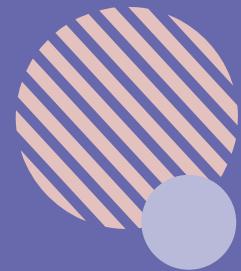


# Web Programming

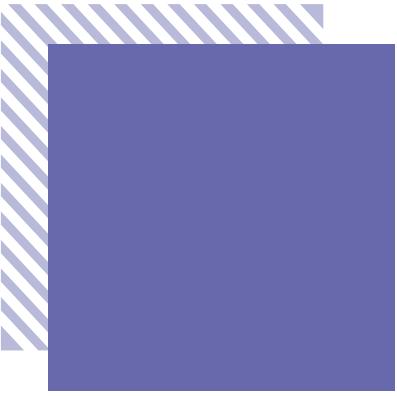
## CSS3 Basics

Instructor: Prof. SoYeop Yoo  
School of Computing, Gachon University

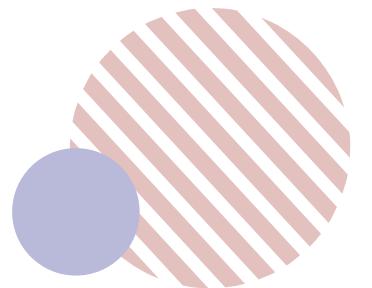


# CONTENTS

- 01 CSS3 Overview**
- 02 Background and Text**
- 03 Selectors**
- 04 Div and Span**
- 05 Exercises**



# CSS3 Overview





# Web Page using HTML5 Only

---

```
<!DOCTYPE html>
<html>
  <head>
    <title>Style Sheet</title>
  </head>
  <body>
    <h2>CSS3 Style Sheet</h2>
    <p>I like <span>Web Programming</span></p>
  </body>
</html>
```

## CSS3 Style Sheet

I like Web Programming

# Web Page using HTML5 + CSS3

```
<!DOCTYPE html>
<html>
  <head>
    <title>Style Sheet</title>
    <style>
      body {
        background-color: mistyrose;
      }
      h2 {
        color: purple;
      }
      span {
        font-size: 20pt;
        color: red;
      }
    </style>
  </head>
  <body>
    <h2>CSS3 Style Sheet</h2>
    <p>I like <span>Web Programming</span></p>
  </body>
</html>
```

**CSS3 Style Sheet**

I like Web Programming



# Many Styles

## Styles

- Same HTML documents can be presented in many different styles

The screenshot shows a web browser window with the URL [https://www.w3schools.com/css/demo\\_default.htm](https://www.w3schools.com/css/demo_default.htm). The page has a green header bar with the text "Welcome to My Homepage" and "Use the menu to select different Stylesheets". Below the header is a navigation menu with five items: "Stylesheet 1" (highlighted in green), "Stylesheet 2", "Stylesheet 3", "Stylesheet 4", and "No Stylesheet". The main content area contains two sections: "Same Page Different Stylesheets" and "No Styles". The "Same Page Different Stylesheets" section includes a blue sidebar with the text "Side-Bar" and a paragraph of placeholder text. The "No Styles" section includes a link to "No Stylesheet". At the bottom of the page is a footer with a long string of placeholder text.

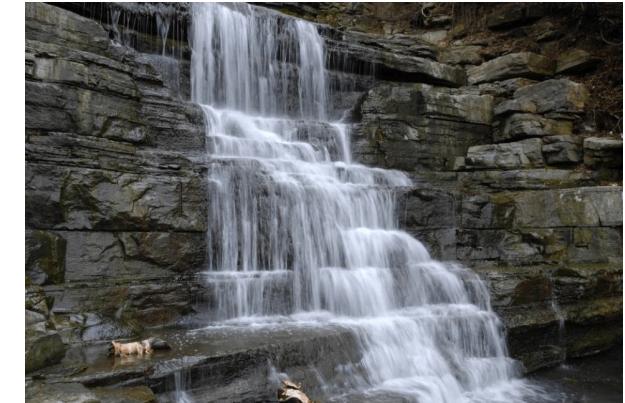
The screenshot shows the same web browser window with the URL [https://www.w3schools.com/css/demo\\_default.htm](https://www.w3schools.com/css/demo_default.htm). The page has a red header bar with the text "Welcome to My Homepage" and "Use the menu to select different Stylesheets". The navigation menu items are now styled with rounded red buttons: "Stylesheet 1", "Stylesheet 2" (highlighted in red), "Stylesheet 3", "Stylesheet 4", and "No Stylesheet". The main content area contains the same "Same Page Different Stylesheets" and "No Styles" sections as the first screenshot, but with red styling applied to the text and background colors. The footer is identical to the first screenshot.



# Cascading Style Sheets (CSS)

## ■ What is CSS?

- CSS defines how to display the HTML elements
- CSS can save a lot of work on styles
- A document may be presented in more than one style for different areas and media
- W3C Recommendations
  - CSS1 (1996), CSS2 (1998), CSS3 (2011~)



*Cascading waterfall*



```
1 body{background-color:#3333; color:white;}  
2 p{color:red;}
```



## ■ Concept

- Separation of presentation (style) from contents
  - Use HTML to describe the contents
  - Use style sheets to define presentation (style)
- Benefits: CSS allows
  - Changes in presentation independently of the contents
  - Handling **alternative media** more appropriately





