



AUDIT YOUR THEME

PRESENTED BY ANDREW OLSON

October 26th, 2018

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Working with Drupal since 2008

Fun Fact About Me:

- Musician + played in a band at Lollapalooza



Andrew Olson

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HS2 SOLUTIONS

Wilson.



zipcar.

AVIS®

H&R BLOCK

spring

CAESARS
ENTERTAINMENT.

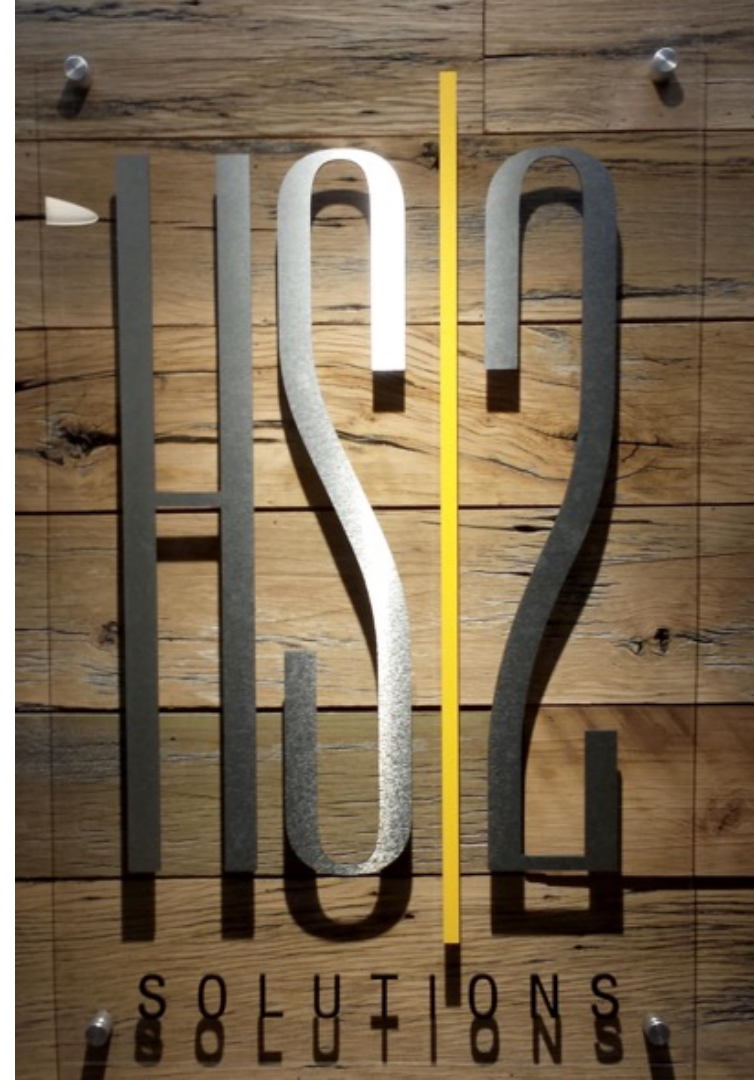
Advance
Auto Parts



P&G

Allstate.
You're in good hands.

Panera
BREAD®



AGENDA

1. How To Analyze Your Theme
2. Helpful Tools
3. Refactor Pro Tips
4. Q&A



WHICH BUCKET ARE YOU IN?



THEME HAS GROWN OVER TIME

A high-angle, top-down photograph of a silver metal bucket filled with an assortment of craft beer bottles and glasses. The bucket is placed on a sandy beach next to a colorful, fringed beach towel. The beer bottles are of various colors and brands, including 'CRAFT STATE', 'WILD BEER', and 'BEAR'. Some bottles have labels with 'SINCE 1993' and 'CLASSIC CENTURY'. There are also several glasses, some containing beer. The scene is brightly lit, suggesting a sunny day at the beach.

