User Interaction: Responsive Design

Assoc. Professor Donald J. Patterson
INF 133 Fall 2014

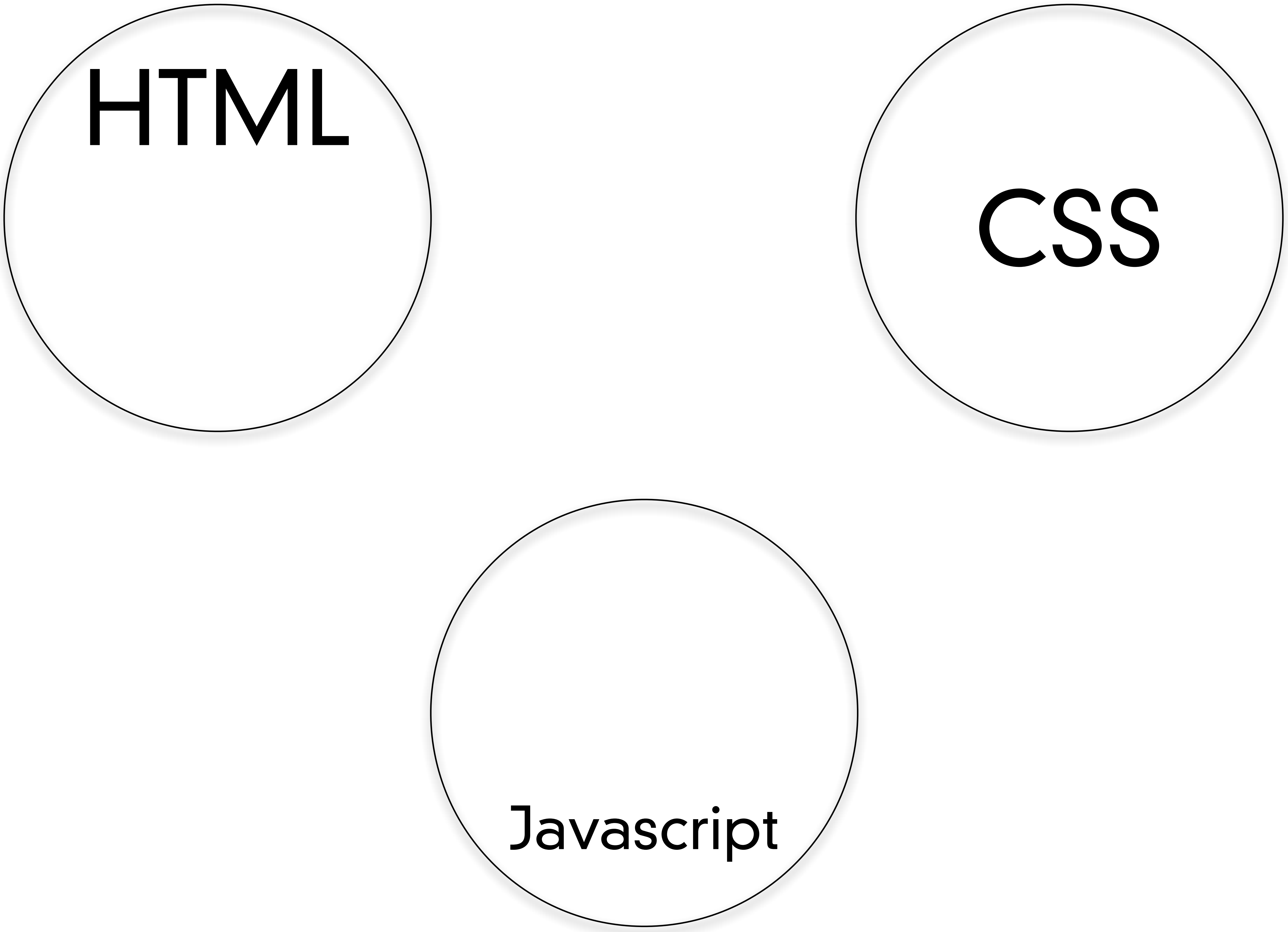
Evolution of HTML Concerns

HTML

CSS

Javascript

Evolution of HTML Concerns



HTML

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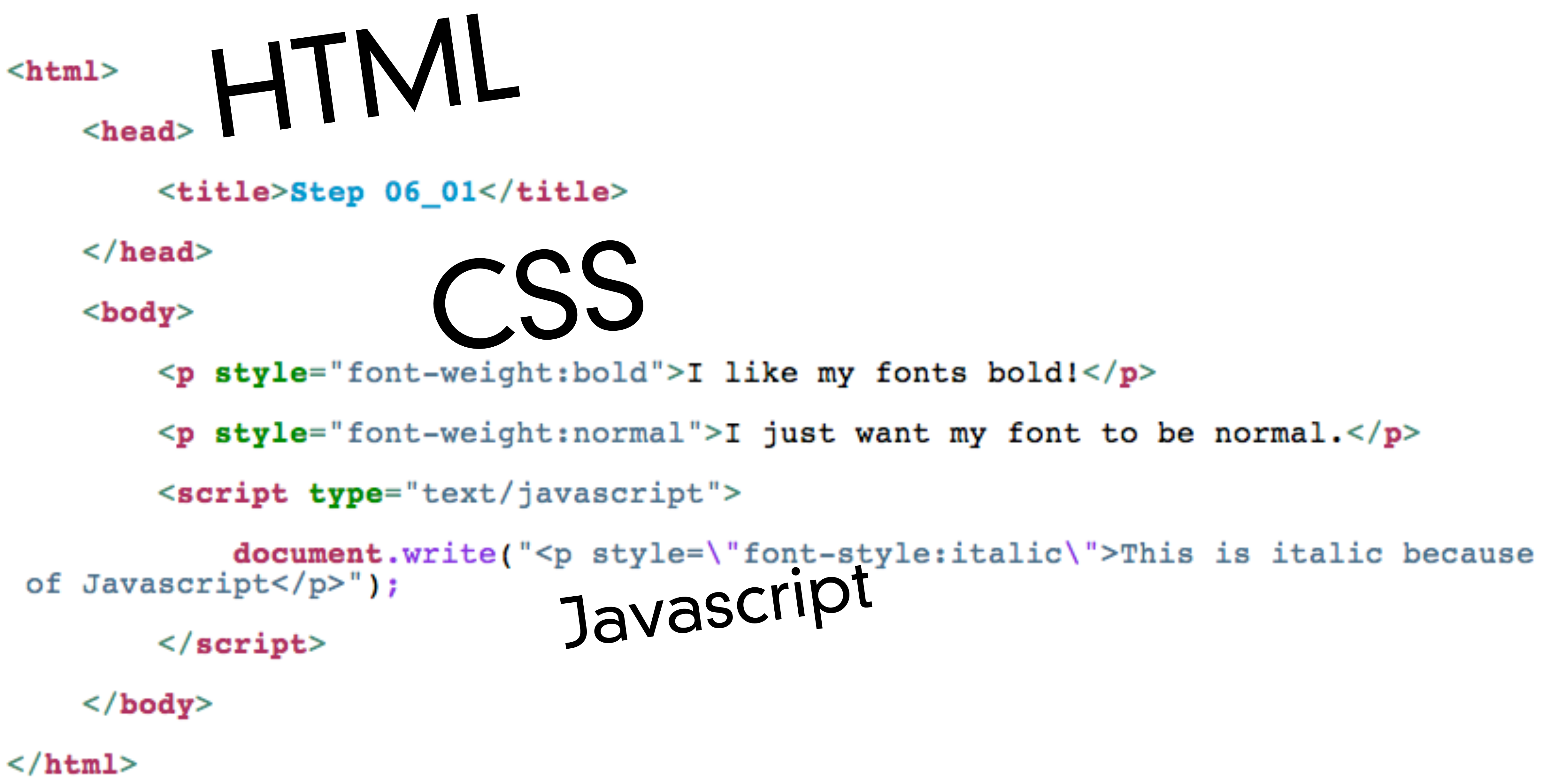
Evolution of HTML Concerns



