Session: 05

Introduction to CSS3

Objectives

- Identify the new functions of CSS3
- Explain the different types of selectors
- Explain nested tags
- Define Classes and IDs for applying styles
- Explain the process to apply styles to hyperlink

Introduction

Cascading Style Sheet (CSS) is a style sheet language.

It informs the browser how to present a document.

It uses a markup language for describing the presentation semantics of a document.

It defines how HTML elements are to be displayed.

Cascading Style Sheet 3 (CSS3)

Used for adding style such as fonts, colors, and spacing to Web documents.

Has multiple levels and profiles.

Updates each level of CSS from the earlier version, by adding new features.

Denotes version as CSS1, CSS2, CSS3, and CSS4, where the numbers are different for each version or level.

Is divided into multiple documents called 'modules' and each of these modules have new capabilities or extends the features present in CSS2.

Started drafting of CSS3 when publication of the original CSS2 recommendation was released.

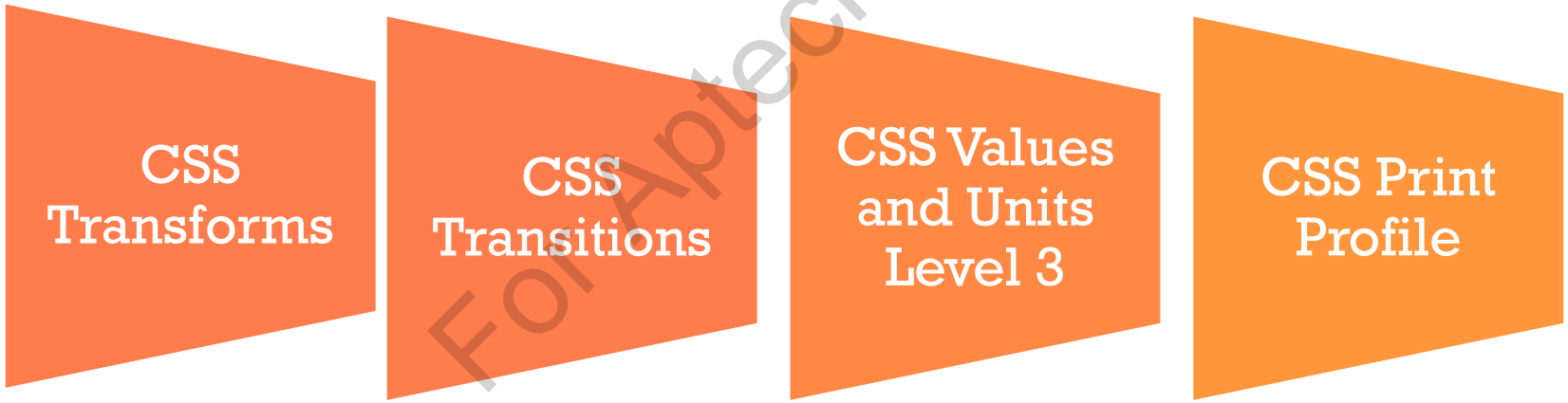
Modules 1-4

- As CSS3 is available as modules and is still evolving, there are many modules having different stability and status.
- Only three modules are released as recommendations and they are as follows:

- Modules that are stable and in recommendation stage are as follows:

Modules 2-4

- Modules that are in testing phase and in recommendation stage are as follows:
  - CSS Backgrounds and Borders Level 3
  - CSS Image Values and Replaced Content Level 3
  - CSS Marquee
  - CSS Multi-column Layout
  - CSS Speech
  - CSS Mobile Profile 2.0
  - CSS TV Profile 1.0
- Modules that are in refining phase and in working draft stage are as follows:



Modules 3-4

- Modules that are in revising phase and in working draft and recommendation stage are as follows:
  - CSS Animations
  - CSS Flexible Box Layout
  - CSS Fonts Level 3
  - CSS Paged Media Level 3
  - CSS Text Level 3
  - CSS Basic User Interface Level 3
  - CSS Writing Modes Level 3
- Some of the following modules are in exploring phase and in working draft stage:
  - CSS Cascading and Inheritance Level 3
  - CSS Conditional Rules Level 3
  - CSS Grid Layout
  - CSS Line Grid

Modules 4-4

- Modules that are in rewriting phase and in working draft stage are as follows:

  - CSS Line Layout Level 3
  - CSS Ruby
  - CSS Syntax Level 3

- Modules that are in abandoned phase and in working draft stage are as follows:

  - Behavioral Extensions to CSS
  - CSS Hyperlink Presentation

CSS Syntax 1-2

Syntax of CSS consists of three parts namely, **selector**, **property**, and **value**.

Selector	Property of a selected element	Value
• Is an HTML element for which you want to specify the style or the formatting instruction.	• Is a CSS property that specifies the type of the style to be applied to the selector.	• Refers to the value of the CSS property and a CSS property can have multiple values. Property and the value for a selector are separated with a colon (:). They are enclosed within the curly brackets ({}) that is known as the declaration block.

