

# Data visualization

COSC 480B

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# Lecture 4

Bootstrap basics

# Bootstrap

- Bootstrap is a free front-end framework for faster and easier web development
- Bootstrap includes HTML and CSS based design templates for typography, forms, buttons, tables, navigation, modals, image carousels and many other, as well as optional JavaScript plugins
- Bootstrap also gives you the ability to easily create responsive designs

# Bootstrap

```
<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/3.4.1/css/bootstrap.min.css">
  <script src="https://ajax.googleapis.com/ajax/libs/jquery/3.5.1/jquery.min.js"></script>
  <script src="https://maxcdn.bootstrapcdn.com/bootstrap/3.4.1/js/bootstrap.min.js"></script>
</head>
<body>

  <div class="jumbotron text-center">
    <h1>My First Bootstrap Page</h1>
    <p>Resize this responsive page to see the effect!</p>
  </div>

  <div class="container">
    <div class="row">
      <div class="col-sm-4">
        <h3>Column 1</h3>
        <p>Lorem ipsum dolor sit amet, consectetur adipisicing elit...</p>
        <p>Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris...</p>
      </div>
      <div class="col-sm-4">
        <h3>Column 2</h3>
        <p>Lorem ipsum dolor sit amet, consectetur adipisicing elit...</p>
        <p>Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris...</p>
      </div>
      <div class="col-sm-4">
        <h3>Column 3</h3>
        <p>Lorem ipsum dolor sit amet, consectetur adipisicing elit...</p>
        <p>Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris...</p>
      </div>
    </div>
  </div>
</body>
```

# Bootstrap

# My First Bootstrap Page

Resize this responsive page to see the effect!

## Column 1

Lorem ipsum dolor sit amet, consectetur adipisicing elit...

Ut enim ad minim veniam, quis nostrud exercitation  
ullamco laboris...

## Column 2

Lorem ipsum dolor sit amet, consectetur adipisicing elit...

Ut enim ad minim veniam, quis nostrud exercitation  
ullamco laboris...

## Column 3

Lorem ipsum dolor sit amet, consectetur adipisicing elit...

Ut enim ad minim veniam, quis nostrud exercitation  
ullamco laboris...

# HTML heading

```
<div class="container">
  <h1>h1 HTML heading</h1>
  <h2>h2 HTML heading</h2>
  <h3>h3 HTML heading</h3>
  <h4>h4 HTML heading</h4>
  <h5>h5 HTML heading</h5>
  <h6>h6 HTML heading</h6>
</div>
```

**h1 HTML heading**

**h2 HTML heading**

**h3 HTML heading**

**h4 HTML heading**

**h5 HTML heading**

**h6 HTML heading**

# Bootstrap heading

```
<div class="container">
  <h1>Lighter, Secondary Text</h1>
  <p>The small element is used to create a lighter, secondary text in any heading:</p>
  <h1>h1 heading <small>secondary text</small></h1>
  <h2>h2 heading <small>secondary text</small></h2>
  <h3>h3 heading <small>secondary text</small></h3>
  <h4>h4 heading <small>secondary text</small></h4>
  <h5>h5 heading <small>secondary text</small></h5>
  <h6>h6 heading <small>secondary text</small></h6>
</div>
```

## Lighter, Secondary Text

The small element is used to create a lighter, secondary text in any heading:

**h1 heading** secondary text

**h2 heading** secondary text

**h3 heading** secondary text

**h4 heading** secondary text

**h5 heading** secondary text

**h6 heading** secondary text

# Tables

```
<h2>Striped Rows</h2>
<p>The .table-striped class adds zebra-stripes to a table:</p>
<table class="table table-striped">
  <thead>
    <tr>
      <th>Firstname</th>
      <th>Lastname</th>
      <th>Email</th>
    </tr>
  </thead>
  <tbody>
    <tr>
      <td>John</td>
      <td>Doe</td>
      <td>john@example.com</td>
    </tr>
    <tr>
      <td>Mary</td>
      <td>Moe</td>
      <td>mary@example.com</td>
    </tr>
```

