



CASCADING STYLE SHEET (CSS)

INTRODUCTION

- CSS is a technology to specify the presentation of elements on a web page separately from the document's structure and content.
- It separate structure and content from presentation to simplify maintaining and modifying web pages.
- If a website's presentation is determined entirely by a style sheet, A new style sheet can be defined to completely change the site's appearance.

WHAT IS STYLE SHEET?

- A Style Sheet (CSS) is a set of styles.
- A style is how the HTML element will be displayed in a web browser.
- Styles rules are used to defines styles.

Style sheet comprises of one or more style rules that are interpreted by the web browser and then applied to the corresponding elements in web page.

CSS STYLE RULE

Selector {

Property-Name : Value ;

Property-Name : Value ;

Property-Name : Value ;

}

Declarations

Selector String

Declaration Block

ANATOMY OF STYLE SHEET

```
S1 {  
    Property-Name1 : Value ;  
    Property-Name2 : Value ;  
}
```

```
S2 {  
    Property-Name1 : Value ;  
    Property-Name2 : Value ;  
}
```

```
S3 {  
}
```

STYLE CASCADING

What style will be applied when there is more than one style?

- ❑ Browser default
- ❑ External style sheets are included
- ❑ Internal styles override external styles
- ❑ Inline styles override both embedded and external styles
- ❑ Styles modified with JavaScript override all other styles





CSS CONTINUE

MULTIPLE WAYS TO DEFINE STYLES

- A Style can be defined in multiple ways.
 - External Style Sheet (.css files)
 - Internal Style Sheet
 - Inline Styles
 - Default style, CSS changed by JavaScript

EXTERNAL STYLE SHEET

- External style sheets are created separate from HTML in another documents with a **.css** extension.
- It doesn't have any HTML.
- It contains only CSS rules.
- <link>** tag in HTML associates an external CSS with HTML page.

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

- One External file can be associated with multiple webpages or sites.

INTERNAL STYLE SHEET

- Embedded or Internal style sheets are inserted in a HTML web pages using `<style>` element in head section.
- Style rules placed in the head apply to matching elements wherever they appear in the body.

```
<head>
  <style>
    S1 {   ;       ;       }
    S2 {   ;       ;       }
  </style>
</head>
```

- It can be used when a single HTML document require unique styles.

INLINE STYLE

- Inline styles override any other styles applied using External or Internal style sheets.
- Style declarations are assigned as value to style attribute in a HTML element.

```
<tagName style = "           ;           ;           ;           " >
```

Content of Element

```
</tagName>
```

- It can be used when a single HTML element require unique styles.

CSS SELECTORS

- A selector points to a HTML element to apply style defined by a style rule.
- CSS defines various type of selectors to find out a HTML element.
 - Universal Selector
 - Element Selector
 - Class Selector
 - ID Selector

UNIVERSAL SELECTOR

- The universal selector is used as a wildcard character.
- It selects all the HTML elements in a webpage.
- It defines style for entire webpage.

```
* { color : red ;  
font-size : 50px ;  
}
```

ELEMENT SELECTOR

- The element selector is used as a tagName.
- It selects the HTML elements according to tagName.
- It defines style for a specific set of HTML elements.

```
p { color : red ;  
font-size : 50px ;  
}
```

CLASS SELECTOR

- The class selector is used as a period character (.) followed by className.
- It selects the HTML elements with specific class attribute.
- It defines style for a specific set of HTML elements with identical class value.

```
.red { color : red ;  
       font-size : 50px ;  
 }
```

```
<p class="red" > A paragraph with red class </p>
```

ID SELECTOR

- The id selector is used as a hash character (#) followed by id.
- It selects the HTML elements with specific id attribute.
- It defines style for a single HTML elements according to id value.

```
#red { color : red ;  
       font-size : 50px ;  
 }
```

```
<p id="red" > A paragraph with red id </p>
```



CSS PROPERTIES.....

CSS LENGTH UNITS

- CSS uses various units to express length for properties like margin, font-size, height etc.
- Length is a number followed by an unit.
- Length units can categorized into two groups:
 - Absolute Lengths
 - It specifies fixed length.
 - Relative Lengths
 - It specifies length relative to other length units.

