Cascading Style Sheet 3.0

Introduction to CSS 3.0

What is CSS ?

Cascading Style Sheets (CSS) is a style sheet language used to describe the presentation (that is, the look and formatting) of a document written in a markup language.

CSS was created by Hakon Wium Lie and Bert Bos and was adopted as a W3C Recommendation in late 1996

CSS History

Version	Description	Features
CSS 1	The first CSS specification , an official W3C Recommendation, published in December 1996	typeface, emphasis,backgrounds,spacing between words, letters, and lines of text. Alignment of text, images, tables and other elements Margin, border, padding etc
CSS 2	CSS level 2 specification was developed by the W3C and published as a recommendation in May 1998.	includes a number of new capabilities like absolute, relative, and fixed positioning of elements and z-index, the concept of media types, support for aural style sheets and bidirectional text, and new font properties such as shadows
CSS2.1	CSS 2.1 was published as a W3C Recommendation on 7 June 2011	CSS level 2 revision 1, often referred to as "CSS 2.1", fixes errors in CSS 2, removes poorly supported or not fully interoperable features and adds already-implemented browser extensions to the specification
CSS 3	Current version	CSS 3 is divided into several separate documents called "modules". Each module adds new capabilities or extends features defined in CSS 2. As of June 2012, there are over fifty CSS modules published from the CSS Working Group

Why CSS?

Solves common problem:

- Separate document presentation from the web page content.

Save lots of work:

- Allows developers to control the style and layout of multiple Web pages all at once.

CSS 3.0 Features

Many exciting new functions and features have been introduced in CSS3. Following table list some of the new features

Property	New Attributes			
Borders	border-color	border-image	border-radius	box-shadow
Backgrounds	background-origin	background-size	multiple-backgrounds	
Color	HSL Colors	HSLA Colors	RGBA Colors	opacity
Text Effects	text-shadow	text-overflow	word-wrap	
Selectors	Attribute-selector	:nth-child()	:nth-of-type()	

Many more features like…
- CSS3 Transitions
- Animations
- media queries
- multi-column layout
- Web fonts

What Can CSS Do?

Text formatting

Element sizing

Element positioning

Change link attributes

Cursor manipulation

Animation

Many More….

CSS Syntax

A CSS rule has two main parts:

- A selector
- One or more declarations

The selector is normally the HTML element you want to style.

Each declaration consists of a property and a value.

The property is the style attribute you want to change. Each property has a value.

Types of CSS

Three CSS implementations

- Inline
  - Affects only the element applied to

- Embedded
  - Affects only the elements in a single file

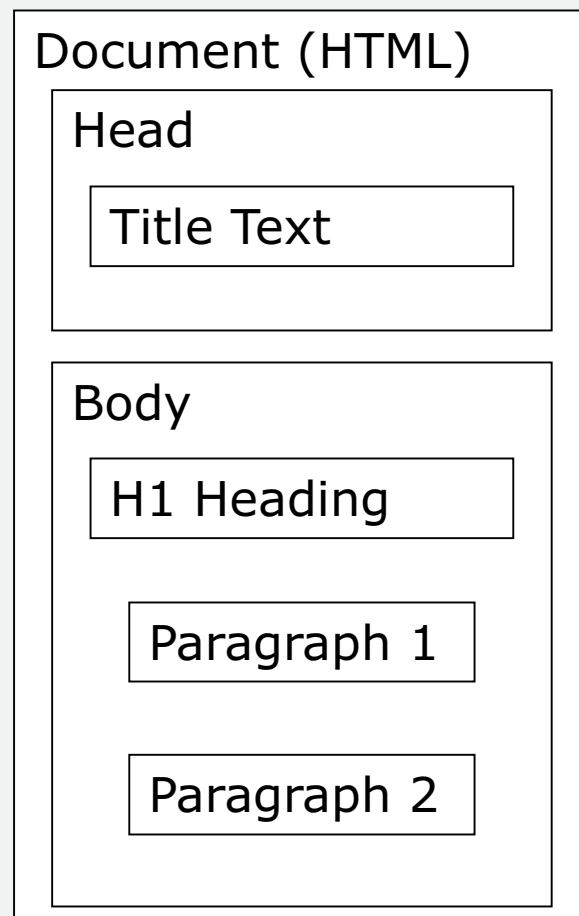- External
  - Linked to an unlimited number of files

