

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

WEB TECHNOLOGY LAB

BCSL504

EXPERIMENT – 03
EXTERNAL CSS AND CSS SELECTORS

5th Semester

HTML • External CSS • Element Selector
Class Selector • ID Selector • Attribute Selector

Prepared by Search Creators

Learn • Practice • Execute

1. Experiment 03

Aim

Develop an external style sheet named `style.css` and provide different styles for `h2`, `h3`, `hr`, `p`, `div`, `span`, `time`, `img` and `a` tags.

Apply different CSS selectors for the tags and demonstrate the significance of each selector.

2. Requirements

- Search Creators Compiler / Code Studio (Recommended)

<https://searchcreators.org/compiler/>

- Modern web browser such as Chrome, Edge or Firefox
- Internet connection for accessing Search Creators Compiler
- Alternatively, VS Code, Notepad or another suitable HTML/CSS editor
- Basic knowledge of HTML and CSS

3. Search Creators Compiler

Run This Program on Search Creators

Practice the Web Technology Lab experiment using the **Search Creators Compiler / Code Studio**.

Open Search Creators Compiler

<https://searchcreators.org/compiler/>

Create the required HTML and CSS files, enter the code and verify the webpage output using the coding environment.

4. Problem Statement

Create an external CSS file named:

`style.css`

and apply different styles to the following HTML tags:

h2, h3, hr, p, div, span, time, img, a

The program should also demonstrate different CSS selectors and their significance.

5. Introduction to CSS

CSS stands for:

Cascading Style Sheets

CSS is used to control the presentation and appearance of HTML elements.

Using CSS, we can control:

- Text colour
- Background colour
- Font size
- Font family
- Borders
- Spacing
- Alignment
- Width and height
- Link appearance

6. Types of CSS

CSS can be applied to HTML in three common ways.

Type	Description
Inline CSS	CSS is written directly inside an HTML element using the style attribute.
Internal CSS	CSS is written inside the <style> element in the HTML document.
External CSS	CSS is stored in a separate .css file and linked to the HTML page.

For this experiment, we use:

External CSS

7. External CSS

External CSS stores the styling rules in a separate file.

For this experiment, the CSS file is:

style.css

It is linked to the HTML document using:

```
1 <link rel="stylesheet" href="style.css">
```

Important

Keep the HTML file and `style.css` in the same project/folder so that the HTML page can load the external stylesheet correctly.

8. CSS Syntax

The general syntax of a CSS rule is:

```
1 selector {  
2     property: value;  
3 }
```

Example:

```
1 h2 {  
2     color: darkgreen;  
3     text-align: center;  
4 }
```

Here:

- `h2` is the selector.
- `color` is a property.
- `darkgreen` is the value.

9. CSS Selectors

CSS selectors are used to identify the HTML elements that should receive a particular style.

Selector	Example	Purpose
Universal	*	Selects all elements.
Element	p	Selects all elements having the specified tag name.
Class	.highlight	Selects elements having the specified class.
ID	#main-box	Selects the element having the specified ID.
Grouping	h2, h3	Allows the same style to be applied to multiple selectors.
Attribute	a[target]	Selects elements based on an attribute.
Pseudo-class	a:hover	Selects an element in a particular state.

10. Files Required

Two files are used in this experiment:



11. HTML Program – index.html

Important

Create the first file as:

index.html

Practice the program using:

Search Creators Compiler / Code Studio

<https://searchcreators.org/compiler/>

```

1 <!DOCTYPE html>
2 <html lang="en">
3
4 <head>
5     <meta charset="UTF-8">
6     <title>External CSS Example</title>
7
8     <link rel="stylesheet" href="style.css">
9 </head>
10
11 <body>
12
13     <h2>Web Technology Lab</h2>
14
  
```

```
15    <h3>External CSS Demonstration</h3>
16
17    <hr>
18
19    <p>
20        CSS is used to style HTML elements
21        and improve the appearance of a webpage.
22    </p>
23
24    <div id="main-box">
25        This is a DIV element styled using
26        an ID selector.
27    </div>
28
29    <p>
30        This is a
31        <span class="highlight">
32            highlighted SPAN element
33        </span>
34        using a class selector.
35    </p>
36
37    <p>
38        Lab Time:
39        <time datetime="10:00">
40            10:00 AM
41        </time>
42    </p>
43
44    
47
48    <br><br>
49
50    <a href="https://searchcreators.org/">
51        Visit Search Creators
52    </a>
53
54    <br><br>
55
56    <a href="https://searchcreators.org/compiler/"
57        target="_blank">
58        Open Search Creators Compiler
59    </a>
60
61 </body>
62
```