LAUNCH COMPLETE

STUCK WITH IT



BIG PROJECT



Photo by Robert Collins on Unsplash

A photograph of a baby sitting in a blue plastic tub, pouring water from a metal cup. The baby is seen from the back, with their right arm raised holding the cup. Water is captured mid-air, creating a dynamic splash. The background is a soft-focus green, suggesting an outdoor setting. The text 'NEW TO THEMING' is overlaid in the center in a bold, white, sans-serif font.

NEW TO THEMING

1. *Analyze Your Theme*

HOW TO ANALYZE YOUR THEME

Theme Questions

- Open your **.info.yml**.
- What type of theme?
- Sub-theme? Parent?
- Are there updates or fixes available?
- Is the theme actively maintained?

```
name: Bartik
type: theme
base theme: classy
description: 'A flexible, recolorable theme'
package: Core
# version: VERSION
# core: 8.x
libraries:
  - bartik/global-styling
ckeditor_stylesheets:
  - css/base/elements.css
  - css/components/captions.css
  - css/components/table.css
  - css/components/text-formatted.css
regions:
  header: Header
  primary_menu: 'Primary menu'
  secondary_menu: 'Secondary menu'
  page_top: 'Page top'
  page_bottom: 'Page bottom'
```

```
name: mysubtheme
description: "Custom sub-theme, inherits from the Zurb Foundation base theme"
core: 8.x
type: theme
base theme: zurb_foundation

libraries:
- mysubtheme_base/global

regions:
  meta_header: 'Meta Header'
  header: Header
  ...
  right_off_canvas: 'Right off canvas'

# This section is used by the contrib module, Component Libraries.
# Reference .twig files by using the Twig namespace: @components
component-libraries:
  atoms:
    paths:
      - source/_patterns/00-atoms
  molecules:
    paths:
      - source/_patterns/01-molecules
  organisms:
    paths:
      - source/_patterns/02-organisms
  templates:
    paths:
      - source/_patterns/03-templates
```

HOW TO ANALYZE YOUR THEME

Theme Questions

- Inspect your **libraries.yml**.
 - Loading CSS and JS appropriately?
 - Are you using a FE Framework?
 - What is your level of JavaScript complexity?
 - Are you using a CDN (Content Delivery Network)?
 - Are you hosting Webfonts or are they external?

```
global:
  version: VERSION
  css:
    component:
      css/base.css: {}
      css/components/blocks/banner/banner.css: {}
      css/components/blocks/branding/branding.css: {}
      ...
    layout:
      css/layout/grid-2.css: {}
      css/layout/grid-3.css: {}
      css/layout/grid-4.css: {}
      css/layout/layout.css: {}
  js:
    js/components/navigation/menu-main/menu-main.js: {}
recipe-collections:
  css:
    theme:
      css/components/blocks/recipe-collections/recipe-collections.css: {}
two-columns:
  css:
    layout:
      css/layout/layout-2-col.css: {}
webfonts:
  css:
    theme:
      'https://fonts.googleapis.com/css?family=Open+Sans': { type: external,
```

HOW TO ANALYZE YOUR THEME

Theme Questions

- Review your **.theme**.
 - Inspect your hooks.
 - How many template overrides?

```
/**
 * Implements hook_preprocess_HOOK() for HTML document templates.
 *
 * Adds body classes if certain regions have content.
 */
function umami_preprocess_html(&$variables) {
  // Add a sidebar class if the sidebar has content in it.
  if (!empty($variables['page']['sidebar'])) {
    $variables['attributes']['class'][] = 'two-columns';
    $variables['#attached']['library'][] = 'umami/two-columns';
  }
  else {
    $variables['attributes']['class'][] = 'one-column';
  }
}
```

HOW TO ANALYZE YOUR THEME

Theme Questions

- Inspect your **breakpoints.yml**.
 - What are your screen sizes?
- Did you implement Responsive Images?

```
umami.mobile:  
  label: mobile  
  mediaQuery: ''  
  weight: 0  
  multipliers:  
    - 1x  
    - 2x  
umami.narrow:  
  label: narrow  
  mediaQuery: 'all and (min-width: 768px)'  
  weight: 1  
  multipliers:  
    - 1x  
    - 2x  
umami.wide:  
  label: wide  
  mediaQuery: 'all and (min-width: 960px)'  
  weight: 2  
  multipliers:  
    - 1x  
    - 2x
```


HOW TO ANALYZE YOUR THEME

Theme Questions

- Does your site use automation?
 - Gulp, Webpack, Grunt, Yarn.
- Does your site use SASS or LESS?
- Does your site use a Pattern Library?
 - Internal or External?

