CHAPTER-3

TOPIC:1 Need for CSS

- CSS defines HOW HTML elements are to be displayed.
- Styles are normally saved in external .css files. External style sheets enable you to change the appearance and layout of all the pages in a Web site, just by editing one single file.
- CSS is used to define styles, for your web pages, including the design, layout & variation in display for different devices and screen sizes.
- HTML was never intended to contain tags for formatting a web page.HTML was created to describe the content of a web page like.

  <h1>Heading </h1>

  <p>This is a paragraph</p>
- when tags like <Font> & <color> attributes were added to HTML3.2 specification, it started a nightmare for web devlopers. Development of large websites, where fonts & colour information were added to every singlepage, became a long & expencive process
- To solve this problem the world wide web consortium(w3c) created CSS.
- CSS removed the style formatting from the HTML page.

TOPIC:2 Introduction to CSS

What is CSS?

- CSS stands for Cascading Style Sheets
- Styles define how to display HTML elements
- External Style Sheets can save a lot of work
- External Style Sheets are stored in CSS files
- There are three ways of inserting a style sheet:
  - External style sheet
  - Internal/Embedded style sheet
  - Inline style

1. External Style Sheet

- When using CSS it is preferable to keep the CSS separate from your HTML.
- Placing CSS in a separate file allows the web designer to completely differentiate between content (HTML) and design (CSS).
- External CSS is a file that contains only CSS code and is saved with a ".css" file extension.
- This CSS file is then referenced in your HTML using the <link> instead of <style>.

File Creation

- Open up notepad.exe, or any other plain text editor and type the following CSS code.

```
body{ background-color: gray;} p { color: blue; }h3{ color: white; }
```

- Save the file as a CSS (.css) file.
- Name the file "test.css" (without the quotes). Now create a new HTML file and fill it with

the following code.

```
<html><head>
<link rel="stylesheet" type="text/css" href="test.css" /></head>
<body>
<h3> A White Header </h3>
<p> This paragraph has a blue font.
The background color of this page is gray because we changed it with CSS! </p>
</body></html>
```

Why Use External CSS?

- It keeps your website design and content separate.
- It's much easier to reuse your CSS code if you have it in a separate file. Instead of typing the same CSS code on every web page you have, simply have many pages refer to a single CSS file with the "link" tag.
- You can make drastic changes to your web pages with just a few changes in a single CSS file.

2. Internal/Embedded CSS

- This type of CSS is only for Single Page.
- When using internal CSS, we must add a new tag, <style>, inside the <head> tag. The HTML code below contains an example of <style>'s usage.

```
<html><head>
<style type="text/css"></style>
</head><body>
<p>Your page's content!</p></body>
</html>
```

Creating Internal CSS Code

- Below is an example of simple CSS code.

```
<html><head>
<style type="text/css">
p {color: white; }
body {background-color: black; }
</style></head><body>
<p>White text on a black background!</p></body>
</html>
```

3. Inline CSS

- It is possible to place CSS right in your HTML code, and this method of CSS usage is referred to as inline css.
- Inline CSS has the highest priority out of external, internal, and inline CSS.
- This means that you can override styles that are defined in external or internal by using inline CSS.
- If you want to add a style inside an HTML element all you have to do is specify the desired CSS properties with the style HTML attribute.

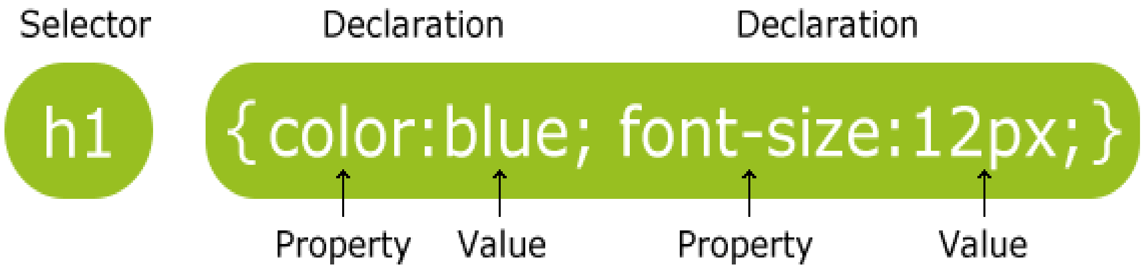
```
<html><head>
<link rel="stylesheet" type="text/css" href="test.css" /></head>
<body>
<p style="background: blue; color: white;">A new background andfont color with inline CSS</p></body>
```

</html>

TOPIC:3 Syntax & Structure

Syntax

- A CSS rule has two main parts: a selector, and one or more declarations:



- The selector is normally the HTML element you want to style.
- Each declaration consists of a property and a value.
- The property is the style attribute you want to change. Each property has a value.
- Selector: Selector indicates the HTML element you want to style. It could be any tag like <h1>, <p> etc.
- Declaration Block: The declaration block can contain one or more declarations separated by a semicolon. For the above example, there are two declarations:
  1. color: yellow;
  2. font-size: 11 px;
  3. Each declaration contains a property name and value, separated by a colon.
- Property: A Property is a type of attribute of HTML element. It could be color, border etc.
- Value: Values are assigned to CSS properties. In the above example, value "yellow" is assigned to color property.

