June 14, 2021

CSS

* CSS stands for Cascading Style Sheets
* CSS describes how HTML elements are to be displayed on screen, paper, or in other media
* CSS saves a lot of work. It can control the layout of multiple web pages all at once
* External stylesheets are stored in CSS files

CSS is used to define styles for your web pages, including the design, layout and variations in display for different devices and screen sizes.

CSS Selectors

The element selector selects HTML elements based on the element name.eg p{}

The id selector uses the id attribute of an HTML element to select a specific element (#id{})

The class selector selects HTML elements with a specific class attribute.(.class{})

The universal selector (\*) selects all HTML elements on the page.

The grouping selector selects all the HTML elements with the same style definitions.(p,h1,h2{})

How to

There are three ways of inserting a style sheet:

* External CSS
* Internal CSS
* Inline CSS

External links a sepereate file.

Internal is included in same file using style tag.

Inline is done by using style= “color:red;”

CSS Background

The background-color property specifies the background color of an element.

.class{background-color:red;opacity:0.3;}

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

By default, the image is repeated so it covers the entire element.

background-image:url(‘path’);

By default, the background-image property repeats an image both horizontally and vertically.

Showing the background image only once is also specified by the background-repeat property

The background-position property is used to specify the position of the background image.

The background-attachment property specifies whether the background image should scroll or be fixed (will not scroll with the rest of the page

CSS Border

The border-style property specifies what kind of border to display.

The following values are allowed:

* dotted - Defines a dotted border
* dashed - Defines a dashed border
* solid - Defines a solid border
* double - Defines a double border
* groove - Defines a 3D grooved border. The effect depends on the border-color value
* ridge - Defines a 3D ridged border. The effect depends on the border-color value
* inset - Defines a 3D inset border. The effect depends on the border-color value
* outset - Defines a 3D outset border. The effect depends on the border-color value
* none - Defines no border
* hidden - Defines a hidden border

The border-style property can have from one to four values (for the top border, right border, bottom border, and the left border).

The border-width property specifies the width of the borders.

The width can be set as a specific size (in px, pt, cm, em, etc) or by using one of the three pre-defined values: thin, medium, or thick.The border-radius property is used to add rounded borders to an element

The border property is a shorthand property for the following individual border properties:

* border-width
* border-style (required)
* border-color

CSS Margin

The CSS margin properties are used to create space around elements, outside of any defined borders

You can set the margin property to auto to horizontally center the element within its container.

CSS Padding

Padding is used to create space around an element's content, inside of any defined borders.

CSS has properties for specifying the padding for each side of an element:

* padding-top
* padding-right
* padding-bottom
* padding-left

All the padding properties can have the following values:

* length - specifies a padding in px, pt, cm, etc.
* % - specifies a padding in % of the width of the containing element
* inherit - specifies that the padding should be inherited from the parent element

The CSS height and width properties are used to set the height and width of an element.

The CSS max-width property is used to set the maximum width of an element.

The height and width properties may have the following values:

* auto - This is default. The browser calculates the height and width
* length - Defines the height/width in px, cm etc.
* % - Defines the height/width in percent of the containing block
* initial - Sets the height/width to its default value
* inherit - The height/width will be inherited from its parent value

CSS Box-Model

Explanation of the different parts:

* **Content** - The content of the box, where text and images appear
* **Padding** - Clears an area around the content. The padding is transparent
* **Border** - A border that goes around the padding and content
* **Margin** - Clears an area outside the border. The margin is transparent

The box model allows us to add a border around elements, and to define space between elements.

CSS Outline

An outline is a line that is drawn around elements, OUTSIDE the borders, to make the element "stand out".

CSS has the following outline properties:

* outline-style
* outline-color
* outline-width
* outline-offset
* outline

The outline property is a shorthand property for setting the following individual outline properties:

* outline-width
* outline-style (required)
* outline-color

The outline-offset property adds space between an outline and the edge/border of an element. The space between an element and its outline is transparent

CSS Text

The color property is used to set the color of the text. The color is specified by:

* a color name - like "red"
* a HEX value - like "#ff0000"
* an RGB value - like "rgb(255,0,0)"

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

The vertical-align property sets the vertical alignment of an element.

The text-decoration property is used to set or remove decorations from text.

The value text-decoration: none; is often used to remove underlines from links

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

It can be used to turn everything into uppercase or lowercase letters, or capitalize the first letter of each word

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

The text-shadow property adds shadow to text.

In its simplest use, you only specify the horizontal shadow (2px) and the vertical shadow (2px).

CSS Fonts

In CSS, we use the font-family property to specify the font of a text

The font-style property is mostly used to specify italic text.

Google Fonts are free to use, and have more than 1000 fonts to choose from.

Google fonts should be linked in header section to choose from it.

The font property is a shorthand property for:

* font-style
* font-variant
* font-weight
* font-size/line-height
* font-family

CSS Links

The four links states are:

* a:link - a normal, unvisited link
* a:visited - a link the user has visited
* a:hover - a link when the user mouses over it
* a:active - a link the moment it is clicked

The text-decoration property is mostly used to remove underlines from links

CSS Lists

The CSS list properties allow you to:

* Set different list item markers for ordered lists
* Set different list item markers for unordered lists
* Set an image as the list item marker
* Add background colors to lists and list items

The list-style-type property specifies the type of list item marker.