HOW TO ANALYZE YOUR THEME

Theme Questions

- How many templates?
- How are your templates organized?
- How many content types?
- Does the site use modules inserting CSS or JS?
 - [Asset Injector](#) (formerly CSS Injector and JS Injector in D7)

HOW TO ANALYZE YOUR THEME

Project Questions

- Does your site have Analytics?
 - What is your browser support?
 - What are your top 20 most requested URLs?
 - How much mobile traffic is your site receiving?
 - What is in your 404 report?

HOW TO ANALYZE YOUR THEME

Project Questions

- Is the original developer available for questions?
 - Ask them to navigate the site with specific tasks.
 - Listen, don't lead.
 - Lastly, review your findings.

AUDIT LEADS TO ACTION



2. *Helpful Tools*

PARKER

ANALYZE CSS

LINT

WHAT IS PARKER?

Parker is a stylesheet analysis tool. It runs metrics on your stylesheets and will report on their complexity.

HELPFUL TOOLS

Parker

- Go to [Github](#) to clone or download.
- Install with **npm**.
- Measure local or remote CSS files.
- Outputs JSON.

HELPFUL TOOLS

Parker

```
"total-stylesheets": 1,  
"total-style-sheet-size": 192247,  
"total-rules": 1553,  
"total-selectors": 2047,  
"total-identifiers": 6042,  
"total-declarations": 3911,
```

HELPFUL TOOLS

CSS 101

```
h1 {color: #0000FF; font-size: 18px;}
```

CSS 101

CSS RULE

```
h1 {color: #0000FF; font-size: 18px;}
```

HELPFUL TOOLS

CSS 101

SELECTOR

A diagram illustrating a CSS selector. The word "SELECTOR" is written in large white letters at the top. Below it, the CSS rule "h1 {color: #0000FF; font-size: 18px;}" is shown in white text on a dark purple background. The "h1" part of the rule is highlighted with a green square, and a white arrow points from the word "SELECTOR" to this green square.

```
h1 {color: #0000FF; font-size: 18px;}
```


HELPFUL TOOLS

CSS 101

DECLARATION

```
h1 {color: #0000FF; font-size: 18px;}
```

PROPERTY

VALUE

HELPFUL TOOLS

CSS 101

- Parker uses the term “Identifiers”.
- Identifiers are **not to be confused with IDs**.
- Identifiers are a measure of the *parts* per selector.

```
.c-btn {  
  /* 1 identifier */  
}  
  
.c-btn:hover {  
  /* 2 identifiers */  
}  
  
.c-widget--large .widget__title {  
  /* 2 identifiers */  
}  
  
header nav ul li a {  
  /* 5 identifiers */  
}
```

HELPFUL TOOLS

Parker

```
"total-stylesheets": 1,  
"total-style-sheet-size": 192247,  
"total-rules": 1553,  
"total-selectors": 2047,  
"total-identifiers": 6042,  
"total-declarations": 3911,
```

HELPFUL TOOLS

Parker

```
"selectors-per-rule": 1.31809401159047,  
"identifiers-per-selector": 3.0405471421592574,  
"specificity-per-selector": 25.89838788470933,  
"top-selector-specificity": 220,  
"top-selector-specificity-selector": "#hero-mobile .row.hero-text-over #textover",  
"total-id-selectors": 79,
```

HELPFUL TOOLS

Selector Per Rule Example

Before: Lots of Selectors!

```
input[type="text"]
input[type="email"],
input[type="password"],
textarea {
  border: 1px solid #ccc;
  background-color: #fff;
  color: #333;
  padding: 4px;
}
```