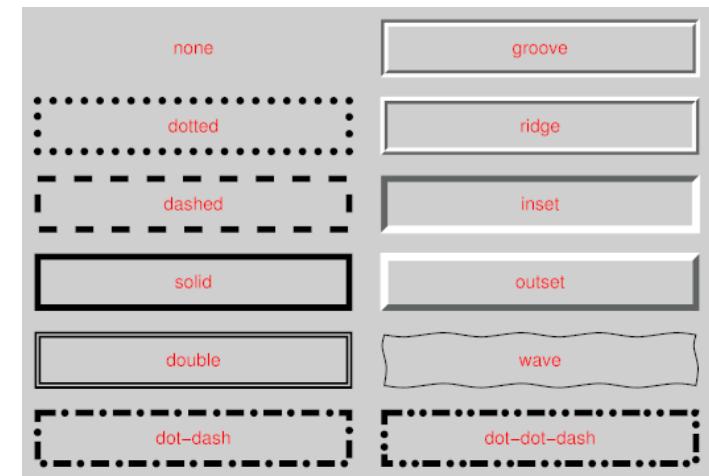
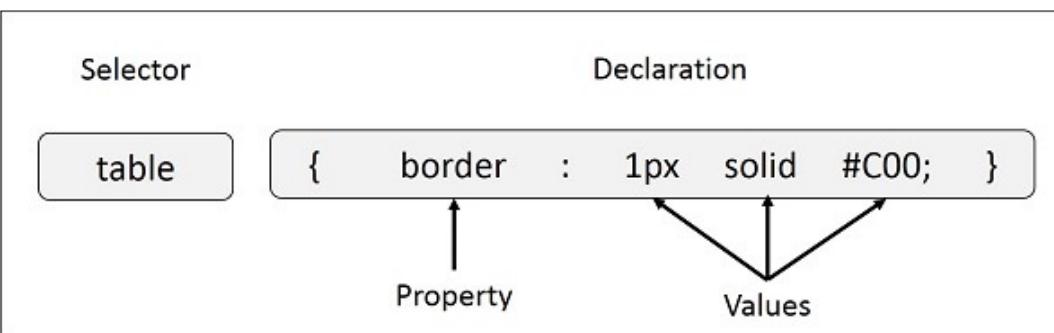
# CSS Representation

```
1 ⚡ <head>
2 ⚡   <style>
3     h1{color:red;}
4     h3{color:green;}
5     p {color:blue;}
6   </style>
7 </head>
8 ⚡ <body>
9   <h1>This is a level-1 heading. </h1>
10  <h3>This is a level-3 heading. </h3>
11  <p> This is a paragraph. </p>
12 </body>
```

This is a level-1 heading.

This is a level-3 heading.

This is a paragraph.





# CSS Units (1/2)

---

## ■ Units

- CSS has several different units for expressing length
- Many CSS properties take "length" values,  
such as **width**, **margin**, **padding**, **font-size**, etc.
- Length is a number followed by a length unit, such as 10px, 2em, etc.
- A whitespace cannot appear between the number and the unit  
**However, if the value is 0, the unit can be omitted**
- For some CSS properties, **negative lengths are allowed**
- There are two types of length units
  - absolute
  - relative



# CSS Units (2/2)

## Absolute Length

### Unit Description

cm centimeters

mm millimeters

in inches ( $1\text{in} = 96\text{px} = 2.54\text{cm}$ )

px \* pixels ( $1\text{px} = 1/96\text{th of 1in}$ )

pt points ( $1\text{pt} = 1/72 \text{ of 1in}$ )

pc picas ( $1\text{pc} = 12 \text{ pt}$ )

## Relative Length

### 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 width of the "0" (zero)

rem Relative to font-size of the root element

% Relative to the parent element



# CSS Syntax (1/2)

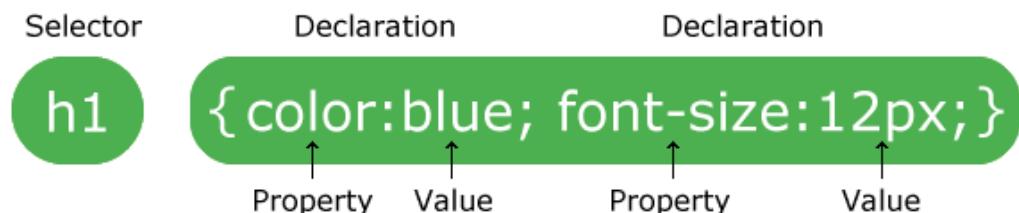
## ■ A style rule consists of:

- **Selector**
  - e.g., HTML elements (p, h1, h3,)
- **Declaration**
  - e.g., { color: red; }

## ■ A declaration consists of:

- **Property (attribute)** (e.g., color, font-style)
- Value (e.g., red, italic)
- Separated by a colon (:)
- Ended by a semicolon (;)
- Enclosed in braces ({} )

```
1 ⊱ <head>
2 ⊱   <style type="text/css">
3 ⊱     p {
4           color: red;
5           font-style: italic;
6         }
7     </style>
8 </head>
```





# CSS Syntax (2/2)

## ■ Comments

- CSS comment is placed inside the `<style>` element
- Single line comments
  - `/* single-line comment */`
- Comment block
  - `/* multi-line ...  
... comment */`

```
<head>
  <style type="text/css">
    /* This is
       a multi-line
       comment */
    p {
      color: red; /* This is a single-line comment */
      font-style: italic;
    }
  </style>
</head>
```



# Placement of Style Sheets

## Placement

- There are three ways of inserting a style sheet in an HTML document
- Inline style

```
<body>
  <h2 style="color:green; text-decoration:underline">
    Apply styles using inline styles. <h2>
  </body>
```

- Internal style sheet

```
<head>
  <style>
    body { background-color: lightyellow; }
    h2 { color: red; text-decoration: underline; }
  </style>
</head>
```

- External style sheet

```
<head>
  <link rel="stylesheet" href="css/expand_style.css">
</head>
```



# Inline Style (1/2)

---

## ■ **Inline Style**

- An inline style may be used to apply a unique style for a single element.
- To use inline styles, add the style attribute to the relevant element. The style attribute can contain any CSS property.
- ex.
  - <p style="color:gray;">This text will be gray.</p>



# Inline Style (2/4)

## ■ Example

- Save the source code below to ex4-1.html

### Spring day

After the end of the cold winter, until spring comes again

Stay there a little longer until the flowers bloom

please stay

```
<!DOCTYPE html>
<html>
  <head>
    <title>Inline Style</title>
  </head>
  <body>
    <h3>Spring day</h3>
    <p>After the end of the cold winter, until spring comes again</p>
    <p>Stay there a little longer until the flowers bloom</p>
    <p>please stay</p>
  </body>
</html>
```



