

# 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.

## **Why use CSS**

These are the three major benefits of CSS:

### **1) 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 become a long and expensive process. CSS was created to solve this problem. It was a W3C recommendation.

### **2) Saves a lot of time**

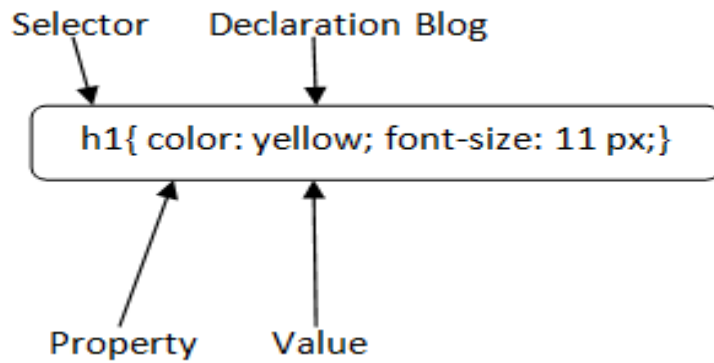
CSS style definitions are saved in external CSS files so it is possible to change the entire website by changing just one file.

### **3) Provide more attributes**

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

## **CSS Syntax**

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



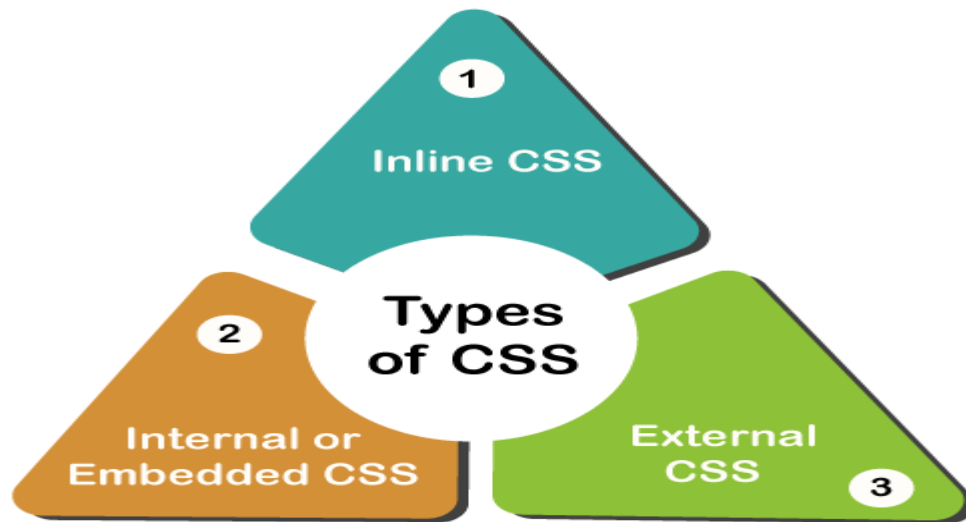
## Types of CSS:

**CSS (Cascading Style Sheet)** describes the HTML elements which are displayed on **screen, paper**, or in **other media**. It saves a lot of time. It controls the layout of multiple web pages at one time. It sets the **font-size, font-family, color, background color** on the page.

It allows us to add **effects** or **animations** to the website. We use **CSS** to display **animations** like **buttons, effects, loaders** or **spinners**, and also **animated backgrounds**.

Without using **CSS**, the website will not look attractive. There are **3** types of **CSS** which are below:

- Inline CSS
- Internal/ Embedded CSS
- External CSS



## 1. Internal CSS

The Internal CSS has **<style>** tag in the **<head>** section of the **HTML** document. This CSS style is an effective way to style single pages. Using the CSS style for multiple web pages is time-consuming because we require placing the **style** on each web page.