63 </html>

12. External Style Sheet – style.css

Create the second file as:

style.css

Enter the following CSS program:

```
1  /* Universal Selector */
2  * {
3      font-family: Arial, sans-serif;
4  }
5
6  /* Element Selector for h2 */
7  h2 {
8      color: darkgreen;
9      text-align: center;
10     font-size: 30px;
11 }
12
13 /* Element Selector for h3 */
14 h3 {
15     color: brown;
16     text-align: center;
17     font-size: 22px;
18 }
19
20 /* Style for horizontal line */
21 hr {
22     border: 2px solid green;
23 }
24
25 /* Element Selector for paragraph */
26 p {
27     color: #333333;
28     font-size: 18px;
29     line-height: 1.6;
30 }
31
32 /* ID Selector for div */
33 #main-box {
34     background-color: lightgreen;
35     border: 2px solid darkgreen;
36     padding: 15px;
37     margin: 10px;
```

```
38 }
39
40 /* Class Selector for span */
41 .highlight {
42     color: red;
43     background-color: yellow;
44     font-weight: bold;
45 }
46
47 /* Element Selector for time */
48 time {
49     color: purple;
50     font-weight: bold;
51 }
52
53 /* Element Selector for image */
54 img {
55     width: 250px;
56     height: 150px;
57     border: 3px solid darkgreen;
58     border-radius: 10px;
59 }
60
61 /* Element Selector for anchor */
62 a {
63     color: blue;
64     font-size: 18px;
65     text-decoration: none;
66 }
67
68 /* Pseudo-class Selector */
69 a:hover {
70     color: red;
71     text-decoration: underline;
72 }
73
74 /* Attribute Selector */
75 a[target] {
76     background-color: lightyellow;
77     padding: 6px;
78 }
```

13. Program Explanation

13.1 Linking External CSS

The external stylesheet is connected to the HTML page using:

```
1 <link rel="stylesheet" href="style.css">
```

Here:

- `rel="stylesheet"` specifies that the linked resource is a stylesheet.
- `href="style.css"` specifies the stylesheet file.

13.2 Universal Selector

```
1 * {  
2     font-family: Arial, sans-serif;  
3 }
```

The universal selector is:

*

It selects all HTML elements.

13.3 Element Selector

Example:

```
1 h2 {  
2     color: darkgreen;  
3     text-align: center;  
4 }
```

The element selector selects all elements having the specified HTML tag name.

Element selectors used in this program include:

- `h2`
- `h3`
- `hr`
- `p`
- `time`
- `img`
- `a`

13.4 ID Selector

HTML:

```
1 <div id="main-box">
2     This is a DIV element.
3 </div>
```

CSS:

```
1 #main-box {
2     background-color: lightgreen;
3     border: 2px solid darkgreen;
4 }
```

An ID selector starts with:

#

It is used to target an element with a particular ID.

13.5 Class Selector

HTML:

```
1 <span class="highlight">
2     highlighted SPAN element
3 </span>
```

CSS:

```
1 .highlight {
2     color: red;
3     background-color: yellow;
4 }
```

A class selector starts with:

.

The same class can be applied to multiple elements.

13.6 Time Element

The `time` element represents a time or date/time value.

Example:

```
1 <time datetime="10:00">
```

```
2    10:00 AM
3 </time>
```

It is styled using:

```
1 time {
2     color: purple;
3     font-weight: bold;
4 }
```

13.7 Image Element

The image is inserted using:

```
1 
```

CSS controls its size and appearance:

```
1 img {
2     width: 250px;
3     height: 150px;
4     border: 3px solid darkgreen;
5     border-radius: 10px;
6 }
```

13.8 Anchor Element

A hyperlink is created using:

```
1 <a href="https://searchcreators.org/">
2     Visit Search Creators
3 </a>
```

The anchor element is styled using:

```
1 a {
2     color: blue;
3     font-size: 18px;
4     text-decoration: none;
5 }
```

13.9 Attribute Selector

The following selector:

```

1 a[target] {
2     background-color: lightyellow;
3     padding: 6px;
4 }

```

selects anchor elements containing the `target` attribute.

Example:

```

1 <a href="https://searchcreators.org/compiler/"
2     target="_blank">
3     Open Search Creators Compiler
4 </a>

```

13.10 Pseudo-Class Selector

The following CSS rule is used:

```

1 a:hover {
2     color: red;
3     text-decoration: underline;
4 }

```

The `:hover` pseudo-class changes the appearance of the link when the mouse pointer is placed over it.

14. Styles Applied to Required Tags

HTML Tag	Selector Used	Styling
h2	Element	Colour, alignment and font size
h3	Element	Colour, alignment and font size
hr	Element	Border style
p	Element	Colour, font size and line spacing
div	ID	Background, border, padding and margin
span	Class	Text colour, background and bold style
time	Element	Colour and font weight
img	Element	Width, height, border and radius
a	Element / Attribute / Pseudo-class	Colour, size, hover effect and background

15. Significance of CSS Selectors

Selector	Significance
Universal Selector	Useful for applying a common style to all elements.
Element Selector	Useful for styling all elements having the same HTML tag name.
Class Selector	Useful when the same style should be reused on multiple elements.
ID Selector	Useful for targeting an element with a specific ID.
Grouping Selector	Useful for applying the same rules to multiple selectors.
Attribute Selector	Useful for selecting elements based on attributes.
Pseudo-class	Useful for styling an element in a particular state, such as hover.

