

Politecnico
di Torino

Introduction to Web Applications

CSS Bootstrap

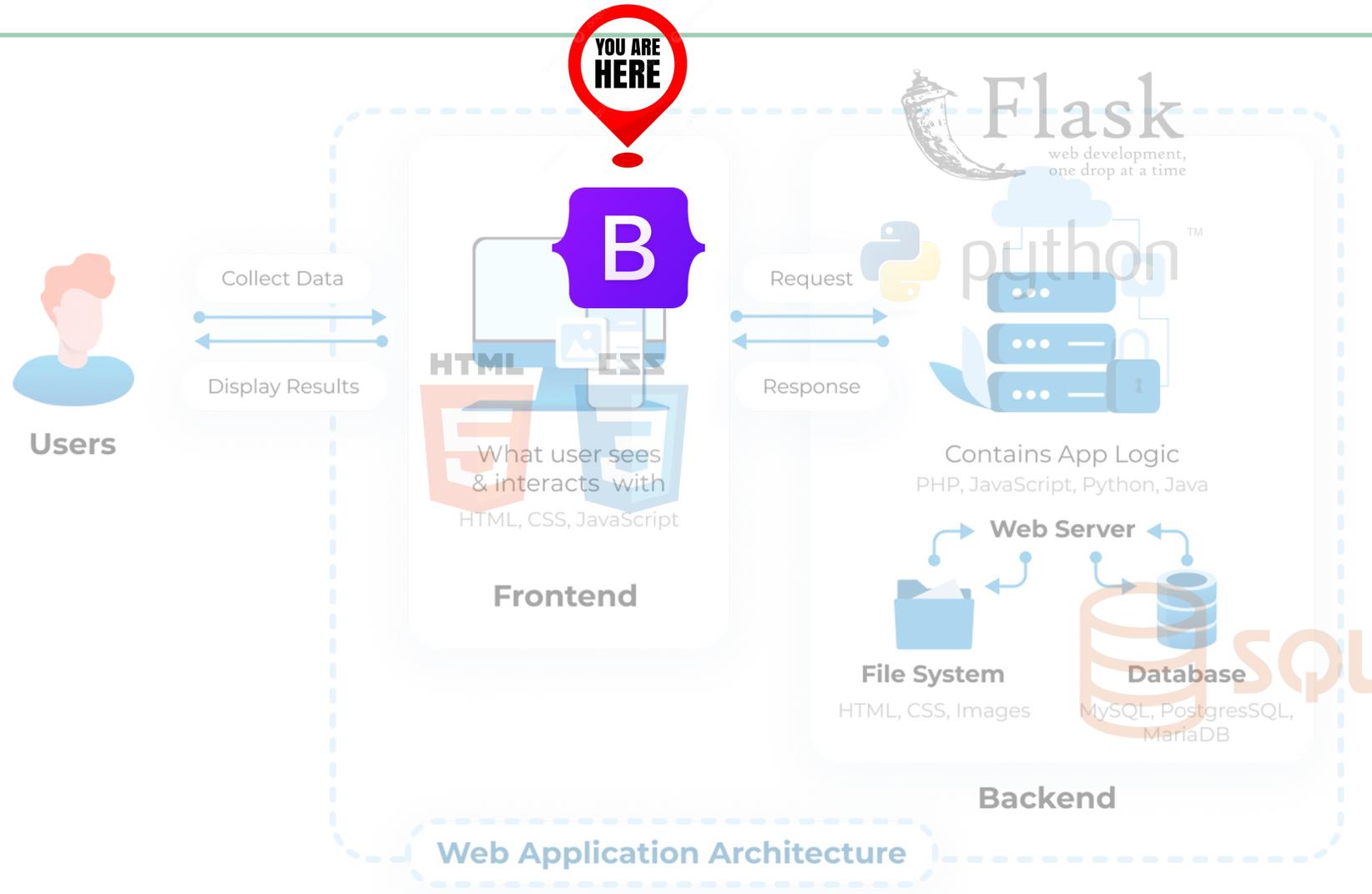
Juan Pablo Sáenz



Goals

- Understand what **Bootstrap** is and why it's useful
- Explore Bootstrap's **grid system, components, and utilities**
- Learn how to use Bootstrap for **responsive design**
- Practice using Bootstrap **classes**

📍 CSS Bootstrap: where are we?