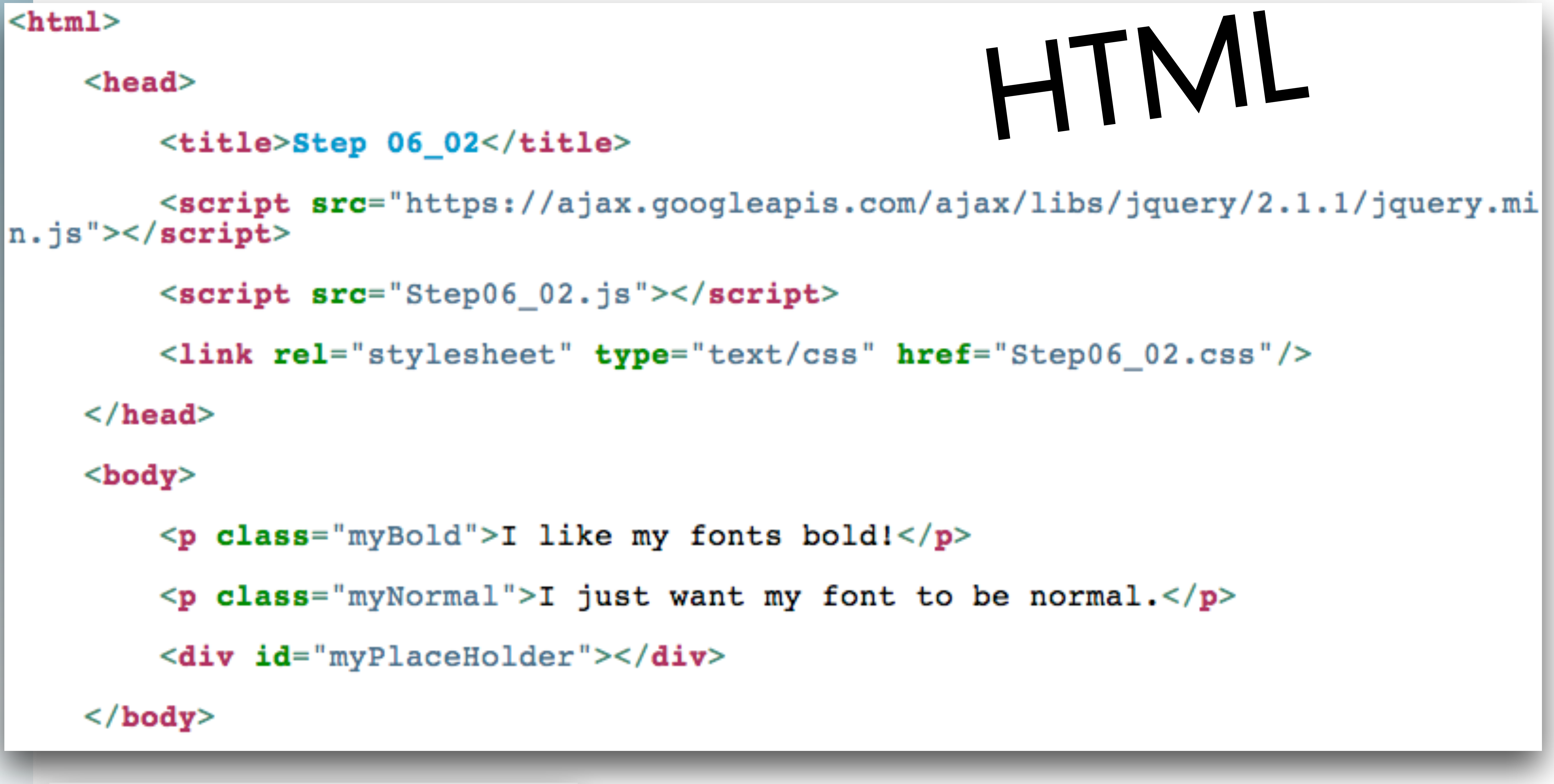
```
<html>
    <head>
        <title>Step 06_01</title>
    </head>
    <body>
        <p style="font-weight:bold">I like my fonts bold!</p>
        <p style="font-weight:normal">I just want my font to be normal.</p>
        <script type="text/javascript">
            document.write("<p style=\"font-style:italic\">This is italic because
 of Javascript</p>");
        </script>
    </body>
</html>
```

HTML

CSS

Javascript

Evolution of HTML Concerns



HTML

```
<html>

    <head>

        <title>Step 06_02</title>

        <script src="https://ajax.googleapis.com/ajax/libs/jquery/2.1.1/jquery.mi
n.js"></script>

        <script src="Step06_02.js"></script>

        <link rel="stylesheet" type="text/css" href="Step06_02.css"/>

    </head>

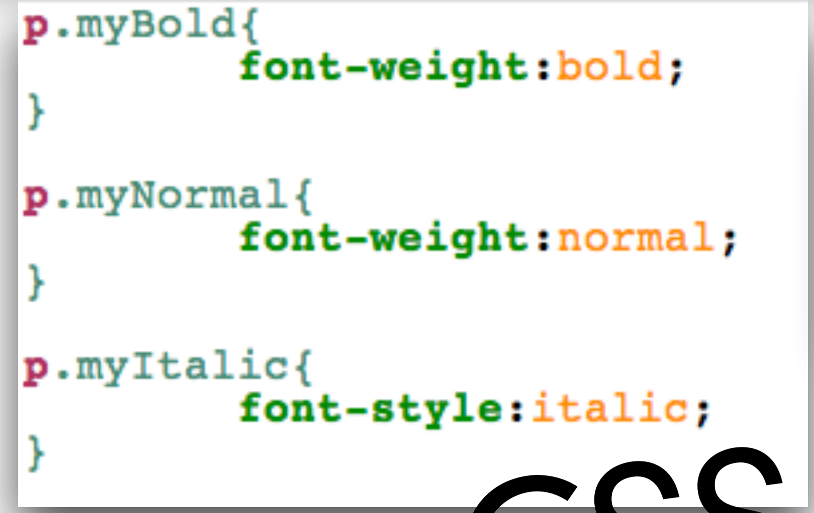
    <body>

        <p class="myBold">I like my fonts bold!</p>

        <p class="myNormal">I just want my font to be normal.</p>

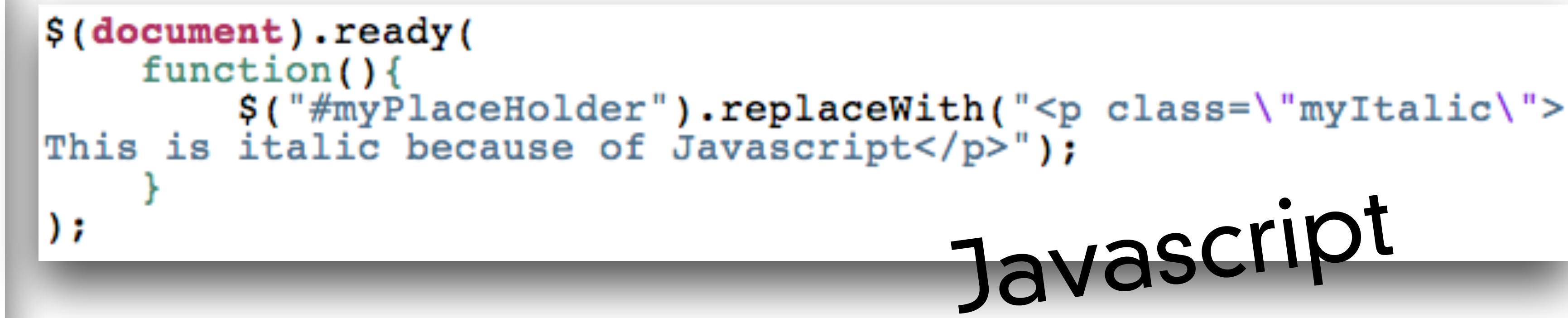
        <div id="myPlaceHolder"></div>

    </body>
```



```
p.myBold{
        font-weight:bold;
}
p.myNormal{
        font-weight:normal;
}
p.myItalic{
        font-style:italic;
}
```

CSS



```
$(document).ready(
    function(){
        $("#myPlaceHolder").replaceWith("<p class=\"myItalic\">
This is italic because of Javascript</p>");
    }
);
```

Javascript

CSS

- CSS
    - Cascading Style Sheets
- Styles define how to display HTML elements
- They solved the problem of
    - formatting large websites consistently
- Multiple sources “cascade” into one presentation
- Where can styles be specified?

http://www.w3schools.com/css/

CSS

- In order of priority (inline overrides all)
  - Browser default
  - User Defined
  - External Style Sheet
  - Internal Style Sheet
  - Inline Style

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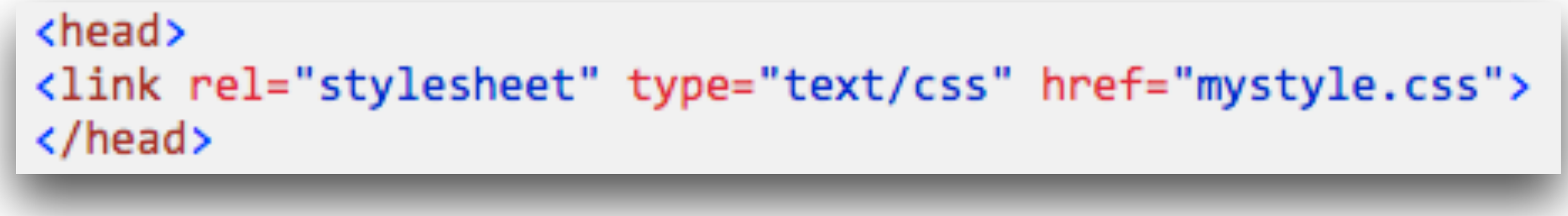

```
<head>
<link rel="stylesheet" type="text/css" href="mystyle.css">
</head>
```