After: Written into 1 Class

```
.c-input-text {
  border: 1px solid #ccc;
  background-color: #fff;
  color: #333;
  padding: 4px;
}
```

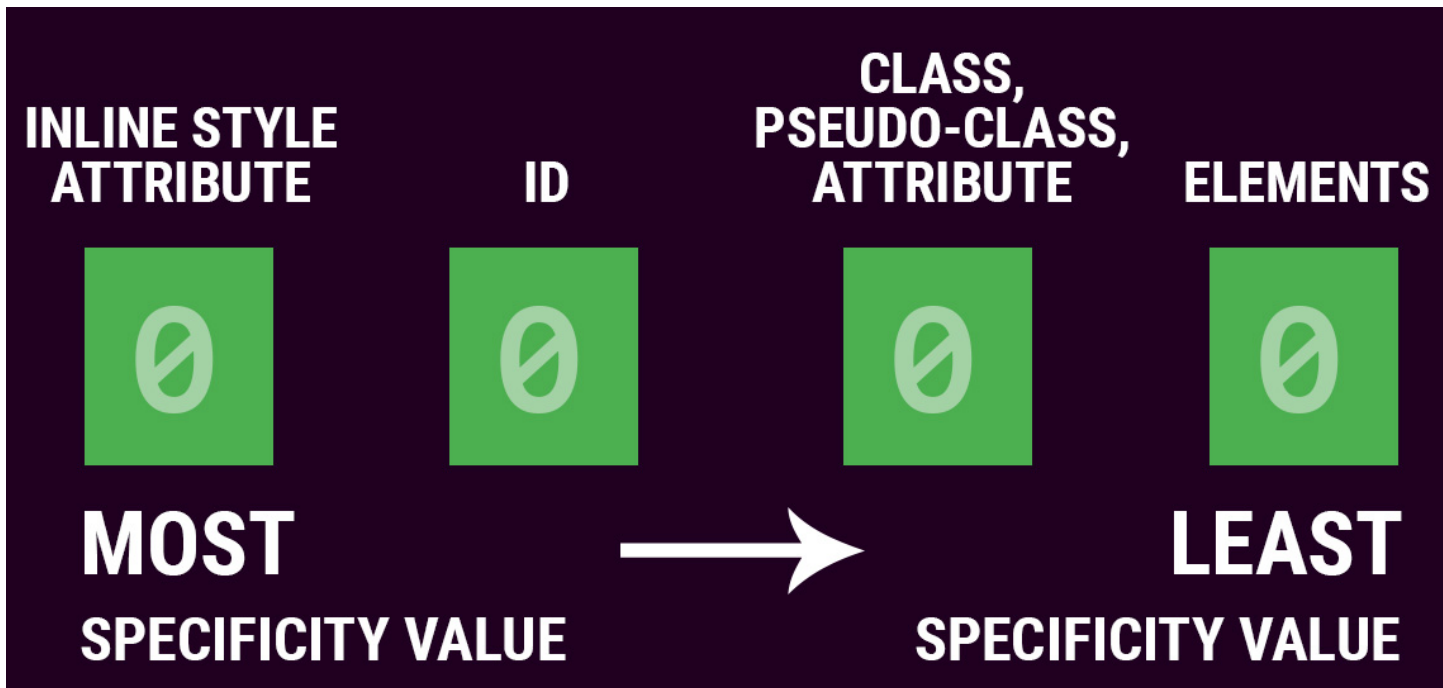
HELPFUL TOOLS

Parker

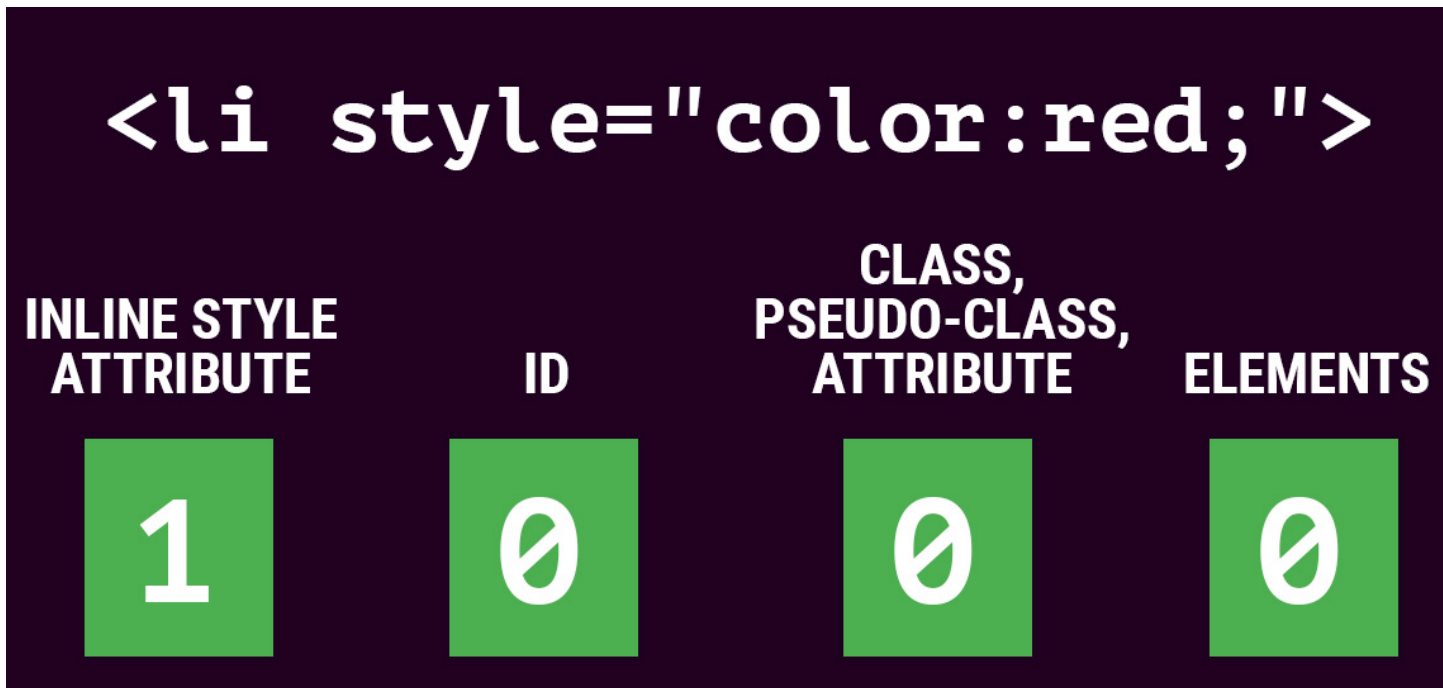
```
"selectors-per-rule": 1.31809401159047,  
"identifiers-per-selector": 3.0405471421592574,  
"specificity-per-selector": 25.89838788470933,  
"top-selector-specificity": 220,  
"top-selector-specificity-selector": "#hero-mobile .row.hero-text-over #textover",  
"total-id-selectors": 79,
```

HELPFUL TOOLS

Specificity Refresher



Specificity Refresher



HELPFUL TOOLS

Specificity Refresher

`ul#nav li.active a`

INLINE STYLE ATTRIBUTE	ID	CLASS, PSEUDO-CLASS, ATTRIBUTE	ELEMENTS
0	1	1	3

Specificity Refresher



HELPFUL TOOLS

Specificity Refresher

- The universal selector (*) has no specificity value (0,0,0,0)
- The **!important** value appended a CSS property value is an automatic win.

