Customization and branding

Your turn

To keep everyone on the same page, we'll play with `quarto-websites-exercise-site_2025-10`

andhs.co/quarto-websites-2025

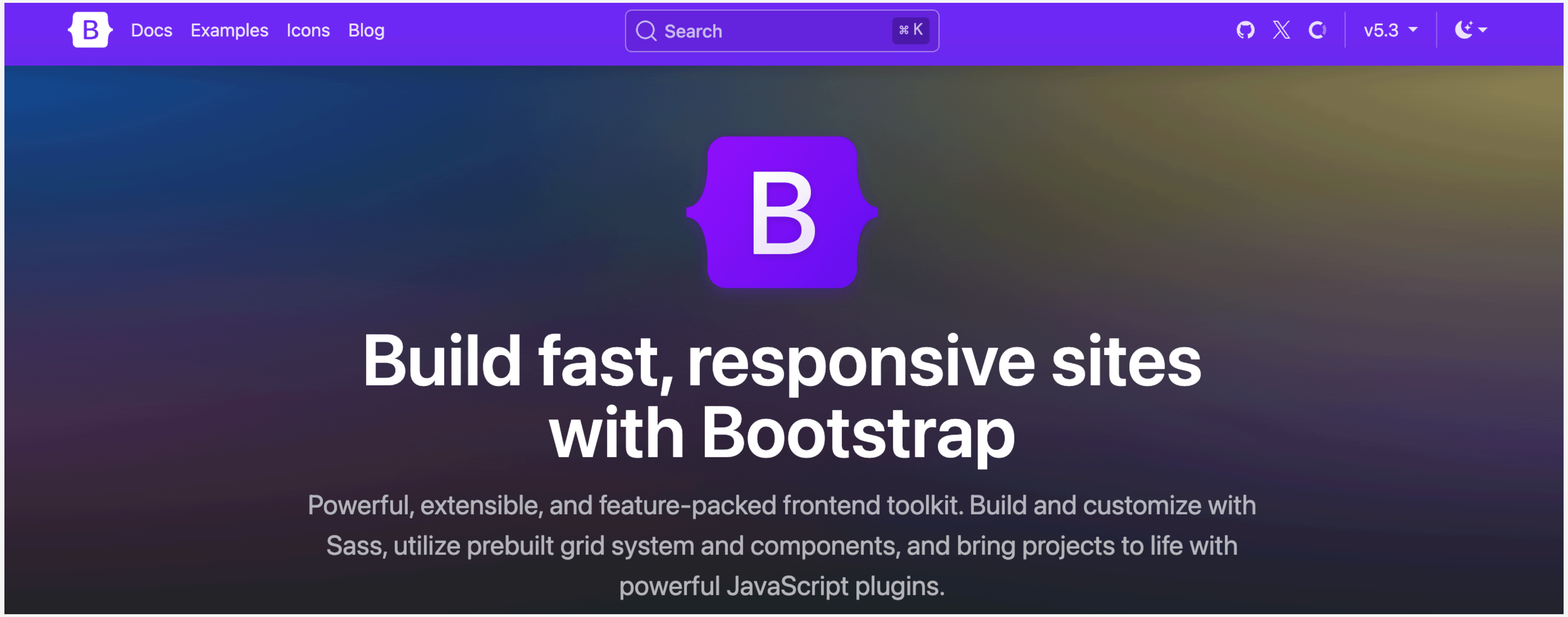
But keep your playground site from yesterday handy!

05:00

Themes

Bootstrap

Quarto uses the popular **Bootstrap** library for HTML structure and CSS styles.



Build fast, responsive sites with Bootstrap

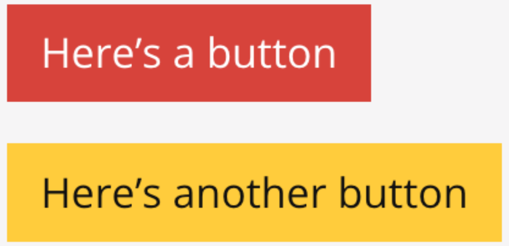
Powerful, extensible, and feature-packed frontend toolkit. Build and customize with Sass, utilize prebuilt grid system and components, and bring projects to life with powerful JavaScript plugins.

Bootstrap

You can use **Bootstrap components and classes** for special styling

```
[Here's a button](thing.pdf){.btn .btn-primary role="button"}

[Here's another button](thing.pdf){.btn .btn-warning role="button"}
```

↓



Bootswatch themes

Quarto includes 25 themes from **Bootswatch**:

- default
- cerulean
- cosmo
- cyborg
- darkly
- flatly
- journal
- litera
- lumen
- lux
- materia
- minty
- morph
- pulse
- quartz
- sandstone
- simplex
- sketchy
- slate
- solar
- spacelab
- superhero
- united
- vapor
- yeti
- zephyr

Changing themes

Specify the custom theme under `theme` in the YAML settings:

_quarto.yml

```yaml
format:
  html:
    theme:
      - zephyr
```

Your turn

1. Go to **bootswatch.com** and explore the different themes there (use the top navigation bar).
2. Preview your site, then try changing different Bootswatch themes in `_quarto.yml`.

07:00

CSS and Sass

Theme options

Sometimes we want to change theme settings:

- Fonts
- Colors
- Aligment
- Spacing

Basic theme options

Quarto automatically supports **some common Bootstrap theme options**

```yaml
format:
  html:
    theme: zephyr
    fontsize: 1.2em
    linestretch: 1.2
    linkcolor: "#32a852"
    backgroundcolor: "#f8f8c4"
    mainfont: Comic Sans
```

Total control with CSS

Crash course in CSS

HTML elements can have IDs and classes:

```
<h2 id="my-section" class="special">A heading</h2>
```

- IDs are unique on the page
  - Shorthand: `#my-section`
- Classes aren't unique and can be repeated
  - Shorthand: `.special`

```
/* All H2s */
h2 {
  color: red;
}

/* All elements with id my-section */
/* This includes non H2s */
#my-section {
  color: red;
}

/* All H2s with id my-section */
h2#mysection {
  color: red;
}

/* All elements with class .special */
.special {
  font-style: italic;
}

/* All H2s with class .special */
h2.special {
  font-style: italic;
}
```