Example:

```
<html>

<head>

<style>

body{background-color : #345678}

h1{color : black}

</style>

</head>

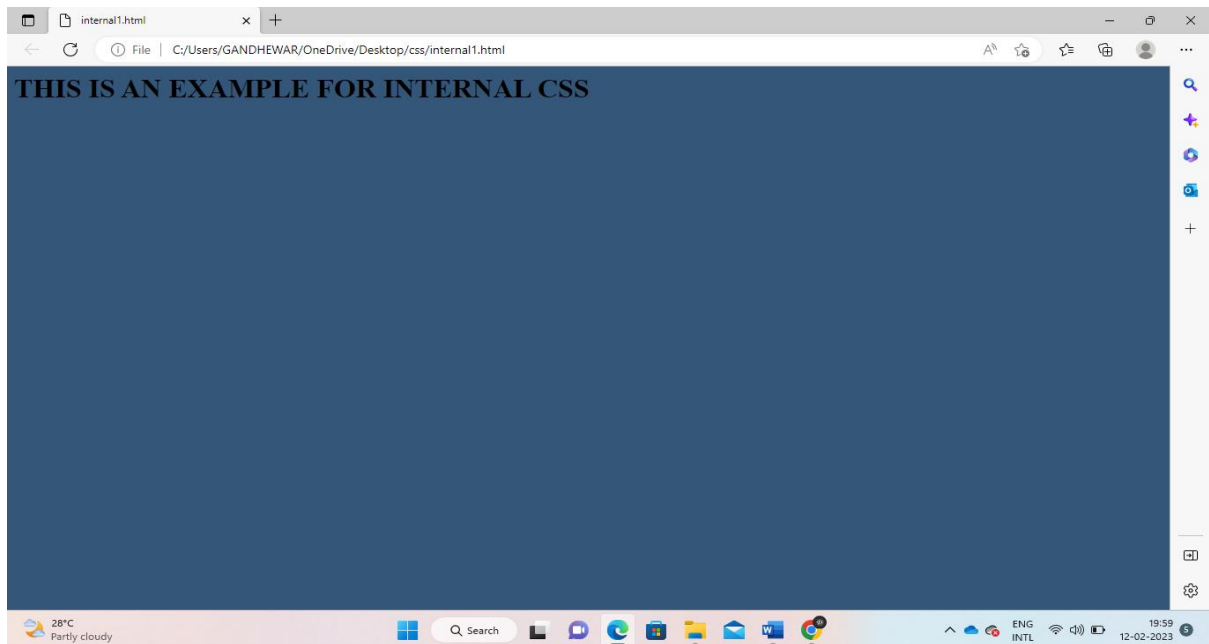
<body>

<h1>THIS IS AN EXAMPLE FOR INTERNAL CSS</h1>

</body>

</html>
```

## OUTPUT:



## 2. External CSS

In external CSS, we link the web pages to the external **.css** file. It is created by **text editor**. The CSS is more efficient method for styling a website. By editing the **.css** file, we can change the whole site at once.

Example:

```
body { background-color:black}
```

```
h1{color:white;
```

```
text-align:center}
```

Save it with demo1.css and next write html file

```
<html>
```

```
<head>
```

```
<link rel="stylesheet" href="demo1.css">
```

```
</head>
```

```
<body>
```

```
<h1>
```

THIS IS AN EXAMPLE FOR EXTERNAL CSS

```
</h1>
```

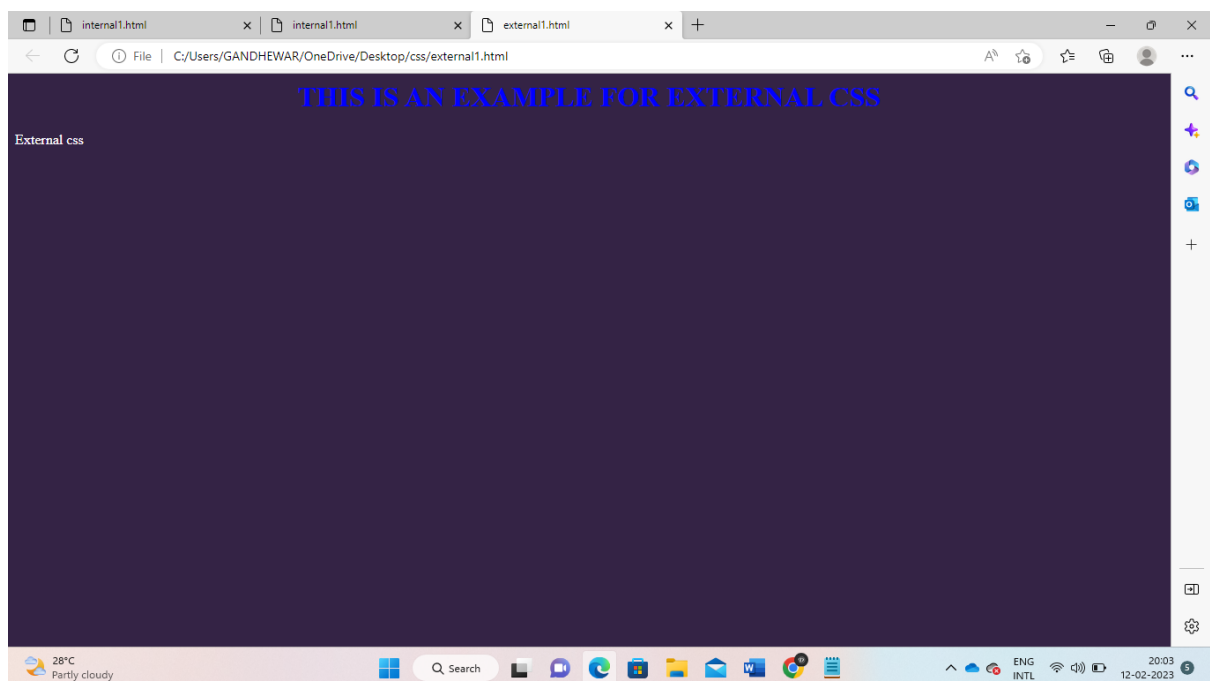
```
<p style="color:white">External css</p>
```

```
</body>
```

```
</html>
```