HTML Page Structure

```
<!DOCTYPE HTML>
<HTML>

  <HEAD>
    <TITLE>Title Text</TITLE>
  </HEAD>

  <BODY>
    <H1>H1 Heading</H1>
    <P>Paragraph 1</P>
    <P>Paragraph 2</P>
  </BODY>

</HTML>
```

Document (HTML)

Head

Title Text

Body

H1 Heading

Paragraph 1

Paragraph 2

HTML Page Structure with CSS

```
<!DOCTYPE HTML>
<HTML>

 <HEAD>
  <TITLE>Title Text</TITLE>
 </HEAD>

 <BODY>
  <H1>H1 Heading</H1>
  <P>Paragraph 1</P>
  <P>Paragraph 2</P>
 </BODY>

</HTML>
```

Document (HTML)

Head

Title Text

Body

H1 Heading

Paragraph 1

Paragraph 2

Inline CSS

Inline Style Sheets:
- All style attribute are specified in the tag it self.
- It gives desired effect on that tag only. It does not affect any other HTML tag.

Syntax:

An example of STYLE attribute usage:

<element style="propertyname : value; propertyname : value">

is equivalent to

<p style="font-weight: bold">This is bold text</p>

<p>This is bold text</p>

Embedded CSS

Embedded Style Sheet:

▪ Set of style definitions placed within <STYLE> tags.

▪ Added to the <HEAD> area of file

Syntax:

```
<HEAD>
        <STYLE TYPE="text/css">..</STYLE>
</HEAD>
```

An example of <STYLE> tag usage:

```
<HEAD>
        <TITLE>New Topic1</TITLE>
        <STYLE>P {font-weight : bold}</STYLE>
</HEAD>
```

External CSS

The <LINK> element is used to attach an external CSS document to an HTML document

- All style definition are store in one file (.css file)

- This file gets called by the HTML file during page loading

- **Syntax:** <link rel="stylesheet" href="filename.css" type="text/css">

Example
- Content in first.css:

```
P {font-weight : bold}
```

- Content in first.html file:

```
<HEAD>
    <TITLE>Demo CSS</TITLE>
    < LINK HREF="FIRST.CSS" REL="STYLESHEET"  TYPE="TEXT/CSS">
</HEAD>
```

CSS Precedence

Browser determines default format.

Order of precedence when three CSS types combine at run time in the HTML page are:

- Inline styles
- Embedded style sheets
- Linked (external) style sheets

Lesson Summary

In this lesson, you have learnt about:

- What is CSS

- CSS history

- What CSS can do

- CSS Syntax

- Types of CSS

Review Questions

Question 1: Which of the following are CSS Types.

- Inline
- Embedded
- External
- All the above

Question 2: CSS rule has _____ and _____

- Selector
- Declaration
- Element
- All the Above

Cascading Style Sheet 3.0

Working with Text and Fonts

Text Formatting

Following properties can be specified with the text formatting

- Text Color
- Text Alignment
- Text Decoration
- Text Transformation
- Text Indentation
- Text Shadow
- Word-wrap

Text Color

Color property can be specified as follows:

- a HEX value - like "#ff0000"
- an RGB value - like "rgb(255,0,0)"
- a color name - like "red"

Example

- body {color:blue;}
- h1 {color:#00ff00;}
- h2 {color:rgb(255,0,0);}

Text Alignment and Text Decoration

The text-align property is used to set the horizontal alignment of a text.

Example:

- h1 {text-align:center;}
- p.date {text-align:right;}
- p.main {text-align:justify;}

The text-decoration property is used to set or remove decorations from text.

Example:

- h1 {text-decoration:overline;}
- h2 {text-decoration:line-through;}
- h3 {text-decoration:underline;}
- h4 {text-decoration:blink;}

Text Transformation and Text Indentation and Cast

The text-transform property is used to specify uppercase and lowercase letters in a text.

