

18BCS53C – HTML & JavaScript

UNIT II

Cascading Style Sheet (CSS3): The need for CSS – Basic syntax and structure Inline Styles Embedding Style Sheets - Linking External Style Sheets - Introduction to CSS3 – Backgrounds - Manipulating text - Margins and Padding - Positioning using CSS - Responsive Web Design

- CSS stands for "Cascading Style Sheet".
- CSS is used to control the style of a web document in a simple and easy way.
- **Cascading Style Sheets**, fondly referred to as **CSS**, is a simple design language intended to simplify the process of making web pages presentable.

Key advantages of CSS:

- Create Stunning Web site
- Become a web designer
- Control web
- Learn other languages

Hello World using CSS

```
<!DOCTYPE html>
<html>
  <head>
    <title>This is document title</title>
    <style>
      h1 {
        color: #36CFFF;
      }
    </style>
  </head>
  <body>
    <h1>Hello World!</h1>
  </body>
</html>
```

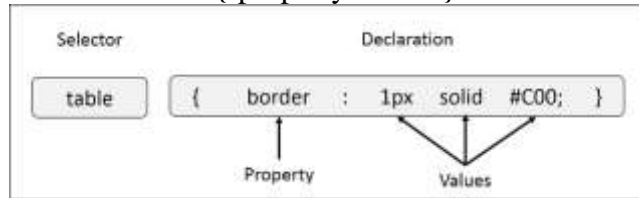
Applications of CSS

- CSS saves time
- Pages load faster
- Easy maintenance
- Superior styles to HTML
- Multiple Device Compatibility
- Global web standards

CSS Versions

- Cascading Style Sheets level 1 (CSS1) came out of W3C as a recommendation in December 1996.
- This version describes the CSS language as well as a simple visual formatting model for all the HTML tags.
- CSS2 became a W3C recommendation in May 1998 and builds on CSS1.
- This version adds support for media-specific style sheets e.g. printers and aural devices, downloadable fonts, element positioning and tables.
- 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.
 - CSS Style Rule Syntax as follows –
 - selector { property: value }



The Type Selectors

- This is the same selector we have seen above.

The Universal Selectors

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

The Descendant Selectors

- Applying a style rule to a particular element only when it lies inside a particular element.

The Class Selectors

- Defining style rules based on the class attribute of the elements. All the elements having that class will be formatted according to the defined rule.
- This rule renders the content in black for every element with class attribute set to black in our document.

The ID Selectors

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

The Child Selectors

- This one more type of selector is very similar to descendants but have different functionality.

The Attribute Selectors

- Apply styles to HTML elements with particular attributes.

There are following rules applied to attribute selector.

- **p[lang]** – Selects all paragraph elements with a lang attribute.
- **p[lang="fr"]** – Selects all paragraph elements whose lang attribute has a value of exactly "fr".
- **p[lang~="fr"]** – Selects all paragraph elements whose lang attribute contains the word "fr".
- **p[lang|="en"]** – Selects all paragraph elements whose lang attribute contains values that are exactly "en", or begin with "en-".

Multiple Style Rules

- Define multiple style rules for a single element.
- Define these rules to combine multiple properties and corresponding values into a single block.

Grouping Selectors

- You can apply a style to many selectors if you like. Just separate the selectors with a comma

There are four ways to associate styles with your HTML document. Most commonly used methods are inline CSS and External CSS.

Using CSS

CSS can be added to HTML documents in 3 ways:

- **Inline** - by using the style attribute inside HTML elements
- **Internal** - by using a <style> element in the <head> section
- **External** - by using a <link> element to link to an external CSS file

Inline CSS

- An inline CSS is used to apply a unique style to a single HTML element.
- An inline CSS uses the style attribute of an HTML element.
- The following example sets the text color of the <h1> element to blue, and the text color of the <p> element to red:
- Example

```
<h1 style="color:blue;">A Blue Heading</h1>
<p style="color:red;">A red paragraph.</p>
```

Internal CSS

- An internal CSS is used to define a style for a single HTML page.
- An internal CSS is defined in the <head> section of an HTML page, within a <style> element.
- The following example sets the text color of ALL the <h1> elements (on that page) to blue, and the text color of ALL the <p> elements to red. In addition, the page will be displayed with a "powderblue" background color:
- Example

```
<!DOCTYPE html>
<html>
<head>
<style>
body {background-color: powderblue;}
h1 {color: blue;}
p {color: red;}
</style>
</head>
<body>
<h1>This is a heading</h1>
<p>This is a paragraph.</p>
</body>
</html>
```