Save it with .html and execute the program then directly demo1.css color will be applied for the webpage.

## OUTPUT:



## 3. Inline CSS

Inline CSS is used to style a specific **HTML** element. Add a **style** attribute to each HTML tag without using the selectors. Managing a website may difficult if we use only **inline CSS**. However, Inline **CSS** in HTML is useful in some situations. We have not access the **CSS files** or to apply styles to element.

Example:

```
<html>
```

```
<body style="background-color:blue">
```

```
<h1 style="color:white;text-align:center">  
THIS IS AN EXAMPLE FOR INLINE CSS</h1>  
  
</body>  
  
</html>
```

## Output:



## 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.
- RGBA format.
- Hexadecimal notation.

- HSL.
- HSLA.
- Built-in color.

## 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

1. color: color-name;

## 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.

1. color: #(0-F)(0-F)(0-F)(0-F)(0-F)(0-F);

## 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

1. 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

1. `color:rgba(R, G, B, A);`

## 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

1. `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

1. `color:hsla(H, S, L, A);`

### Example:



```
<html>
```

```
<body>
```

```
<br>
```

```
</br>
```

```
<h1 style=Background-color:green;>Hello!Welcome to pythonlife(Builtin  
color)</h1>
```

```
<h1 style=Background-color:#569823;>
```

```
Hello!Welcome to pythonlife(Hexadecimal color)</h1>
```

```
<h1 style=Background-color:rgb(0,225,105);>
```

```
Hello!Welcome to pythonlife(RGB function)</h1>
```

```
<h1 style=Background-color:rgba(27,45,100,0.2);>
```

```
Hello!Welcome to pythonlife(RGBA function)</h1>
```

```
<h1 style=Background-color:hsl(250,50%,40%);>
```

```
Hello!Welcome to pythonlife(HSL function)</h1>
```