Example

- p.uppercase {text-transform:uppercase;}
- p.lowercase {text_transform:lowercase;}
- p.capitalize {text-transform:capitalize;}

The text-indentation property is used to specify the indentation of the first line of a text.

Example

- p {text-indent:50px;}

Text Shadow

In CSS3, the text-shadow property applies shadow to text.
You specify the horizontal shadow, the vertical shadow, the blur distance, and the color of the shadow:

Ex: Add a shadow to a header:


```
h1
{
        text-shadow: 5px 5px 5px
#FF0000;
}
```

Word wrap

word wrap property allows you to force the text to wrap-even if it means splitting it in the middle of a word

Ex:

- Allow long words to be able to break and wrap onto the next line:

```
P
{
        word-wrap : break-word;

}
```

Fonts

CSS font properties define the font family, boldness, size, and the style of a text.

- **Font-Family : Ex**

- **Font Style : Ex**

```
p{font-family:"Times New Roman", Times, serif;}
```

- **Font Size : Ex**

```
p.normal {font-style:normal;}
p.italic {font-style:italic;}
p.oblique {font-style:oblique;}
```

```
h1 {font-size:40px;}
p {font-size:14px;}
```

Lesson Summary

In this lesson, you have learnt about

- Text Formatting
- Text Effects
- Fonts

Review Questions

Question 1:Given :

```
    h1
{
text-shadow: A ,B ,C,D;
}
```

What property does C represents?

- Option 1: Color

- Option 2: Vertical Shadow

- Option 3: Blur

- Option 4: Horizontal Shadow

Question 2: Color can be applied to Fonts with CSS 3
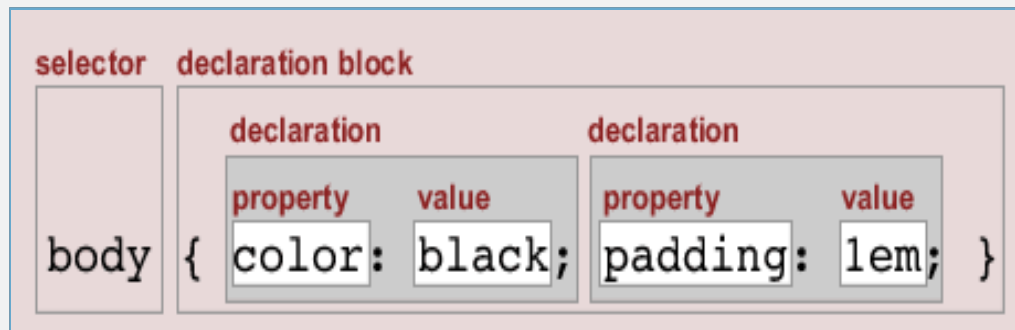
- Option 1: TRUE

- Option 2: FALSE

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CSS Selectors

Selectors

Introduction:

- Selectors are one of the most important aspects of CSS as they are used to "select" elements on an HTML page so that they can be styled.

- The selector "selects" the elements on an HTML page that are affected by the rule set.

- A rule or "rule set" is a statement that tells browsers how to render particular elements on an HTML page

- A rule set consists of a selector followed by a declaration block.

- Rule structure

selector	declaration block			
	declaration		declaration	
	property	value	property	value
body {	color:	black;	padding:	1em; }

Selectors

Example

- h1 { color: blue; margin-top: 1em; }

- p { padding: 5px; }

- td { background-color: #ddd; }

Universal Selector

The universal selector matches any element type.
Example:

This rule set will be applied to every element in a document:

```
* {
    margin  : 0;
    padding: 0;
}
```

Type selectors

While the universal selector matches any element, an element type selector matches elements with the corresponding element type name.

Type selectors are case insensitive in HTML (including XHTML served as text/html), but are case sensitive in XML (including XHTML served as XML).

Example

```
ul {
   : declarations
}
```

A type selector like the above ul matches all the elements within an HTML or XML document that are marked up as follows:

 …

Class Selectors

Selecting elements on the basis of their class names is a very common technique in CSS

While type selectors target every instance of an element, class selectors can be used to select any HTML element that has a class attribute, regardless of their position in the document tree.