HELPFUL TOOLS

Parker

```
"selectors-per-rule": 1.31809401159047,  
"identifiers-per-selector": 3.0405471421592574,  
"specificity-per-selector": 25.89838788470933,  
"top-selector-specificity": 220,  
"top-selector-specificity-selector": "#hero-mobile .row.hero-text-over #textover",  
"total-id-selectors": 79,
```

HELPFUL TOOLS

Parker

```
"total-important-keywords": 113,  
"total-media-queries": 37,  
"media-queries": [  
  "screen and (min-width: 40em)",  
  "screen and (min-width: 64em)",  
  "print",  
  "screen and (min-width: 0\\0)",  
  "screen and (max-width: 39.9375em)",  
  "screen and (max-width: 63.9375em)",  
  "screen and (max-width: 74.9375em)",  
  "screen and (max-width: 0em)",  
  "screen and (min-width: 40em) and (max-width: 63.9375em)",  
  "screen and (min-width: 64em) and (max-width: 74.9375em)",  
  "screen and (min-width: 75em)",  
  "screen and (orientation: landscape)",  
  "screen and (orientation: portrait)",  
  "(max-width: 1240px)",  
  "(max-width: 1300px)",  
  "(min-width: 1240px)",  
  ...
```

HELPFUL TOOLS

Parker

```
"total-unique-colours": 52,  
"unique-colours": [  
  "#FFFF00",  
  "#000000",  
  "#0A0A0A",  
  "#FEFEFE",  
  "#CACACA",  
  "...",  
  "#ADA7A9",  
  "#8B2525",  
  "#D2D1D1"]
```

HELPFUL TOOLS

Parker: [Drupal.org](https://drupal.org)



- **Step 1:** Download all aggregated CSS files from the Home Page to my local directory.
- **Step 2:** Run Parker and output results as JSON.

```
"total-stylesheets": 17,  
"total-style-sheet-size": 204397,  
"total-rules": 1901,  
"total-selectors": 2974,  
"total-identifiers": 8794,  
"total-declarations": 4167,
```

HELPFUL TOOLS

Parker: [Drupal.org](https://drupal.org)



```
"selectors-per-rule": 1.5644397685428721,  
"identifiers-per-selector": 2.988231338264963,  
"specificity-per-selector": 49.89744451916611,  
"top-selector-specificity": 311,  
"top-selector-specificity-selector":  
  "#crm-container.crm-public #crm-submit-buttons input#_qf_Main_upload-bottom",  
"total-id-selectors": 879,
```


HELPFUL TOOLS

Parker: [Drupal.org](https://drupal.org)

The Drupal logo, featuring the word "Drupal" in white sans-serif font with a trademark symbol, set against a dark blue rectangular background.

```
"total-important-keywords": 19,  
"total-media-queries": 20,  
"media-queries": [  
  "(min-width:26.25em)",  
  "(max-width:26.25em)",  
  "(min-width:65.625em)",  
  "all and (min-width:380px) and (max-width:534px)",  
  "all and (min-width:535px) and (max-width:699px)",  
  "all and (min-width:700px) and (max-width:793px)",  
  "all and (min-width:794px)",  
  "all and (max-width:760px)",  
  "all and (min-width:760px)",  
  "(min-width:47.5em)",  
  "(min-width:0) and (max-width:26.25em)",  
  "(max-width:65.625em)",  
  "(max-width:47.5em)",  
  "all and (min-width:451px)",  
  "all and (min-width:694px)",  
  "(min-width:26.25em) and (max-width:47.5em)",  
  "all and (min-width:540px)",  
  "all and (min-width:480px)",  
  "all and (min-width:600px)",  
  "screen and (prefers-reduced-motion:reduce)"  
]
```

HELPFUL TOOLS

Parker: [Drupal.org](https://drupal.org)



```
"total-unique-colours": 128,  
"unique-colours": [  
  "#FFFFFF",  
  "#000000",  
  "#EEEEEE",  
  "#DDDDDD",  
  "#CCCCCC",  
  "#BBBBBB",  
  "#999999",  
  "...",  
  "#05629B"  
],
```

HELPFUL TOOLS

Parker

- Pros
 - Excellent for 1 compiled CSS file or 1 directory containing all aggregated CSS files.
 - Measure file size of CSS.
 - Identify all color values and media queries.
 - Find **!important** declarations
- Cons
 - Does not traverse deeper folder structure to find all CSS files.
 - Not a full picture of the site if following D8 recommended approach (dynamic loading of CSS/JS).
 - Last updated July 2016.