## Striped Rows

The .table-striped class adds zebra-stripes to a table:

Firstname	Lastname	Email
John	Doe	john@example.com
Mary	Moe	mary@example.com
July	Dooley	july@example.com

# Images

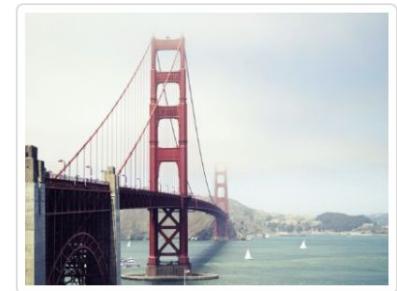
Rounded Corners:



Circle:



Thumbnail:



# Images

```
<div class="container">
  <h2>Rounded Corners</h2>
  <p>The .img-rounded class adds rounded corners to an image (not available in IE8):</p>
  
</div>
```

## Rounded Corners

The .img-rounded class adds rounded corners to an image (not available in IE8):



# Jumbotron

```
<div class="container">
  <div class="jumbotron">
    <h1>Bootstrap Tutorial</h1>
    <p>Bootstrap is the most popular HTML, CSS, and JS framework for developing responsive, mobile-first projects on the web.</p>
  </div>
  <p>This is some text.</p>
  <p>This is another text.</p>
</div>
```

# Bootstrap Tutorial

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

This is some text.

This is another text.

# Block/Well

```
<div class="container">
  <h2>Well Size</h2>
  <div class="well well-sm">Small Well</div>
  <div class="well">Normal Well</div>
  <div class="well well-lg">Large Well</div>
</div>
```

## Well Size

Small Well

Normal Well

Large Well

# Alerts

```
<div class="container">
  <h2>Alerts</h2>
  <div class="alert alert-success">
    <strong>Success!</strong> This alert box could indicate a successful or positive action.
  </div>
  <div class="alert alert-info">
    <strong>Info!</strong> This alert box could indicate a neutral informative change or action.
  </div>
  <div class="alert alert-warning">
    <strong>Warning!</strong> This alert box could indicate a warning that might need attention.
  </div>
  <div class="alert alert-danger">
    <strong>Danger!</strong> This alert box could indicate a dangerous or potentially negative action.
  </div>
</div>
```

## Alerts

**Success!** This alert box could indicate a successful or positive action.

**Info!** This alert box could indicate a neutral informative change or action.

**Warning!** This alert box could indicate a warning that might need attention.

**Danger!** This alert box could indicate a dangerous or potentially negative action.

# Buttons

```
<div class="container">
  <h2>Button Styles</h2>
  <button type="button" class="btn">Basic</button>
  <button type="button" class="btn btn-default">Default</button>
  <button type="button" class="btn btn-primary">Primary</button>
  <button type="button" class="btn btn-success">Success</button>
  <button type="button" class="btn btn-info">Info</button>
  <button type="button" class="btn btn-warning">Warning</button>
  <button type="button" class="btn btn-danger">Danger</button>
  <button type="button" class="btn btn-link">Link</button>
</div>
```

## Button Styles

[Basic](#)[Default](#)[Primary](#)[Success](#)[Info](#)[Warning](#)[Danger](#)[Link](#)

# Button group

```
<div class="container">
  <h2>Button Group</h2>
  <p>The .btn-group class creates a button group:</p>
  <div class="btn-group">
    <button type="button" class="btn btn-primary">Apple</button>
    <button type="button" class="btn btn-primary">Samsung</button>
    <button type="button" class="btn btn-primary">Sony</button>
  </div>
</div>
```

## Button Group

The .btn-group class creates a button group:



