

UNIT II

CSS [CASCADING STYLE SHEET]

CSS INTRODUCTION

CSS is the language we use to style a Web page..

What is CSS?

- CSS stands for Cascading Style Sheets
- CSS describes how HTML elements are to be displayed on screen, paper, or in other media
- CSS saves a lot of work. It can control the layout of multiple web pages all at once
- External stylesheets are stored in CSS files

Why Use CSS?

CSS is used to define styles for your web pages, including the design, layout and variations in display for different devices and screen sizes.

CSS Solved a Big Problem

HTML was NEVER intended to contain tags for formatting a web page!

HTML was created to describe the content of a web page, like:

`<h1>This is a heading</h1>`

`<p>This is a paragraph.</p>`

When tags like ``, and color attributes were added to the HTML 3.2 specification, it started a nightmare for web developers. Development of large websites, where fonts and color information were added to every single page, became a long and expensive process.

To solve this problem, the World Wide Web Consortium (W3C) created CSS.

CSS removed the style formatting from the HTML page!

CSS Saves a Lot of Work!

The style definitions are normally saved in external .css files.

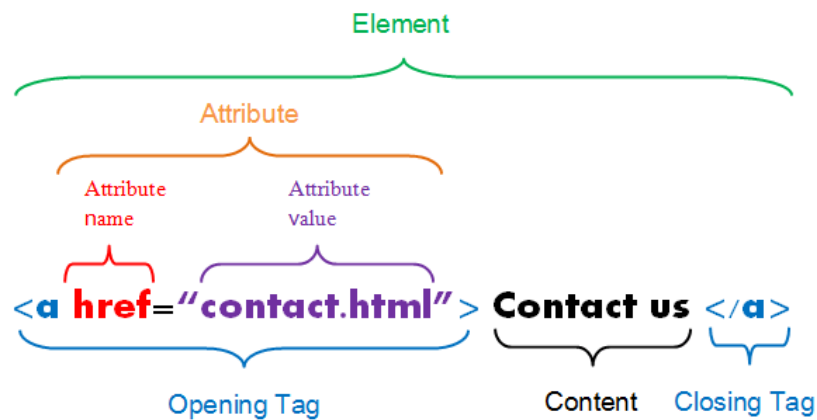
With an external stylesheet file, you can change the look of an entire website by changing just one file!

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
2. Internal CSS
3. External CSS

1) Inline CSS: Inline CSS is used to apply CSS on a single line or element.



Example

```
<p style="color:blue">Hello CSS</p>
```

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.

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.

Example

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

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

CSS PROPERTIES AND STYLING

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
2. background-image
3. background-repeat
4. background-attachment
5. background-position

1) CSS background-color:

The background-color property is used to specify the background color of the element.

Example:

```
<!DOCTYPE html>
<html>
  <head>
    <title>background-color property</title>
    <style>
      body { text-align:center; background-color: lightblue; }
      h1{ color: blue; }
    </style>
  </head>
  <body>
    <h1>Hello World.</h1>
    <h1>Welcome to the javaTpoint.com</h1>
  </body>
</html>
```

2) CSS 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.

Example

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

```

        <style>
            body { background-image: url("paper.gif"); }
        </style>
    </head>
    <body>
        <h1>Hello World!</h1>
        <p>This page has an image as the background!</p>
    </body>
</html>

```

3) CSS background-repeat

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

Example

```

body { background-image: url("gradient_bg.png"); background-repeat: repeat-x; }

body { background-image: url("gradient_bg.png"); background-repeat: repeat-y; }

```

PROGRAM

```

<!DOCTYPE html>
<html>
    <head>
        <style>
            body { background-image: url("gradient-bg.png"); background-repeat: repeat-x;}
        </style>
    </head>
    <body>
        <h1>Hello Javatpoint.com</h1>
    </body>
</html>

```

4) CSS 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.

Example

```

background-repeat: no-repeat;

background-attachment: fixed;

```

PROGRAM

```
<!DOCTYPE html>
<html>
  <head>
    <style>
      body { background: white url('bbb.gif'); background-repeat: no-repeat; background-attachment:
        no-repeat; margin-left:200px; }
    </style>
  </head>
  <body>
    <p>This is a fixed background-image. Scroll down the page.</p>
    <p>This is a fixed background-image. Scroll down the page.</p>
    <p>This is a fixed background-image. Scroll down the page.</p>
    <p>This is a fixed background-image. Scroll down the page.</p>
    <p>This is a fixed background-image. Scroll down the page.</p>
    <p>This is a fixed background-image. Scroll down the page.</p>
    <p>This is a fixed background-image. Scroll down the page.</p>
    <p>This is a fixed background-image. Scroll down the page.</p>
    <p>This is a fixed background-image. Scroll down the page.</p>
    <p>This is a fixed background-image. Scroll down the page.</p>
    <p>This is a fixed background-image. Scroll down the page.</p>
    <p>This is a fixed background-image. Scroll down the page.</p>
    <p>This is a fixed background-image. Scroll down the page.</p>
    <p>This is a fixed background-image. Scroll down the page.</p>
    <p>This is a fixed background-image. Scroll down the page.</p>
    <p>This is a fixed background-image. Scroll down the page.</p>
    <p>This is a fixed background-image. Scroll down the page.</p>
    <p>This is a fixed background-image. Scroll down the page.</p>
    <p>If you do not see any scrollbars, Resize the browser window.</p>
  </body>
</html>
```

