

CSS frameworks: Bootstrap

CITS3403 and CITS5505 - Agile Web Development

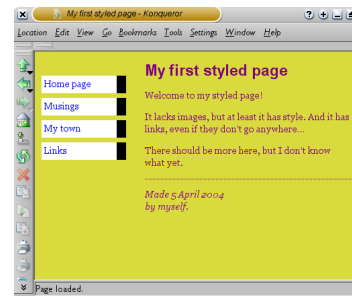
Unit Coordinator: Matthew Daggett

2024 Semester 1

CSS frameworks

Challenges with CSS

- CSS is a powerful language for creating and implementing a presentation style for a website/application.
- However, there are several limitations:
 - Some simple operations, like centering pictures or text can be unintuitive.
 - It is difficult to create *responsive* styles that change depending on the device on which they are being viewed.
 - Many websites don't require the full power of CSS and can be styled using a simpler subset of operations.
 - Producing an attractive style is a highly creative activity!



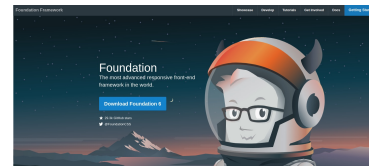
Frameworks

- CSS frameworks are open-source libraries for developing responsive web-applications.
- Frameworks use CSS and JavaScript to build style components in a reasonably aesthetic way with very little effort.
- A big advantage is that they are normally designed to be *responsive*, so one application will look good on mobile devices, tablets and PCs with minimal effort.



Common frameworks

- Disadvantage: websites built with the same framework will often appear visually similar.



The Bootstrap framework

Loading Bootstrap

- To include Bootstrap components and styles in your page, you can either download and host the code yourself, or just reference a *Content Delivery Network* in the header of your web-page.
- Bootstrap consists of a CSS file, a JavaScript file and optional theme files.

```
<!-- Latest compiled and minified CSS -->
<link rel="stylesheet"
href="https://cdn.jsdelivr.net/npm/bootstrap@3.3.7/dist/css/bootstrap.min.css" integrity="sha384-BVYi1SFek16mJRkycuHAHRg320mUcw7on3RYdg4Va+PmSTsz/K68vbdEJh4u" crossorigin="anonymous">

<!-- Optional theme -->
<link rel="stylesheet" href="https://cdn.jsdelivr.net/npm/bootstrap@3.3.7/dist/css/bootstrap-theme.min.css" integrity="sha384-rHyoN11RsVXV4nD0JutInGas1CJuc7uwjduW9SVrLvRYooPp2bWYmgJQIXw1/Sp" crossorigin="anonymous">

<!-- Latest compiled and minified JavaScript -->
<script src="https://cdn.jsdelivr.net/npm/bootstrap@3.3.7/dist/js/bootstrap.min.js" integrity="sha384-Tc5IQ1b027qvjSMFHjOMaLkFuWVxZxUPnCA712mCWNip69mGCD8wGNicPD7Txa" crossorigin="anonymous"></script>
```

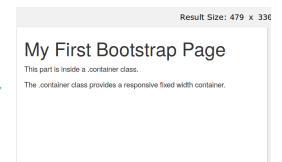
Your first Bootstrap page

- Include the CDN libraries, and a meta-tag setting the viewport width to device width (for zooming and scaling)
- The container class automatically sets margins that respond to the page size.

```
<!DOCTYPE html>
<html lang="en">
<head>
  <title>Bootstrap Example</title>
  <meta charset="utf-8">
  <meta name="viewport" content="width=device-width, initial-scale=1">
  <link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootstrap/3.4.0/css/bootstrap.min.css">
  <script src="https://ajax.googleapis.com/ajax/libs/jquery/3.3.1/jquery.min.js"></script>
  <script src="https://maxcdn.bootstrapcdn.com/bootstrap/3.4.0/js/bootstrap.min.js"></script>
</head>
<body>

  <div class="container">
    <h1>My First Bootstrap Page</h1>
    <p>This part is inside a .container class.</p>
    <p>The .container class provides a responsive fixed width container.</p>
  </div>

</body>
</html>
```



The Bootstrap grid system



- Bootstrap uses rows of 12 columns for layout. Every component (or div) can be specified to span a number of these columns.
- The layout can be specified with respect to the device size (**extra small**, **small**, **medium** and **large**).
- The number of spanned columns should always add up to 12.

