CSS Basics

Cascading Style Sheets

→ A set of rules to describe how content on a web page should look

→ Proposed in 1994

→ Many different ideas from different browsers came together

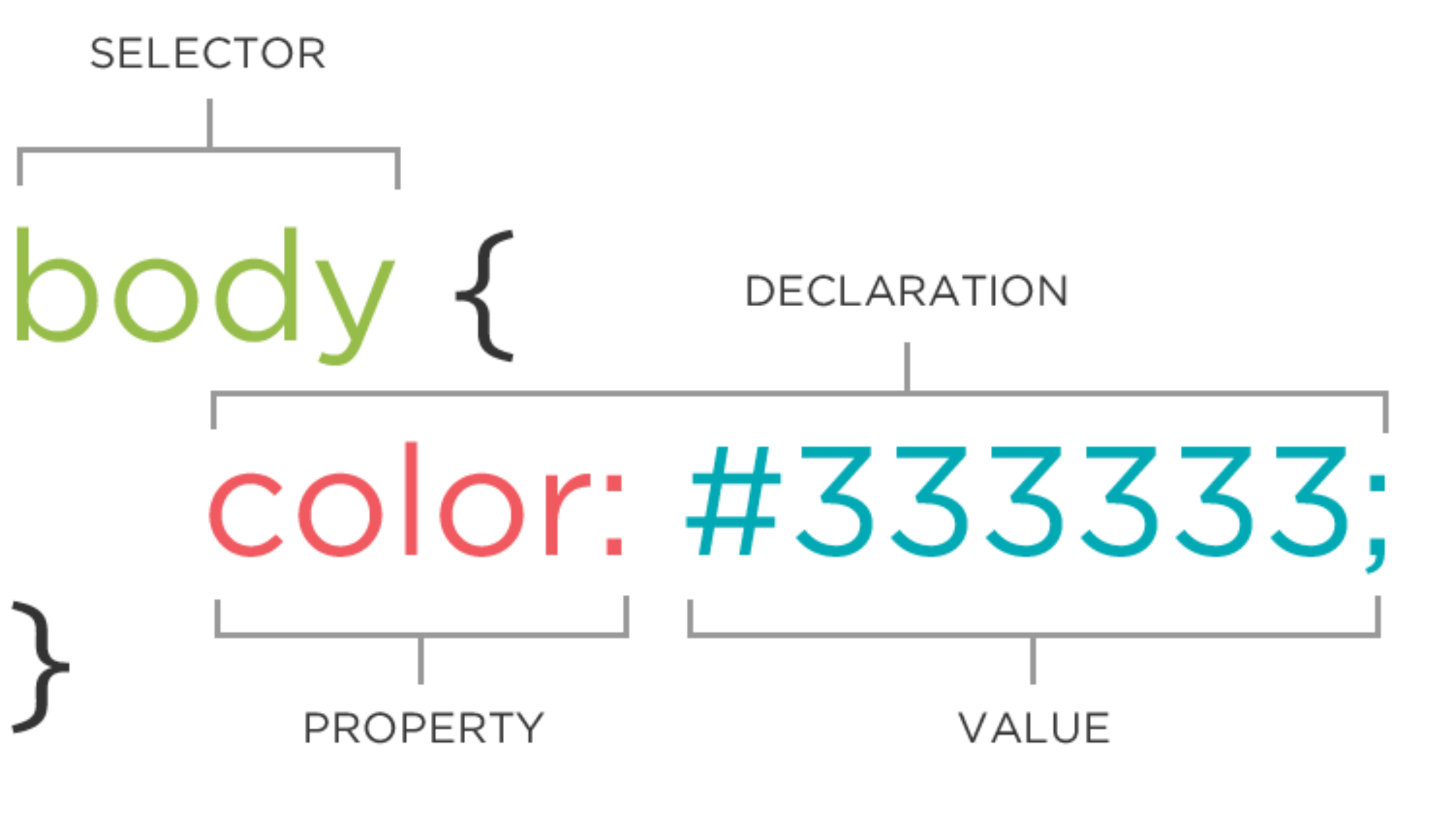
→ First browser to implement CSS was Internet Explorer 3 in 1996

→ It is still changing and being updated!

Styling

CSS lets you write style rules that apply to individual elements, a group of elements, or a category of elements.

These rules are associated with html elements by means of **selectors** and are expressed in a **declaration**, made up of a **property** and a **value**.


SELECTOR
body {
DECLARATION
color: #333333;
}
PROPERTY
VALUE

CSS Syntax

```
selector {
  property: value;
}
```

- Always start with a selector, then curly braces.
- You can have multiple property-value pairs inside the braces.
- You cannot nest braces.