Nesting

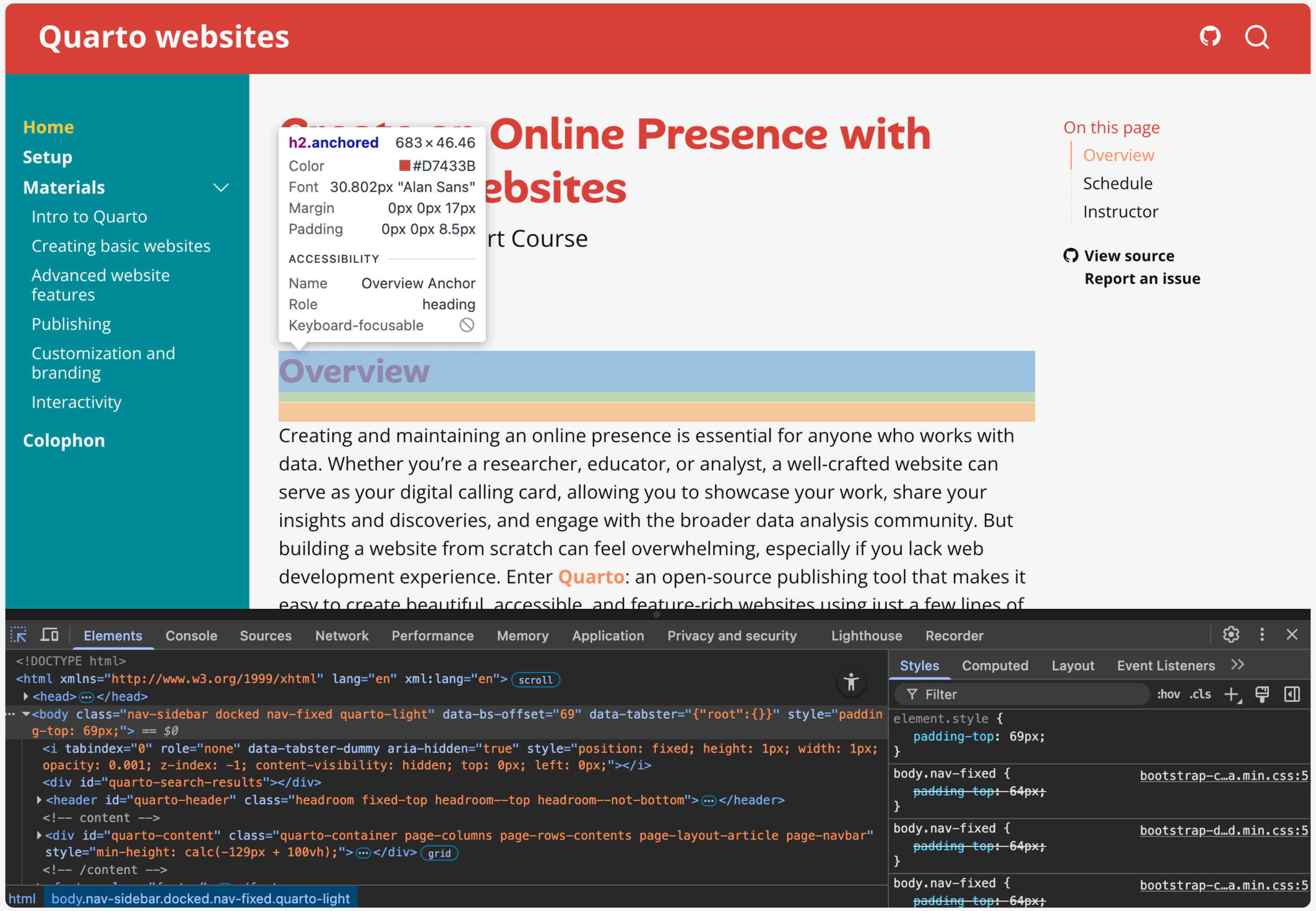
HTML elements can be nested inside each other

```
<div id="part1">
  <h2 id="my-section" class="special">A heading</h2>
</div>

<div id="part2">
  <h2 id="blah" class="special">Another heading</h2>
</div>
```

```
/* All H2s in #part1 */
#part1 h2 {
  color: red;
}

/* All H2s in #part2 */
#part2 h2 {
  color: blue;
}
```

Browser inpsector

Explore HTML and CSS right from your browser!



Online Presence with ebsites

rt Course

h2.anchored	683 × 46.46
Color	🟥 #D7433B
Font	30.802px "Alan Sans"
Margin	0px 0px 17px
Padding	0px 0px 8.5px
ACCESSIBILITY	
Name	Overview Anchor
Role	heading
Keyboard-focusable	⊘

Overview

Creating and maintaining an online presence is essential for anyone who works with data. Whether you're a researcher, educator, or analyst, a well-crafted website can serve as your digital calling card, allowing you to showcase your work, share your insights and discoveries, and engage with the broader data analysis community. But building a website from scratch can feel overwhelming, especially if you lack web development experience. Enter Quarto: an open-source publishing tool that makes it easy to create beautiful, accessible, and feature-rich websites using just a few lines of

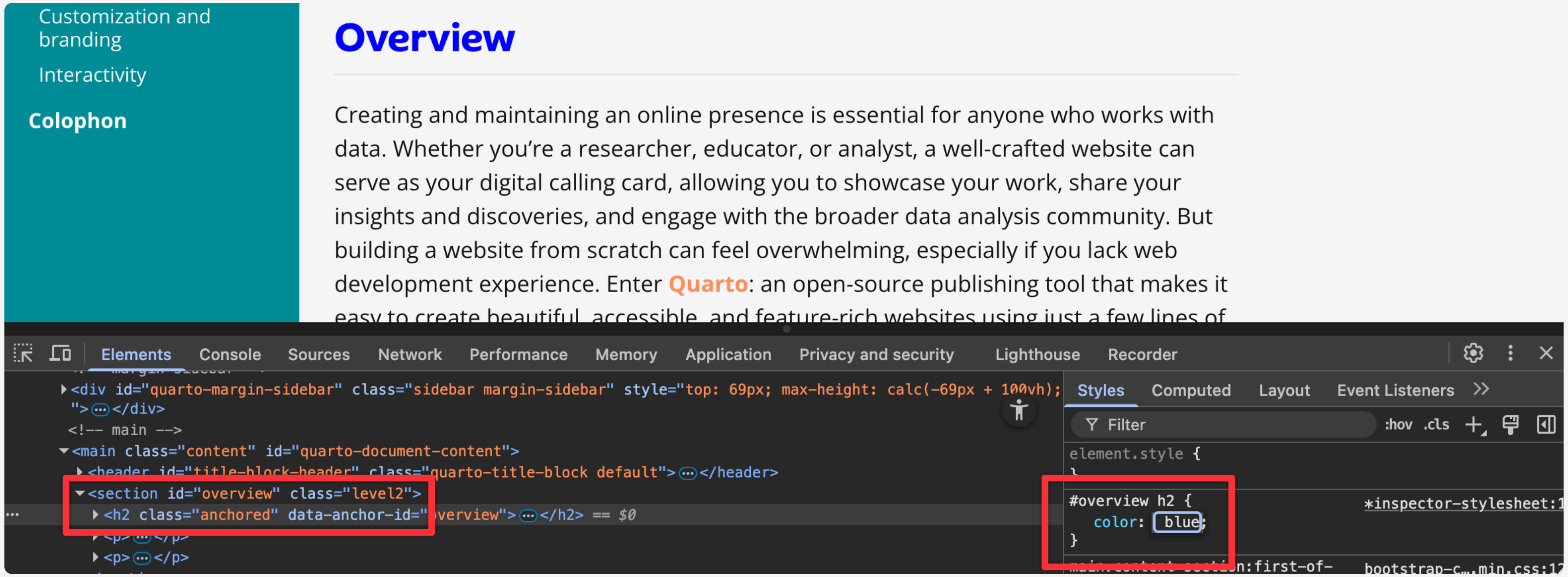
```
<!DOCTYPE html>
<html xmlns="http://www.w3.org/1999/xhtml" lang="en" xml:lang="en"> scroll
 ▸<head>⋯</head>
··· ▾<body class="nav-sidebar docked nav-fixed quarto-light" data-bs-offset="69" data-tabster="{"root":{}}" style="paddin
  g-top: 69px;"> == $0
   <i tabindex="0" role="none" data-tabster-dummy aria-hidden="true" style="position: fixed; height: 1px; width: 1px;
   opacity: 0.001; z-index: -1; content-visibility: hidden; top: 0px; left: 0px;"></i>
   <div id="quarto-search-results"></div>
  ▸<header id="quarto-header" class="headroom fixed-top headroom--top headroom--not-bottom">⋯</header>
   <!-- content -->
  ▸<div id="quarto-content" class="quarto-container page-columns page-rows-contents page-layout-article page-navbar"
   style="min-height: calc(-129px + 100vh);">⋯</div> grid
   <!-- /content -->
```

```
element.style {
  padding-top: 69px;
}
body.nav-fixed {                    bootstrap-c…a.min.css:5
  ~~padding-top: 64px;~~
}
body.nav-fixed {                    bootstrap-d…d.min.css:5
  ~~padding-top: 64px;~~
}
body.nav-fixed {                    bootstrap-c…a.min.css:5
  ~~padding-top: 64px;~~
```

