Build a Strong MERN Foundation

Customize an Application Using Bootstrap

A Day in the Life of a MERN Stack Developer

Joe has gained expertise in Bootstrap. A new project for a food industry is assigned to him.

He must develop a customizable website for a restaurant which will

provide a brief information of the restaurant, its bestsellers, and the contact number of the restaurant.

In this lesson, you will learn how to solve this real-world scenario to help Joe complete his task effectively and quickly.

Learning Objectives

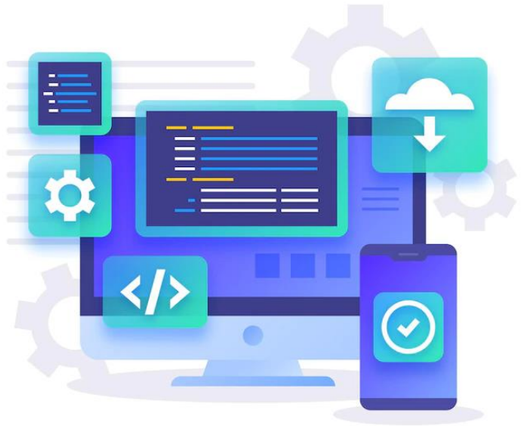
By the end of this lesson, you will be able to:

- Distinguish between HTML, CSS, Bootstrap typography, and utilities
- Illustrate the Bootstrap design
- Develop buttons, navigation bars, and input groups
- Implement carousel, accordion, modal, and pagination
- Create forms, tabs, and captions

Introduction to Bootstrap

What Is Bootstrap?

Bootstrap is an HTML, CSS, and JavaScript framework for creating a mobile-friendly and responsive website.

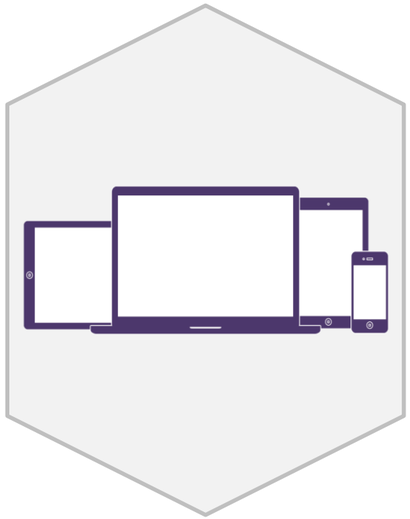


Features of Bootstrap

- It is easy to use.
- It is mobile-friendly.
- It is compatible with any browser.
- It provides powerful grid systems.
- It provides bundled JavaScript plugins.
- It uses the mobile-first approach.
- It can be easily integrated.

Properties of Bootstrap

Preprocessors



One framework for every device

Customizable

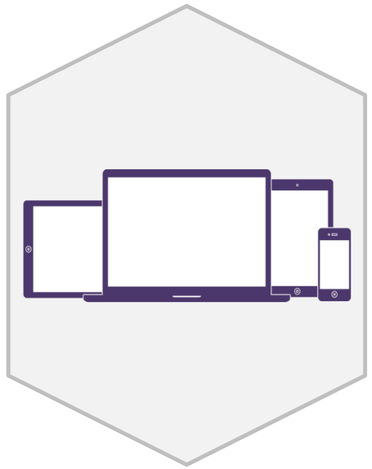
Properties of Bootstrap

The Bootstrap source code makes use of the two most popular CSS preprocessors, Less and Sass.

Preprocessors

Properties of Bootstrap

Bootstrap scales the websites and applications from phones to tablets to desktops with a single code base.



One framework for every device

Properties of Bootstrap

Bootstrap provides extensive and visually appealing documentation for HTML elements, custom HTML and CSS components, and jQuery plugins.

Customizable

Competitors

These are a few front-end web designing alternatives that can be used instead of Bootstrap:

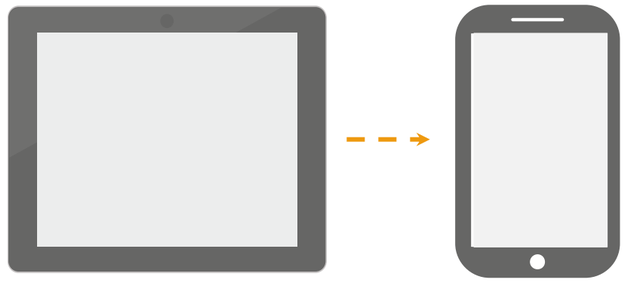
Foundation

Responsive Web Design: Introduction

Responsive web design is a responsive browser that can adapt to different screen sizes.

Responsive vs. Adaptive

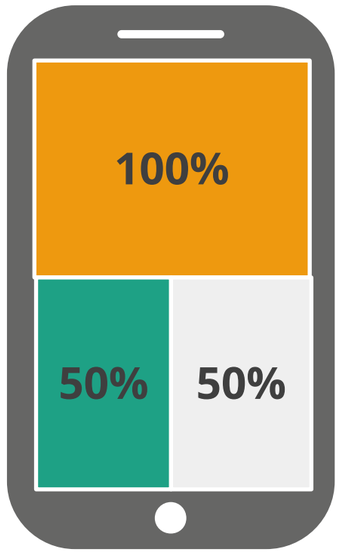
Responsive	It is a fluid design that responds to the browser and can resize to fit the screen without leaving any empty space.
Adaptive	An adaptive design adjusts to the screen size only at specific points.



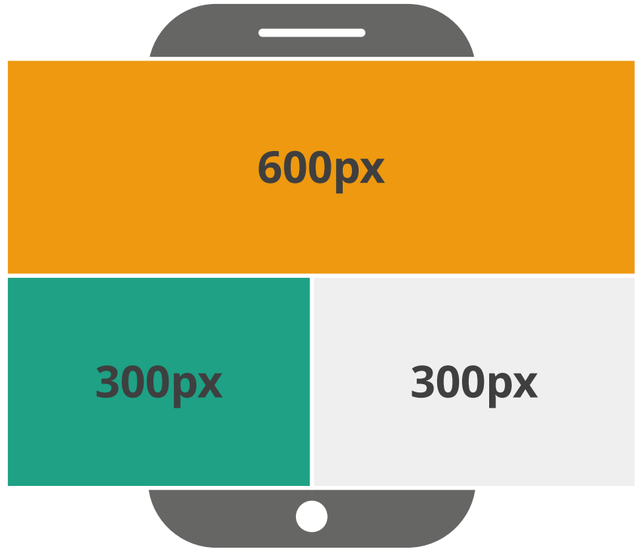
Responsive web design

Relative vs. Static Units

Relative units can adapt to any screen in percentages, unlike static units that render in fixed pixel size.



Relative units



Static units

Flow vs. Static

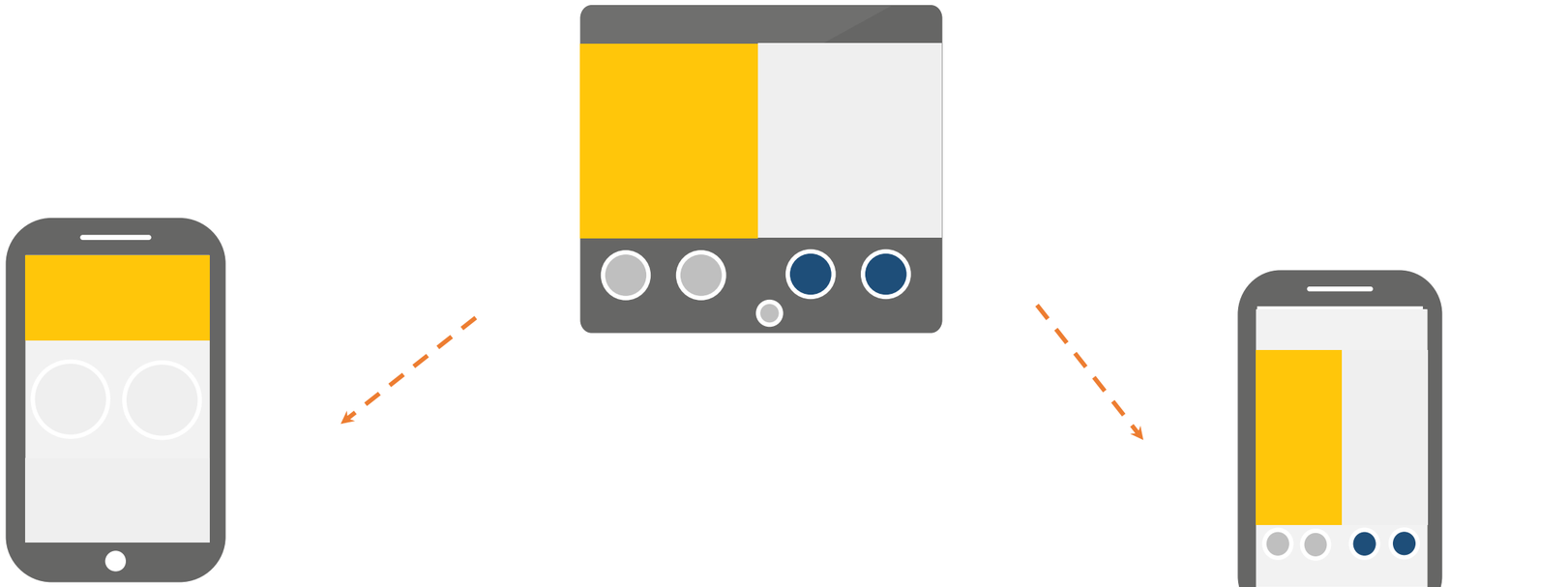
The flow in a responsive web design helps the content to smoothly adjust when the screen size changes, unlike in static web design.