External CSS

- An external style sheet is used to define the style for many HTML pages.
- To use an external style sheet, add a link to it in the <head> section of each HTML page:
- Example

```
<!DOCTYPE html>
<html>
<head>
  <link rel="stylesheet" href="styles.css">
</head>
<body>
<h1>This is a heading</h1>
<p>This is a paragraph.</p>
</body>
</html>
```

- The external style sheet can be written in any text editor.
- The file must not contain any HTML code, and must be saved with a .css extension.
- Here is what the "styles.css" file looks like:

```
"styles.css":
body {
  background-color: powderblue;
}
h1 {
  color: blue;
}
p {
  color: red;
}
```

CSS Colors, Fonts and Sizes

- Some commonly used CSS properties.
- The CSS color property defines the text color to be used.
- The CSS font-family property defines the font to be used.
- The CSS font-size property defines the text size to be used.
- Example

```
○ Use of CSS color, font-family and font-size properties:
<!DOCTYPE html>
<html>
<head>
<style>
h1 {
  color: blue;
  font-family: verdana;
  font-size: 300%;
}
p {
  color: red;
  font-family: courier;
  font-size: 160%;
}
</style>
</head>
```

```
<body>
<h1>This is a heading</h1>
<p>This is a paragraph.</p>
</body>
</html>
```

CSS Border

- The CSS border property defines a border around an HTML element.
- Example
 - Use of CSS border property:

```
p {
border: 2px solid powderblue;
}
```

CSS Padding

- The CSS padding property defines a padding (space) between the text and the border.
- Example
 - Use of CSS border and padding properties:

```
p {
border: 2px solid powderblue;
padding: 30px;
}
```

CSS Margin

- The CSS margin property defines a margin (space) outside the border.
- Example
 - Use of CSS border and margin properties:

```
p {
border: 2px solid powderblue;
margin: 50px;
}
```

Link to External CSS

- External style sheets can be referenced with a full URL or with a path relative to the current web page.
- Example
 - This example uses a full URL to link to a style sheet.
 - `<link rel="stylesheet" href="https://www.w3schools.com/html/styles.css">`
- Example
 - This example uses links to a style sheet located in the html folder on the current web site:
 - `<link rel="stylesheet" href="html/styles.css">`
- Example
 - This example links to a style sheet located in the same folder as the current page:
 - `<link rel="stylesheet" href="styles.css">`

CSS3

- Cascading Style Sheets (CSS) is a style sheet language used for describing the look and formatting of a document written in a Markup language.
- CSS3 is a latest standard of CSS earlier versions (CSS2).

- The main difference between css2 and css3 is follows –
 - Media Queries
 - Namespaces
 - Selectors Level 3
 - Color

CSS3 modules

- CSS3 is collaboration of CSS2 specifications and new specifications.
- This collaboration is called **module**.
- Some of the modules are shown below –
 - Selectors
 - Box Model
 - Backgrounds
 - Image Values and Replaced Content
 - Text Effects
 - 2D Transformations
 - 3D Transformations
 - Animations
 - Multiple Column Layout
 - User Interface

Rounded corners

CSS3 Rounded corners are used to add special colored corner to body or text by using the border-radius property.

- **border-radius** - Use this element for setting four boarder radius property
- **border-top-left-radius** - Use this element for setting the boarder of top left corner
- **border-top-right-radius** - Use this element for setting the boarder of top right corner
- **border-bottom-right-radius** - Use this element for setting the boarder of bottom right corner
- **border-bottom-left-radius** - Use this element for setting the boarder of bottom left corner

CSS Border image property is used to add image boarder to some elements.

Asample syntax of boarder image is as follows –

```
#borderimg {
  border: 10px solid transparent;
  padding: 15px;
}
```

The most commonly used values are shown below –

- **border-image-source** - Used to set the image path
- **border-image-slice** - Used to slice the boarder image
- **border-image-width** - Used to set the boarder image width
- **border-image-repeat** - Used to set the boarder image as rounded, repeated and stretched

Multi Background

- CSS Multi background property is used to add one or more images at a time without HTML code.

