

**Subject Code:** CS3 Computer Science 3 **Module Code:** 7.0 Advanced CSS

**Lesson Code:** 7.4.2 What's new in CSS3 (selectors, background, border, transform)

**Time Frame:** 30 minutes



# Time Allocation: 1 min

After completing this module, you are expected to:

- Understand how the new selectors in CSS3 works
- Apply the new features in CSS 3



#### **Time Allocation:** 1 min

In the previous module, you were able to learn different transform methods. These transform methods will enable you to skew, move, scale, or rotate an element. These are some of the new features of CSS3.

CSS3 introduced new features that will help web developers to add style to HTML elements. Its new features include rounded corners, shadow, gradients, and many more (*New CSS3 Features*, n.d., p. 3). In this module, you will be introduced to this new feature and apply it to your web page.



**Time Allocation:** 19 mins.

CSS3 is the latest evolution of the CSS language. Its goal is to extend the features of CSS2.1 (Dhawan, 2018). Take note, some of the new features may not work with the older versions of web browsers, and your users may encounter minor problems on your web page.

#### **Selectors**

With CSS3, adding style to your HTML element has become way easier. Aside from the selectors you have learned from the previous module there are new selectors that are used to identify elements according to their attributes, position, or state (*The New CSS3 Selectors*, n.d.).

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#### **Attribute Selectors**

These selectors are used to apply formatting to certain elements that have an attribute with corresponding value. The syntax and definition are shown in the table below.

**Table 1**: Syntax and Definition of Attribute Selector

Syntax	Definition
E[attribute="value"]	Selects E elements where its "attribute" is equal to "value"
E[attribute^="value"]	Selects E element where its "attribute" value starts with "value"
<pre>E[attribute\$^="value"]</pre>	Selects E element where its "attribute" value ends with "value"
E[attribute*="value"]	Selects E element where its "attribute" contains "value"

```
a[target="_blank"] {
    text-decoration: none;
}
```

For example, you can select all <a> elements such that its target attribute is equal to the value "\_blank", then set its text-decoration to none.

#### **Position Selectors**

Using these selectors, you can select an element according to its position in the document. These are also known as **pseudo-classes**. Below is the table for the syntax and definition of a position selector.

Table 2: Syntax, Definition and Example of Position Selector

Syntax	Definition	Example
:root	Selects the root element of the document. In HTML, the root element is always the HTML element.	background-color: blue;
E:nth-child(N)	Selects the E element which is the Nth child of the parent element. The value of N can also be 'odd' or 'even' to get the children that are odd or even element child of the parent element.	background-color: blue;

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E:nth-last-child	Selects the E element which is the Nth child of the parent element counting backwards.	<pre>div:nth-last-child(3) {   background-color: blue; }</pre>
E:nth-of-type(N)	Selects the E element which is the Nth of its type.	<pre>div:nth-of-type(1) {   background-color: blue; }</pre>
E:nth-last-of- type(N)	Selects the E element which is the Nth of its type counting backwards.	<pre>div:nth-last-of-type(1) {   background-color: blue; }</pre>
E:last-child	Selects the E element which is the last child of its parent element.	<pre>div:last-child {   background-color: blue; }</pre>
E:first-of-type	Selects the E element which is the first of its type inside the parent element.	<pre>div:first-of-type {   background-color: blue; }</pre>
E:last-of-type	Selects the E element which is the last of its type inside the parent element.	<pre>div:last-of-type {   background-color: blue; }</pre>
E:only-child	Selects E element which is the only child of its parent element.	<pre>div:only-child {   background-color: blue; }</pre>
E:only-of-type	Selects E element which is the only child of its type, of its parent element.	<pre>p:only-of-type {   background-color: blue; }</pre>
::selection	Changes the format of the content selected by the user.	<pre>::selection {   background-color: blue; }</pre>



Note: To check for other CSS pseudo-elements and classes, visit the link: <a href="https://www.w3schools.com/css/css">https://www.w3schools.com/css/css</a> pseudo-elements.asp

# **Background**

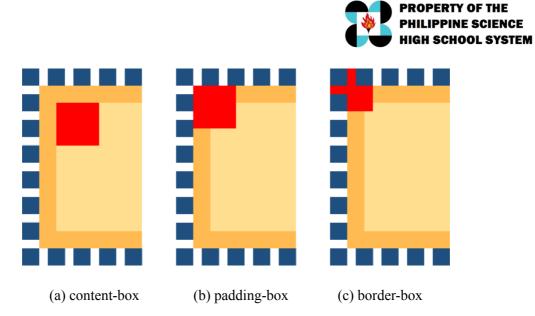
Some of the CSS3 features on background are already discussed in the previous modules. In this module, you will encounter additional properties related to background, such as background-origin, background-clip, and background-size.