# Icons

```
<div class="container">
  <h2>Glyphicon Examples</h2>
  <p>Envelope icon: <span class="glyphicon glyphicon-envelope"></span></p>
  <p>Envelope icon as a link:
    <a href="#"><span class="glyphicon glyphicon-envelope"></span></a>
  </p>
  <p>Search icon: <span class="glyphicon glyphicon-search"></span></p>
  <p>Search icon on a button:
    <button type="button" class="btn btn-default">
      <span class="glyphicon glyphicon-search"></span> Search
    </button>
  </p>
  <p>Search icon on a styled button:
    <button type="button" class="btn btn-info">
      <span class="glyphicon glyphicon-search"></span> Search
    </button>
  </p>
  <p>Print icon: <span class="glyphicon glyphicon-print"></span></p>
  <p>Print icon on a styled link button:
    <a href="#" class="btn btn-success btn-lg">
      <span class="glyphicon glyphicon-print"></span> Print
    </a>
  </p>
</div>
```

## Glyphicon Examples

Envelope icon: 

Envelope icon as a link: 

Search icon: 

Search icon on a button: 

Search icon on a styled button: 

Print icon: 

Print icon on a styled link button: 

# Labels

```
<div class="container">
  <h2>Badges</h2>
  <a href="#">News <span class="badge">5</span></a><br>
  <a href="#">Comments <span class="badge">10</span></a><br>
  <a href="#">Updates <span class="badge">2</span></a>
</div>
```

## Badges

News 5

Comments 10

Updates 2

# Progress bar

```
<div class="container">
  <h2>Basic Progress Bar</h2>
  <div class="progress">
    <div class="progress-bar" role="progressbar" aria-valuenow="70" aria-valuemin="0" aria-valuemax="100" style="width:70%">
      <span class="sr-only">70% Complete</span>
    </div>
  </div>
</div>
```

## Basic Progress Bar



# Pagination

```
<div class="container">
  <h2>Pagination – Active State</h2>
  <p>Add class .active to let the user know which page he/she is on:</p>
  <ul class="pagination">
    <li><a href="#">1</a></li>
    <li class="active"><a href="#">2</a></li>
    <li><a href="#">3</a></li>
    <li><a href="#">4</a></li>
    <li><a href="#">5</a></li>
  </ul>
</div>
```

## Pagination - Active State

Add class .active to let the user know which page he/she is on:

1	2	3	4	5
---	---	---	---	---

# Pager

```
<div class="container">
  <h2>Pager</h2>
  <p>The .pager class provides previous and next buttons (links):</p>
  <ul class="pager">
    <li><a href="#">Previous</a></li>
    <li><a href="#">Next</a></li>
  </ul>
</div>
```

## Pager

The .pager class provides previous and next buttons (links):

[Previous](#)

[Next](#)

# Dropdowns

```
<div class="container">
  <h2>Dropdowns</h2>
  <p>The .dropdown-header class is used to add headers inside the dropdown menu:</p>
  <div class="dropdown">
    <button class="btn btn-default dropdown-toggle" type="button" data-toggle="dropdown">Tutorials
    <span class="caret"></span></button>
    <ul class="dropdown-menu">
      <li class="dropdown-header">Dropdown header 1</li>
      <li><a href="#">HTML</a></li>
      <li><a href="#">CSS</a></li>
      <li><a href="#">JavaScript</a></li>
      <li class="divider"></li>
      <li class="dropdown-header">Dropdown header 2</li>
      <li><a href="#">About Us</a></li>
    </ul>
  </div>
</div>
```

# Dropdowns

## Dropdowns

The .dropdown-header class is used to add headers inside the dropdown menu:

Tutorials ▾

## Dropdowns

The .dropdown-header class is used to add headers inside the dropdown menu:

Tutorials ▾

Dropdown header 1

HTML

CSS

JavaScript

Dropdown header 2

About Us

# Collapse

```
<div class="container">
  <h2>Simple Collapsible</h2>
  <p>Click on the button to toggle between showing and hiding content.</p>
  <button type="button" class="btn btn-info" data-toggle="collapse" data-target="#demo">Simple collapsible</button>
  <div id="demo" class="collapse">
    Lorem ipsum dolor sit amet, consectetur adipisicing 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.
  </div>
</div>
```

## Simple Collapsible

Click on the button to toggle between showing and hiding content.