5) CSS 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:

1. center
2. top
3. bottom
4. left
5. right

Example

```
background-position: center;
```

PROGRAM

```
<!DOCTYPE html>
<html>
  <head>
    <style>
      body { background: white url('good-morning.jpg'); background-repeat: no-repeat;
        background-attachment: fixed; background-position: center; }
    </style>
  </head>
  <body>
    <p>This is a fixed background-image. Scroll down the page.</p>
    <p>This is a fixed background-image. Scroll down the page.</p>
    <p>This is a fixed background-image. Scroll down the page.</p>
    <p>This is a fixed background-image. Scroll down the page.</p>
    <p>This is a fixed background-image. Scroll down the page.</p>
    <p>This is a fixed background-image. Scroll down the page.</p>
    <p>This is a fixed background-image. Scroll down the page.</p>
    <p>This is a fixed background-image. Scroll down the page.</p>
    <p>This is a fixed background-image. Scroll down the page.</p>
    <p>This is a fixed background-image. Scroll down the page.</p>
    <p>This is a fixed background-image. Scroll down the page.</p>
    <p>This is a fixed background-image. Scroll down the page.</p>
    <p>This is a fixed background-image. Scroll down the page.</p>
    <p>This is a fixed background-image. Scroll down the page.</p>
    <p>This is a fixed background-image. Scroll down the page.</p>
    <p>This is a fixed background-image. Scroll down the page.</p>
    <p>This is a fixed background-image. Scroll down the page.</p>
    <p>If you do not see any scrollbars, Resize the browser window.</p>
  </body>
</html>
```

CSS CURSOR

It is used to define the type of mouse cursor when the mouse pointer is on the element. It allows us to specify the cursor type, which will be displayed to the user. When a user hovers on the link, then by default, the cursor transforms into the hand from a pointer.

Let's understand the property values of the cursor.

Values	Usage
alias	It is used to display the indication of the cursor of something that is to be created.
auto	It is the default property in which the browser sets the cursor.
all-scroll	It indicates the scrolling.
col-resize	Using it, the cursor will represent that the column can be horizontally resized.
cell	The cursor will represent that a cell or the collection of cells is selected.
context-menu	It indicates the availability of the context menu.
default	It indicates an arrow, which is the default cursor.
copy	It is used to indicate that something is copied.
crosshair	In it, the cursor changes to the crosshair or the plus sign.
e-resize	It represents the east direction and indicates that the edge of the box is to be shifted towards right.
ew-resize	It represents the east/west direction and indicates a bidirectional resize cursor.
n-resize	It represents the north direction that indicates that the edge of the box is to be shifted to up.
ne-resize	It represents the north/east direction and indicates that the edge of the box is to be shifted towards up and right.
move	It indicates that something is to be shifted.
help	It is in the form of a question mark or ballon, which represents that help is available.
None	It is used to indicate that no cursor is rendered for the element.
No-drop	It is used to represent that the dragged item cannot be dropped here.
s-resize	It indicates an edge box is to be moved down. It indicates the south direction.
Row-resize	It is used to indicate that the row can be vertically resized.
Se-resize	It represents the south/east direction, which indicates that an edge box is to be moved down and right.
Sw-resize	It represents south/west direction and indicates that an edge of the box is to be shifted towards down and left.
Wait	It represents an hourglass.
<url>	It indicates the source of the cursor image file.
w-resize	It indicates the west direction and represents that the edge of the box is to be shifted left.
Zoom-in	It is used to indicate that something can be zoomed in.
Zoom-out	It is used to indicate that something can be zoomed out.

Example

cursor:alias;

cursor:auto;

cursor:all-scroll;

cursor:col-resize;

cursor:crosshair;

cursor:default;

cursor:copy;

cursor:pointer;

cursor:move;

cursor:e-resize;

cursor:ew-resize;

cursor:ne-resize;

cursor:nw-resize;

cursor:n-resize;

cursor:se-resize;

cursor:sw-resize;

cursor:s-resize;

cursor:w-resize;

cursor:text;

cursor:wait;

cursor:help;

cursor:progress;

cursor:no-drop;

cursor:not-allowed;

cursor:vertical-text;

cursor:zoom-in;

cursor:zoom-out;