html body.nav-sidebar.docked.nav-fixed.quarto-light

Browser inpsector

Edit and tinker with styles



Customization and branding

Interactivity

Colophon

Overview

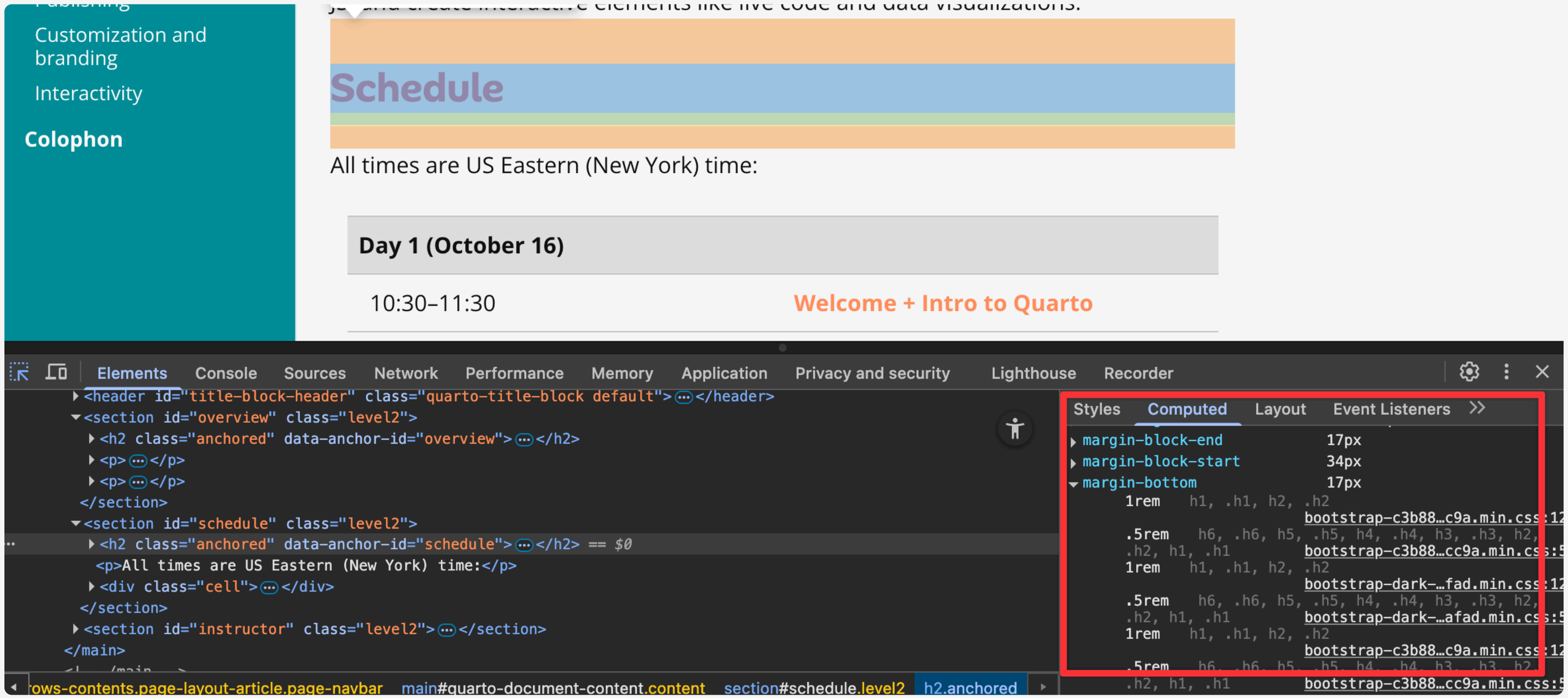
Creating and maintaining an online presence is essential for anyone who works with data. Whether you're a researcher, educator, or analyst, a well-crafted website can serve as your digital calling card, allowing you to showcase your work, share your insights and discoveries, and engage with the broader data analysis community. But building a website from scratch can feel overwhelming, especially if you lack web development experience. Enter Quarto: an open-source publishing tool that makes it easy to create beautiful, accessible, and feature-rich websites using just a few lines of

```
▸<div id="quarto-margin-sidebar" class="sidebar margin-sidebar" style="top: 69px; max-height: calc(-69px + 100vh);
 ">⋯</div>
 <!-- main -->
▾<main class="content" id="quarto-document-content">
  ▸<header id="title-block-header" class="quarto-title-block default">⋯</header>
  ▾<section id="overview" class="level2">
    ▸<h2 class="anchored" data-anchor-id="overview">⋯</h2> == $0
    ▸<p>⋯</p>
    ▸<p>⋯</p>
```

```
element.style {
}
#overview h2 {                    *inspector-stylesheet:1
   color: blue;
}
```

Browser inpsector

See which rule applies



```
▸<header id="title-block-header" class="quarto-title-block default">⋯</header>
▾<section id="overview" class="level2">
  ▸<h2 class="anchored" data-anchor-id="overview">⋯</h2>
  ▸<p>⋯</p>
  ▸<p>⋯</p>
 </section>
▾<section id="schedule" class="level2">
  ▸<h2 class="anchored" data-anchor-id="schedule">⋯</h2> == $0
   <p>All times are US Eastern (New York) time:</p>
  ▸<div class="cell">⋯</div>
 </section>
▸<section id="instructor" class="level2">⋯</section>
</main>
```

```
ows-contents.page-layout-article.page-navbar   main#quarto-document-content.content   section#schedule.level2   h2.anchored
```

```
▸ margin-block-end          17px
▸ margin-block-start        34px
▾ margin-bottom             17px
      1rem    h1, .h1, h2, .h2
                                bootstrap-c3b88…c9a.min.css:12
      .5rem    h6, .h6, h5, .h5, h4, .h4, h3, .h3, h2,
      .h2, h1, .h1              bootstrap-c3b88…cc9a.min.css:5
      1rem    h1, .h1, h2, .h2
                                bootstrap-dark-…fad.min.css:12
      .5rem    h6, .h6, h5, .h5, h4, .h4, h3, .h3, h2,
      .h2, h1, .h1              bootstrap-dark-…afad.min.css:5
      1rem    h1, .h1, h2, .h2
                                bootstrap-c3b88…c9a.min.css:12
      .5rem    h6, .h6, h5, .h5, h4, .h4, h3, .h3, h2,
      .h2, h1, .h1              bootstrap-c3b88…cc9a.min.css:5
```