Flow

Static

With vs. Without Breakpoints

When the screen size changes, the presence of breakpoints allows the content to adapt to the screen size.

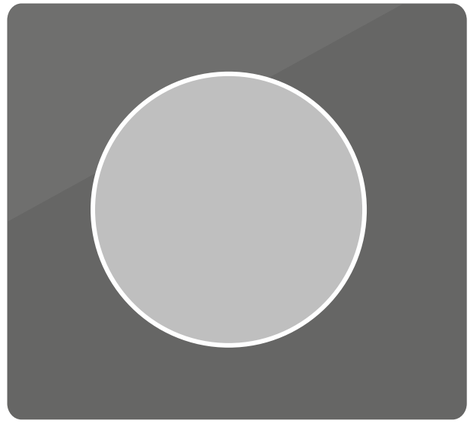


With Breakpoints

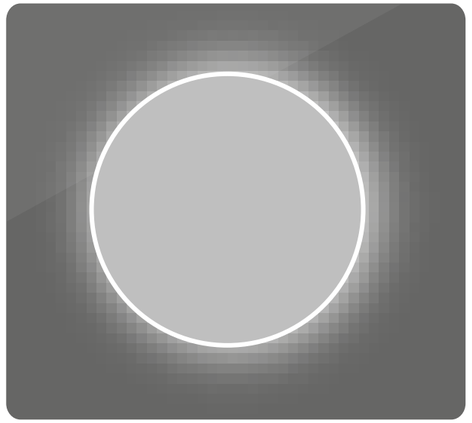
Without Breakpoints

Vectors vs. Images

A vector adapts to the resolution of the retina and its quality is independent of the screen resolution. In case of image, it cannot adapt the resolution of retina.

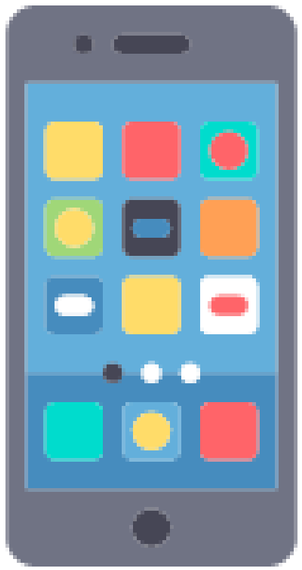


Vector



Image

Mobile-First



To develop a mobile-first design:

- Start with CSS development for mobile devices, followed by media queries to adapt to desktops and tablets
- Determine the content that is the most important

Why Mobile-First?

- It is a design that prioritizes the user experience on smaller screens and slower internet connections.
- The application is accessible and usable on a wide range of devices.
- It can also lead to a more streamlined and efficient design overall.

Creating First Page with Bootstrap: Step 1

Example:

```
<!DOCTYPE html>
<html lang="pt">
   <head>
      <meta charset="utf-8">
      <meta name="viewport"
content="width=device-width, initial-
scale=1">
   </head>
</html>
```

- At the start of the page, include HTML5 doctype and the lang attribute with the right character set.
- Add the viewport <meta> tag for proper touch zooming and rendering.
- Adjust the width and the initial zoom level of the page as per the device.

Creating First Page with Bootstrap: Step 2

Include the following files:

- **bootstrap.min.css**
- **bootstrap.min.js**

Example:

```
<link rel="stylesheet"
href="https://cdn.jsdelivr.net/npm/bootstrap@4.3.1/dist/css/bootstrap.min.css"
integrity="sha384-ggOyR0iXCbMQv3Xipma34MD+dH/1fQ784/j6cY/iJTQUOhcWr7x9JvoRxT2MZw1T"
crossorigin="anonymous">
<script src="https://cdn.jsdelivr.net/npm/bootstrap@4.3.1/dist/js/bootstrap.min.js"
integrity="sha384-JjSmVgyd0p3pXB1rRibZUAYoIIy6OrQ6VrjIEaFf/nJGzIxFDsf4x0xIM+B07jRM"
crossorigin="anonymous"></script>
```

Creating First Page with Bootstrap: Step 3

A user can include container classes in Bootstrap to wrap the site's contents.

Example:

```
<div class="container">
   <h1>My First Bootstrap Page</h1>
   <p>this is some text.</p>
</div>

<div class="container-fluid">
   <h1>My First Bootstrap Page</h1>
   <p>This is some text.</p>
</div>
```

Import Bootstrap in Your Application

Duration: 20 Min.

ASSISTED PRACTICE

Problem Statement:

You are given a project to create an HTML page and include Bootstrap to your web application.

Assisted Practice: Guidelines

Steps to be followed:

1. Write an HTML page in your code editor

2. Add Bootstrap to your application using CDN

3. Host Bootstrap locally

Browsers and Devices Compatibility

Supporting Mobile Devices

Bootstrap supports the latest versions of each major platform’s default browsers on mobile devices.

	Chrome	Firefox	Safari	Android browser and web view
Android	Supported	Supported	-	v6.0+
iOS	Supported	Supported	Supported	-

Supporting Desktop Browser

Bootstrap supports the latest versions of most desktop browsers.

	Chrome	Firefox	Safari	Microsoft Edge
Mac	Supported	Supported	Supported	Supported
Windows	Supported	Supported	-	Supported

Grid System

In Bootstrap, the grid system presents a swift and simple way to build responsive website layouts.

	Extra small <576px	**Small** ≥576px	**Medium** ≥768px	**Large** ≥992px	**Extra large** ≥1200px
Max container width	None (auto)	540px	720px	960px	1140px
Class prefix	`.col-`	`.col-sm-`	`.col-md-`	`.col-lg-`	`.col-xl-`
# of columns	12				
Gutter width	30px (15px on each side of a column)				
Nestable	Yes				
Column ordering	Yes				

Advantages of Grid Systems

The advantages of using grid systems in Bootstrap are:

- It has a responsive design
- It provides consistency
- Flexibility
- Easy to use
- Cross-browser compatibility

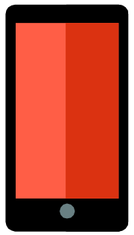
Advantages of Grid Systems

The advantages of using grid systems in Bootstrap are:

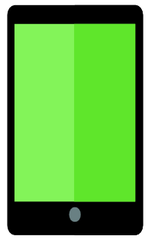
- Group columns horizontally using rows
- Create grid columns by specifying the number of available columns you wish to span. For example, three equal columns would use three .col-xs-4
- Place the content within columns, and only columns may be immediate children of rows

Bootstrap Grid Classes

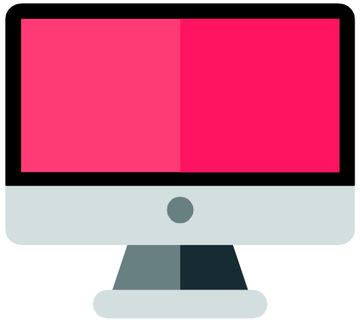
The Bootstrap grid system has four classes:



xs (for phones)



sm (for tablets)



md (for desktops)

lg (for larger desktops)

These classes can be combined to create more dynamic and flexible layouts.

Bootstrap: Themes

Themes

Bootstrap themes are pre-built templates of HTML, CSS, and JavaScript that provide styling to design web page layouts.

Advantages

- It saves time and money while building websites as they are ready-made packages.
- It modifies the look and feel of Bootstrap components.
- It adds new layouts and components for improving the appearance of web pages.
- It integrates easily with content management system.

Bootstrap: File Structure

Bootstrap package consists of HTML, CSS, and JavaScript.

```
bootstrap/
├── css/
│   ├── bootstrap.css
│   ├── bootstrap.min.css
├── js/
│   ├── bootstrap.js
│   ├── bootstrap.min.js
└── img/
    ├── glyphicons-halflings.png
    └── glyphicons-halflings-white.png
```

Installing Bootstrap with NPM Packages

Install Bootstrap with the npm packages using the command:

```
npm install bootstrap
```

Installing Bootstrap with NPM Packages

Add the following code to load the Bootstrap jQuery plugins:

```
require('bootstrap')
```

Installing Bootstrap with NPM Packages

Bootstrap's *package.json* contains additional data under the following key elements:

Sass	It is the path to Bootstrap's main Sass source file.
Style	It is the path to Bootstrap's non-minified CSS that is precompiled using the default settings.

Installing Bootstrap with Other Packages

Install Bootstrap with the yarn packages using the command:

Example:

```
yarn install bootstrap
```

Installing Bootstrap with Other Packages

Install Bootstrap in Ruby apps using bundler and RubyGems by adding the following code in Gemfile:

Example:

```
gem 'bootstrap','~> 4.3.1'
```

Installing Bootstrap with Other Packages

If bundler is not used, gem can be installed by running the following command:

Example:

```
gem install bootstrap –v 4.3.1
```

Installing Bootstrap with Other Packages

Install Bootstrap using NuGet in .NET by running the following command:

Example:

```
Install-Package bootstrap
```

Bootstrap: Maps

Sass maps are the key-value pairs that make it easier to generate CSS related files. It includes the *!default* flag which can be overridden and extended.