CSS Syntax 2-2

- Various combinations available to specify rules for HTML elements are as follows:

You can specify multiple selectors for a single property by grouping the selectors. To group the selectors, the selectors are separated by commas followed by a declaration block of properties and values.

You can specify multiple property-value pairs for a selector, which are separated by a semicolon (;) within the declaration block.

You can specify properties for multiple selectors. Here, the comma-separated selectors are followed with multiple property-value pairs.

Length Measurement Units 1-4

CSS uses various units of measurements for specifying size of the font, width, and height of margins, and so on.

These units measure the horizontal and vertical length of the content.

CSS supports two types of length measurement units namely, relative and absolute.

Length Measurement Units 2-4

Relative length specifies the length units related to other length property that are calculated in comparison to a current value.

- Following table lists some of the relative length units:

Relative Length	Description
em	Specifies the font size (height) of a particular font. The em unit is relative to the value of the font-size property of the selector.
ex	Specifies the 'x-height' of a particular font. The 'x-height' value is approximately half the font size or the height of the lowercase letter 'x'.
px	Specifies the size in pixels, which is relative to the screen of the device.

Length Measurement Units 3-4

Absolute lengths are specified when the Web page designer is aware of the physical properties of the output device and are specific and fixed values.

- Following table lists some of the absolute length units:

Relative Length	Description
in	Specifies the size in inches, where 1 inch = 2.54 centimeters
cm	Specifies the size in centimeters
mm	Specifies the size in millimeters
pt	Specifies the size in points, where 1 point = 1/72th of an inch
pc	Specifies the size in picas, where 1 pica = 12 points

Length Measurement Units 4-4

Percentage allows specifying the length of the content, which is relative to another value.

- Shows use of percentage in defining the style:

```
H1
 {
     font-size: 120%;
     line-height: 200%;
 }
```