Your turn

1. Preview your site
2. Use the browser inspector to select a heading
3. Create a CSS style that targets that heading and makes it
    - red (`color`) and
    - italic (`font-style`) and
    - 30px (`font-size`)
4. TODO

10:00

Sass: CSS, but fancier

```scss
@import url('https://fonts.googleapis.com/css2?family=Roboto:ital,wght@0,100..900;1,100..900&display=swap');

/*-- scss:defaults --*/

/* Built-in Bootstrap variables */
$h2-font-size:          1.6rem !default;
$headings-font-weight:  500 !default;
$font-family-sans-serif:  Roboto

/* Your own variables */
$my-neat-red: #e21818;

/*-- scss:rules --*/
#quarto-sidebar h2 {
  font-family: Roboto;
  color: $my-neat-red;

  /* Magically compiles to #quarto-sidebar h2 a:hover */
  a:hover {
    color: #d1c81d;
  }
}
```

Bootstrap Sass variables

There are ***so many***

- TODO: Quarto list
- TODO: Bootstrap directory

Using CSS/Sass with Quarto

Use vanilla CSS

```yaml
format:
  html:
    css: custom.css
```

Use Sass

```yaml
format:
  html:
    theme:
      - zephyr
      - custom.scss
```

TODO: Examples from other sites

Your turn

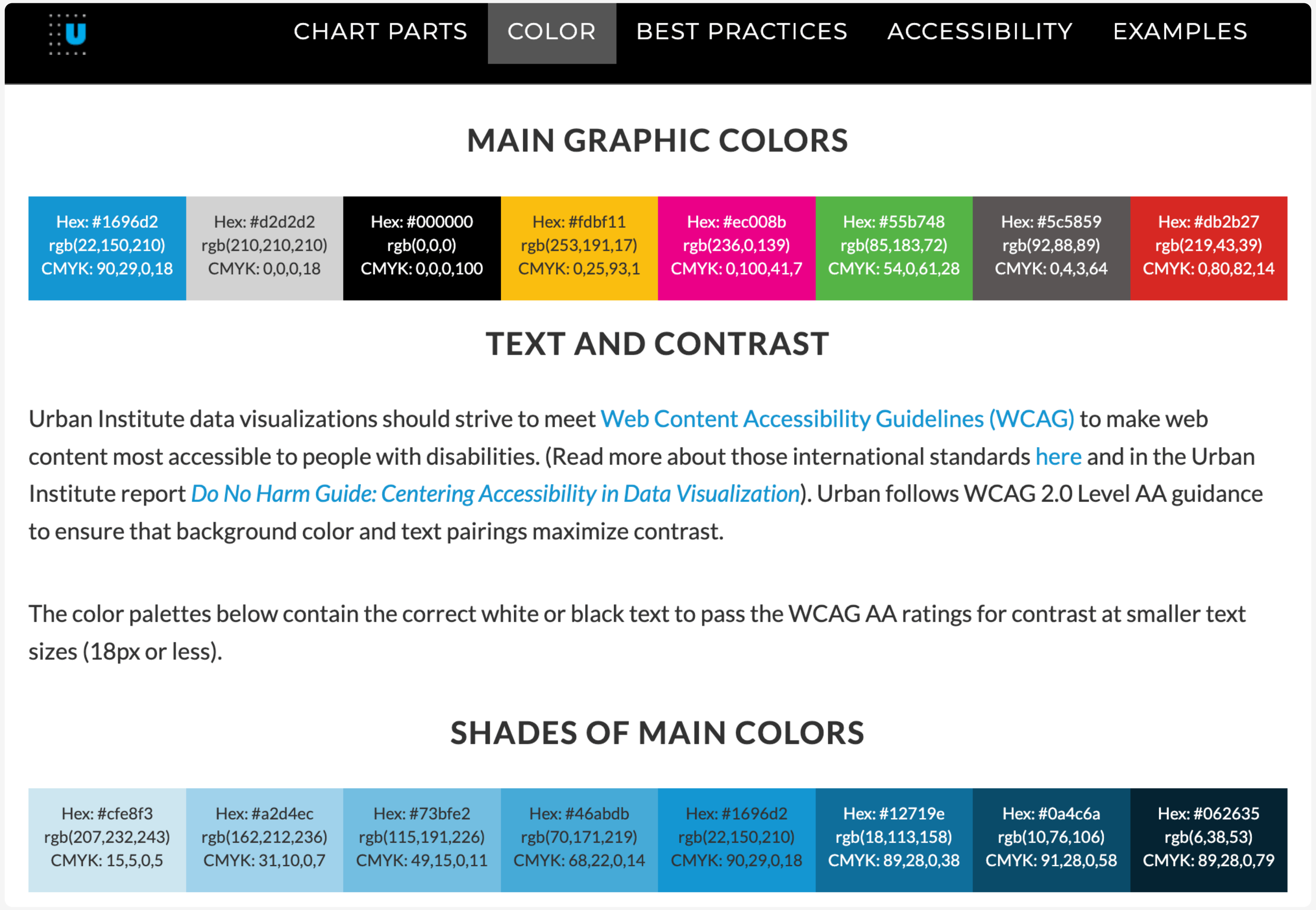
TODO: Create a SCSS file and make a bunch of rules

Branding

CSS is a little inconvenient

- HTML, slides, and dashboards all use slighlty different underlying HTML
- No easy way to reuse the colors and typography from your CSS customizations in R and Python plots or in PDF documents
- Hard to share consistent, resusable themes with others in your organization (or with the world)

Style guides



MAIN GRAPHIC COLORS

Hex: #1696d2	Hex: #d2d2d2	Hex: #000000	Hex: #fdbf11	Hex: #ec008b	Hex: #55b748	Hex: #5c5859	Hex: #db2b27
rgb(22,150,210)	rgb(210,210,210)	rgb(0,0,0)	rgb(253,191,17)	rgb(236,0,139)	rgb(85,183,72)	rgb(92,88,89)	rgb(219,43,39)
CMYK: 90,29,0,18	CMYK: 0,0,0,18	CMYK: 0,0,0,100	CMYK: 0,25,93,1	CMYK: 0,100,41,7	CMYK: 54,0,61,28	CMYK: 0,4,3,64	CMYK: 0,80,82,14

TEXT AND CONTRAST

Urban Institute data visualizations should strive to meet Web Content Accessibility Guidelines (WCAG) to make web content most accessible to people with disabilities. (Read more about those international standards here and in the Urban Institute report *Do No Harm Guide: Centering Accessibility in Data Visualization*). Urban follows WCAG 2.0 Level AA guidance to ensure that background color and text pairings maximize contrast.