Bootstrap: Maps

- SASS maps are helpful when there are numerous values that are utilized frequently.
- A user can declare a value once in a map and use it across your stylesheet, eliminating the need for them to write it out numerous times.

Bootstrap: Maps

An example to modify a map:

```
$theme-colors: (
“primary”: #0074d9,
“danger”: #ff4136
);
```

Bootstrap: Maps

An example to add a map:

```
$theme-colors: (
“custom-color”: #900
);
```

Bootstrap: Maps

An example to remove from a map:

```
$theme-colors:map-remove(
$theme-colors,
“success”,”info”,”danger”);
```

Bootstrap: SASS Options

Bootstrap allows to customize the built-in variables for key global options in *_variables.scss* file.

Variable	Description
$spacer	It enables the default spacer value to programmatically generated spacer utilities.
$enable-rounded	It enables predefined border-radius styles on various components.
$enable-shadows	It enables predefined box-shadow styles on various components.
$enable-gradients	It enables predefined gradients via background-image styles on various components.

Source:https://getbootstrap.com/docs/4.0/getting-started/theming/

Bootstrap: SASS Options

Bootstrap allows to customize the built-in variables for key global options in *_variables.scss* file.

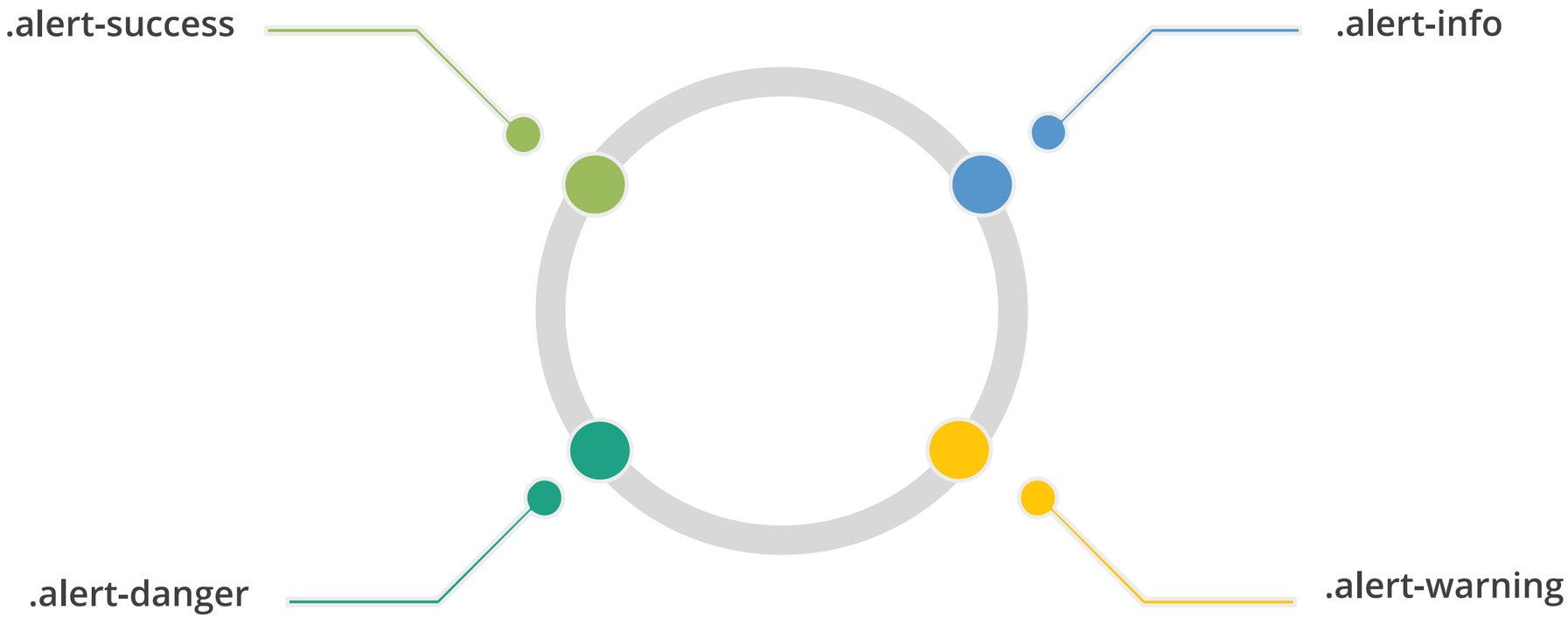
Variable	Description
$enable-transitions	It enables predefined transitions on various components.
$enable-grid-classes	It enables the generation of CSS classes for the grid system (Example: .container, .row, .col-md-1).
$enable-caret	It enables pseudo element caret on .dropdown-toggle.
$enable-print-styles	It enables styles for optimizing printing.

Source:https://getbootstrap.com/docs/4.0/getting-started/theming/

Bootstrap: Alerts

Bootstrap: Alert Class

A user in Bootstrap can easily create predefined alert messages using the alert class, followed by one of the below contextual classes:



Bootstrap Alerts: Example

Example:

```
   <div class="container">
   <h1>Bootstrap Alerts</h1>

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

Bootstrap Alerts: Example

The different Bootstrap alerts are:

Success!	It indicates a successful or positive action.
Info!	It indicates a neutral informative change or action.
Warning!	It indicates a warning that might need attention.
Danger!	It indicates a dangerous or potentially negative action.

Bootstrap: Additional Content

Alerts can have additional HTML elements.

Example:

```
<div class="alert alert-success" role="alert">

<h4 class="alert-heading">Well done!</h4>
<p>You have read the message.</p>
<hr>
<p class="mb-0">Use margin utilities whenever you want!</p>
</div>
```

Bootstrap: Alerts

Alerts can be dismissed in the following ways:

Example using JavaScript:

```
$('.alert').alert()
```

Example using data attributes of button:

```
<button type="button" class="close" data-
dismiss="alert">
</button>
```

JavaScript Behavior: Methods

The methods responsible in DOM manipulation are listed:

Method	Description
$().alert()	It makes an alert listen for click events on descendant elements, which have the data-dismiss=*alert* attribute.
$().alert('close')	It closes an alert by removing it from the DOM. If the .fade and .show classes are present on the element, the alert will fade out before it is removed.
$().alert('dispose')	It destroys an element's alert.

Source:https://getbootstrap.com/docs/4.0/components/alerts/#methods

JavaScript Behavior: Methods

The methods responsible in DOM manipulation are listed:

Method	Description
$getInstance(alert)	It is a static method that returns the alert instance associated with a DOM element to the user.
getOrCreateInstance(element)	It is a static method that either returns an alert instance associated with a DOM element or creates a new one if the existing one was not initialized.

Source:https://getbootstrap.com/docs/4.0/components/alerts/#methods

JavaScript Behavior: Events

The events responsible in DOM manipulation are listed:

Event	Description
close.bs.alert	This event fires immediately when the **close** instance method is called.
closed.bs.alert	This event is fired when the alert has been closed (It will wait for CSS transitions to complete).

Source:https://getbootstrap.com/docs/4.0/components/alerts/#events

Implement Alerts

Duration: 20 Min.

ASSISTED PRACTICE

Problem Statement:

You are given a project to demonstrate the implementation of link colors, utilization of HTML elements, and manipulation of DOM using methods and events.

Assisted Practice: Guidelines

Steps to be followed:

1. Implementation of link colors

1. Utilization of HTML elements

1. Manipulation of DOM using methods and events

Bootstrap: Cards, Tables, and Lists

Typography

Typography is a Bootstrap feature for formatting and styling text content. Headings are set by HTML tags from <H1> to <H6> and some others such as <mark>, <small>, and .

HTML code	Display
Heading H1	**Heading H1**
Heading H2	**Heading H2**
Heading H3	**Heading H3**
Heading H4	**Heading H4**
Heading H5	**Heading H5**
Heading H6	**Heading H6**

Images

Image classes in Bootstrap are responsive so that they scale in size according to the size of their parent elements without losing the aspect ratio.

HTML code	Display
<img src="flower.jpg" class="img-rounded">	
<img src="flower.jpg" class="img-circle">	
<img src="flower.jpg" class="img-thumbnail">	

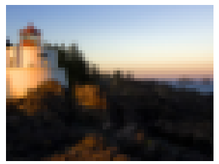
Media Objects

Media Objects are components to display images or videos that are aligned to the left or right of the content.

Example:

```
<div class="media-object">
  <div class="media-object-section">
    <div class="thumbnail">
      <img src="img.jpg" style="width:60px;">
    </div>
  </div>
  <div class="media-object-section">
    <h4>Comment heading.</h4>
    <p>Some comments here.....</p>
  </div>
</div>
```

Output:



Comment heading.

Some comments here.....

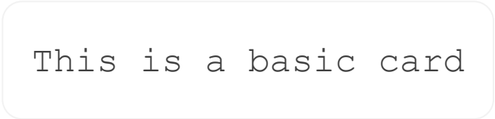
Cards

A card is a versatile and adaptable content container. It has header and footer options, contextual background colors, and display options.

Example