CSS LENGTH UNITS

■ Absolute Lengths

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

CSS LENGTH UNITS

■ Relative Lengths

Unit	Description
em	Relative to the font-size of the element
ex	Relative to the x-height of the current font
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

CSS LENGTH UNITS

■ Relative Lengths

Unit	Description
vmin	Relative to 1% of viewport's smaller dimension
vmax	Relative to 1% of viewport's larger dimension
%	Relative to the parent element

CSS COLORS

- CSS uses various ways to define colors.
- It defines the color by:
 - Predefined color names
 - All modern browser supports 140 predefined color names.
 - E.g. red, green, greenyellow etc.
 - Color Values
 - HEX, RGB, RGBA, HSL, HSLA

CSS COLORS

■ Color Values : HEX

- A hexadecimal color is defined by: #RRGGBB
- RR (red), GG (green) and BB (blue) are hexadecimal integers to represent the component of the color.
 - E.g. #34AB01
- Six digit hex code is also used as #RGB, one hex integer for each color component.
 - E.g. #FFF

CSS COLORS

■ Color Values : RGB

- A color can be specified as an RGB value, using the function:

`rgb(red, green, blue)`

- Each parameter (red, green, and blue) specifies the intensity of the color between 0 and 255.
- E.g. `rgb(255,0,240)`

CSS COLORS

■ Color Values : RGBA

- RGBA color values are an extension of RGB color values with an alpha channel.
- Alpha defines the opacity of a color.
- RGBA color value is defined with function:

rgba(red, green, blue, alpha)

- The alpha parameter is a real number between 0.0 (fully transparent) and 1.0 (not transparent).
- E.g. rgba(240,45,230,.5)

CSS COLORS

■ Color Values : HSL (hue, saturation, and lightness)

- HSL color can be defined using function:

`hsl(hue, saturation, lightness)`

- Hue is a degree on the color wheel from 0 to 360.

0 is red

120 is green

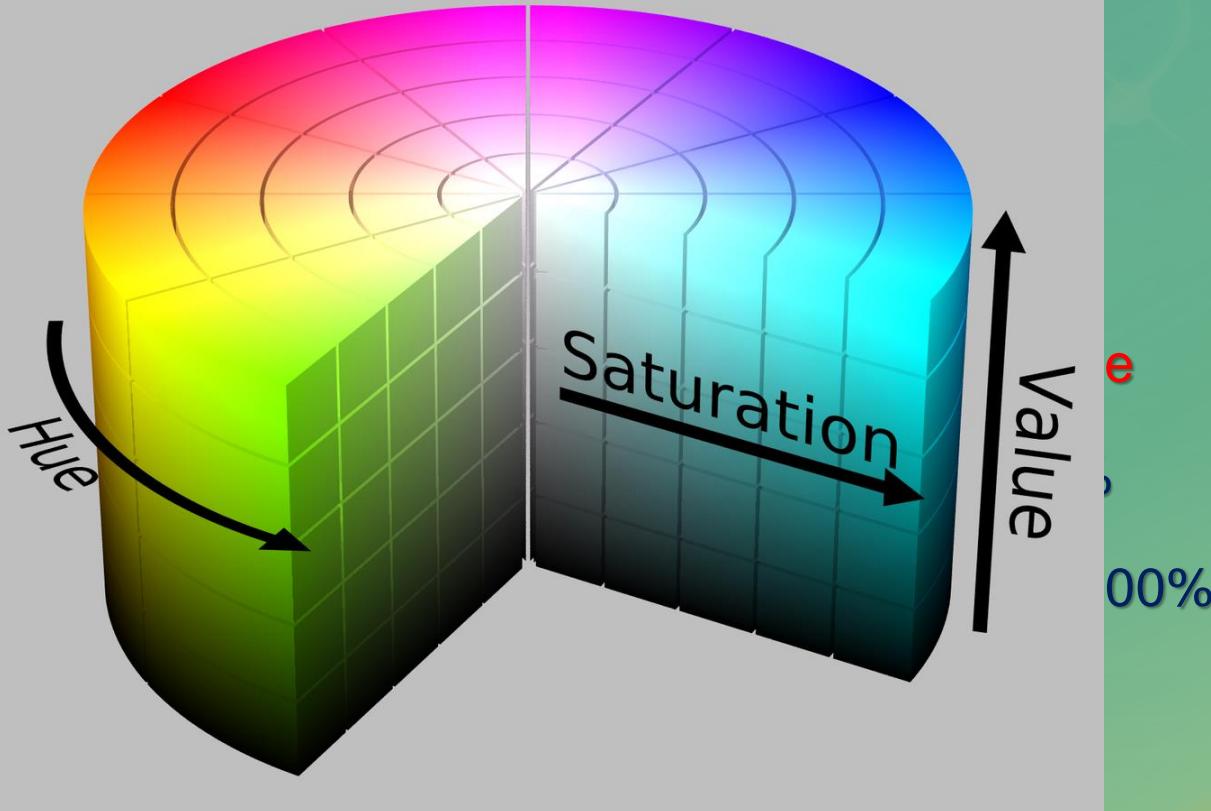
240 is blue

- Saturation is a percentage value, from 0% to 100%
- Lightness is also a percentage value, from 0% to 100%
- E.g. `hsl(0, 100%, 50%)`

CSS COLORS

Color Values : HSL (hue, saturation, and lightness)

- HSL
- Hue
- Saturation
- Lightness
- E.g.



