Full Stack Development
Unit 2

1 Bootstrap: setup

Bootstrap is the most popular and powerful front-end (HTML, CSS, and JavaScript) framework for faster and easier responsive web development.

1. Bootstrap is a powerful front-end framework for faster and easier web development.

2. It includes HTML and CSS based design templates for creating common user interface components like forms, buttons, navigations, dropdowns, alerts, modals, tabs, accordions, carousels, tooltips, and so on.

3. Bootstrap gives you ability to create flexible and responsive web layouts with much less efforts.

4. Bootstrap was originally created by a designer and a developer at Twitter in mid-2010. Before being an open-sourced framework, Bootstrap was known as Twitter Blueprint.

5. You can save a lot of time and effort with Bootstrap. So bookmark this website and continue on.

6. It is very easy to setup and start using Bootstrap. This chapter will explain how to download and setup Bootstrap. We will also discuss the Bootstrap file structure, and demonstrate its usage with an example.

Download Bootstrap

You can download the latest version of Bootstrap from https://getbootstrap.com/. When you click on this link, you will get to see a screen as below −

Here you can see two buttons −

- ***Download Bootstrap*** − Clicking this, you can download the precompiled and minified versions of Bootstrap CSS, JavaScript, and fonts. No documentation or original source code files are included.
- ***Download Source*** − Clicking this, you can get the latest Bootstrap LESS and JavaScript source code directly from GitHub.

If you work with Bootstrap's uncompiled source code, you need to compile the LESS files to produce usable CSS files. For compiling LESS files into CSS, Bootstrap officially supports only Recess, which is Twitter's CSS hinter based on less.js.

For better understanding and ease of use, we shall use precompiled version of Bootstrap throughout the tutorial. As the files are complied and minified you don't have to bother every time including separate files for individual functionality. At the time of writing this tutorial the latest version (Bootstrap 3) was downloaded.

File structure
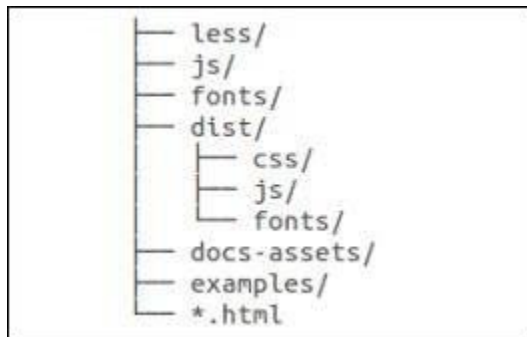
Precompiled Bootstrap

Once the compiled version Bootstrap is downloaded, extract the ZIP file, and you will see the following file/directory structure −

As you can see, there are compiled CSS and JS (bootstrap.*), as well as compiled and minified CSS and JS (bootstrap.min.*). Fonts from Glyphicons are included, as it is the optional Bootstrap theme.

Bootstrap Source Code

If you have downloaded the Bootstrap source code then the file structure would be as follows −

```
├── less/
├── js/
├── fonts/
├── dist/
│   ├── css/
│   ├── js/
│   └── fonts/
├── docs-assets/
├── examples/
└── *.html
```

- The files under *less/*, *js/*, and *fonts/* are the source code for Bootstrap CSS, JS, and icon fonts (respectively).
- The *dist/* folder includes everything listed in the precompiled download section above.
- *docs-assets/*, *examples/*, and all **.html* files are Bootstrap documentation.

What You Can Do with Bootstrap

There are lot more things you can do with Bootstrap.

1. You can easily create responsive websites.

2. You can quickly create multi-column layout with pre-defined classes.

3. You can quickly create different types of form layouts.

4. You can quickly create different variation of navigation bar.

5. You can easily create components like accordions, modals, etc. without writing any JS code.

6. You can easily create dynamic tabs to manage large amount of content.

7. You can easily create tooltips and popovers to show hint text.

8. You can easily create carousel or image slider to showcase your content.

9. You can quickly create different types of alert boxes.

Why do we use Bootstrap?