  - Internal Style Sheet
  - Inline Style

CSS

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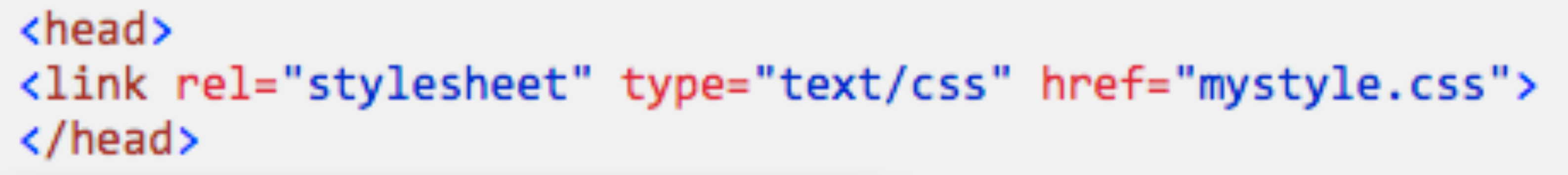

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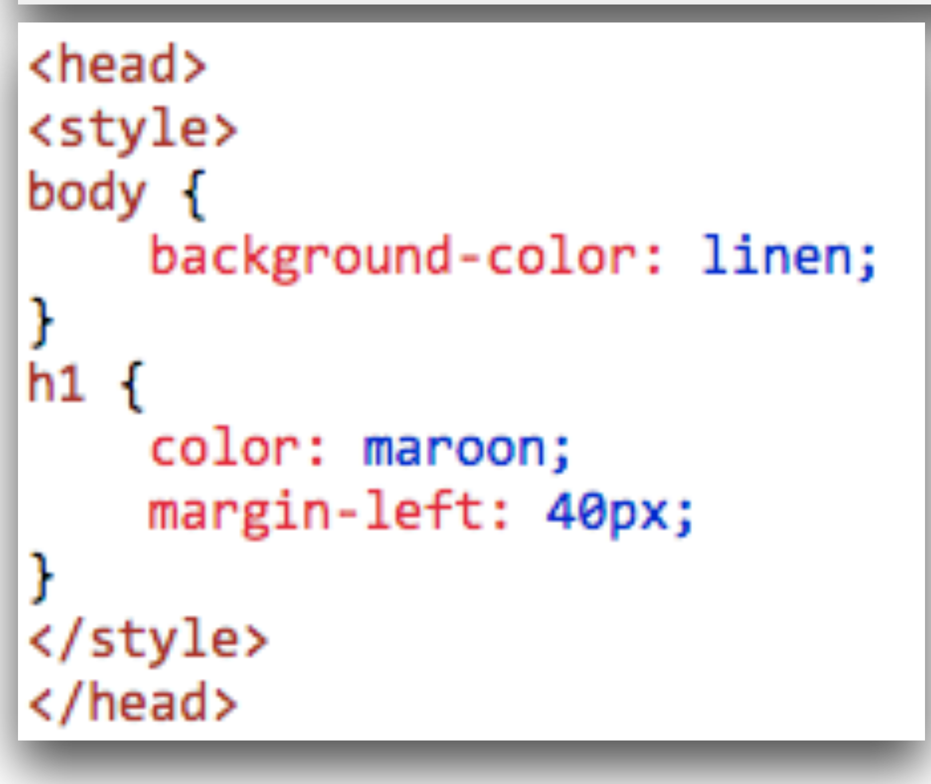
</head>
```

  - Internal Style Sheet