Selector{Property1: value1; Property2: value2; ....;}

What is the difference between class and id?

The id Selector

- The id selector is used to specify a style for a single, unique element.
- The id selector uses the id attribute of the HTML element, and is defined with a "#".
- The style rule below will be applied to the element with id="para1":

#para1

{ text-align:center; color:red; }

The class Selector

- The class selector is used to specify a style for a group of elements. Unlike the id selector, the class selector is most often used on several elements.
- This allows you to set a particular style for many HTML elements with the same class.
- The class selector uses the HTML class attribute, and is defined with a "."
- In the example below, all HTML elements with class="center" will be center-aligned:
  .center {text-align:center;}
- We can use more than one class in a single element
  <a class="Center bold italic">

Structure

Now that you are beginning to understand the purpose and use of CSS, let's examine the structure of CSS.

Prerequisites:	Basic computer literacy, basic software installed, basic knowledge of working with files, HTML basics (study Introduction to HTML), and an idea of How CSS works.
Objective:	To learn CSS's fundamental syntax structures in detail.

Applying CSS to HTML

First, let's examine three methods of applying CSS to a document: with an external stylesheet, with an internal stylesheet, and with inline styles.

TOPIC:4 Background iamges, colors & properties

- CSS background properties are used to define the background effects of an element.

1. CSS Background Color

- The background-color property specifies the background color of an element.
- The background color of a page is defined in the body selector:
- Below is example of CSS backgrounds

  body {background-color:#b0c4de;}

2. CSS Background Image

- The background-image property specifies an image to use as the background of anelement.

  body {background-image:url('paper.gif');}

3. Background Image Repeat

- You can have a background image repeat vertically (y-axis), horizontally (x-axis), in bothdirections, or in neither direction.

  p {background-image: url(smallPic.jpg); background-repeat: repeat; }

  h4 {background-image: url(smallPic.jpg); background-repeat: repeat-y; }ol {background-image: url(smallPic.jpg); background-repeat: repeat-x; }

  ul {background-image: url(smallPic.jpg);background-repeat: no-repeat; }

4. CSS Fixed Background Image

- The background-attachment property sets whether a background image is fixed or scrollswith the rest of the page.

```
textarea.noScroll { background-image: url(smallPic.jpg); background-
attachment: fixed;}textarea {

background-image:
url(smallPic.jpg);
background-
attachment: scroll;                    }
```

5. CSS Background Image Positioning

- The background-position property sets the starting position of a background image.

```
p {background-image: url(smallPic.jpg); background-
position: 20px 10px;} h4 {background-image:
url(smallPic.jpg); background-position: 30% 30%;} ol
{background-image: url(smallPic.jpg); background-position:
top center;}
```

