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# *Lecture 30*

Frameworks by Example: Bootstrap

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Course logo spider web photograph from [Morguefile](#) openstock photograph by Gabor Karpati, Hungary.

# Why Use a Framework?

- There many reasons
  - Common elements with rich support.
  - Constraint – build upon a framework.
  - CSS & JavaScript combine into behaviors.
  - Reduce the code development burden.
- The true driver – Mobile Responsive

Adpating through responsive design to giant desktops, tablets and mobile phones finally broke any simple 'rescaling' view of how to implement a site.

# *Responsive & Adaptive Means ...*

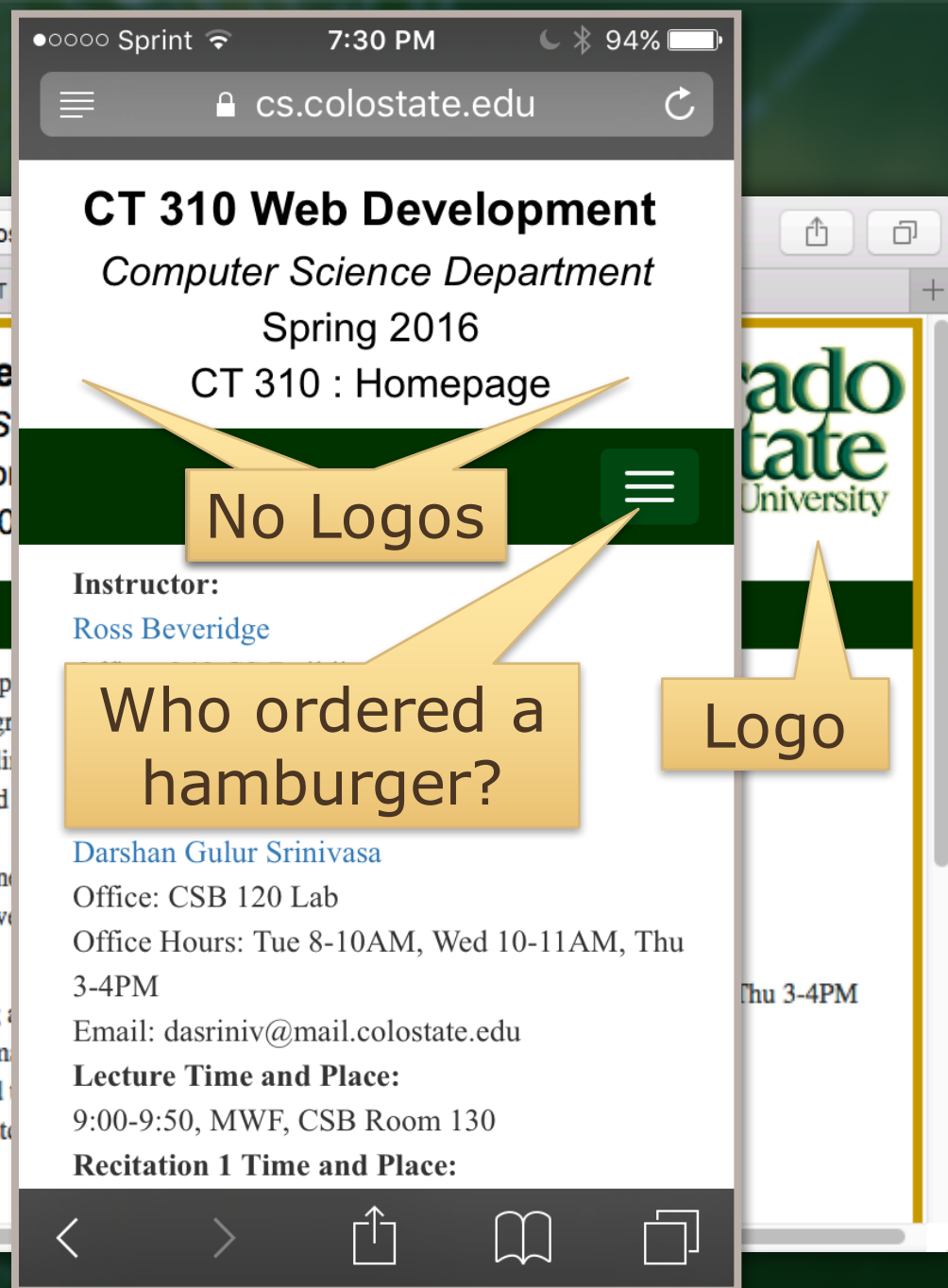
- Different devices see different content.
- The most certainly do not see the same arrangement of elements.
- With JavaScript hide and show you got a first taste for how to many changing content.
- But now imagine building this all from scratch over a large site.