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											

```
<div class="col-sm-3">...</div>
<div class="col-sm-9">...</div>
```

col-sm-3	col-sm-9
----------	----------

The Bootstrap grid system



- The div class **col-sm-3** means take three columns on all devices small, or larger. Extra small devices will stack the content vertically.
- The grid layout can be nested so a span of eight columns could be divided into 12.
- We can specify different layout for different devices, so something can be specified to take 3 columns on a large device, but 6 on a small.

```
<div class="container-fluid">
  <h1>Hello World</h1>
  <p>Resize the browser window to see the effect.</p>
  <div class="row">
    <div class="col-sm-8" style="background-color:lavender;">.col-sm-8
    <div class="row">
      <div class="col-sm-6" style="background-color:lightcyan;">.col-sm-6</div>
      <div class="col-sm-6" style="background-color:lightgray;">.col-sm-6</div>
    </div>
  </div>
  <div class="col-sm-4" style="background-color:lavenderblush;">.col-sm-4</div>
</div>
```

Hello World!

Resize the browser window to see the effect.

.col-sm-8	.col-sm-4
.col-sm-6	.col-sm-6

```
<p>Resize the browser window to see the effect.</p>
<div class="row">
  <div class="col-xs-9 col-md-7" style="background-color:red;">.col-xs-9 .col-md-7</div>
  <div class="col-xs-3 col-md-5" style="background-color:lavender;">.col-xs-3 .col-md-5</div>
</div>
<div class="row">
  <div class="col-xs-6 col-md-10" style="background-color:lavenderblush;">.col-xs-6 .col-md-10</div>
  <div class="col-xs-6 col-md-2" style="background-color:lightgray;">.col-xs-6 .col-md-2</div>
</div>
```

Hello World!

Resize the browser window to see the effect.

.col-sm-8
.col-sm-6
.col-sm-6
.col-sm-4

Bootstrap tables



- The class **table** adds basic styling to a table, with horizontal lines and padding.
- There are additional classes **table-striped**, **table-bordered**, **table-hover** and **table-condensed**, with different styles and effects.
- There are also classes for table rows and cells for different effects.

Firstname	Lastname	Email
Default	Defaultson	def@somemail.com
Success	Doe	john@example.com
Danger	Moe	mary@example.com
Info	Dooley	july@example.com
Warning	Refs	bo@example.com
Active	Activeson	act@example.com

```
<tbody>
  <tr>
    <td>Default</td>
    <td>Defaultson</td>
    <td>def@somemail.com</td>
  </tr>
  <tr class="success">
    <td>Success</td>
    <td>Doe</td>
    <td>john@example.com</td>
  </tr>
  <tr class="danger">
    <td>Danger</td>
    <td>Moe</td>
    <td>mary@example.com</td>
  </tr>
  <tr class="info">
    <td>Info</td>
    <td>Dooley</td>
    <td>july@example.com</td>
  </tr>
  <tr class="warning">
    <td>Warning</td>
    <td>Refs</td>
    <td>bo@example.com</td>
  </tr>
  <tr class="active">
    <td>Active</td>
    <td>Activeson</td>
    <td>act@example.com</td>
  </tr>
</tbody>
</table>
```

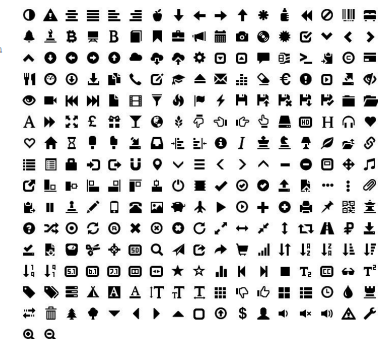
Glyphicons



- Bootstrap comes with 200 icons to use, called *Glyphicons*.
- These are rendered as text, so will resize with headers etc.
- The glyphicon syntax just applies a class to an empty span.

```
<p>Search icon on a button:
  <button type="button" class="btn btn-default">
    <span class="glyphicon glyphicon-search"></span> Search
  </button>
</p>
```

Search icon on a button:



Other features of Bootstrap



- Bootstrap also supports widgets such as jumbotrons modals, form layouts, carousels.
- It is worthwhile taking the time to get familiar with these, as they can make a web-page look professional with relatively little effort.
- See the w3schools tutorial: <https://www.w3schools.com/bootstrap/default.asp> or the Bootstrap site <https://getbootstrap.com/docs/4.3/getting-started/>

Bootstrap Tutorial

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