```
<head>
<style>
body {
    background-color: linen;
}
h1 {
    color: maroon;
    margin-left: 40px;
}
</style>
</head>
```

  - Inline Style

CSS

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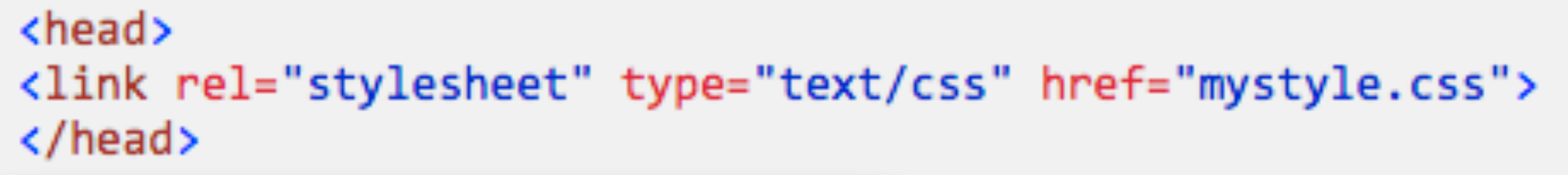

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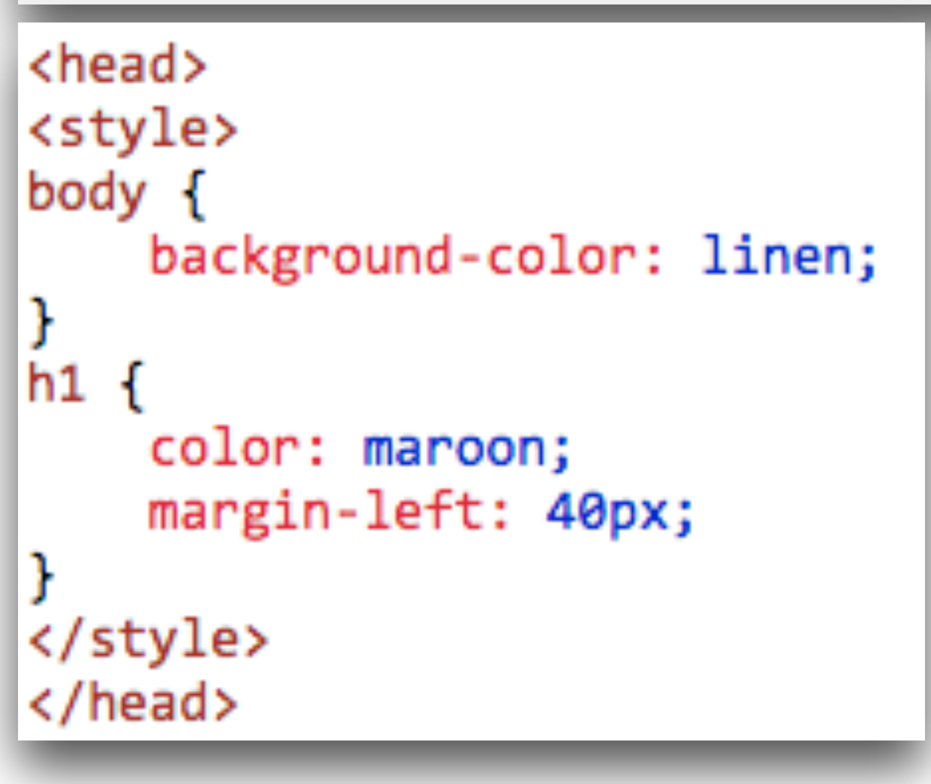

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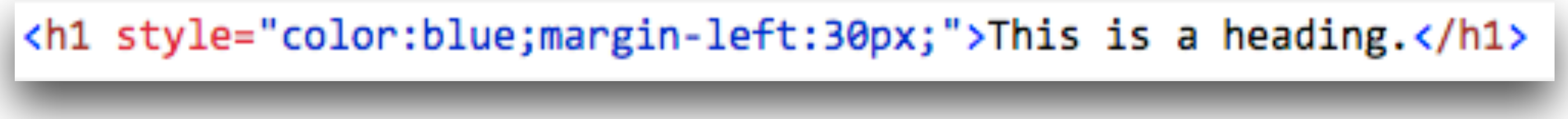
  - Inline Style



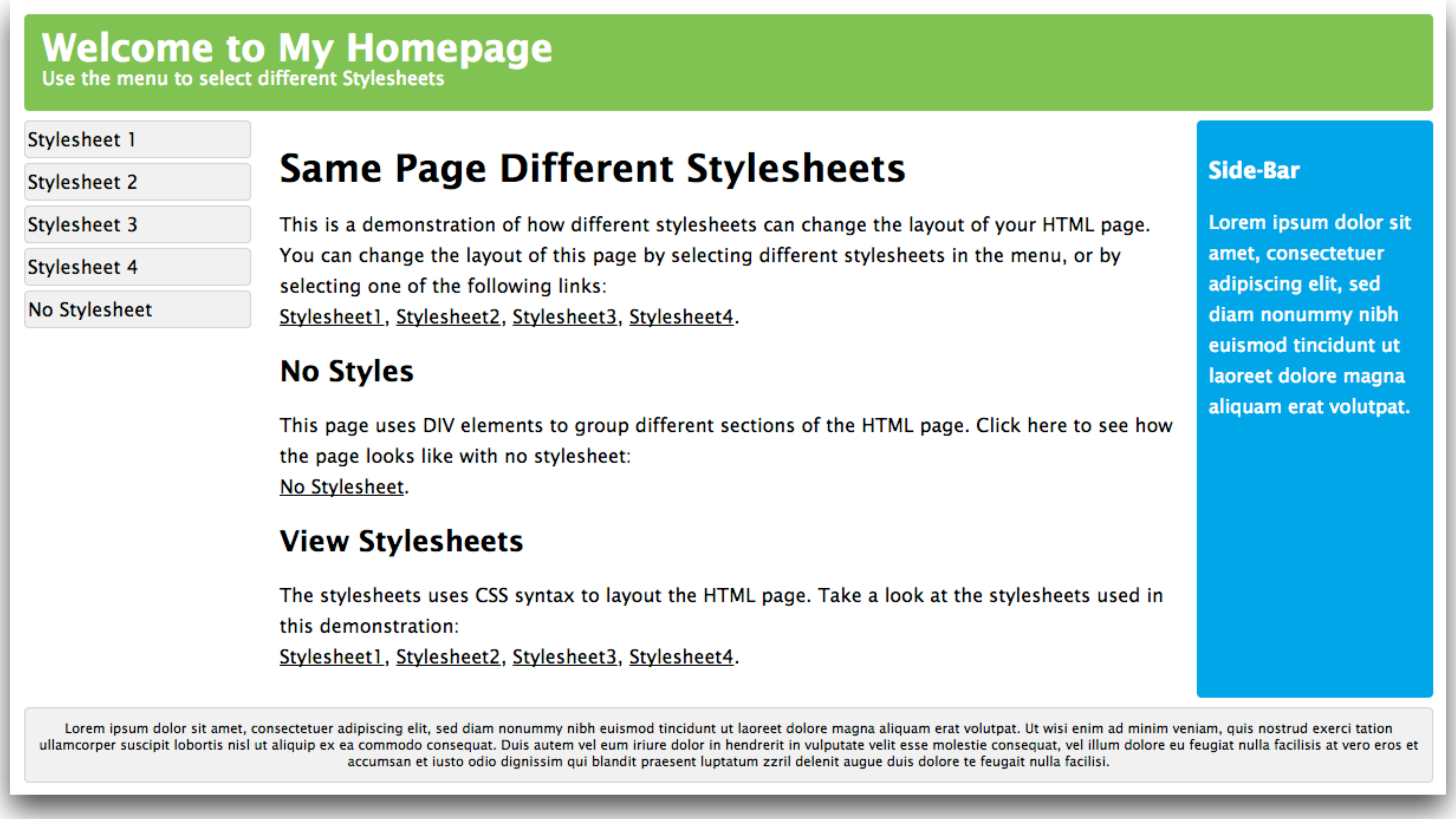
```
<h1 style="color:blue;margin-left:30px;">This is a heading.</h1>
```

CSS

- Storing styles in an external style sheet is currently the best known practice
  - Allows reusability
    - apply same style to multiple HTML pages
  - Allows modularity
    - include the style sheets that apply to the HTML page
  - Allow sane management
    - files can be handled with tools like git
  - Allows maintainability
    - finding the source of a style is less nightmarish

This is why stylesheets are swell

- Style Sheet Demo



Welcome to My Homepage

Use the menu to select different Stylesheets

Same Page Different Stylesheets

This is a demonstration of how different stylesheets can change the layout of your HTML page. You can change the layout of this page by selecting different stylesheets in the menu, or by selecting one of the following links:
Stylesheet1, Stylesheet2, Stylesheet3, Stylesheet4.

No Styles

This page uses DIV elements to group different sections of the HTML page. Click here to see how the page looks like with no stylesheet:
No Stylesheet.

View Stylesheets

The stylesheets uses CSS syntax to layout the HTML page. Take a look at the stylesheets used in this demonstration:
Stylesheet1, Stylesheet2, Stylesheet3, Stylesheet4.

Side-Bar

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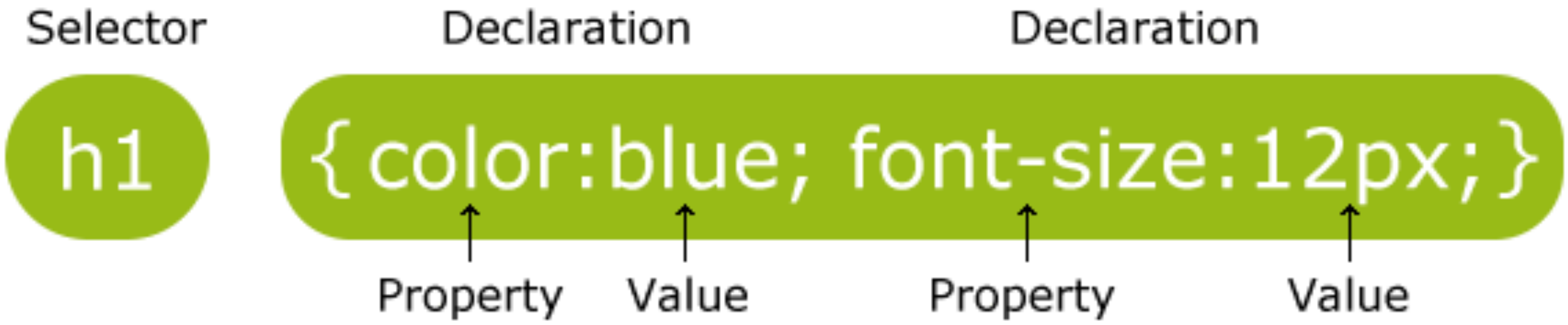
Lorem ipsum dolor sit amet, consectetuer adipiscing elit, sed diam nonummy nibh euismod tincidunt ut laoreet dolore magna aliquam erat volutpat. Ut wisi enim ad minim veniam, quis nostrud exerci tation ullamcorper suscipit lobortis nisl ut aliquip ex ea commodo consequat. Duis autem vel eum iriure dolor in hendrerit in vulputate velit esse molestie consequat, vel illum dolore eu feugiat nulla facilisis at vero eros et accumsan et iusto odio dignissim qui blandit praesent luptatum zzril delenit augue duis dolore te feugait nulla facilisi.

CSS Syntax

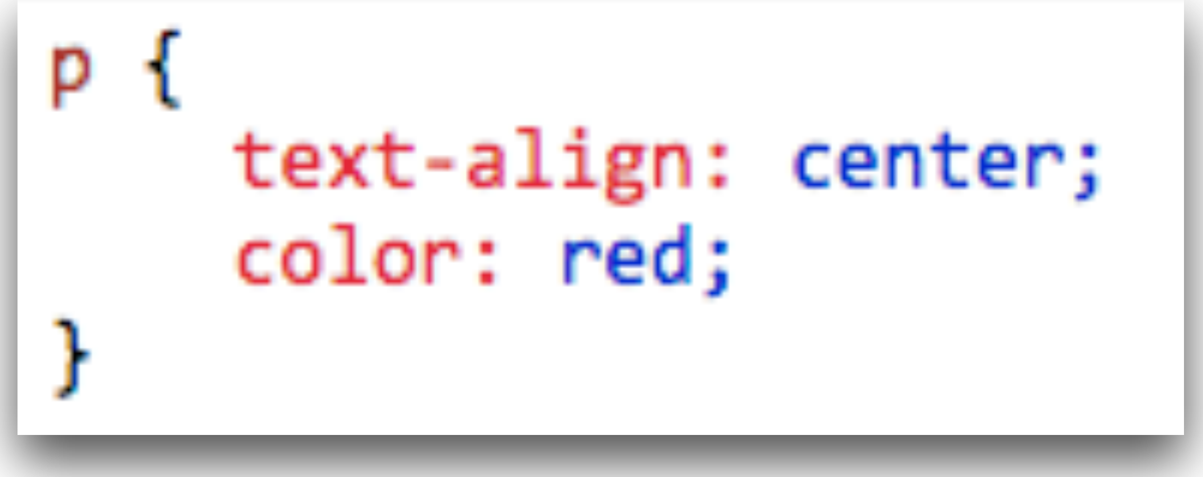


- selector points to the HTML element to be styled
- declaration holds one or more style declarations separated by a semi-colon
- declaration is a property name and a value

This looks like JSON, it’s close, but it’s not the same

Basic Selectors

- Element selector

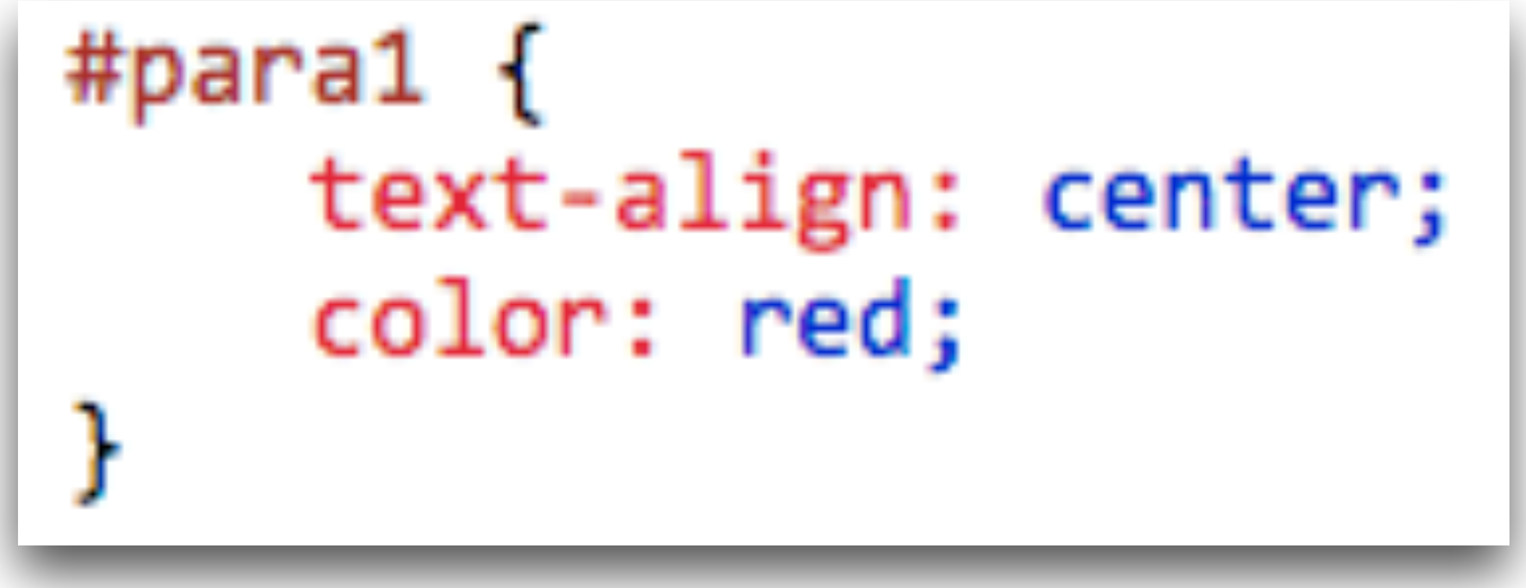