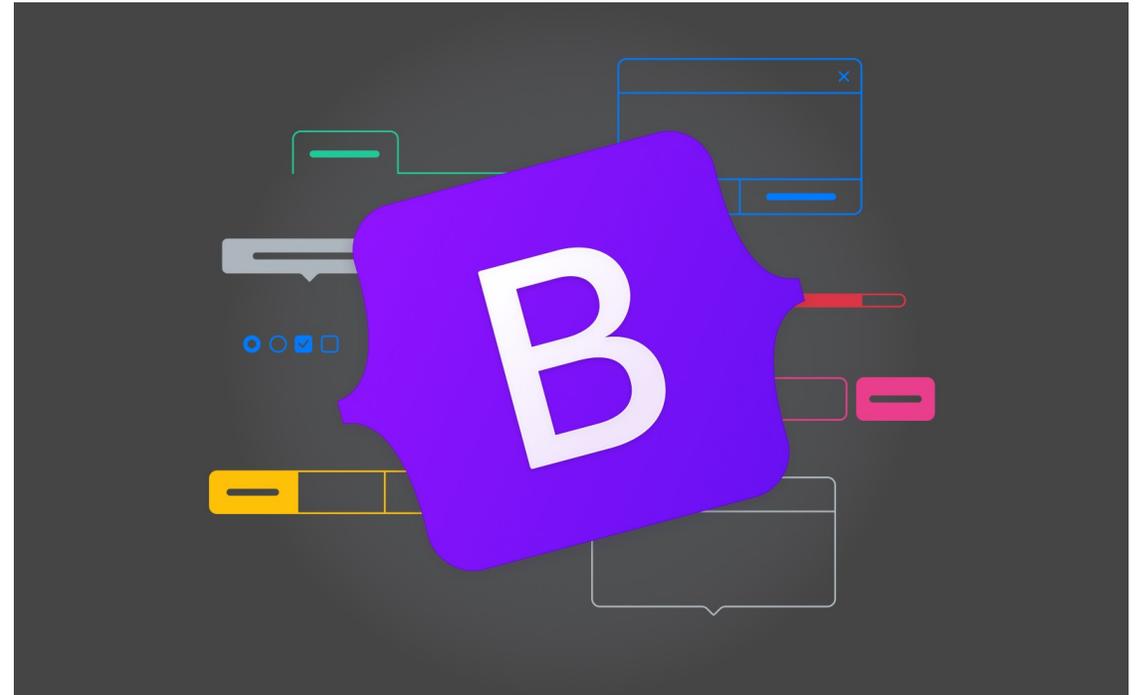


CSS Bootstrap

- A popular **front-end framework** for building responsive websites
 - A collection of **pre-styled components** and a **flexible grid system**
 - It helps create good-looking pages without writing all the CSS from scratch (**ready-to-use classes**)
-  Ensures **mobile-first**, consistent, and modern design
- Developed by **Twitter** in 2011 to standardize web design
 - Continues to evolve, with major updates improving flexibility and responsiveness

CSS Bootstrap: Features

- **Grid System:** A flexible layout structure to create responsive designs with rows and columns.
- **Predefined Components:** Ready-made UI elements like buttons, navigation bars, forms, and modals.
- **Utilities:** Small classes for common tasks like spacing, alignment, and visibility.
- **Icons**
- **Examples:** Ready-to-use templates and code snippets demonstrating the framework in action.



<https://webpixels.io/blog/8-reasons-to-use-bootstrap-or-a-css-framework>

CSS Bootstrap: Grid System

Uses a series of **containers**, **rows**, and **columns** to layout and align content.

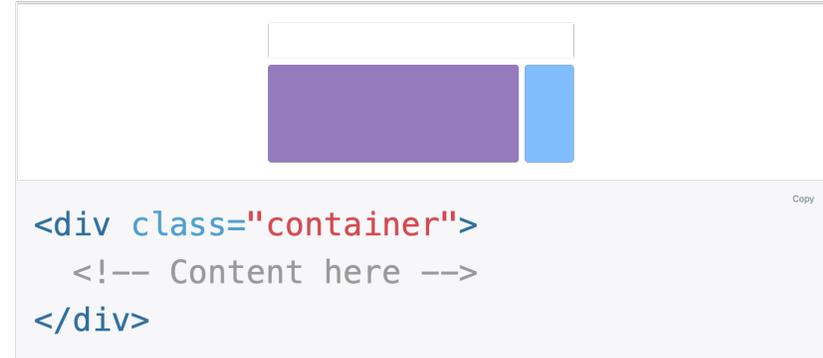
It's built with **flexbox** and is fully responsive