Simple collapsible

## Simple Collapsible

Click on the button to toggle between showing and hiding content.

Simple collapsible

Lorem ipsum dolor sit amet, consectetur adipisicing 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.

# Inline list

```
<div class="container">
  <h3>Inline List</h3>
  <ul class="list-inline">
    <li><a href="#">Home</a></li>
    <li><a href="#">Menu 1</a></li>
    <li><a href="#">Menu 2</a></li>
    <li><a href="#">Menu 3</a></li>
  </ul>
</div>
```

## Inline List

Home Menu 1 Menu 2 Menu 3

# Navbar

```
<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>
```

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.

# Forms

```
<div class="container">
  <h2>Vertical (basic) form</h2>
  <form action="/action_page.php">
    <div class="form-group">
      <label for="email">Email:</label>
      <input type="email" class="form-control" id="email" placeholder="Enter email" name="email">
    </div>
    <div class="form-group">
      <label for="pwd">Password:</label>
      <input type="password" class="form-control" id="pwd" placeholder="Enter password" name="pwd">
    </div>
    <div class="checkbox">
      <label><input type="checkbox" name="remember"> Remember me</label>
    </div>
    <button type="submit" class="btn btn-default">Submit</button>
  </form>
</div>
```

# Forms

## Vertical (basic) form

Email:

Enter email

Password:

Enter password

Remember me

Submit

# Forms

## Vertical (basic) form

Email:

Enter email

Password:

.....



Remember me

Submit

# Forms

## Vertical (basic) form

Email:

Password:



[Save This Password](#)

[Other Passwords...](#)

[Submit](#)

# Inputs

```
<div class="form-group">
  <label for="comment">Comment:</label>
  <textarea class="form-control" rows="5" id="comment"></textarea>
</div>
```

**Comment:**

# Inputs

Option 1

Option 2

Option 3

Option 1  Option 2  Option 3

Option 1

Option 2

Option 3

Option 1  Option 2  Option 3

**Select list (select one):**

1

▼

**Multiple select list (hold ctrl or shift (or drag with the mouse) to select more than one):**

1

2

3

4

# Inputs

	Email
	Password

Text	Additional Info
------	-----------------

Search	
--------	---

**Disabled**

**Success**  

**Warning**  

**Error**  

# Media

```
<div class="container">
  <h2>Media Object</h2>
  <p>Use the "media-left" class to left-align a media object. Text that should appear next to the image, is placed inside a container with class="media-body".</p>
  <p>Tip: Use the "media-right" class to right-align the media object.</p><br>

  <!-- Left-aligned media object -->
<div class="media">
  <div class="media-left">
    
  </div>
  <div class="media-body">
    <h4 class="media-heading">Left-aligned</h4>
    <p>Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.</p>
  </div>
</div>
```

## Media Object

Use the "media-left" class to left-align a media object. Text that should appear next to the image, is placed inside a container with class="media-body".

Tip: Use the "media-right" class to right-align the media object.



### Left-aligned

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

# Media

The media object can also be top, middle or bottom aligned with the `media-top`, `media-middle` or `media-bottom` class:



## Media Top

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.



## Media Middle

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.



