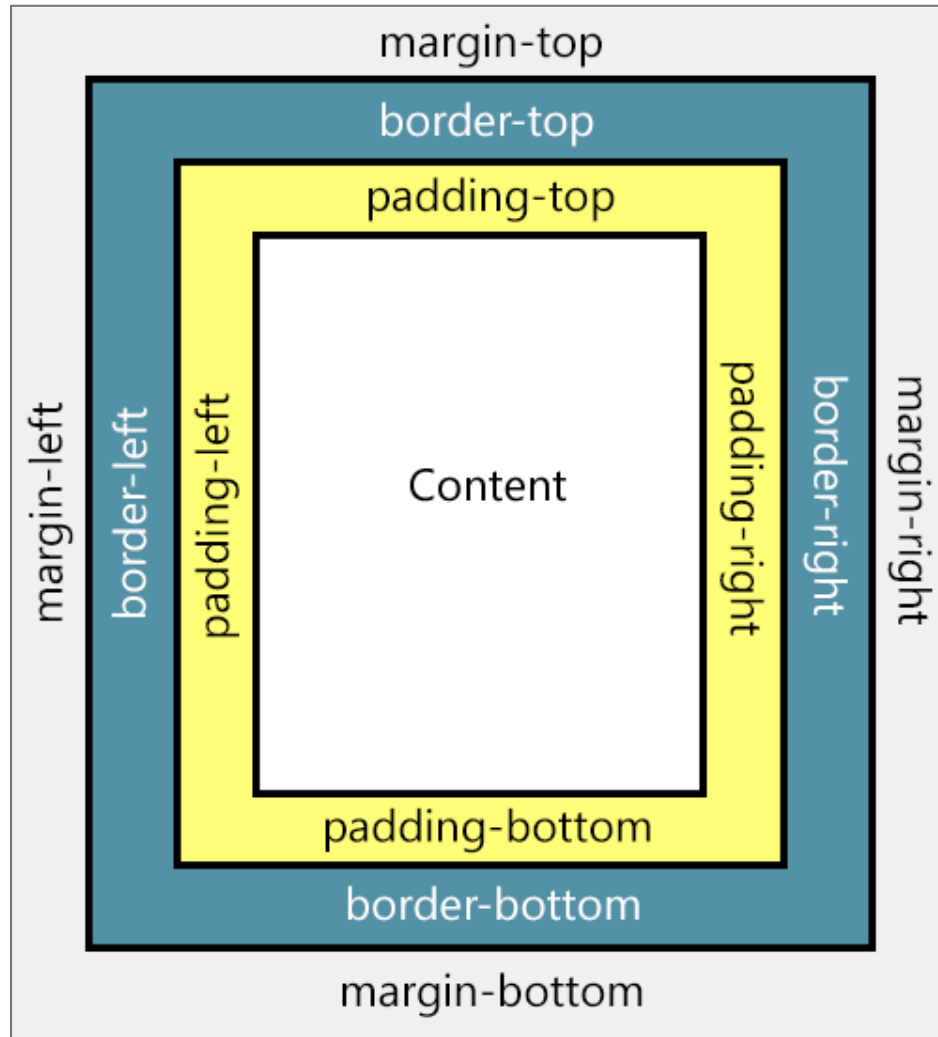
```
p { font-family:Tahoma; font-style:italics; font-size:16px; font-weight:bold; }
```

```
/* Font shorthand */
```

```
p { font:italic small-caps bold 20px/40px 'Times New Roman'; }
```

Ordering of property values is: *font-style, font-variant, font-weight, font-size/line-height, font-family*

CSS Box Model



Margin – space around an element, outside of the border

Border – border surrounding the element

Padding – space between element content and border

CSS Margin & Padding

Property	Use	Examples
Margin	<p>Used for specifying empty white space around elements, outside the borders</p> <p>margin-top margin-bottom margin-left margin-right</p> <p>Shorthand: margin</p>	<p>margin-top: 30px;</p> <p>margin:30px;</p> <p>margin:10px 20px 10px 15px;</p>
Padding	<p>Used for specifying empty white space around an element's content, inside the borders</p> <p>padding-top padding-bottom padding-left padding-right</p> <p>Shorthand: padding</p>	<p>padding-top: 30px;</p> <p>padding:30px;</p> <p>padding:10px 20px 10px 15px;</p>