Selectors

```
// selects all h1 elements
h1 {
  color: #FFFFFF;
}

h1, h2 { ... } // all h1 and h2 elements

.selfie { ... } // all elements with the class "selfie"

.sidebar a { ...} // all a elements nested inside elements with the class "sidebar"

* {...} // selects all elements
```

Types of selectors

→ elements (`h1`)

→ classes (`.sidebar`)

→ ids (`#main-menu`)

→ attributes (`[lang=es]`)

→ pseudo-classes (`:hover`, `:required`)

→ pseudo-elements (`a::before`)

→ combinations (`.sidebar a`, `ul > li`, `img + caption`)

MDN CSS Selectors Reference

Exercise: CSS Diner

Play with css selectors at the CSS Diner

Prefer classes as selectors

Each selector has a *specificity*. It's hard to remember specificity rules and apply them accurately.

Class selectors are *more specific* than element selectors and so are more likely to give you the results you have in mind.

Pseudo-classes are also useful (e.g. `:hover`)

Read about specificity on MDN

CSS Properties

We use **properties** to set the style of selected elements.

```
.selfie {
  border-color: black;
  border-width: 1px;
  border-style: solid;
  padding: 3px;
}
```

Notice the semicolons at the end of each line.

Text and Font Properties

→ `color`: the color of the text

→ `font-size`: the size of the text, in pixels (`px`) or other units

→ `font-family`: the name of the font; can include alternates

→ `font-weight`: `normal`, `bold`; can be a numeric value.

→ `text-decoration`: `none`, `underline`; used often with `a` elements

→ `text-align`: `left`, `right`, `center`, `justify`

→ `line-height`: value multiplied by font size (usually) to change vertical space

Colors

There is a giant list of color names you can use, but you will generally use a **hex code**.

A **hex code** is a set of three numbers ranging from 0 to 255 in hexadecimal (base-16) format. It begins with a pound sign: `#FF00A7`.

The first number is the amount of red.
The second number is the amount of green.
The third number is the amount of blue.

`#000000` is black.
`#FFFFFF` is white.

See HTML Color Codes

Color with RGB and RGBa

Specified with a comma-separated list of three values ranging from 0 to 255 or percentage values from 0% to 100%.

The values represent red, green, and blue.

```
rgb(0, 255, 255)
```

RGBa adds a fourth value that represents the opacity of the color ranging from 0.0 (totally transparent) to 1 (totally opaque).

The values indicate red, green, blue, and alpha.

```
rgba(0, 255, 255, 0.5)
```

Color with HSL and HSLa

Specified with a comma-separated list of three values:

```
hsl(180, 100%, 50%);
```

→ Hue (a number ranging from 0 to 360)
→ Saturation (a percentage ranging from 0% to 100%) and a
→ Lightness (a percentageranging from 0% to 100%).

HSLa adds a fourth value that indicates opacity, ranging from 0.0 (totally transparent) to 1 (totally opaque):

```
hsla(180, 100%, 50%, 0.5)
```

