Web Developer

HTML, CSS e Strumenti di Digital Marketing (SEO, SEM, SEA)

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SCSS

Dynamic CSS

Shadi Lahham - Web development

Setup SCSS

non sono modificabili tramite JS

SCSS funzionamento: il browser mangia HTML CSS, convertiamo quindi l'SCSS in CSS
e abbiamo bisogno di un programma per farlo abbiamo bisogno di un applicazione di nome SAS

What is SCSS

Sassy Cascading Style Sheets
- Uses the .scss or the .sass extensions
- We will use **only .scss**

Adds additional features
- Enhanced the plain CSS syntax

Reduces the amount of repetition
- DRY - don't repeat yourself

Fully compatible with CSS
- Every valid CSS file is a valid SCSS file

Sass is a preprocessor
- similar in some ways to Less CSS
- .scss files need to be transpiled to .css
- Compiling vs Transpiling

Use SCSS

SassMeister

Use the SassMeister playground to test SCSS to CSS conversion

Codepen

Use codepen but remember to change the language from CSS to SCSS

Playcode

Use the scss playground on playcode directly

Install and run Scss

Install directly

1. Download Sass from the Repository based on your operating system
2. Add it to your PATH

Install with npm from Node.js
npm install -g sass

Run Sass
sass input.scss output.css
OR
sass --watch input.scss output.css

SCSS Syntax

Comments

```scss
// variables
$primary: darkorange;
$secondary: #bada55;

// this is a Scss comment, it won't appear in the
css file
/* this is a CSS comment, it will appear in the
css file */
```

```css
/* this is a CSS comment, it will appear in the
css file */
```

Variables $

SCSS
```scss
$primary: darkorange;
$secondary: #bada55;

$special-border: 2px dashed $secondary;

#sample {
  color: $primary;
  background-color: $secondary;
}

.special {
  border: $special-border;
}

.unique {
  border: 2px solid $primary;
}
```

HTML
```html
<body>
    <div id="sample">I am just a sample</div>
    <div class="special">I am special</div>
    <div class="special">I am special too</div>
    <div class="unique">I am unique</div>
</body>
```

Variables $

SCSS

```scss
$primary: darkorange;
$secondary: #bada55;

$special-border: 2px dashed $secondary;

#sample {
  color: $primary;
  background-color: $secondary;
}

.special {
  border: $special-border;
}

.unique {
  border: 2px solid $primary;
}
```

CSS

```css
#sample {
  color: darkorange;
  background-color: #bada55;
}

.special {
  border: 2px dashed #bada55;
}

.unique {
  border: 2px solid darkorange;
}
```

Nesting

SCSS

```scss
.special {
  border: $special-border;
  ul {
    li {
      background-color: beige;
      &.selected {
        background-color: brown;
      }
    }
  }
}
```

HTML

```html
<div class="special">
    <ul>
        <li>item1</li>
        <li class="selected">item2</li>
        <li>item3</li>
    </ul>
</div>
```

Nesting

SCSS
```scss
.special {
  border: $special-border;
  ul {
    li {
      background-color: beige;
      &.selected {
        background-color: brown;
      }
    }
  }
}
```

CSS
```css
.special {
  border: 2px dashed #bada55;
}
.special ul li {
  background-color: beige;
}
.special ul li.selected {
  background-color: brown;
}
```

Parent Selector &

SCSS

```scss
.warning {
  background-color: red;
  &:hover {
    background-color: orange;
  }
  &--urgent {
    color: purple;
  }
  #footer & {
    // a warning in the footer looks different
    background-color: plum;
  }
  & > & {
    // a warning in a warning
    border: 1px dotted black;
  }
}
```

HTML

```html
<div class="warning">careful</div>
<div class="warning--urgent">please be
careful</div>
<div class="warning">
    <span>some error caused</span><span
class="warning">another error</span>
</div>
<div id="footer">
    <div>some footer text</div>
    <div class="warning">footer warning</div>
</div>
```

Parent Selector &

SCSS
```scss
.warning {
  background-color: red;
  &:hover {
    background-color: orange;
  }
  &--urgent {
    color: purple;
  }
  #footer & {
    // a warning in the footer looks different
    background-color: plum;
  }
  & > & {
    // a warning in a warning
    border: 1px dotted black;
  }
}
```