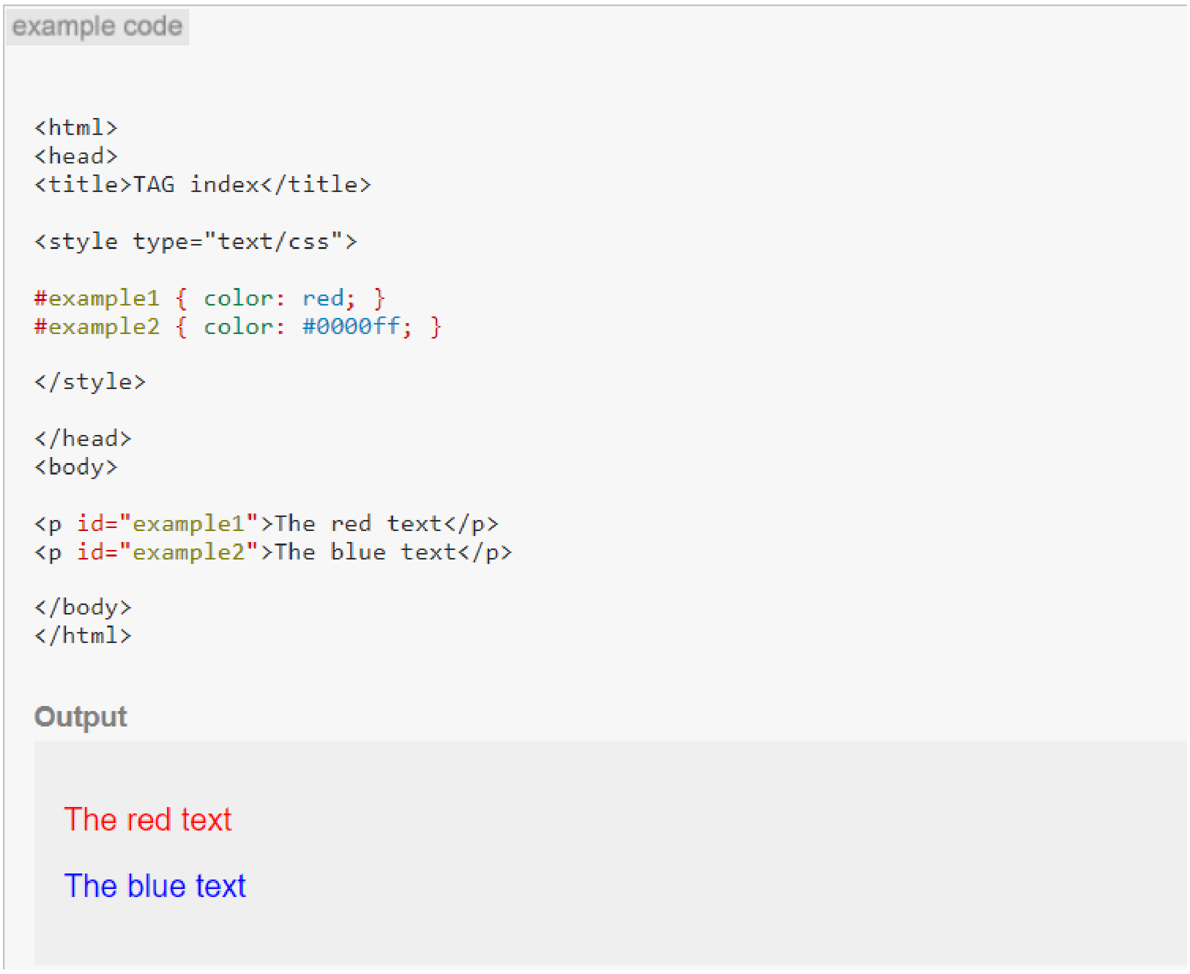
6. CSS properties

These are human-readable identifiers that indicate which stylistic features you want to modify. For example, font-size, width, background-color.

Box background color

```
div {
background-color: #ffd78c;
}
```

Property	Value	Explanation
background-color	color code or name	the color of the background



example code

```
<html>
<head>
<title>TAG index</title>

<style type="text/css">

#example1 { color: red; }
#example2 { color: #0000ff; }

</style>

</head>
<body>

<p id="example1">The red text</p>
<p id="example2">The blue text</p>

</body>
</html>
```

Output

```
The red text

The blue text
```

TOPIC:5 Manipulation of texts: font, border & boxes

5.1 FONT

- CSS font properties define the font family, boldness, size, and the style of a text.

1. CSS Font Color
   - Set the text-color for different elements:

     h4 { color: red; }

     h5 { color: #9000A1; }

     h6 { color: rgb(0, 220, 98); }

2. CSS Font Family
   - The font family of a text is set with the font-family property.

     h4 { font-family: sans-serif; }h5 { font-family: serif; }h6 { font-family: arial; }

3. CSS Font Size

- The font-size property sets the size of the text.

  p { font-size: 120%; } ol{ font-size: 10px; } ul{ font-size: x-large; }

4. CSS Font Style

- The font-style property is mostly used to specify italic text.
- This property has three values:
  - normal - The text is shown normally
  - italic - The text is shown in italics
  - oblique - The text is "leaning" (oblique is very similar to italic, but less supported)

  p { font-style: italic; }h4{ font-style: oblique; }

5. CSS Font Weight

- The font-weight property sets how thick or thin characters in text should be displayed.

  p { font-weight: 100; } ul{ font-weight: bolder; }

6. CSS Font Variant

- The font-variant property specifies whether or not a text should be displayed in a small-caps font.

  p { font-variant: small-caps; }}

5.2 TEXT

- While CSS Font covers most of the traditional ways to format your text, CSS Text allows you tocontrol the spacing, decoration, and alignment of your text.