```
p {
    text-align: center;
    color: red;
}
```

All paragraph tags

Basic Selectors

- id selector



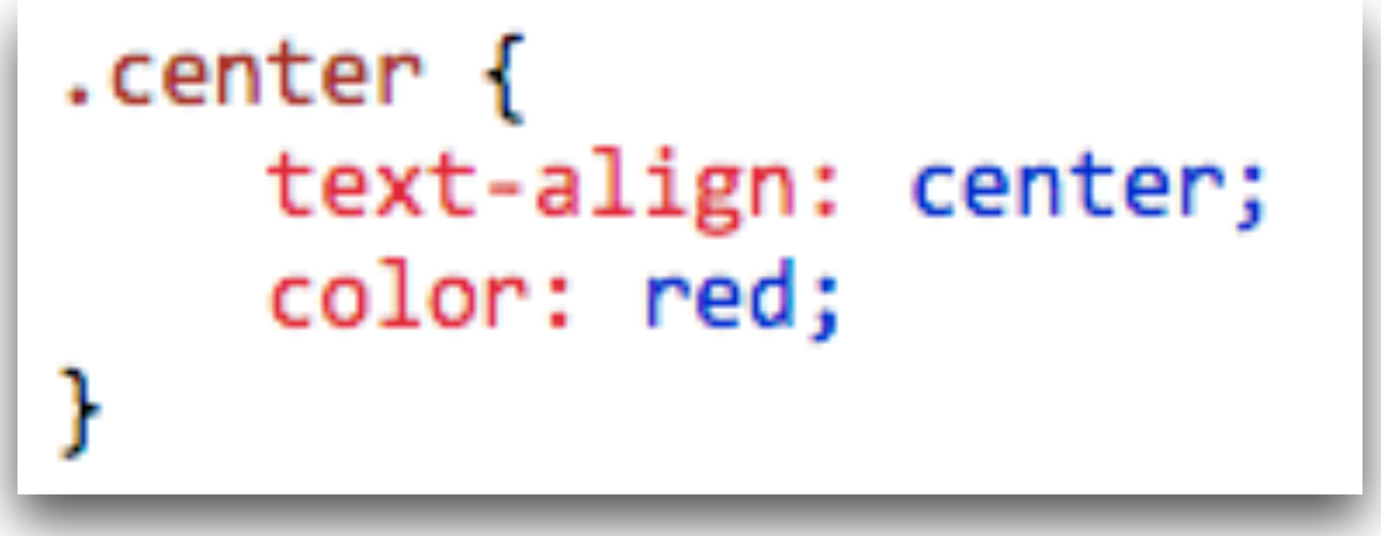
```
#para1 {
    text-align: center;
    color: red;
}
```

the element with id=“para1”

SHOULD be unique

Basic Selectors

- class selector