# For Example



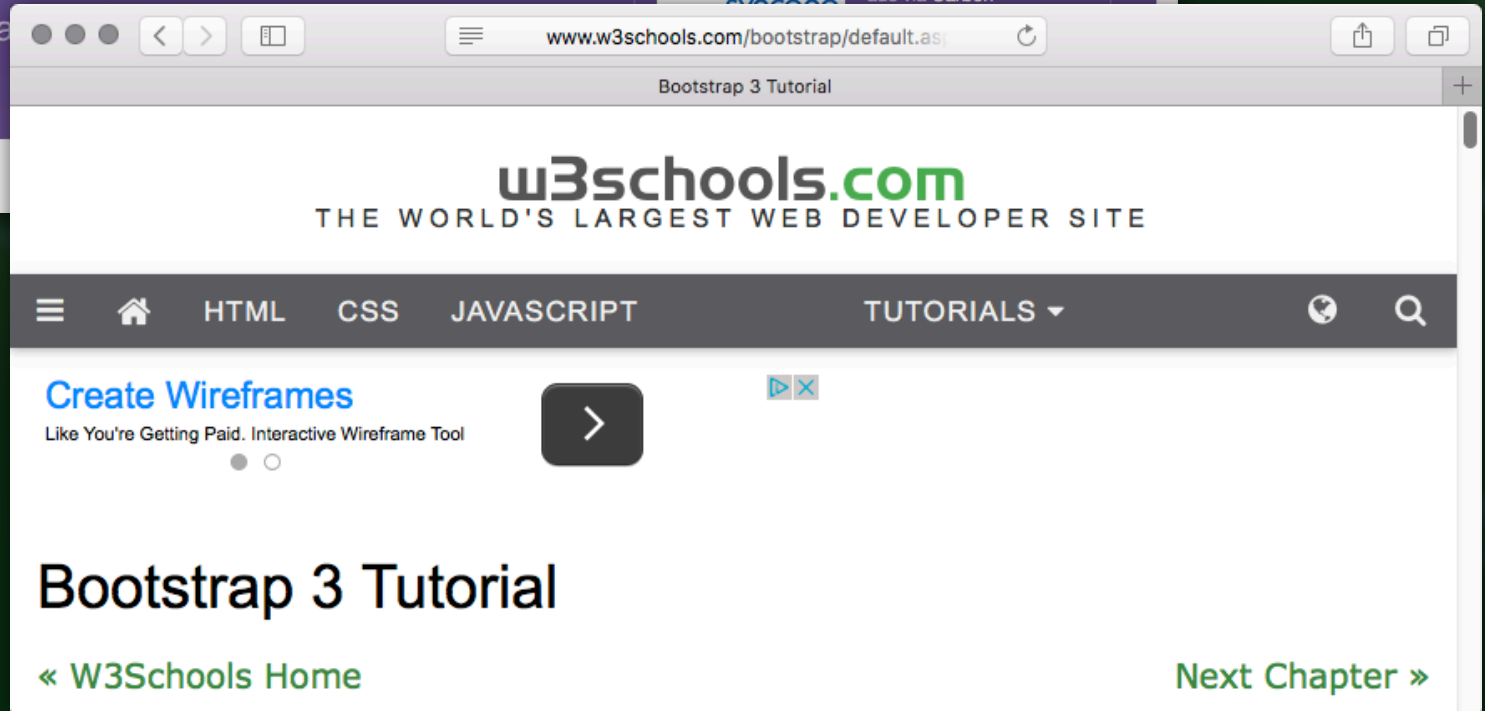
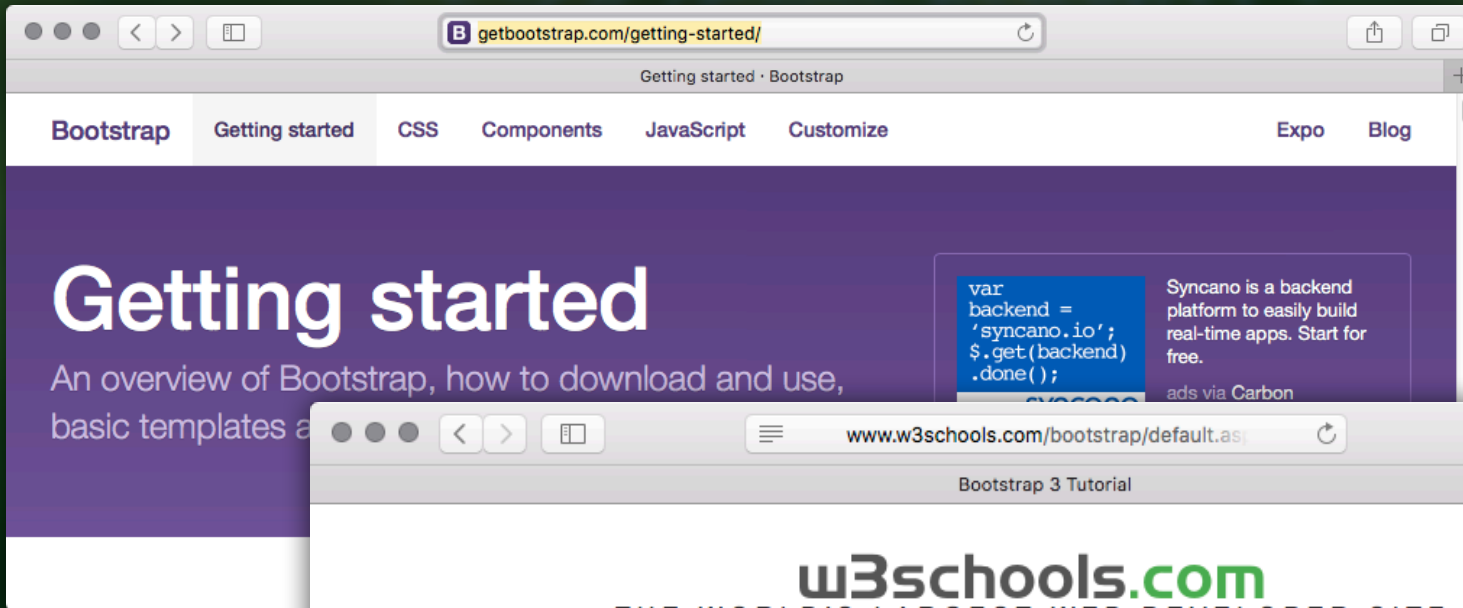
The CT 310 Site is minimally responsive.