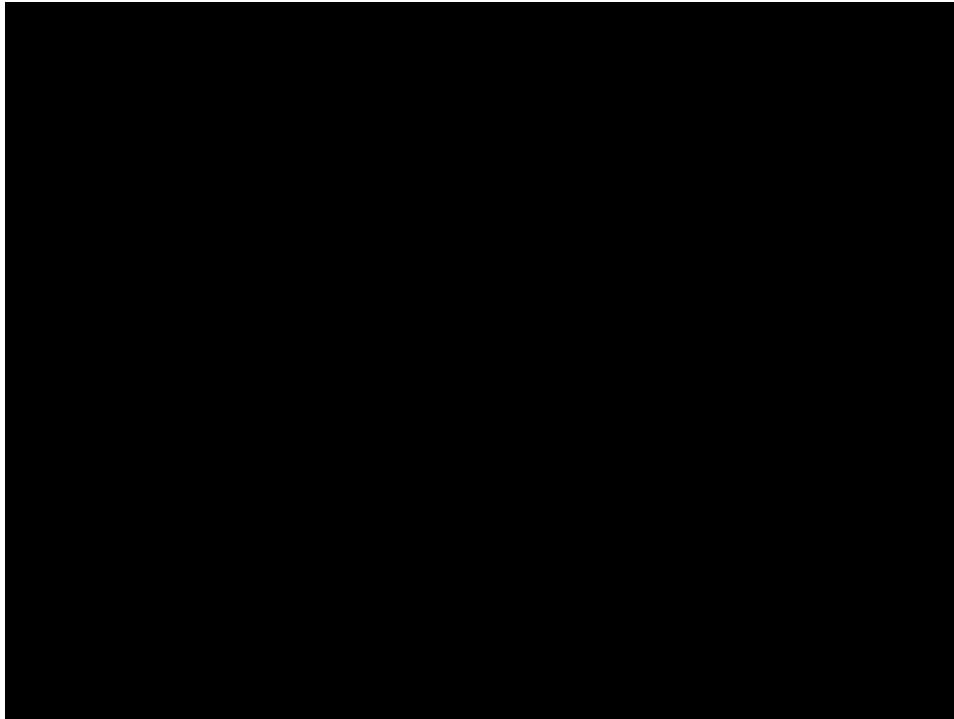
## Media Bottom

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

# Sliders



# Sliders

```
<div class="container">
  <h2>Carousel Example</h2>
  <div id="myCarousel" class="carousel slide" data-ride="carousel">
    <!-- Indicators -->
    <ol class="carousel-indicators">
      <li data-target="#myCarousel" data-slide-to="0" class="active"></li>
      <li data-target="#myCarousel" data-slide-to="1"></li>
      <li data-target="#myCarousel" data-slide-to="2"></li>
    </ol>

    <!-- Wrapper for slides -->
    <div class="carousel-inner">
      <div class="item active">
        
      </div>

      <div class="item">
        
      </div>

      <div class="item">
        
      </div>
    </div>

    <!-- Left and right controls -->
    <a class="left carousel-control" href="#myCarousel" data-slide="prev">
      <span class="glyphicon glyphicon-chevron-left"></span>
      <span class="sr-only">Previous</span>
    </a>
    <a class="right carousel-control" href="#myCarousel" data-slide="next">
      <span class="glyphicon glyphicon-chevron-right"></span>
      <span class="sr-only">Next</span>
    </a>
  </div>
</div>
```

# Pop-up windows

```
<button type="button" class="btn btn-info btn-lg" data-toggle="modal" data-target="#myModal">Open Modal</button>

<!-- Modal -->
<div class="modal fade" id="myModal" role="dialog">
  <div class="modal-dialog">

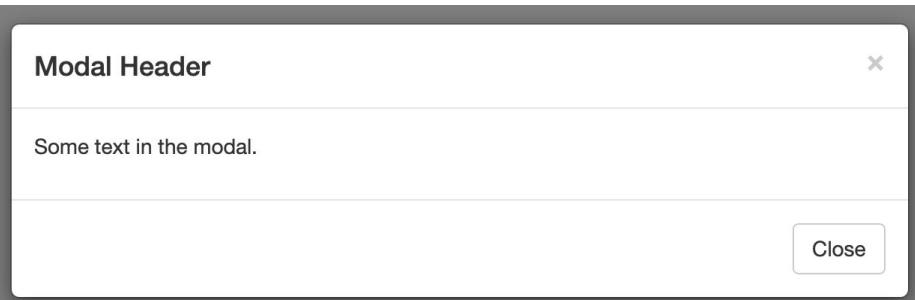
    <!-- Modal content-->
    <div class="modal-content">
      <div class="modal-header">
        <button type="button" class="close" data-dismiss="modal">&times;</button>
        <h4 class="modal-title">Modal Header</h4>
      </div>
      <div class="modal-body">
        <p>Some text in the modal.</p>
      </div>
      <div class="modal-footer">
        <button type="button" class="btn btn-default" data-dismiss="modal">Close</button>
      </div>
    </div>
  </div>
</div>
```