Example:

```
<body>
<p class="big">This is some <em>text</em></p>
        <p>This is some text</p>
        <ul>
        <li class="big">List item</li>
        <li>List item</li>
        <li>List <em>item</em></li></ul>
</body>
```

.big { font-size: 110%; font-weight: bold; }

Above code targets the first paragraph and first list items on a page to make them stand out

ID Selector

An ID selector matches an element that has a specific id attribute value. Since id attributes must have unique values, an ID selector can never match more than one element in a document.

In its simplest form, an ID selector looks like this:

```
#navigation
{
    : declarations
}
```

This selector matches any element whose id attribute value is equal to "navigation"

```
#firstname
{
background-color:yellow;
}
```

Attribute Selector

All HTML elements can have associated properties, called attributes. These attributes generally have values. Any number of attribute/value pairs can be used in an element's tag - as long as they are separated by spaces. They may appear in any order.

In the example below, the code segments highlighted in blue are attributes and the segments highlighted in red are attribute values

```
<h1 id="section1"/>
<img src="small.gif" width="100" height="100"/>
<img title="mainimage" alt="main image"/>
<a href="foo.htm"/>
<p class="maintext"/>
<form style="padding: 10px"/>
```

Attribute Selector

Attribute selectors are used to select elements based on their attributes or attribute value. For example, you may want to select any image on an HTML page that is called "small.gif". This could be done with the rule below, that will only target images with the chosen name:

There are four types of attribute selectors.

- **Example for Select based on attribute**

```
img[title]   { border: 1px solid #000; }
img[width]  { border: 1px solid #000; }
```

- The example above will select an element (in this case "img") with the relevant attribute

- **Example for Select based on value**

```
img[src="small.gif"] { border: 1px solid

#000; }
```

- The above example selects any image whose attribute (in this case "src") has a value of "small.gif"

Pseudo Classes

A pseudo-class is similar to a class in HTML, but it's not specified explicitly in the markup. Some pseudo-classes are dynamic—they're applied as a result of user interaction with the document.

A pseudo-class starts with a colon (:). No whitespace may appear between a type selector or universal selector and the colon, nor can whitespace appear after the colon.

Lesson Summary

In this lesson, you have learnt about:

- Universal Selector
- Type Selector
- Class Selector
- ID Selector
- Attribute Selector
- PseudoClasses

Cascading Style Sheet 3.0

Colors and Borders

Background

CSS background properties are used to define the background effects of an element.

Following are some of the properties used for background effects

- background-color
- background-image
- background-repeat
- background-attachment
- background_position

With CSS 3.0 two more properties are available to define background effects

- background-size
- background_origin

CSS 3 also supports inclusion of multiple background images

Background Properties

Background Color: Specifies the background color of an element.
Ex:

```
body { background-color:grey;
                }
```

Background Image: Specifies an image to use as the background of an element.
 Ex:

```
body {background-
image:url(flower.pbg);}
```

Background Properties

Properties background-repeat, background-attachment and background-position are related to background-image property. They define image attributes as follows

- The background-attachment sets whether a background image is fixed or scrolls with the rest of the page
- The background-position property sets the starting position of a background image
- The background-repeat property sets if/how a background image will be repeated.
- By default, a background-image is repeated both vertically and horizontally.

```
body
{
background-
image:url('img_tree.png');
background-repeat:no-repeat;
background-position:right top;
background-attachment:fixed
}
```

Background Properties - CSS3

Background-size : The background-size property specifies the size of the background image.

Ex : 1

```
div
{
background:url(flower.png);
background-size:80px 60px;
background-repeat:no-repeat;
}
```

Background-origin :The background-origin property specifies the positioning area of the background images. The background image can be placed within the content-box, padding-box, or border-box area.

