Unit2 CSS BASICS

At the end of this unit, the learner should be able to:

- correctly define basic and advanced CSS rules
- apply CSS rules to change the presentation of a web page

Introduction

CSS or CSS3 provides basic and advanced concepts of CSS technology. The major points of CSS are given below:

- 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 is CSS?

CSS stands for Cascading Style Sheets. It is a style sheet language which is used to describe the look and formatting of a document written in markup language. It provides an additional feature to HTML. It is generally used with HTML to change the style of web pages and user interfaces. It can also be used with any kind of XML documents including plain XML, SVG and XUL. CSS is used along with HTML and JavaScript in most websites to create user interfaces for web applications and user interfaces for many mobile applications.

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.

Why use CSS?

These are the three major benefits of CSS:

- **Solves 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.

- **Saves lot of time**

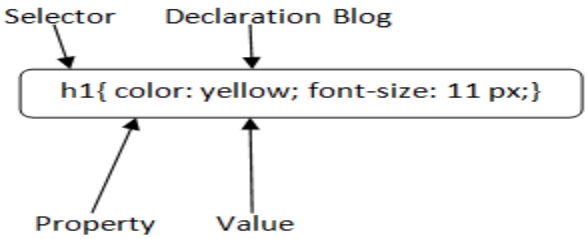
CSS style definitions are saved in external CSS files so it is possible to change the entire website by changing just one file.

- **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.

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

CSS selectors: they 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**

The element selector selects the HTML element by name. Example:

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

2. CSS Id Selector

The id selector selects the id attribute of an HTML element to select a specific element. An id is always unique within the page so it is chosen to select a single, unique element. It is written with the hash character (#), followed by the id of the element. All the elements having that *id* will be formatted according to the defined rule.

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

```
This rule renders the content in black for every element with id attribute set
to black in our document.
```

```
h1#black {

   color: #000000;
}
```

This rule renders the content in black for only <h1> elements with *id* attribute set to *black*. The true power of *id* selectors is when they are used as the foundation for descendant selectors, For example

```
#black h2 {

   color: #000000;
}
```

```
In this example all level 2 headings will be displayed in black color when those
headings will lie with in tags having id attribute set to black.
```

3. **CSS Class Selector**

The class selector selects HTML elements with a specific class attribute. It is used with a period character . (full stop symbol) followed by the class name.

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

4. **CSS Universal Selector**

The universal selector is used as a wildcard character. It selects all the elements on the pages.

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

5. **CSS Group Selector**

The grouping selector is used to select all the elements with the same style definitions. Grouping selector is used to minimize the code. Commas are used to separate each selector in grouping.

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

How to add CSS?

CSS is added to HTML pages to format the document according to information in the style sheet. There are three ways to insert CSS in HTML documents.

1. **Inline CSS**

Inline CSS is used to apply CSS on a single line or element.
For example: Hello CSS

2. **Internal CSS**

Internal CSS is used to apply CSS on a single document or page. It can affect all the elements of the page. It is written inside the style tag within head section of html. For example:
<style> p{color:blue}</style>

3. **External CSS**

External CSS is used to apply CSS on multiple pages or all pages. Here, we write all the CSS code in a css file. Its extension must be .css for example style.css. For example:

p{color:blue}

You need to link this style.css file to your html pages like this:

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

The link tag must be used inside head section of html.

CSS background

CSS background property is used to define the background effects on element. There are 5 CSS background properties that affects the HTML elements:

1. **background-color**

The background-color property is used to specify the background color of the element.
You can set the background color like this:

```
<html>
   <head>
<style>h2,p{background-color:#b0d4de;}</style>
   </head>

   <body>
<h2>My first CSS page.</h2>
<p>This text has a yellow background color. </p>
   </body>
</html>
```

2. **background-image**

The background-image property is used to set an image as a background of an element. By default the image covers the entire element. You can set the background image for a page like this.

<html>
<head>
<style>body{background-image: url("paper1.gif"); margin-left:100px;}</style>
</head>
<body>
<h1>Hello </h1>
</body>
</html>

3. **background-repeat**

By default, the background-image property repeats the background image horizontally and vertically. Some images are repeated only horizontally or vertically. The background looks better if the image repeated horizontally only.

<html>
<head>
<style>body{background-image: url("gradient_bg.png"); background-repeat: repeat-x;}</style>
</head>
<body>

<h1>Hello </h1>
</body>
</html>

you can also replace x by y in repeat.