## Modal Example

Open Modal

## Modal Example

Open Modal



# Tool-tip

```
<div class="container">
  <h3>Tooltip Example</h3>
  <p>The data-placement attribute specifies the tooltip position.</p>
  <ul class="list-inline">
    <li><a href="#" data-toggle="tooltip" data-placement="top" title="Hooray!">Top</a></li>
    <li><a href="#" data-toggle="tooltip" data-placement="bottom" title="Hooray!">Bottom</a></li>
    <li><a href="#" data-toggle="tooltip" data-placement="left" title="Hooray!">Left</a></li>
    <li><a href="#" data-toggle="tooltip" data-placement="right" title="Hooray!">Right</a></li>
  </ul>
</div>
```

## Tooltip Example

Hooray! data-placement attribute specifies the tooltip position.

[Top](#) [Bottom](#) [Left](#) [Right](#)

## Tooltip Example

The data-placement attribute specifies the tooltip position.

[Top](#) [Hooray!](#) [Left](#) [Right](#)

## Tooltip Example

The data-placement attribute specifies the tooltip position.

[Top](#) [Bottom](#) [Left](#) [Right](#)

Hooray!

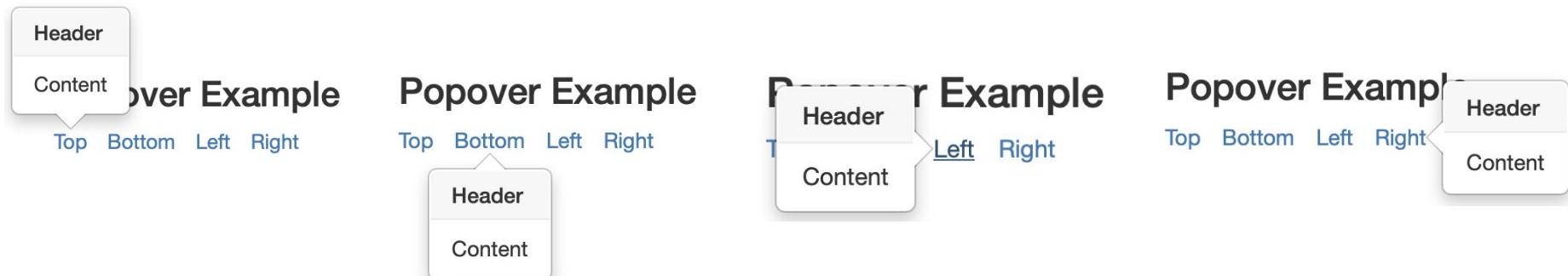
## Tooltip Example

The data-placement attribute specifies the tooltip position.

[Top](#) [Bottom](#) [Left](#) [Right](#) [Hooray!](#)

# Popover

```
<div class="container">
  <h3>Popover Example</h3>
  <ul class="list-inline">
    <li><a href="#" title="Header" data-toggle="popover" data-placement="top" data-content="Content">Top</a></li>
    <li><a href="#" title="Header" data-toggle="popover" data-placement="bottom" data-content="Content">Bottom</a></li>
    <li><a href="#" title="Header" data-toggle="popover" data-placement="left" data-content="Content">Left</a></li>
    <li><a href="#" title="Header" data-toggle="popover" data-placement="right" data-content="Content">Right</a></li>
  </ul>
</div>
```



# Web page with scrolling

