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CSS 1

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Topics to be Discussed

- What’s CSS?
- 3 types of CSS inclusions
- CSS Selectors
- CSS Cascade
- Relative lengths
- Absolute lengths

CSS

CSS is used to control the style of a web document in a simple and easy way.

CSS is the acronym for **"Cascading Style Sheet"**. This tutorial covers both the versions CSS1,CSS2 and CSS3, and gives a complete understanding of CSS, starting from its basics to advanced concepts.

3 Types of Inclusion

- Inline
- Internal or Embedded CSS
- External CSS

Inline CSS

Inline CSS contains the CSS property in the body section attached with element is known as inline CSS. This kind of style is specified within an HTML tag using the style attribute.

```
<!DOCTYPE html>
<html>
    <head>
        <title>Inline CSS</title>
    </head>

    <body>
        <p style = "color:#009900; font-size:50px;
                font-style:italic; text-align:center;">
            GeeksForGeeks
        </p>

    </body>
</html>
```

Internal or Embedded CSS

This can be used when a single HTML document must be styled uniquely. The CSS rule set should be within the HTML file in the head section i.e the CSS is embedded within the HTML file.

```
<!DOCTYPE html>
<html>
    <head>
        <title>Internal CSS</title>
        <style>
            .main {
                text-align:center;
            }
            .GFG {
                color:#009900;
                font-size:50px;
                font-weight:bold;
            }
            .geeks {
                font-style:bold;
                font-size:20px;
            }
        </style>
    </head>
    <body>
        <div class = "main">
            <div class ="GFG">GeeksForGeeks</div>

            <div class ="geeks">
                A computer science portal for geeks
            </div>
        </div>
    </body>
</html>
```

External CSS

External CSS contains separate CSS file which contains only style property with the help of tag attributes (For example class, id, heading, ... etc). CSS property written in a separate file with .css extension and should be linked to the HTML document using **link** tag. This means that for each element, style can be set only once and that will be applied across web pages.

- **link** tag is used to link the external style sheet with the html webpage.
- **href** attribute is used to specify the location of the external style sheet file.

geeks.css

```
body {
    background-color:powderblue;
}
.main {
    text-align:center;
}
.GFG {
    color:#009900;
    font-size:50px;
    font-weight:bold;
}
#geeks {
    font-style:bold;
    font-size:20px;
}
```

CSS Selectors

CSS selectors are used to "find" (or select) the HTML elements you want to style.

We can divide CSS selectors into five categories:

- Simple selectors (select elements based on name, id, class, etc.)
- Combinator_selectors (select elements based on a specific relationship between them)
- Pseudo-class selectors (select elements based on a certain state)
- Pseudo-elements selectors (select and style a part of an element)
- Attribute selectors (select elements based on an attribute or attribute value)

Simple Selector

- CSS element Selector

```
p {
  text-align: center;
  color: red;
}
```

- CSS id Selector

```
#para1 {
  text-align: center;
  color: red;
}
```

- CSS Class Selector

```css
.center {
  text-align: center;
  color: red;
}
```

```css
p.center {
  text-align: center;
  color: red;
}
```

- CSS Universal Selector

```css
* {
  text-align: center;
  color: blue;
}
```

- CSS Grouping Selector

```css
h1, h2, p {
  text-align: center;
  color: red;
}
```

CSS Cascade

We'll begin breaking down exactly how styles are rendered by looking at what is known as the cascade and studying a few examples of the cascade in action. Within CSS, all styles cascade from the top of a style sheet to the bottom, allowing different styles to be added or overwritten as the style sheet progresses.

p { background: orange; font-size: 24px; } p { background: green; }

Because the paragraph selector that sets the background color to green comes after the paragraph selector that sets the background color to orange, it will take precedence in the cascade. All of the paragraphs will appear with a green background. The font size will remain 24 pixels because the second paragraph selector didn’t identify a new font size.

Relative Lengths

Unit	Description
em	Relative to the font-size of the element (2em means 2 times the size of the current font)
ex	Relative to the x-height of the current font (rarely used)
ch	Relative to the width of the "0" (zero)
rem	Relative to font-size of the root element
vw	Relative to 1% of the width of the viewport*
vh	Relative to 1% of the height of the viewport*
vmin	Relative to 1% of viewport's* smaller dimension
vmax	Relative to 1% of viewport's* larger dimension
%	Relative to the parent element

Absolute lengths

cm	centimeters
mm	millimeters
in	inches (1in = 96px = 2.54cm)
px *	pixels (1px = 1/96th of 1in)
pt	points (1pt = 1/72 of 1in)
pc	picas (1pc = 12 pt)

Lets code Lengths

- https://www.w3schools.com/cssref/css_units.asp

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CSS 2

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Topics to be Discussed

- CSS properties
  - Lengths (Remaining)
  - Color and Background
  - Styling text
- CSS Box Model
- CSS Properties
  - CSS margin and padding
  - CSS border
  - Border radius

Lets code Lengths

- https://www.w3schools.com/cssref/css_units.asp

Colors

- Color - text
- RGB

  rgb(red, green, blue)

  Each parameter (red, green, and blue) defines the intensity of the color between 0 and 255.
- HEX

  #rrggbb

  Where rr (red), gg (green) and bb (blue) are hexadecimal values between 00 and ff (same as decimal 0-255).
- HSL

  hsl(hue, saturation, lightness)

  Hue is a degree on the color wheel from 0 to 360. 0 is red, 120 is green, and 240 is blue.

  Saturation is a percentage value, 0% means a shade of gray, and 100% is the full color.