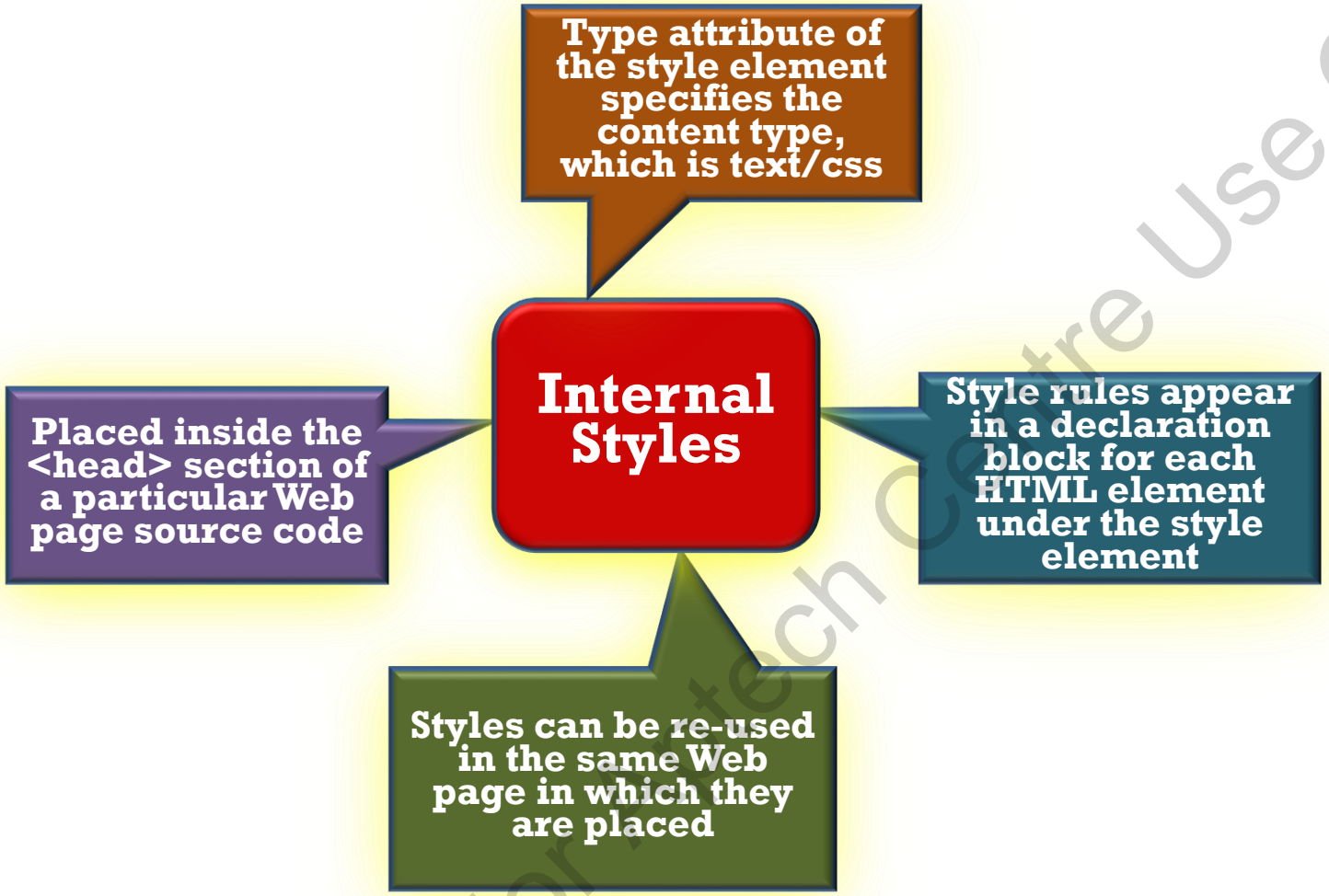
Types of Style Sheets

Three types of style sheets namely, inline, internal or embedded, and external style sheets.

An inline style sheet uses the style attribute within an HTML element to specify the style for HTML elements.

An internal style sheet is also included within the HTML document and is defined using the style element.

Internal/Embedded Styles 1-2

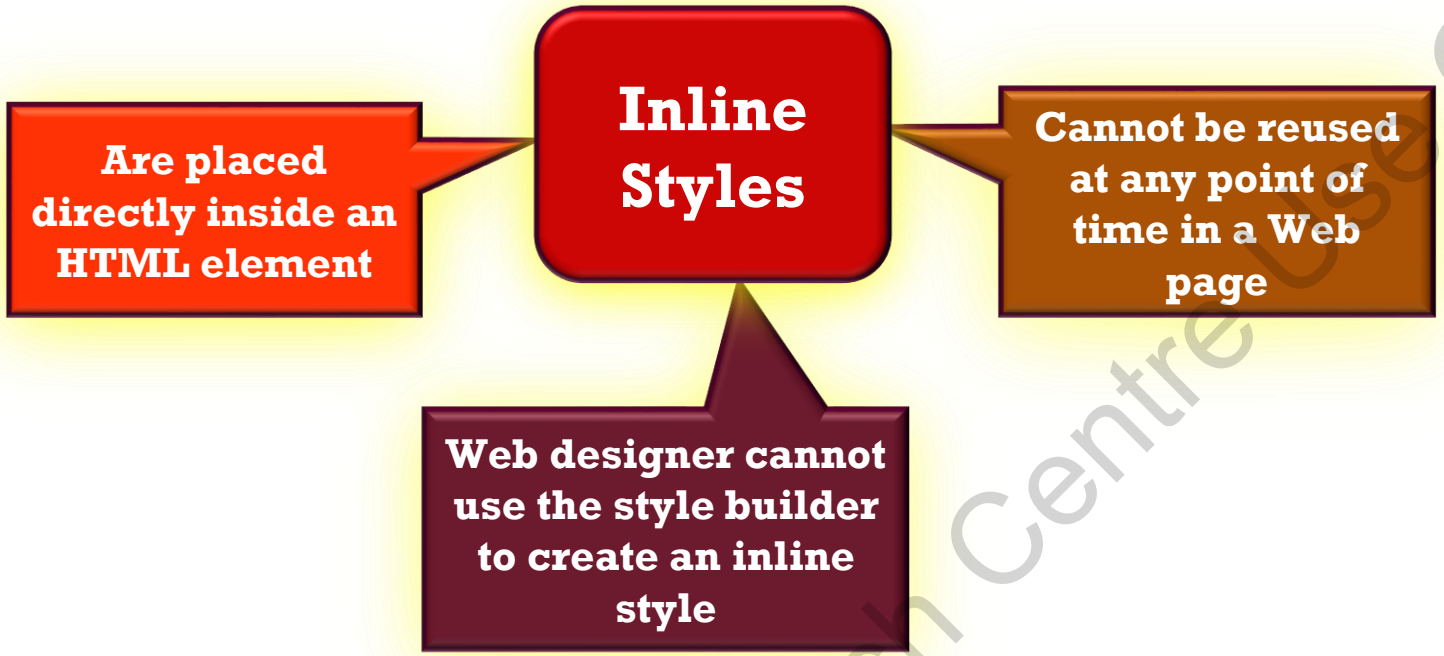


Internal/Embedded Styles 2-2

- The Code Snippet demonstrates how to specify internal style.

```
<head>
  <meta charset="utf-8">
  <title>Sample HTML5 Structure</title>
  <style>
    h1, h2 {
      margin:0px;
      font-size:1.5em;
    }
    footer{
      background-color:#999;
      text-align:center;
    }
   </style>
  </head>
```