```
.center {
    text-align: center;
    color: red;
}
```

all elements with class=“center”

Basic Selectors

- There are many other ways to select elements in the DOM
  - selectors are a small language for finding elements in an XML tree
- There are many other properties that can be styled
  - font, positioning, opacity, color, layers,etc.
- w3schools.com is a good online manual for learning them

Bootstrap

- Bootstrap is a CSS library
  - like jQuery is a javascript library

- It provides access to predefined styles

- That make a lot of common HTML work easier

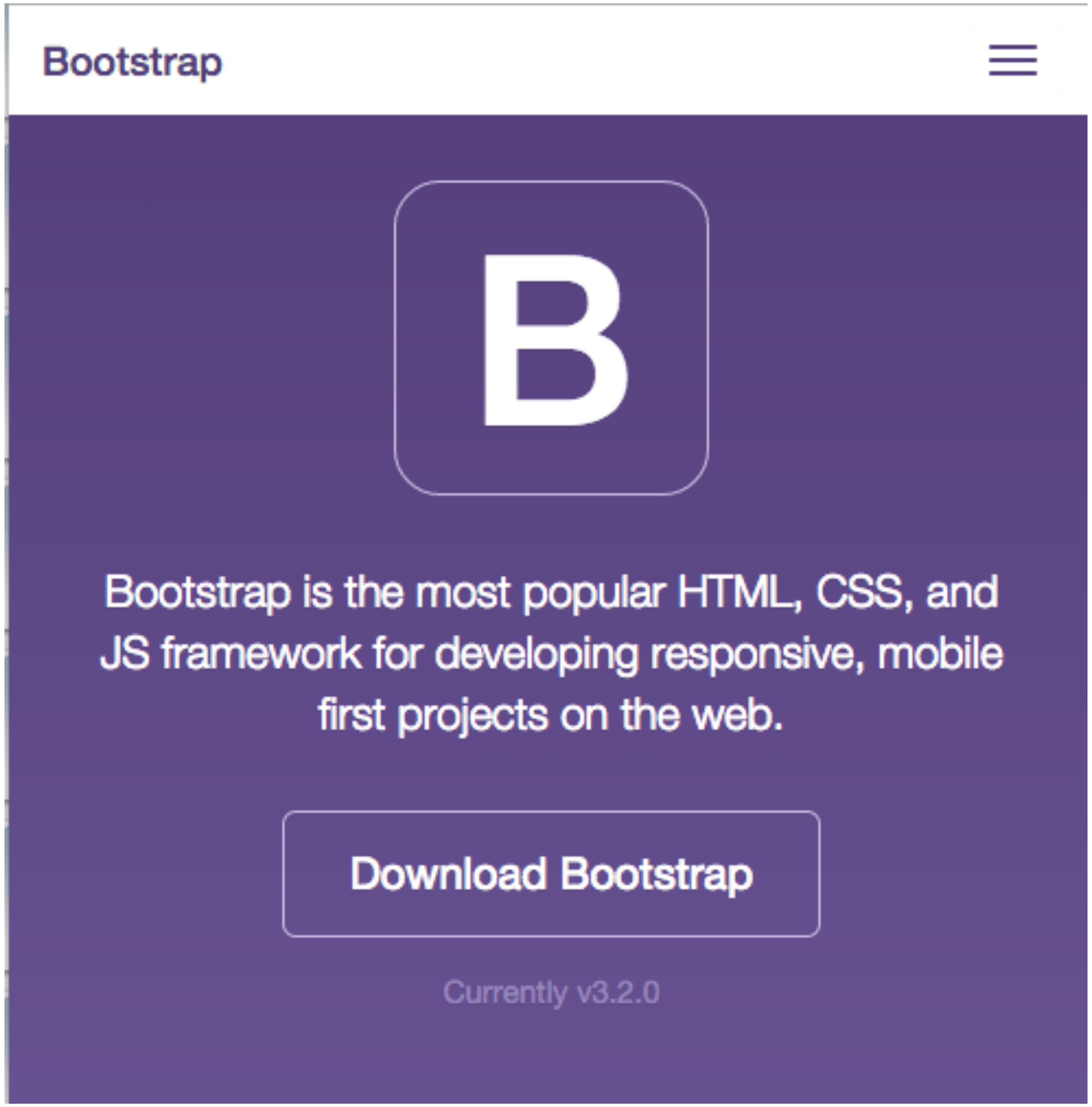
Responsive Design

- Responsive Design
  - Refers to the practice of making web pages optimally adapted to different viewing environments
  - So that a web page/app looks good on
    - a phone
    - a tablet
    - a desktop
    - portrait orientation
    - landscape orientation

Bootstrap and Responsive Design

- One of Bootstraps strengths is it’s support for grid based layouts
- grid layouts allow one HTML to work on multiple devices
- and therefore support responsive design

History of Bootstrap

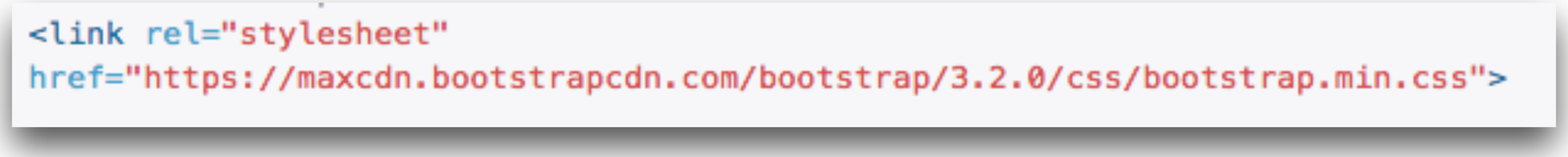


Bootstrap is the most popular HTML, CSS, and JS framework for developing responsive, mobile first projects on the web.

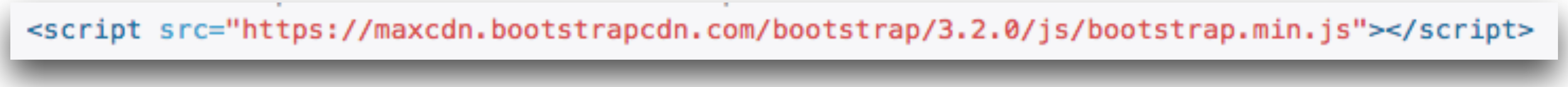
- Developed at Twitter
- 2010
- open sourced
- used everywhere
- Themeable
  - bootswatch

History of Bootstrap

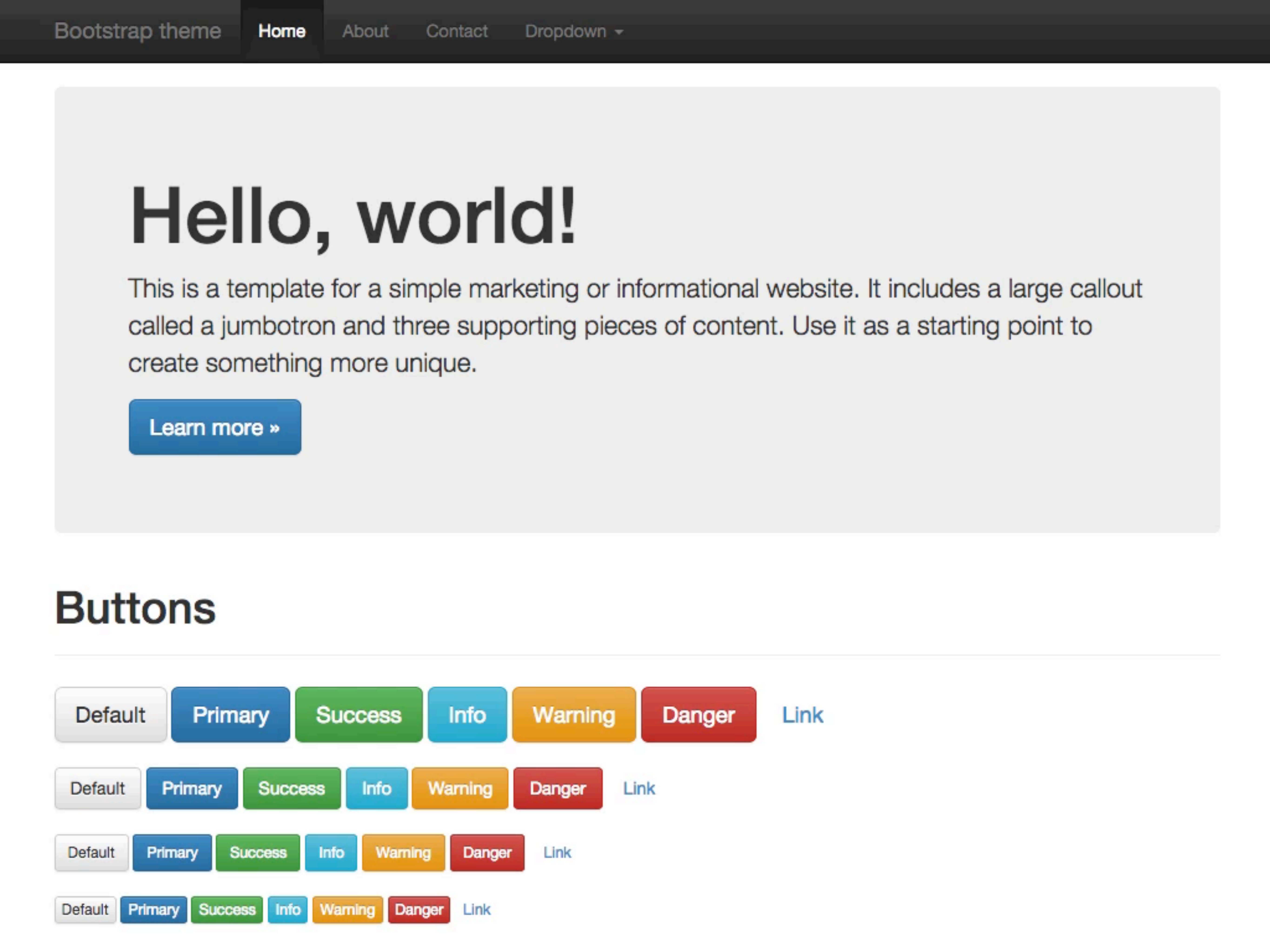
- Bootstrap is
  - a css file
  - some javascript to make some of the interactivity work
  - a set of icons



