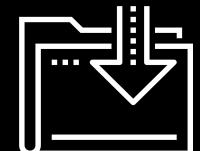




Bootstrap Layouts and Responsive Designs

Web Development Boot Camp
Lesson 2.3









**YOU
ARE
AWESOME!**

Today's Class

Today's Objectives

01

You will use the **Bootstrap CSS Framework** to create layouts.

02

You will learn to use **media queries** for mobile responsive websites.

03

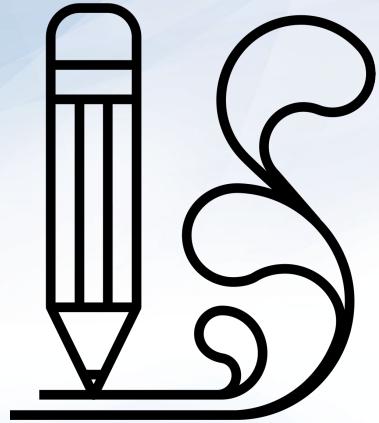
You will learn to use the **meta** tag to make sure all devices are displaying webpages optimally for their **viewport**.



Focus!

This stuff is important.

Bootstrap Recap



The Pains of Floats and Position

Plain HTML + CSS makes layout building challenging

Due Date:



How You (Probably) Feel About CSS



But Then Came Bootstrap!



Powered by Bootstrap

External CSS Link

```
1  <!DOCTYPE html>
2  <html lang="en">
3  <head>
4      <title>My First Website</title>
5      <link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/
       bootstrap/3.3.6/css/bootstrap.min.css">
6  </head>
7  <body>
```

Predefined CSS Class (e.g., “Jumbotron”)

```
<div class="jumbotron">
    <h1 class="text-center"><strong>Awesome Header</strong></h1>
    <h2 class="text-center">Smaller Awesome Header</h2>
    <h3 class="text-center">Even Smaller Header</h3>
    <p class="text-center"><a class="btn btn-danger btn-lg" href="#" role="button">
        <span class="glyphicon glyphicon-envelope"></span> Learn more</a></p>
    </div>
```

Powered by Bootstrap

The Coding Bootcamp Home About Contact Dropdown ▾

Default Static top Fixed top

Awesome Header

Smaller Awesome Header

Even Smaller Header

[Learn more](#)

class="jumbotron"



Lorem ipsum dolor sit amet, consectetur adipisicing elit. Quis, molestiae modi accusantium animi magnam veniam, impedit asperiores sint consequuntur debitis fugit quibusdam dolor, iusto sed porro ab minus voluptatibus amet.



Lorem ipsum dolor sit amet, consectetur adipisicing elit. Accusamus, maiores, quos. At, animi, facilis. Alias itaque ab minima rerum, eaque animi nesciunt harum nemo est cumque voluptas, qui reprehenderit atque.



Bootstrap gives you
PREDEFINED CSS styles.

Why Use Bootstrap?

Reason #1: UI Kit



Familiarize yourself with the UI features Bootstrap offers by reading the documentation.



Once Bootstrap is active, you can simply copy snippets from the documentation to save yourself the time of creating elements yourself.



Why Use Bootstrap?

Reason #2: Mobile Responsiveness



One of the most compelling reasons to use Bootstrap is the default mobile-responsive quality it provides.



This means that your websites will automatically look “good” when viewed on screens ranging from monitors to tablets to phones.





Warm-Up Activity:

Bootstrap Component

Suggested Time:
5 minutes



Warm-Up Activity: Bootstrap Component

01

Like you did in the last class, quickly create an HTML webpage.

02

Add in a Bootstrap component of your choosing.



Hint: Copy the Bootstrap CSS link. Then copy the code from any Bootstrap element or CSS.

Suggested Time: 5 minutes



Next-Phase Bootstrap

In the last class, we focused on Bootstrap components (like buttons and tables).

Today, we'll be focusing on using Bootstrap to build layouts.

Sketching / Grid Layouts





FOCUS!

Because in our opinion, these next two sections are some of the **MOST IMPORTANT ONES** in the **ENTIRE** program.



The Importance of Sketches

Every good web design begins with a sketch.

01

Because every aspect of a site's "look" is defined by HTML/CSS, it is crucial to have a detailed sketch going in.

02

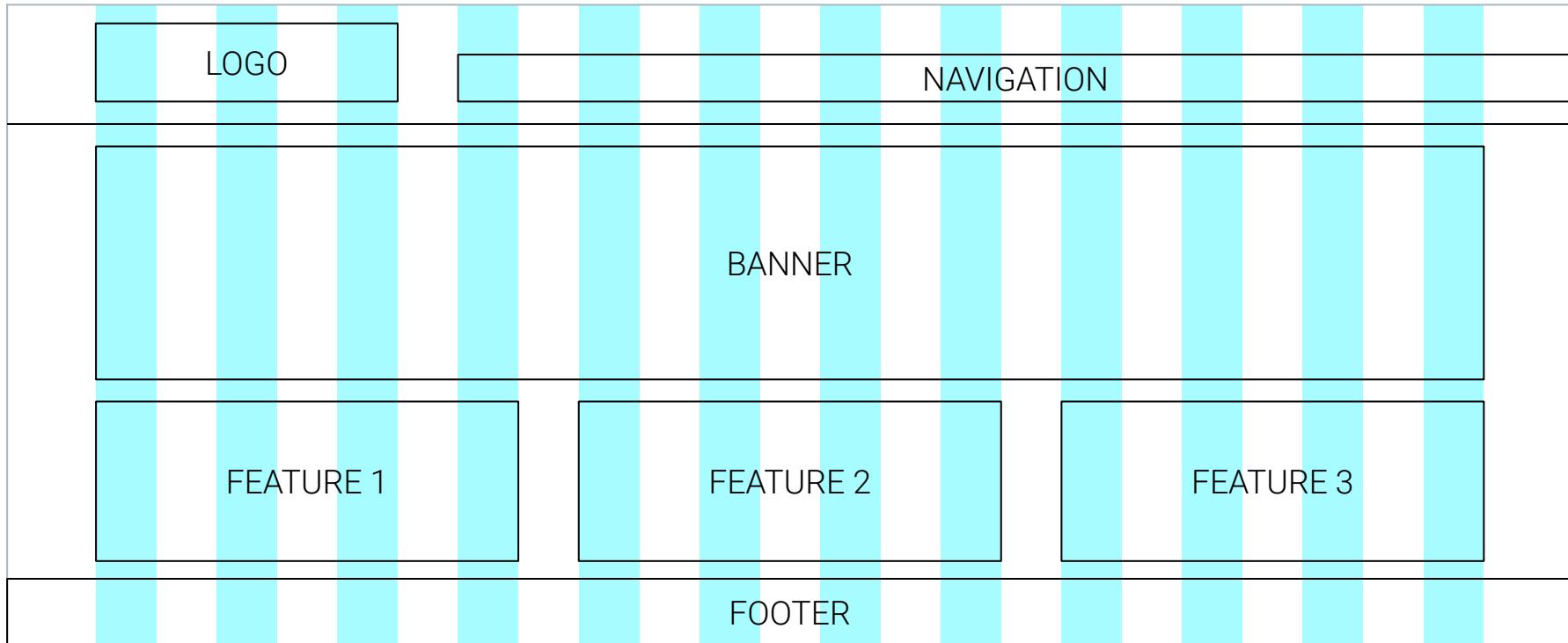
Pay particular attention to the location of navigation bars, titles, headers, content, images, footers, etc.