16. How to Execute the Program

Run This Program on Search Creators

Recommended Method – Search Creators Compiler

Open:

Search Creators Compiler / Code Studio

<https://searchcreators.org/compiler/>

Create the HTML and CSS files, enter the programs and verify the styled webpage using the available web preview/output environment.

17. Procedure

1. Open the **Search Creators Compiler / Code Studio**:

<https://searchcreators.org/compiler/>

2. Create a new web project.
3. Create the first file:

`index.html`

4. Enter the given HTML program.
5. Create the external stylesheet:

`style.css`

6. Enter the given CSS program.

7. Keep both files in the same project/folder.
8. Add a suitable image named:

sample.jpg

if image upload/file support is being used.

9. Link the external stylesheet to the HTML page using:

```
1 <link rel="stylesheet" href="style.css">
```

10. Save the files.
11. Run or preview the webpage.
12. Verify the styles applied to **h2**, **h3**, **hr**, **p**, **div**, **span**, **time**, **img** and **a**.
13. Verify the ID selector used for the **div** element.
14. Verify the class selector used for the **span** element.
15. Verify the attribute selector used for the hyperlink containing the **target** attribute.
16. Move the mouse pointer over the hyperlink and observe the **:hover** effect.
17. If required, the same experiment can alternatively be performed using VS Code, Notepad or another suitable HTML/CSS editor.

18. Expected Output

The webpage displays:

- Styled **h2** heading
- Styled **h3** heading
- Styled horizontal line
- Formatted paragraph
- Coloured **div** box
- Highlighted **span**
- Styled **time** element
- Styled image
- Styled hyperlinks
- Hover effect on hyperlinks
- Different effects based on CSS selectors

Expected Browser Output

Web Technology Lab

External CSS Demonstration

CSS is used to style HTML elements and improve the appearance of a webpage.

This is a DIV element styled using an ID selector.

This is a **highlighted SPAN element** using a class selector.

Lab Time: **10:00 AM**

[Visit Search Creators](#)

[Open Search Creators Compiler](#)

19. Important Viva Questions

Viva Questions

1. **What is CSS?**

CSS stands for Cascading Style Sheets. It is used to control the presentation of HTML elements.

2. **What is external CSS?**

External CSS stores the styling rules in a separate `.css` file.

3. **What is the required stylesheet name in this experiment?**

`style.css`

4. **How is an external CSS file linked to HTML?**

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

5. **What is a CSS selector?**

A CSS selector identifies the HTML element or elements to which a style should be applied.

6. **What is an element selector?**

It selects HTML elements using their tag names.

7. **What is a class selector?**

A class selector selects elements based on their class attribute and starts with a dot.

8. What is an ID selector?

An ID selector selects an element based on its ID and starts with #.

9. What is the universal selector?

The universal selector is *. It selects all elements.

10. What is an attribute selector?

It selects elements based on the presence or value of an attribute.

11. What is a pseudo-class?

A pseudo-class represents a particular state of an element.

12. What does :hover do?

It applies a style when the mouse pointer is placed over an element.

13. What is the difference between a class and an ID selector?

A class can be reused on multiple elements, whereas an ID identifies a particular element.

14. What is the advantage of external CSS?

It separates presentation from HTML content and allows a stylesheet to be reused.

15. Which online coding platform can be used to practice this experiment?

Search Creators Compiler / Code Studio:

<https://searchcreators.org/compiler/>

20. Quick Revision

Concept	Remember
CSS	Cascading Style Sheets
External CSS File	style.css
Link CSS	<link rel="stylesheet" href="style.css">
Universal Selector	*
Element Selector	h2, p, img
Class Selector	.classname
ID Selector	#idname
Attribute Selector	a[target]
Pseudo-class	a:hover
Required Tags	h2, h3, hr, p, div, span, time, img, a
Practice Platform	Search Creators Compiler
Website	searchcreators.org/compiler/

21. Result

Result

The external stylesheet `style.css` was created successfully.

Different styles were applied to `h2`, `h3`, `hr`, `p`, `div`, `span`, `time`, `img` and `a` elements.

Different CSS selectors such as universal, element, class, ID, attribute and pseudo-class selectors were demonstrated successfully.

The experiment can be practised using the **Search Creators Compiler / Code Studio**.

<https://searchcreators.org/compiler/>

END OF EXPERIMENT – 03

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Practice Online: searchcreators.org/compiler/