Far better than nothing, but just the tip of the iceberg.

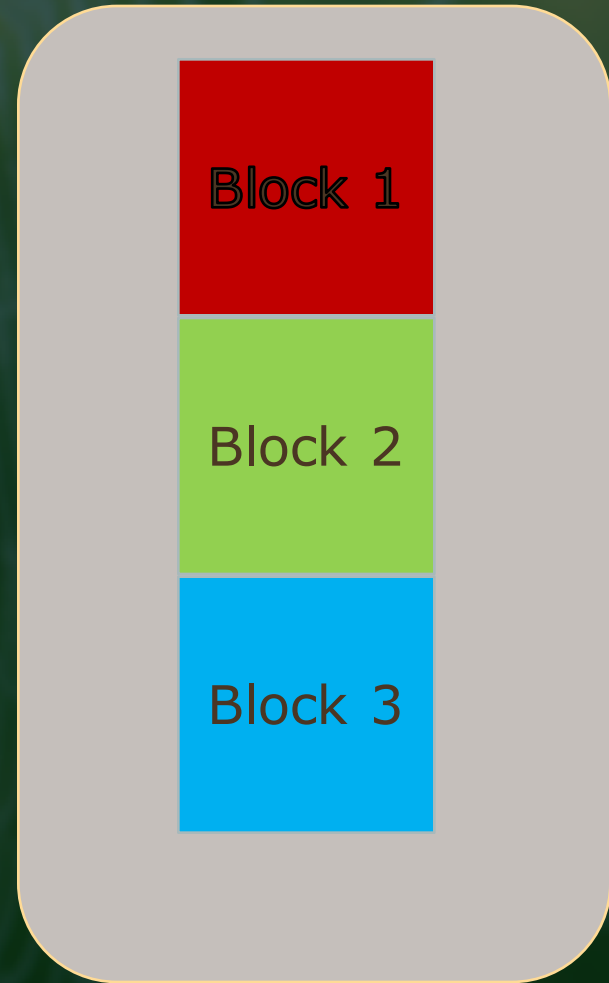
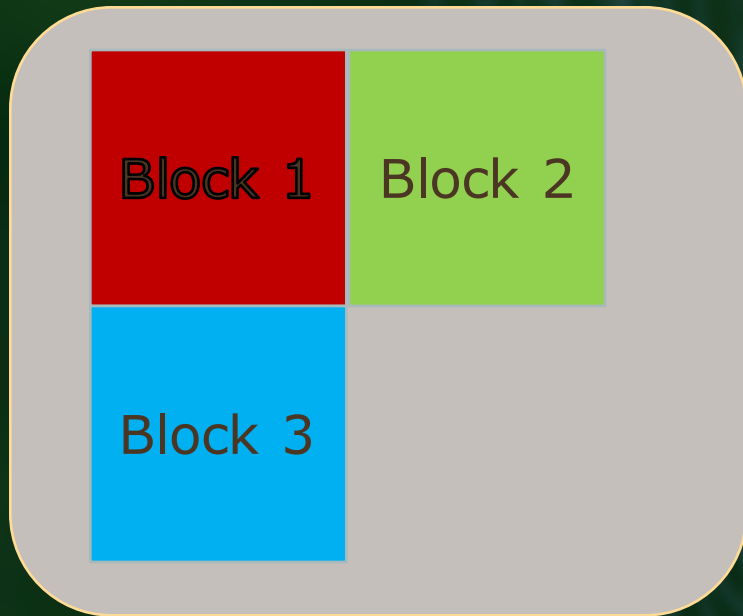
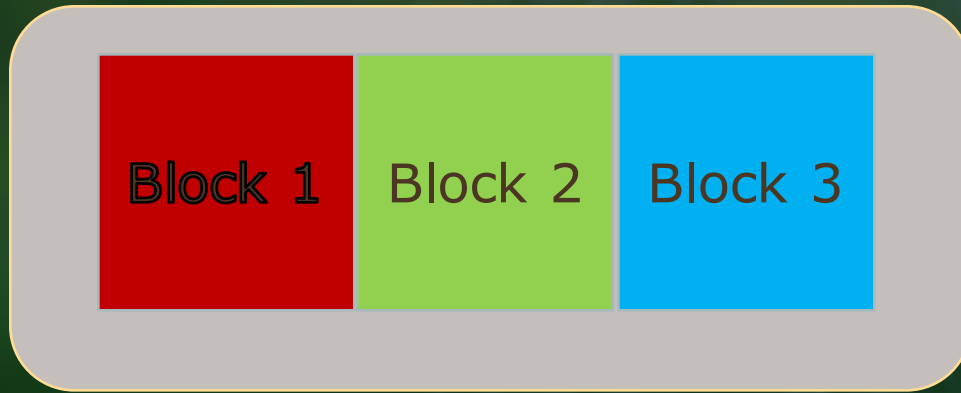