4. **background-attachment**

The background-attachment property is used to specify if the background image is fixed or scroll with the rest of the page in browser window. If you set fixed the background image then the image will not move during scrolling in the browser. Let’s take an example with fixed background image.

```
background:white url('bbb.gif');
background-repeat: no-repeat;
background-attachment:fixed;
```

5. **background-position**

The background-position property is used to define the initial position of the background image. By default, the background image is placed on the top-left of the webpage. You can set the following positions: center, top, bottom, left, ight.

```
background:white url('bbb.gif');
background-repeat: no-repeat;
background-attachment:fixed;
background-position:center;
```

CSS border

The CSS border is a shorthand property used to set the border on an element. The CSS border properties are use to specify the style, color and size of the border of an element. The CSS border properties are given below

- **border-style**

The Border style property is used to specify the border type which you want to display on the web page. There are some border style values which are used with border-style property to define a border.

Value	Description
none	It doesn't define any border.
dotted	It is used to define a dotted border.
dashed	It is used to define a dashed border.
solid	It is used to define a solid border.
double	It defines two borders with the same border-width value.
groove	It defines a 3d grooved border. effect is generated according to border-color value.
ridge	It defines a 3d ridged border. effect is generated according to border-color value.
inset	It defines a 3d inset border. effect is generated according to border-color value.
outset	It defines a 3d outset border. effect is generated according to border-color value.

- **border-color**

There are three methods to set the color of the border.

- Name: It specifies the color name. For example: "red".
- RGB: It specifies the RGB value of the color. For example: "rgb(255,0,0)".
- Hex: It specifies the hex value of the color. For example: "#ff0000".
- **border-width**

The border-width property is used to set the border's width. It is set in pixels. You can also use the one of the three pre-defined values, thin, medium or thick to set the width of the border.

- **border-radius**

This CSS property sets the rounded borders and provides the rounded corners around an element, tags, or div. It defines the radius of the corners of an element. It is shorthand for **border top-left-radius, border-top-right-radius, border-bottom-right-radius** and **border-bottom-left-radius**. It gives the rounded shape to the corners of the border of an element. We can specify the border for all four corners of the box in a single declaration using the border-radius. The values of this property can be defined in percentage or length units. This CSS property includes the properties that are tabulated as follows:

Property	Description
border-top-left-radius	It is used to set the border-radius for the top-left corner
border-top-right-radius	It is used to set the border-radius for the top-right corner
border-bottom-right-radius	It is used to set the border-radius for the bottom-right corner
border-bottom-left-radius	It is used to set the border-radius for the bottom-left corner

If the bottom-left value is omitted, then it will be same as the top-right. If the value of bottom-right is eliminated, then it will be same as the top-left. Similarly, if top-right is eliminated, then it will be the same as top-left. Let's see what happens when we provide a single value, two values, three values, and four values to this property.

- If we provide a single value **(**such as **border-radius: 30px;)** to this property, it will set all corners to the same value.
- When we specify two values **(**such as **border-radius: 20% 10% ;)**, then the first value will be used for the top-left and bottom-right corners, and the second value will be used for the top-right and bottom-left corners.
- When we use three values **(**such as **border-radius: 10% 30% 20%;)** then the first value will be used for the top-left corner, the second value will be applied on top-right, and bottom-left corners and the third value will be applied to the bottom-right corner.
- Similarly, when this property has four values **(border-radius: 10% 30% 20% 40%;)** then the first value will be the radius of top-left, the second value will be used for the top-right, the third value will be applied on bottom-right, and the fourth value is used for bottom-left.

Syntax

Border-radius:1-4 length | % /1-4 length | % | inherit | initial;

Property values

length: It defines the shape of the corners. It denotes the size of the radius using length values. Its default value is 0. It does not allow negative values.

percentage: It denotes the size of the radius in percentage. It also does not allow negative values.

CSS border-collapse property

This CSS property is used to set the border of the table cells and specifies whether the table cells share the separate or common border. This property has two main values that are **separate** and **collapse**. When it is set to the value **separate**, the distance between the cells can be defined using the **border-spacing** property. When the **border-collapse** is set to the value **collapse**, then the **inset** value of **border-style** property behaves like **groove**, and the **outset** value behaves like **ridge**.

Syntax

border-collapse:separate | collapse | initial | inherit;

The values of this CSS property are defined as follows.