1. Text Decoration

- The text-decoration property is used to set or remove decorations from text.
- The text-decoration property is mostly used to remove underlines from links for designpurposes.

  h4{ text-decoration:
  line-through; }h5{
  text-decoration:
  overline; }

  h6{ text-
  decoration:
  underline; }a {
  text-decoration:
  none; }

2. Text Indent

- The text-indentation property is used to specify the indentation of the first line of a text.

  p { text-indent: 20px; } h5 { text-indent: 30%; }

3. Text Align

- The text-align property is used to set the horizontal alignment of a text.

  p { text-
  align:
  right; }
  h5{ text-
  align:
  justify; }

4. Text Transform

- The text-transform property is used to specify uppercase and lowercase letters in a text.

  p { text-transform: capitalize; } h5{ text-transform: uppercase; }

5. CSS White Space

- The white-space attribute allows you to prevent text from wrapping until you place abreak <br /> into your text.

  p { white-space: nowrap; }

6. CSS Word Spacing

- With the CSS attribute word-spacing you are able to specify the exact value of the spacingbetween your words. Word-spacing should be defined with exact values.

  p { word-spacing: 10px; }

7. CSS Letter Spacing

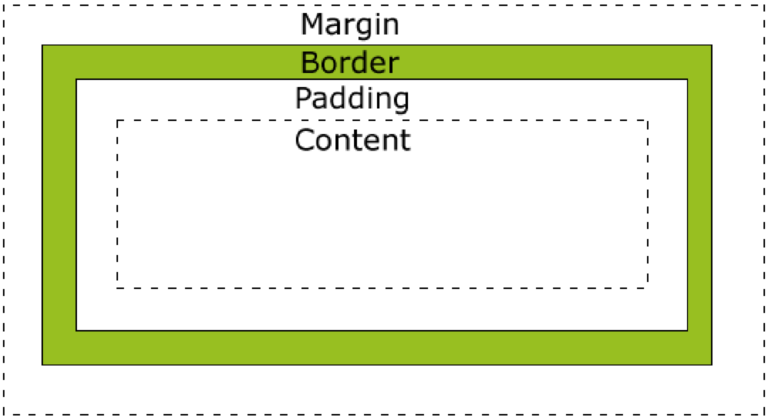
- With the CSS attribute letter-spacing you are able to specify the exact value of the spacingbetween your letters. Letter-spacing should be defined with exact values.

  p { letter-spacing: 3px; }

5.3 BOX

- All HTML elements can be considered as boxes. In CSS, the term "box model" is used when talkingabout design and layout.
- The CSS box model is essentially a box that wraps around HTML elements, and it consists of:margins, borders, padding, and the actual content.
- The box model allows us to place a border around elements and space elements in relation to otherelements.

- The image below illustrates the box model:



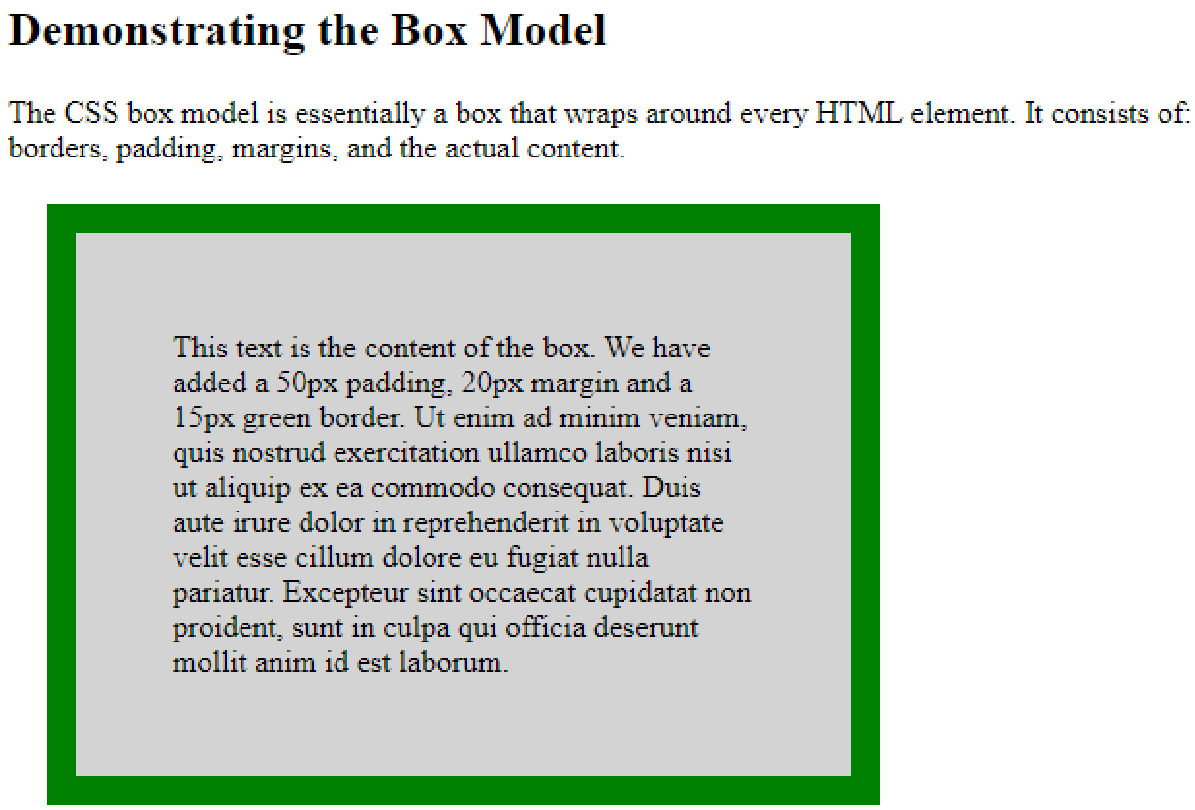
- Explanation of the different parts:
    - **Margin** - Clears an area around the border. The margin does not have a background color, itis completely transparent
    - **Border** - A border that goes around the padding and content. The border is affected by thebackground color of the box
    - **Padding** - Clears an area around the content. The padding is affected by the backgroundcolor of the box
    - **Content** - The content of the box, where text and images appear