# Lecture Resources



# Behavior 1: Grid



# At Heart – 12 blocks

## ➤ Nicely Illustrated at w3schools

Bootstrap's grid system allows up to 12 columns across the page.

If you do not want to use all 12 column individually, you can group the columns together to create wider columns:

span 1	span 1	span 1	span 1	span 1	span 1	span 1	span 1	span 1	span 1	span 1	span 1
span 4				span 4				span 4			
span 4				span 8							
span 6						span 6					
span 12											

## ➤ Think in terms of primitive blocks

## ➤ Blocks can be combined

# Combinatorics of Flexibility

- There are also four target screen sizes.

		Span											
		1	2	3	4	5	6	7	8	9	10	11	12
Screen	xs												
	sm												
	md												
	lg												

- Many combinations, and a hierarchy

Lg <- md <- sm <- xs



# Illustration

```
<div class="row">
  <div class="col-sm-3 col-md-6 col-lg-4" style="background-color:yellow;">
    Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.
    Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat.
  </div>
  <div class="col-sm-9 col-md-6 col-lg-8" style="background-color:pink;">
    Sed ut perspiciatis unde omnis iste natus error sit voluptatem accusantium doloremque laudantium, totam rem aperiam, eaque ipsa quae ab illo inventore veritatis et quasi
    architecto beatae vitae dicta sunt explicabo.
  </div>
</div>
```

Result:

## Large Grid

The following example will result in a 25%/75% split on small devices, a 50%/50% split on medium devices, and a 33%/66% split on large devices. On extra small devices, it will automatically stack (100%).

Resize the browser window to see the effect.

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Resize the browser window to see the effect.

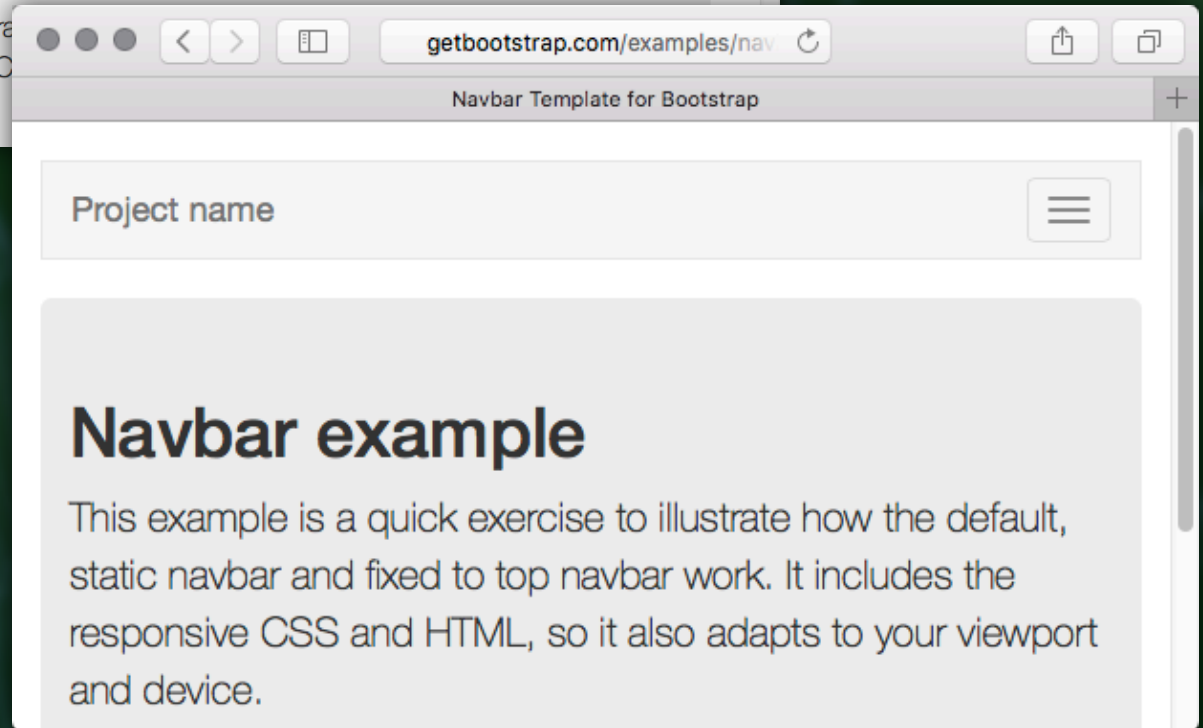
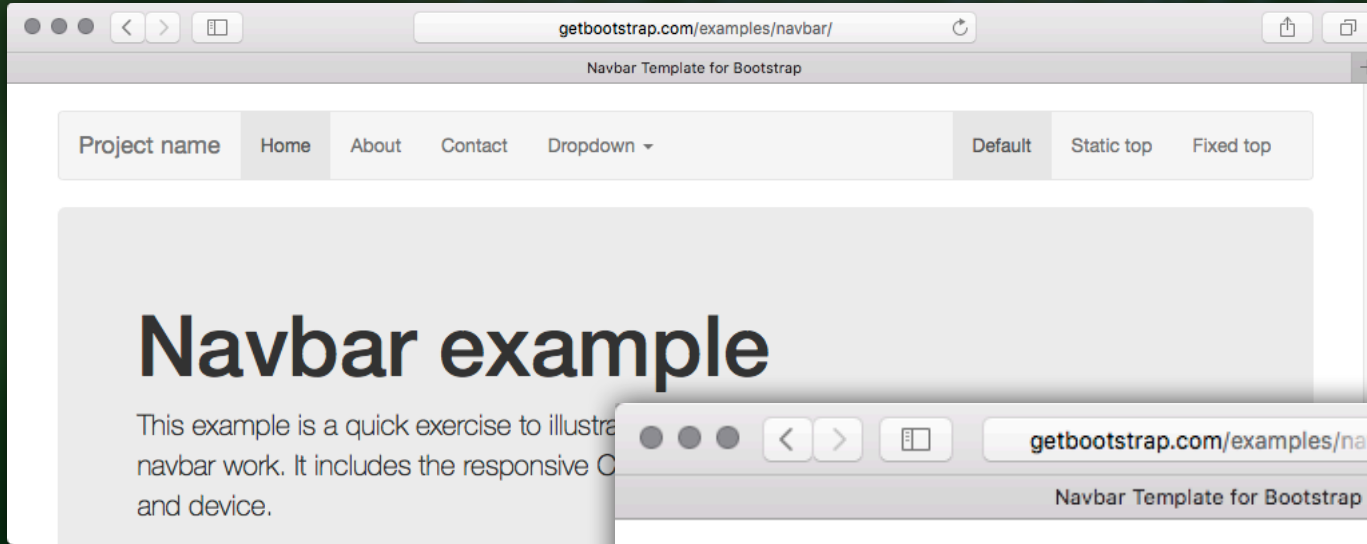
Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat.