03

When imagining alignments in particular, be mindful of the ***grid***.

Designing with a Grid in Mind

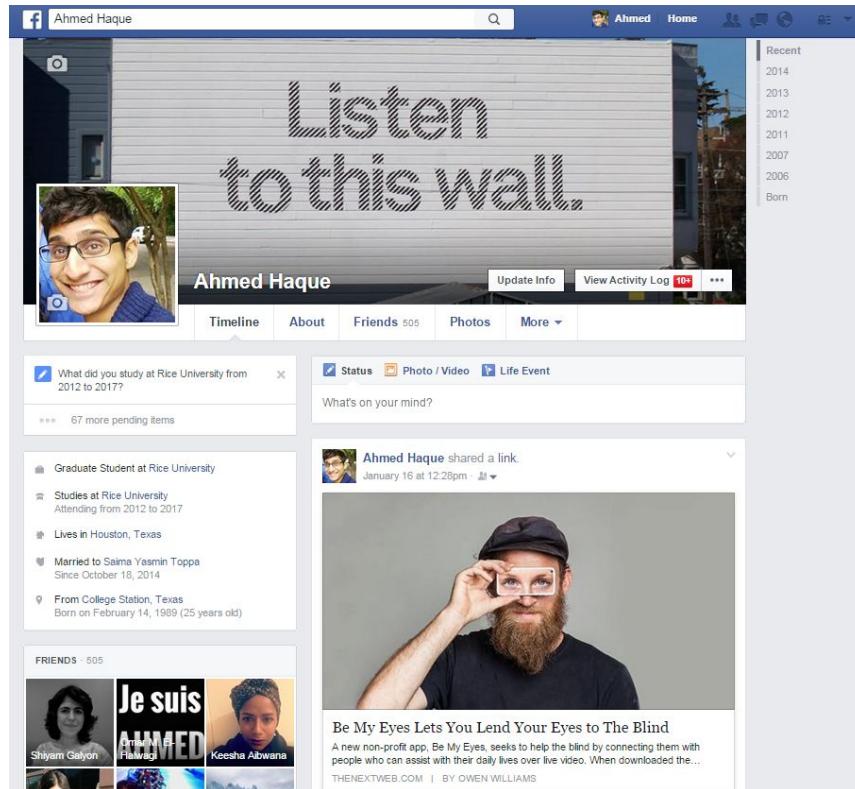
Grids serve to align elements aesthetically.



Facebook's Grid

Facebook is a perfect example of a website where the grid layout is obvious.

Grids make it easy to have content (text, images, and regions) align in an aesthetically pleasing way.



A More Complex Grid

Home > Perspectives

PERSPECTIVES

The Top 10 Cities for Coding Job Growth in the U.S.

Perspectives Trilogy Editors · January 3, 2019

It's no secret that tech jobs are multiplying and spreading across America away from the major tech hubs. But 2018 job growth data signals that the trend is accelerating at a staggering speed. From 2017 to 2018, the country...

[Read more](#)

0

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In the Classroom June 22, 2018

Failing Forward: Jesse Forte's Journey to Coding
Inspiration May 15, 2018

A More Complex Grid

Tools for Sketches / Grid Creation

Wireframing Tools:

- Balsamiq***: <https://balsamiq.com/>
- Framebox: <http://framebox.org/>
- Pen and paper: your notebook

Grids for Photoshop / Illustrator:

- 960 GS: <http://960.gs/>
- GuideGuide: <https://guideguide.me/>

Designing with Grids Guides:

- 960 Grid System Made Easy: <http://bit.ly/1sjYaFC>
- Design by Grid: <http://www.designbygrid.com/>
- Designing with Grid-Based Approach: <http://bit.ly/1CM4Hzo>

Rows and Columns Workshop

Fundamentally, Web Design = Wireframes

Wireframes

Home

About

Contact

The Greatest Website Ever Made



Section 1: Headphones icon placeholder.

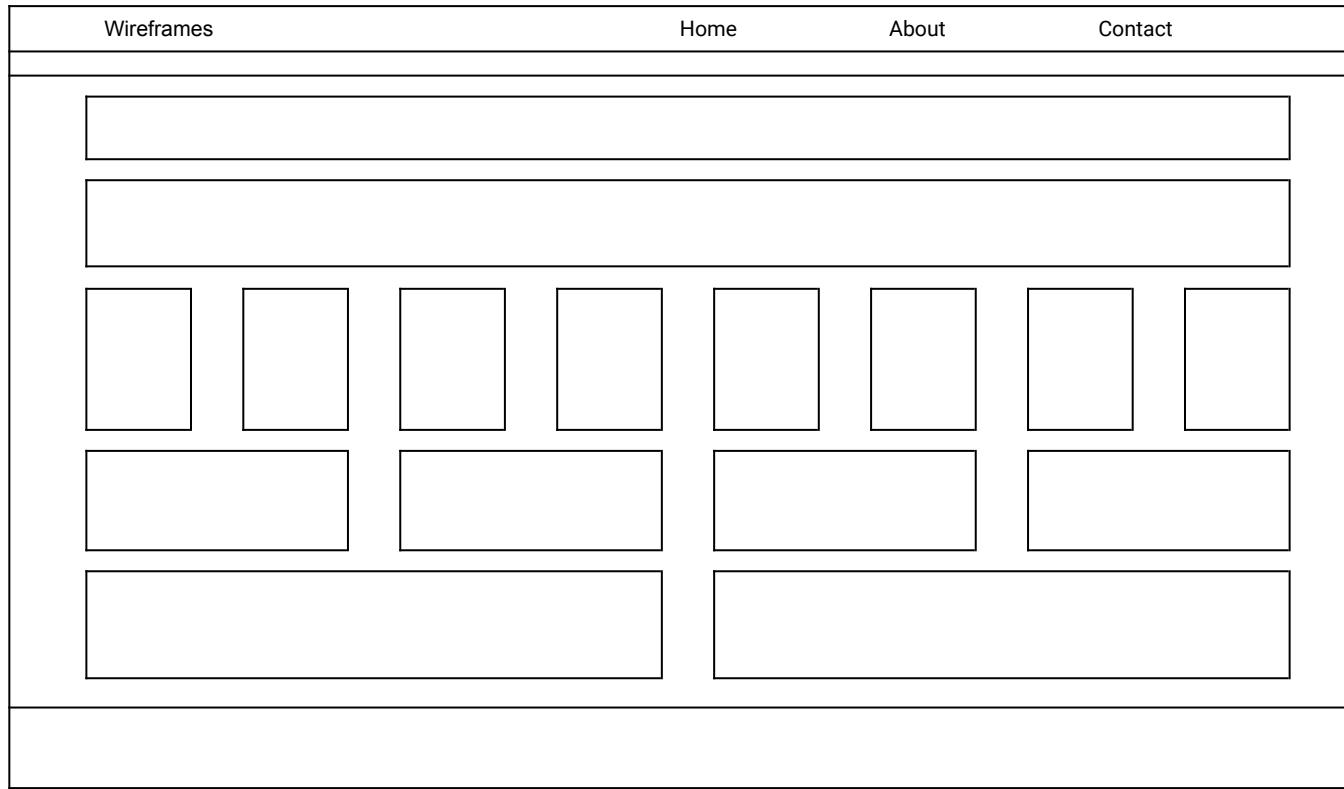
Section 2: Silhouette of a person using a laptop placeholder.