EXAMPLE:

```
<html>
<head>
<style>
div {
  background-color: lightgrey;
  width: 300px;
  border: 15px solid green;
  padding: 50px;
  margin: 20px;
}
</style>
</head>
<body>

<h2>Demonstrating the Box Model</h2>

<p>The CSS box model is essentially a box that wraps around every HTML element. It
consists of: borders, padding, margins, and the actual content.</p>

<div>This text is the content of the box. We have added a 50px padding, 20px margin and a
15px green border. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi
ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate
```

```
velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non
proident, sunt in culpa qui officia deserunt mollit anim id est laborum.</div>

</body>
</html>
```

OUTPUT:



Demonstrating the Box Model

The CSS box model is essentially a box that wraps around every HTML element. It consists of: borders, padding, margins, and the actual content.

This text is the content of the box. We have added a 50px padding, 20px margin and a 15px green border. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

5.4 BORDER

- The CSS border properties allow you to specify the style and color of an element's border.

1. Border Style Types
   - The border-style property specifies what kind of border to display.

```
p.solid {border-style: solid; } p.double {border-style: double; } p.groove {border-style:
groove; } p.dotted {border-style: dotted; } p.dashed {border-style: dashed; } p.inset
{border-style: inset; } p.outset {border-style: outset; } p.ridge {border-style: ridge; }
p.hidden {border-style: hidden; }
```

2. Border Width
   - The border-width property is used to set the width of the border.

```
table { border-width: 7px; border-
style: outset; } td { border-width:
medium; border-style: outset; }p {
border-width: thick; border-style:
solid; }
```

3. Border Color

- The border-color property is used to set the color of the border.
- Border colors can be any color defined by RGB, hexadecimal, or key terms. Below is anexample of each of these types.

```
table { border-color: rgb( 100, 100, 255); border-
style: dashed; }td { border-color: #FFBD32;
border-style: ridge; }

p { border-color: blue; border-style: solid; }
```

4. Border: border-(direction)

- If you would like to place a border on only one side of an HTML element, or maybe have aunique look for each side of the border, then use border-(direction).
- The direction choices are of course: top, right, bottom, and left. CSS allows you to treateach side of a border separately from the other three sides.
- Each side can have its own color, width, and style set, as shown below.

```
p { border-bottom-style: dashed ; border-bottom-color: yellow; border-
bottom-width: 5px; }h4 { border-top-style: double; border-top-color: purple;
border-top-width: thick; }
```

TOPIC:6 CSS Positioning

- With the knowledge of CSS Positioning we will be able to manipulate the exact position of yourHTML elements.

1. Position Relative

- Relative positioning changes the position of the HTML element relative to where itnormally appears.
- If we had a header that appears at the top of our page, we could use relative positioningto move it a bit to the right and down a couple of pixels. Below is an example.

```
h3 {position: relative; top:
15px;left: 150px;}p {position:
relative; left: -10px;}
```

2. Position Absolute

- With absolute positioning, you define the exact pixel value where the specified HTMLelement will appear.
- The point of origin is the top-left of the browser's viewable area, so be sure you aremeasuring from that point.

```
h3 {position: absolute; top:
50px;left: 45px;}p{position:
absolute; top: 75px;left:
75px;}
```

Horizontal position	left	center	right
Vertical position	top	center	bottom

3. Position fixed

An element with position: fixed; is positioned relative to the viewport, which means it always stays in the same place even if the page is scrolled. The top, right, bottom, and left properties are used to position the element.