More detail on color values at MDN

Block properties

→ `background-color`

→ `padding`: space inside the box

→ `margin`: space outside the box

→ `border-width`: size of the border

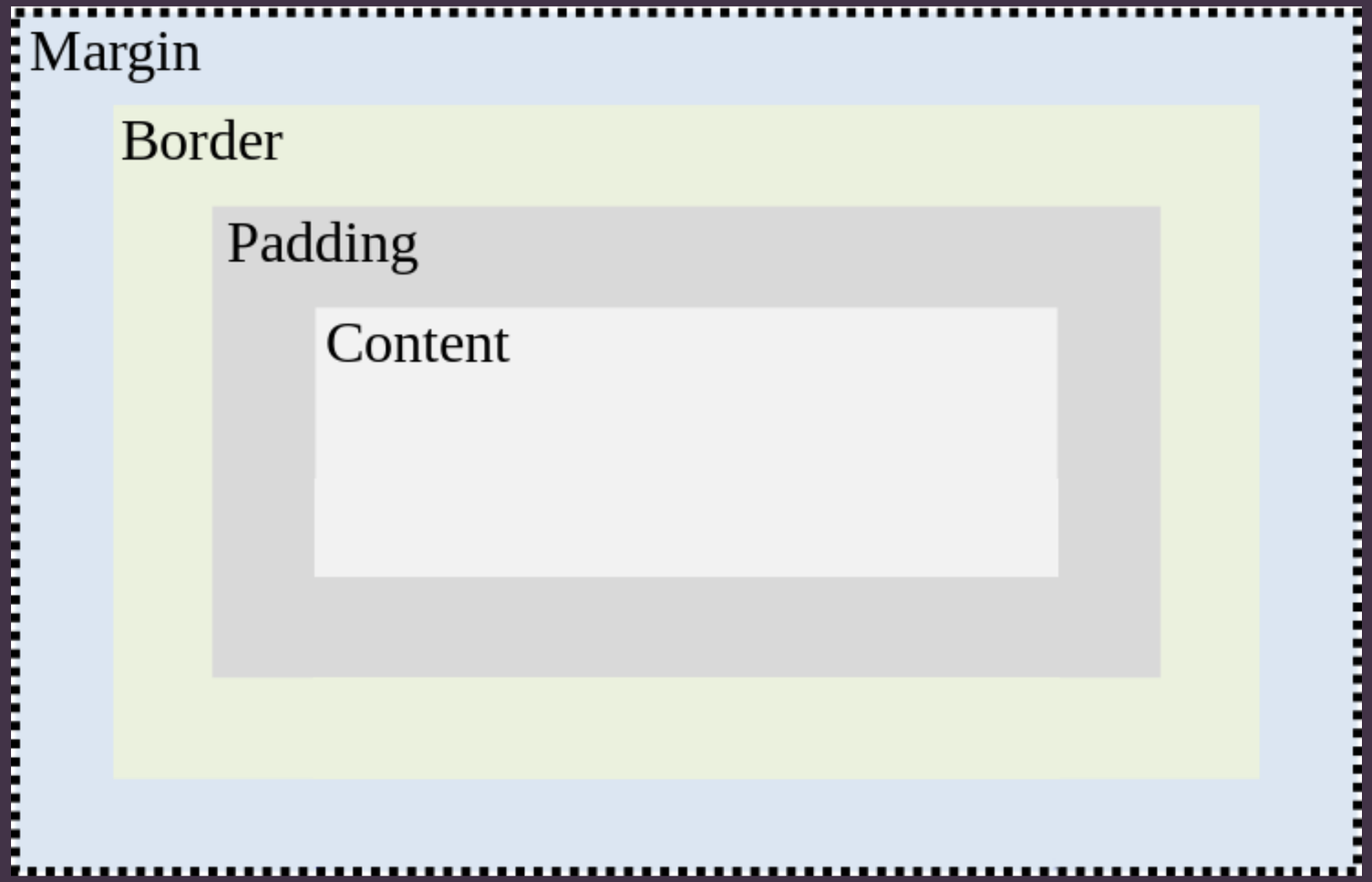
→ `border-color`: color of the border

→ `border-style`: `none`, `dotted`, `dashed`, `solid`, `double`

→ `border-radius`: round corners

→ `width`: total width of the box, in `px`, `em`, `rem`, or percentage

The Box Model



Margin and Padding

You can specify the margin and padding in mutiple ways:

1. one value for all sides
2. one value for the top and bottom and a second value for the right and left sides
3. one value for each side in a clockwise order starting at the top: top, right, bottom, left

```
margin: 5px; /* all sides */
margin: 5px 10px; /* top & bottom, left & right*/
margin: 5px 10px 10px 20px; /* top, right, bottom, left */
```

Shorthand Properties

CSS defines several properties that group related sub-properties, letting you set multiple values in one line.

For example, `margin` includes:

`margin-top`
`margin-bottom`
`margin-left`
`margin-right`

These sub-properties are also valid properties that can be used individually:

```
.price-total {
  margin-top: 10px;
}
```

MDN Shorthand Properties

Units of measure

→ `px`: pixels; an *absolute* unit

→ `em`: a number multiplied by the element's font-size (this can keep muitiplying as elements that inherit the parent's size are nested, so be careful!)

→ `rem`: relative to the root element's font-size (this will not keep multiplying)

→ `%`: percentage relative to the parent element

→ `vh` / `vw`: viewport height / width, used with number that represents a percentage

