CSS

Introduction to CSS

What is CSS and why it is significance?

- CSS stands for Cascading Style Sheet.
- CSS is used to design HTML tags.
- CSS is a widely used language on the web.
- HTML, CSS and JavaScript are used for web designing. It helps the web designers to apply style on HTML tags.

What does CSS do

- You can add new looks to your old HTML documents.
- You can completely change the look of your website with only a few changes in CSS code.

1) Resolves a big problem

- Before CSS, tags like font, color, background style, element alignments, border and size had to be repeated on every web page.
- This was a very long process. For example: If you are developing a large website where fonts and color information are added on every single page, it will be become a long and expensive process.
- CSS was created to solve this problem. It was a W3C recommendation.

2) Saves a lot of time

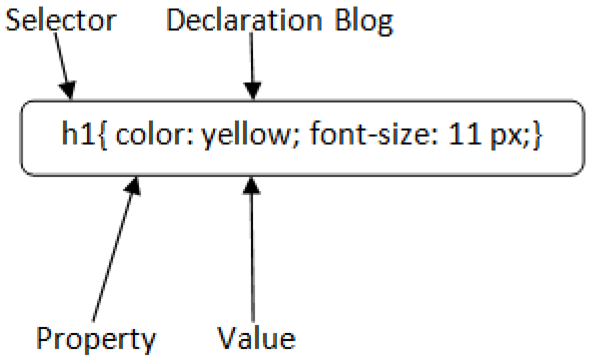
CSS style definitions are saved in external CSS files so it is possible to change the entire website by changing just one file.

3) Provide more attributes

CSS provides more detailed attributes than plain HTML to define the look and feel of the website.

CSS Syntax

A CSS rule set contains a selector and a declaration block.



Selector: Selector indicates the HTML element you want to style. It could be any tag like <h1>, <title> etc.

Declaration Block: The declaration block can contain one or more declarations separated by a semicolon. For the above example, there are two declarations:

1. color: yellow;
2. font-size: 11 px;

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

Property: A Property is a type of attribute of HTML element. It could be color, border etc.

Value: Values are assigned to CSS properties. In the above example, value "yellow" is assigned to color property.

1. Selector{Property1: value1; Property2: value2; ....;}

Different ways to Insert CSS

There are 3 ways to Insert CSS into html file

1. In-line style
2. Internal style sheet
3. External style sheet

Let’s look at the features of each of these ways

1. In-line style

Here we add style attribute directly into the relevant html tag.

e.g.

```
<span style=”width:200px; margin-left:25px;background-color:lime;”>This is a sample inline style</span>
```

But it loses the advantage of using CSS, so use it sparingly.

2. Internal style sheet

We can declare the style properties inside <style> </style> tag to apply styles to particular page alone, this is called internal style sheet.

```
<!DOCTYPE>
<html>
<head>

<style>
h1{
color:green;
background-color:yellow;
padding:5px;
}
p{
color:blue;
}
.mystyle { font-family: 'Comic Sans MS', Fallback, sans-serif; color:red;}
</style>

</head>
<body>
<h1>Example for Lennox</h1>
<p>This is Paragraph</p>
<p class="mystyle">This is my style</p>

</body>
</html>
```

3. External style sheet

This is the ideal and best way to apply style to many pages. We can change the look of the entire website by changing in one file.

Each must have below link tag inside head tag, to apply external style.

```
<head>

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

</head>
```

External css should contain something similar styles

```
h1
   {
    font-size:100px;
    position: fixed;
    left: 550px;
    top: 200px;
    color:orange;
   }
```

This file should be stored in appropriate path and have extension of .css and it should not contain any html tags.

CSS Selector

CSS selectors are used *to select the content you want to style*. Selectors are the part of CSS rule set. CSS selectors select HTML elements according to its id, class, type, attribute etc.

There are several different types of selectors in CSS.

1. CSS Element Selector - p, h1, h2, th, tr, td etc..
2. CSS Id Selector - #<id> e.g. #companyname
3. CSS Class Selector - .<class_name> e.g. .description
4. CSS Universal Selector - *
5. CSS Group Selector – h2, p, td { }

1. CSS Element selector

```
<!DOCTYPE html>
<html>
<head>
<style>
p{
   text-align: center;
   color: blue;
}
</style>
</head>
<body>
<p>This style will be applied on every paragraph.</p>
<p id="para1">Me too!</p>
<p>And me!</p>
</body>
</html>
```

2. CSS Id Selector

```
<!DOCTYPE html>
<html>
<head>
<style>
#para1 {
   text-align: center;
   color: blue;
}
</style>
</head>
<body>
<p id="para1">Hello Javatpoint.com</p>
<p>This paragraph will not be affected.</p>
</body>
</html>
```

3 CSS class selector

```
<!DOCTYPE html>
<html>
<head>
<style>
.center {
    text-align: center;
    color: blue;
}
</style>
</head>
<body>
<h1 class="center">This heading is blue and center-aligned.</h1>
<p class="center">This paragraph is blue and center-aligned.</p>
</body>
</html>
```

4 CSS class selector for specific element

p.center - applies only to p element which has class center

5 CSS universal selector

```
<style>
* {
   color: green;
   font-size: 20px;
}
</style>
```

6 CSS Group selector

CSS code without group selector.

```
h1 {
        text-align: center;
        color: blue;
    }
    h2 {
        text-align: center;
        color: blue;
    }
    p {
        text-align: center;
        color: blue;
    }
```

As you can see, you need to define CSS properties for all the elements. It can be grouped in following ways:

```
    h1,h2,p {
        text-align: center;
        color: blue;
    }
```

Sizes of element

We can specify size of the elements such as <div> <p> with the units px or %. px for fixed width or height, % will take the size of the screen.

