Bootstrap Layouts and Responsive Designs

Web Development Boot Camp

Lesson 2.3

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HELP!

DON’T PANIC!

It’s all going to be okay!

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

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="jumbotro

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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

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

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?

Total # of Rows: Four

Total # of Columns: Different for each row

Level Up!

Now for another…

How Many Rows and Columns?

Total # of Rows: Four

Total # of Columns: Different for each row

You Try!

Wireframes Home About Contact

The Greatest Website Ever Made

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The Greatest Website Ever Made

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Level Up!

This final one is tricky.

How Many Rows and Columns?

Level Up!

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

Total # of Rows: Four

Total # of Column: Different for each row

Total # of Sub-Rows: Four

Total # of Sub-Columns: Two

You Try!

Wireframes
Home
About
Contact
Awesome Photos
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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

The Greatest Website Ever Made

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The Greatest Website Ever Made

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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

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.

```html
<!-- 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.

```html
<!-- 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.

```html
<!-- 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 colmn 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:

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.

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?