The list-style-type property specifies the type of list item marker.

CSS Layout

The display property specifies if/how an element is displayed.

Every HTML element has a default display value depending on what type of element it is. The default display value for most elements is block or inline

A block level element always starts in a new line.

Examples of block-level elements:

* <div>
* <h1> - <h6>
* <p>
* <form>
* <header>
* <footer>
* <section>

An inline element does not start on a new line and only takes up as much width as necessary.

Examples of inline elements:

* <span>
* <a>
* <img>

As mentioned, every element has a default display value. However, you can override this.Changing an inline element to a block element, or vice versa, can be useful for making the page look a specific way, and still follow the web standards.

CSS Position

The position property specifies the type of positioning method used for an element.

There are five different position values:

* static
* relative
* fixed
* absolute
* sticky

HTML elements are positioned static by default.

Static positioned elements are not affected by the top, bottom, left, and right properties.

An element with position: static; is not positioned in any special way; it is always positioned according to the normal flow of the page

An element with position: relative; is positioned relative to its normal position.

Setting the top, right, bottom, and left properties of a relatively-positioned element will cause it to be adjusted away from its normal position. Other content will not be adjusted to fit into any gap left by the element.

An element with position: absolute; is positioned relative to the nearest positioned ancestor (instead of positioned relative to the viewport, like fixed)

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)

CSS Overflow

The overflow property specifies whether to clip the content or to add scrollbars when the content of an element is too big to fit in the specified area.

The overflow property has the following values:

* visible - Default. The overflow is not clipped. The content renders outside the element's box
* hidden - The overflow is clipped, and the rest of the content will be invisible
* scroll - The overflow is clipped, and a scrollbar is added to see the rest of the content
* auto - Similar to scroll, but it adds scrollbars only when necessary

CSS Align

To horizontally center a block element (like <div>), use margin: auto;

Setting the width of the element will prevent it from stretching out to the edges of its container.

The element will then take up the specified width, and the remaining space will be split equally between the two margins.

CSS Combinators

A CSS selector can contain more than one simple selector. Between the simple selectors, we can include a combinator.

There are four different combinators in CSS:

* descendant selector (space)
* child selector (>)
* adjacent sibling selector (+)
* general sibling selector (~)

The descendant selector matches all elements that are descendants of a specified element.

The child selector selects all elements that are the children of a specified element.The adjacent sibling selector is used to select an element that is directly after another specific element.

Sibling elements must have the same parent element, and "adjacent" means "immediately following".

The general sibling selector selects all elements that are siblings of a specified element .

CSS Pseudo Class

A pseudo-class is used to define a special state of an element.

For example, it can be used to:

* Style an element when a user mouses over it
* Style visited and unvisited links differently
* Style an element when it gets focus

CSS Pseudo Class

A CSS pseudo-element is used to style specified parts of an element.

For example, it can be used to:

* Style the first letter, or line, of an element
* Insert content before, or after, the content of an element

The ::first-line pseudo-element is used to add a special style to the first line of a text.

The ::first-letter pseudo-element is used to add a special style to the first letter of a text.

Above can only be applied to block-level elements

The ::before pseudo-element can be used to insert some content before the content of an element.

The ::after pseudo-element can be used to insert some content after the content of an element.

The ::marker pseudo-element selects the markers of list items.

The ::selection pseudo-element matches the portion of an element that is selected by a user.

CSS Attribute Selectors

The [attribute] selector is used to select elements with a specified attribute.

The [attribute="value"] selector is used to select elements with a specified attribute and value.

The [attribute~="value"] selector is used to select elements with an attribute value containing a specified word

The [attribute|="value"] selector is used to select elements with the specified attribute starting with the specified value.

The [attribute^="value"] selector is used to select elements whose attribute value begins with a specified value

The [attribute$="value"] selector is used to select elements whose attribute value ends with a specified value.

The [attribute\*="value"] selector is used to select elements whose attribute value contains a specified value.

CSS Border Images:

The CSS border-image property allows you to specify an image to be used instead of the normal border around an element.

The property has three parts:

1. The image to use as the border
2. Where to slice the image
3. Define whether the middle sections should be repeated or stretched

The border-image property takes the image and slices it into nine sections, like a tic-tac-toe board. It then places the corners at the corners, and the middle sections are repeated or stretched as you specify.

round means repeated and stretch means the image is stretched;

CSS Multiple Backhgrounds

CSS allows you to add multiple background images for an element, through the background-image property.

The different background images are separated by commas, and the images are stacked on top of each other, where the first image is closest to the viewer.

The CSS background-size property allows you to specify the size of background images.

The size can be specified in lengths, percentages, or by using one of the two keywords: contain or cover.

The CSS background-origin property specifies where the background image is positioned.

The property takes three different values:

* border-box - the background image starts from the upper left corner of the border
* padding-box - (default) the background image starts from the upper left corner of the padding edge
* content-box - the background image starts from the upper left corner of the content

The CSS background-clip property specifies the painting area of the background.