Initially built by a designer and developer from Twitter, Bootstrap has turned out to be one of the trendiest front-end frameworks in the whole world. Before it became open-source, Bootstrap was firstly identified as Twitter Blueprint. Bootstrap is responsive, mobile-first, prevailing, and front-end framework, which is developed along with CSS, JavaScript, and HTML. Bootstrap has many benefits from scratch for every web development project, and one such reason is the huge number of resources accessible for Bootstrap. If you as a web designer or web developer are new to Bootstrap, we have put forward some of the *10 best reasons that will help in using Bootstrap for remarkable web designs*.

1. Easy to Use

It is extremely an easy and speedy procedure to begin with Bootstrap. Bootstrap is very adaptable too. You can utilize Bootstrap along with CSS, or LESS, or also with Sass [after you download the Sass version].

2. Responsiveness

Every year mobile devices persist to grow hugely popular, and the requirement to have a responsive website has become compulsory and important too. As the fluid grid layout amends vigorously to the appropriate screen resolution, thus crafting a mobile-ready site is a smooth and easy task along with Bootstrap. With the use of ready-made classes of Bootstrap, you can recognize the number of spots in the grid system that you would like each column to engage in. Then only you can identify at whichever point you would like your columns to load in horizontal position, instead of vertically to exhibit accurately on mobile appliances.

3. The Speed of the Development

One of the main benefits of utilizing Bootstrap happens to be the speed of the development. While driving out a new, fresh website or application swiftly, you should certainly reflect upon utilizing Bootstrap. Instead of coding from scrape, Bootstrap lets you to use ready-made coding blocks in order to assist you in setting up. You can blend that along with CSS-Less functionality and cross-browser compatibility that can give way to saving of ample hours of coding. You can even buy ready-made Bootstrap themes and alter them to fit your requirements, for gaining the quickest potential route.

4. Customizable Bootstrap

The Bootstrap can be customized as per the designs of your project. The web developers can make a choice to select the aspects which are required which can be simply complete by utilizing Bootstrap customize page. You just have to tick off all the aspects that you do not require, such as- Common CSS: typography, code, grid system, tables, buttons, forms, print media styles; Components: input groups, button groups, pager, labels, navs, navbar, badges, pagination; JavaScript components: dropdowns, popovers, modals, tooltips, carousels; Utilities: Responsive utilities, basic utilities. Thus your custom version of Bootstrap is all set for download process.

5. Consistency

Few Twitter employees firstly expanded Bootstrap as a framework for boosting the consistency across interior tools. But later the Co-founder Mark Otto after understanding the actual potential released in August 2011 the first open-source version of Bootstrap. He even portrayed how the Bootstrap was enlarged with the use of one core concept- pairing of designers along with developers. Thus Bootstrap became popular on Twitter.

6. Support

As Bootstrap holds a big support community, you can be provided with help whenever there comes any problem. The creators always keep the Bootstrap updated. Presently Bootstrap is hosted, expanded, and preserved on the GitHub along with more than 9,000 commits, as well as more than 500 contributors.

7. Packaged JavaScript Components

Bootstrap approaches with a pack of JavaScript components for including the functionality that crafts it in simple way for operating things, such as tooltips, modal windows, alerts, etc. You can even leave out the writing scripts completely.

8. Simple Integration

Bootstrap can be simply integrated along with distinct other platforms and frameworks, on existing sites and new ones too. You can also utilize particular elements of Bootstrap along with your current CSS.

9. Grid

Bootstrap has the capability to utilize a 12-column grid that is responsive. It also upholds offset and nested elements. The grid can be maintained in a responsive mode, or you can simply modify it to a secured layout.

10. Pre-styled Components

Bootstrap approaches with pre-styled components for alerts, dropdowns, nav bars, etc. Hence, being a feature-rich, Bootstrap provides numerous advantages of using it. Hope you would have understood the above reasons so that you can easily use Bootstrap for making superb web designs for your sites!

Should I use Bootstrap or develop from scratch?

Bootstrap makes your life easier by giving you grid system and components which'll cut a lot of development time, but bootstrap also makes your webpage heavy by forcing the user to download additional CSS, JavaScript (and optionally font files if you want to use glyphicons provided by bootstrap in your website).