PROGRAM

```
<html>
  <head>
  </head>
  <style>
    body { background-color: lightblue; color:green; text-align: center; font-size: 20px; }
  </style>
  <body>
    <p>Move your mouse over the below words for the cursor change.</p>
    <div style = "cursor:alias">alias Value</div>
    <div style = "cursor:auto">auto Value</div>
    <div style = "cursor:all-scroll">all-scroll value</div>
    <div style = "cursor:col-resize">col-resize value</div>
    <div style = "cursor:crosshair">Crosshair</div>
    <div style = "cursor:default">Default value</div>
    <div style = "cursor:copy">copy value</div>
    <div style = "cursor:pointer">Pointer</div>
    <div style = "cursor:move">Move</div>
    <div style = "cursor:e-resize">e-resize</div>
    <div style = "cursor:ew-resize">ew-resize</div>
    <div style = "cursor:ne-resize">ne-resize</div>
    <div style = "cursor:nw-resize">nw-resize</div>
    <div style = "cursor:n-resize">n-resize</div>
    <div style = "cursor:se-resize">se-resize</div>
    <div style = "cursor:sw-resize">sw-resize</div>
    <div style = "cursor:s-resize">s-resize</div>
    <div style = "cursor:w-resize">w-resize</div>
    <div style = "cursor:text">text</div>
    <div style = "cursor:wait">wait</div>
    <div style = "cursor:help">help</div>
    <div style = "cursor:progress">Progress</div>
    <div style = "cursor:no-drop">no-drop</div>
    <div style = "cursor:not-allowed">not-allowed</div>
    <div style = "cursor:vertical-text">vertical-text</div>
    <div style = "cursor:zoom-in">Zoom-in</div>
    <div style = "cursor:zoom-out">Zoom-out</div>
  </body>
</html>
```

CSS BUTTONS

In HTML, we use the button tag to create a button, but by using CSS properties, we can style the buttons. Buttons help us to create user interaction and event processing. They are one of the widely used elements of web pages.

Basic styling in Buttons

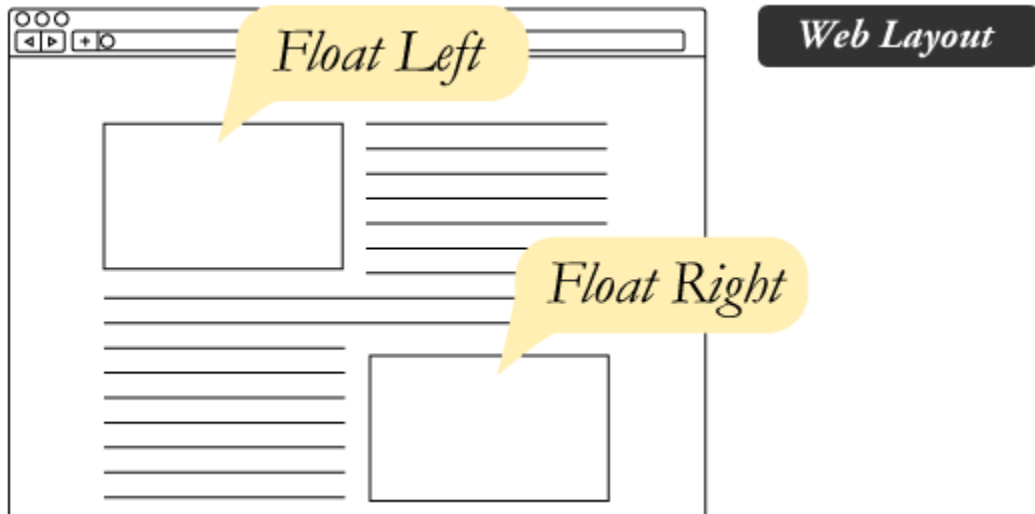
- background-color: red;
- border:5px red groove;
- border-radius: 7px;
- box-shadow : 0 8px 16px 0 black, 0 6px 20px 0 rgba(0, 0, 0, 0.19);
- padding: 16px;

Example

```
<!DOCTYPE html>
<html>
  <head>
    <title> button background Color </title>
    <style>
      Body { text-align: center; }
      button { color:lightgoldenrodyellow; font-size: 30px; }
      .b1 { background-color: red; border:none; }
      .b2 { background-color: blue; border:5px brown solid; }
      .b3 { background-color: yellow; color:black; border:5px red groove; }
      .b4{ background-color:orange; border: 5px red dashed; }
      .b5{ background-color: gray; border: 5px black dotted; }
      .b6{ background-color: lightblue; border:5px blue double; }
    </style>
  </head>
  <body>
    <h1>The border property</h1>
    <button class="b1">none</button>
    <button class="b2">solid</button>
    <button class="b3">groove</button>
    <button class="b4">dashed</button>
    <button class="b5">dotted</button>
    <button class="b6">double</button>
  </body>
</html>
```

CSS FLOAT

The CSS float property is a positioning property. It is used to push an element to the left or right, allowing other element to wrap around it. It is generally used with **images** and **layouts**.



Example

[illegible]

This is some text. This is some text. This is some text.
This is some text. This is some text. This is some text.
This is some text. This is some text. This is some text.
This is some text. This is some text. This is some text.
This is some text. This is some text. This is some text.

</p>

</body>

</html>

CSS FONT

CSS Font property is used to control the look of texts. By the use of CSS font property you can change the text size, color, style and more.

These are some important font attributes:

1. **CSS Font color:** This property is used to change the color of the text. (standalone attribute)
2. **CSS Font family:** This property is used to change the face of the font.
3. **CSS Font size:** This property is used to increase or decrease the size of the font.
4. **CSS Font style:** This property is used to make the font bold, italic or oblique.
5. **CSS Font variant:** This property creates a small-caps effect.
6. **CSS Font weight:** This property is used to increase or decrease the boldness and lightness of the font.

1. CSS Font Color

CSS font color is a standalone attribute in CSS although it seems that it is a part of CSS fonts. It is used to change the color of the text.