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[.com/ajax/libs/jquery/1.12.0/jquery.min.js">](#)

[cdn.com/bootstrap/3.3.6/js/bootstrap.min.js">](#)

# Behavior 2: Navbars



# Collapsible Navigation

The image shows a screenshot of the Wikipedia article titled "Triple bar". The page content includes a definition of the symbol, its Unicode codepoints, and its use in web design as a "hamburger icon". A yellow callout box with the text "Hamburger Icon" is overlaid on the page, with a yellow arrow pointing to the hamburger icon (three horizontal bars) shown in a separate box on the right side of the article. The browser's address bar shows "en.wikipedia.org/wiki/Triple\_bar". The page layout includes a sidebar with navigation links, a main content area with a table of contents, and a right-hand sidebar with a search box and user options.

en.wikipedia.org/wiki/Triple\_bar

Triple bar - Wikipedia, the free encyclopedia

Not logged in Talk Contributions Create account Log in

Article Talk Read Edit View history Search

## Triple bar

From Wikipedia, the free encyclopedia

*This article is about the symbol. For the horse jump, see [oxer](#).*  
*Not to be confused with [=](#) (disambiguation), [≠](#) (disambiguation), [≡](#) (disambiguation), or [≡](#).*

The **triple bar**, **≡**, is a symbol with multiple, context-dependent meanings. It has the appearance of a "=" sign with a third line. The triple bar character in **Unicode** is codepoint U+2261 **≡** IDENTICAL TO (HTML `&#8801;` `·` `&equiv;` ).<sup>[1]</sup> The closely related codepoint U+2262 **≠** NOT IDENTICAL TO (HTML `&#8802;` `·` `&neq;` ) is the same symbol with a slash through it, indicating the negation of its mathematical meaning.<sup>[1]</sup> In **LaTeX** mathematical formulas, the code `\equiv` produces the triple bar symbol as output.<sup>[2]</sup>

**Web design** [edit]

In **website** and software application design, a similar symbol is sometimes used as an interface element, where it is called a **hamburger icon**. The element typically indicates that a **navigation menu** can be accessed when the element is activated; the bars of the symbol may be seen as stylized menu items, and some variations of this symbols add bars, or bullet points to each bar, to enhance this visual similarity.<sup>[17]</sup> Usage of symbol dates back to the early computer interfaces developed at **Xerox PARC** in 1980s.<sup>[18]</sup> It is also similar to the icon frequently used to indicate **justified text alignment**.