Ex: Position the background image within the content-box:

```
div
{
  background:url(img_flwr.gif);
  background-repeat:no-repeat;
  background-size:100% 100%;
 -webkit-background-origin:content-box; /* Safari */
  background-origin:content-box;
  }
```

Multiple Background Images

CSS 3 supports multiple background images
Ex:

```
body
{
  background-
image:url(img_flwr.gif),url(img_tree.gif);
}
```

CSS Color

The color property defines the foreground color of an element; in essence, this means it defines the color of the text content

Colors in CSS can be specified by using any of the mechanism
- Hexadecimal colors
- RGB colors
- RGBA colors
- HSL colors
- HSLA colors
- Predefined/Cross-browser color names

CSS Color

Hexadecimal Colors : A hexadecimal color is specified with: #RRGGBB, where the RR (red), GG (green) and BB (blue)

Ex:

```
p
{
background-color:#ff0000;
}
```

RGB Colors:An RGB color value is specified with: rgb(red, green, blue).
 Ex

```
p
{
background-
color:rgb(255,0,0);
}
```

CSS Color

RGBA Colors :RGBA color values are an extension of RGB color values with an alpha channel - which specifies the opacity of the object.

Ex:

```
p
{
        background-
color:rgba(255,0,0,0.5);
}
```

HSL Colors: HSL stands for hue, saturation, and lightness - and represents a cylindrical-coordinate representation of colors. An HSL color value is specified with: hsl(hue, saturation, lightness)

Ex:

```
p
{
        background-color
:hsl(120,65%,75%);
}
```

CSS Color

HSLA Color : HSLA color values are an extension of HSL color values with an alpha channel - which specifies the opacity of the object.

Ex:

```
p
{
        background-color
:hsla(120,65%,75%,0.3);
}
```

Border

The CSS border properties allow you to specify the style and color of an element's border.

Following are some of the properties we can specify for a border

- border-style
- border-width
- border-color

CSS 3 adds 3 more border properties

- border-radius
- box-shadow
- border-image
- border-collapse
- border-spacing

Border Style

The border-style property specifies what kind of border to display.
Ex :

```
div.wrapper
{
    border-
style:solid;
}
```

Border style can be dotted, dashed ,solid etc
Above example code will draw a border as shown below

Border Width

Border Width :The border-width property is used to set the width of the border.

The width is set in pixels, or by using one of the three pre-defined values: thin, medium, or thick.
Ex:

```
div.one
{
border-style:solid;
border-width:5px;
}
```

```
div.two
{
border-style:solid;
border-width:medium;
}
```

Border Color

Border Color : The border-color property is used to set the color of the border. The color can be set by:

- name - specify a color name, like "red"
- RGB - specify a RGB value, like "rgb(255,0,0)"
- Hex - specify a hex value, like "#ff0000"
- You can also set the border color to "transparent".

Ex:

```
div.one
{
border-style:solid;
border-color:red;
}
```
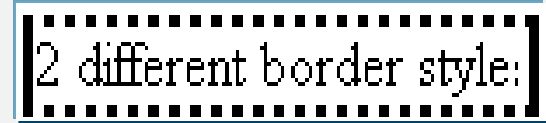
```
div.two
{
border-style:dotted;
border-
color:#98bf21;
}
```

Border-Individual sides

In CSS it is possible to specify different borders for different sides:
Ex:

```
div
{
border-top-style:dotted;
border-right-style:solid;
border-bottom-style:dotted;
border-left-style:solid;
}
```

→ 2 different border style:

Border - Shorthand property:it is also possible to specify all the individual border properties in one property.
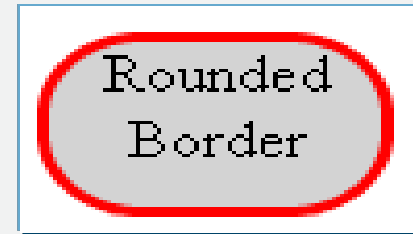
Ex : border:5px solid red;

Above example sets 5px width, solid as border style and red as color

Rounded Corners Border

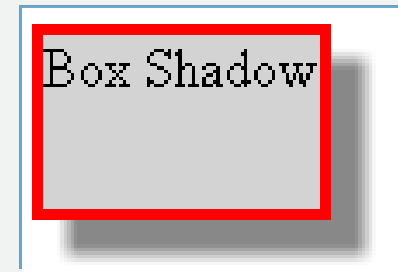With CSS3, we can create rounded borders as shown below:

border-radius	div
	{
	border:2px solid;
	border-radius:25px;
	}

Rounded Border

Applying Shadows in border

With CSS3, we can add shadow to border as shown below:

```
box-        div
shadow      {
            box-shadow: 10px 10px 5px
            #888888;
            }
```

Transformation

➢CSS 3 supports transformation

➢With CSS 3 transform we can move, scale, turn, spin, and stretch elements.