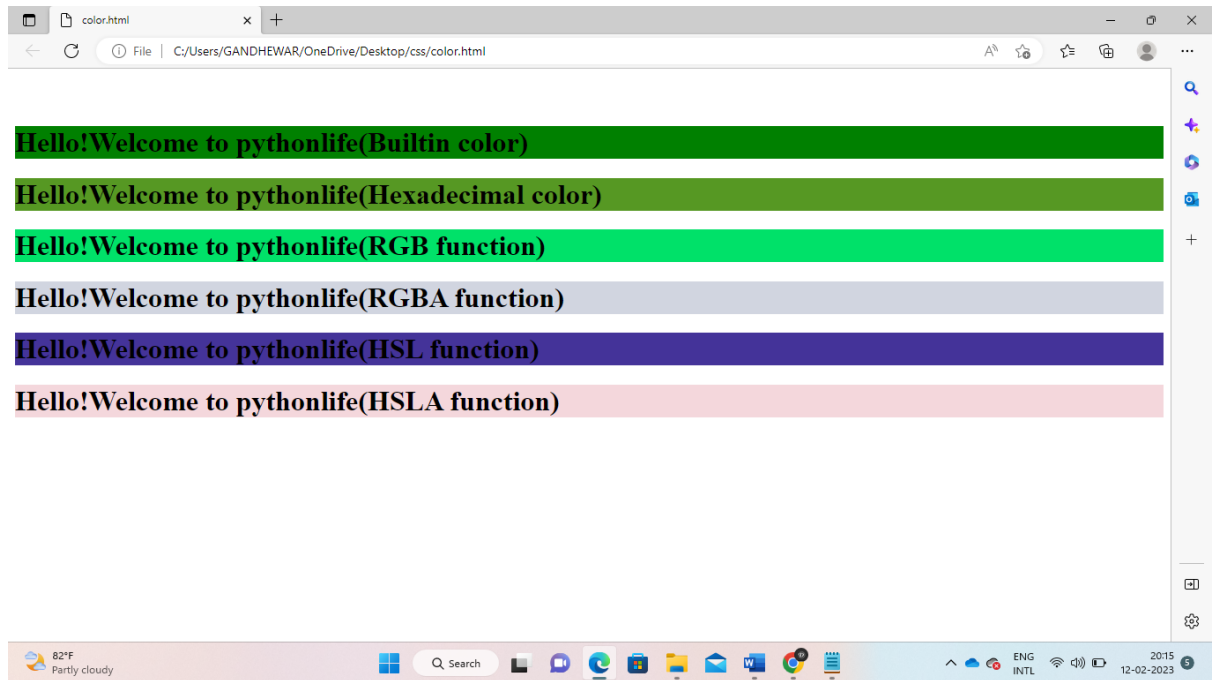
```
<h1 style=Background-color:hsla(350,58%,50%,0.2);>
```

```
Hello!Welcome to pythonlife(HSLA function)</h1>
```

```
</body>
```

```
</html>
```

## OUTPUT:



## CSS Selector

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

There are several different types of selectors in CSS.

1. CSS Element Selector
2. CSS Id Selector
3. CSS Class Selector
4. CSS Universal Selector
5. CSS Group Selector

### 1) CSS Element Selector

The element selector selects the HTML element by name.

## 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.

## 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.

## 4) CSS Universal Selector

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

## 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.

### Example:

```
<html>
```

```
<head>
```

```
<br>
```

```
</br>
```

```
<style>
```

```
h1{background-color:green;color:yellow}
```

```
#head2{background-color:black;color:white}
```

```
.head3{background-color:blue;color:white}
```

```
*{color:red}

h2,h3{background-color:brown;color:white}

</style>

</head>

<body>

<h1>WELCOME TO SELECTORS(Element selector)</h1><br>

<h1 id="head2">WELCOME TO SELECTORS(ID Selector)</h1><br>

<h1 class="head3">WELCOME TO SELECTORS(Class Selector)</h1>

welcome to selectors(UNIVERSAL SELECTOR)

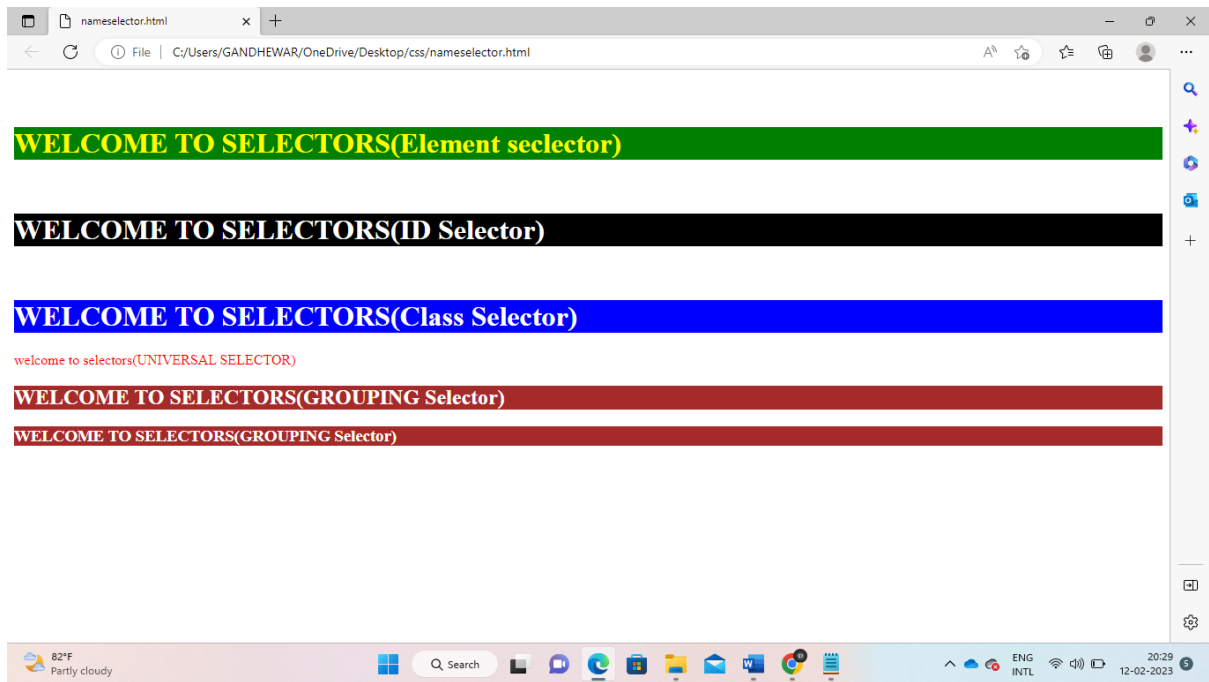
<h2>WELCOME TO SELECTORS(GROUPING Selector)</h2>

<h3>WELCOME TO SELECTORS(GROUPING Selector)</h3>

</body>

</html>
```

