Lecture 06

Responsive Design and Bootstrap

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

Adapting 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 ...

- Sometimes: different devices see different content.
- Always: arrangement of elements adapts.
- With JavaScript dynamic re-writing of DOM you can now see how.
- 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

Getting started
An overview of Bootstrap, how to download and use, basic templates and examples.
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:

<table>
<thead>
<tr>
<th>span 1</th>
<th>span 1</th>
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<th>span 1</th>
<th>span 1</th>
<th>span 1</th>
<th>span 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>span 4</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>span 4</td>
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<td></td>
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<td>span 4</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>span 6</td>
<td></td>
<td></td>
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<td></td>
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<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>span 12</td>
<td></td>
<td></td>
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<td></td>
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<td></td>
</tr>
</tbody>
</table>

- Think in terms of primitive blocks
- Blocks can be combined
Combinatorics of Flexibility

- There are also four target screen sizes.

<table>
<thead>
<tr>
<th>Screen</th>
<th>xs</th>
<th>sm</th>
<th>md</th>
<th>lg</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Many combinations, and a hierarchy

lg <- md <- sm <- xs
Illustration

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.

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%).

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Behavior 2: Navbars

Navbar example

This example is a quick exercise to illustrate how the default, static navbar and fixed to top navbar work. It includes the responsive CSS and HTML, so it also adapts to your viewport and device.
Collapsible Navigation

Hamburger Icon
w3schools Examples

- Experiment with changes!
- Study component structure!

```html
<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>
```

**Result:**

**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>
  <span class="icon-bar"></span>
</button>
<table>
<thead>
<tr>
<th>collapse</th>
<th>navbar</th>
</tr>
</thead>
<tbody>
<tr>
<td>container-fluid</td>
<td>navbar-brand</td>
</tr>
<tr>
<td>data-target*</td>
<td>navbar-collapse</td>
</tr>
<tr>
<td>data-toggle*</td>
<td>navbar-header</td>
</tr>
<tr>
<td>glyphicon</td>
<td>navbar-inverse</td>
</tr>
<tr>
<td>glyphicon-log-in</td>
<td>navbar-nav</td>
</tr>
<tr>
<td>glyphicon-user</td>
<td>navbar-right</td>
</tr>
<tr>
<td>icon-bar</td>
<td>navbar-toggle</td>
</tr>
<tr>
<td>nav</td>
<td></td>
</tr>
</tbody>
</table>

*HTML5 Element Attribute

Behavior 3: Carousel

Another example headline.
Cras justo odio, dapibus ac facilisis in, egestas eget quam. Donec id elit non mi porta gravida at eget metus. Nullam id dolor id nibh ultricies vehicula ut id elit.

Learn more
Overview of Components

Theme example

This is a template showcasing the optional theme stylesheet included in Bootstrap. Use it as a starting point to create something more unique by building on or modifying it.

Buttons

Default  Primary  Success  Info  Warning  Danger  Link
Getting and Using

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.

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

**Sass**
Bootstrap ported from Less to Sass for easy inclusion in Rails, Compass, or Sass-only projects.

Download Bootstrap
Download source
Download Sass

Bootstap CDN
The folks over at MaxCDN graciously provide CDN support for Bootstrap's CSS and JavaScript. Just use these Bootstrap CDN links.

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