➢We can transform our elements using 2D or 3D transformation.

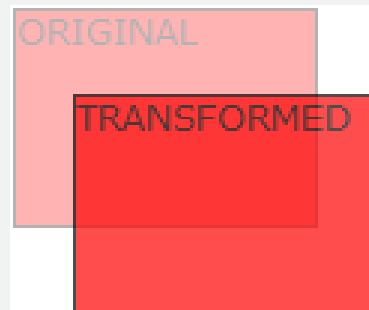➢It can be achieved using '*transform*' property

2D Transforms

➢ With CSS 3 transformation can be achieved with the following methods

- translate()
- rotate()
- scale()
- skew()
- matrix()

Translate

➤ The translate() method, the element moves from its current position, depending on the parameters given for the left (X-axis) and the top (Y-axis) position:

➤ Ex:

```
div
{
    transform: translate(25px,50px);
}
```
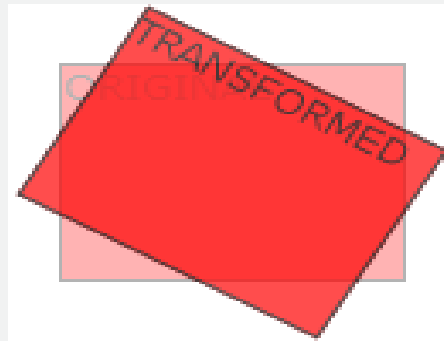
Rotate

➢ The rotate() method, rotates element clockwise at a given degree. Negative values are allowed and rotates the element counter-clockwise.

➢ Ex:

```
div
{
    transform: rotate(30deg);
}
```
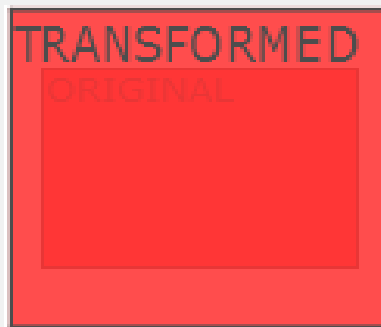
Scale

➢ The scale() method, increases or decreases the size of element, depending on the parameters given for the width (X-axis) and the height (Y-axis):

➢ Ex:

```
div
{
    transform: scale(2,2);
}
```

Skew

➢The skew() method, turns an element in a given angle, depending on the parameters given for the horizontal (X -axis) and the vertical (Y-axis) lines:

➢Ex:

```
div
{
    transform: skew(20deg,30deg);
}
```

Matrix

➢ The matrix() method combines all of the 2D transform methods into one.

➢ The matrix method take six parameters, containing mathematic functions, which allows you to: rotate, scale, move (translate), and skew elements.

➢ Ex:

```
div
{
    transform: matrix(0.866,0.5,-0.5,0.866,0,0);
}
```

3D Transform

➢In CSS 3 we can format elements 3D transforms.

➢We can achieve it using following methods

▪ rotateX()
▪ rotateY()

➢Ex:

```
div
{
    transform: rotateX(120deg);
}
```



```
div
{
    transform: rotateY(130deg);
}
```

Lesson Summary

In this lesson, you have learn about
- Background
- Multiple Image Background
- Colors
  - RGB and RGBA
  - HSL and HSLA
- Borders
- Rounded Corners
- Applying Shadows in border

Review Questions

Question 1: In HSLA color scheme H,S,L,A stands for
_____,_____,_____and _____
respectively

Question 2: With Background Attachment _____ property
stops the background-image from scrolling with its
containing bloc
    Option 1: Stop
    Option 2: No-scroll
    Option 3: Static
    Option 4: Fixed

Review Questions

Question 3: Which of the following are CSS 3 properties
    Option 1 : border-image
    Option 2 : border-width
    Option 3 : border-color
    Option 4 : border-radius
    Option 5 : box-shadow

Question 4: In CSS it is possible to specify different borders for different sides:
    Option 1 : True
    Option 2 : False