There are three different formats to define a color:

- By a color name
- By hexadecimal value
- By RGB

Example

```
<!DOCTYPE html>
<html>
  <head>
    <style>
      body { font-size: 100%; }
      h1 { color: red; }
      h2 { color: #9000A1; }
      p { color:rgb(0, 220, 98); }
    </style>
  </head>
  <body>
    <h1>This is heading 1</h1>
    <h2>This is heading 2</h2>
    <p>This is a paragraph.</p>
  </body>
</html>
```

2. Font Family

In CSS there are five generic font families:

1. **Serif** fonts have a small stroke at the edges of each letter. They create a sense of formality and elegance. (Example: Times New Roman, Georgia, Garamond)
2. **Sans-serif** fonts have clean lines (no small strokes attached). They create a modern and minimalistic look. (Example: Arial, Verdana, Helvetica)
3. **Monospace** fonts - here all the letters have the same fixed width. They create a mechanical look. (Example: Courier New, Lucida Console, Monaco)
4. **Cursive** fonts imitate human handwriting. (Example: Brush Script MT, Lucida Handwriting)
5. **Fantasy** fonts are decorative/playful fonts. (Example: Copperplate, Papyrus)

Example

```
<!DOCTYPE html>
<html>
  <head>
    <style>
      body { font-size: 100%; }
      h1 { font-family: sans-serif; }
      h2 { font-family: serif; }
      h3 { font-family: Cursive; }
      h4 { font-family: Fantasy; }
      p { font-family: monospace; }
    </style>
  </head>
  <body>
    <h1>This heading is shown in sans-serif.</h1>
    <h2>This heading is shown in serif.</h2>
    <p>This paragraph is written in monospace.</p>
    <h3>This heading is shown in sans-serif.</h3>
    <h4>This heading is shown in serif.</h4>

  </body>
</html>
```

3. CSS Font Size

CSS font size property is used to change the size of the font.

Font Size Value	Description
xx-small	used to display the extremely small text size.
x-small	used to display the extra small text size.
small	used to display small text size.
medium	used to display medium text size.
large	used to display large text size.
x-large	used to display extra large text size.
xx-large	used to display extremely large text size.
smaller	used to display comparatively smaller text size.
larger	used to display comparatively larger text size.
size in pixels or %	used to set value in percentage or in pixels.

Example

```
<html>
  <head>
    <title>Practice CSS font-size property</title>
  </head>
  <body>
    <p style="font-size:xx-small;"> This font size is extremely small.</p>
    <p style="font-size:x-small;"> This font size is extra small</p>
    <p style="font-size:small;"> This font size is small</p>
    <p style="font-size:medium;"> This font size is medium. </p>
    <p style="font-size:large;"> This font size is large. </p>
    <p style="font-size:x-large;"> This font size is extra large. </p>
    <p style="font-size:xx-large;"> This font size is extremely large. </p>
    <p style="font-size:smaller;"> This font size is smaller. </p>
    <p style="font-size:larger;"> This font size is larger. </p>
    <p style="font-size:200%;"> This font size is set on 200%. </p>
    <p style="font-size:20px;"> This font size is 20 pixels. </p>
  </body>
</html>
```


4. CSS Font Style

CSS Font style property defines what type of font you want to display. It may be italic, oblique, or normal.

Example

```
<!DOCTYPE html>
<html>
  <head>
    <style>
      body { font-size: 100%; }
      h2 { font-style: italic; }
      h3 { font-style: oblique; }
      h4 { font-style: normal; }
    </style>
  </head>
  <body>
    <h2>This heading is shown in italic font.</h2>
    <h3>This heading is shown in oblique font.</h3>
    <h4>This heading is shown in normal font.</h4>
  </body>
</html>
```

5. CSS Font Variant

CSS font variant property specifies how to set font variant of an element. It may be normal and small-caps.

Example

```
<!DOCTYPE html>
<html>
  <head>
    <style>
      p { font-variant: small-caps; }
      h3 { font-variant: normal; }
    </style>
  </head>
  <body>
    <h3>This heading is shown in normal font.</h3>
    <p>This paragraph is shown in small font.</p>
  </body>
</html>
```

6. CSS Font Weight

CSS font weight property defines the weight of the font and specify that how bold a font is. The possible values of font weight may be normal, bold, bolder, lighter or number (100, 200..... upto 900).

Example

```
<!DOCTYPE html>
<html>
  <body>
    <p style="font-weight:bold;">This font is bold.</p>
    <p style="font-weight:bolder;">This font is bolder.</p>
    <p style="font-weight:lighter;">This font is lighter.</p>
    <p style="font-weight:100;">This font is 100 weight.</p>
    <p style="font-weight:200;">This font is 200 weight.</p>
    <p style="font-weight:300;">This font is 300 weight.</p>
    <p style="font-weight:400;">This font is 400 weight.</p>
    <p style="font-weight:500;">This font is 500 weight.</p>
    <p style="font-weight:600;">This font is 600 weight.</p>
    <p style="font-weight:700;">This font is 700 weight.</p>
    <p style="font-weight:800;">This font is 800 weight.</p>
    <p style="font-weight:900;">This font is 900 weight.</p>
  </body>
</html>
```

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:

1. RGB format.
2. RGBA format.
3. Hexadecimal notation.
4. HSL.
5. HSLA.
6. Built-in color.

1. 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).