Property Values

separate: It is the default value that separates the border of the table cell. Using this value, each cell will display its own border.

collapse: This value is used to collapse the borders into a single border. Using this, two adjacent table cells will share a border. When this value is applied, the **border-spacing** property does not affect.

initial: It sets the property to its default value.

inherit: It inherits the property from its parent element.

Now, let's understand this CSS
property by using some examples. In the first example, we are using the **separate** value of the **border-collapse** property. In the second example, we are using the **collapse** value of the **border-collapse** property.

CSS border-spacing property

This CSS property is used to set the distance between the borders of the adjacent cells in the table. It applies only when the **border-collapse** property is set to **separate**. There will not be any space between the borders if the **border-collapse** is set to **collapse**.

It can be defined as one or two values for determining the vertical and horizontal spacing.

- When only one value is specified, then it sets both horizontal and vertical spacing.
- When we use the two-value syntax, then the first one is used to set the horizontal spacing (i.e., the space between the adjacent columns), and the second value sets the vertical spacing (i.e., the space between the adjacent rows).

Syntax: border-spacing: length | initial | inherit;

Property Values

The values of this CSS property are defined as follows.

length: This value sets the distance between the borders of the adjacent table cells in px, cm, pt, etc. Negative values are not allowed.

initial: It sets the property to its default value.

inherit: It inherits the property from its parent element.

Let's understand this CSS property by using some examples. In the first example, we are using the single value of the **border-spacing** property, and in the second example, we are using two values of the **border-spacing** property.

CSS Colors

The color property in CSS is used to set the color of HTML elements. Typically, this property is used to set the background color or the font color of an element. In CSS , we use color values for specifying the color. We can also use this property for the border-color and other decorative effects.

We can define the color of an element by using the following ways:

- RGB format.

RGB format is the short form of '**RED GREEN** and **BLUE**' that is used for defining the color of an HTML element simply by specifying the values of R, G, B that are in the range of 0 to 255. The color values in this format are specified by using the **rgb()** property. This property allows three values that can either be in percentage or integer (range from 0 to 255). This property is not supported in all browsers; that's why it is not recommended to use it.

Syntax

color: rgb(R,G,B);

- RGBA format.

It is almost similar to RGB format except that **RGBA** contains **A (Alpha)** that specifies the element's transparency. The value of alpha is in the range **0.0 to 1.0**, in which **0.0** is for fully transparent, and **1.0** is for not transparent.

Syntax

color:rgba(R,G,B,A);

- Hexadecimal notation.

Hexadecimal can be defined as a six-digit color representation. This notation starts with the **# symbol** followed by six characters ranges from **0 to F**. In hexadecimal notation, the first two digits represent the **red (RR)** color value, the next two digits represent the **green (GG)** color value, and the last two digits represent the **blue (BB)** color value. The black color notation in hexadecimal is #000000, and the white color notation in hexadecimal is #FFFFFF. Some of the codes in hexadecimal notation are #FF0000, #00FF00, #0000FF, #FFFF00, and many more.

Syntax color:#(0-F)(0-F)(0-F)(0-F)(0-F)(0-F);

Short Hex Codes:It is a short form of hexadecimal notation in which every digit is recreated to arrive at an equivalent hexadecimal value. For example, #7B6 becomes #77BB66 in hexadecimal.

The black color notation in short hex is #000, and the white color notation in short hex is #FFF. Some of the codes in short hex are #F00, #0F0, #0FF, #FF0, and many more.

- HSL.

It is a short form of **Hue, Saturation,** and **Lightness**. Let's understand them individually.
Hue: It can be defined as the degree on the color wheel from 0 to 360. 0 represents red, 120 represents green, 240 represents blue.
Saturation: It takes value in percentage in which 100% represents fully saturated, i.e., no shades of gray, 50% represent 50% gray, but the color is still visible, and 0% represents fully unsaturated, i.e., completely gray, and the color is invisible.

Lightness: The lightness of the color can be defined as the light that we want to provide the color in which 0% represents black (there is no light), 50% represents neither dark nor light, and 100% represents white (full lightness).

Syntax: color:hsl(H,S,L);

- HSLA.

It is entirely similar to HSL property, except that it contains **A (alpha)** that specifies the element's transparency. The value of alpha is in the range **0.0 to 1.0**, in which **0.0** indicates fully transparent, and **1.0** indicates not transparent.
Syntax: color:hsla(H,S,L,A);

- Built-in color.

As its name implies, built-in color means the collection of previously defined colors that are used by using a name such as red, blue, green, etc.

Syntax: color: color-name;