CSS COLORS

- Color Values : HSLA (hue, saturation, lightness and alpha)

- HSLA color can be defined using function:

`hsla(hue, saturation, lightness, alpha)`

- E.g. `hsl(0, 100%, 50%, .5)`



CSS PROPERTIES.....

CSS BACKGROUNDS

- CSS background properties put background effect in any HTML element.

Property	Description
<code>background-attachment: fixed scroll local;</code>	background-image scrolls with the document or remains fixed
<code>background-color: transparent rgb(255, 255, 255) / rgba(r%, g%, b%) rgba(255, 255, 255, 1) / rgba(r%, g%, b%, 1) #fff #123456 magenta;</code>	sets the background color of the element
<code>background-image: inherit none url(relative to CSS);</code>	define none, one or more background images for an element
<code>background-position: bottom center inherit left right top 10px 10px 50% 50%;</code>	background position takes two: left and top (in that order!) of the background image

CSS BACKGROUNDS

- CSS background properties put background effect in any HTML element.

Property	Description
<code>background-size: cover contain auto 200px 300px 200px 80% 50% 50%;</code>	Set the size of background image
<code>background-repeat: inherit no-repeat repeat repeat-x repeat-y;</code>	whether the background image is repeated or tiled
<code>background: values separated by space</code>	enables the declaration of all background attributes in one statement in the color, image, attachment, position and repeat order

CSS BORDERS

- CSS border properties set border for HTML elements.

Property	Value
border-color	(color)
border-style	none, dotted, dashed, solid, double, groove, ridge, inset, outset
border-width	medium, thin, thick, (length)
border-radius	(length)

CSS FONTS

- CSS font properties style font of the text.

Property	Value
font-family	comma-separated font names
font-style	normal, italic or oblique
font-weight	normal, bold, bolder, lighter, 100, 200, 300, 400, 500, 600, 700, 800, 900
font-size	CSS length
font-variant	small-caps

CSS TEXT

- CSS text properties defines various text styles.

Property	Value
color	CSS color value
text-align	left right center justify
text-decoration	underline overline line-through none
text-transform	uppercase lowercase capitalize
text-indent	CSS length
line-height	CSS length

CSS TEXT

- CSS text properties defines various text styles.

Property	Value
letter-spacing	CSS length
word-spacing	CSS length

CSS LIST

- CSS list properties style and format ordered & unordered list.

Property	Value
list-style-type	disc circle square decimal decimal-leading-zero Lower-roman upper-roman lower-alpha upper-alpha none
list-style-position	outside inside
list-style-image	url("location of image")



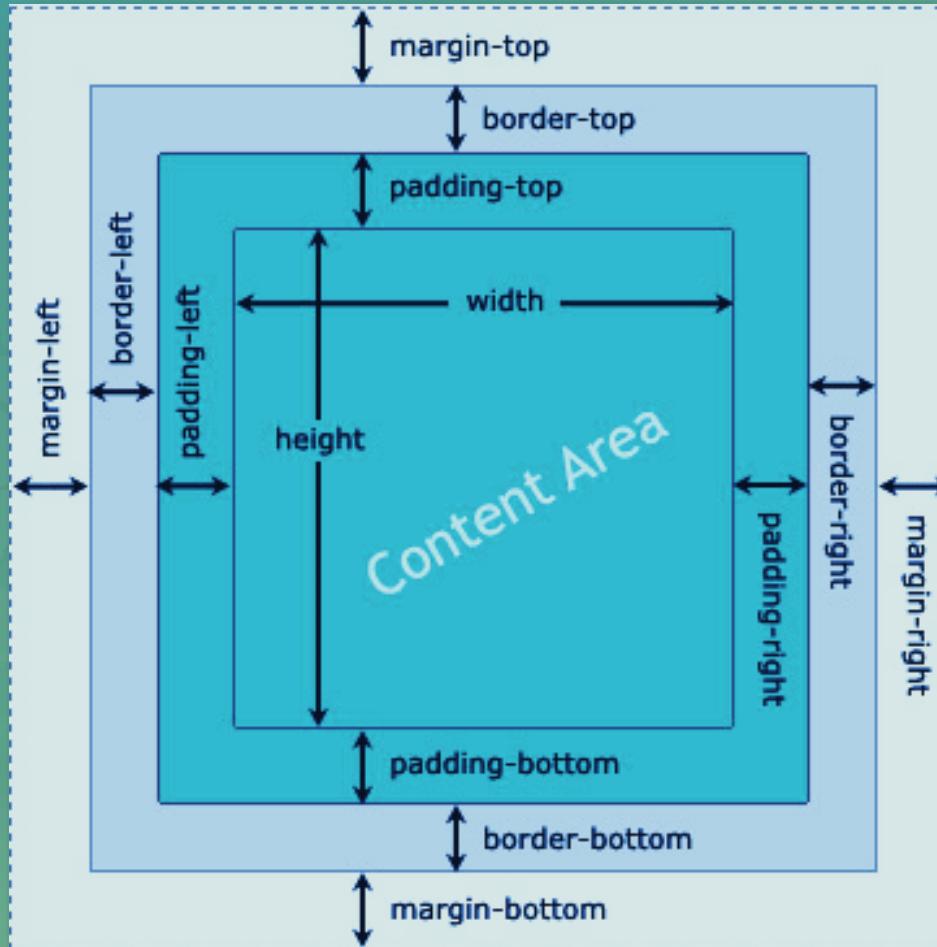
CSS PROPERTIES.....