```
<link rel="stylesheet"
href="https://maxcdn.bootstrapcdn.com/bootstrap/3.2.0/css/bootstrap.min.css">
```



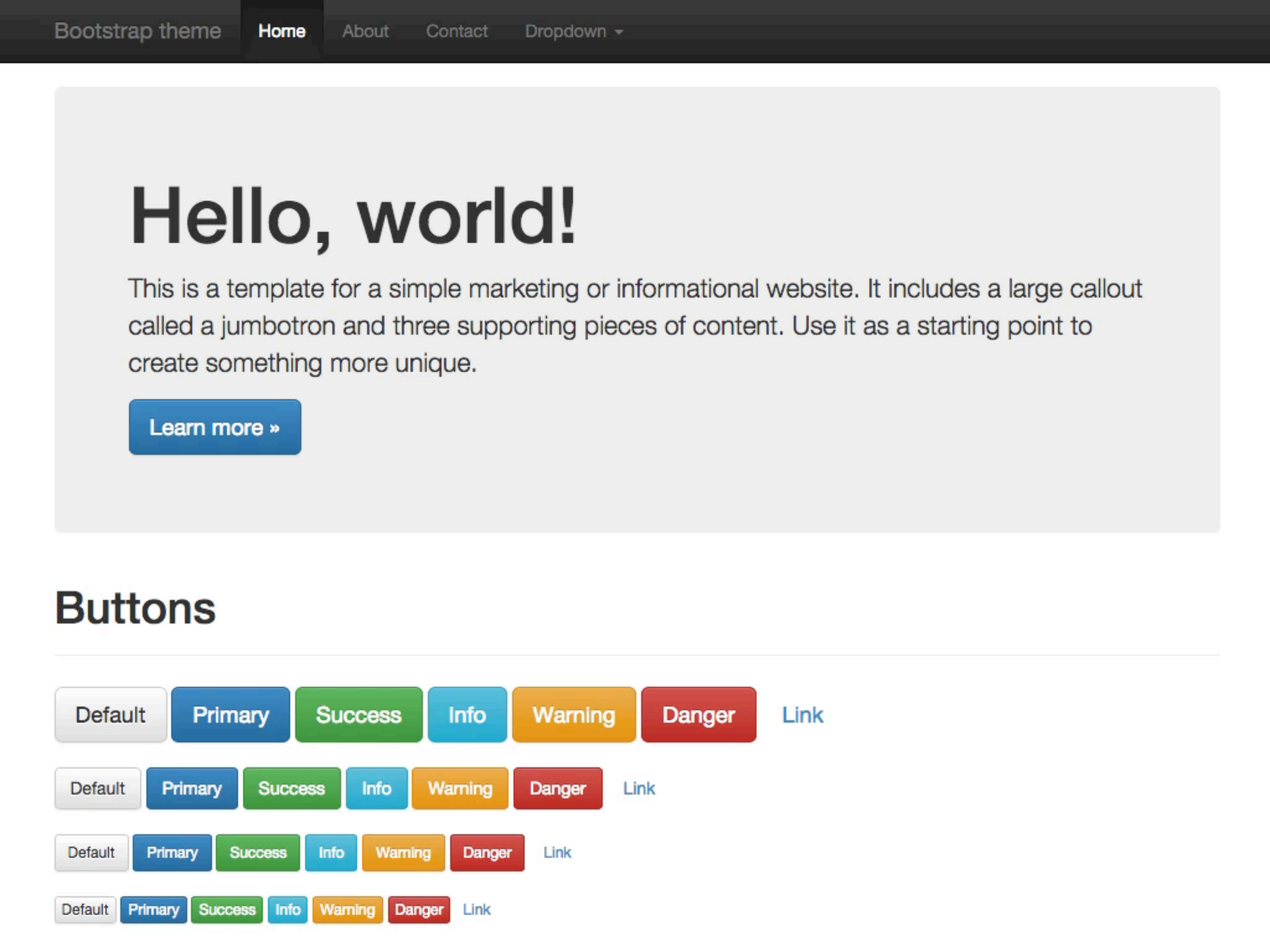
```
<script src="https://maxcdn.bootstrapcdn.com/bootstrap/3.2.0/js/bootstrap.min.js"></script>
```



Hello, world!

This is a template for a simple marketing or informational website. It includes a large callout called a jumbotron and three supporting pieces of content. Use it as a starting point to create something more unique.

Buttons



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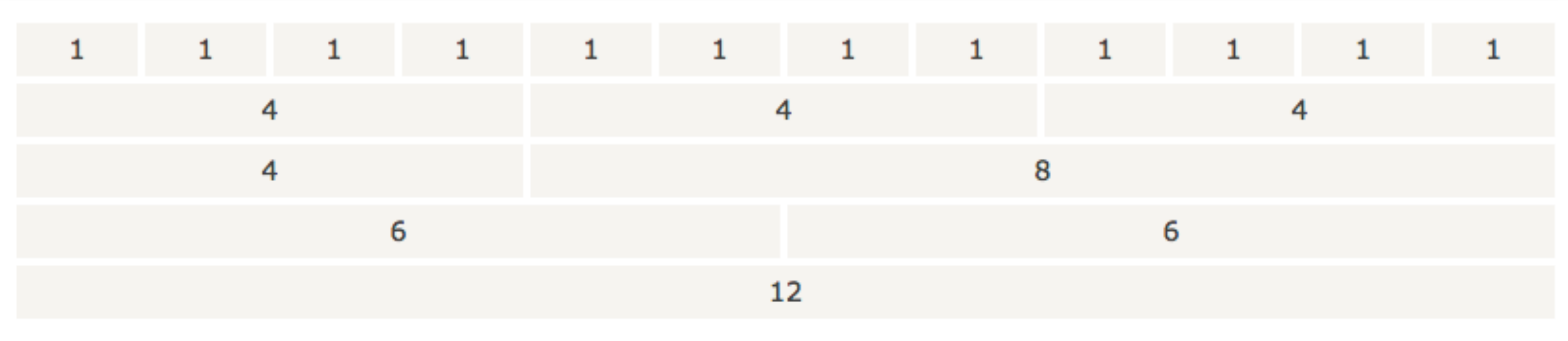
Buttons

Bootstrap Grid System

- Responsive, mobile-first, 12-column grid system
- Columns stack as viewport shrinks



1 1 1 1 1 1 1 1 1 1 1 1

4 4 4

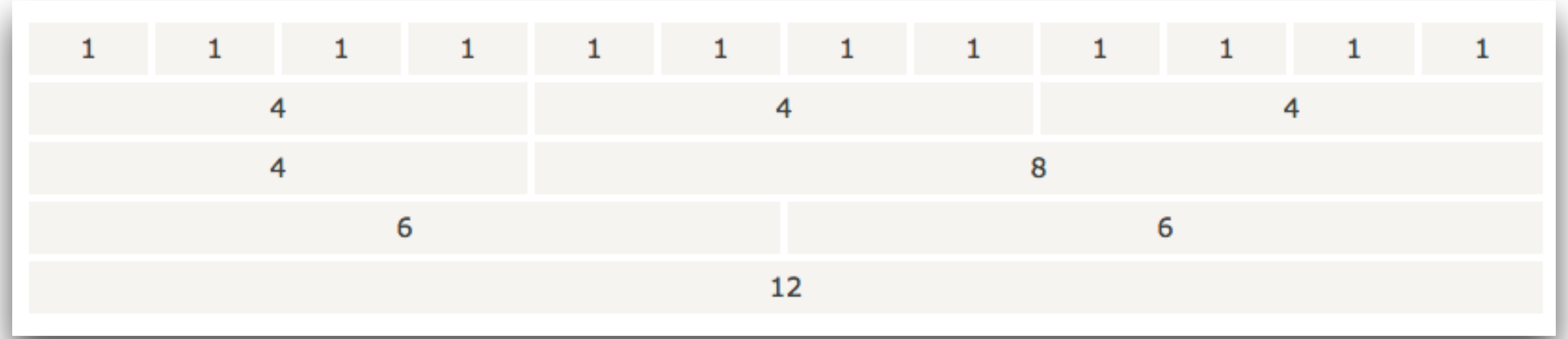
4 8

6 6

12

- "Mobile-first"
  - Design for small screen sizes
  - Add content as screen sizes increase

Bootstrap Grid System



1 1 1 1 1 1 1 1 1 1 1 1

4 4 4

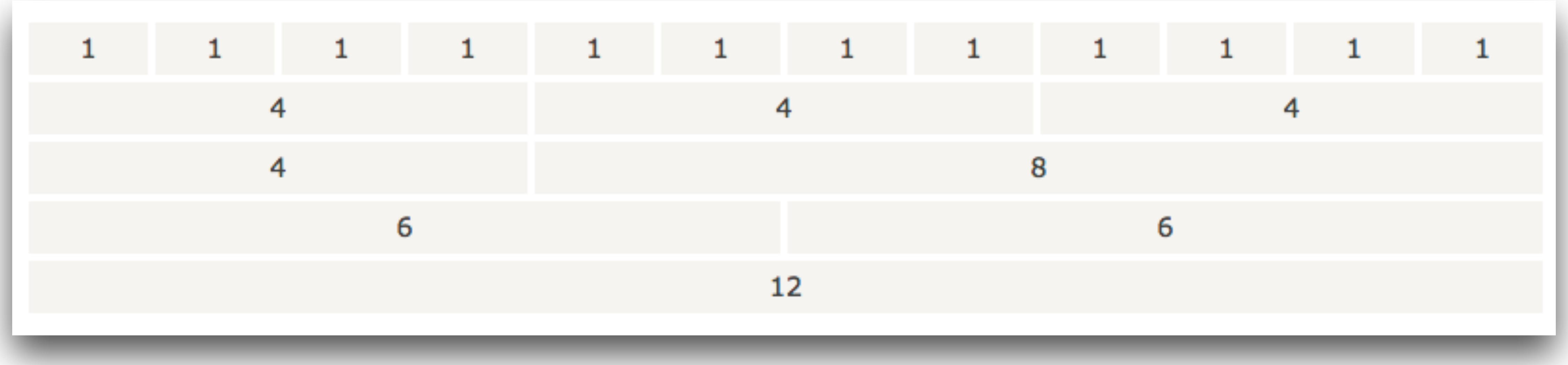
4 8

6 6

12

- Grid system rules
  - a ".container" holds ".rows"
  - a ".row" holds a group of columns
  - content goes in columns
  - only columns should be children of rows
  - This is usually done with <div> tags

Bootstrap Grid System



1 1 1 1 1 1 1 1 1 1 1 1

4 4 4

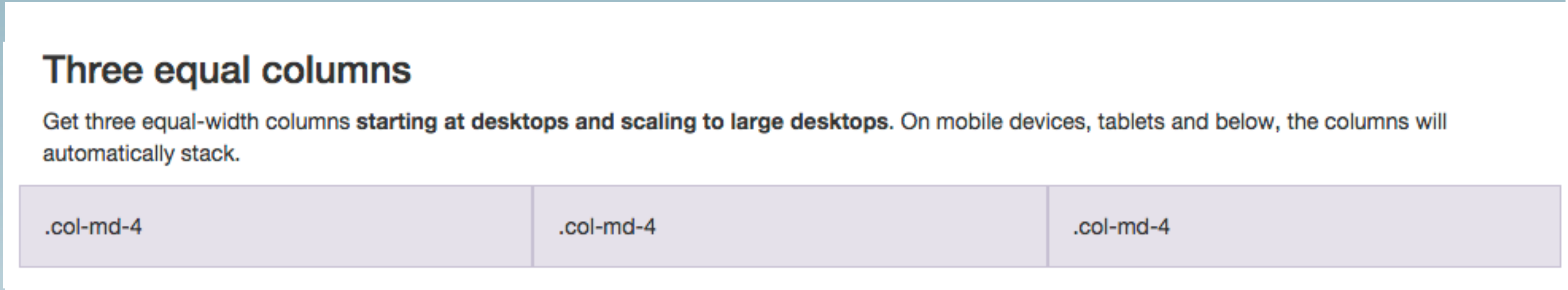
4 8

6 6

12