Example

```
rgb(238,130,238);
```

2. 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.

Example

```
rgba(23,67,88,0.5);
```

3. 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.

Example

```
color:#EE82EE;
```

4. 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).

Example

```
color:hsl(0,50%,50%);
```



5. 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.

Example

```
color:hsla(0,50%,50%,0.5);
```



Built-in Colors

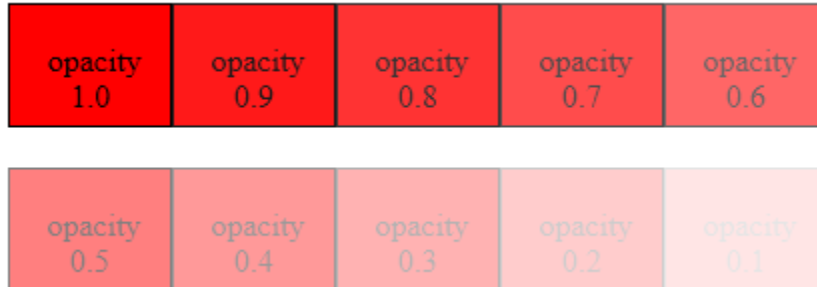
S.no.	Color name	Hexadecimal Value	Decimal Value or rgb() value
1.	Red	#FF0000	rgb(255,0,0)
2.	Orange	#FFA500	rgb(255,165,0)
3.	Yellow	#FFFF00	rgb(255,255,0)
4.	Pink	#FFC0CB	rgb(255,192,203)
5.	Green	#008000	rgb(0,128,0)
6.	Violet	#EE82EE	rgb(238,130,238)
7.	Blue	#0000FF	rgb(0,0,255)
8.	Aqua	#00FFFF	rgb(0,255,255)
9.	Brown	#A52A2A	rgb(165,42,42)
10.	White	#FFFFFF	rgb(255,255,255)
11.	Gray	#808080	rgb(128,128,128)
12.	Black	#000000	rgb(0,0,0)

Example

```
<html>
  <head>
    <title>CSS hsl color property</title>
    <style>
      h1{ text-align:center; }
      #rgb{ color:rgb(255,0,0); }
      #rgba{ color:rgba(255,0,0,0.5); }
      #hex{ color:#EE82EE; }
      #short{ color: #E8E; }
      #hsl{ color:hsl(0,50%,50%); }
      #hsla{ color:hsla(0,50%,50%,0.5); }
      #built{ color:green; }
    </style>
  </head>
  <body>
    <h1 id="rgb"> Hello World. This is RGB format. </h1>
    <h1 id="rgba"> Hello World. This is RGBA format. </h1>
    <h1 id="hex"> Hello World. This is Hexadecimal format. </h1>
    <h1 id="short"> Hello World. This is Short-hexadecimal format. </h1>
    <h1 id="hsl"> Hello World. This is HSL format. </h1>
    <h1 id="hsla"> Hello World. This is HSLA format. </h1>
    <h1 id="built"> Hello World. This is Built-in color format. </h1>
  </body>
</html>
```

CSS Opacity

The CSS opacity property is used to specify the transparency of an element. In simple word, you can say that it specifies the clarity of the image.



How to apply CSS opacity setting

Opacity setting is applied uniformly across the entire object and the opacity value is defined in term of digital value less than 1. The lesser opacity value displays the greater opacity. Opacity is not inherited.

PROGRAM

```
<!DOCTYPE html>
<html>
  <head>
    <style>
      img.trans { opacity: 0.4;}
    </style>
  </head>
  <body>
    <p>Normal Image</p>
    
    <p>Transparent Image</p>
    
  </body>
</html>
```

CSS id & class - [SELECTORS]

The selectors in CSS are part of the CSS ruleset and used to select the content we want to style. Id and class both are the CSS element selectors and are used to identify an element based on its assigned name. CSS id and class selectors are the most used selectors in CSS.

During the use of selectors, sometimes there is confusion occurs between id and class. Both of them do not have any default styling information; they require CSS to select them and apply it to style. Although both are used for selecting the element, they are different from each other in many ways.

The difference between the id and class is tabulated as follows.

Class	Id
We can apply a class to various elements so that it could be numerous times on a single page.	The Id is unique in a page, and we can only apply it to one specific element.
The class is assigned to an element and its name starts with "." followed by the name of the class.	The name of the Id starts with the "#" symbol followed by a unique id name.
We can attach multiple class selectors to an element.	We can attach only one ID selector to an element.
Syntax: .class{ // declarations of CSS }	Syntax: #id{ // declarations of CSS }

ID Selector

The id selector is used to select the id attribute of an HTML element for selecting a particular 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.

The example of the id selector is given as follows.