WHAT IS ANALYZE CSS?

Analyze CSS checks for redundancy and validation errors to keep your CSS simple. Test, weigh, and analyze your CSS selectors to reduce complexity and optimize performance.

HELPFUL TOOLS

Analyze CSS

- Go to [Github](#) to clone or download.
- Install with **npm**.
- Measure local or remote CSS files.
- Outputs JSON.

HELPFUL TOOLS

Analyze CSS

```
"generator": "analyze-css v0.12.6",
"metrics":
{
  "base64Length": 313,
  "redundantBodySelectors": 8,
  "redundantChildNodesSelectors": 177,
  "colors": 66,
  "comments": 126,
  "commentsLength": 10122,
  "complexSelectors": 228,
  "duplicatedSelectors": 33,
  "duplicatedProperties": 26,
  "emptyRules": 7,
  "expressions": 0,
  "oldIEFixes": 6,
  "imports": 0,
  "importants": 113,
  "mediaQueries": 153,
```

Analyze CSS

```
"offenders":  
{  
  "comments": ["\" @file\n * This file is a custom file that loads all files."  
  "important": ["#map_canvas img, #map_canvas embed, #map_canvas object, .map  
  "multiClassesSelectors": [".collapse.row @ 464:3", ".collapse.row @ 464:3",  
  "mediaQueries": ["@media screen and (min-width: 40em) (1 rules) @ 470:5", "@  
  "qualifiedSelectors": ["table.show-for-print @ 1448:3", "thead.show-for-print  
  "duplicatedProperties": [".button.dropdown::after {display: inline-block} @  
  "complexSelectors": [".menu > li > a img @ 2120:3", ".menu > li > a i @ 2120  
  "propertyResets": [".menu-text: \"padding\" resets \"padding-top\" property  
  "oldPropertyPrefixes": [".is-drilldown-submenu.is-active { -ms-transform: tr  
  "redundantChildNodesSelectors": ["table.stack tr @ 3213:3", "table.stack th @  
  "emptyRules": ["a.copy__button @ 4287:1", ".row @ 4303:1", ".row .m-nav--sec  
  "redundantBodySelectors": ["body:not(.node--type-landing-page) .locations_pa  
  "oldIEFixes": [".location-addresses-extra .columns_no-float {*display: inlin  
  "colors": ["#ffffff (55 times)", "#fefefe (41 times)", "#016595 (40 times)",  
  "duplicatedSelectors": ["h1 (3 times)", "textarea (3 times)", "body (3 times  
}
```

HELPFUL TOOLS

Analyze CSS

- Pros
 - Additional metrics compared to Parker.
 - Lists “offenders” to seek and solve.
 - Updated and maintained!
- Cons
 - Cannot analyze multiple CSS files or a directory of CSS files.
 - Not a full picture of the site if following D8 recommended approach (dynamic loading of CSS/JS).

WHAT IS LINT?

A linter or lint refers to tools that analyze source code to flag programming errors, bugs, stylistic errors, and suspicious constructs.

HELPFUL TOOLS

Lint

- Lint your JavaScript and CSS preprocessing.
- Install as part of your Automation.
- Catches mistakes, saves your bacon, and makes you write better code.

HELPFUL TOOLS

Lint

- For SASS, use [gulp-sass-lint](#) or [sass-lint](#)
- For JavaScript, use [gulp-jshint](#) or [gulp-eslint](#)
- Cool things Lint Can do...
 - Configure to never allow **!important** in your CSS.
 - Enforce BEM naming conventions by using [BEM Lint](#).