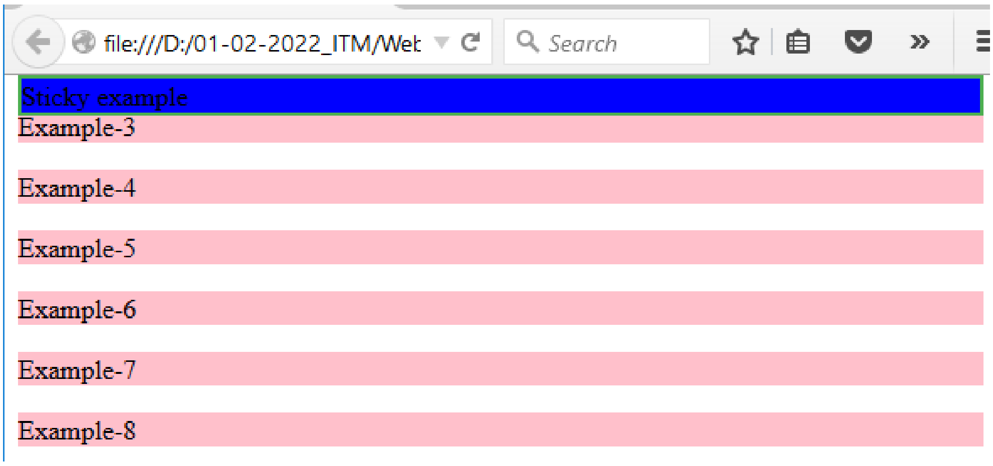
```
div.fixed {

 position: fixed;

  width: 300px;

  border: 3px solid #73AD21;

}
```

4. Position sticky

- An element with position: sticky; is positioned based on the user's scroll position.
- A sticky element toggles between relative and fixed, depending on the scroll position. It is positioned relative until a given offset position is met in the viewport - then it "sticks" in place (like position:fixed).

```
<html>
<head>
<style>
        #sticky{

position: sticky;
          top: 0;
          background-color: blue;
          border: 2px solid #4CAF50;

        }
        p{
                border:2px;
                background-color:pink;
        }
</style>
</head>
<body>
        <p>Example-1</p>
        <p id="sticky">Sticky example</p>
        <p>Example-2</p>
        <p>Example-3</p>
        <p>Example-4</p>
        <p>Example-5</p>
        <p>Example-6</p>
        <p>Example-7</p>
        <p>Example-8</p>
</body>
</html>
```

OUTPUT:



Sticky example

Example-3

Example-4

Example-5

Example-6

Example-7

Example-8

TOPIC:7 CSS2, overview & features of CSS3

Overview of CSS2

Cascading Style Sheets Level 2 (CSS2) is the second version of cascading style sheets developed by W3C. It's a declarative language used to enhance the hyper extensive text markup language. CSS2 is a subset of Cascading Style Sheets Level 1 and has enhanced capabilities like:

- Media types concept
- Aural style sheets
- Features for internationalization
- Extended font selection
- Automatic numbering and generated content
- Cursors
- Dynamic outlines
- Capability to control content overflow, clipping
- Absolute, fixed and relative positioning
- Extended selector mechanism

Currently, W3C does not provide any CSS2 recommendations. CSS2 have backward compatibility, so all valid CSS1 is also valid CSS2.

Introduction to CSS3

- CSS3 is the latest standard for CSS.
- CSS3 is completely backwards-compatible with earlier versions of CSS.
- CSS3 has been split into "modules". It contains the "old CSS specification" (which has been split into smaller pieces). In addition, new modules are added.
- CSS3 Transitions are a presentational effect which allow property changes in CSS values, such as those that may be defined to occur on :hover or :focus, to occur smoothly over a specified duration – rather than happening instantaneously as is the normal behaviour.
- Transition effects can be applied to a wide variety of CSS properties, including background-color, width, height, opacity, and many more.

Features of CSS3

- CSS3 provides a consistent and precise positioning of navigable elements.
- It is easy to customize a web page as it can be done by merely altering a modular file.
- Graphics are easier in CSS3, thus making it easy to make the site appealing.
- Some of the most important CSS3 modules are:
  - Selectors
  - Box Model
  - Backgrounds and Borders
  - Image Values and Replaced Content
  - Text Effects
  - 2D/3D Transformations
  - Animations
  - Multiple Column Layout
  - User Interface
- **Combinator:** CSS3 has a new General sibling combinator which matches up with sibling elements via the tilde (~) combinator.
- **CSS Selectors:** CSS3 selectors are much advanced in comparison to simple selectors offered by CSS, and are termed as a sequence of easy to use and simple selectors.
- **Pseudo-elements:** Plenty of new pseudo-elements have been added to CSS3 to give easy styling in depth. Even a new convention of double colons :: is also added.
- **Border Style:** The latest CSS3 also has new border styling features like *border-radius, image-slice, image-source,* and values for "width stretch", etc.
- **Background style properties:** New features like *background-clip, size, style,* and *origin* properties have been added to CSS3.

Comparision of CSS, CSS2, CSS3

Compared to CSS1, which was short and concise, CSS2 was voluminous. CSS2 has the following main features:

- Aural Style Sheets: New style properties for defining the aural style sheet for documents.
- Paging:Definition of how pages need to be displayed or printed. This made cropping, registering marks and other layout features possible.
- Media Types: Different style rules for different types of media was introduced in CSS2.
- International Accessibility Features: More list styles were available for international documents. This included bidirectional text support as well as language sensitive quotation marks.
- Font: More fonts were defined and available for use.