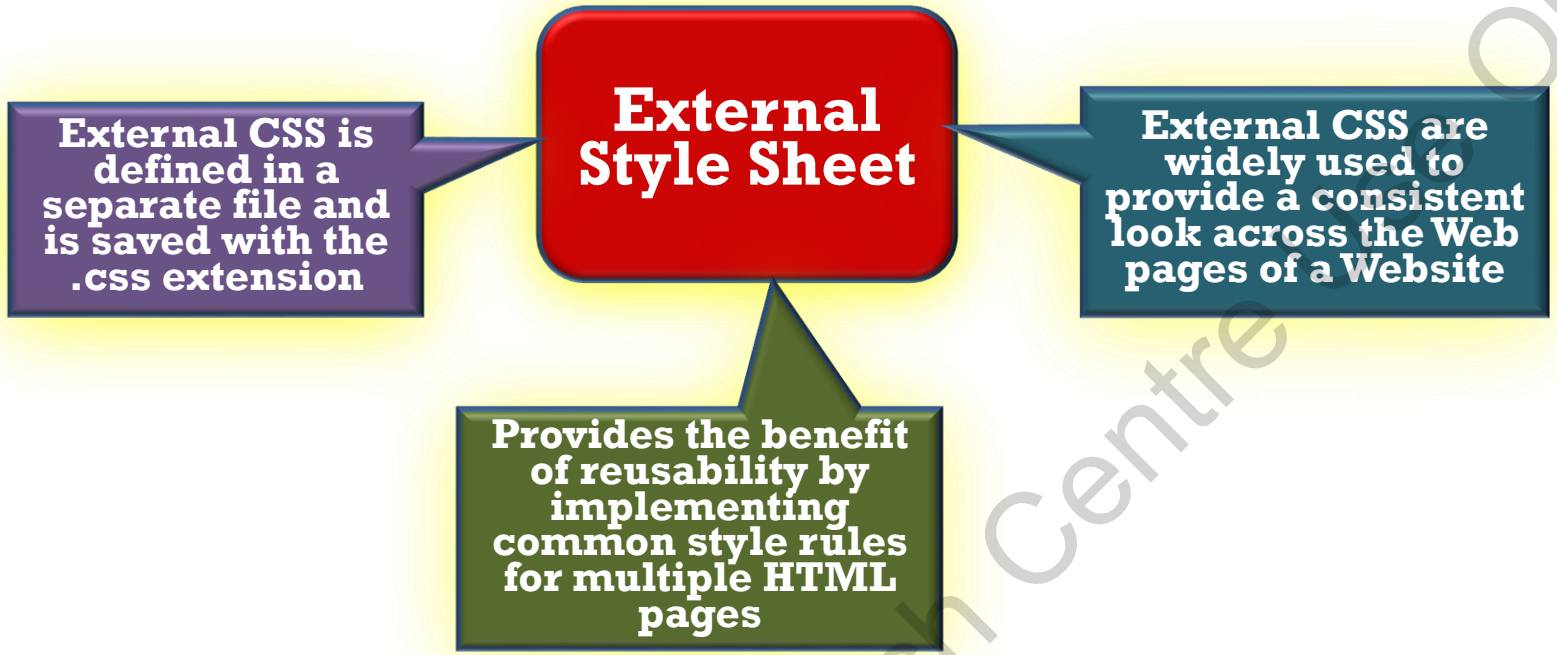
Inline Styles



- The Code Snippet demonstrates the use of inline style.

```
<p style="font-size: 14px; color: purple;"></p>
```

External Style Sheet 1-2



- The Code Snippet demonstrates the use of external CSS.

```
BODY {
  background-color: gray;
  font-family: arial;
  font-style: italic;
}
```