For example width:100% meaning full width of the current screen.

Divisions

Divisions are a block level HTML element used to define sections of an HTML file. A division can contain all the parts that make up your website. Including additional divisions, spans, images, text and so on.

You define a division within an HTML file by placing the following between the <body></body> tags:

<div>

Site contents go here

```
</div>
```

Though most likely you will want to add some style to it. You can do that in the following fashion:

```
<div id=”container”>

Site contents go here

</div>
```

The CSS file contains this:

```
#container{
  width: 70%;
  margin: auto;
  padding: 20px;
  border: 1px solid #666;
  background: #ffffff;
}
```

Now everything within that division will be styled by the “container” style rule, I defined within my CSS file. A division creates a linebreak by default. You can use both classes and IDs with a division tag to style sections of your website.

Color

You can set the color of text with the following:

```
color: value;
```

Possible values are

- color name – example:(red, black…)
- hexadecimal number – example:(#ff0000, #000000)
- RGB color code – example:(rgb(255, 0, 0), rgb(0, 0, 0))

Stack ordering using z-index property

The `z-index` property specifies the stack order of an element.

An element with greater stack order is always in front of an element with a lower stack order.

Note: `z-index` only works on positioned elements (position: absolute, position: relative, position: fixed, or position: sticky).

```
img {
  position: absolute;
  left: 10px;
  top: 10px;
  z-index: -1;
}
```

CSS Transform property

The `transform` property applies a 2D or 3D transformation to an element. This property allows you to rotate, scale, move, skew, etc., elements.

```
<!DOCTYPE html>
<html>
<head>
<style>
div.a {
  width: 200px;
  height: 100px;
  background-color: yellow;
  transform: rotate(30deg);
}

div.b {
  width: 200px;
  height: 100px;
  background-color: yellow;
  transform: skewY(15deg);
}

div.c {
  width: 200px;
  height: 100px;
  background-color: yellow;
  transform: scaleY(1.5);
}
</style>
</head>
<body>

<h1>The transform Property</h1>

<h2>transform: rotate(20deg):</h2>
<br>
<div class="a">Hello Lennox Trainers!</div>
<br>

<h2>transform: skewY(20deg):</h2>
<div class="b">Hello Lennox Trainers!</div>
<br>

<h2>transform: scaleY(1.5):</h2>
<div class="c">Hello Lennox Trainers!</div>

</body>
</html>
```

CSS Transition property

The `transition` property is a shorthand property for:

- transition-property
- transition-duration
- transition-timing-function
- transition-delay

Note: Always specify the transition-duration property, otherwise the duration is 0s, and the transition will have no effect.

```
<!DOCTYPE html>
<html>
<head>
<style>
div {
  width: 100px;
  height: 100px;
  background: red;
  transition: width 3s;

}

div:hover {
  width: 300px;
}
</style>
</head>
<body>

<h1>The transition Property</h1>

<p>Hover over the div element below, to see the transition effect:</p>

<div></div>

<p><b>Note:</b> This example does not work in Internet Explorer 9 and
earlier versions.</p>

</body>
</html>
```

CSS Opacity property

The `opacity` property sets the opacity level for an element.

The opacity-level describes the transparency-level, where 1 is not transparent at all, 0.5 is 50% see-through, and 0 is completely transparent.

opacity 0.2

opacity 0.5

opacity 1
(default)

CSS padding Property

An element's padding is the space between its content and its border.

The `padding` property is a shorthand property for:

- padding-top
- padding-right
- padding-bottom
- padding-left

Note: Padding creates extra space within an element, while margin creates extra space around an element.

```
<!DOCTYPE html>
<html>
<head>
<style>
p.ex1 {
  border: 1px solid red;
  padding: 35px;
}

p.ex2 {
  border: 1px solid red;
  margin: 35px;
}

</style>
</head>
<body>

<h1>The padding Property</h1>

<p class="ex1">This paragraph has a padding of 35 pixels on all four sides.</p>

<p class="ex2">This paragraph has no specified padding, but a margin of 35 pixels on all four sides.</p>
```

```
<p><strong>Note:</strong> Padding creates extra space within an element, while margin creates extra space around an element!</p>
</body>
</html>
```

CSS visibility Property

The `visibility` property specifies whether or not an element is visible.

Tip: Hidden elements take up space on the page. Use the display property to both hide and remove an element from the document layout!

```
<!DOCTYPE html>
<html>
<head>
<style>
h2.a {
  visibility: visible;
}

h2.b {
  visibility: hidden;
}
</style>
</head>
<body>

<h1>The visibility Property</h1>

<h2 class="a">This heading is visible</h2>

<h2 class="b">This heading is hidden</h2>

<p>Notice that the hidden heading still takes up space on the page.</p>

</body>
</html>
```

CSS Functions

CSS functions are used as a value for various CSS properties.

Function	Description
attr()	Returns the value of an attribute of the selected element
calc()	Allows you to perform calculations to determine CSS property values
cubic-bezier()	Defines a Cubic Bezier curve
hsl()	Defines colors using the Hue-Saturation-Lightness model (HSL)
hsla()	Defines colors using the Hue-Saturation-Lightness-Alpha model (HSLA)
linear-gradient()	Sets a linear gradient as the background image. Define at least two colors (top to bottom)

radial-gradient()	Sets a radial gradient as the background image. Define at least two colors (center to edges)
repeating-linear-gradient()	Repeats a linear gradient
repeating-radial-gradient()	Repeats a radial gradient
rgb()	Defines colors using the Red-Green-Blue model (RGB)
rgba()	Defines colors using the Red-Green-Blue-Alpha model (RGBA)
var()	Inserts the value of a custom property