- We can add images as per our requirement.
- A sample syntax of multi background images is as follows

```
#multibackground {
  background-image: url(/css/images/logo.png), url(/css/images/border.png);
  background-position: left top, left top;
  background-repeat: no-repeat, repeat;
  padding: 75px;
}
```

The most commonly used values are shown below –

- **Background** - Used to setting all the background image properties in one section
- **Background-clip** - Used to declare the painting area of the background
- **Background-image** - Used to specify the background image
- **Background-origin** - Used to specify position of the background images
- **Background-size** - Used to specify size of the background images

Size of Multi background

- Multi background property is accepted to add different sizes for different images.
- A sample syntax is as shown below
-

```
#multibackground {
  background: url(/css/imalges/logo.png) left top no-repeat,
  url(/css/images/boarder.png) right bottom no-repeat, url(/css/images/css.gif) left top
  repeat;
  background-size: 50px, 130px, auto;
}
```

- As shown above an example, each image is having specific sizes as 50px, 130px and auto size.

What is Gradients?

- Gradients display the combination of two or more colors as shown below

Types of gradients

- Linear Gradients(down/up/left/right/diagonally)
- Radial Gradients

Linear gradients

- Linear gradients are used to arrange two or more colors in linear formats like top to bottom.
- CSS3 supported to add shadow to text or elements.
- Shadow property has divided as follows
 - Text shadow
 - Box Shadow

Text shadow

- CSS3 supported to add shadow effects to text.

Box shadow

- Used to add shadow effects to elements

CSS3 contained several extra features, which is added later on.

- text-overflow
- word-wrap
- word-break

There are following most commonly used property in CSS3

- **text-align-last** - Used to align the last line of the text
- **text-emphasis** - Used to emphasis text and color
- **text-overflow** - Used to determines how overflowed content that is not displayed is signaled to users
- **word-break** - Used to break the line based on word
- **word-wrap** - Used to break the line and wrap onto next line

Text-overflow

- The text-overflow property determines how overflowed content that is not displayed is signaled to users

CSS word wrapping

- Word wrapping is used to break the line and wrap onto next line.the following code will have sample syntax –

```
p {  
    word-wrap: break-word;  
}
```

Web Fonts

- Web fonts are used to allows the fonts in CSS, which are not installed on local system.

Different web font formats

- **TrueType Fonts (TTF)** - TrueType is an outline font standard developed by Apple and Microsoft in the late 1980s, It became most common fonts for both windows and MAC operating systems.
- **OpenType Fonts (OTF)** - OpenType is a format for scalable computer fonts and developed by Microsoft
- **The Web Open Font Format (WOFF)** - WOFF is used for develop web page and developed in the year of 2009. Now it is using by W3C recommendation.
- **SVG Fonts/Shapes** - SVG allow SVG fonts within SVG documentation. We can also apply CSS to SVG with font face property.
- **Embedded OpenType Fonts (EOT)** - EOT is used to develop the web pages and it has embedded in webpages so no need to allow 3rd party fonts

Font description

The following list contained all the fonts description which are placed in the @font-face rule

- **font-family** - Used to defines the name of font
- **Src** - Used to defines the URL
- **font-stretch** - Used to find, how font should be stretched
- **font-style** - Used to defines the fonts style
- **font-weight** - Used to defines the font weight(boldness)

2D transforms

- 2D transforms are used to re-change the element structure as translate, rotate, scale, and skew.

- The following table has contained common values which are used in 2D transforms
 - **matrix(n,n,n,n,n,n)** - Used to defines matrix transforms with six values
 - **translate(x,y)** - Used to transforms the element along with x-axis and y-axis
 - **translateX(n)** - Used to transforms the element along with x-axis
 - **translateY(n)** - Used to transforms the element along with y-axis
 - **scale(x,y)** - Used to change the width and height of element
 - **scaleX(n)** - Used to change the width of element
 - **scaleY(n)** - Used to change the height of element
 - **rotate(angle)** - Used to rotate the element based on an angle
 - **skewX(angle)** - Used to defines skew transforms along with x axis
 - **skewY(angle)** - Used to defines skew transforms along with y axis

Animation is process of making shape changes and creating motions with elements.

@keyframes

Keyframes will control the intermediate animation steps in CSS3.