CSS
```css
.warning {
  background-color: red;
}
.warning:hover {
  background-color: orange;
}
.warning--urgent {
  color: purple;
}
#footer .warning {
  background-color: plum;
}
.warning > .warning {
  border: 1px dotted black;
}
```

Parent Selector &

scss
```scss
div, p {
  color: #f5ca0a;

  & & {
    border: 1px solid #f86706;
  }
}
```

css
```css
div, p {
  color: #f5ca0a;
}
div div,
div p,
p div,
p p {
  border: 1px solid #f86706;
}
```

Inheritance @extend

SCSS

```scss
// placeholders don't appear in the .css file
%panel {
  border-radius: 5px;
  border: 1px solid brown;
  margin: 10px auto;
  box-shadow: 1px 1px 6px -1px black;
}

.info {
  @extend %panel;
  background-color: wheat;
}
#notification {
  @extend %panel;
  background-color: beige;
}
```

CSS

```css
#notification, .info {
  border-radius: 5px;
  border: 1px solid brown;
  margin: 10px auto;
  box-shadow: 1px 1px 6px -1px black;
}

.info {
  background-color: wheat;
}

#notification {
  background-color: beige;
}
```

Inheritance @extend

SCSS

```scss
#footer > .special-info {
    @extend .info;
    color: $primary;
}
```

CSS

```css
#notification, .info, #footer > .special-info {
  border-radius: 5px;
  border: 1px solid brown;
  margin: 10px auto;
  box-shadow: 1px 1px 6px -1px black;
}

.info, #footer > .special-info {
  background-color: wheat;
}

#footer > .special-info {
  color: darkorange;
}
```

Mixins @mixin @include

SCSS

```scss
@mixin panel {
  border-radius: 5px;
  border: 1px solid brown;
  margin: 10px auto;
  box-shadow: 1px 1px 6px -1px black;
}

.info {
  @include panel;
  background-color: wheat;
}

#notification {
  @include panel;
  background-color: beige;
}
```

CSS

```css
.info {
  border-radius: 5px;
  border: 1px solid brown;
  margin: 10px auto;
  box-shadow: 1px 1px 6px -1px black;
  background-color: wheat;
}

#notification {
  border-radius: 5px;
  border: 1px solid brown;
  margin: 10px auto;
  box-shadow: 1px 1px 6px -1px black;
  background-color: beige;
}
```

Mixins @mixin @include

SCSS

```scss
@mixin panel($border-color: brown, $bg-color:
wheat, $border-radius: 5px) {
  border-radius: $border-radius;
  border: 1px solid $border-color;
  background-color: $bg-color;
  margin: 10px auto;
  box-shadow: 1px 1px 6px -1px black;
}

.info {
  @include panel;
}
#notification {
  @include panel($bg-color:beige,
$border-radius:10px);
}
```

CSS

```css
.info {
  border-radius: 5px;
  border: 1px solid brown;
  background-color: wheat;
  margin: 10px auto;
  box-shadow: 1px 1px 6px -1px black;
}

#notification {
  border-radius: 10px;
  border: 1px solid brown;
  background-color: beige;
  margin: 10px auto;
  box-shadow: 1px 1px 6px -1px black;
}
```

Mixins vs @extend

Mixins
- Compiled CSS code is not DRY; same CSS is repeated for every class
- Generated CSS file is larger
+ Flexible: they accept arguments

@extend
- Not flexible: doesn't accept arguments
+ DRY compiled code
+ Creates semantic relationships between selectors
- Couples selectors together

Recommendation
Use @extend for same-for-a-reason
Use @mixin for same-just-because

Partials _ and Modules @use

```scss
_borders.scss
$round-borders: 5px;
$circle-borders: 50%;

@mixin round-border($border-radius:
$round-borders) {
  border-radius: $border-radius;
  border: 1px solid black;
}
```

partials
```
- filename starts with an _
- won't generate a .css file
- only used by other files
```

```scss
main.scss
@use 'borders';

.btn {
  @include borders.round-border(10px);
}


.circle {
  background-color: orange;
  width: 20px;
  height: 20px;
  border-radius: borders.$circle-borders;
}
```

Partials _ and Modules @use

main.css
```css
.btn {
  border-radius: 10px;
  border: 1px solid black;
}

.circle {
  background-color: orange;
  width: 20px;
  height: 20px;
  border-radius: 50%;
}
```

index.html
```html
<div class="btn">click me</div>
<div class="circle"></div>
```

note: @import is the old way of doing **@use**
Don't use @import

Operators

SCSS

```scss
$container-width: 800px;
$fraction: 1/3;

.container {
  width: $container-width;
  margin: 0 auto;
  .left {
    float: left;
    background-color: gold;
    width: $container-width * $fraction;
  }
  .right {
    float: right;
    background-color: darkkhaki;
    width: $container-width * (1-$fraction);
  }
}
```

CSS

```css
.container {
  width: 800px;
  margin: 0 auto;
}

.container .left {
  float: left;
  background-color: gold;
  width: 266.6666666667px;
}

.container .right {
  float: right;
  background-color: darkkhaki;
  width: 533.3333333333px;
}
```

Built-In Modules

SCSS

```scss
@use 'sass:color';
.strange {
  $mixed: color.mix($primary, $secondary, $weight: 50%);
  background-color: $mixed;
  &:hover {
    background-color: lighten($mixed, 20%);
  }
  p {
    background-color: color.adjust($mixed, $hue: 35);
  }
}
```

CSS

```css
.strange {
  background-color: #ddb32b;
}

.strange:hover {
  background-color: #ebd383;
}

.strange p {
  background-color: #9fdd2b;
}
```

Built-In Modules

```scss
@use "sass:map";

$colors: (
  primary: #007bff,
  secondary: #6c757d,
  success: #28a745,
  danger: #dc3545,
  warning: #ffc107
);

$primary: map.get($colors, primary); // $color will be #007bff

.advertising {
  color: $primary; // will set color to the primary color defined in the map
}
```

Functions

SCSS

```scss
// converts pixel values to rem values based
// on a base font size (default: 16px)
@function px-to-rem($px, $base-font-size: 16px) {
  @return $px / $base-font-size * 1rem;
}


.element {
  font-size: px-to-rem(24px);
  margin: px-to-rem(32px) 0;
}
```

CSS

```css
.element {
  font-size: 1.5rem;
  margin: 2rem 0;
}
```

@function
custom functions for reusable style logic

Control directives

@if
allows conditional styling based on specified conditions

@else
used with @if to provide an alternative styling when the condition is not met

@for
generates CSS rulesets dynamically based on a specified range or list

@each
iterates over lists or maps and applies styles accordingly

@while
executes a block of styles repeatedly while a condition is true

Control directives

SCSS

```scss
// iterating a list
$colors: red, green, blue;
@each $color in $colors {
  .color-#{$color} {
    color: $color;
  }
}
```

CSS

```css
.color-red {
  col0or: red;
}

.color-green {
  color: green;
}

.color-blue {
  color: blue;
}
```

Control directives

SCSS

```scss
// iterating a map
$colors: (
  primary: #3498db,
  secondary: #2ecc71,
  accent: #e74c3c
);

@each $name, $color in $colors {
  .color-#{$name} {
    color: $color;
  }
}
```

CSS

```css
.color-primary {
  color: #3498db;
}

.color-secondary {
  color: #2ecc71;
}

.color-accent {
  color: #e74c3c;
}
```

Your turn

1.Mix it up

- Write a mixin that uses another mixin that uses yet another mixin
- All 3 mixins should accept parameters and do something useful
- Create a complete page with a few SCSS features and variables
- Use the 3 mixins that you created in a useful way in the page
- Submit your SCSS, CSS and HTML files as well as any files used for generating the SCSS

Bonus

2.Of light and darkness

- Create a complete page with at least 3 styled page elements
  - e.g a page with a list, a table and a form with inputs and buttons
- Use SCSS variables, the parent selector, mixins or @extend and color functions to do the following
  - The page should have two 'themes', light and dark
  - You may use the classes on body 'light' or 'dark' to change themes
  - Use SCSS to generate the themes dynamically
  - Try to generate as much as possible changing only 2 or 3 main color values
- Submit your SCSS, CSS and HTML files as well as any files used for generating the SCSS

References: sass:color, Theming with Sass tutorial

References

[SassMeister - The Sass Playground](#)

[Install Sass](#)

[Sass Basics](#)

References

[Placeholder Selectors](#)
[@extend](#)
[@mixin and @include](#)
[@use](#)
[Built-In Modules](#)

References

An Introduction to Sass and SCSS

Intro to Sass. DRY up CSS with variables

Introduction to Sass/SCSS and Less

Less CSS