# Inline Style (3/4)

## ■ Example (cont'd)

- Create ex4-2.html by adding the following changes:

- Spring day
  - color: blue
- Stay there a little longer until the flowers bloom
  - color: purple
  - background-color: gold

**Spring day**

After the end of the cold winter, until spring comes again

**Stay there a little longer until the flowers bloom**

please stay



# Inline Style (4/4)

## ■ Example (cont'd)

### ■ Solution

```
<!DOCTYPE html>
<html>
  <head>
    <title>Inline Style</title>
  </head>
  <body>
    <h3 style="color: blue">Spring day</h3>
    <p>After the end of the cold winter, until spring comes again</p>
    <p style="color: purple; background-color: gold">
      Stay there a little longer until the flowers bloom
    </p>
    <p>please stay</p>
  </body>
</html>
```



# Internal Style Sheet (1/4)

---

## ■ Internal CSS

- An internal style sheet may be used if one single HTML page has a unique style.
- The internal style is defined inside the `<style>` element, inside the head section.
- ex.
  - `<head>`  
`<style type = "text/css"> styles go here </style>`  
`</head>`



# Internal Style Sheet (2/4)

## ■ Example 1

```
<!DOCTYPE html>
<html>
  <head>
    <title>Internal Style</title>
    <style type="text/css">
      /* Defined in the head section */
      h1 {
        color: blue;
      }
    </style>
  </head>
  <body>
    <h1>This is a heading.</h1>
    <h1>This is another heading.</h1>
  </body>
</html>
```

This is a heading.

This is another heading.



# Internal Style Sheet (3/4)

## ■ Example 2 (based on ex4-1.html)

- Add the following changes to ex4-1.html and save it as ex4-3.html
  - Spring day
    - h3 { color: blue; background-color: gold; }
  - Full sentence
    - p { color: brown; }

**Spring day**

After the end of the cold winter, until spring comes again

Stay there a little longer until the flowers bloom

please stay



# Internal Style Sheet (4/4)

## ■ Example 2 (cont'd)

### ■ Solution

```
<!DOCTYPE html>
<html>
  <head>
    <title>Internal Style Sheet</title>
    <style>
      h3 {
        color: blue;
        background-color: gold;
      }
      p {
        color: brown;
      }
    </style>
  </head>
  <body>
    <h3>Spring day</h3>
    <p>After the end of the cold winter, until spring comes again</p>
    <p>Stay there a little longer until the flowers bloom</p>
    <p>please stay</p>
  </body>
</html>
```



# External Style Sheet (1/3)

---

## ■ External CSS

- With an external style sheet, you can change the look of an entire website by changing just one file!
- An external style sheet can be written in any text editor, and must be saved with a .css extension.
- The external .css file should not contain any HTML tags.
- Each HTML page must include a reference to the external style sheet file inside the <link> element, inside the head section.
- ex.
  - <link rel="stylesheet" type="text/css" href="style1.css">



# External Style Sheet (2/3)

## ■ Example

- Add the following conditions to ex4-1.html and save it as ex4-4.html
  - myStyle.css
    - h3 { color: green; background-color: pink; }
  - Sprint day
    - <h3>

**Spring day**

After the end of the cold winter, until spring comes again

Stay there a little longer until the flowers bloom

please stay



# External Style Sheet (3/3)

## ■ Example (cont'd)

### ■ Solution

ex4-4.html

```
<!DOCTYPE html>
<html>
  <head>
    <title>External Style Sheet</title>
    <link href="myStyle.css" type="text/css" rel="stylesheet" />
  </head>
  <body>
    <h3>Spring day</h3>
    <p>After the end of the cold winter, until spring comes again</p>
    <p>Stay there a little longer until the flowers bloom</p>
    <p>please stay</p>
  </body>
</html>
```

myStyle.css

```
h3 {
  color: green;
  background-color: pink;
}
```



# Referencing the CSS File (1/3)

## ■ Referencing the .css file

- Two ways to reference external style sheets
  - Link or import
  - The URL of the style sheet needs to be specified

```
<!DOCTYPE html>
<html>
  <head>
    <link rel="stylesheet" type="text/css" href="style.css" />
    <style type="text/css">
      @import url("style.css");
    </style>
  </head>
</html>
```



# Referencing the CSS File (2/3)

## Link

- `<link rel="stylesheet" type="text/css" href="...>`
- Placed in the head section before any internal style rules
- *href* specifies the URL of the external style sheet

```
1 <!-- external CSS -->
2 <link rel="stylesheet" type="text/css" href="T4-22_style.css">
3 <body>
4   <h1>Alpha is the first letter of the Greek alphabet.</h1>
5   <h2>Beta is the second letter of the Greek alphabet.</h2>
6   <p>Gamma is the third letter of the Greek alphabet.</p>
7 </body>
```



(T4-22\_style.css)

```
1 h1 { color: red; }
2 h2 { color: green; }
3 p { color: blue; }
```

Alpha is the first letter of the Greek alphabet.  
Beta is the second letter of the Greek alphabet.  
Gamma is the third letter of the Greek alphabet.



# Referencing the CSS File (3/3)

## ■ Import

- `@import url("...");` or `@import "...";`
- Placed at the **start** of a style sheet before any declarations

```
1 □ <style type="text/css">
2     @import url("T4-22_style.css"); /* external CSS */
3     h3 { font-style: italic; }      /* internal CSS */
4 </style>
5 □ <body>
6     <h1>Alpha is the first letter of the Greek alphabet.</h1>
7     <h2>Beta is the second letter of the Greek alphabet.</h2>
8     <p>Gamma is the third letter of the Greek alphabet.</p>
9     <h3>Delta is the fourth letter of the Greek alphabet.</h3>
```

Alpha is the first letter of the Greek alphabet.

Beta is the second letter of the Greek alphabet.

Gamma is the third letter of the Greek alphabet.