**OUTPUT:**



## CSS Background Property

CSS background property is used to define the background effects on element. There are 5 CSS background properties that affect 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.

### 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. You can set the background image for a page like this.

### 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.

### 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. Let's take an example with fixed background image.

### 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

## CSS Border

The CSS border is a shorthand property used to set the border on an element.

The [CSS](#) border properties are used to specify the style, color and size of the border of an element. The CSS border properties are given below

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

## 1) CSS 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

## 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.

## 3) CSS border-color

There are four 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".
- HSL: It specifies the HSL value of the color. For example: "hsl(250,50%,50%)".

## 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.

This [CSS](#) property includes the properties that are tabulated as follows:

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

### Example:

```
<html>

<head>

<style>

.dotted{border-style:dotted;border-width:10px;border-color:blue}

.dashed{border-style:dashed;border-width:10px;border-color:green}

.solid{border-style:solid;border-width:10px;border-color:red;border-radius:25px}

.double{border-style:double;border-width:10px;border-color:green}
```



```
.groove{border-style:groove;border-width:10px;border-color:red}
```

```
.ridge{border-style:ridge;border-width:10px;border-color:blue}
```

```
.inset{border-style:inset;border-width:10px;border-color:pink}
```

```
.outset{border-style:outset;border-width:10px;border-color:red}
```

```
.short{border-style:double dashed;border-width:10px}
```

```
</style>
```

```
</head>
```

```
<body>
```

```
<h1 class=dotted>THIS IS DOTTED BORDER</h1>
```

```
<h1 class=dashed>THIS IS DASHED BORDER</h1>
```

```
<h1 class=solid>THIS IS SOLID BORDER</h1>
```

```
<h1 class=double>THIS IS DOUBLE BORDER</h1>
```

```
<h1 class=groove>THIS IS GROOVE BORDER</h1>
```

```
<h1 class=ridge>THIS IS RIDGE BORDER</h1>
```

```
<h1 class=inset>THIS IS INSET BORDER</h1>
```