- Positioning: CSS2 introduced the relative, absolute positioning and the placement determination within a document. This really helped the continuous media.
- Cursors: CSS2 defined the manner in which the cursor would respond to various actions.

Difference between CSS and CSS3

CSS3 is the latest version of CSS. It is only compatible with IE9 and not with older versions of browsers. The more you code, the more you will learn about CSS3. You cannot master CSS3 unless you know about CSS.

CSS3 took the properties of CSS and developed them to include new features to provide ease of use to the designers. CSS3 is capable of supporting responsive designs. It can also handle media queries as compared to CSS, which does not support responsive design and is not capable of handling media queries.

CSS3 is very important for web designers. Because it provides a vast range of options and it helps in creating more enhanced opportunities for designing a webpage. Through web designing, marketers can increase their product awareness in the market easily.

Difference between CSS and CSS3:

S.No.	CSS	CSS3
1	CSS is capable of positioning texts and objects. CSS is somehow backward compatible with CSS3.	On the other hand, CSS3 is capable of making the web page more attractive and take less time to create it. If you write CSS3 code in CSS, it will be invalid.
2	Responsive designing is not supported in CSS	CSS3 is the latest version, hence it supports responsive design.
3	CSS cannot be split into modules.	Whereas, CSS3 can be breakdown into modules.
4	Using CSS, we cannot build 3D animation and transformation.	But in CSS3 we can perform all kinds of animation and transformations as it supports animation and 3D transformations.
5	CSS is very slow as compared to CSS3	Whereas, CSS3 is faster than CSS.
6	In CSS we have a good collection of unique color schemas and standard color.	Whereas, CSS3 has a good collection of HSL RGBA, HSLA, and gradient colors.

7	In CSS we can only use single text blocks.	But in CSS3 we can use multi-column text blocks
8	CSS does not support media queries.	But CSS3 supports media queries
9	CSS codes are not supported by all types of modern browsers.	Being the latest version, CSS3 codes are supported by all modern browsers.
10	In CSS, designers have to manually develop rounded gradients and corners.	But CSS3 provide codes for setting rounded gradients and corners
11	There is no special effect like shadowing text, text animation, etc. in CSS. The animation was coded in jQuery and JavaScript.	CSS3 has many advance features like text shadows, visual effects, and a wide range of font style and color.
12	In CSS, the user can add background colors to list items and lists, set images for the list items, etc.	Whereas, CSS3 list has a special *display* property defined in it. Even list items also have counter reset properties.

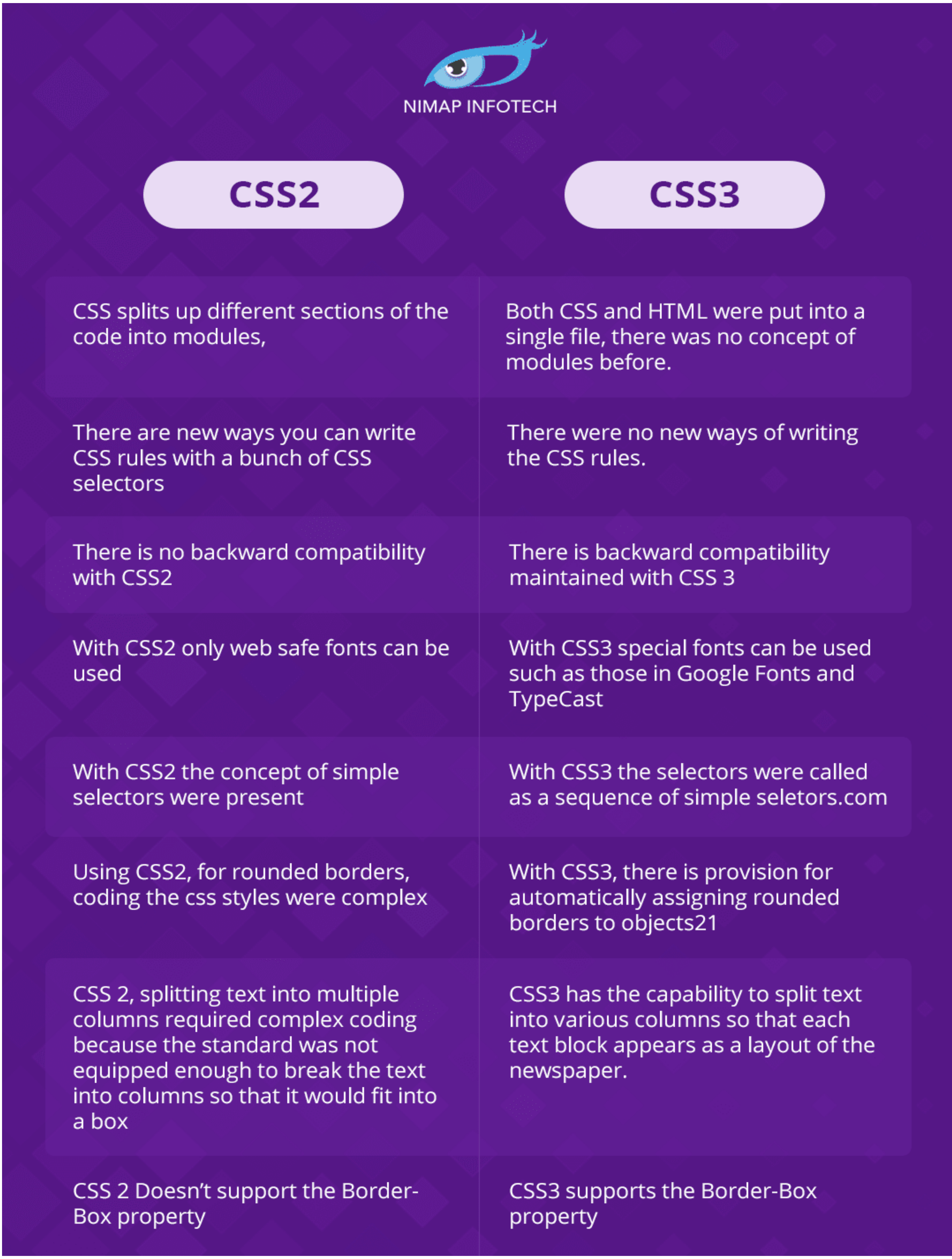
Major Differences Between CSS, CSS2 & CSS3