Example

In this example, we are selecting the element with the id "**para**".

```
<!DOCTYPE html>
<html>
  <head>
    <style>
      #para { text-align: center; color: blue; font-size: 25px; background-color: pink; }
    </style>
  </head>
  <body>
    <h1> Welcome to the Javatpoint.com </h1>
```



```
<p id = "para">This paragraph will be affected.</p>
<p>This paragraph will not be affected.</p>
</body>
</html>
```

Class Selector

The class selector is used to select the HTML elements with a specific class attribute. It is written with a period character. **(Full stop symbol)** followed by the class name. A class name should not be started with a number.

Example

In this example, we are selecting the elements with the class "example".

```
<!DOCTYPE html>
<html>
  <head>
    <style>
      .example { text-align: center; color: blue; font-size: 25px; }
    </style>
  </head>
  <body>
    <h1 class="example">This heading is blue and center-aligned.</h1>
    <p class="example">This paragraph is blue and center-aligned.</p>
  </body>
</html>
```

CSS Class Selector for a specific element

We can also style the specific element using the class selector, no matter if it is applied to different elements.

If we need to specify that only one specific HTML element should be affected, we must use the element name with the class selector.

It will be clear from the following example.

Example

```
<!DOCTYPE html>
<html>
  <head>
    <style>
      p.example { text-align: center; color: blue; font-size: 25px; }
```

```
        </style>
    </head>
    <body>
        <h1 class="example">This heading is not effected.</h1>
        <p class="example">This paragraph is blue and center-aligned.</p>
    </body>
</html>
```

There is another example in which we apply multiple classes on the same element. Let's see an illustration of the same.

Example

In this example, we are using two classes (**example** and **para**) on the paragraph element and styling the paragraph using both classes.

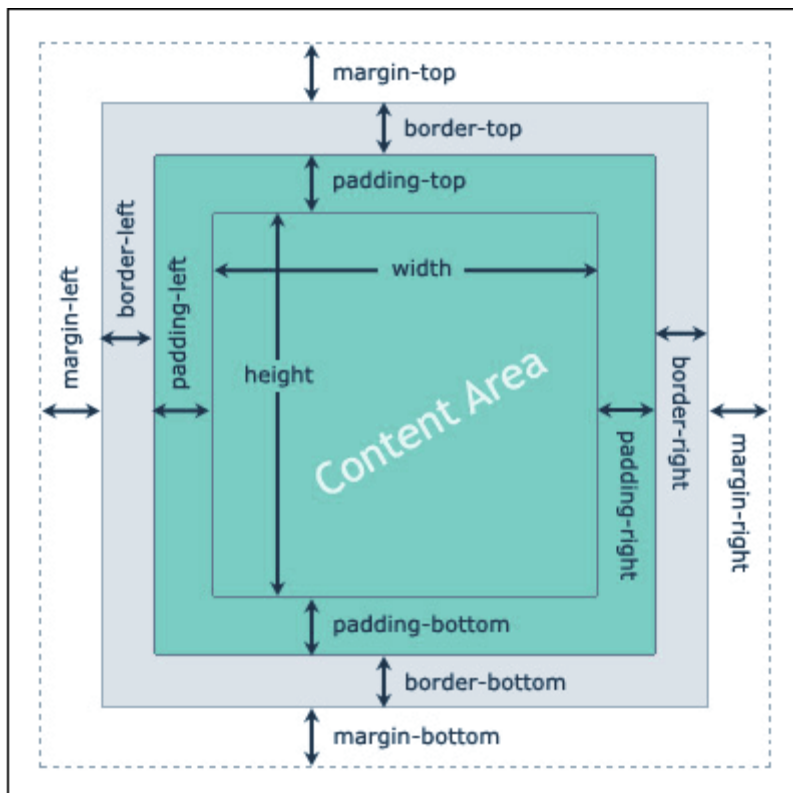
```
<!DOCTYPE html>
<html>
    <head>
        <style>
            .example { text-align: center; color: red; font-size: 1cm; }
            .para{ font-family: Lucida Calligraphy; text-shadow: 5px 8px 9px yellow; }
        </style>
    </head>
    <body>
        <h1 class="example">This heading is red and center-aligned.</h1>
        <p class="example para">This paragraph is red and center-aligned with a font-family "Lucida
            Calligraphy" and text-shadow.</p>
    </body>
</html>
```

CSS Box Model

The components that can be depicted on the web page consist of one or more than one rectangular box.

A CSS box model is a compartment that includes numerous assets, such as edge, border, padding and material. It is used to develop the design and structure of a web page. It can be used as a set of tools to personalize the layout of different components. According to the CSS box model, the web browser supplies each element as a square prism.

The following diagram illustrates how the CSS properties of width, height, padding, border and margin dictate that how much space an attribute will occupy on a web page.



The CSS box model contains the different properties in CSS. These are listed below.

Border - It is a region between the padding-box and the margin. Its proportions are determined by the width and height of the boundary.

Margin - This segment consists of the area between the boundary and the edge of the border. The proportion of the margin region is equal to the margin-box width and height. It is better to separate the product from its neighbor nodes.

Padding - This field requires the padding of the component. In essence, this area is the space around the subject area and inside the border-box. The height and the width of the padding box decide its proportions.

Content - Material such as text, photographs, or other digital media is included in this area. It is constrained by the information edge, and its proportions are dictated by the width and height of the content enclosure.