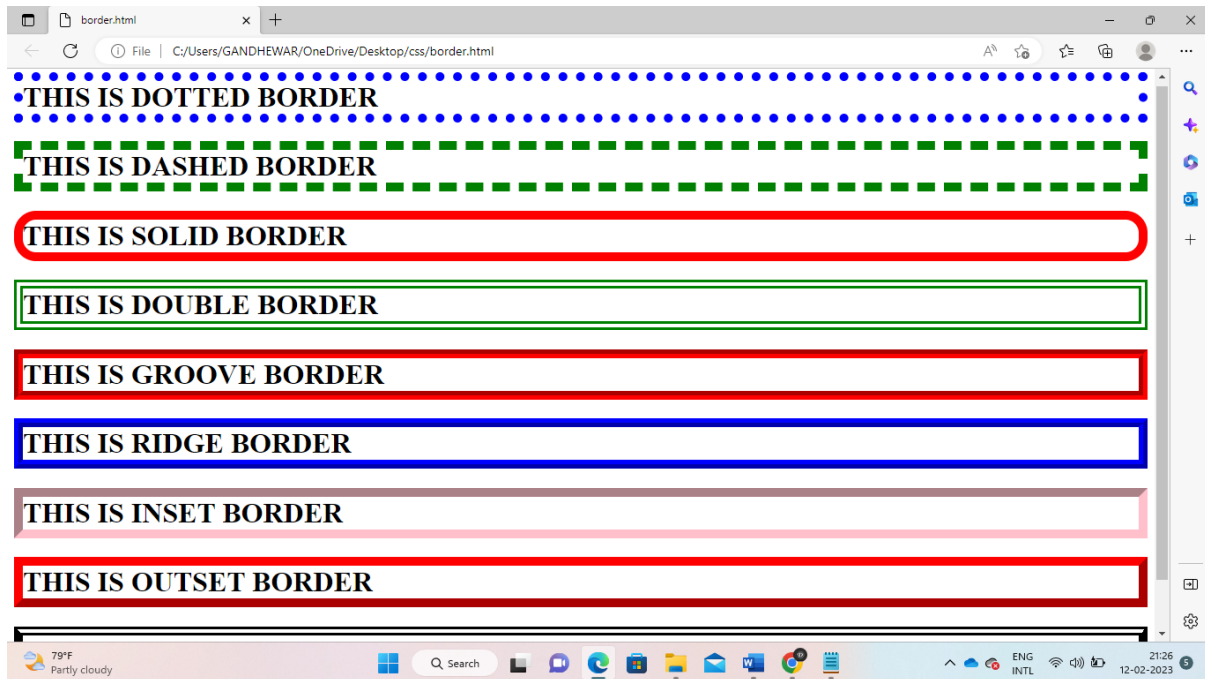
```
<h1 class=outset>THIS IS OUTSET BORDER</h1>
```

```
<h1 class=short>THIS IS SHORTHAND BORDER</h1>
```

```
</body>
```

```
</html>
```

## OUTPUT:



## 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.

There are four types to specify the margin property. You can use one of them.

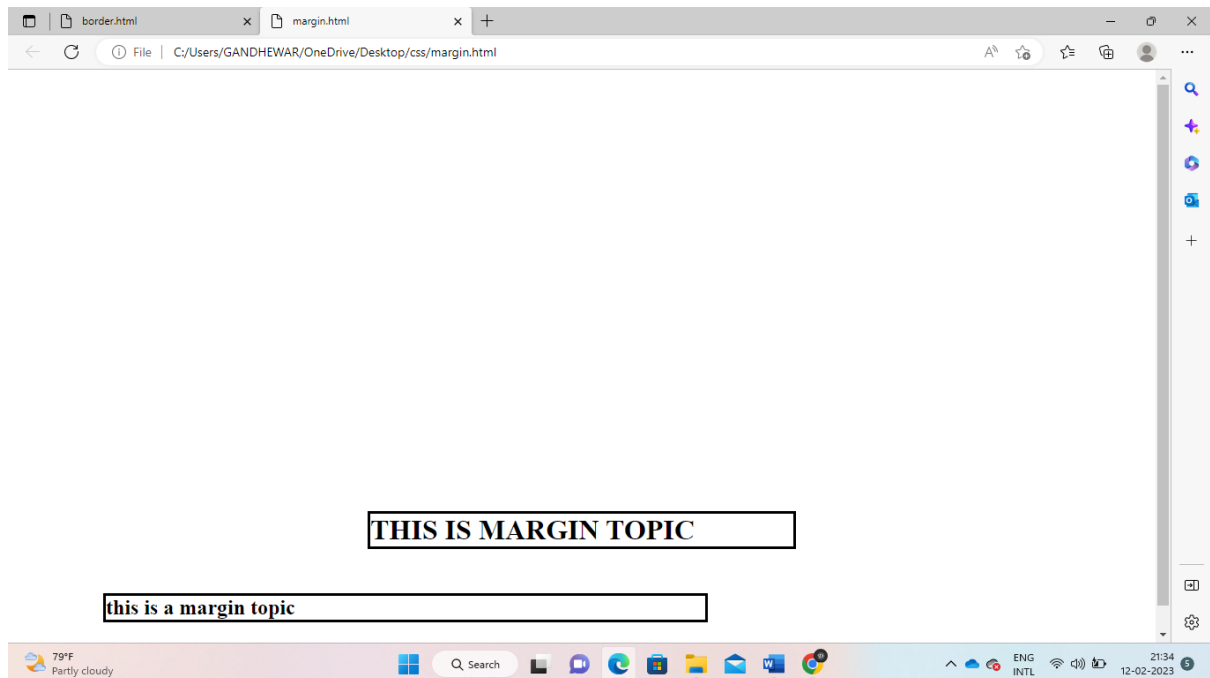
1. margin: 50px 100px 150px 200px;
2. margin: 50px 100px 150px;
3. margin: 50px 100px;
4. margin 50px;