  Lightness is also a percentage, 0% is black, 50% is neither light or dark, 100% is white

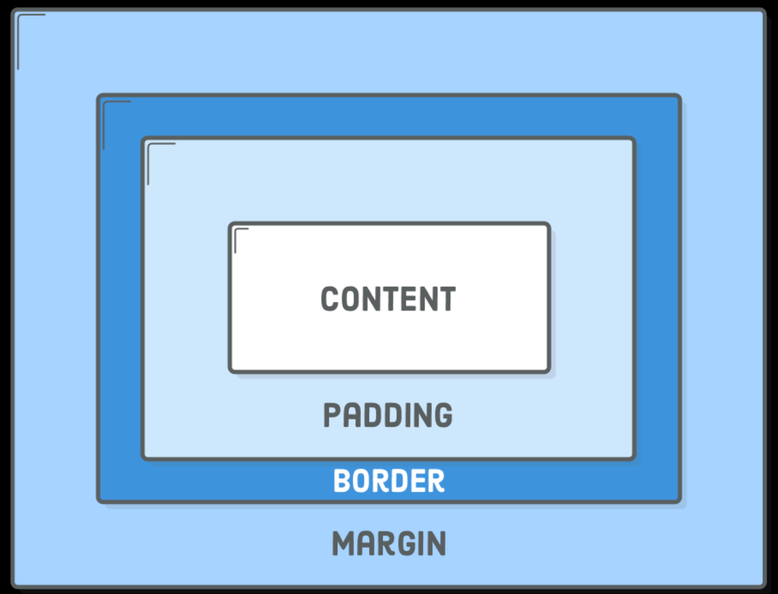
Styling Text

- font-family
- font-size
- font-weight
- font-style
- text-decoration
- text-transform
- text-spacing

CSS Box Model

Every box is composed of four parts (or areas), defined by their respective edges: the content edge, padding edge, border edge, and margin edge.

- The content area, bounded by the content edge, contains the "real" content of the element, such as text, an image, or a video player. Its dimensions are the content width (or content-box width) and the content height (or content-box height). It often has a background color or background image.
- The padding area, bounded by the padding edge, extends the content area to include the element's padding. Its dimensions are the padding-box width and the padding-box height.
- The border area, bounded by the border edge, extends the padding area to include the element's borders. Its dimensions are the border-box width and the border-box height.



CSS Margin & Padding

The CSS margin properties are used to create space around elements, outside of any defined borders.

CSS has properties for specifying the margin for each side of an element:

- margin-top
- margin-right
- margin-bottom
- margin-left

All the margin properties can have the following values:

- auto - the browser calculates the margin
- *length* - specifies a margin in px, pt, cm, etc.
- % - specifies a margin in % of the width of the containing element
- inherit - specifies that the margin should be inherited from the parent element

CSS Padding

The CSS padding properties are used to generate space around an element's content, inside of any defined borders.

CSS has properties for specifying the padding for each side of an element:

- padding-top
- padding-right
- padding-bottom
- padding-left

All the padding properties can have the following values:

- *length* - specifies a padding in px, pt, cm, etc.
- % - specifies a padding in % of the width of the containing element
- inherit - specifies that the padding should be inherited from the parent element

Border

- Border-style
- Border-sides
- Border-width
- Border-color
- Border-radius

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CSS 3

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Topics to be Discussed

- Selectors (extended)
- CSS Display
- CSS Position
- Pseudo Classes
- Shorthand Notation

Selectors

- Child Selector

```
ol.todos li {
  font-size: 30px;
}
```

- Immediate Child Selector

```
div.container > p {
  text-decoration: underline;
}
```

- Sibling Selector

```
div.container span ~ span {
  color: orange;
}
```

- Immediate Sibling Selector

```
span + p {
  margin-top: 20px;
}
```

CSS Display Properties

CSS specifies three display types - inline, block and none.

inline does just what it says — boxes that are displayed inline follow the flow of a line.

block makes a box standalone, fitting the entire width of its containing box, with an effective line break before and after it.

none, well, doesn’t display a box at all, which may sound pretty useless but can be used to good effect with dynamic effects, such as switching extended information on and off at the click of a link, or in alternative stylesheets.

CSS Position

The position property is used to define whether a box is absolute, relative, static or fixed:

- static is the default value and renders a box in the normal order of things, as they appear in the HTML.
- relative is much like static but the box can be offset from its original position with the properties top, right, bottom and left.
- absolute pulls a box out of the normal flow of the HTML and delivers it to a world all of its own. In this crazy little world, the absolute box can be placed anywhere on the page using top, right, bottom and left.
- fixed behaves like absolute, but it will absolutely position a box in reference to the browser window as opposed to the web page, so fixed boxes should stay exactly where they are on the screen even when the page is scrolled.

Pseudo Classes

- Pseudo classes are specified on selectors to specify a state or relation to the selector.

```
a:link {
    color: blue;
}

a:visited {
    color: purple;
}
```

Shorthand Notation

- Margin
- Padding
- Border

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CSS 4

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Topics to be Discussed

- CSS Shadows
- CSS Transitions
- CSS Transformations
- Gradients

CSS Shadows

box-shadow is the standard CSS property to add shadows to an element in a web page.

```
box-shadow: none|h-offset v-offset blur spread color |inset|initial|inherit;
```

CSS Transitions

Transitions allow you to easily animate parts of your design without the need for Javascript.

- transition
- transition-delay
- transition-duration
- transition-property
- transition-timing-function

CSS Transformation

The transform property applies a 2D or 3D transformation to an element. This property allows you to rotate, scale, move, skew, etc., elements.

```
transform: none|transform-functions|initial|inherit;
```

CSS Gradient

CSS defines three types of gradients

- Linear Gradients (goes down/up/left/right/diagonally)
- Radial Gradients (defined by their centre)
- Conic Gradients (rotated around a centre point)