**Contents** [hide]

- Uses
  - Mathematics and philosophy
  - Science
  - Web design

**Uses** [edit]

**Mathematics and philosophy** [edit]

**Web design** [edit]

**Hamburger Icon**

# w3schools Examples

- Experiment with changes!
- Study component structure!

Edit This Code: See Result » Result:

```
<nav class="navbar navbar-default">
  <div class="container-fluid">
    <div class="navbar-header">
      <a class="navbar-brand" href="#">WebSiteName</a>
    </div>
    <ul class="nav navbar-nav">
      <li class="active"><a href="#">Home</a></li>
      <li><a href="#">Page 1</a></li>
      <li><a href="#">Page 2</a></li>
      <li><a href="#">Page 3</a></li>
    </ul>
  </div>
</nav>

<div class="container">
  <h3>Basic Navbar Example</h3>
  <p>A navigation bar is a navigation header that is placed at
  the top of the page.</p>
</div>

</body>
</html>
```

WebSiteName

- Home
- Page 1
- Page 2
- Page 3

### Basic Navbar Example

A navigation bar is a navigation header that is placed at the top of the page.



# Which is a Hamburger?

```
<button type="button" class="navbar-toggle"
  data-toggle="collapse" data-target="#myNavbar">
  <span class="icon-bar"> </span>
  <span class="icon-bar"> </span>
  <span class="icon-bar"> </span>
</button>
```