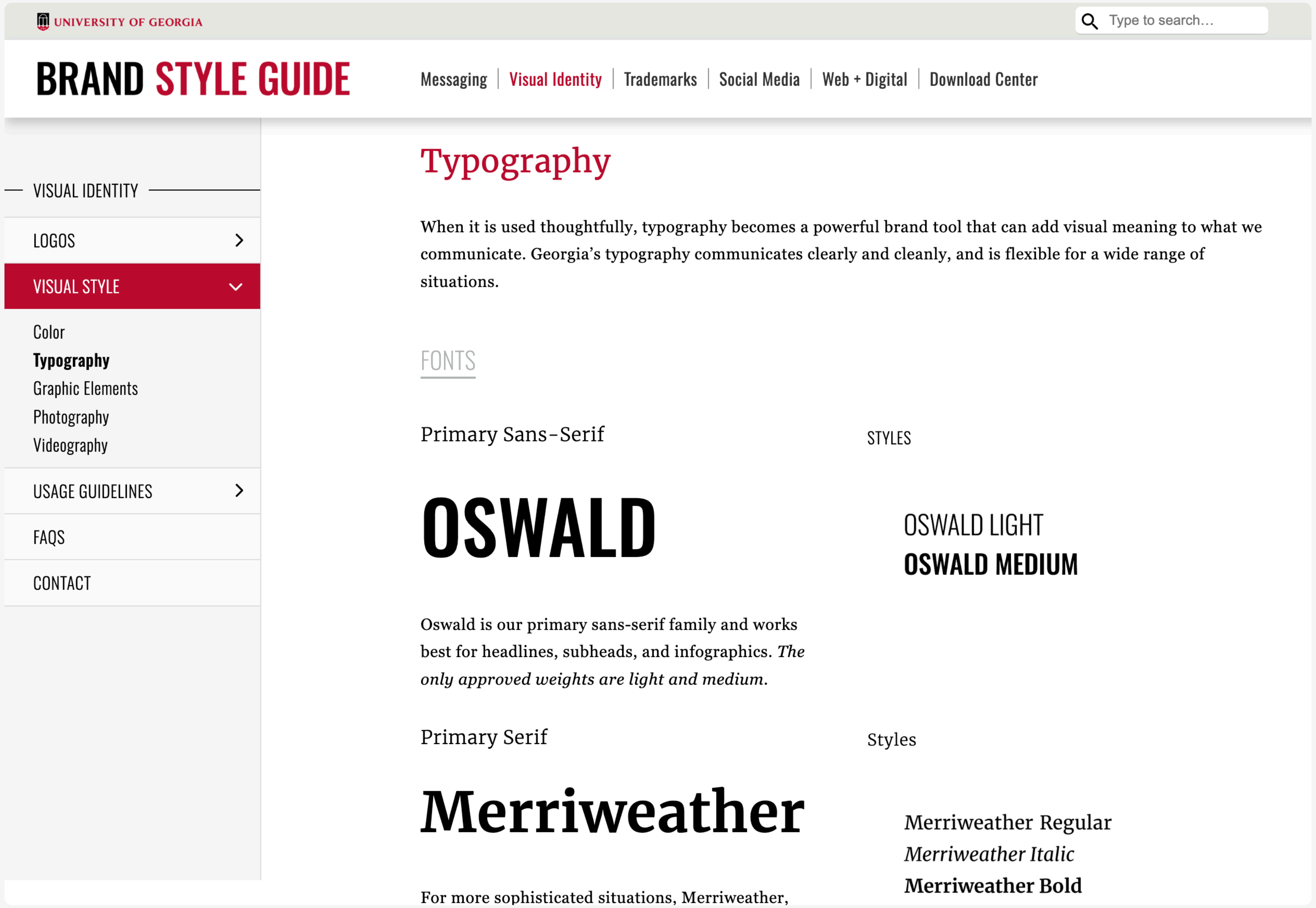
The color palettes below contain the correct white or black text to pass the WCAG AA ratings for contrast at smaller text sizes (18px or less).

SHADES OF MAIN COLORS

Hex: #cfe8f3	Hex: #a2d4ec	Hex: #73bfe2	Hex: #46abdb	Hex: #1696d2	Hex: #12719e	Hex: #0a4c6a	Hex: #062635
rgb(207,232,243)	rgb(162,212,236)	rgb(115,191,226)	rgb(70,171,219)	rgb(22,150,210)	rgb(18,113,158)	rgb(10,76,106)	rgb(6,38,53)
CMYK: 15,5,0,5	CMYK: 31,10,0,7	CMYK: 49,15,0,11	CMYK: 68,22,0,14	CMYK: 90,29,0,18	CMYK: 89,28,0,38	CMYK: 91,28,0,58	CMYK: 89,28,0,79

Urban Institute Data Visualization Style Guide

Style guides



Typography

When it is used thoughtfully, typography becomes a powerful brand tool that can add visual meaning to what we communicate. Georgia's typography communicates clearly and cleanly, and is flexible for a wide range of situations.

FONTS

Primary Sans-Serif

STYLES

OSWALD

OSWALD LIGHT
OSWALD MEDIUM

Oswald is our primary sans-serif family and works best for headlines, subheads, and infographics. *The only approved weights are light and medium.*