The property takes three different values:

* border-box - (default) the background is painted to the outside edge of the border
* padding-box - the background is painted to the outside edge of the padding
* content-box - the background is painted within the content box

CSS Colors

RGBA color values are an extension of RGB color values with an alpha channel - which specifies the opacity for a color.

HSL stands for Hue, Saturation and Lightness.

An HSL color value is specified with: hsl(hue, saturation, lightness).

1. Hue is a degree on the color wheel (from 0 to 360):
   1. 0 (or 360) is red
   2. 120 is green
   3. 240 is blue
2. Saturation is a percentage value: 100% is the full color.
3. Lightness is also a percentage; 0% is dark (black) and 100% is white.

HSLA gives opacity as an additional field.

CSS Gradients

CSS gradients let you display smooth transitions between two or more specified colors.

CSS defines two types of gradients:

* ****Linear Gradients (goes down/up/left/right/diagonally)****
* ****Radial Gradients (defined by their center)****

To create a linear gradient you must define at least two color stops. Color stops are the colors you want to render smooth transitions among. You can also set a starting point and a direction (or an angle) along with the gradient effect.

background-image: linear-gradient(direction, color-stop1, color-stop2, ...);

If you want more control over the direction of the gradient, you can define an angle, instead of the predefined directions (to bottom, to top, to right, to left, to bottom right, etc.). A value of 0deg is equivalent to "to top". A value of 90deg is equivalent to "to right". A value of 180deg is equivalent to "to bottom"

The repeating-linear-gradient() function is used to repeat linear gradients.

background-image: linear-gradient(angle, color-stop1, color-stop2);

Radial Gradient

A radial gradient is defined by its center.

To create a radial gradient you must also define at least two color stops

background-image: radial-gradient(shape size at position, start-color, ..., last-color)

The shape parameter defines the shape. It can take the value circle or ellipse. The default value is ellipse.

The size parameter defines the size of the gradient. It can take four values:

* ****closest-side****
* ****farthest-side****
* ****closest-corner****
* ****farthest-corner****

The repeating-radial-gradient() function is used to repeat radial gradients

CSS Shadows

The CSS text-shadow property applies shadow to text.

In its simplest use, you only specify the horizontal shadow (2px) and the vertical shadow (2px).

The CSS box-shadow property applies shadow to elements.

In its simplest use, you only specify the horizontal shadow and the vertical shadow

A third parameter called blur radius can be added to text and box to obtain a blur effect.

CSS Text Effects

The CSS text-overflow property specifies how overflowed content that is not displayed should be signaled to the user.

It can be clipped or it can be rendered as an ellipsis (...)

The CSS word-wrap property allows long words to be able to be broken and wrap onto the next line.

word-wrap : break-word;

The CSS word-break property specifies line breaking rules.

The CSS writing-mode property specifies whether lines of text are laid out horizontally or vertically.

Web Fonts

Web fonts allow Web designers to use fonts that are not installed on the user's computer.

When you have found/bought the font you wish to use, just include the font file on your web server, and it will be automatically downloaded to the user when needed.

In the @font-face rule; first define a name for the font (e.g. myFirstFont) and then point to the font file

CSS 2D Transforms

With the CSS transform property you can use the following 2D transformation methods:

* translate()
* rotate()
* scaleX()
* scaleY()
* scale()
* skewX()
* skewY()
* skew()
* matrix()

The translate() method moves an element from its current position (according to the parameters given for the X-axis and the Y-axis).

The rotate() method rotates an element clockwise or counter-clockwise according to a given degree.

The scale() method increases or decreases the size of an element (according to the parameters given for the width and height)

The skew() method skews an element along the X and Y-axis by the given angles.

The matrix() method combines all the 2D transform methods into one.

The matrix() method take six parameters, containing mathematic functions, which allows you to rotate, scale, move (translate), and skew elements.

The parameters are as follow: matrix(scaleX(),skewY(),skewX(),scaleY(),translateX(),translateY())

CSS 3D Transformations

With the CSS transform property you can use the following 3D transformation methods:

* rotateX()
* rotateY()
* rotateZ()

The rotateX() method rotates an element around its X-axis at a given degree.

The rotateY() method rotates an element around its Y-axis at a given degree.

The rotateZ() method rotates an element around its Z-axis at a given degree.

CSS transition

CSS transitions allows you to change property values smoothly, over a given duration.

* transition
* transition-delay
* transition-duration
* transition-property
* transition-timing-function

If the duration part is not specified, the transition will have no effect, because the default value is 0.

The transition-timing-function property can have the following values:

* ease - specifies a transition effect with a slow start, then fast, then end slowly (this is default)
* linear - specifies a transition effect with the same speed from start to end
* ease-in - specifies a transition effect with a slow start
* ease-out - specifies a transition effect with a slow end
* ease-in-out - specifies a transition effect with a slow start and end
* cubic-bezier(n,n,n,n) - lets you define your own values in a cubic-bezier function

CSS Animations

CSS allows animation of HTML elements without using JavaScript or Flash.