External Style Sheet 2-2

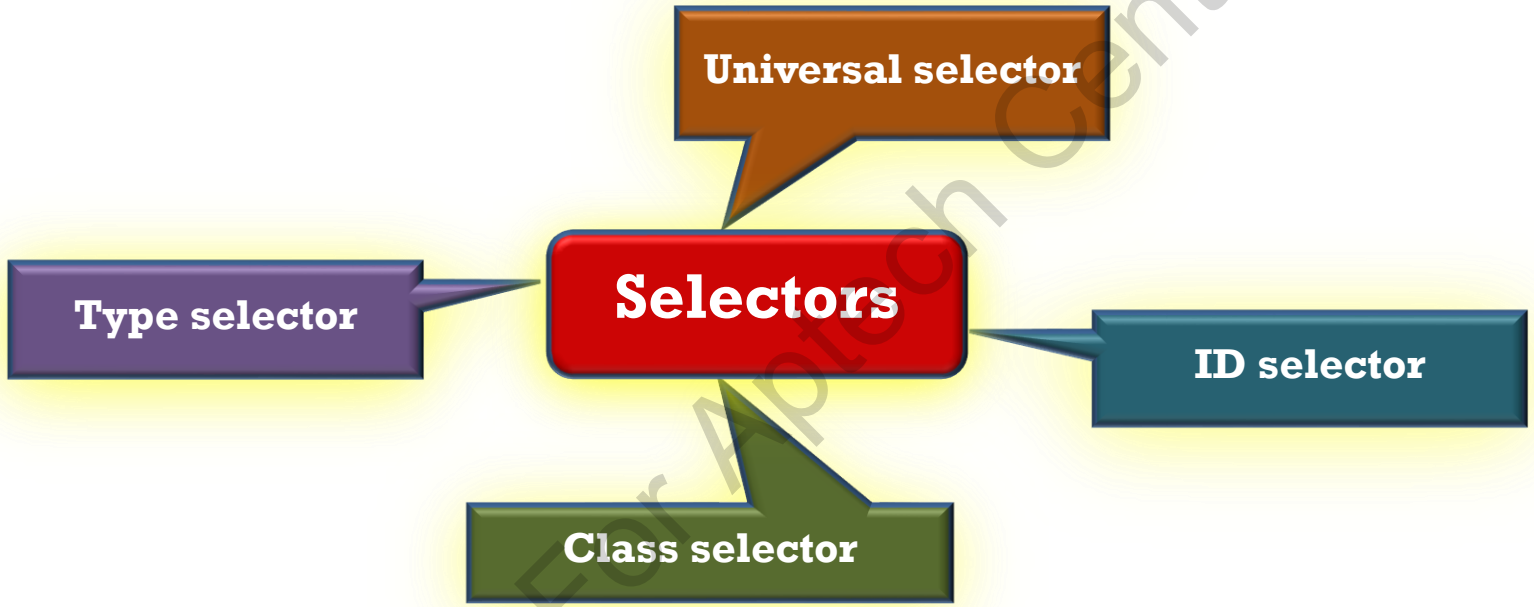
- Code Snippet shows an example of HTML code using an external CSS style sheet demonstrated earlier.

```
<!DOCTYPE html>
<html>
  <head>
    <LINK rel="stylesheet" type="text/css"href="body.css"/>
    <title>Webex e-Server</title>
  </head>
  <body>
    This is the fastest Web server..!!
  </body>
</html>
```

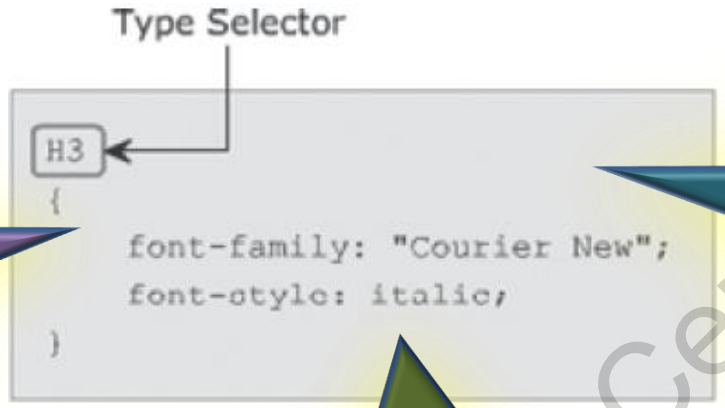
Selectors

Selectors refer to the HTML elements with the styles that the users want to apply to them.

The four different types of CSS selectors are as follows:



Type Selector

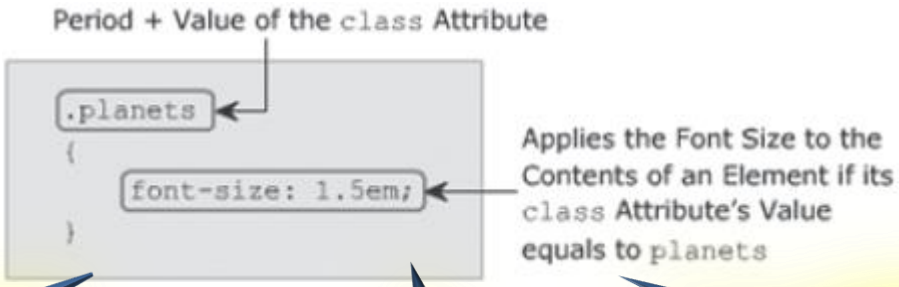


Specifies the element name along with the styles to be applied to that element

Styles are specified only once for an HTML element and are applied to all the occurrences of that elements

Results in application of the specified styles to all the occurrence of that element in a Web page

Class Selector

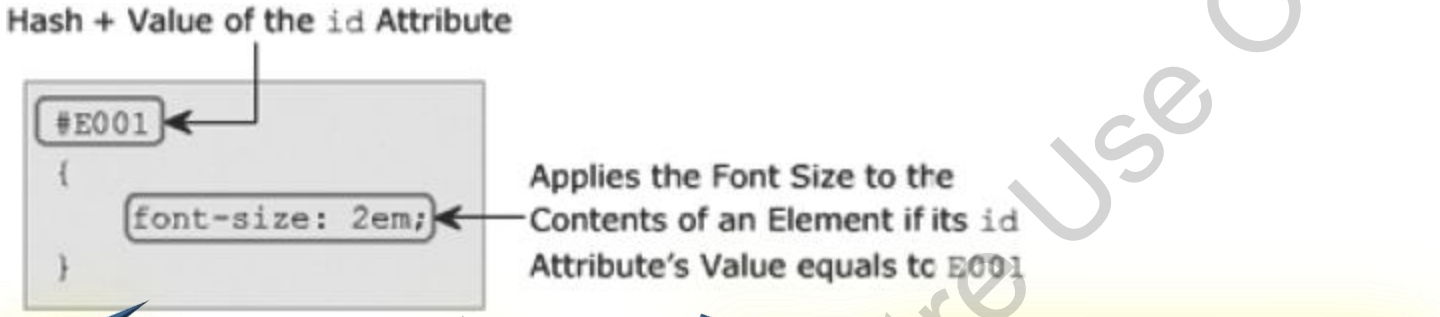


Matches elements, whose class attribute is set in an HTML page

Applies styles to the content of all those elements having the same class attribute