CSS Bootstrap: Grid System

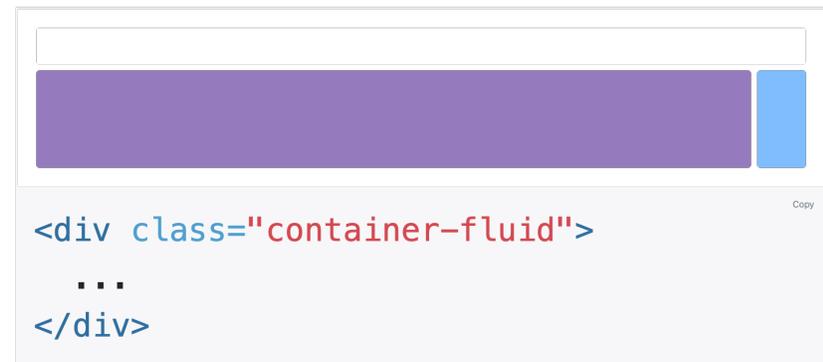
Uses a series of **containers**, **rows**, and **columns** to layout and align content.

It's built with **flexbox** and is fully responsive

- **Containers**: the most basic layout element in Bootstrap and is **required** when using the default grid system



Use **.container-fluid** for a full width container, spanning the entire width of the viewport.



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- **Rows are wrappers for columns**



HTML

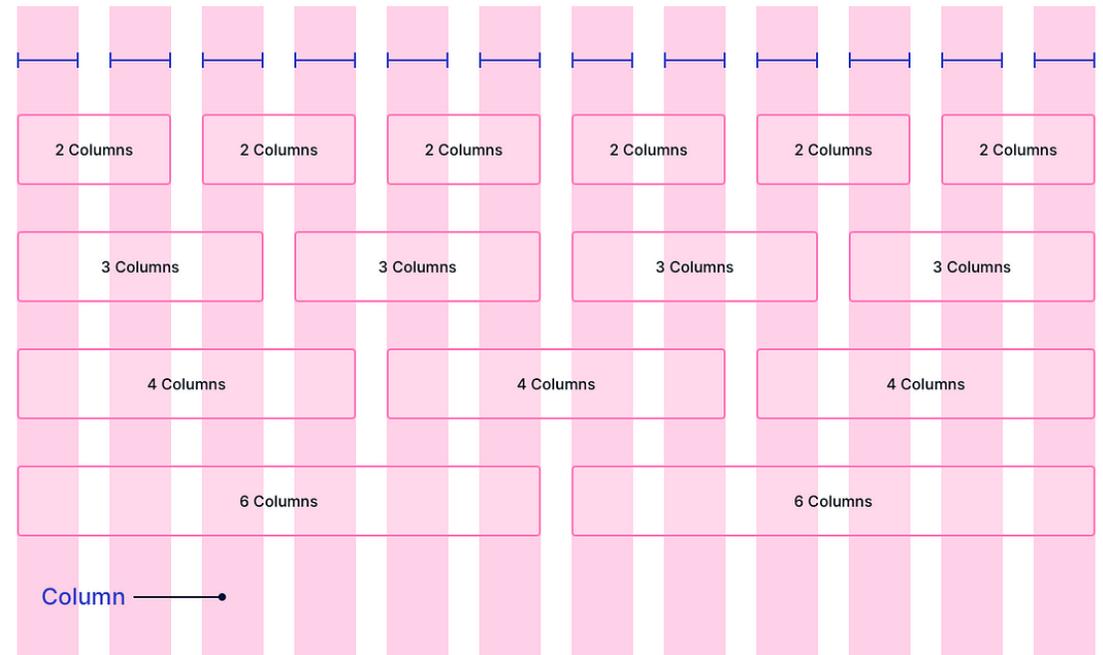
```
<div class="container text-center">  
  <div class="row">  
    <div class="col">  
      Column  
    </div>  
    <div class="col">  
      Column  
    </div>  
    <div class="col">  
      Column  
    </div>  
  </div>  
</div>
```