CSS3 supported multi columns to arrange the text as news paper structure.

Some of most common used multi columns properties as shown below

- **column-count** - Used to count the number of columns that element should be divided.
- **column-fill** - Used to decide, how to fill the columns.
- **column-gap** - Used to decide the gap between the columns.
- **column-rule** - Used to specifies the number of rules.
- **rule-color** - Used to specifies the column rule color.
- **rule-style** - Used to specifies the style rule for column.
- **rule-width** - Used to specifies the width.
- **column-span** - Used to specifies the span between columns.

Previous Page

- The margin property defines the space around an HTML element.
- It is possible to use negative values to overlap content.
- The values of the margin property are not inherited by the child elements.

We have the following properties to set an element margin.

- **margin** specifies a shorthand property for setting the margin properties in one declaration.
- **margin-bottom** specifies the bottom margin of an element.
- **margin-top** specifies the top margin of an element.
- **margin-left** specifies the left margin of an element.
- **margin-right** specifies the right margin of an element.

Padding

- The padding property allows you to specify how much space should appear between the content of an element and its border
- The value of this attribute should be either a length, a percentage, or the word inherit.
- If the value is inherit, it will have the same padding as its parent element. If a percentage is used, the percentage is of the containing box.
- The following CSS properties can be used to control lists.
 - **padding-bottom** specifies the bottom padding of an element.
 - **padding-top** specifies the top padding of an element.
 - **padding-left** specifies the left padding of an element.

- **padding-right** specifies the right padding of an element.
- **padding** serves as shorthand for the preceding properties.

CSS3 Responsive Web Design

- Responsive web design provides an optimal experience, easy reading and easy navigation with a minimum of resizing on different devices such as desktops, mobiles and tabs).

Responsive structure

Media queries

- Media queries is for different style rules for different size devices such as mobiles, desktops, etc.,

Bootstrap responsive web design

- Bootstrap is most popular web design framework based on HTML, CSS and Java script and it helps you to design web pages in responsive way for all devices.

Responsive Web Design

- Responsive web design is about creating web pages that look good on all devices
- A responsive web design will automatically adjust for different screen sizes and viewports.



What is Responsive Web Design?

- Responsive Web Design is about using HTML and CSS to automatically resize, hide, shrink, or enlarge, a website, to make it look good on all devices (desktops, tablets, and phones):

Setting The Viewport

- To create a responsive website, add the following <meta> tag to all your web pages:
- Example

```
<meta name="viewport" content="width=device-width, initial-scale=1.0">
```

- This will set the viewport of your page, which will give the browser instructions on how to control the page's dimensions and scaling.

Responsive Images

- Responsive images are images that scale nicely to fit any browser size.

Using the width Property

- If the CSS width property is set to 100%, the image will be responsive and scale up and down:

Using the max-width Property

- If the max-width property is set to 100%, the image will scale down if it has to, but never scale up to be larger than its original size:

Responsive Text Size

- The text size can be set with a "vw" unit, which means the "viewport width".
- That way the text size will follow the size of the browser window:

Media Queries

- In addition to resize text and images, it is also common to use media queries in responsive web pages.
- With media queries you can define completely different styles for different browser sizes.

Bootstrap

- Another popular CSS framework is Bootstrap. Bootstrap uses HTML, CSS and jQuery to make responsive web pages.
- Example
 - ```
<!DOCTYPE html>
<html lang="en">
<head>
<title>Bootstrap Example</title>
<meta charset="utf-8">
<meta name="viewport" content="width=device-width, initial-scale=1">
<link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootstrap/3.4.1/
css/bootstrap.min.css">
<script src="https://ajax.googleapis.com/ajax/libs/jquery/3.5.1/jquery.min.js">
</script>
<script src="https://maxcdn.bootstrapcdn.com/bootstrap/3.4.1/js/bootstrap.min
.js"></script>
</head>
<body>
<div class="container">
<div class="jumbotron">
<h1>My First Bootstrap Page</h1>
</div>
<div class="row">
<div class="col-sm-4">
...
</div>
<div class="col-sm-4">
...
</div>
<div class="col-sm-4">
...
</div>
</div>
</body>
</html>
```

## **REFERENCES**

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2. [www.guru99.com/javascript](http://www.guru99.com/javascript)
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