Section 3: Silhouette of a person's head with sound waves placeholder.

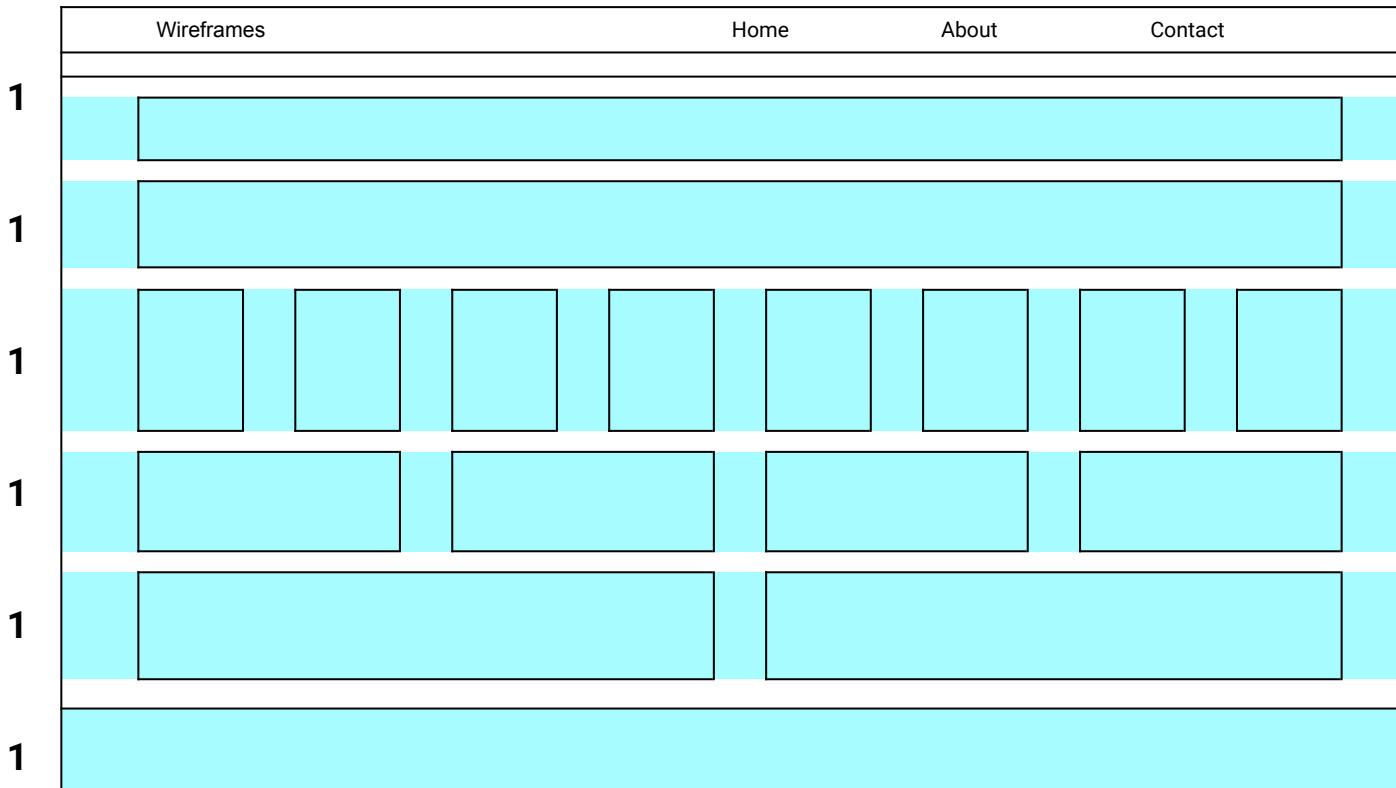
Section 4: Placeholder for the main content area.

Section 5: Placeholder for the footer area.

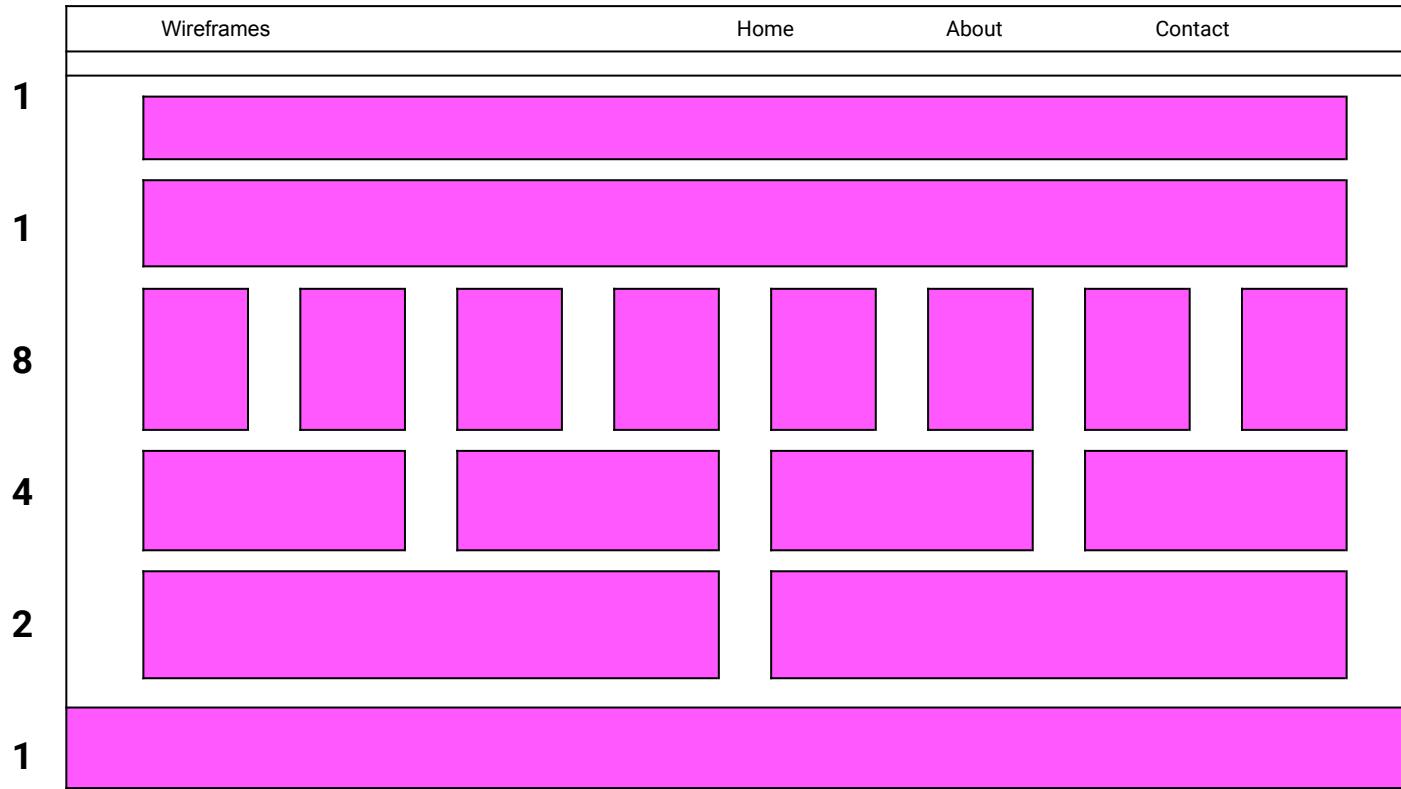
How Many Rows and Columns Do You See?