*Delta is the fourth letter of the Greek alphabet.*





# Group Style (1/2)

## ■ Group selectors

- Multiple selectors share the same declaration

```
h1 { color: blue; }  
h2 { color: blue; }  
h3 { color: blue; }
```



```
h1, h2, h3 { color: blue; }
```

Level-1 heading

Level-2 heading

Level-3 heading



```
1 <html>  
2   <head>  
3     <style type="text/css">  
4       h1, h2, h3 { color : blue; }  
5     </style>  
6   </head>  
7   <body>  
8     <h1>Level-1 heading</h1>  
9     <h2>Level-2 heading</h2>  
10    <h3>Level-3 heading</h3>  
11  </body>  
12 </html>
```



# Group Style (2/2)

## Group declarations

- Several declarations for the same selector

```
h2 { font-style: italic; }
h2 { background-color: silver; }
```



```
h2 {
  font-style: italic;
  background-color: silver;
}
```

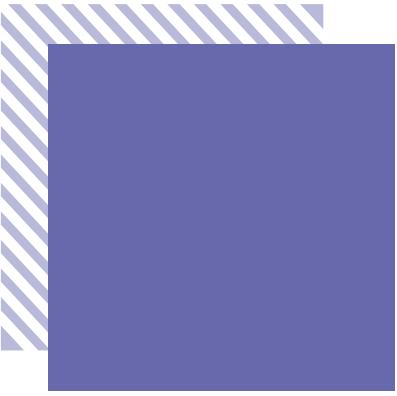
Level-1 heading

Level-2 heading

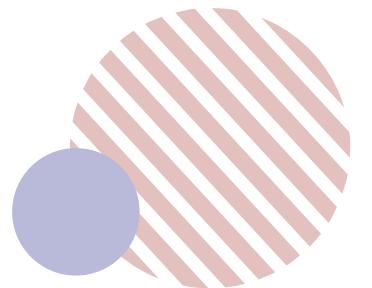
Level-3 heading



```
1 <html>
2 <head>
3   <style type="text/css">
4     h1, h2, h3 { color : blue; }
5     h2 { font-style:italic;
6           background-color:silver; }
7   </style>
8 </head>
9 <body>
10   <h1>Level-1 heading</h1>
11   <h2>Level-2 heading</h2>
12   <h3>Level-3 heading</h3>
13 </body>
14 </html>
```



# Background and Text





# Color Names and Codes

## Color Names

- CSS/HTML supports 140 standard color names
- e.g., black, blue, gray, green, purple, white, red, yellow

## Color Codes

- RGB
  - RGB color value represents RED, GREEN, and BLUE light sources
  - In CSS
    - `rgb` (red, green, blue)
- HEX
  - Hexadecimal color is specified with `#RRGGBB`
  - RR(red), GG(green), BB(blue)
  - In CSS
    - `#rrggbb`

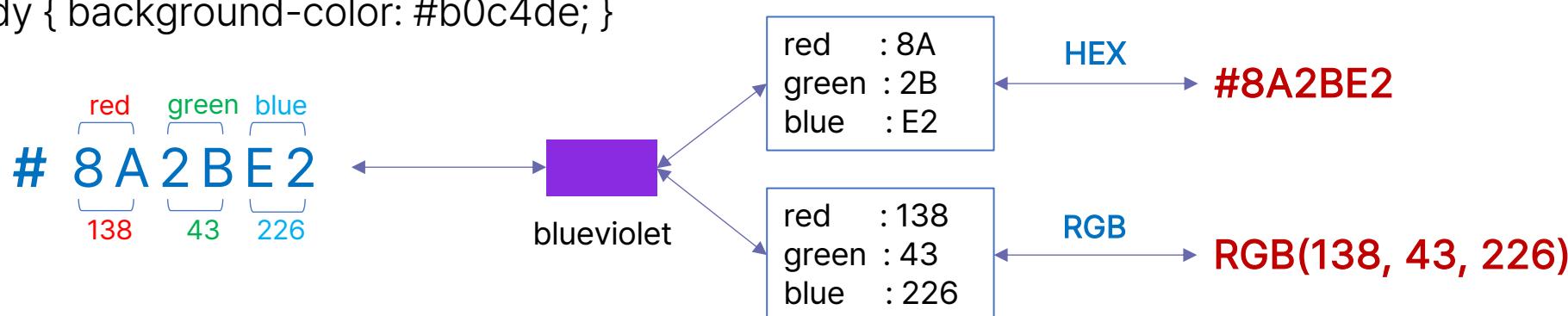
Named	Numeric	Color name	Hex	rgb	Decimal
		<i>black</i>	#000000	0,0,0	
		<i>silver</i>	#C0C0C0	192,192,192	
		<i>gray</i>	#808080	128,128,128	
		<i>white</i>	#FFFFFF	255,255,255	
		<i>maroon</i>	#800000	128,0,0	
		<i>red</i>	#FF0000	255,0,0	
		<i>purple</i>	#800080	128,0,128	
		<i>fuchsia</i>	#FF00FF	255,0,255	
		<i>green</i>	#008000	0,128,0	
		<i>lime</i>	#00FF00	0,255,0	
		<i>olive</i>	#808000	128,128,0	
		<i>yellow</i>	#FFFF00	255,255,0	
		<i>navy</i>	#000080	0,0,128	
		<i>blue</i>	#0000FF	0,0,255	
		<i>teal</i>	#008080	0,128,128	
		<i>aqua</i>	#00FFFF	0,255,255	



# Background Color

## ■ Background-color property

- Specifies the background color of an element
- Can be specified by:
  - Name: a color name, e.g., red
  - RGB: an RGB value, e.g., rgb(255,0,0)
  - Hex: a hex value, e.g., #ff0000
    - h1 { background-color: #6495ed; }
    - p { background-color: #e0ffff; }
- Background color of a page is defined in the body selector
  - body { background-color: #b0c4de; }





# CSS Text (1/2)

## Text alignment



- Sets the horizontal alignment of text
- Value: left, center, right, justify

```
H1 { text-align: center; }  
P { text-align: right; }
```

## Text decoration

- Sets or removes decoration from text
- Value: none, overline, line-through, underline

```
h1 { text-decoration: none; }  
h2 { text-decoration: underline; }  
h3 { text-decoration: overline; }
```



```
1 <!DOCTYPE html>  
2 <html lang="ko">  
3 <head>  
4   <style type="text/css">  
5     h1 { text-align : center;  
6           text-decoration:none; }  
7     h2 { text-decoration : underline; }  
8     h3 { text-decoration : overline; }  
9     p { text-align : right; }  
10    </style>  
11  </head>  
12 <body>  
13   <h1> This is heading 1. </h1>  
14   <h2> This is heading 2. </h2>  
15   <h3><p> This is heading 1. </p></h3>  
16 </body>  
17 </html>
```



This is heading 1.

This is heading 2.

This is heading 1.



# CSS Text (2/2)

## ■ Text color

- Sets the color of the text

```
body { color: blue; }  
h1 { color: #00ff00; }
```

Level-1 heading

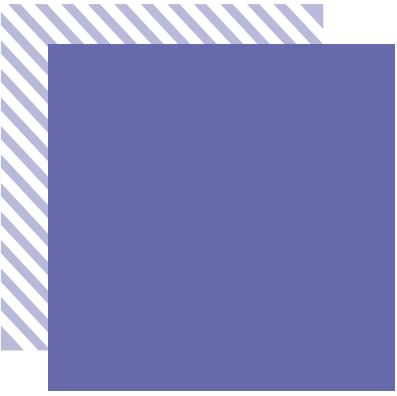
Level-2 heading

```
1 <html>  
2   <head>  
3     <style type="text/css">  
4       body { color : blue; }  
5       h1 { color : #00ff00; }  
6       p { text-indent : 50px; }  
7     </style>  
8   </head>  
9   <body>  
10    <h1>Level-1 heading</h1>  
11    <p> Level-2 heading</p>  
12  </body>  
13 </html>
```

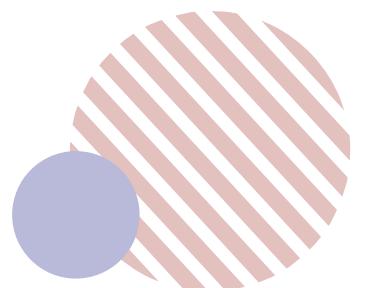
## ■ Text indentation

- Specifies the indentation of the first line of a text

```
p { text-indent: 50px; }
```



# Selectors





# Selectors

## ■ Selector

- In CSS, selectors are patterns used to select the element(s) you want to style.
  - Use to select one specific tag in HTML, or to select multiple at the same time.
- Note:
  - There are many selectors. In this class, we will study only the following 4 selectors.

selector	syntax	description
universal	<code>* { property : value; }</code>	Apply style to all tags in a web document
tag	<code>tag {property: value; }</code>	Apply style to the tags you set up
class	<code>.class name {property: value; }</code>	Apply style to the class you set up
ID	<code>#id name {property: value; }</code>	Apply style to the ID you set up



# Universal Selector (1/2)

---

## ■ Universal (or \*) Selector

- The \* selector selects all elements.
- The \* selector can also select all elements inside another element.



# Universal Selector (2/2)

## Example

### Lava in New York

#### Characters

- Yellow
- Red
- Brown

Yellow and Red, who have lost their home, are driven into the streets when a small, worn-out house between high-rise buildings is demolished.

There is no sewer to return to now, and street life is a series of hardships for Elo and Red, who are accustomed to living at home.

```
<!DOCTYPE html>
<html>
  <head>
    <title>Universal Selector</title>
    <style>
      * {
        color: purple;
        background-color: mistyrose;
      }
    </style>
  </head>
  <body>
    <h2>Lava in New York</h2>
    <div>Characters</div>
    <ul>
      <li>Yellow</li>
      <li>Red</li>
      <li>Brown</li>
    </ul>
    <div>
      Yellow and Red, who have lost their home, are driven into the streets when a small, worn-out house between high-rise buildings is demolished.
    </div>
    <div>
      There is no sewer to return to now, and street life is a series of hardships for Elo and Red, who are accustomed to living at home.
    </div>
  </body>
</html>
```



# Tag Selector (1/2)

---

## ■ Tag Selector

- The tag selector is used to redefine existing HTML tags.
- Select this option if you want to change the formatting options for an HTML tag, such as the `<h1>` (heading 1) tag or the `<ul>` (unordered list) tag.
- In many cases, redefining existing HTML tags with CSS has advantages over creating new styles.
- For example, content formatted with the Heading 1 tag is well recognized on the Web as the most important text on a page. For that reason, many search engines give priority to text formatted with the Heading 1 tag. so on.



# Tag Selector (2/2)

## Example

### Lava in New York

#### Characters

- Yellow
- Red
- Brown

Yellow and Red, who have lost their home, are driven into the streets when a small, worn-out house between high-rise buildings is demolished.

There is no sewer to return to now, and street life is a series of hardships for Elo and Red, who are accustomed to living at home.

```
<!DOCTYPE html>
<html>
  <head>
    <title>Tag Selector</title>
    <style>
      h2, li { color: blue; }
      p {
        color: red;
        font-size: 14pt;
      }
    </style>
  </head>
  <body>
    <h2>Lava in New York</h2>
    <div>Characters</div>
    <ul>
      <li>Yellow</li>
      <li>Red</li>
      <li>Brown</li>
    </ul>
    <div>
      Yellow and Red, who have lost their home, are driven into the streets when
      a small, worn-out house between high-rise buildings is demolished.
    </div>
    <div>
      There is no sewer to return to now, and street life is a series of
      hardships for Elo and Red, who are accustomed to living at home.
    </div>
  </body>
</html>
```



# ID Selector (1/4)

---

## ■ ID Selector

- The `#id` selector styles the element with the specified id.
- Styles for selected elements
  - ID provides a way of referring **uniquely** to a specific element
  - ID can be used **only once** in an HTML document
  - To reference the style, use the attribute `id="idName"`
    - NOTE: idName is case-sensitive; e.g., "abcid" ≠ "ABCid"
  - Use hash `elmName#idName` to define multiple styles for a specific HTML element elmName



# ID Selector (2/4)

## Example

### Lava in New York

#### Characters

- Yellow
- Red
- Brown

Yellow and Red, who have lost their home, are driven into the streets when a small, worn-out house between high-rise buildings is demolished.