```
<div class="card">
  <div class="card-body">This is a basic
card</div>
</div>
```

Output:

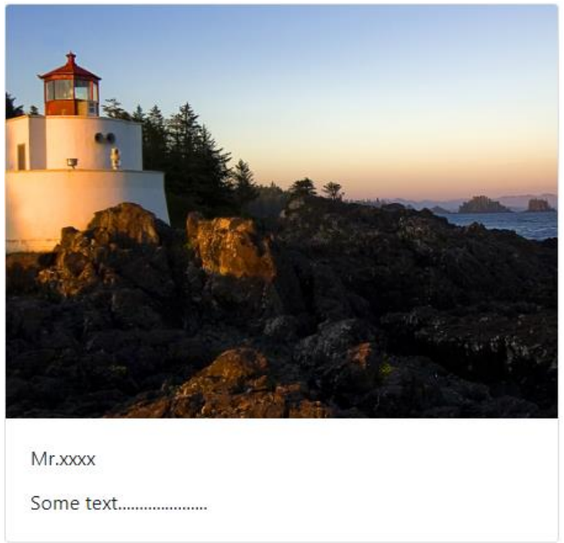


Cards

An example of an image card:

```
<div class="card" style="width:450px">
  <img class="card-img-top" src="img.jpg">
  <div class="card-body">
    <p class="card-title">Mr.xxxx</p>
    <p class="card-text">Some text...</p>
  </div>
</div>
```

Output:



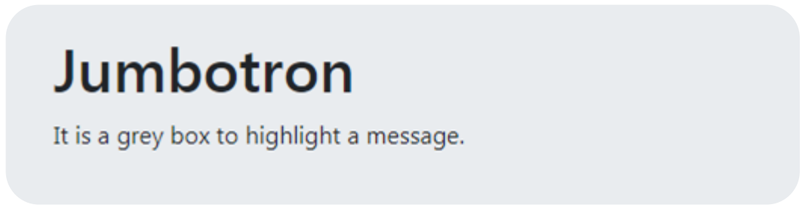
Jumbotrons

A Jumbotron is a component to display a message in a grey box to call for extra attention to the text.

Example:

```
<div class="jumbotron">
  <h1>Jumbotron</h1>
  <p>It is a grey box to highlight a message.</p>
</div>
```

Output:



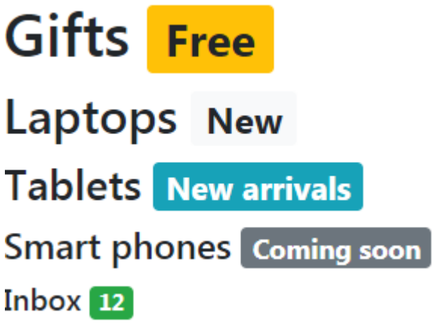
Badges

Badges or labels are used to highlight or show additional information related to a particular content.

Example:

```
<h1>Gifts <span class="badge badge-warning">Free</span></h1>

<h2>Laptops <span class="badge badge-light">New</span></h2>

<h3>Tablets <span class="badge badge-info">New
arrivals</span></h3>

<h4>Smart phones <span class="badge badge-secondary">Coming
soon</span></h4>

<h5>Inbox <span class="badge badge-success">12</span></h5>
```

Output:



Glyphicons

Glyphicons are icon fonts that can be used on web pages in the form of text, toolbars, forms, buttons, and navigation toolbars.

HTML Code	Display
	
	
	
	
	
	
	

Tables

Tables allow data such as text, images, or links to be arranged into rows and columns.

Example:

```
<table class="table table-striped table-bordered">
  <thead>
    <tr>
      <th>Heading 1</th>      <th>Heading 2</th>
      <th>Heading 3</th>
    </tr>
  </thead>
  <tbody>
    <tr>
      <td>Cell 11</td> <td>Cell 12</td> <td>Cell 13</td>
    </tr>
    <tr>
      <td>Cell 21</td> <td>Cell 22</td> <td>Cell 23</td>
    </tr>
    <tr>
      <td>Cell 31</td> <td>Cell 32</td> <td>Cell 33</td>
    </tr>
  </tbody>
</table>
```

Output:

Heading 1	Heading 2	Heading 3
Cell 11	Cell 12	Cell 13
Cell 21	Cell 22	Cell 23
Cell 31	Cell 32	Cell 33

List Groups

List groups are a versatile and effective component for displaying a collection of items.

Example of unordered list:

```
<ul class="list-group">
  <li class="list-group-item">First</li>
  <li class="list-group-item">Second</li>
  <li class="list-group-item">Third</li>
  <li class="list-group-item">Fourth</li>
</ul>
```

Output:

- First
- Second
- Third
- Fourth

List Groups

An example of an ordered list:

```
<ol>
  <li>First</li>
  <li>Second</li>
  <li>Third</li>
  <li>Fourth</li>
</ol>
```

Output:

1. First
2. Second
3. Third
4. Fourth

Buttons

A button is used to trigger an action. The optional style and color classes can be used to change the appearance of a web page.

Example:

```
<button class="btn-lg btn-danger">Large</button>

<button class="btn-sm btn-info">Small</button>

<button class="btn-xs btn-success">Extra small</button>

<button class="btn-block btn-primary">Block</button>
```

Output:

Button Groups

A button group is a series of multiple buttons in a line.

Example:

```
<div class="btn-group" role="group">
  <button type="button" class="btn btn-
primary">Yes</button>
  <button type="button" class="btn btn-info">No</button>
  <button type="button" class="btn btn-
warning">Exit</button>
</div>
```

Output:

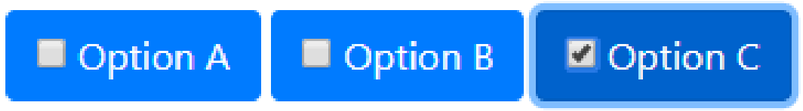
Stateful Buttons

Stateful buttons can be used to toggle between states. These buttons can change text and color when clicked or hovered over.

Example:

```
<label class="btn btn-primary active">
    <input type="checkbox" name="options"> Option A
</label>
<label class="btn btn-primary">
    <input type="checkbox" name="options"> Option B
 </label>
 <label class="btn btn-primary active">
     <input type="checkbox" name="options"> Option C
 </label>
```

Output:



Dropdowns

A dropdown is a menu that displays a list of text or links from which a user can choose.

Example:

```
<button type="button" data-
toggle="dropdown">Dropdown</button>
    <ul class="dropdown-menu">
      <li><a href="#">First</a></li>
      <li><a href="#">Second</a></li>
      <li><a href="#">Third</a></li>
    </ul>
```

Output:

Header and Footer

Bootstrap header is a method used to hold elements. It is usually placed above the *body* element.

Example:

```
<div class="card-header bg-transparent border-
success">Bootstrap</div>
```

Header and Footer

Bootstrap footer is a navigation method used to hold links, buttons, and other elements. It is usually placed at the end of a web page.

Example:

```
<div class="card-footer bg-transparent border-
success">Updated 3 minutes ago</div>
```

Header and Footer

Example:

```
<div class="card border-success mb-3" style="max-width:
18rem;">

<div class="card-header bg-transparent border-
   success">Bootstrap</div>

   <div class="card-body text-success">
   <h5 class="card-title">Header and Footer</h5>
       <p class="card-text">This is the simplest way of
   using header and footer</p>
   </div>

<div class="card-footer bg-transparent border-
success">Updated 3 minutes ago</div>
</div>
```

Output:

Bootstrap

Header and Footer

This is the simplest way of using a header and footer

Updated 3 minutes ago

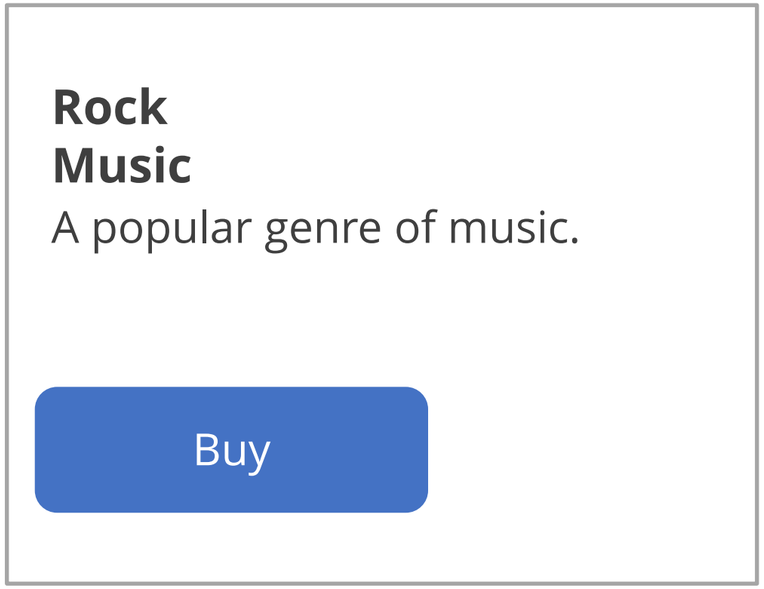
Text Alignments: Text-Left

Bootstrap allows to align text to the left side of an HTML page.

Example:

```
<div class="card" style="width: 18rem;">
  <div class="card-body">
    <h5 class="card-title">Rock Music</h5>
    <p class="card-text">A popular genre of music.</p>
    <a href="#" class="btn btn-primary">Buy</a>
  </div>
</div>
```

Output:



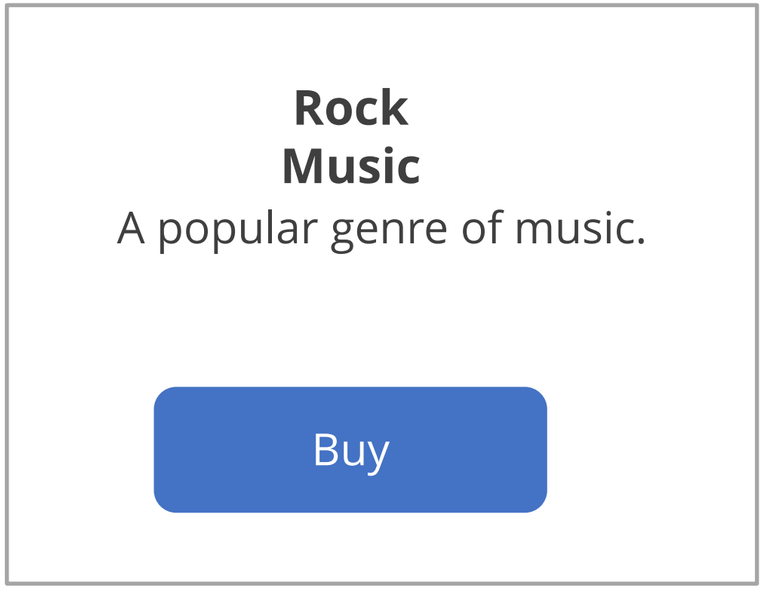
Text Alignments: Text-Center

Bootstrap allows to align the text to the center of an HTML page.

Example:

```
<div class="card text-center" style="width: 18rem;">
  <div class="card-body">
    <h5 class="card-title">Rock Music</h5>
    <p class="card-text">A popular genre of music.</p>
    <a href="#" class="btn btn-primary">Buy</a>
  </div>
</div>
```

Output:



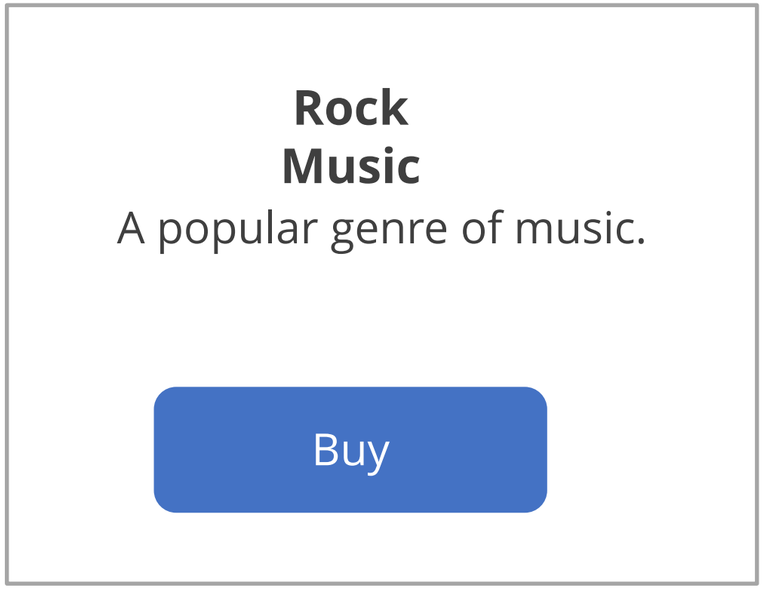
Text Alignments: Text-Right

Bootstrap allows to align the text to the right side of an HTML page.

Example:

```
<div class="card text-right" style="width: 18rem;">
  <div class="card-body">
    <h5 class="card-title">Rock Music</h5>
    <p class="card-text">A popular genre of music.</p>
    <a href="#" class="btn btn-primary">Buy</a>
  </div>
</div>
```

Output:



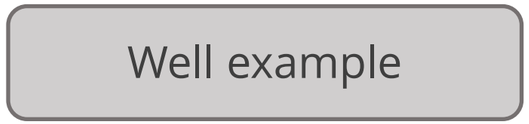
Wells

The .well class adds a rounded border with a gray background color and padding around an element.

Example:

```
<div class="well">Well example</div>
```

Output:

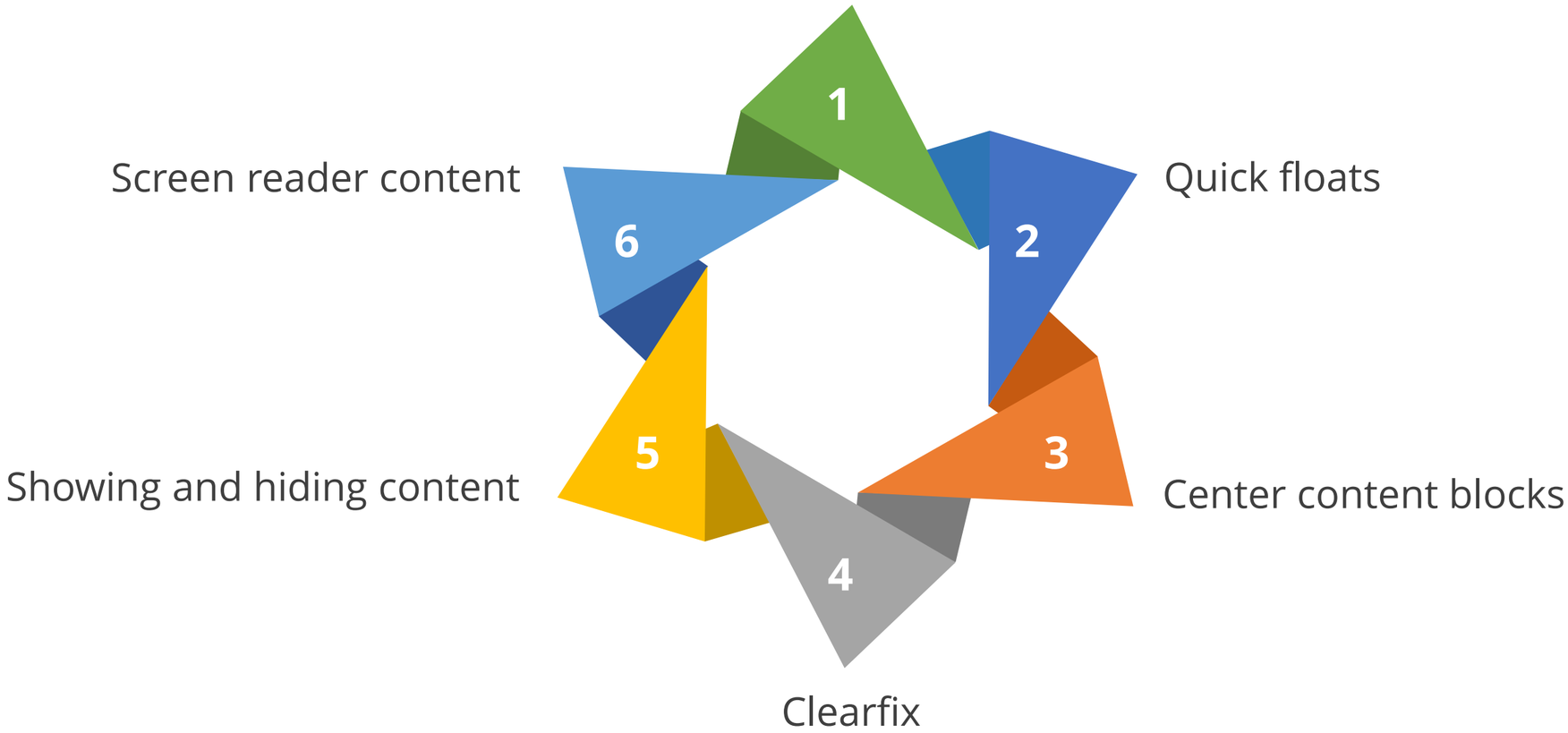


Helper Classes

Helper classes are rules that can be reused by using class selectors. They allow the user to apply a style to an element without creating a custom rule for that element.

Helper Classes

The different Helper classes used in Bootstrap are:



Helper Classes

The different Helper classes used in Bootstrap are:

Carets

It helps in indicating drop-down functionality and navigation. The class *caret* with a element can be used to implement this functionality.

Example:

```
<p>Caret Example<span class = "caret"></span></p>
```

Helper Classes

The different Helper classes used in Bootstrap are:

Quick floats

The classes pull-left and pull-right can be used to float an element to the left or right.

Example:

```
<div class = "pull-left">Quick Float to left</div>
<div class = "pull-right">Quick Float to right</div>
```

Helper Classes

The different Helper classes used in Bootstrap are:

Center content blocks

The center-block class can be used to position an element in the center.

Example:

```
<div class = "row">
   <div class = "center-block" style = "width:200px;
background-color:#ccc;">
      This is an example for center-block
   </div>
</div>
```

Helper Classes

The different Helper classes used in Bootstrap are:

Clearfix

The .clearfix class can be used to clear the float of any element.

Example:

```
<div class = "clearfix" style = "background: #D8D8D8;border: 1px
solid #000; padding: 10px;">

   <div class = "pull-left" style = "background:#58D3F7;">
      Quick Float to left
   </div>

   <div class = "pull-right" style = "background: #DA81F5;">
      Quick Float to right
   </div>
</div>
```

Helper Classes

The different Helper classes used in Bootstrap are:

Showing and hiding content

The.show and.hidden classes can be used to show or hide an element (including for screen readers).

Example:

```
<div class = "row" style = "padding: 91px 100px 19px 50px;">

   <div class = "show" style = "left-margin:10px; width:300px; background-color:#ccc;">
      This is an example for show class
   </div>

   <div class = "hidden" style = "width:200px; background-color:#ccc;">
      This is an example for hide class
   </div>

</div>
```

Helper Classes

The different Helper classes used in Bootstrap are:

Screen reader content

The.sr-only class allows a user to hide an element from all devices except screen readers.

Example:

```
<div class = "row">
   <div class = "center-block" style = "width:200px;
background-color:#ccc;">
      This is an example for center-block
   </div>
</div>
```

Develop a Static Web Page

Duration: 50 min

ASSISTED PRACTICE

Problem Statement:

You are given a project to develop a static web page.

Assisted Practice: Guidelines

Steps to be followed:

1. Build a static web page in your code editor.
2. View the results in your local browser.

Bootstrap: Accordion and Carousel

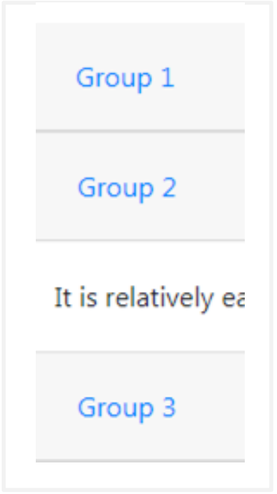
Accordion

An accordion is used in web pages to accommodate more content using collapsible items.

Example:

```
<div class="accordion">
   <button class="btn btn-link" type="button">Group
1</button></div>

<div class="bordered">
        <button class="btn btn-link collapsed"
type="button">Group 2</button></div>
<div class="bordered">
   It is relatively easy to learn, with the basics being
accessible to most people.</div>

<div class="bordered">
        <button class="btn btn-link collapsed"
type="button">Group 3</button></div>
```

Output:



Carousel

A carousel is a slideshow for cycling through a series of content, which may be images or text.

Example:

```
<div class="carousel-item active">
  <img src="aa.jpg">
</div>
<div class="carousel-item">
 <img src="bb.jpg">
</div>
<div class="carousel-item">
 <img src="cc.jpg">
</div>
```

Adding Slides

A slider is similar to a carousel and is used to show a slideshow of a series of images or text.

Example:

```
<div class="slideshow-container">

  <div>
    <div>1 / 10</div>
    <img src="img1.jpg" style="width:100%">
    <div class="text">Caption 1</div>
  </div>

  <div>
    <div>2 / 10</div>
    <img src="img2.jpg" style="width:100%">
    <div class="text">Caption 2</div>
  </div>
```

Adding Captions

Captions can be added to images using the **figure** class. They can be aligned to the left, center, or right.

Example:

```
<figure class="figure">
  <img src="pic.jpg" style="width: 400px">
  <figcaption class="figure-caption text-left">Left aligned
caption</figcaption>
</figure>
```

Outputs:

Left aligned caption

Example:

```
<figure class="figure">
  <img src="pic.jpg" style="width: 400px">
  <figcaption class="figure-caption text-right">Right
aligned caption</figcaption>
</figure>
```

Right aligned caption

Implement a Slideshow to a Static Web page

Duration: 30 min

ASSISTED PRACTICE

Problem Statement:

You are given a project to implement a slideshow on a static webpage. Implementing a slideshow feature to a static webpage helps in user retention and increases the overall look-and-feel of the webpage.

Assisted Practice: Guidelines

Steps to be followed:

Build a slideshow that works from left-to-right and vice versa

Bootstrap: Forms and Form Validations

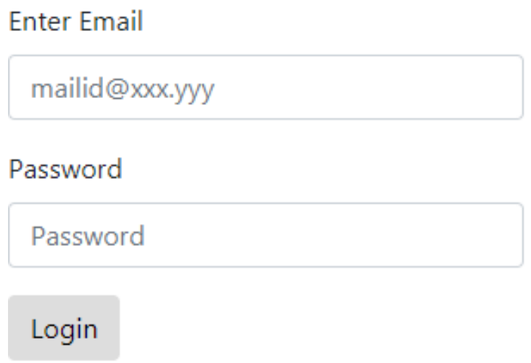
Forms

Forms are elements used to collect data from visitors to the website. They can be text boxes, buttons, checkboxes, radio buttons, login fields, and password fields.

Example:

```
<form action="#">
  <div class="form-group">
    <label>Enter Email</label>
    <input type="email" class="form-control"
placeholder="mailid@xxx.yyy">
  </div>
  <div class="form-group">
    <label>Password</label>
    <input type="password" class="form-control"
placeholder="Password">
  </div>

  <button type="submit">Login</button>
</form>
```

Output:



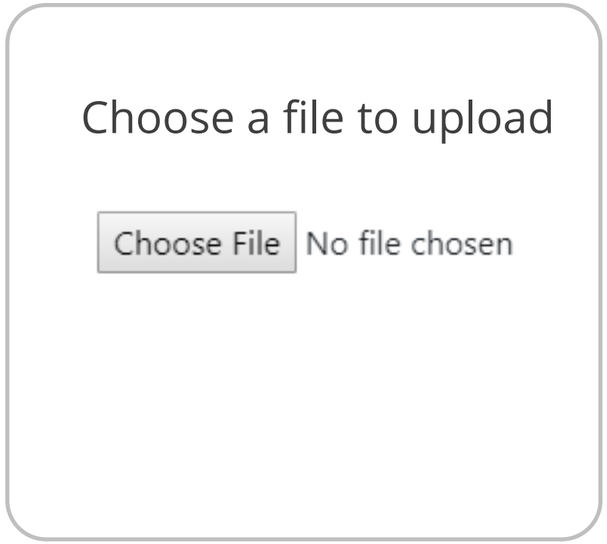
Form Controls

Form controls such as <*select*> and <*input*> are styled using the *.form-control* class.

Example:

```
<form>
     <div class="form-group">
       <label for="formcontrol">Choose a file to
upload</label>
       <input type="file" class="form- control-file"
id="formcontrol">
    </div>
</form>
```

Output:



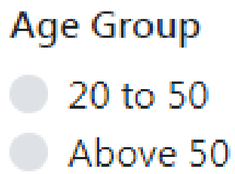
Custom Forms

Custom forms are HTML elements that replace default elements of a browser to allow customization and consistency across browsers.

Example:

```
<h6>Age Group</h6>
<div class="custom-control custom-radio">
  <input type="radio" class="custom-control-input">
  <label class="custom-control-label”>20 to 50</label>
</div>

<div class="custom-control custom-radio">
  <input type="radio" class="custom-control-input">
  <label class="custom-control-label">Above 50</label>
</div>
```

Output:



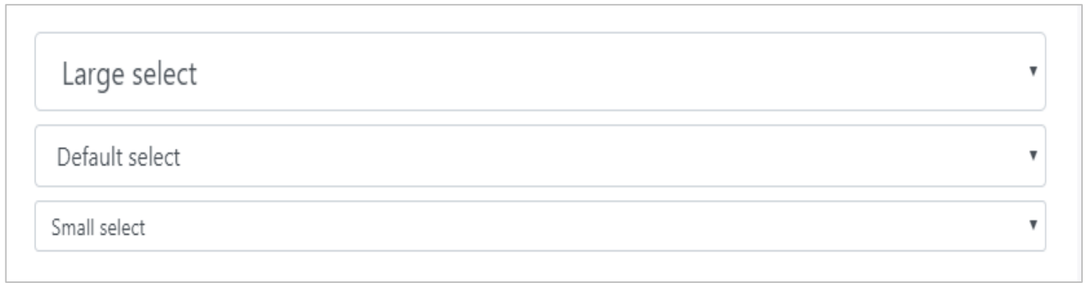
Form Controls: Sizing

Form control sizes can be set using *.form-control-lg* and *.form-control-sm.*

Example:

```
<select class="form-control form-control-lg">
  <option>Large select</option>
</select>
<select class="form-control">
  <option>Default select</option>
</select>
<select class="form-control form-control-sm">
  <option>Small select</option>
</select>
```

Output:



Form Controls: Inline

Checkboxes and radios can be placed horizontally by adding *.form-check-inline* to any *.form-check*.

Example:

```
<div class="form-check form-check-inline">
  <input class="form-check-input" type="checkbox"
id="inlineCheckbox1" value="option1">
  <label class="form-check-label"
for="inlineCheckbox1">1</label>
</div>
<div class="form-check form-check-inline">
  <input class="form-check-input" type="checkbox"
id="inlineCheckbox2" value="option2">
  <label class="form-check-label"
for="inlineCheckbox2">2</label>
</div>
```

Output:

Form Controls: Grid

Form grids are used to build complex forms.

Using *row*:

Example:

```
<form>
  <div class="row">
    <div class="col">
      <input type="text" class="form-control"
placeholder="First name">
    </div>
    <div class="col">
      <input type="text" class="form-control"
placeholder="Last name">
    </div>
  </div>
</form>
```

Output:

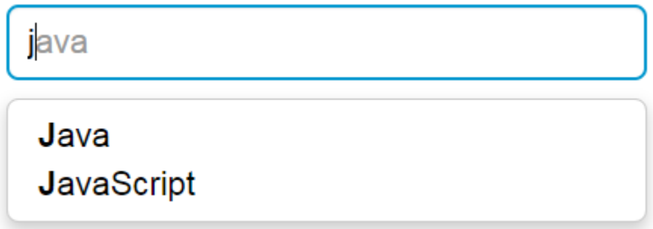
Typeaheads

Typeaheads are used to show hints to users while filling forms for auto-completing them. This saves time and reduces input mistakes.

Example:

```
<script type="text/javascript">
$(document).ready(function(){
var cars = ['HTML', 'HTML5', 'Java', 'JavaScript',
'CSS', 'DTD', 'Bootstrap'];
</script>
```

Output:



Disabling Forms

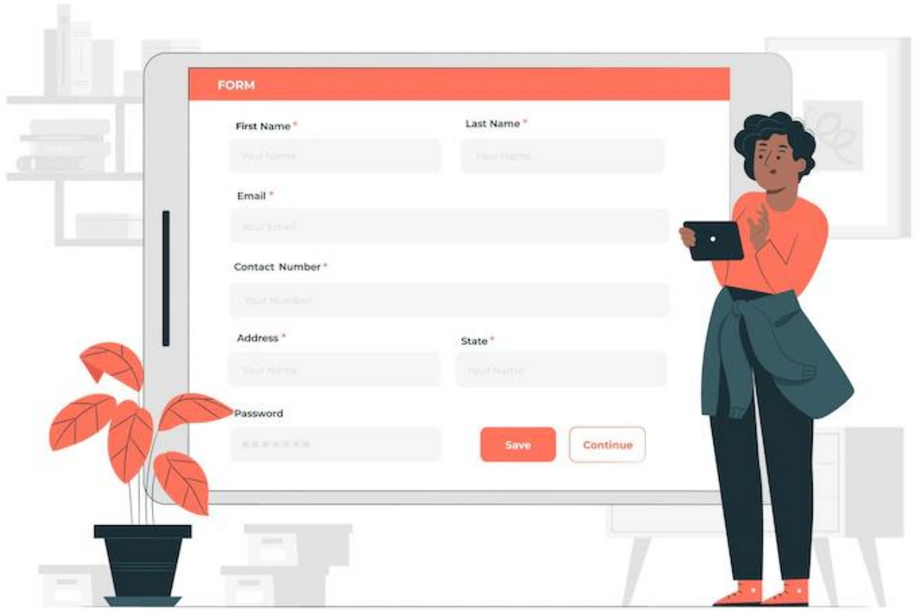
Forms can be disabled from user interactions using the *disabled* boolean attribute. It can be used to a *<fieldset>* to disable form controls.

Example:

```
<form>
  <fieldset disabled>
<div class="form-group">
      <label for="disabledSelect">Disabled select
menu</label>
      <select id="disabledSelect" class="form-control">
        <option>Disabled select</option>
      </select>
    </div>
<button type="submit" class="btn btn-
primary">Submit</button>
  </fieldset>
</form>
```

Forms Validation

Forms validation is a method by which the server checks if a user has entered all the necessary data in the required format.



Forms Validation

The functions of form validation are:

Basic validation	A form is checked for any missing data in mandatory fields.
Data form validation	A form is checked for data accuracy.

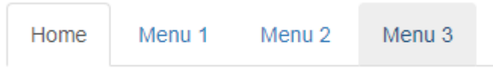
Tabs

Tabs are components in which content or links are placed in separate panes to open different pages and sections.

Example:

```
<ul class="nav nav-tabs">
    <li class="active"><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>
```

Output:



Input Group

Input groups are extended form controls which are used to add text or buttons before or after text-based inputs.

Example:

```
<div class = "input-group">
   <input type = "text" class = "form-control"
   placeholder = "login">
   <span class = "input-group-addon">@</span>
   <input type = "text" class = "form-control"
   placeholder = "xxx.com">
</div>
```

Outputs:

Example:

```
<div class = "input-group">
     <span class = "input-group-addon">$</span>
     <input type = "text" class =" form-control">
     <span class = "input-group-addon">.00</span>
</div>
```

Forms

Duration: 30 Min.

ASSISTED PRACTICE

Problem Statement:

You are given a project to create a form using Bootstrap.

Assisted Practice: Guidelines

Steps to be followed:

1. Build a form using Bootstrap in your code editor
2. View results in your local browser

Bootstrap: Modal Components

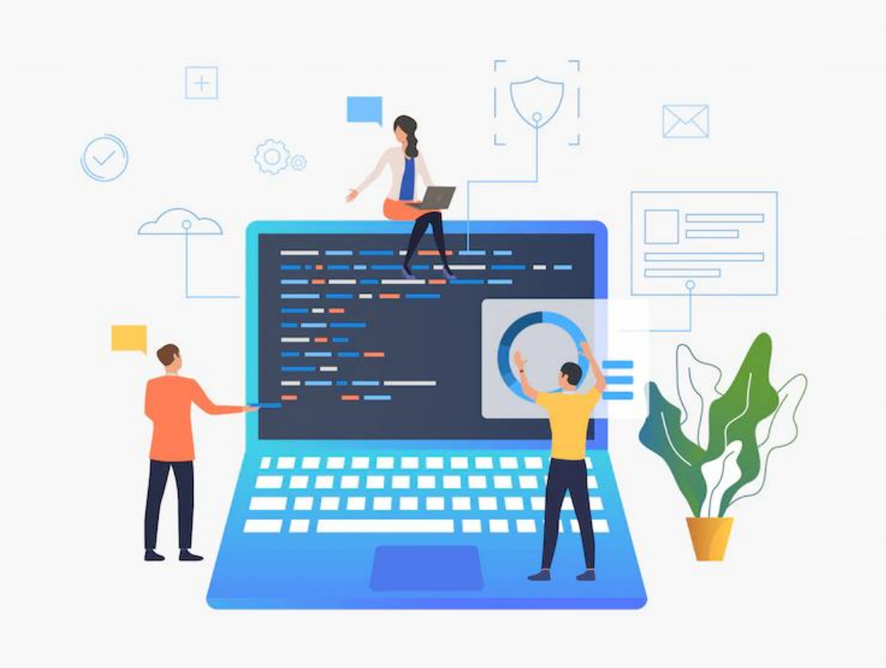
Modals

Modals are pop-up windows that display notifications or alerts because of actions like a mouse hover or a click.

Example:

```
<button class="trigger">Show the modal</button>
<div class="modal">
    <div class="modal-content">
        <span class="close-button">×</span>
        <h1>Modal window opened</h1>
    </div>
</div>
```

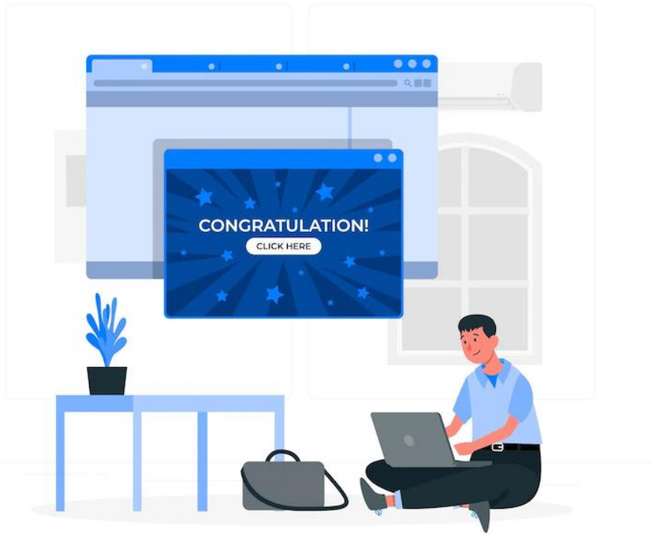
Modals: Points to Remember



- Bigger modals can be isolated from a web page for better view.
- Modals can be aligned vertically at center using *.modal-dialog-centered* to *.modal-dialog.*
- Bootstrap's grid can be used in a modal by nesting *.container-fluid.*
- A modal can be called in JavaScript with the *$('#myModal').modal(options)* code.

Tooltips

A tooltip is a pop-up to display a message when users hover or click on objects such as an images, buttons, links, or tags.



Tooltips

The tooltip can be placed at different locations, such as:

Example:

```
<a href="#" data-toggle="tooltip" data-placement="top"
title="Top">Click</a>
```

Output:

Example:

```
<a href="#" data-toggle="tooltip" data-placement="bottom"
title="Bottom">Click</a>
```

Tooltips

The tooltip can be placed at different locations, such as:

Example:

```
<a href="#" data-toggle="tooltip" data-placement="left"
title="Left">Click</a>
```

Output:

Example:

```
<a href="#" data-toggle="tooltip" data-placement="right"
title="Right">Click</a>
```

Implement a Modal to a Static Web Page

Duration: 30 Min.

ASSISTED PRACTICE

Problem Statement:

You are given a project to implement a modal that can be used to display terms and conditions. Modals can share a large amount of information.

Assisted Practice: Guidelines

Steps to be followed:

Build a modal that is responsive
Include all entities or elements that you have learned

Bootstrap: Nav and Navbar

Nav

The **nav** tag is used to define a block of links for navigation, for the current page, or for other pages.

Example:

```
<ul class="nav">
  <li class="nav-item">
    <a class="nav-link active" href="#">Active Link1</a>
  </li>
  <li class="nav-item">
    <a class="nav-link" href="#">Active Link2</a>
  </li>
   <li class="nav-item">
    <a class="nav-link disabled" href="#">Disabled Link</a>
  </li>
</ul>
```

Output:

Navigation Bar

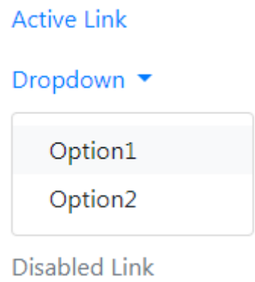
A navigation bar is a set of buttons or links used to connect to different sections of the website. Each link can have different features like dropdowns and variation in sizes, colors, and fonts.

Navigation Bar

An example of navigation bar:

```
<nav class="navbar">
    <ul class="navbar-nav">
      <li class="nav-item active">
        <a class="nav-link" href="#">Active Link</a>
      </li>

      <li class="nav-item dropdown">
        <a class="nav-link dropdown-toggle" href="#" data-
toggle="dropdown">
          Dropdown
        </a>
        <div class="dropdown-menu" aria-labelledby="navbarDropdown">
          <a class="dropdown-item" href="#">Option1</a>
          <a class="dropdown-item" href="#">Option2</a>
      </li>

      <li class="nav-item">
        <a class="nav-link disabled" href="#">Disabled Link</a>
      </li>
    </ul>
</nav>
```

Output:



Breadcrumbs

A breadcrumb is a scheme for navigation that shows the full path to the current page on the website.

Example:

```
<ul class="breadcrumb">
    <li class="breadcrumb-item"><a href="#">Home</a></li>
    <li class="breadcrumb-item"><a href="#">Page1</a></li>
    <li class="breadcrumb-item"><a href="#">Page2</a></li>
    <li class="breadcrumb-item"><a href="#">Page3</a></li>
    <li class="breadcrumb-item active" aria-
current="page">Current Page</li>
</ul>
```

Output:

Home / Page1 / Page2 / Page3 / Current Page

Pills

Pills are like tabs, where the links are placed to navigate to different sections of the website.

Example:

```
<ul class="nav nav-pills">
    <li class="active"><a href="#">Home</a></li>
    <li><a href="#">Option1</a></li>
    <li><a href="#">Option2</a></li>
    <li><a href="#">Option3</a></li>
  </ul>
```

Output:

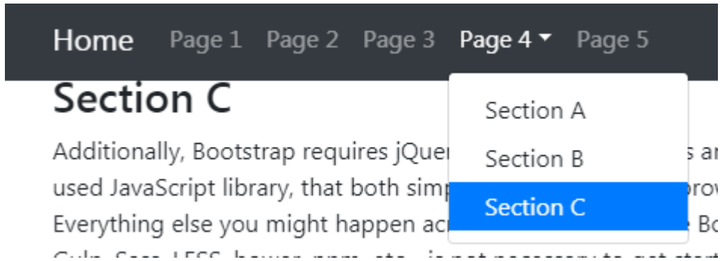
Scrollspy

A scrollspy is a navigation scheme that highlights the navigation links based on the scroll position to show where the user is currently in the page.

Example:

```
<body data-spy="scroll">
<a href="#">Home</a>
<ul>
 <li class="nav-item"><a href="#">Page 1</a></li>
 <li class="nav-item"><a href="#">Page 2</a></li>
 <li class="nav-item"><a href="#">Page 3</a></li>
 <li class="nav-item dropdown">
     <a href="#" class="nav-link dropdown-toggle">Page 4</a>
        <div class="dropdown-menu">
           <a href="#" class="dropdown-item">Section A</a>
           <a href="#" class="dropdown-item">Section B</a>
           <a href="#" class="dropdown-item">Section C</a>
        </div>
 </li>
 <li class="nav-item"><a href="#">Page 5</a>
```

Output:

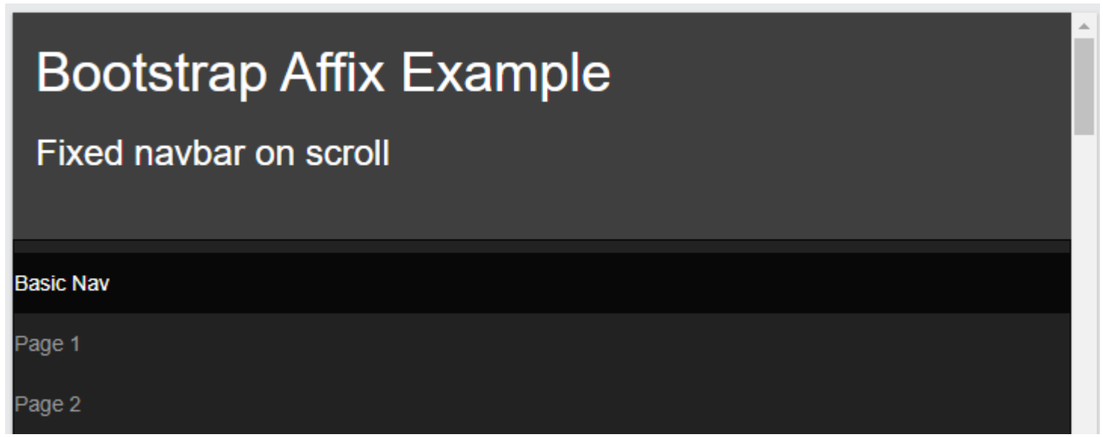


Affix

The Affix plugin enables an element to be locked to a specific area of the page. It is used with navigation menus to keep them in place while scrolling up and down the page.

Example:

```
.affix {
    top: 0;
    width: 100%;
    z-index: 9999 !important;
  }

  .affix + .container-fluid {
    padding-top: 70px;
  }
```



Implement Navbars to a Static Web Page

Duration: 30 Min.

ASSISTED PRACTICE

Problem Statement:

You are given a project to implement a navbar that can be used to navigate throughout a web page. Navbars can navigate directly to a marked area on a web page.

Assisted Practice: Guidelines

Steps to be followed:

Build a responsive static page
Add all the entities or elements you have learned
Include a minimum of three entities or elements

Bootstrap: Pagination and Progress

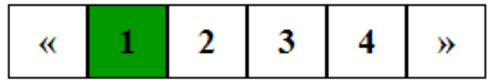
Pagination

Pagination is used to divide a document into different pages with numbers.

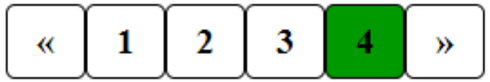
Simple pagination

Active and hoverable pagination

Rounded active and hoverable pagination



Bordered pagination



Rounded border pagination

Space between pagination

Progress Bars

Progress bars are colored stripes that display the amount of progress a user has made in a process.

Example:

```
<div class="progress">
  <div class="progress-bar" style="width:50%">
  </div>
</div>
```

Output:

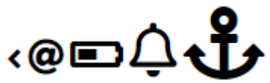
Icons

Icons are images grouped in libraries. Options are provided for better usability and scalability.

Example:

```
<i class="fas fa-angle-left" style="font-size:20px"></i>
<i class="fas fa-at" style="font-size:24px"></i>
<i class="fas fa-battery-half" style="font-size:28px"></i>
<i class="far fa-bell" style="font-size:36px"></i>
<i class="fas fa-anchor" style="font-size:48px"></i>
```

Output:



Spinners

A spinner is a component in HTML and CSS which shows the loading state of the page.

Example:

```
<div class="spinner-border text-primary">
        <span class="sr-only">Loading...</span>
 </div>
 <div class="spinner-border text-secondary">
        <span class="sr-only">Loading...</span>
 </div>
 <div class="spinner-border text-warning">
        <span class="sr-only">Loading...</span>
 </div>
```

Output:

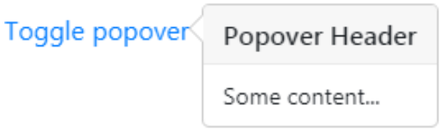
Popovers

Popovers are used to display additional information about elements when a user hovers over or clicks it. They contain more content than tooltips.

Example:

```
<div>
  <a href="#" data-toggle="popover" title="Popover
Header" data-content="Some content...">Toggle
popover</a>
</div>

<script>
$(document).ready(function(){
  $('[data-toggle="popover"]').popover();
});
</script>
```

Display:



Pager

Pager is another type of pagination. It has previous and next buttons.

Previous

Next

Pager

Add the .pager class to an <ul> element to create previous and next buttons.

Example:

```
<ul class="pager">
  <li><a href="#">Previous</a></li>
  <li><a href="#">Next</a></li>
</ul>
```

Navigation and Pagination

Duration: 45 Min.

Problem Statement:

You are given a project to add navigation using a navbar and use pagination to navigate in Bootstrap.

ASSISTED PRACTICE

Assisted Practice: Guidelines

Steps to be followed:

1. Build a navbar using Bootstrap in your code editor.
2. View results in the browser.
3. Add pagination to your website using Bootstrap.
4. View results in the browser.

Key Takeaways

- Responsive web design is a responsive browser that can adapt to different screen sizes.
- Bootstrap helps to create responsive and mobile-friendly websites.
- In Bootstrap, the grid system presents a swift and simple way to build responsive website layouts.
- Bootstrap themes are pre-built templates of HTML, CSS, and JavaScript that provide styling to design web page layouts.

Thank You