Primary Serif

Styles

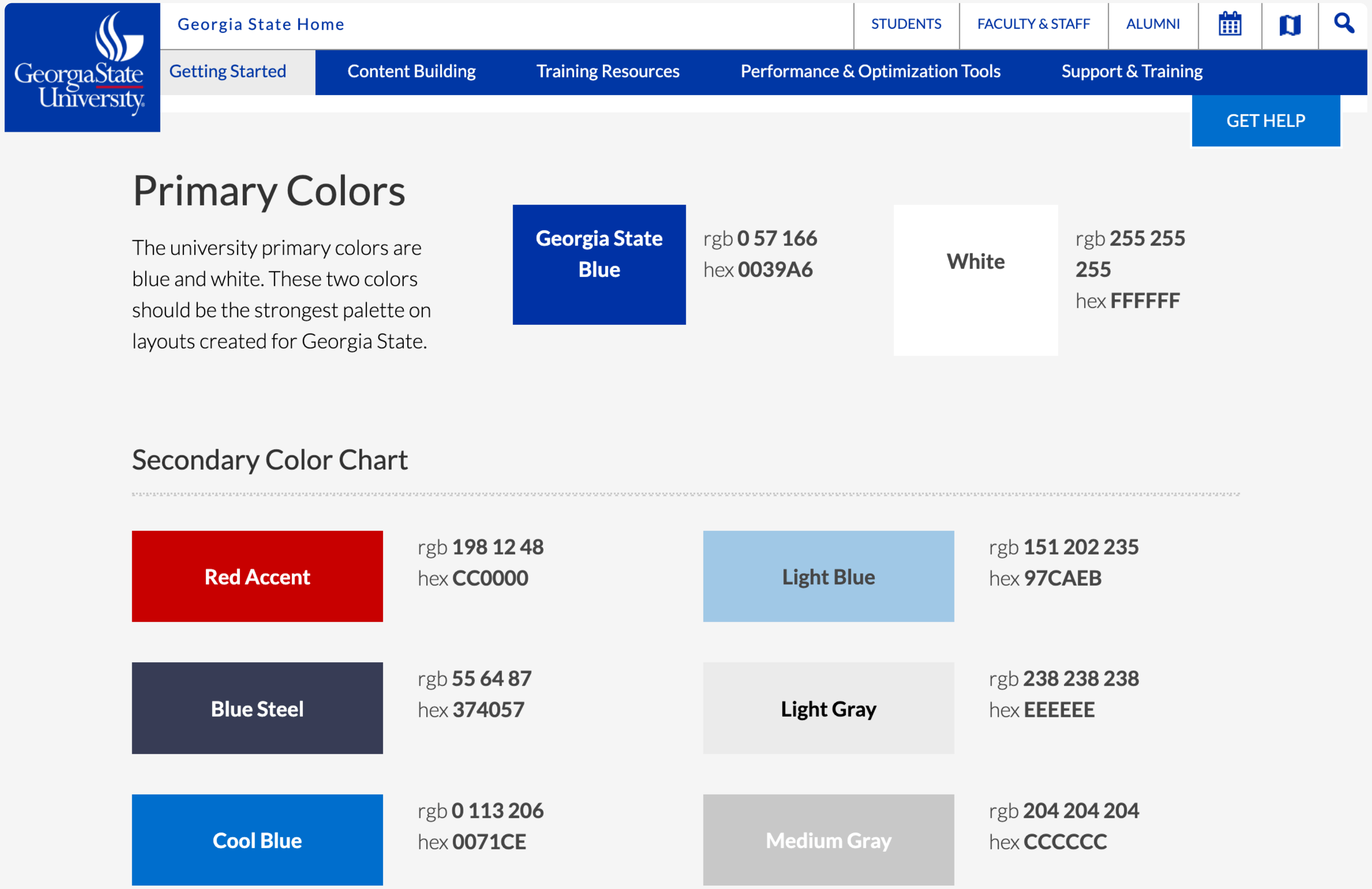
Merriweather

Merriweather Regular
Merriweather Italic
Merriweather Bold

For more sophisticated situations, Merriweather,

University of Georgia Brand Style Guide

Style guides



Primary Colors

The university primary colors are blue and white. These two colors should be the strongest palette on layouts created for Georgia State.

Georgia State Blue	rgb **0 57 166** hex **0039A6**
White	rgb **255 255 255** hex **FFFFFF**

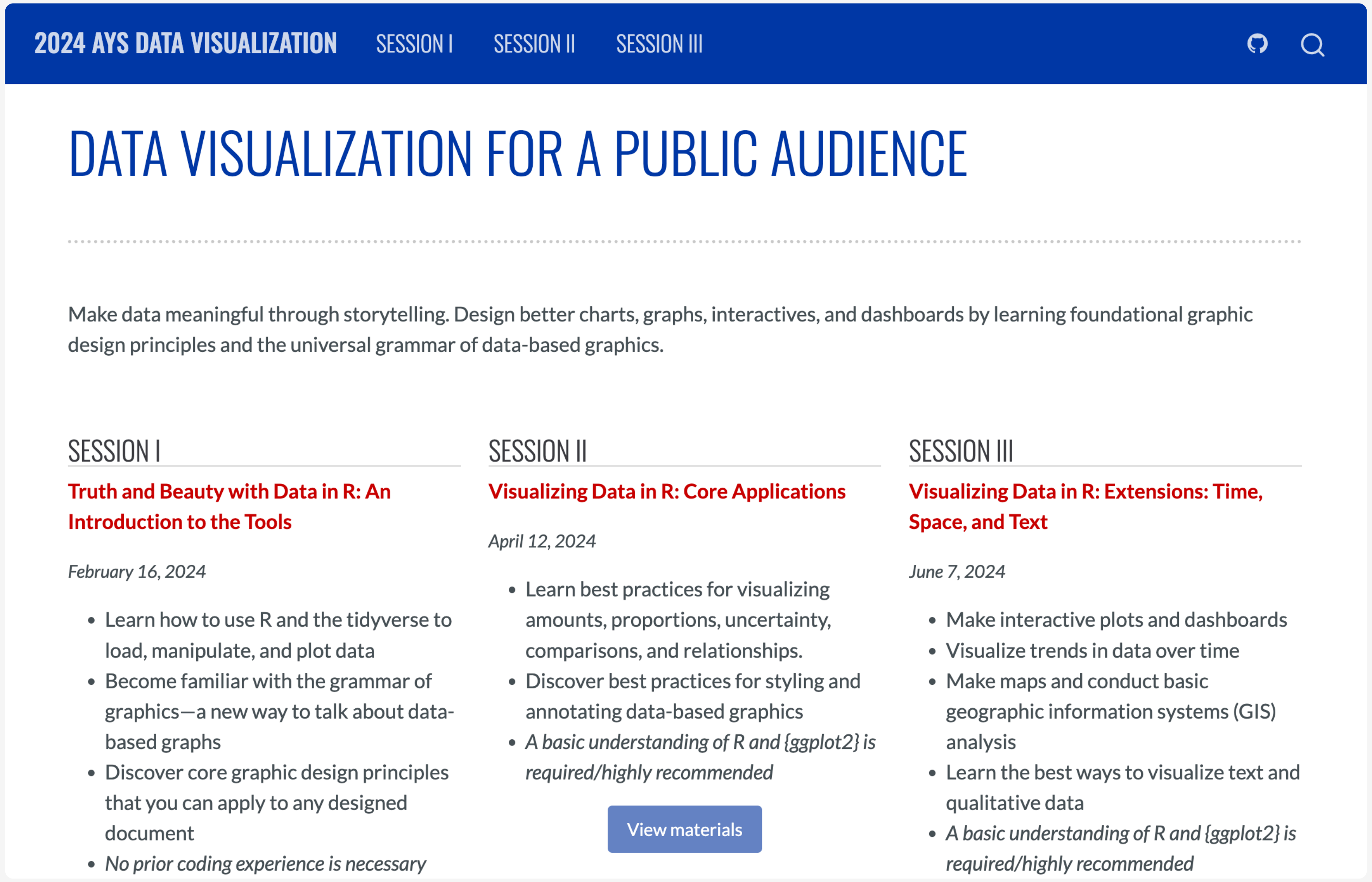
Secondary Color Chart

Red Accent	rgb **198 12 48** hex **CC0000**	Light Blue	rgb **151 202 235** hex **97CAEB**
Blue Steel	rgb **55 64 87** hex **374057**	Light Gray	rgb **238 238 238** hex **EEEEEE**
Cool Blue	rgb **0 113 206** hex **0071CE**	Medium Gray	rgb **204 204 204** hex **CCCCCC**

Georgia State University Web Color Guidelines

Matching style with CSS

You can recreate styles with CSS (site; custom.scss)



2024 AYS DATA VISUALIZATION SESSION I SESSION II SESSION III

DATA VISUALIZATION FOR A PUBLIC AUDIENCE

Make data meaningful through storytelling. Design better charts, graphs, interactives, and dashboards by learning foundational graphic design principles and the universal grammar of data-based graphics.