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- **Rows** are wrappers for columns
- There are **12 template columns** available **per row**



https://miro.medium.com/v2/resize:fit:1200/1*hw8EKWA-DNytrtbzgZ_dEw.png

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	xs <576px	sm ≥576px	md ≥768px	lg ≥992px	xl ≥1200px	xxl ≥1400px
Container max-width	None (auto)	540px	720px	960px	1140px	1320px
Class prefix	<code>.col-</code>	<code>.col-sm-</code>	<code>.col-md-</code>	<code>.col-lg-</code>	<code>.col-xl-</code>	<code>.col-xxl-</code>
# of columns	12					
Gutter width	1.5rem (.75rem on left and right)					
Custom gutters	Yes					
Nestable	Yes					
Column ordering	Yes					

```
<div class="container">
  <div class="row">
    <div class="col-8">col-8</div>
    <div class="col-4">col-4</div>
  </div>
</div>
```

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- There are **12 template columns** available **per row**
- Includes **six default breakpoints** for building responsively

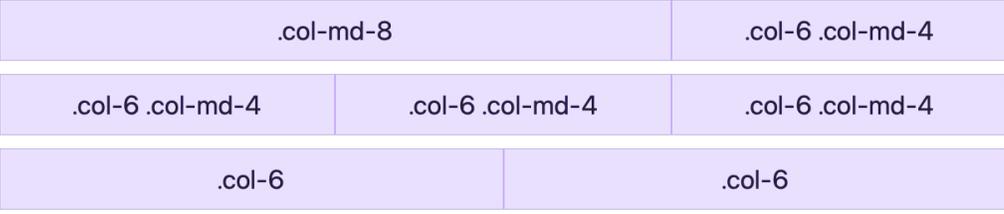
Breakpoint	Class infix	Dimensions
Extra small	<i>None</i>	<576px
Small	sm	≥576px
Medium	md	≥768px
Large	lg	≥992px
Extra large	xl	≥1200px
Extra extra large	xxl	≥1400px

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```
HTML
```

```
<div class="container text-center">
  <!-- Stack the columns on mobile by making one full-width and the other
  <div class="row">
    <div class="col-md-8">.col-md-8</div>
    <div class="col-6 col-md-4">.col-6 .col-md-4</div>
  </div>

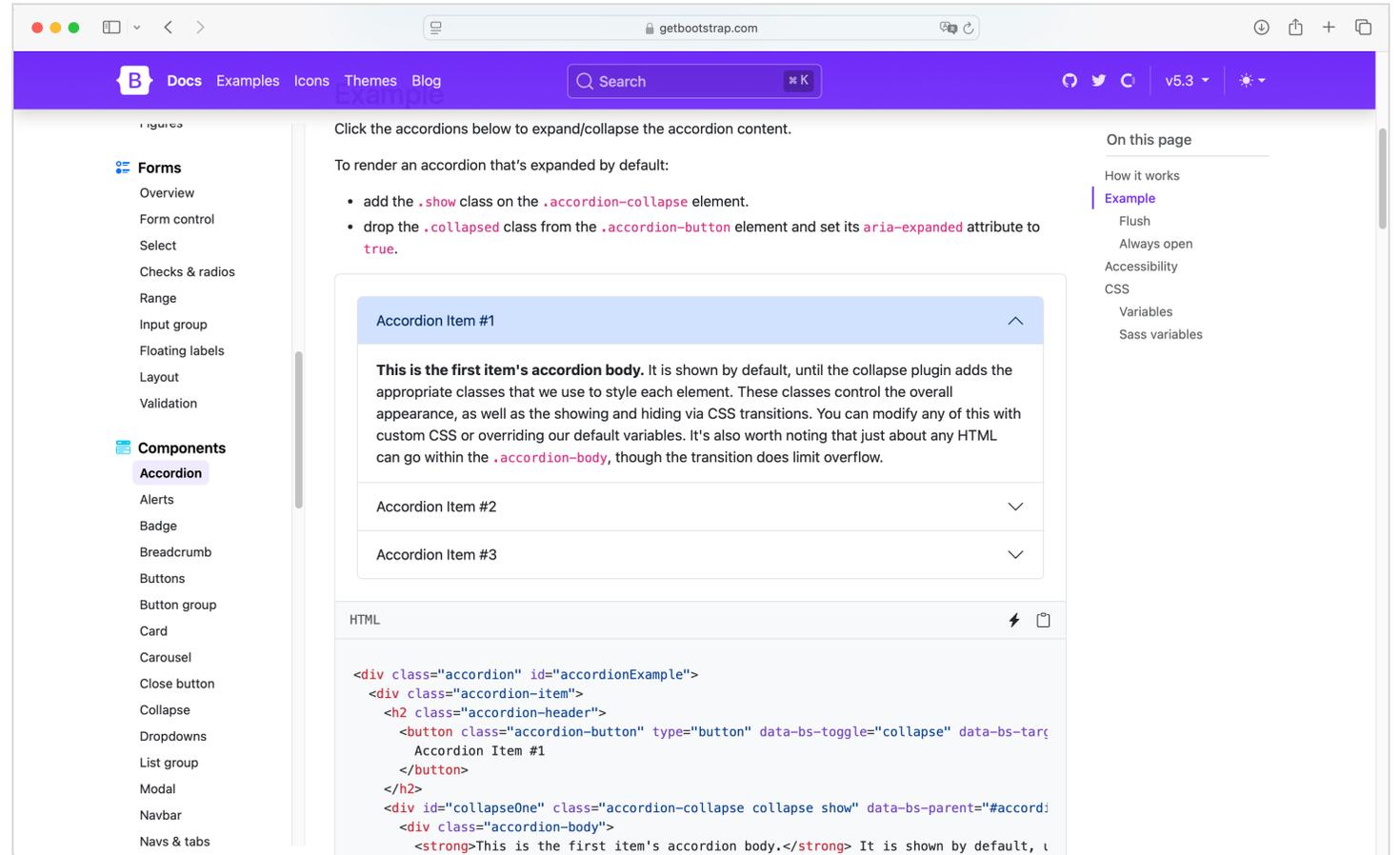
  <!-- Columns start at 50% wide on mobile and bump up to 33.3% wide on c
  <div class="row">
    <div class="col-6 col-md-4">.col-6 .col-md-4</div>
    <div class="col-6 col-md-4">.col-6 .col-md-4</div>
    <div class="col-6 col-md-4">.col-6 .col-md-4</div>
  </div>