# The background-origin Property

This background property is used to determine where background images will be positioned in a box. There are three possible values for this property – content-box, padding-box, or border-box.

```
p { background-origin: content-box;}
p { background-origin: padding-box;}
p { background-origin: border-box;}
```

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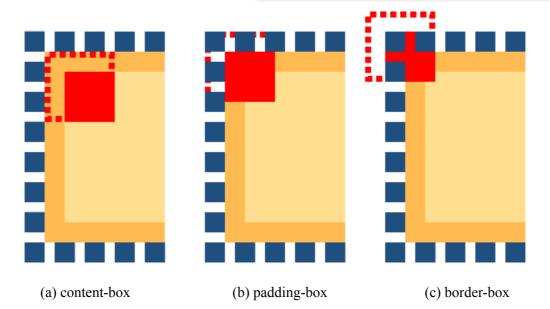


**Figure 1:** Diagram showing the effects of 3 different possible values of background-origin (Source: https://www.sitepoint.com/new-properties-and-values-in-backgrounds-with-css3/#:~:text=New%20background%2Drepeat%20values%20%E2%80%93%20space,out%20to%20fill%20the%20 area.)

### The background-clip property

This property is used in order to know where and if background images are clipped. To clip the background images, there are 3 possible values that can be used. We have the content-box, padding-box, and border box.

```
p { background-clip: content-box;}
p { background-clip: padding-box;}
p { background-clip: border-box;}
```



**Figure 2:** Diagram showing the effects of 3 different possible values of background-clip (Source: https://www.sitepoint.com/new-properties-and-values-in-backgrounds-with-css3/#:~:text=New%20background%2Drepeat%20values%20%E2%80%93%20space,out%20to%20fill%20the%20area.)

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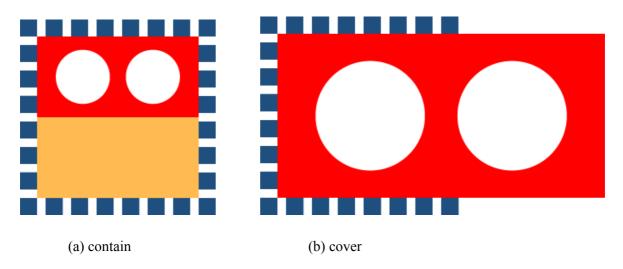


### The background-size Property

In the previous version of CSS, there is no way to control the size of background images even though adding background images to elements is possible. With the background-size property, you can set the size of the background images. The possible values may include length values, percentage values, or the keywords – cover and contain.

```
p { background-size: 10px 20px;}
p { background-size: 10% 20%;}
p { background-size: cover;}
p { background-size: contain;}
```

The length value is setting the width and height of the background image in pixels. On the other hand, percentage value is setting the width and height of the background image to percent of the parent element. The contain value will resize the image so that it fits the background area while maintaining its aspect ratio. The cover value will set the image size to completely cover the background area while maintaining its aspect ratio.



**Figure 3:** Diagram showing the result of (a) contain and (b) cover as values of background-size (Source: https://www.sitepoint.com/new-properties-and-values-in-backgrounds-with-css3/#:~:text=New%20background%2Drepeat%20values%20%E2%80%93%20space,out%20to%20fill%20the%20area.)

### **Image Border**

You can now use an image as an element border instead of the normal border that you know. The border-image property will help you set an image to be used as the border of an element. This property will be divided into 3 parts – the image that will be used as a border, where to slice the image and define whether the middle part of the border should be repeated, round or stretched.

```
div {
    border: 10px solid transparent;
    padding: 15px;
    border-image: url(border.png) 30
round;
}
```

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An image as a border!

Figure 4: Sample output of border-image

#### **Rounded Corner**

A rounded corner can be set on your border. To be able to do this, you can use the border-radius property. This property will determine the radius of the element's corner. It can have 4 values which will correspond to the top-left, top-right, bottom-right, and bottom-left corner of the element, respectively. If 3 values are used, the first value is for the top-left corner. The second value is applied to top-right and bottom-left corners while the third value is applied to bottom-right corner. This property with 2 values would mean that the former corresponds to the top-left and bottom-right corners while the latter is for the top-right and bottom-left corners. All corners will have an equal value if only 1 is given.

```
#p1 { border-radius: 15px 50px 30 px
5px;}

#p2 { border-radius: 15px 50px 30px;}

#p3 { border-radius: 15px 50px;}

#p4 { border-radius: 15px;}
```

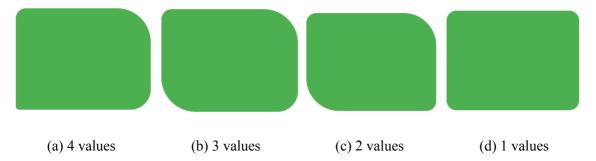


Figure 5: Sample output of border-radius with different number of values given



#### **Time Allocation:** 8 mins

Copy the codes below and edit the content of <style> tag to comply with the following requirements:

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```
<!DOCTYPE html>
<html>
<head>
     <title>Module 7.4</title>
     <style>
          h1{
               background-color: lightblue;
               padding: 20px;
               text-align: center;
               font-size: 70px;
               margin: 0px;
          }
          h2{
               background-color: pink;
               border: 1px solid black;
               padding: 10px;
               width: 250px;
     </style>
</head>
<body>
     <h1>Advanced CSS</h1>
          <h2>What's New in CSS3?</h2>
     <div>
          This is paragraph 1.
          This is paragraph 2.
          This is paragraph 3.
          This is paragraph 4.
          This is paragraph 5.
     </div>
</body>
</html>
```

- The heading "Advanced CSS" should be skewed by -30deg.
- The heading "What's New in CSS3?" should have a rounded corner. Ten pixels for both top-left and bottom-right and twenty pixels for top-right and bottom-left corner.
- Whenever a user selects the content, the color of the text will turn to red and the background color will be yellow.
- The text color of the 3<sup>rd</sup> paragraph should be red and is rotated 180deg.

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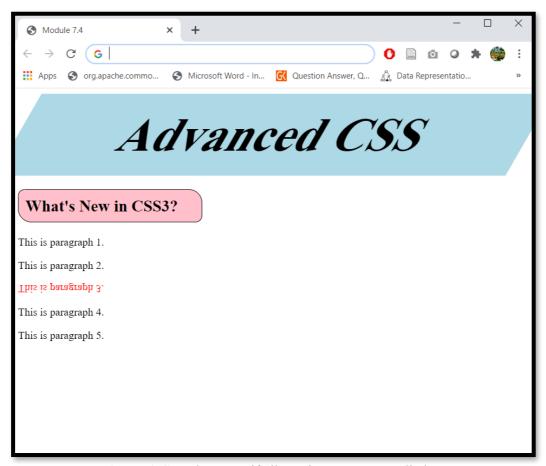


Figure 6: Sample output if all requirements are applied

Scoring Guide Total points: 30

1	1s Requirement		
	5 points	The heading "Advance CSS" is skewed by -30deg.	
	3 points	The heading is skewed but not by -30deg.	
	1 point	Attempted to transform the heading but it is not skewed.	
	No point	No transformation is present.	
2	2nd Requirement		
	5 points	All requirements for heading "What's New in CSS3?" are accomplished.	
	1-4 points	Deduction of 1 point per mistake in the value of each corner.	
	No point	No rounded corner is added to the heading.	

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3rd Requireme	3rd Requirement			
5 points	All requirements for selected content are accomplished.			
3-4 points	Some selected text in the content did not follow the requirement.			
1-2 points	Selector is present in the <style> tag but all/some declaration is missing.</td></tr><tr><td>No point</td><td>CSS selector is not visible.</td></tr><tr><td colspan=4>4<sup>th</sup> Requirement</td></tr><tr><td>10 points</td><td>All requirements for the 3<sup>rd</sup> paragraph are accomplished.</td></tr><tr><td>8 points</td><td>Paragraph is rotated but the text color is not red.</td></tr><tr><td>6 points</td><td>Text color of the paragraph is red not but not rotated.</td></tr><tr><td>4 points</td><td>Attempted to transform the paragraph but not rotated and text color is not red.</td></tr><tr><td>No point</td><td>CSS selector is not visible.</td></tr><tr><td>CSS Applicati</td><td colspan=3>CSS Application</td></tr><tr><td>5 points</td><td>All changes are applied in the <style> tag only</td></tr><tr><td>3 points</td><td>Some changes are done using inline CSS</td></tr><tr><td>1 point</td><td>All changes are done using inline CSS.</td></tr><tr><td>No point</td><td>No changes applied based on the requirement.</td></tr></tbody></table></style>			



Note: This is a graded assessment.



# **Time Allocation:** 1 min

In summary,

- CSS3 introduced new features that will help improve the layout and design of your web page.
- New selectors were added. These selectors are used to select elements based on the values of its attributes, its position or state.

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- Additional background properties include background-clip, background-size and background-origin.
- You can set an image as border using the border-image property and set the border-radius to have a rounded corner.



CSS transform property. (n.d.). https://www.w3schools.com/cssref/css3 pr transform.asp

Dhawan, S. (2018). *What's new in CSS 3*. Medium. https://medium.com/beginners-guide-to-mobile-web-development/whats-new-in-css-3-dcd7fa6122e1

New CSS3 Features: Find the Difference Between CSS and CSS3. (n.d.). https://www.bitdegree.org/learn/css3-features

New Properties and Values in Backgrounds with CSS3—SitePoint. (n.d.). https://www.sitepoint.com/new-properties-and-values-in-backgrounds-with-css3/

Rodrigues, J. (n.d.). The new css3 selectors. <a href="http://mrbool.com/the-new-css3-selectors/26734">http://mrbool.com/the-new-css3-selectors/26734</a>

Transform. (n.d.). MDN Web Docs. https://developer.mozilla.org/en-US/docs/Web/CSS/transform

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