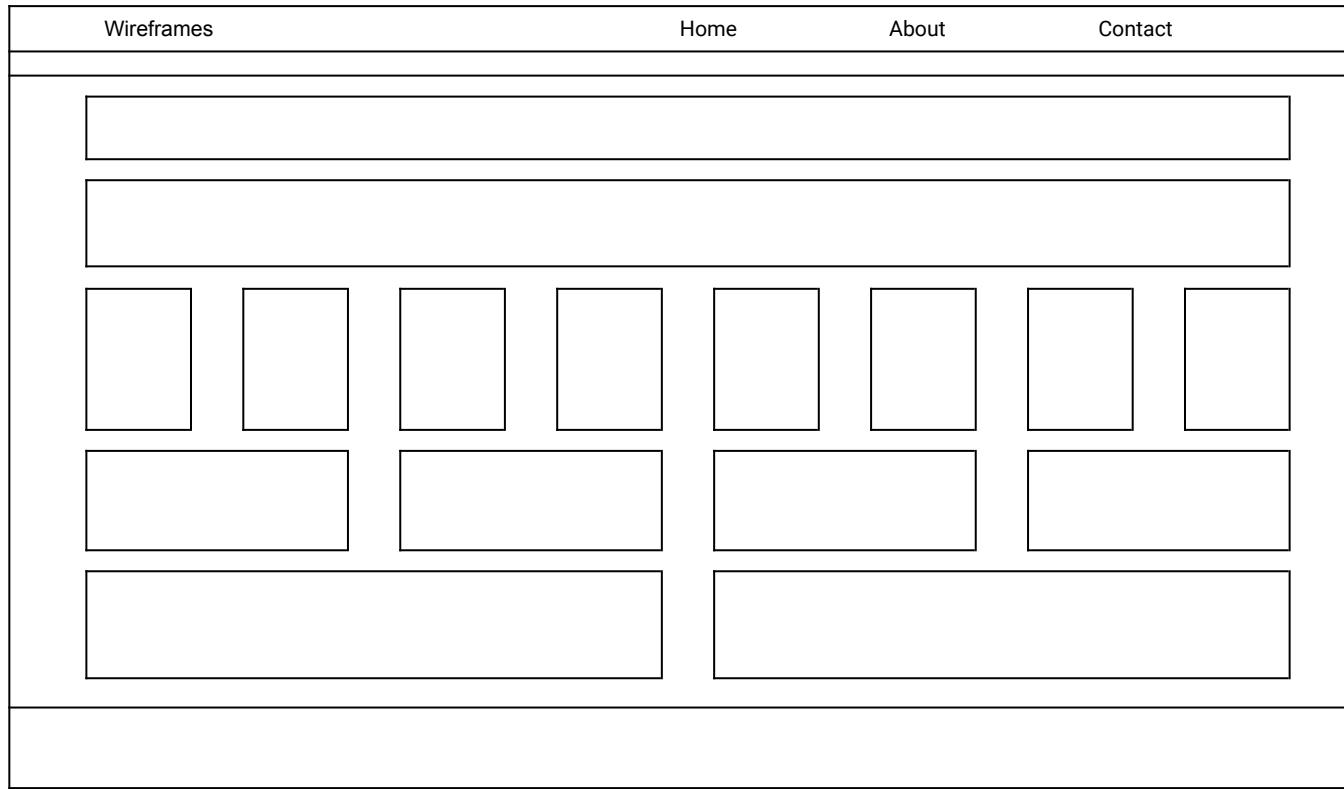
Total # of Rows: Six



Total # of Columns: Different for each row



You Try!



Level Up!

Let's make it more challenging.



How Many Rows and Columns?

News Home About Contact

Awesome Stories



The Greatest Website Ever Made

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. Nemo enim ipsam voluptatem quia voluptas sit aspernatur aut odit aut fugit, sed quia consequuntur magni dolores eos qui ratione voluptatem sequi nesciunt. Neque porro quisquam est, qui dolorem ipsum quia dolor sit amet, consecetur, adipisci velit, sed quia non numquam eius modi tempora incidunt ut labore et dolore magnam aliquam quaerat voluptatem. Ut enim ad minima veniam, quis nostrum exercitationem ullam corporis suscipit laboriosam, nisi ut aliquid ex ea commodi consequatur? Quis autem vel eum iure reprehenderit qui in ea voluptate velit esse quam nihil molestiae consequatur, vel illum qui dolorem eum fugiat quo voluptas nulla.



The Greatest Website Ever Made

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. Nemo enim ipsam voluptatem quia voluptas sit aspernatur aut odit aut fugit, sed quia consequuntur magni dolores eos qui ratione voluptatem sequi nesciunt. Neque porro quisquam est, qui dolorem ipsum quia dolor sit amet, consecetur, adipisci velit, sed quia non numquam eius modi tempora incidunt ut labore et dolore magnam aliquam quaerat voluptatem. Ut enim ad minima veniam, quis nostrum exercitationem ullam corporis suscipit laboriosam, nisi ut aliquid ex ea commodi consequatur? Quis autem vel eum iure reprehenderit qui in ea voluptate velit esse quam nihil molestiae consequatur, vel illum qui dolorem eum fugiat quo voluptas nulla.



Total # of Rows: Four

	News	Home	About	Contact
1	<h2>Awesome Stories</h2>			
1		<h3>The Greatest Website Ever Made</h3> <p>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. Nemo enim ipsam voluptatem quia voluptas sit aspernatur aut odit aut fugit, sed quia consequuntur magni dolores eos qui ratione voluptatem sequi nesciunt. Neque porro quisquam est, qui dolorem ipsum quia dolor sit amet, consecetur, adipisci velit, sed quia non numquam eius modi tempora incidunt ut labore et dolore magnam aliquam quaerat voluptatem. Ut enim ad minima veniam, quis nostrum exercitationem ullam corporis suscipit laboriosam, nisi ut aliquid ex ea commodi consequatur? Quis autem vel eum iure reprehenderit qui in ea voluptate velit esse quam nihil molestiae consequatur, vel illum qui dolorem eum fugiat quo voluptas nulla.</p>		
1		<h3>The Greatest Website Ever Made</h3> <p>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. Nemo enim ipsam voluptatem quia voluptas sit aspernatur aut odit aut fugit, sed quia consequuntur magni dolores eos qui ratione voluptatem sequi nesciunt. Neque porro quisquam est, qui dolorem ipsum quia dolor sit amet, consecetur, adipisci velit, sed quia non numquam eius modi tempora incidunt ut labore et dolore magnam aliquam quaerat voluptatem. Ut enim ad minima veniam, quis nostrum exercitationem ullam corporis suscipit laboriosam, nisi ut aliquid ex ea commodi consequatur? Quis autem vel eum iure reprehenderit qui in ea voluptate velit esse quam nihil molestiae consequatur, vel illum qui dolorem eum fugiat quo voluptas nulla.</p>		
1				