1. CSS was originally released in 1996 and consists of properties for adding font properties such as typeface and emphasis color of text, backgrounds, and other elements. CSS2 was released in 1998 with added styles for other media types so that it can be used for page layout designing. CSS3 was released in 1999 and presentation-style properties were added in it that allows you to build a presentation from documents.
2. Unlike CSS2, which was comprised of a single document, CSS3 has its specifications divided into many individual modules, which makes CSS3 a whole lot easier to handle.
3. With CSS3, the designers can now use special fonts, like those available in Google Fonts and Typecast. Earlier, with CSS and CSS2, designers could only use “web-safe fonts” for being 100% sure to use fonts that would always display the same on every machine.
4. While CSS and CSS2 had ‘simple selectors’, CSS3 calls the components as ‘a sequence of simple selectors’.
5. CSS3 came up with some key web design considerations like rounded borders that help in rounding up the borders without any hassle. This turned out to be a huge plus point for developers who were struggling with initial versions of CSS borders.
6. CSS3 has the capability to split text sections into multiple columns so that it can be read like a newspaper. In CSS2, the developers had difficulty because the standard was not equipped with automatically breaking the text so that it fits within a box.

Difference between css2 and css3

- CSS3 is split into many various documents known as Modules. each module adds new capability or extends options outlined in CSS2 over conserving backward compatibility. Work on CSS3 started around the time of publication of the initial CSS2 recommendation.

- The CSS3 version supports more browsers than CSS2.
- CSS3 introduces several new selectors. Those new selectors square measure largely in an exceeding type of pseudo-elements and pseudo-categories.
- The new addition of General relation Combinator will be wont to match relation parts of a given part through diacritic (~) combinator.
- CSS3 introduces several properties attended with new values and units. It facilitates styling of backgrounds, borders, boxes, etc…, that permits the USA to stay most of the styling at intervals the computer network and HTML standards and our document, while not a necessity for all those proprietary third-party package packages.
- New values and new units square measure introduced to support all those new properties. for example, Angle units deg, grad, rad, and switch or Time units s and ms.



NIMAP INFOTECH

CSS2	CSS3
CSS splits up different sections of the code into modules,	Both CSS and HTML were put into a single file, there was no concept of modules before.
There are new ways you can write CSS rules with a bunch of CSS selectors	There were no new ways of writing the CSS rules.
There is no backward compatibility with CSS2	There is backward compatibility maintained with CSS 3
With CSS2 only web safe fonts can be used	With CSS3 special fonts can be used such as those in Google Fonts and TypeCast
With CSS2 the concept of simple selectors were present	With CSS3 the selectors were called as a sequence of simple seletors.com
Using CSS2, for rounded borders, coding the css styles were complex	With CSS3, there is provision for automatically assigning rounded borders to objects21
CSS 2, splitting text into multiple columns required complex coding because the standard was not equipped enough to break the text into columns so that it would fit into a box	CSS3 has the capability to split text into various columns so that each text block appears as a layout of the newspaper.
CSS 2 Doesn't support the Border-Box property	CSS3 supports the Border-Box property