There is no sewer to return to now, and street life is a series of hardships for Elo and Red, who are accustomed to living at home.

```
<!DOCTYPE html>
<html>
  <head>
    <title>ID Selector</title>
    <style>
      #list { background-color: gold; }
      div#list-title {
        font-weight: bold;
        color: green;
      }
    </style>
  </head>
  <body>
    <h2>Lava in New York</h2>
    <div id="list-title">Characters</div>
    <ul id="list">
      <li>Yellow</li>
      <li>Red</li>
      <li>Brown</li>
    </ul>
    <div>
      Yellow and Red, who have lost their home, are driven into the streets when a small, worn-out house between high-rise buildings is demolished.
    </div>
    <div>
      There is no sewer to return to now, and street life is a series of hardships for Elo and Red, who are accustomed to living at home.
    </div>
  </body>
</html>
```



# ID Selector (3/4)

---

## ■ Naming Rules for ID Selector

- The first letter should start with a letter. (a-z or A-Z)
- From the second, letters, numbers, and '-' or '\_' can be used.
- Distinguish between upper and lower case.
- Correct names
  - abc, Hello, button-2, simpleText, mark\_test and so on
- Incorrect names
  - 2nd, \$upper, -top, ch#1, ^^, rec\*3 and so on
- When expressing multiple words,
  - use the Camel notation (e.g., nameHead)
  - use \_ or - to combine them (e.g., name\_Head, name-Head)



# ID Selector (4/4)

## Applied Examples

- Where styles do not apply

```
<style>
    #a {color:red; font-size:30px;}
    #b {color:blue; font-size:18px;}
</style>

<p id="a b">Style should not be applied</p>
```

- Where only one style applies

```
<style>
    #a {color:red; font-size:30px;}
    #b {color:blue; font-size:18px;}
</style>

<p id="a" id="b">only a style applies</p>
```



# Class Selector (1/3)

---

## ■ Class Selector

- The .class selector selects elements with a specific class attribute.
- To select elements with a specific class, write a period (.) character, followed by the name of the class.
- Styles for classes
  - Defined as **elmName.className**
    - elmName is optional (e.g., .question, p.question)
  - Specify elmName to define multiple styles for a specific HTML element (e.g., h1, h3, p)
  - Omit elmName (or specify elmName as \*) to define a style for any element
    - e.g., the same style for both elements <h1> and <h3>

# Class Selector (2/3)

## Class

- Allows web designers to group elements together
- Can be referred to many times in an HTML document
- To apply the style, use the attribute **class="className"**
  - Note: className is case-sensitive

```
1 <html>
2  <head>
3    <meta charset="utf-8">
4    <title>Class Selector</title>
5  <style type="text/css">
6    .example { color : blue ; }
7    .example-fruit { font-weight : bold; }
8  </style>
9  </head>
10 <body>
11   <div class="example">Onions, carrots, radishes, Chinese cabbage, lettuce...</div>
12   <!-- Vegetable names appear only in blue text --> <br>
13   <div class="example example-fruit">Tangerines, apples, grapes, bananas, pears...</div>
14   <!-- The fruit name is blue and is shown in bold font.--> <br>
15 </body>
16 </html>
```

The diagram illustrates the relationship between CSS styles and their corresponding HTML output. A green arrow points from the highlighted CSS block at the bottom left to two separate boxes on the right. The top box contains the text "Onions, carrots, radishes, Chinese cabbage, lettuce..." in blue. The bottom box contains the text "Tangerines, apples, grapes, bananas, pears..." in blue. Both pieces of text are enclosed in a light blue rounded rectangle.



# Class Selector (3/3)

## Example

### Lava in New York

#### Characters

- Yellow
- Red
- Brown

Yellow and Red, who have lost their home, are driven into the streets when a small, worn-out house between high-rise buildings is demolished.

There is no sewer to return to now, and street life is a series of hardships for Elo and Red, who are accustomed to living at home.

```
<!DOCTYPE html>
<html>
  <head>
    <title>Class Selector</title>
    <style>
      .yellow { background-color: yellow; }
      div.brown { color: brown; }
    </style>
  </head>
  <body>
    <h2>Lava in New York</h2>
    <div id="list-title">Characters</div>
    <ul id="list">
      <li class="yellow">Yellow</li>
      <li>Red</li>
      <li class="brown">Brown</li>
    </ul>
    <div class="yellow">
      Yellow and Red, who have lost their home, are driven into the streets when
      a small, worn-out house between high-rise buildings is demolished.
    </div>
    <div class="brown">
      There is no sewer to return to now, and street life is a series of
      hardships for Elo and Red, who are accustomed to living at home.
    </div>
  </body>
</html>
```



# Class Selector vs. ID Selector

---

## ■ Similarities

- Assign an identifier to define a special case for an element
- Apply a certain formatting style to specified areas

## ■ Differences

- ID (unique)
  - Each element can have only one ID
  - Each page can have only one element with that ID
- Class (not unique)
  - You can use the same class on multiple elements
  - You can use multiple classes on the same element