Total # of Columns: Different for each row

	News	Home	About	Contact
1	Awesome Stories			
2		The Greatest Website Ever Made <p>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. Nemo enim ipsam voluptatem quia voluptas sit aspernatur aut odit aut fugit, sed quia consequuntur magni dolores eos qui ratione voluptatem sequi nesciunt. Neque porro quisquam est, qui dolorem ipsum quia dolor sit amet, consecetur, adipisci velit, sed quia non numquam eius modi tempora incidunt ut labore et dolore magnam aliquam quaerat voluptatem. Ut enim ad minima veniam, quis nostrum exercitationem ullam corporis suscipit laboriosam, nisi ut aliquid ex ea commodi consequatur? Quis autem vel eum iure reprehenderit qui in ea voluptate velit esse quam nihil molestiae consequatur, vel illum qui dolorem eum fugiat quo voluptas nulla.</p>		
2		The Greatest Website Ever Made <p>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. Nemo enim ipsam voluptatem quia voluptas sit aspernatur aut odit aut fugit, sed quia consequuntur magni dolores eos qui ratione voluptatem sequi nesciunt. Neque porro quisquam est, qui dolorem ipsum quia dolor sit amet, consecetur, adipisci velit, sed quia non numquam eius modi tempora incidunt ut labore et dolore magnam aliquam quaerat voluptatem. Ut enim ad minima veniam, quis nostrum exercitationem ullam corporis suscipit laboriosam, nisi ut aliquid ex ea commodi consequatur? Quis autem vel eum iure reprehenderit qui in ea voluptate velit esse quam nihil molestiae consequatur, vel illum qui dolorem eum fugiat quo voluptas nulla.</p>		
1				

Level Up!

Now for another...



How Many Rows and Columns?

The Greatest Website Ever Made

Wireframes Home About Contact

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur.

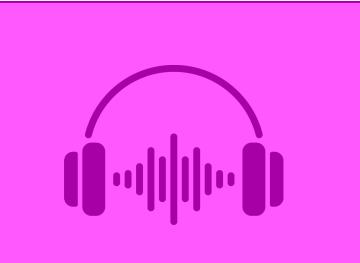
Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur.

Total # of Rows: Four

	Wireframes	Home	About	Contact
1		The Greatest Website Ever Made		
1***				
	<p>Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur.</p>	<p>Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur.</p>	<p>Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur.</p>	
1		The Greatest Website Ever Made		
1		<p>Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur.</p>		
1				

Total # of Columns: Different for each row

	Wireframes	Home	About	Contact
1	The Greatest Website Ever Made			
3	 A large icon of headphones with sound waves emanating from them.	 An icon of a person with long hair sitting at a desk, looking at a laptop screen.	 An icon of a human head profile facing left, with three concentric circles representing sound waves coming out of the right ear.	
	<p>Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur.</p>	<p>Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur.</p>	<p>Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur.</p>	
1	The Greatest Website Ever Made			
1	<p>Lorem ipsum dolor sit amet, consectetur adipiscing 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. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur.</p>			
1	 The GitHub logo, which is a dark blue octocat icon inside a white circle.			

You Try!

Wireframes

Home

About

Contact

The Greatest Website Ever Made



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Level Up!

This final one is tricky.



How Many Rows and Columns?

Wireframes

Home

About

Contact

Awesome Photos

Click to view photo

Level Up!

Didn't quite work, right? For this one, we need **sub-rows** and **sub-columns**.



Total # of Rows: Four

	Wireframes	Home	About	Contact
1	Awesome Photos			
1***				
1***				
1				

The wireframe diagram illustrates a layout with four rows. Row 1 contains navigation links: Wireframes, Home, About, and Contact. Row 2 is titled "Awesome Photos". Row 3 is labeled "1***" and contains a large central image placeholder and four smaller image placeholders arranged in a 2x2 grid. Row 4 is labeled "1***" and contains a text block with placeholder text and a "Click to view photo" button. Row 5 is labeled "1" and contains a GitHub logo.

Total # of Column: Different for each row

Total # of Sub-Rows: Four

Wireframes	Home	About	Contact	
Awesome Photos				
				1
				1
				1
				1
				1
<p>Click to view photo</p>				
				

Wireframes

Home

About

Contact

Awesome Photos

1

1

1

1

1

1

1

Click to view photo

GitHub logo

Total # of Sub-Columns: Two



You Try!

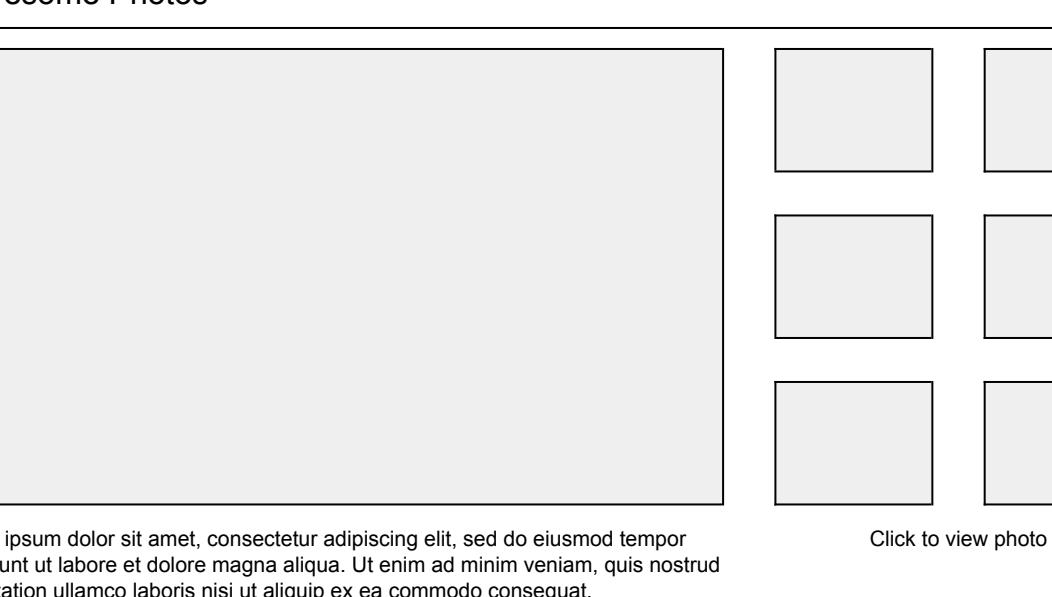
Wireframes

Home

About

Contact

Awesome Photos



Click to view photo

You Made It!



Grid Design with Bootstrap



Warning

This is a fairly tricky but
VERY IMPORTANT topic.