Property	Controls the
color	color of the text
direction	text-direction
letter-spacing	space between the letters in a word
word-spacing	space between the words in a sentence
text-indent	indentation for the first line of a paragraph
text-align	horizontal alignment of text [left center right justify]
vertical-align	vertical alignment of text [top middle bottom]
text-decoration	text decorations [underline overline line-through blink none]
text-transform	case for text [uppercase lowercase capitalize none]
text-shadow	shadow to text
white-space	white-space inside an element
line-height	space between lines in a paragraph

```
p { color:blue;  
    letter-spacing:1px;  
    word-spacing:-10px;  
    text-indent:20px;  
    text-align:center;  
    line-height:20px; }
```

Property	Use
list-style-type	Specifies the type of list item marker Controls shape and style of bullet for unordered lists Controls style of numbering characters for ordered lists
list-style-image	Sets an image as the list item marker
list-style-position	Specifies the position of the list item marker [outside inside]

```
ul { list-style-type: circle; list-position: inside; }
```

```
/* List shorthand */
```

```
ul {list-style: inside url('sqpurple.gif'); }
```

Ordering of property values is: *list-style-type*, *list-style-position*, *list-style-image*

```
ul li { list-style-type: square; }
```

```
ol { list-style-type: lower-alpha; }
```

```
ul { list-style-type: none; margin: 0; padding: 0; }
```

```
<table id="countries">
  <tr>
    <th>Country</th>
    <th>Capital</th>
    <th>Language</th>
  </tr>
  <tr>
    <td>India</td>
    <td>New Delhi</td>
    <td>Hindi</td>
  </tr>
  <tr>
    <td>France</td>
    <td>Paris</td>
    <td>French</td>
  </tr>
  <tr>
    <td>Spain</td>
    <td>Madrid</td>
    <td>spanish</td>
  </tr>
  <tr>
    <td>Mexico</td>
    <td>Mexico City</td>
    <td>Mexican</td>
  </tr>
  <tr>
    <td>Italy</td>
    <td>Rome</td>
    <td>Italian</td>
  </tr>
  <tr>
    <td>UK</td>
    <td>London</td>
    <td>English</td>
  </tr>
</table>
```

Country	Capital	Language
India	New Delhi	Hindi
France	Paris	French
Spain	Madrid	spanish
Mexico	Mexico City	Mexican
Italy	Rome	Italian
UK	London	English

```
<style>
#countries {
  font-family: Arial, sans-serif;
  font-size: 14px;
  border-collapse: collapse;
  text-align: left;
}
#countries tr:nth-child(even){background-color: #f2f2f2;}
#countries th {
  padding-top: 10px;
  padding-bottom: 10px;
  background-color: #a44170;
  color: white;
}
#countries td, #countries th {
  border: 1px solid #ccc;
  padding: 5px;
}
</style>
```

Country	Capital	Language
India	New Delhi	Hindi
France	Paris	French
Spain	Madrid	spanish
Mexico	Mexico City	Mexican
Italy	Rome	Italian
UK	London	English

CSS Shadow Effects

- Used to add shadow to text and elements.
- Two shadow properties are – `text-shadow` and `box-shadow`

Text Shadow

`text-shadow`: *horizontal-shadow, vertical-shadow, blur, color;*

```
text-shadow: 0 0 5px black;  
text-shadow: 0 0 5px black, 0 0 5px red;
```

Box Shadow

`box-shadow`: *horizontal-shadow, vertical-shadow, blur, color;*

```
box-shadow: 10px 10px 5px blue;
```

transform property is used to add 2D transformations to elements

Methods

- `translate()` - moves the element from its current position as per the parameters given for the X and Y axes
- `rotate()` - rotates the element clockwise or counter-clockwise as per the given degree
- `scaleX()` - increases or decreases the width of the element
- `scaleY()` - increases or decreases the height of the element
- `scale()` - increases or decreases element size as per the parameters given for the width and height
- `skewX()` - skews the element along the X-axis by the given angle
- `skewY()` - skews the element along the Y-axis by the given angle
- `skew()` -skews the element along the X and Y axes by the given angles

Allows adding animation to HTML elements, without using JS.

Animations let an element gradually change style from one to another

Properties

- `@keyframes` - first specify some keyframes for the animation, and then bind the animation to an element
- `animation-name` – name of the animation used for binding keyframe to element
- `animation-duration` - defines how long time an animation should take to complete
- `animation-delay` - specifies a delay for the start of an animation
- `animation-iteration-count` - specifies the number of times an animation should run
- `animation-direction` - specifies whether an animation should be played forwards, backwards or in alternate cycles

```
/* Animation shorthand */  
div { animation: example 5s linear 2s infinite alternate; }
```

Ordering of property values is: *animation-name, duration, timing-function, delay, iteration-count, direction*

Useful Reference Links

- <https://www.w3schools.com/css/default.asp>
- <https://www.tutorialspoint.com/css/index.htm>