  <!-- Columns are always 50% wide, on mobile and desktop -->
  <div class="row">
    <div class="col-6">.col-6</div>
    <div class="col-6">.col-6</div>
  </div>
</div>
```

CSS Bootstrap: Predefined Components

Ready-made UI elements like buttons, navigation bars, forms, and modals

- <https://getbootstrap.com/docs/5.3>



The screenshot shows the Bootstrap 5.3 documentation page for the Accordion component. The page is titled "Example" and includes a navigation bar with links for Docs, Examples, Icons, Themes, and Blog. A search bar is also present. The main content area is divided into three sections: "Click the accordions below to expand/collapse the accordion content.", "To render an accordion that's expanded by default:", and "HTML".

The "Click the accordions below to expand/collapse the accordion content." section contains three accordion items: "Accordion Item #1" (expanded), "Accordion Item #2", and "Accordion Item #3".

The "To render an accordion that's expanded by default:" section includes two bullet points:

- add the `.show` class on the `.accordion-collapse` element.
- drop the `.collapsed` class from the `.accordion-button` element and set its `aria-expanded` attribute to `true`.

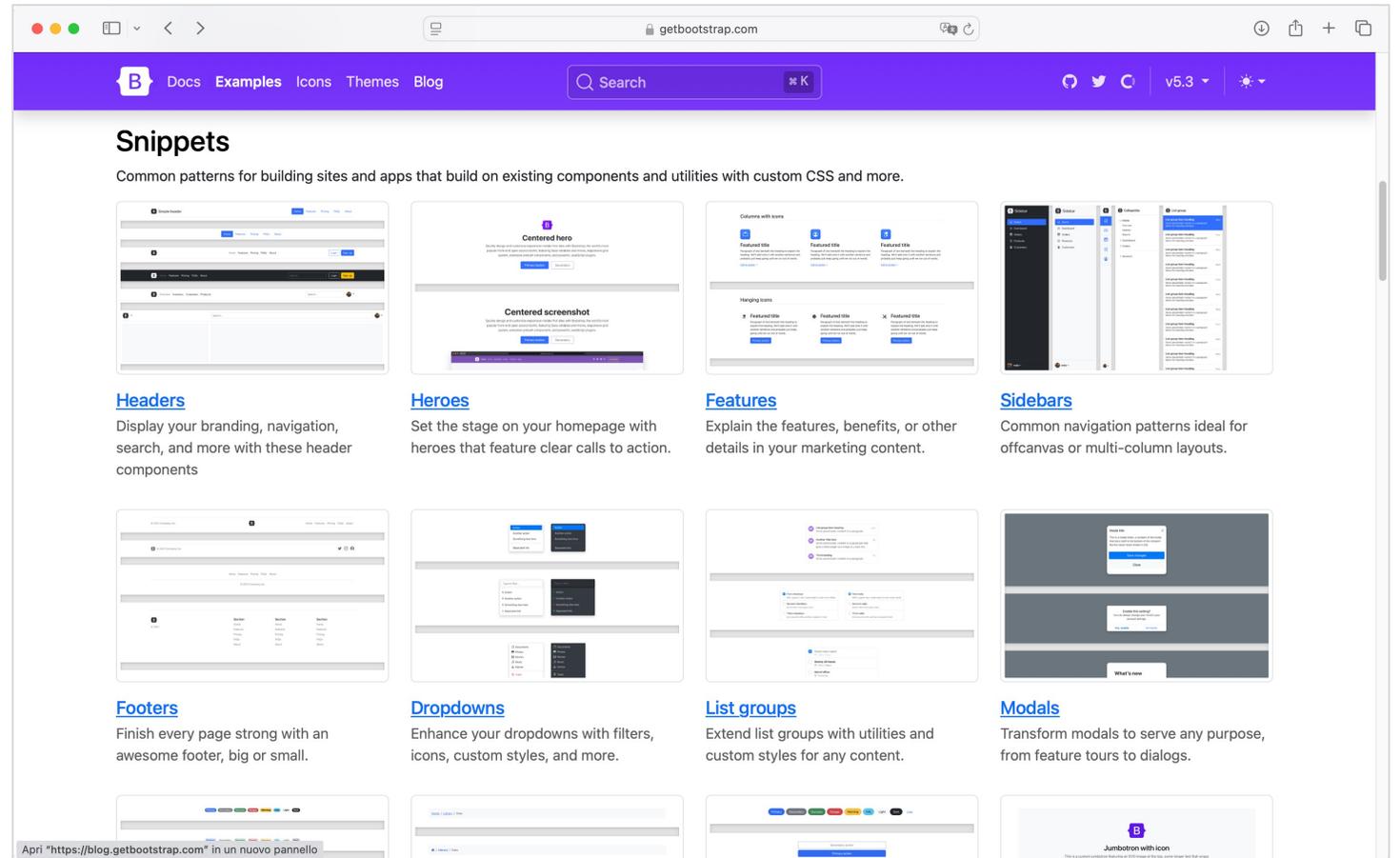
The "HTML" section shows the following code snippet:

```
<div class="accordion" id="accordionExample">
  <div class="accordion-item">
    <h2 class="accordion-header">
      <button class="accordion-button" type="button" data-bs-toggle="collapse" data-bs-target="#collapseOne" data-bs-expanded="true">
        Accordion Item #1
      </button>
    </h2>
    <div id="collapseOne" class="accordion-collapse collapse show" data-bs-parent="#accordionExample">
      <div class="accordion-body">
        <strong>This is the first item's accordion body.</strong> It is shown by default, u
```

CSS Bootstrap: Examples

Ready-made UI elements like buttons, navigation bars, forms, and modals

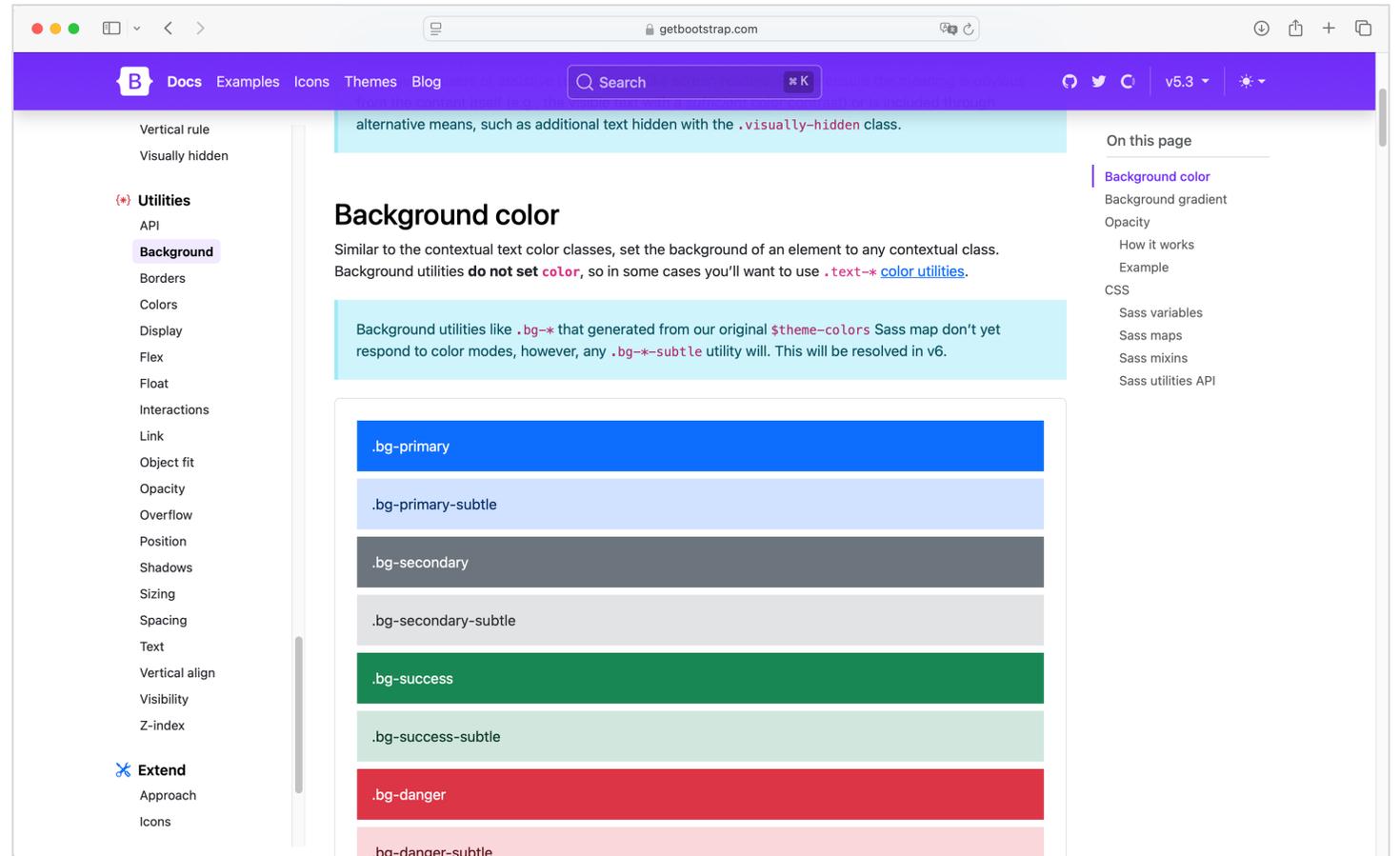
- <https://getbootstrap.com/docs/5.3/examples/>



CSS Bootstrap: Utilities

Small classes for **common tasks** like spacing, alignment, and visibility

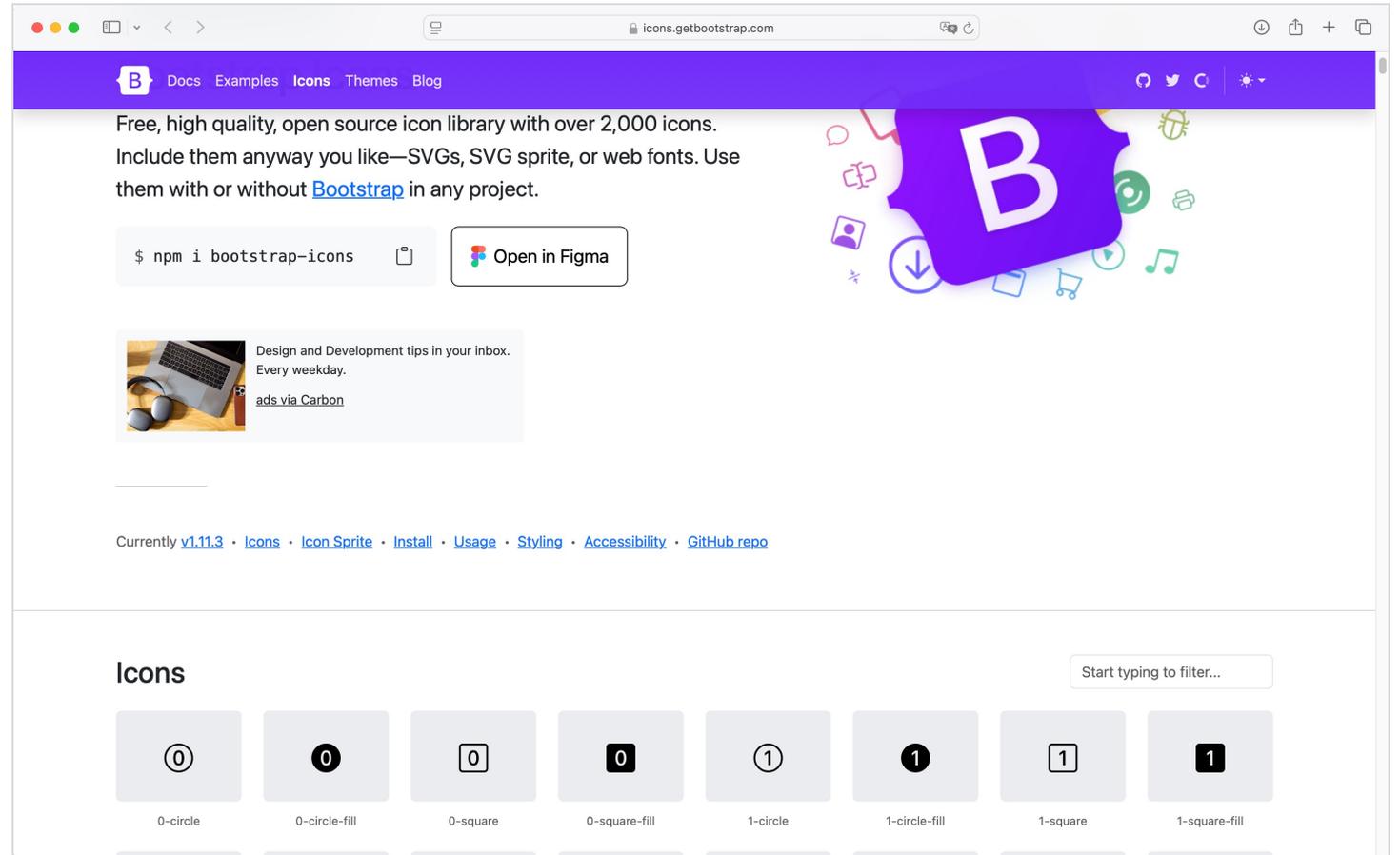
- <https://getbootstrap.com/docs/5.3>



CSS Bootstrap: Icons

Free, high-quality, open-source **icon library**

- <https://icons.getbootstrap.com>



Getting Started with Bootstrap

Step 1:

Add the **Bootstrap CSS** and **JavaScript links** to the HTML `<head>` section

Just as we have done with our local CSS file

The **links** are available at:

- <https://getbootstrap.com>