SESSION I

Truth and Beauty with Data in R: An Introduction to the Tools

February 16, 2024

- Learn how to use R and the tidyverse to load, manipulate, and plot data
- Become familiar with the grammar of graphics—a new way to talk about data-based graphs
- Discover core graphic design principles that you can apply to any designed document
- *No prior coding experience is necessary*

SESSION II

Visualizing Data in R: Core Applications

April 12, 2024

- Learn best practices for visualizing amounts, proportions, uncertainty, comparisons, and relationships.
- Discover best practices for styling and annotating data-based graphics
- *A basic understanding of R and {ggplot2} is required/highly recommended*

View materials

SESSION III

Visualizing Data in R: Extensions: Time, Space, and Text

June 7, 2024

- Make interactive plots and dashboards
- Visualize trends in data over time
- Make maps and conduct basic geographic information systems (GIS) analysis
- Learn the best ways to visualize text and qualitative data
- *A basic understanding of R and {ggplot2} is required/highly recommended*

BRAND YML

Unified branding with a simple YAML file

Create reports, apps, dashboards, plots and more that match your organization’s brand guidelines with a single `_brand.yml` file.

Learn more: **https://posit-dev.github.io/brand-yml/**

1. Define branding in a single `_brand.yml` file.
2. Apply that branding across almost all Quarto formats.

`_brand.yml` elements

- `meta`: Identifying information, name of the company, URLs, etc.
- `logo`: Files or links to the brand’s logos
- `color`: Colors in the brand’s color palette
- `typography`: Fonts for different elements
- `defaults`: Additional context-specific settings

_brand.yml structure

_brand.yml

```yaml
meta:
  name: Urban Institute
  link:
    home: https://urbaninstitute.github.io/graphics-styleguide/

logo:
  images:
    icon:
      path: img/urban.png
      alt: Urban Institute logo
  small: img/urban-sm.png

color:
  palette:
    blue: "#1696d2"
    gray-light: "#d2d2d2"
    black: "#000000"
    yellow: "#fdbf11"
```

Enabling `_brand.yml` in Quarto

1. Define branding in `_brand.yml`.
2. Save in the root directory of your Quarto project.

Quarto will detect the presence of `_brand.yml` and automatically apply the brand to all documents of the supported formats in the project.

If your brand file has a different name or lives in a subdirectory, use the `brand` key.

my-document.qmd

```yaml
---
title: "My neat report"
format: html
brand: org_theme.yml
---
```

Disable `_brand.yml`

To turn off `_brand.yml` for a document, use `brand: false`.

my-document.qmd

```yaml
---
title: "My neat report"
format: html
brand: false
---
```

Your turn

1. There is a file named `urban_institute.yml`. Rename it to `_brand.yml` and rerender your site. What changes?

   TODO

2. Modify some of the variables in the `_brand.yml` file and rerender to see how your site changes. Explore **the brand.yml documentation** and see what other settings you can adjust.

   TODO You can reset the file by copying and pasting it from **here**.

05:00

Use `_brand.yml` in markdown

Access some `_brand.yml` values in Quarto documents with a shortcode

my_document.qmd

```
{{< brand color primary >}}
```

Learn more: **https://quarto.org/docs/authoring/brand.html#using-brand-values**

Use _brand.yml in Sass

Access some _brand.yml values with the $brand-* prefix

custom-styles.scss

```scss
/*-- scss:rules --*/

h3 {
  color: $brand-magenta;
}
```

Learn more: **https://quarto.org/docs/authoring/brand.html#in-scss**

Use `_brand.yml` in R and Python

Access and apply specific brand elements

R   Python

```r
library(brand.yml)

brand <- read_brand_yml("_brand.yml")

brand$color$primary
#> [1] "#1696d2"

brand$color$palette$yellow
#> [1] "#fdbf11"

brand$typography$fonts[[1]]$family
#> [1] "Lato"
```

Theme helpers

The {quarto} package contains theme helpers that apply branding to plots

R Python

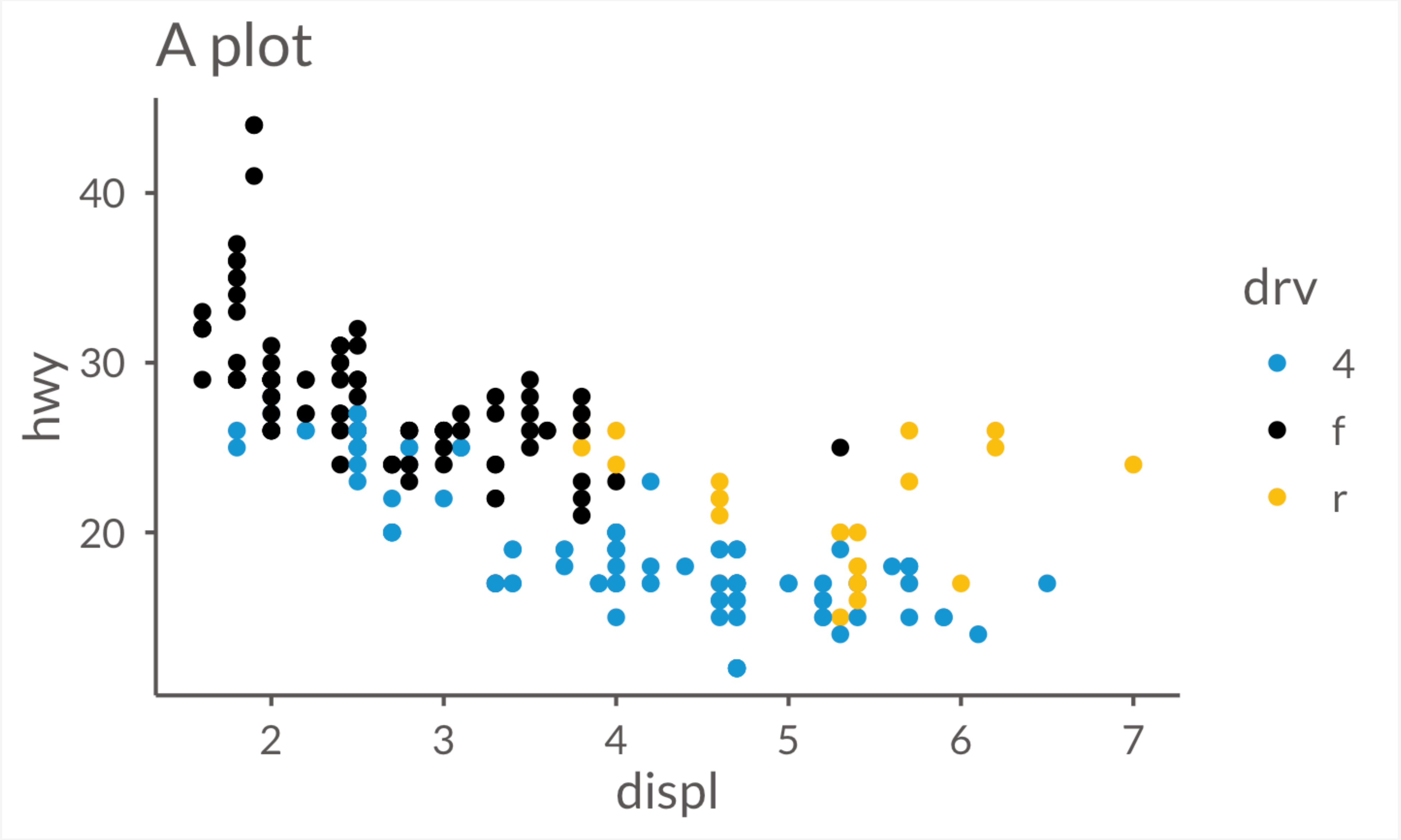
```r
library(quarto)

my_theme <- theme_brand_ggplot2("_brand.yml")
```