**Example:**

```
<html>
<head>
<style>
h1{ border-style:solid;
    margin-top:500px;
    margin-bottom:50px;
    margin-right:400px;
    margin-left:400px;}
h2{ border-style:solid;
    margin:50px 500px 50px 100px }

</style>
</head>
<body>
<h1>THIS IS MARGIN TOPIC</h1>
<h2>this is a margin topic</h2>
</body>
</html>
```

## OUTPUT:



## 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.

#### Example:

```

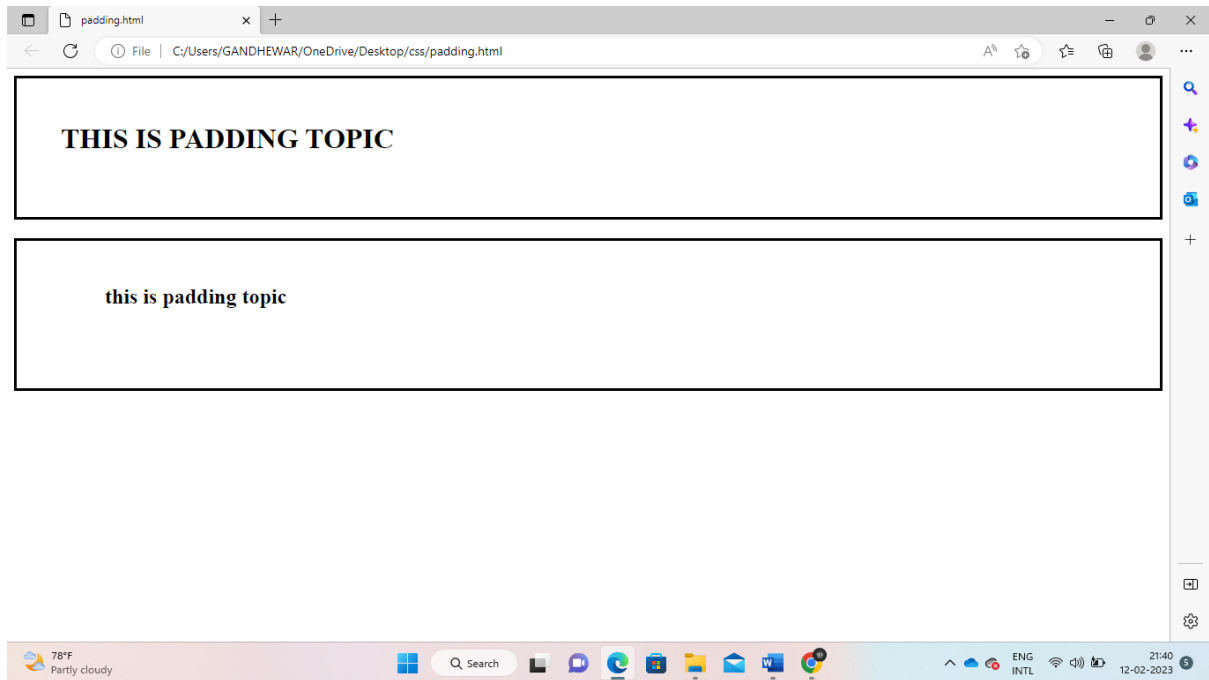
<html>
<head>
<style>
h1{ border-style:solid;
padding-top:50px;
padding-bottom:70px;
padding-right:60px;
padding-left:50px }
h2{ border-style:solid;
padding:50px 25px 90px 100px}
</style>
</head>
<body>
<h1>THIS IS PADDING TOPIC</h1>
<h2>this is padding topic</h2>

```

</body>

</html>

## OUTPUT:



## 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. You have already studied how to make text bold or underlined. Here, you will also know how to resize your font using percentage.