Class selector starts with a period followed by the value of the class attribute

ID Selector



Matches an element whose id attribute is set in an HTML page

Applies styles to the content of all those elements

ID selector starts with the hash symbol (#) followed by the id attribute's value and the declaration block

Universal Selector

```
* {
   font-family: Verdana, Calibri, sans-serif;
  }
```

Can be applied to all elements in the document

Applies the specified styles to the content of all the elements

Represented by an asterisk (*) sign

Generic Cascading Order 1-2

- W3C has defined some rules for applying styles to an HTML element. These rules are:

Gather all the styles that are to be applied to an element.

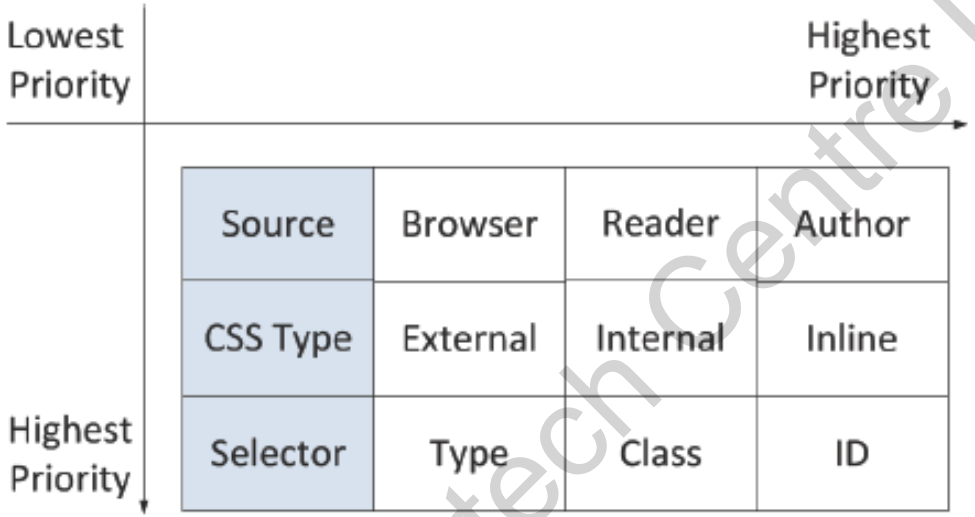
Sort the declarations by the source and type of style sheet. The source specifies the origin from where the styles are rendered.

Highest priority is given to the external style sheet defined by an author. The next priority is of the reader, which can be a software that reads the content, and the last priority is of the browser.

Sort the declarations by the priority of a selector, where the ID selector has the highest priority.