Doesn't do much (yet) beyond using the brand's `background` and `foreground` colors in the plot

R + {ggplot2} and **Python + plotnine** documentation

Example plot

```r
library(tidyverse)
library(brand.yml)

brand <- read_brand_yml("_brand.yml")

brand_theme <- quarto::theme_brand_ggplot2("_brand.yml") +
  theme(
    text = element_text(family = brand$typography$fonts[[1]]$family, size =
  )

ggplot(mpg, aes(x = displ, y = hwy, color = drv)) +
  geom_point() +
  labs(title = "A plot") +
  scale_color_manual(
    values = c(
      brand$color$palette$blue,
      brand$color$palette$black,
      brand$color$palette$yellow
```


A plot
hwy
40
30
20
2
3
4
5
6
7
displ
drv
4
f
r

Your turn

1. In the first code chunk of `01-exercise.qmd`, replace `theme_minimal()` with `theme_brand_ggplot2()`. You will need to supply a brand file path (`"_brand.yml"`). TODO
2. Re-render and see what changes.
3. Change the `foreground` and `background` colors in `_brand.yml` and rerun the code to create the plot. What changes?

05:00

Your turn

1. In `01-exercise.qmd`, read in `_brand.yml` with `read_brand_yml()` from the {brand.yml} package. Store it as a variable named `brand`. TODO
2. Change the color of the points to the brand's `blue` color and the line to the brand's `magenta` color. You'll use code that looks something like this:

   ```
   geom_line(color = brand$color$palette$black)
   ```

3. **Bonus task!** Map a variable from the dataset to the color aesthetic and change the legend to use colors from the brand.

05:00

Make your own `_brand.yml`

- In RStudio, go to File > New File > Text file
- In Positron or VS Code, use the Explorer panel to add a new file.

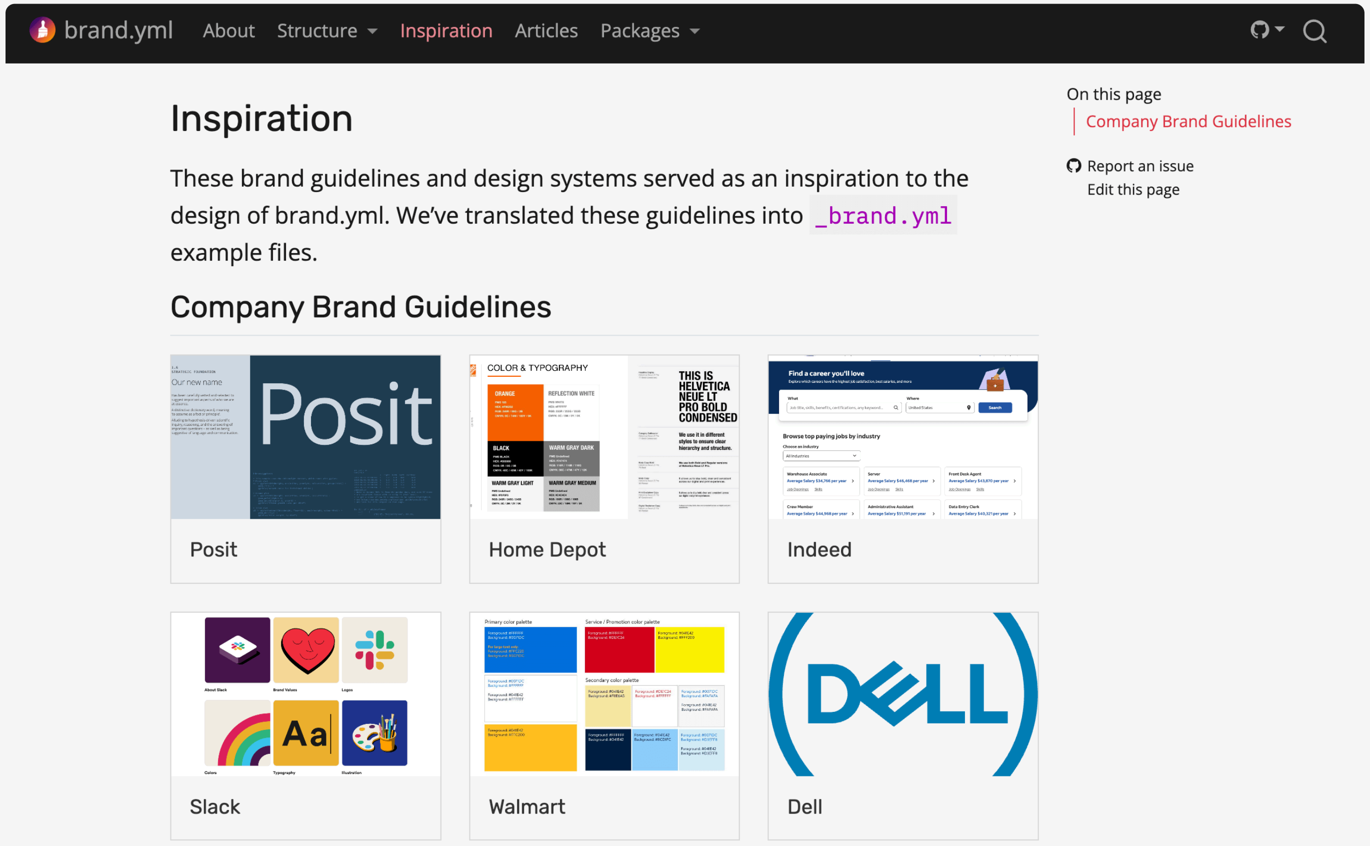
Save the file as `_brand.yml`

Or create a **Brand Extension** for sharing and distributing your brand

Don’t reinvent the wheel!

DO NOT try to write a `_brand.yml` from scratch!

Look at **the “Inspiration” page**!



Inspiration

These brand guidelines and design systems served as an inspiration to the design of brand.yml. We’ve translated these guidelines into `_brand.yml` example files.

Company Brand Guidelines

Posit

Home Depot

Indeed

Slack

Walmart

Dell

Learn more: **https://posit-dev.github.io/brand-yml/inspiration/**

Your turn

Create a brand file for yourself, your project, or your organization.

Don’t try to do this from scratch! Use these resources:

- **The brand.yml documentation**
- **The brand.yml inspiration page**
- **This site’s `_brand.yml`**

05:00

What’s next?

Course outline

- ✅ ~~Intro to Quarto~~
- ✅ ~~Creating basic websites~~
- ✅ ~~Advanced website features~~
- ✅ ~~Publishing~~
- ✅ ~~Customization and branding~~
- Interactivity

Break!