→ `0`: never needs a unit

MDN CSS Values and Units

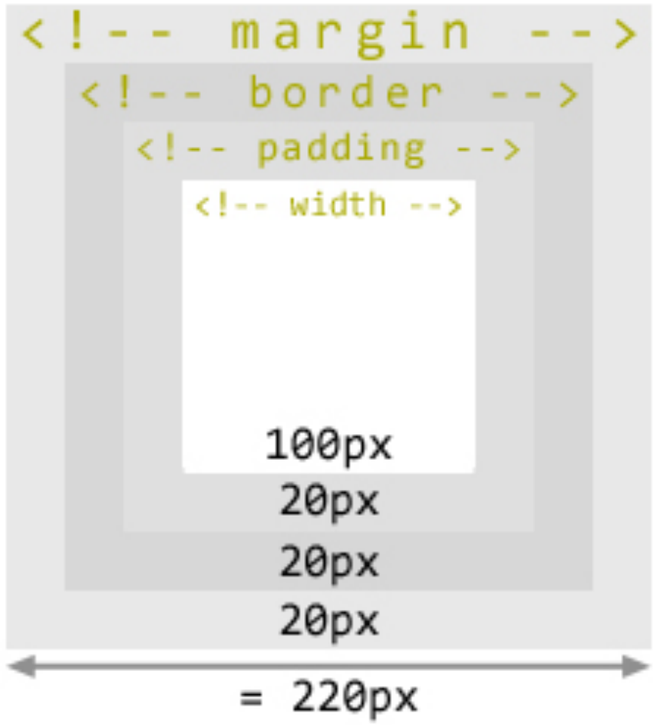
A box with rounded corners and a border

```
.likes {
  background-color: blue;
  border-color: black;
  border-radius: 10px;
  border-style: solid;
  border-width: 1px;
  color: white;
  margin: 10px 0;
  padding: 5px 10px;
}
```

box-sizing

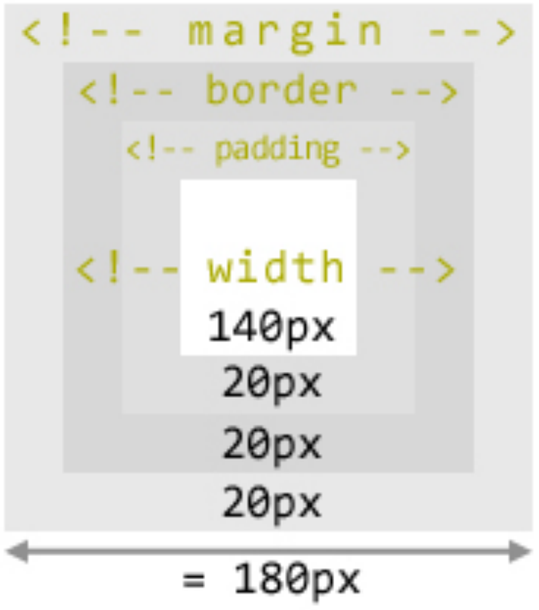
CSS Box Model

box-sizing: content-box;



box-sizing: border-box;

As opposed to the content-box model, the border-box model includes the border and padding inside of the width.



use border-box

```
* {
  box-sizing: border-box;
  margin: 0;
  padding: 0;
}
```

CSS Backgrounds

shorthand property:

```
body {
  background:
    url('background.jpg')      /* image */
    top center / 200px 200px   /* position / size */
    no-repeat                  /* repeat style */
    red;                       /* color */
}
```

`background` **defines all of the following:**

`background-image`
`background-position`
`background-size`
`background-repeat`
`background-color`

and, somewhat less commonly:

`background-attachment`
`background-origin`
`background-clip`

MDN CSS background

background-image

Background images can be set to an image file or a gradient.

```
background-image: url('pattern.jpg');
background-image: linear-gradient(rgba(255, 255, 0, 0.5), rgba(0, 0, 255, 0.5));
background-image: radial-gradient(red, blue);
background-image: repeating-radial-gradient(circle at center, red 0, blue, green 30px);
```

MDN background-image

background-position

This property takes a value that is a set of X and Y coordinates.
They can be units of measure, or `center`, `top`, `bottom`, and `right`.

```
background-position: 25% 75%;
background-position: top left;
background-position: 10px 20px;
background-position:bottom 10px right 10px; /* offset */
```

MDN background-position

background-repeat

```
background-repeat: repeat no-repeat;
background-repeat: repeat-x;
background-repeat: no-repeat repeat;
background-repeat: repeat-y;
background-repeat: repeat repeat;
background-repeat: space;
```

MDN background-repeat

background-size

This property also takes X and Y values, but there are two special ones you'll see often:

→ `contain`: make the image as large as possible while ensuring that it stays within the boundaries of the element.

→ `cover`: make the images as large as necessary to cover the entire element.

```
background-size: cover;
background-size: 30%;
background-size: 100px;
```

MDN background-size

Multiple backgrounds

Multiple backgrounds can be specified with commas. This is mainly useful for transparency.

```
background:
  linear-gradient(rgba(30, 9, 110, 0.8), rgba(30, 9, 110, 0.8)
  no-repeat
  center/cover
  url('assets/img/banner_images/default.jpg1`));
```

Connecting CSS to your HTML

There are a few ways you can connect CSS to HTML. The preferred way is to create a separate style sheet where you write all you CSS, and link that stylesheet to your HTML.

1. Create a stylesheet in your project directory, and name it something like `style.css`.
2. In the `head` tag in your html document, include a link tag with an `href` attribute that points to the location of your stylesheet:

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