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 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
- By HSL

## 2) CSS Font Family

CSS font family can be divided in two types:

- Generic family: It includes Serif, Sans-serif, and Monospace.
- Font family: It specifies the font family name like Arial, New Times Roman etc.

## 3) CSS Font Size

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

## 4) CSS Font Style

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

## 5) 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:**

```
<html>

<head>

<style>

.one{ font-family:arial,serif,sans-serif,"Times New Roman";

      font-style:normal;

      font-weight:bold;

      font-size:40px}

.two{ font-family:courier,arial,serif,sans-serif,"Times New Roman";

      font-style:normal;

      font-weight:normal;

      font-size:40px}

</style>

</head>

<body>

<p class="one">THIS IS FONT TOPIC-Bold and oblique</p>

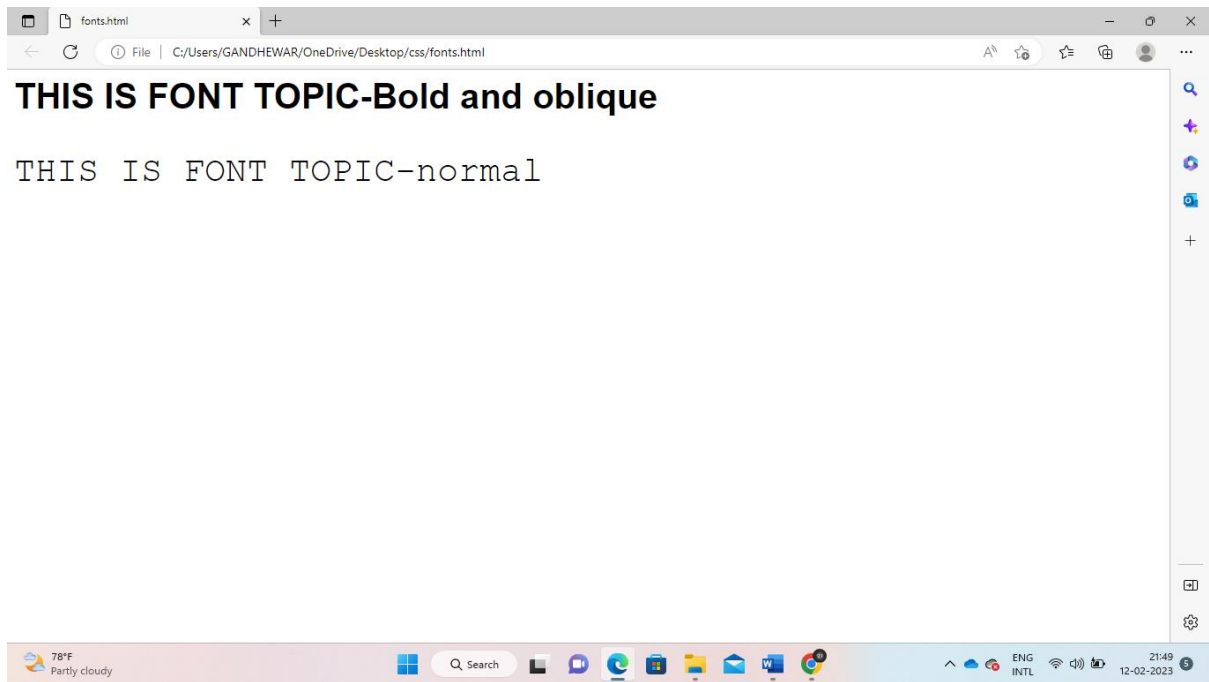
<p class="two">THIS IS FONT TOPIC-normal </p>

</body>

</html>
```

**OUTPUT:**





## CSS Links

Link is a connection from one web page to another web pages. CSS property can be used to style the links in various different ways.

**States of Link:** Before discussing CSS properties, it is important to know the states of a link. Links can exist in different states and they can be styled using pseudo classes. There are four state of links given below:

- **a:link** => This is a normal, unvisited link.
- **a:visited** => This is a link visited by user at least once
- **a:hover** => This is a link when mouse hovers over it
- **a:active** => This is a link which is just clicked.

### Example:

```
<html>
<head>
<style>
a:link{color:blue;text-decoration:none}
a:visited{color:brown}
a:hover{color:green}
a:active{color:red}
</style>
</head>
<body>
<h1>
```

```
<a href="https://www.pythonlife.in/">PYTHONLIFE</a></h1>  
</body>  
</html>
```

## OUTPUT:

