

# 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

# 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

```
// 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 */
```

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



# Variables \$

## 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

```
<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

```
$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

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

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

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

# Nesting

## SCSS

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

## HTML

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

# Nesting

## SCSS

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

## CSS

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

# Parent Selector &

## 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

```
<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

```
.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

```
.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

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

## CSS

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

# Inheritance @extend

## 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

```
#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

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

## 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

```
@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

```
.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

```
@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

```
.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

## `_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

## `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

```
.btn {  
  border-radius: 10px;  
  border: 1px solid black;  
}  
  
.circle {  
  background-color: orange;  
  width: 20px;  
  height: 20px;  
  border-radius: 50%;  
}
```

index.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

```
$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

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

.container .left {
  float: left;
  background-color: gold;
  width: 266.666666667px;
}

.container .right {
  float: right;
  background-color: darkkhaki;
  width: 533.333333333px;
}
```

# Built-In Modules

## 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

```
.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

```
// 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;
}
```

## @function

custom functions for reusable style logic

## CSS

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

# 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

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

## CSS

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

.color-green {
  color: green;
}

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

# Control directives

## SCSS

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

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

## 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](#)