CSS BOX MODEL

- Each element is comprised of one or more rectangular boxes.
- CSS box model describes how these rectangular boxes are arranged and displayed on a web page.

CSS BOX MODEL

Total Width =
width +
padding-left +
padding-right +
border-left +
border-right +
margin-left +
margin-right



Total Height =
height +
padding-top +
padding-bottom +
border-top +
border-bottom +
margin-top +
margin-bottom

CSS DISPLAY

- Display property specifies how an element will be displayed.
- It is used to control layouts.
- Each HTML element have a default display value according to type of element.
 - Inline : <a>
 - Block : <div> <hn> <form> <p>
- Default display value can be override by display property.

display : inline | block | none

CSS POSITION

- Position property defines different ways to uniquely position an element.
- The position property have five different position values.
 - **static** : according to the normal flow of web page
 - **relative** : relative to its normal position
 - **fixed** : relative to the viewport
 - **absolute** : relative to the nearest positioned ancestor
 - **sticky** : based on the user's scroll position

CSS POSITION

- Position property defines different ways to uniquely position an element.

position : static | relative | fixed | absolute | sticky

top : CSS length

bottom : CSS length

left : CSS length

right : CSS length



CSS COMBINATORS & PSEUDO-CLASS

GROUPING CSS SELECTORS

- It is possible to group multiple selectors with similar style definitions.
- The grouping selector selects multiple HTML elements.
- Selectors are separated with a comma in grouping.

```
<head>
  <style>
    S1 , S2 , #id , .cls {
      ;           ;           ;
  }
</style>
</head>
```

CSS COMBINATORS

- Combinators defines relationship between two selectors in a style rule.
- Complex selectors can be specified with combinators.
- There are four types of CSS combinators:
 - Descendant selector (**space**)
 - Child selector (**>**)
 - General sibling selector (**~**)
 - Adjacent sibling selector (**+**)

CSS COMBINATORS

■ Descendant selector (**space**)

- This combinator combines the two selectors such that selected elements have an ancestor same as the first selector.
- It selects all the descendant element of specified element.

```
<head>
  <style>
    S1 S2 {           ;           ;           }
  </style>
</head>
```

CSS COMBINATORS

Child selector (>)

- This combinator combines the two selectors such that selected elements are the children of the first selector.
- It selects all the element that are child elements of specified element.

```
<head>
  <style>
    S1 > S2 { ; ; }
  </style>
</head>
```

CSS COMBINATORS

■ General sibling selector (~)

- This combinator combines the two selectors such that selected elements are siblings of the first selector.
- It selects all the element that are sibling elements of specified element.

```
<head>
  <style>
    S1 ~ S2 { ; ; }
  </style>
</head>
```

CSS COMBINATORS

■ Adjacent sibling selector (+)

- This combinator combines the two selectors such that selected element is immediately after the first selector.
- It selects an element that is directly after the specified element.

```
<head>
  <style>
    S1 + S2 { ; ; }
  </style>
</head>
```

CSS PSEUDO-CLASSES

- Pseudo class of an elements defines define the special state of an element.
- It is used in combination of a CSS selector to provide special effect to existing elements based on their states.
- Syntax:

```
selector : pseudo-class {     property: value ;  
                                }  
                                }
```

CSS PSEUDO-CLASSES

- There are so many Pseudo classes in CSS.
- Mostly used Pseudo classes are :
 - :hover when mouse pointer is over element
 - :active when user click on the element
 - :focus when an element is focused
 - :first-child select first child of selector elements.