ELEMENTS OF THE WIDTH AND HEIGHT

Typically, when you assign the width and height of an attribute using the CSS width and height assets, it means you just positioned the height and width of the subject areas of that component. The additional height and width of the unit box is based on a range of influences.

The specific area that an element box may occupy on a web page is measured as follows-

Size of the box	Properties of CSS
Height	height + padding-top + padding-bottom + border-top + border-bottom + margin-top + margin-bottom
Width	width + padding-left + padding-right + border-left + border-right + margin-left + margin-right

Example

```
<!DOCTYPE html>
<html>
  <head>
    <title>CSS Box Model</title>
    <style>
      .main { font-size:30px; font-weight:bold; Text-align:center; }
      .gfg { margin-left:50px; border:50px solid Purple; width:300px; height:200px;
        text-align:center; padding:50px; }
      .gfg1 { font-size:40px; font-weight:bold; color:black; margin-top:0px;
        background-color:purple; }
      .gfg2 { font-size:20px; font-weight:bold; background-color:white; }
    </style>
  </head>
  <body>
    <div class = "main">CSS Box-Model Property</div>
    <div class = "gfg">
      <div class = "gfg1">JavaTpoint</div>
      <div class = "gfg2">A best portal for learn Technologies</div>
    </div>
  </body>
</html>
```

CSS Navigation bar

A Navigation bar or navigation system comes under GUI that helps the visitors in accessing information. It is the UI element on a webpage that includes links for the other sections of the website.

A navigation bar is mostly displayed on the top of the page in the form of a horizontal list of links. It can be placed below the logo or the header, but it should always be placed before the main content of the webpage.

It is important for a website to have easy-to-use navigation. It plays an important role in the website as it allows the visitors to visit any section quickly.

1. Horizontal Navigation Bar

The horizontal navigation bar is the horizontal list of links, which is generally on the top of the page.

Let's see how to create a horizontal navigation bar by using an example.

Example

In this example, we are adding the **overflow: hidden** property that prevents the **li** elements from going outside of the list, **display: block** property displays the links as the block elements and makes the entire link area clickable.

We are also adding the **float: left** property, which uses float for getting the block elements to slide them next to each other.

If we want the full-width background color then we have to add the **background-color** property to **** rather than the **<a>** element.

```
<!DOCTYPE html>
```

```
<html>
```

```
  <head>
```

```
    <style>
```

```
      ul { list-style-type: none; margin: 0; padding: 0px; overflow: hidden; background-color:
        lightgray; }
```

```
      li { float: left; }
```

```
      li a { display: block; color: blue; font-size: 20px; text-align: center; padding: 10px 20px;
        text-decoration: none; }
```

```
      .active { background-color: gray; color: white; }
```

```
      li a: hover { background-color: orange; color: white; }
```

```
    </style>
```

```
  </head>
```

```
  <body>
```

```
    <ul>
```

```
      <li><a class="active" href="#home">Home</a></li>
```

```
      <li><a href="#">Java</a></li>
```

```
        <li><a href="#">HTML</a></li>
        <li><a href="#">CSS</a></li>
    </ul>
</body>
</html>
```

2. Vertical Navigation Bar

In this example, we are going to see how to build a vertical navigation bar.

```
<!DOCTYPE html>
<html>
  <head>
    <style>
      ul { list-style-type: none; margin: 0; padding: 0; width: 200px; background-color: lightblue;
        border: 1px solid blue; }
      li a { display: block; color: blue; font-size: 20px; padding: 10px 20px; text-decoration: none;
        border-bottom: 1px solid blue; }
      ul: last-child { border-bottom: none; }
      .active { background-color: orange; color: white; }
      li a: hover { background-color: orange; color: white; }
    </style>
  </head>
  <body>
    <h2>Vertical Navigation Bar</h2>
    <ul>
      <li><a href="#" class = "active">Home</a></li>
      <li><a href = "#">Java</a></li>
      <li><a href = "#">CSS</a></li>
      <li><a href = "#">HTML</a></li>
      <li><a href = "#">Bootstrap</a></li>
    </ul>
  </body>
</html>
```

CSS MARGIN

CSS Margin property is used to define the space around elements. It is completely transparent and doesn't have any background color. It clears an area around the element.

Top, bottom, left and right margin can be changed independently using separate properties. You can also change all properties at once by using shorthand margin property.

There are following CSS margin properties:

CSS Margin Properties

Property	Description
margin	This property is used to set all the properties in one declaration.
margin-left	it is used to set left margin of an element.
margin-right	It is used to set right margin of an element.
margin-top	It is used to set top margin of an element.
margin-bottom	It is used to set bottom margin of an element.

CSS Margin Values

These are some possible values for margin property.

Value	Description
auto	This is used to let the browser calculate a margin.
length	It is used to specify a margin pt, px, cm, etc. its default value is 0px.
%	It is used to define a margin in percent of the width of containing element.
inherit	It is used to inherit margin from parent element.

Note: You can also use negative values to overlap content.