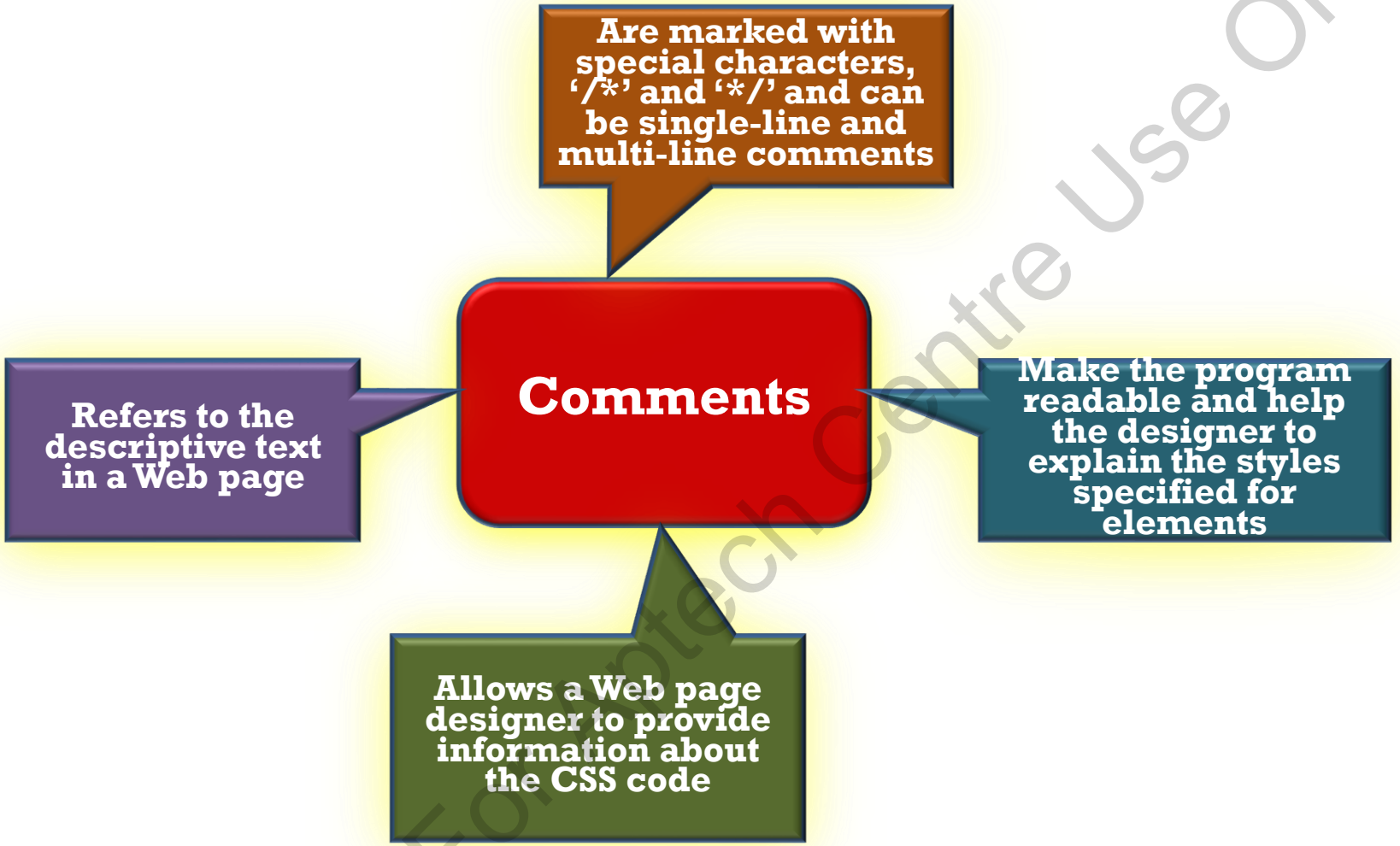
Sort the declaration according to the specified order.

Generic Cascading Order 2-2



Source	Browser	Reader	Author
CSS Type	External	Internal	Inline
Selector	Type	Class	ID

Comments



Pseudo Classes 1-4

Sometimes, unknowingly, the same Web page is opened that you have already visited.

You might feel the need for a mechanism that could differentiate the already visited links from the remaining ones.

This is possible by using pseudo classes.

Pseudo classes allow the users to apply different styles to the elements such as buttons, hyperlinks, and so on.

- Syntax for declaring Pseudo classes are as follows:

```
selector_name:state_name {property: value}
```

Pseudo Classes 2-4

- Following table lists the different states of an element:

State	Description
active	Defines a different style to an element that is activated by the user.
hover	Defines a different style to an element when the mouse pointer is moved over it.
link	Defines a different style to an unvisited hyperlink.
visited	Defines a different style to the visited hyperlink.

Pseudo Classes 3-4

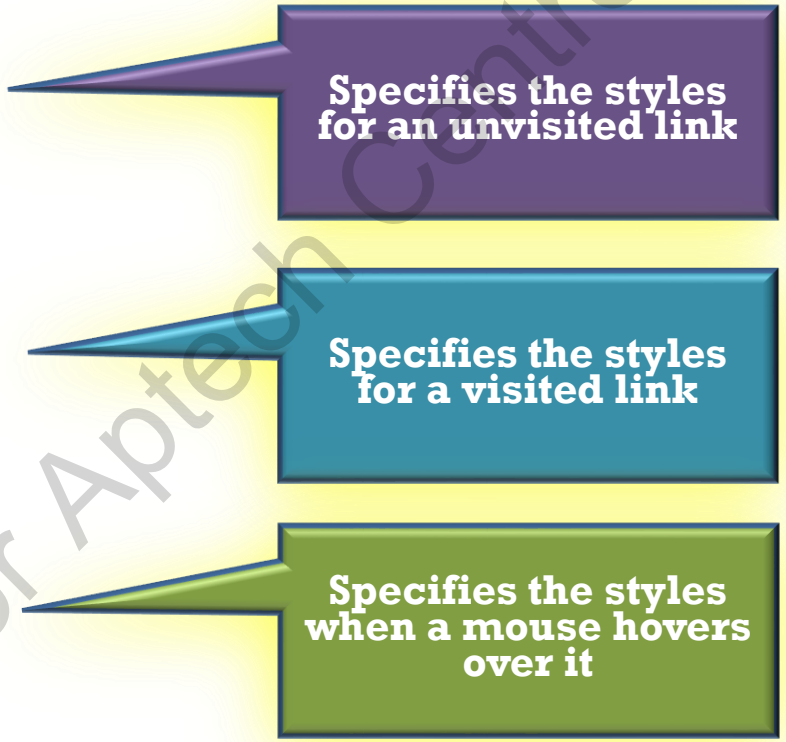
- Following table lists the selector name and its descriptions:

Selector Name	Description
:link	Is used for selecting all unvisited links
:active	Is used for selecting the active link
:hover	Is used for selecting links on mouse over
:visited	Is used for selecting all visited links
:focus	Is used for selecting the input element which has focus
:first-letter	Is used for selecting the first letter of every <p> element
:first-line	Is used for selecting the first line of every <p> element
:first-child	Is used for selecting every <p> elements that is the first child of its parent
:before	Is used for inserting content before every <p> element
:after	Is used for inserting content after every <p> element

Pseudo Classes 4-4

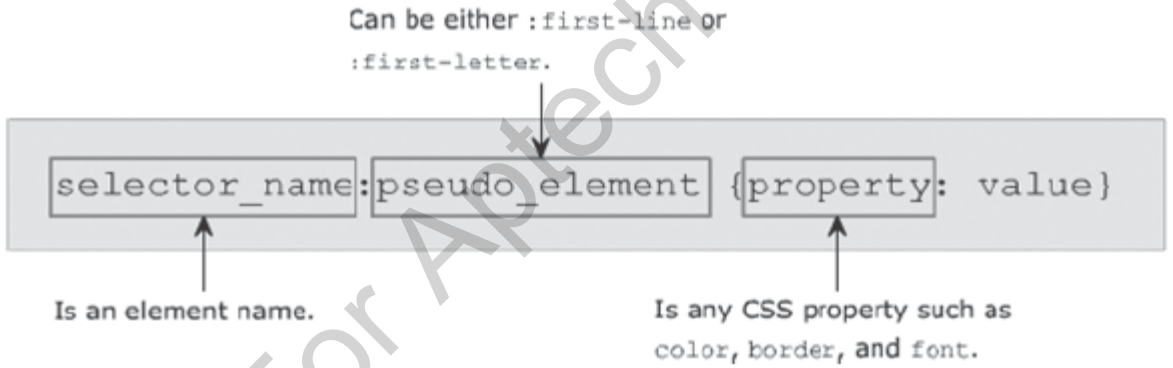
- Pseudo classes specify the styles to be applied on an element depending on its state.
- In CSS3, a selector can contain multiple pseudo-classes.
- These pseudo-classes should not be mutually exclusive.
- Code snippets demonstrates the use of CSS code specifying the different styles for the visited links, unvisited links, and for the links when the mouse hovers over it.

```
a:link {
color: white;
background-color: black;
border: 2px solid white;
}
a:visited {
color: white;
background-color: brown;
border: 2px solid white;
}
a:hover {
color: black;
background-color: white;
border: 2px solid black;
}
```



Purpose of Pseudo Elements

- Consider a scenario where you are designing a Website that explains the important technical terms.
- While defining such terms, you might feel the need to emphasize more on the first letter by applying different styles.
- Pseudo elements provide you with a flexibility to apply styles to a specific part of the content such as a first letter or first line.
- Pseudo element adds some special effects to HTML elements such as `<p>`, `<body>`, and so on.
- Syntax for declaring pseudo elements is:



Pseudo Elements

The :first-line pseudo element allows you to apply styles to the first line.

- The Code Snippet declares the style that will be applied to the first line in the paragraph.

```
p:first-line
{
font-family: "Tahoma";
font-weight: bolder;
background-color: #FFFFCC;
}
```

Specifies the styles to be applied to the first line of the paragraph content

The :first-letter pseudo element allows you to apply styles to the first letter.

- The Code Snippet declares the style that will be applied to the first letter in the paragraph.

```
p:first-letter
{
font-family: "fantasy";
font-size: xx-large;
font-weight: bold;
}
```

Specifies the styles to be applied to the first letter of the paragraph content

Styles to Hyperlink

CSS can be used to change the appearance and behavior of hyperlinks.

There are two other ways to assign hyperlink styles namely, div specific, and Link specific.

A div specific hyperlink styles can be created and assigned to a specific div and will have all the hyperlinks present within the div to follow the specified rules.

Class specific hyperlink styles generally uses a class than an id. A point to note that an id can only be used once on a page whereas a class can be used multiple times as required.

Summary

- CSS is a mechanism for adding style such as fonts, colors, and spacing to Web documents. CSS has multiple levels and profiles.
- The general syntax of CSS consists of three parts namely, selector, property, and value.
- Selectors refer to the HTML elements with the styles that are applied to them and they can be Type, Class, ID, or Universal selectors.
- A comment refers to the descriptive text that allows a Web page designer to provide information about the CSS code.
- Pseudo classes allow the users to apply different styles to the elements such as buttons, hyperlinks, and so on.
- Pseudo elements allow the developer to apply styles to a specific part of a content such as first letter or first line.
- A hyperlink style can be assigned either through DIV or through link class.