# Details to Learn

collapse

container-fluid

data-target\*

data-toggle\*

glyphicon

glyphicon-log-in

glyphicon-user

icon-bar

nav

navbar

navbar-brand

navbar-collapse

navbar-header

navbar-inverse

navbar-nav

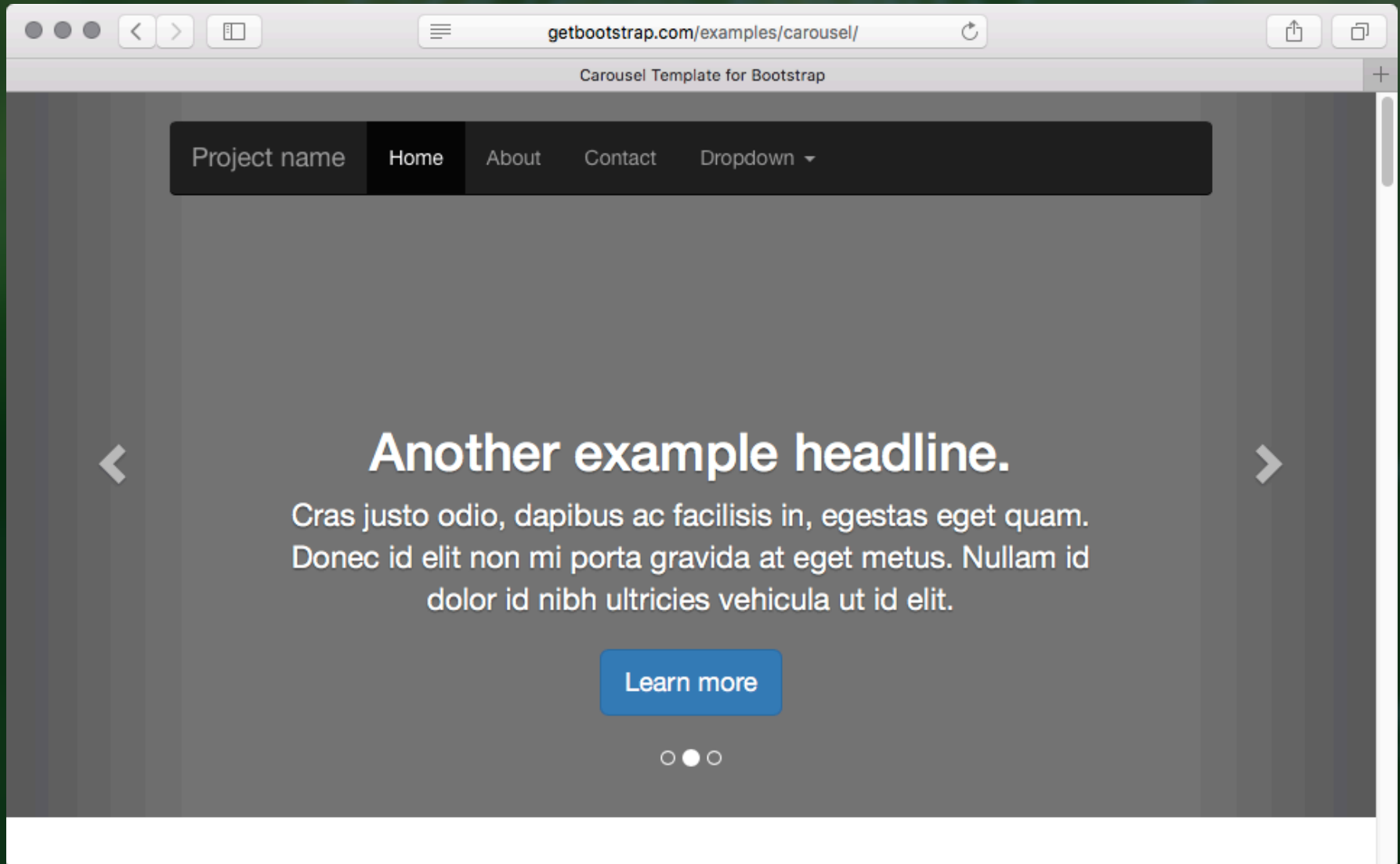
navbar-right

navbar-toggle

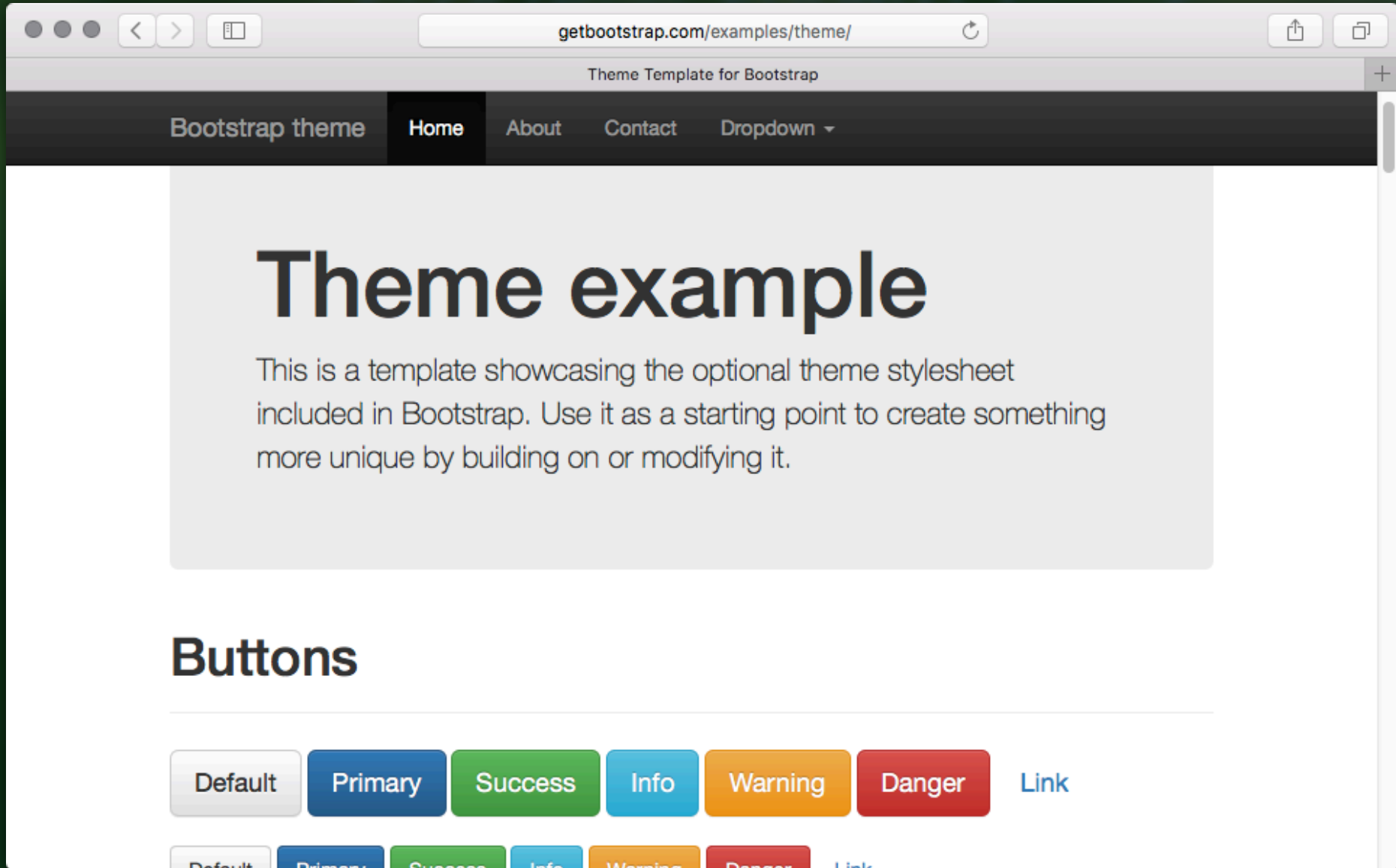
\*HTML5 Element Attribute

Review - [http://www.w3schools.com/bootstrap/tryit.asp?filename=trybs\\_navbar\\_collapse&stacked=h](http://www.w3schools.com/bootstrap/tryit.asp?filename=trybs_navbar_collapse&stacked=h)