Example

You can define different margin for different sides for an element.

```
<!DOCTYPE html>
```

```
<html>
```

```
  <head>
```

```
    <style>
```

```
      p { background-color: pink; }
```

```
      p.ex { margin-top: 50px; margin-bottom: 50px; margin-right: 100px; margin-left: 100px; }
```

```
    </style>
```

```
  </head>
```

```
  <body>
```

```
    <p>This paragraph is not displayed with specified margin. </p>
```

```
    <p class="ex">This paragraph is displayed with specified margin.</p>
```

```
  </body>
```

```
</html>
```

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

1. border-style
2. border-color
3. border-width
4. border-radius
5. border-collapse
6. border-spacing property

1. CSS border-style

The Border style property is used to specify the border type which you want to display on the web page.

Example

```
p {border-style: none;}
p {border-style: dotted;}
p {border-style: dashed;}
p {border-style: solid;}
p {border-style: double;}
p {border-style: groove;}
p {border-style: ridge;}
p {border-style: inset;}
p {border-style: outset;}
p {border-style: hidden;}
```

PROGRAM

```
<!DOCTYPE html>
<html>
  <head>
    <style>
      p.one { border-style: solid; border-color: red; }
      p.two { border-style: solid; border-color: #98bf21; }
```



```
</style>
</head>
<body>
  <p class="one">This is a solid red border</p>
  <p class="two">This is a solid green border</p>
</body>
</html>
```

2. CSS 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. The border-width property is not used alone. It is always used with other border properties like "border-style" property to set the border first otherwise it will not work.

Example

```
border-width: 5px;
```

3. CSS 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".

There is also a border color named "transparent". If the border color is not set it is inherited from the color property of the element. The border-color property is not used alone. It is always used with other border properties like "border-style" property to set the border first otherwise it will not work.

Example

```
border-color: red;
```

```
border-color: #98bf21;
```

```
border-color: rgb(255,0,0)
```

4. CSS border-radius property

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.

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.

Example

```
border-radius: 25% 10%;
```

5. Border Collapse

This value is used to collapse the borders into a single border. Using this, two adjacent table cells will share a border.

Example

```
border-collapse: collapse;
```

PROGRAM

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

```

<head>
<title> border-collapse property </title>
<style>
    table{ border: 2px solid blue; text-align: center; font-size: 20px; width: 80%; height: 50%; }
    th{ border: 5px solid red; background-color: yellow; }
    td{ border: 5px solid violet; background-color: cyan; }
    #t1{ border-collapse: collapse; }
</style>
</head>
<body>
    <h1> The border-collapse Property </h1>
    <h2> border-collapse: collapse; </h2>
    <table id = "t1">
        <tr> <th> First_Name </th> <th> Last_Name </th> <th> Subject </th> <th> Marks </th> </tr>
        <tr> <td> James </td> <td> Gosling </td> <td> Maths </td> <td> 92 </td> </tr>
        <tr> <td> Alan </td> <td> Rickman </td> <td> Maths </td> <td> 89 </td> </tr>
        <tr> <td> Sam </td> <td> Mendes </td> <td> Maths </td> <td> 82 </td> </tr>
    </table>
</body>
</html>

```

6. 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).

Example

```
border-spacing: 45px;
```

```
border-spacing: 45px 20px;
```

PROGRAM

```

<!DOCTYPE html>
<html>
  <head>

```

```
<title> border-spacing property </title>
<style>
    table{ border: 2px solid blue; text-align: center; font-size: 20px; background-color: lightgreen; }
    th{ border: 5px solid red; background-color: yellow; }
    td{ border: 5px solid violet; background-color: cyan; }
    #space{ border-collapse: separate; border-spacing: 20pt 1em; }
</style>
</head>
<body>
    <h1> The border-spacing Property </h1>
    <h2> border-spacing: 20pt 1em; </h2>
    <table id = "space">
        <tr> <th> First_Name </th> <th> Last_Name </th> <th> Subject </th> <th> Marks </th> </tr>
        <tr> <td> James </td> <td> Gosling </td> <td> Maths </td> <td> 92 </td> </tr>
        <tr> <td> Alan </td> <td> Rickman </td> <td> Maths </td> <td> 89 </td> </tr>
        <tr> <td> Sam </td> <td> Mendes </td> <td> Maths </td> <td> 82 </td> </tr>
    </table>
</body>
</html>
```

CSS Padding

CSS Padding property is used *to define the space between the element content and the element border*.

It is different from CSS margin in the way that CSS margin defines the space around elements. CSS padding is affected by the background colors. It clears an area around the content.

Top, bottom, left and right padding can be changed independently using separate properties. You can also change all properties at once by using shorthand padding property.

CSS Padding Properties

Property	Description
padding	It is used to set all the padding properties in one declaration.
padding-left	It is used to set left padding of an element.
padding-right	It is used to set right padding of an element.
padding-top	It is used to set top padding of an element.
padding-bottom	It is used to set bottom padding of an element.

CSS Padding Values

Value	Description
length	It is used to define fixed padding in pt, px, em etc.
%	It defines padding in % of containing element.

PROGRAM

```
<!DOCTYPE html>
<html>
<head>
  <style>
    p { background-color: pink; }
    p.padding {padding-top: 50px; padding-right: 100px; padding-bottom: 150px; padding-left: 200px; }
  </style>
</head>
<body>
  <p>This is a paragraph with no specified padding.</p>
  <p class="padding">This is a paragraph with specified paddings.</p>
</body>
</html>
```