```
<head>
  <meta charset="utf-8">
  <title>Bootstrap demo</title>
  <link href="styles.css" rel="stylesheet">
  <link
href="https://cdn.jsdelivr.net/npm/bootstrap
@5.3.3/dist/css/bootstrap.min.css"
rel="stylesheet" integrity="sha384-
QWTKZyjpPEjISv5WaRU90FeRpok6YctnYmDr5pNlyT2
bRjXh0JMHjY6hW+ALEwIH"
crossorigin="anonymous">
</head>
```

Getting Started with Bootstrap

Step 2:

Add the responsive **viewport** meta tag to the `<head>` section

- **width=device-width:**

Sets the width of the viewport to match the device's screen width (so it adapts to any screen size)

- **initial-scale=1:**

Ensures that the page is displayed at a normal scale (not zoomed in or out) when first loaded

```
<head>
  <meta charset="utf-8">
  <meta name="viewport"
content="width=device-width,
initial-scale=1">
  <title>Bootstrap demo</title>
</head>
```

Getting Started with Bootstrap

Step 3:

⚠ Start with a `<div class="container">` to use the grid system

Step 4:

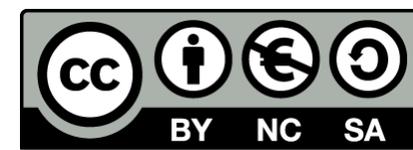
Use Bootstrap classes
(<https://getbootstrap.com/docs/5.3>)

Add predefined classes for styling and layout

🎨 It can be **fully customized** by adding our own CSS styles, allowing you to **override** or **extend** its default design

```
<body>
  <div class="container">
    <div class="row">
      <div class="col-8">col-8</div>
      <div class="col-4">col-4</div>
    </div>
  </div>
</body>
```

Let's see it in practice



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