# Behavior 3: Carousel

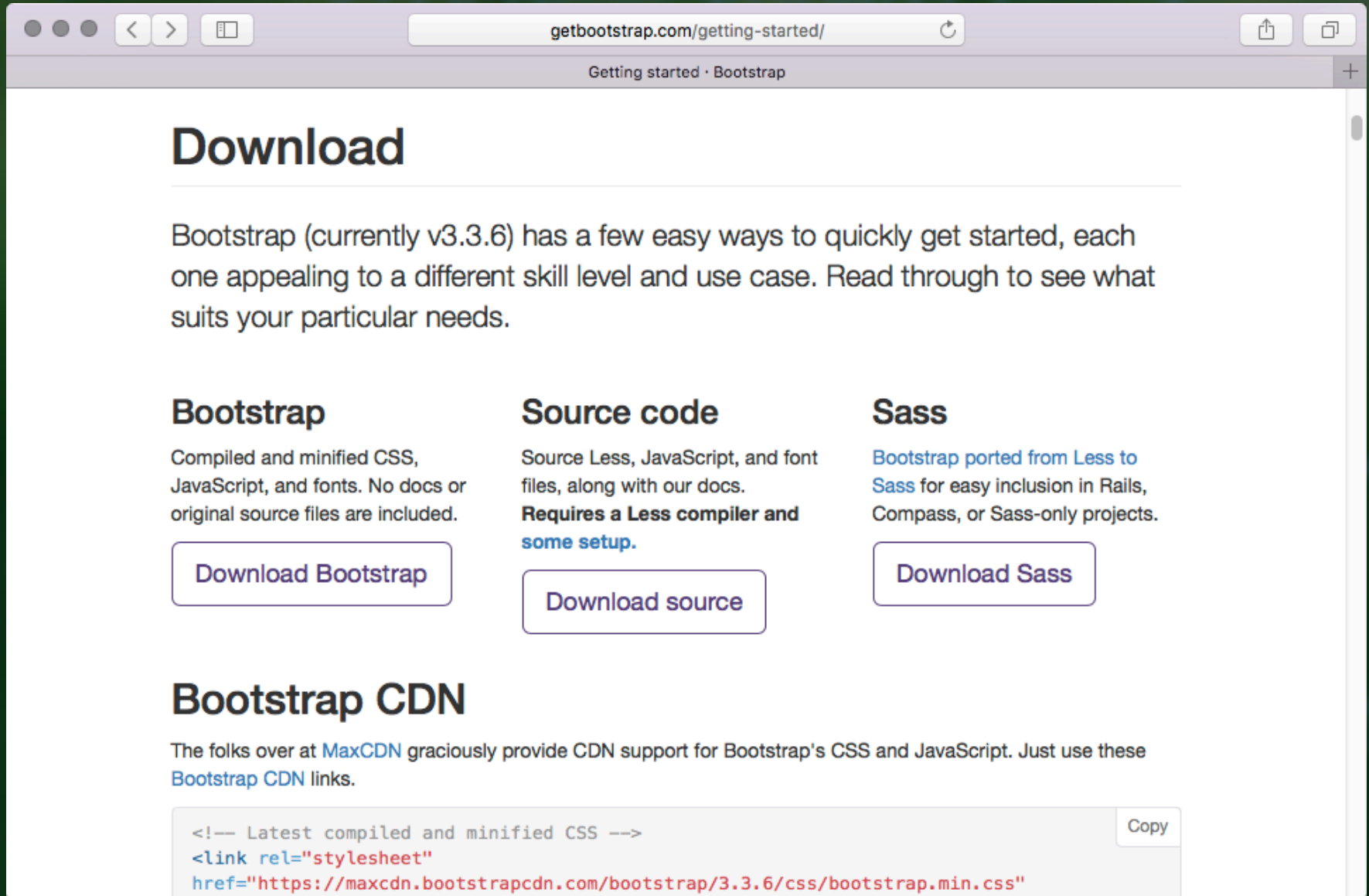


# Overview of Components





# Getting and Using

A screenshot of a web browser showing the Bootstrap 'Getting started' page. The browser's address bar shows 'getbootstrap.com/getting-started/'. The page title is 'Getting started · Bootstrap'. The main heading is 'Download'. Below it, a paragraph explains that Bootstrap (v3.3.6) has several ways to get started. There are three columns: 'Bootstrap' (compiled and minified CSS, JS, and fonts), 'Source code' (Less, JavaScript, and font files), and 'Sass' (ported from Less to Sass). Each column has a 'Download' button. Below these is a 'Bootstrap CDN' section with a code block for the latest compiled and minified CSS and a 'Copy' button.

getbootstrap.com/getting-started/

Getting started · Bootstrap

## Download

Bootstrap (currently v3.3.6) has a few easy ways to quickly get started, each one appealing to a different skill level and use case. Read through to see what suits your particular needs.

### Bootstrap

Compiled and minified CSS, JavaScript, and fonts. No docs or original source files are included.

[Download Bootstrap](#)

### Source code

Source Less, JavaScript, and font files, along with our docs.  
**Requires a Less compiler and some setup.**

[Download source](#)

### Sass

[Bootstrap ported from Less to Sass](#) for easy inclusion in Rails, Compass, or Sass-only projects.

[Download Sass](#)

## Bootstrap CDN

The folks over at [MaxCDN](#) graciously provide CDN support for Bootstrap's CSS and JavaScript. Just use these [Bootstrap CDN](#) links.

```
<!-- Latest compiled and minified CSS -->  
<link rel="stylesheet"  
href="https://maxcdn.bootstrapcdn.com/bootstrap/3.3.6/css/bootstrap.min.css"
```

Copy