In Bootstrap, all content is organized in rows and columns

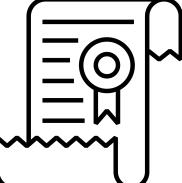
News Home About Contact

Awesome Stories



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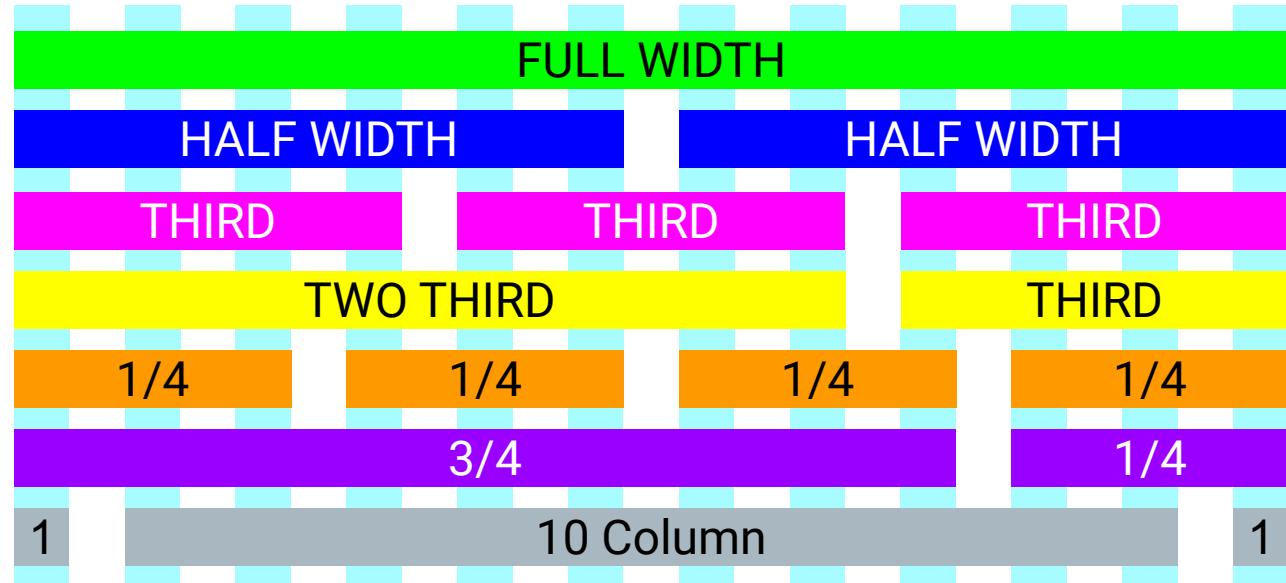
Bootstrap Grids

Bootstrap lets you organize content based on the number of columns out of 12 that a div spans.

Example:

```
<div class="col-md-12">  
(Spans full width)
```

```
<div class="col-md-4">  
(Spans 1/3 of full width)
```



Bootstrap Grids

Every Bootstrap grid is made up of:



Containers—wrap around the entire grid



Rows—defined first and are just rows



Columns—defined within rows and specify the columns. The sum total of all columns within a row **must** add up to 12.

Each of these elements is implemented by creating a `div` with a specific class name.

Defining Columns

Container

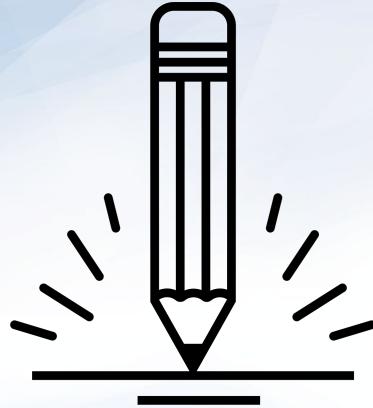
Row #1

Column#1

Column#2

Column#3

Column#4



Group Activity (2 people):

Containers, Rows, Columns
Discussion

Suggested Time:



Group Activity: Discuss Containers, Rows, and Columns

Turn to your neighbor and explain to one another:

01

The relationship between **containers**, **rows**, and **columns**.
(Draw it out on a piece of paper for them.)

02

The syntax for each.

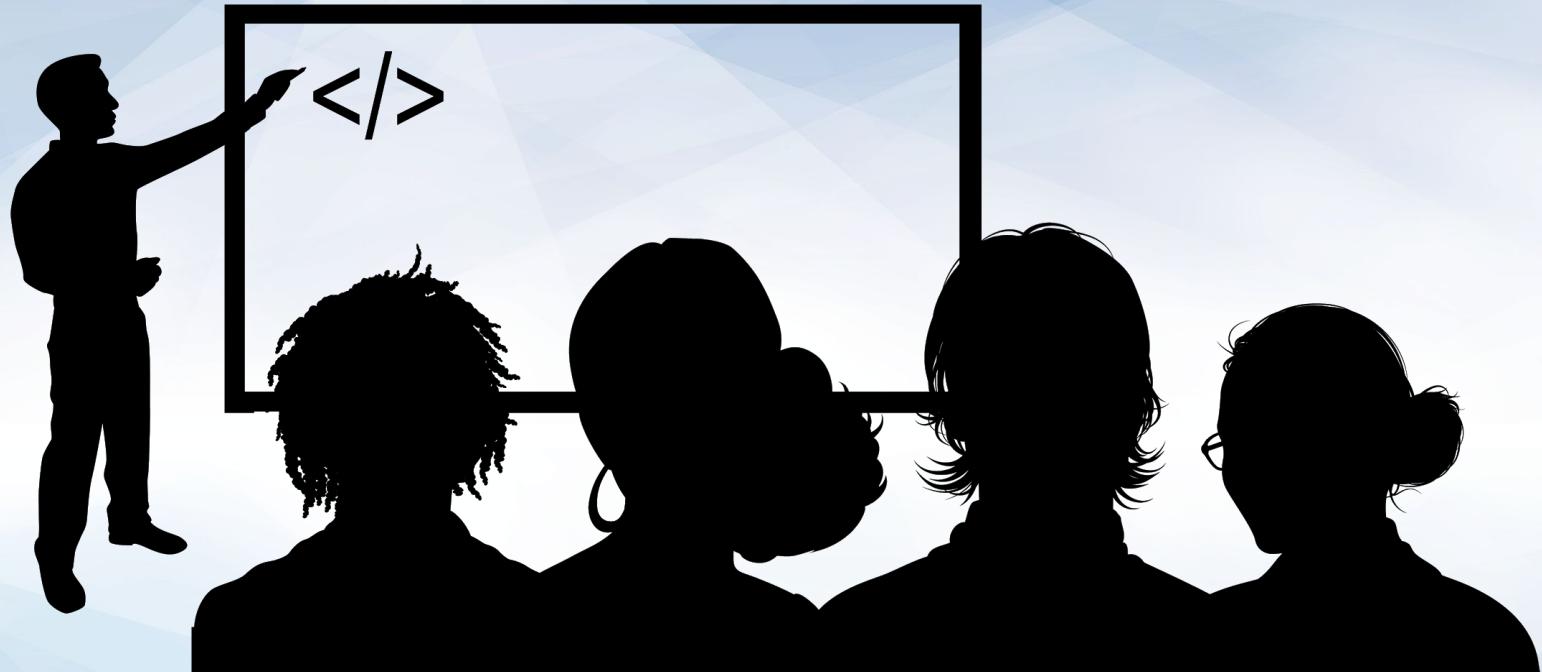
03

The specific syntax details for columns.

Suggested Time: 5 minutes



Coding Grids



Instructor Demonstration
Coding Grids

Bootstrap Grid

Note the rows, columns (e.g., col-lg-6), and containers.

```
<!-- Creates the Overall Grid -->
<div class="container">

    <!-- First Row -->
    <div class="row">
        <!-- First (and only column) -->
        <div class="col-lg-12">
            <h1>I'm in Column 1 of 1. I stretch the entire width. And keep going.</h1>
        </div>
    </div>

    <!-- Second Row -->
    <div class="row">
        <!-- First of two columns -->
        <div class="col-lg-6">
            <h1>I'm in Column 1 of 2</h1>
        </div>
        <!-- Second of two columns -->
        <div class="col-lg-6">
            <h1>I'm in Column 2 of 2</h1>
        </div>
    </div>

</div>
```

Bootstrap Grid

Note the rows, columns (e.g., col-lg-6), and containers.