```
<div class="container">
  <div class="row">
    <div class="col-*-*"></div>
  </div>
  <div class="row">
    <div class="col-*-*"></div>
    <div class="col-*-*"></div>
    <div class="col-*-*"></div>
  </div>
  <div class="row">
    ...
  </div>
</div>
```

Bootstrap Grid System



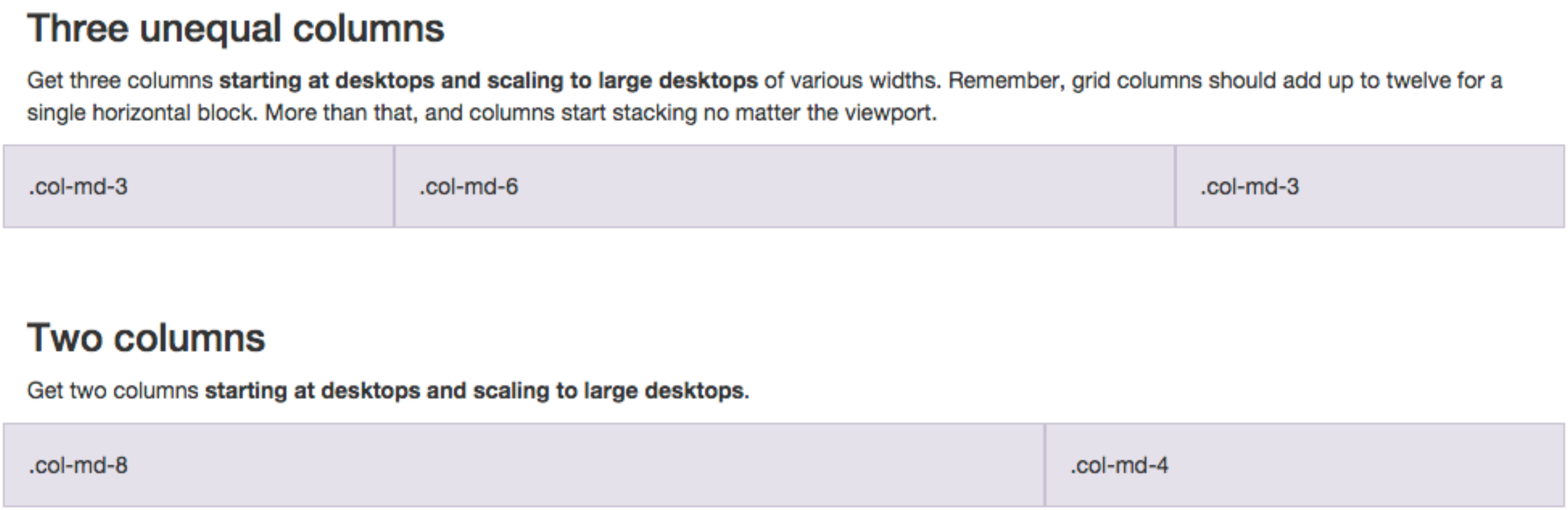
Three equal columns

Get three equal-width columns **starting at desktops and scaling to large desktops.** On mobile devices, tablets and below, the columns will automatically stack.

.col-md-4	.col-md-4	.col-md-4

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

Bootstrap Grid System



Three unequal columns

Get three columns **starting at desktops and scaling to large desktops** of various widths. Remember, grid columns should add up to twelve for a single horizontal block. More than that, and columns start stacking no matter the viewport.

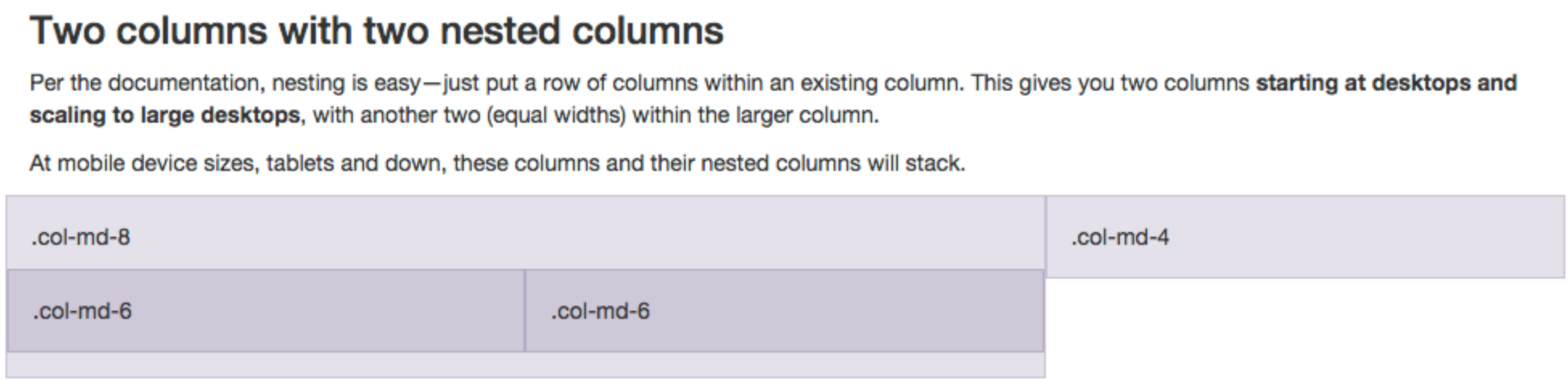
.col-md-3	.col-md-6	.col-md-3

Two columns

Get two columns **starting at desktops and scaling to large desktops**.

.col-md-8	.col-md-4

Bootstrap Grid System



Two columns with two nested columns

Per the documentation, nesting is easy—just put a row of columns within an existing column. This gives you two columns **starting at desktops and scaling to large desktops**, with another two (equal widths) within the larger column.

At mobile device sizes, tablets and down, these columns and their nested columns will stack.

.col-md-8

.col-md-4

.col-md-6

.col-md-6

```
<div class=“container">
  <div class="row">
    <div class="col-md-8">.col-md-8
    <div class="row">
      <div class="col-md-6">.col-md-6</div>
      <div class=“col-md-6">.col-md-6</div>
    </div>
  </div>
  <div class=“col-md-4”>.col-md-4</div>
  </div>
</div>
```

LUCI