3. *Refactor Pro Tips*

REFACTOR PRO TIPS

Organize CSS

- Atomic Design
- SMACSS structure
 - Base, Layout, Module, State, Theme
- BEM (Block, Element, Modifier)
 - Avoids inheritance and provides some sort of scope by using unique CSS classes per element (like `.my-component__list-item`).
 - Reduces style conflicts by keeping CSS specificity to a minimum level.
 - Readable and easy to understand.
 - Bloat, but at the same time helps controls specificity!

REFACTOR PRO TIPS

SASS

- Variables (for colors, breakpoints, fonts, etc.)
- Use Mixins and Functions when possible
 - Media Queries, buttons, positioning.
- Useful nesting for selectors.
- Do not overuse @extend – leads to bloat!

REFACTOR PRO TIPS

JavaScript

- Include JavaScript as Libraries
 - Only load when you need it!
- Use Drupal Behaviors
 - Pass data into JavaScript.
 - Reusable functions.
- Write ES6

MEASURE YOUR THEME OVER TIME

76

74

72

7M

68

66

64

62

60

58

56

54

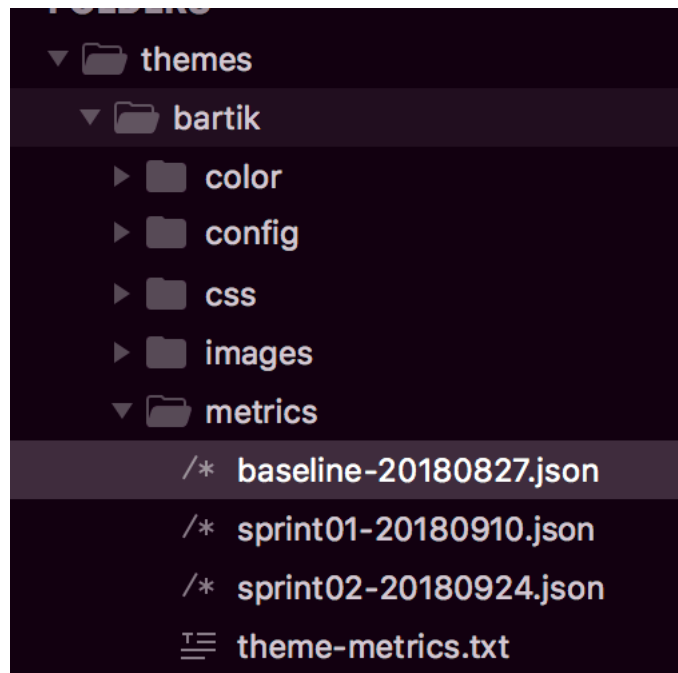
52

50

FINAL ADVICE

Establish Metrics

- Create a “metrics” directory in your Theme.
- Baseline:
 - File size of compiled CSS.
 - Output JSON from Parker or Analyze CSS.
 - Home Page load time.
 - A11Y scores.
- Sprint-by-Sprint:
 - Measure size of CSS.
 - Diff your JSON export.
 - Capture theme metrics.



FINAL ADVICE

Establish Consistency

- Write SASS using BEM and Atomic Design.
- Use Drupal Behaviors + write ES6.
- Lint Your SASS and JavaScript.
- Compile to 1 CSS file.
- Use a CSS Analyzer.



QUESTIONS?

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REFERENCES

- [Parker](#) by Katie Fenn
- [Improving Your CSS with Parker](#) by Harry Roberts
- [Analyze CSS](#) by Maciej Brencz
- [Specifics on CSS Specificity](#) by Chris Coyer
- [BEM 101](#) by Robin Rendle
- [BEM Naming](#) by @floatdrop and @iamstarkov
- [Why BEM?](#) by decaf.de
- [Scalable and Modular Architecture for CSS \(SMACSS\)](#) by Jonathan Snook
- [Strategies for Cache-Busting CSS](#) by Chris Coyer
- [Designing for Mobile Performance](#) by Mustafa Kurtuldu
- [Using Responsive Images in Drupal 8](#) by Rory Douglas