I'm in Column 1 of 1. I stretch the entire width. And keep going.

I'm in Column 1 of 2

I'm in Column 2 of 2

```
<!-- Creates the Overall Grid -->
<div class="container">

    <!-- First Row -->
    <div class="row">
        <!-- First (and only column) -->
        <div class="col-lg-12">
            <h1>I'm in Column 1 of 1. I stretch the entire width. And keep going.</h1>
        </div>
    </div>

    <!-- Second Row -->
    <div class="row">
        <!-- First of two columns -->
        <div class="col-lg-6">
            <h1>I'm in Column 1 of 2</h1>
        </div>
        <!-- Second of two columns -->
        <div class="col-lg-6">
            <h1>I'm in Column 2 of 2</h1>
        </div>
    </div>

</div>
```

Defining Containers

A *container* is the box the entire grid sits inside.

```
<!-- Creates the Container -->
<div class="container">
    <!-- Inside we fill it up with rows and columns -->
</div>
```

Defining Rows

Rows are the rows we talked about earlier.

```
<div class="container">  
    <!-- Defines the row -->  
    <div class="row">  
        <!-- Columns fit inside -->  
        </div>  
    |  
    </div>
```

Defining Columns

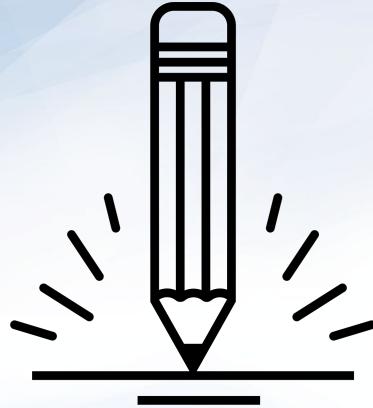
Columns fit inside of rows. Syntax: col-sz-#

- **Col**: column
- **sz**: viewing size (in this case, medium)
- #: number of “columns taken” out of 12 (in this case, 4 out of 12)

```
<div class="row">

    <div class="col-md-4">
        <!-- This is column 1 of 3 -->
    </div>
    <div class="col-md-4">
        <!-- This is column 2 of 3 -->
    </div>
    <div class="col-md-4">
        <!-- This is column 3 of 3 -->
    </div>

</div>
```



Activity:

Text Layout

Suggested Time:
20 minutes



Activity: Text Layout

Using Bootstrap, create a layout that looks like the one shown on the next screen.

01

Before you start coding, spend some time drawing the grid layout.

02

Count the number of rows and columns.

03

Use the Bootstrap grid syntax to code it out.

04

Share a screenshot of your page with the class when you are done.

05

You can use the Ipsum Generator (www.lipsum.com/) to generate content for your page.

Suggested Time: 20 minutes



Your Turn

Header

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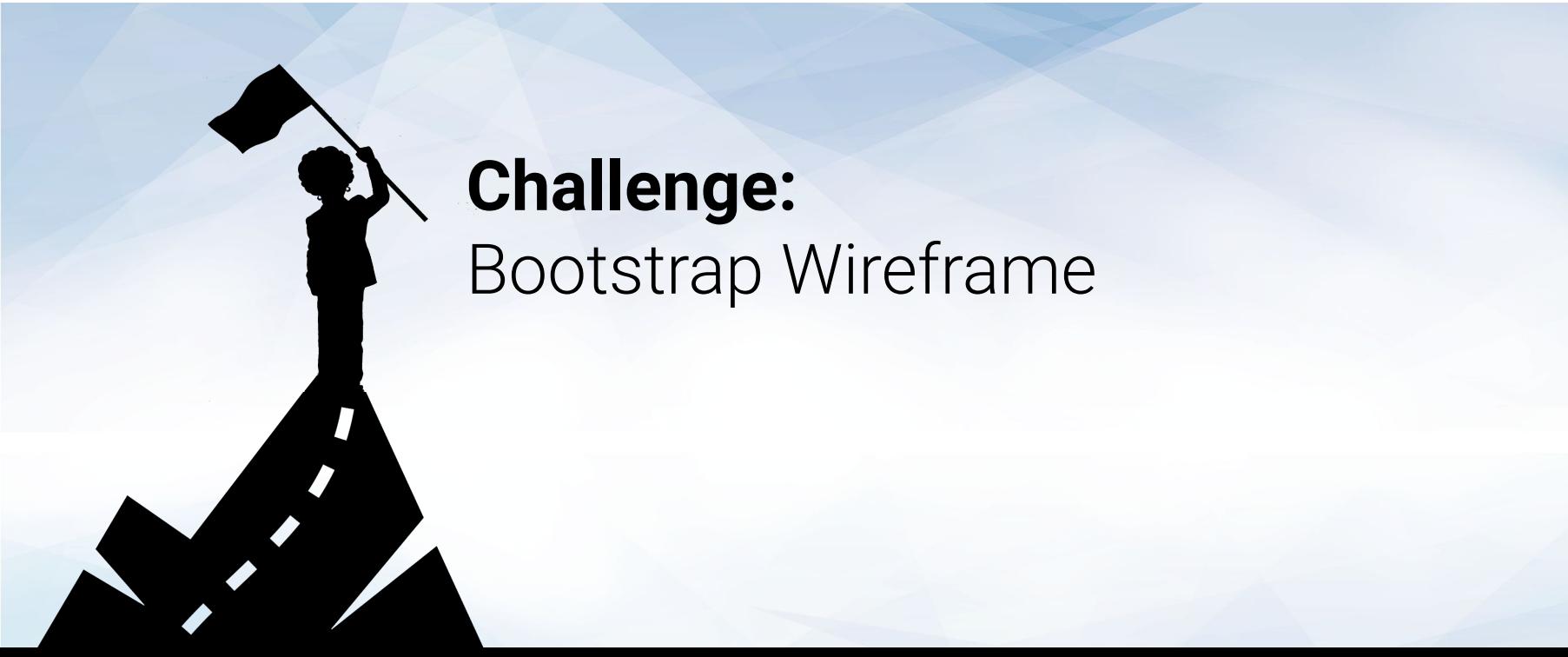
Suggested Time: 20 minutes



Building Bootstrap Layouts



Instructor Demonstration Bootstrap Wireframe Layout



Challenge:

Bootstrap Wireframe

Suggested Time:
30 minutes



Challenge: Bootstrap Wireframe

Working in pairs, use Bootstrap to wireframe out a design.

Be sure to include the following elements:



Grid Layout



Navbar



Sidebar card



Thumbnail



Additional details will be sent to you via Slack.

Suggested Time: 30 minutes



Challenge: Bootstrap Wireframe

Example:

Navbar About Portfolio Contact

About Me

150 x 150

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Card title

Card subtitle

Some quick example text to build on the card title and make up the bulk of the card's content.

Suggested Time: 30 minutes



Common Questions



Can I reverse the order (i.e., rows inside columns)? Not typically. Columns should go inside of rows. You can create sub-rows inside columns, but they must be inside of a row of their own.



Can I avoid having a container? You could, but it will mess things up. Just throw in a container. So, no.