# Why ID Selectors?

## IDs

- IDs can act as anchors for links
  - <h1 id="hid">Chapter 1</h1>
  - Link to <a href="#hid">Chapter 1</a>
- When IDs are defined in the external CSS, they can be used in multiple web pages

```
1 <html>
2 <head>
3   <title>HTML5 Basic</title>
4 </head>
5 <body>
6   <a href="#alpha">Move to Alpha</a>
7   <a href="#beta">Move to Beta</a>
8   <a href="#gamma">Move to Gamma</a>
9   <hr />
10  <h1 id="alpha">Alpha</h1>
11  <p>Alpha is the first letter of the Greek alphabet.</p>
12  <h1 id="beta">Beta</h1>
13  <p>Beta is the second letter of the Greek alphabet.</p>
14  <h1 id="gamma">Gamma</h1>
15  <p>Gamma is the third letter of the Greek alphabet.</p>
16 </body>
17 </html>
```

[Move to Alpha](#alpha) [Move to Beta](#beta) [Move to Gamma](#gamma)

### Alpha

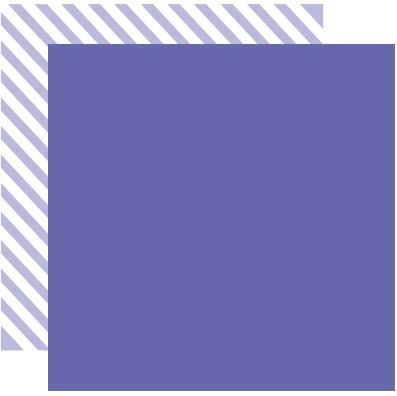
Alpha is the first letter of the Greek alphabet.

### Beta

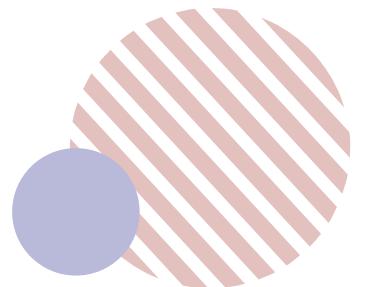
Beta is the second letter of the Greek alphabet.

### Gamma

Gamma is the third letter of the Greek alphabet.



# Div and Span



# (Review) **div** and **span** Tags (1/2)

---

## ■ *div* and *span* tags

- span and div both group together related parts of a web page.
- They are often used with CSS3 to design the web page.
- But they serve different functions.

## ■ **div** (division)

- divs define logical divisions on your web page. A div is basically a box (block) in which you can place other HTML elements that belong together.
- A block is a page element that starts a new line and has a width equal to the entire page or the parent container.
- divs are most often used to group related paragraphs, images, headings, and links.
- A division can even have other divisions inside of it to provide additional structure and organization.



## (Review) div and span Tags (2/2)

---

### ■ span

- A span element is used for inline organization and styling.
- The span element is typically used to wrap a specific piece of content such as text to give it an additional hook you can use to add styles. Without any style attributes, however, span has no effect on text at all.
- An inline element does not start a new line and only takes up as much space on the page as its content.
- Span tags are used on small segments of text, links, images, and other HTML elements that appear inline with the surrounding content.



# <div> and <span> (1/2)

## ■ <div> and <span> Tag

- Tags used to split space
- Why split the space?
  - Used to create the layout of web pages
  - Combined with CSS, it is useful for designing web pages

<div> tag	<span> tag
<ul style="list-style-type: none"><li>○ Split for the entire space of a web browser</li><li>○ Vertical form</li><li>○ auto line break</li></ul>	<p style="text-align: center;">DIV1</p> <ul style="list-style-type: none"><li>○ Split only a subset of areas of your web browser</li><li>○ Horizontal form</li><li>○ no auto line break</li></ul> <p style="text-align: center;">span1 span2</p>

## <div> and <span> (2/2)

### ■ Example

```
1 <html>
2  <head>
3    <meta charset="UTF-8">
4    <title>span tag / div tag </title>
5 </head>
6  <body>
7    <div>div tag area 1</div>
8    <div>div tag area 2</div>
9    <br/><br/>
10   <span>span tag area 1</span>
11   <span>span tag area 2</span>
12 </body>
13 </html>
```

div tag area 1  
div tag area 2

span tag area 1 span tag area 2



# With CSS (1/2)

## ■ <span> Tag

- Example

```
1 <!DOCTYPE html>
2 <html>
3 4 <head>
4   <meta charset="utf-8">
5   <title>span tag</title>
6 7 <style text="text/css">
7   .tc { text-transform: uppercase;
8       color: red; }
9 </style>
10 </head>
11 <body>
12 <p>Span is an 13 <span class="tc"><b>in-line</b>
13 <em>grouping</em></span>level tag.
14 </p>
15 </body>
16 </html>
```

Span is an **IN-LINE GROUPING** level tag.



# With CSS (2/2)

## ■ <div> Tag

- Defines a division or section in an HTML document
- Used to group block-elements to format them with CSS
- Example

The screenshot shows a simple HTML page with two sections. Section 1 is enclosed in a dotted border and contains the text "This is a paragraph in Section 1.". Section 2 is enclosed in a solid blue border and contains the text "This is a paragraph in Section 2.". Both sections have a centered heading.

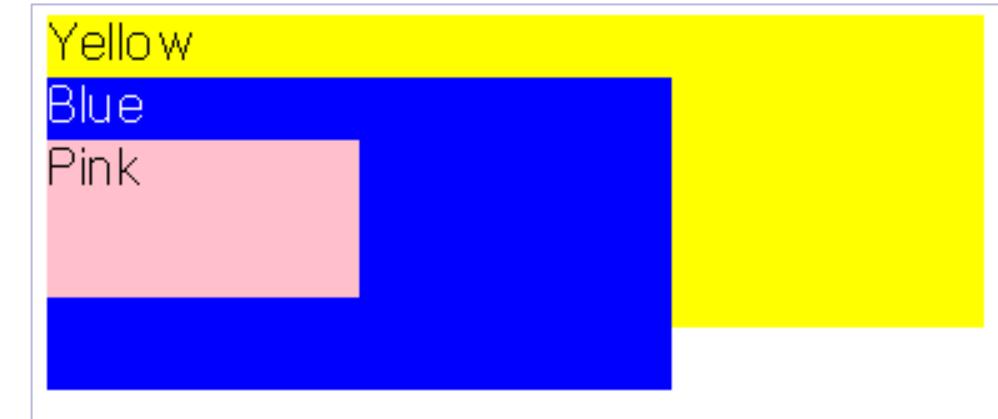
```
1  <!DOCTYPE html>
2  <html>
3  <head>
4      <meta charset="utf-8">
5      <title>div tag</title>
6  <style text="text/css">
7      #section1 { border: dotted;
8                  text-align: center;
9                  float: left; }
10     #section2 { color: blue; }
11  </style>
12 </head>
13 <body>
14 <div id="section1">
15     <h1>Section 1</h1>
16     <p>This is a paragraph in Section 1.</p>
17 </div>
18 <div id="section2">
19     <h1>Section 2</h1>
20     <p>This is a paragraph in Section 2.</p>
21 </div>
22 </body>
23 </html>
```