What if I have more than 12 columns? Your bootstrap grid won't behave as expected. Don't go past 12.



What if my columns don't add up to 12? You will have empty space at the end. Be careful, because the next column you add in the row will fill up the empty space—sometimes without your intention.



DON'T PANIC!

Mobile Responsiveness

Media Queries



Media queries define how CSS styles are applied in relation to the characteristics of the device viewport.



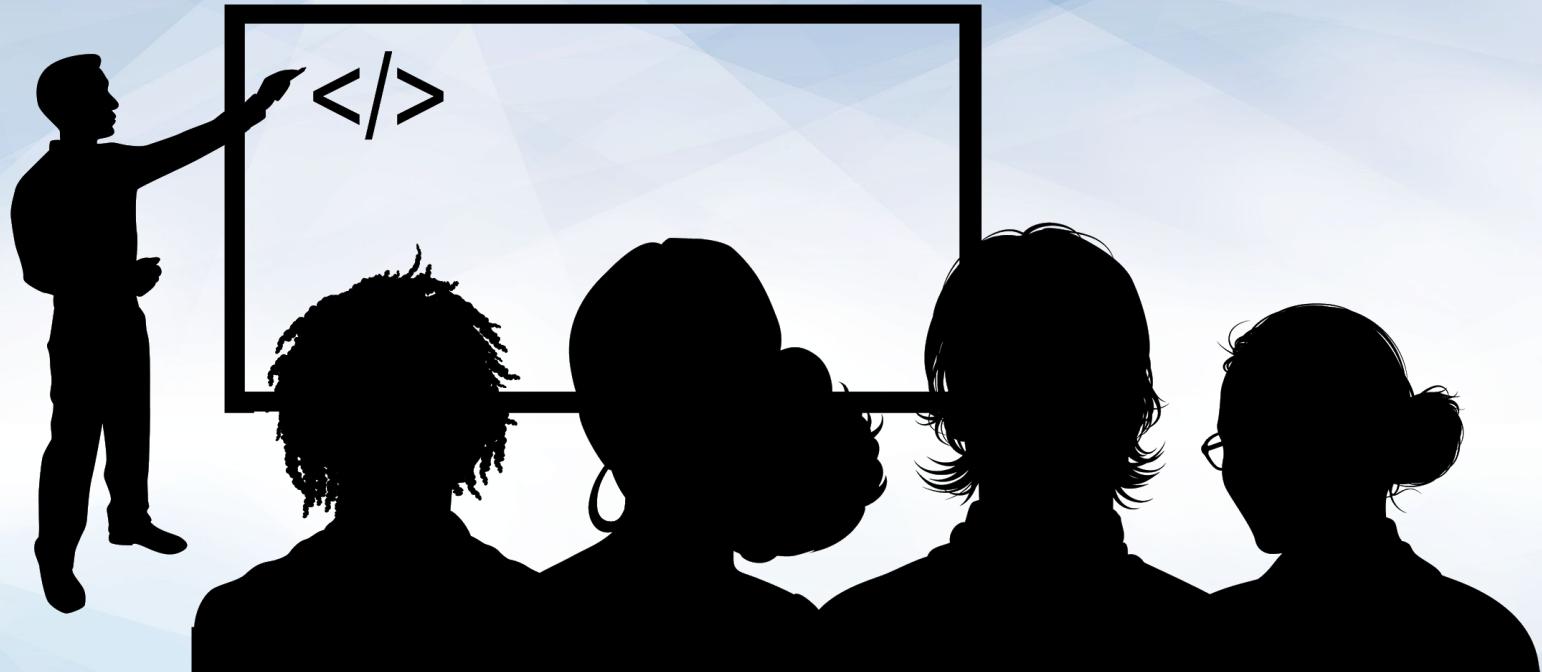
Through media queries, we can change the way a webpage is displayed based on width, height, orientation, and even media type (screen, paper, braille, etc.).



Bootstrap uses media queries extensively to help you create mobile-responsive websites.



But remember! Media queries must be declared last.



Instructor Demonstration Media Queries

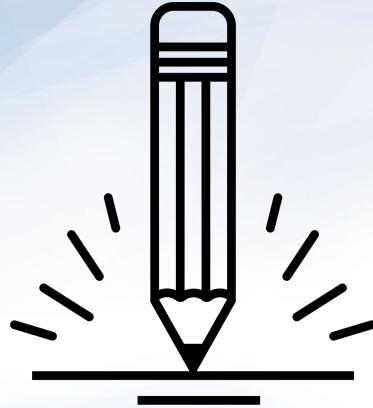
Activity: Explain Media Queries

Explain to your partner what the following CSS code does:

```
@media screen and (max-width: 768px) {  
    body {  
        background-color: #333;  
    }  
  
    .wrapper {  
        width: 600px;  
    }  
}
```

Suggested Time: 2 Minutes





Activity:

Build Media Query

(Follow the steps sent to you via Slack)

Suggested Time:
15 minutes



Viewport



Viewport refers to the display being used to view the website.



By default, mobile devices with small-screen, high-resolution viewports can render content at a typical desktop screen ratio (scaled down at the smaller screen size).



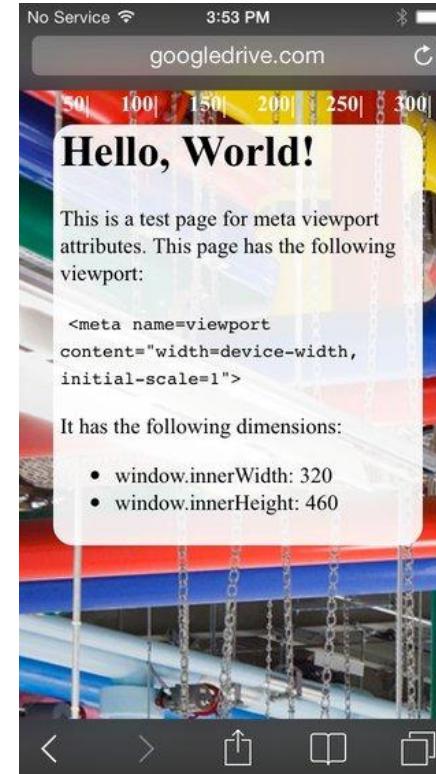
Use a `meta` tag to specify that a webpage should scale its content to the width of its current viewport.

Viewport

Without Viewport content scaling



With Viewport content scaling



Viewport Inclusion

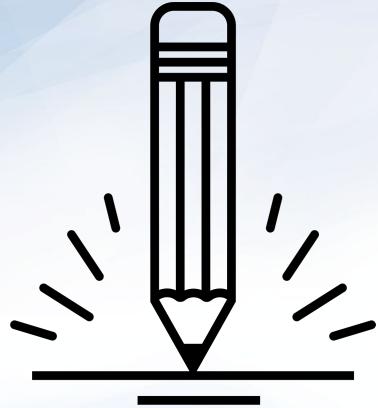
Just include this line in the head

```
<meta name="viewport" content="width=device-width, initial-scale=1">
```

And then include a variety of @media queries for various sized screens.

```
@media screen and (max-width: 768px) {
```

```
@media screen and (max-width: 480px) {
```



Activity: Viewport

Spend the next few moments on the site
viewportemulator.com and visit your favorite websites using various viewports.

Notice how the sites' displays change.

Suggested Time:
5 minutes



**YOU
ARE
AWESOME!**

Questions?