# Nested div Structure

## Example

```
1  <head>
2    <style type="text/css">
3      .yellow {
4        width:300px; height:100px;
5        background-color:yellow; }
6      .blue { color:white;
7        width:200px; height:100px;
8        background-color:blue; }
9      .pink { color:black;
10        width:100px; height:50px;
11        background-color:pink; }
12    </style>
13  </head>
14 <body>
15    <div class="yellow">Yellow
16      <div class="blue">Blue
17        <div class="pink">Pink
18        </div>
19      </div>
20    </div>
21  </body>
```

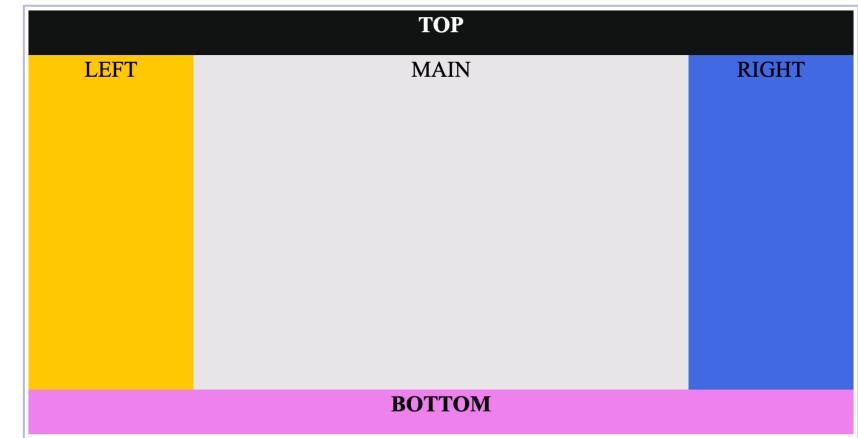


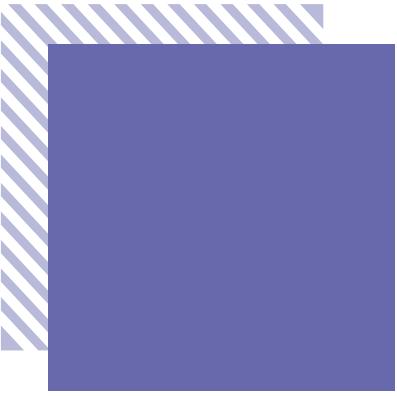


# Homepage Layout using div

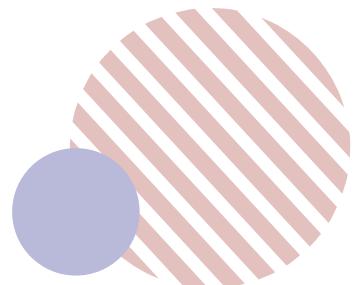
## Example

```
<!DOCTYPE html>
<html>
  <head>
    <title>Homepage Layout</title>
    <style>
      body { font-family: "Times New Roman"; font-size: 20px;
             line-height: 130%; text-align: center; }
      #top { width: 100%; height: 40px;
             background-color: #111311; color: #ffffff; }
      #top, #bottom { font-weight: bold; }
      #left, #main, #right { float: left; height: 300px; }
      #left { width: 20%; background-color: #ffc800; }
      #main { width: 60%; background-color: #e7e5e7; }
      #right { width: 20%; background-color: royalblue; }
      #bottom { width: 100%; height: 40px;
                 background-color: violet; clear: both; }
    </style>
  </head>
  <body>
    <div id="top">TOP</div>
    <div id="left">LEFT</div>
    <div id="main">MAIN</div>
    <div id="right">RIGHT</div>
    <div id="bottom">BOTTOM</div>
  </body>
</html>
```





# Exercises





# Exercise 1

## ■ External CSS and Group Styles

- Create the following two web pages using a single common external CSS
  - You should submit three files
    - 2 .html files
    - 1 .css file

(1)

**Question:**

What does CSS stand for?

**Answer:**

CSS stands for Cascading Style Sheets.

(2)

**What does CSS stand for?**

CSS stands for Cascading Style Sheets.

**Where is School of Computing?**

AI Building



## Exercise 2

---

### ■ Background-color and Text

- Create the following page with the internal CSS





## Exercise 3

---

### ■ Text

- Create the following page with the internal CSS

# This is heading 1.

This is an ordinary text. Notice that this is red.

The default text color for a page is defined in the body selector.

This is a paragraph with a <p> tag.

This is blue; use the p selector.



# Exercise 4

---

## ■ ID Selector

- Create the following web page using ID selectors
  - Every line uses <p> tag
  - The last paragraph
    - Italic: { font-style: italic; }

This is the first paragraph.

This paragraph is not affected by any style.

This is a paragraph in red.

*Contact: School of Computing office (Rm#512)*



# Exercise 5

## ■ Class Selector

- Create the following web page using class selectors
  - The first two lines use `<h1>` tag
  - The remaining ones use `<p>` tag

**This is a Q&A example.**

**Which is closest to Gachon University?**

- (a) Suseo station
- (b) Bokjeong station
- (c) Dogok station
- (d) Gangnam station



# End of Class

---