But those additional CSS, JavaScript and fonts files won't be a problem, how ?

1. Internet is very fast now a days.
2. You can include Bootstrap's CSS and JavaScript files form CDN's which will take load off of your server.
3. All the modern browsers automatically puts CSS and JavaScript files in the cache so with the first page load your CSS and JavaScript files will copy to the cache and when rest of the pages

load the request for CSS, JavaScript and fonts files won't go to the server but to the user's browser's cache.

So in my opinion go for it. BootStrap and Foundation etc are used by every type of small and big projects.

Which is better, Bootstrap or React?

What is Bootstrap?

It is an open-source front-end system containing HTML, CSS & JavaScript-based plan parts plus communications that help us with planning responsive apps. Owing to its several resources, it has become second most famous UI design. The vital point of that arrangement was to enhance the occupation of the developers and to advance steadiness through interior tools.

What is React?

It is a component-based JavaScript library created by Facebook. Different parts can be made together to build complex apps without dropping their state in document object model.

Difference between Bootstrap vs React

React founded in the year 2013, is an open-source JavaScript library basically kept up with Facebook and a huge local area of designers. Bootstrap was founded on Twitter as well as sent off in 2011, it is also open-source but different to ReactJS, it has HTML and CSS-based plan designs. The client-driven comfort for making websites & making apps makes Bootstrap exceptional.

The presentation of React apps is faster and better is compared with Bootstrap, a lightweight display of customer experience with different parts functioning in an effective way. Reacts part-based design empowers growing stronger single-page apps, reusability eradicates the code mess & reduced document object model control hurries up the page loading. You can practice Bootstrap with React.

You can't work with API in bootstrap. Both are exceptional and unique. React will help you with achieving the business requirements on the Front-End Side & you can include bootstrap. Bootstrap can elaborate your website pages. As React does not have inherent choices to help with making smooth, responsive and instinctive ideas; Bootstrap can contribute for this limitation. Alternately; Bootstrap content can be tedious and confounding.

2 Bootstrap Templates & Navbar[10 M]

Bootstrap Template

A template is a great starting point to create a web page or to create a website/application. Most of the Bootstrap templates are created using simple HTML and CSS.

You can use the below template (programming code) as the starter template for your project.

```html
<!DOCTYPE html>
<html lang="en">
<head>
    <!-- Meta Tags -->
    <meta charset="utf-8">
    <meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no">

    <!-- Bootstrap CSS -->
    <link rel="stylesheet"
href="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/css/bootstrap.min.css">

    <!-- Title -->
    <title>Hello World!</title>
```

```
</head>
<body>

    <h1>Welcome!</h1>

    <!-- Bootstrap JavaScript -->
    <script src="https://code.jquery.com/jquery-3.5.1.slim.min.js"></script>
    <script src="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/js/bootstrap.bundle.min.js"></script>
</body>
</html>
```

Pros and Cons of Using Bootstrap Template

Pros:

There are several advantages of using templates. Some of the advantages are listed below.

- A template is a great starting point to build a website or a software application.
- Even a novice developer can easily get started with developments using templates.
- It is also a great starting point for executing your design ideas since no or fewer design decisions have been made yet.
- It saves time, effort, and cost as well.

Cons:

There are some disadvantages of using templates as well. Some of the disadvantages are listed below.

- Sometimes customization of a template may be difficult if the template has a lot of CSS.
- Without proper customization, all projects look similar.

Bootstrap Navigation Bar

A navigation bar is like a navigation header that is placed at the top of the page. You can collapse or extend it according to the screen size.

You can create a standard navigation bar at the top of the page with with

<nav class="navbar navbar-default">.

Example:

```
<!DOCTYPE html>
<html lang="en">
<head>
  <title>Bootstrap Case</title>
  <meta charset="utf-8">
  <meta name="viewport" content="width=device-width, initial-scale=1">
  <link rel="stylesheet" href="bootstrap-3.3.6/css/bootstrap.min.css">

</head>
<body>

<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">
```

```html
    <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>
<script src="js/jquery.min.js"></script>
<script src="js/js/bootstrap.min.js"></script>
</body>
</html>
```
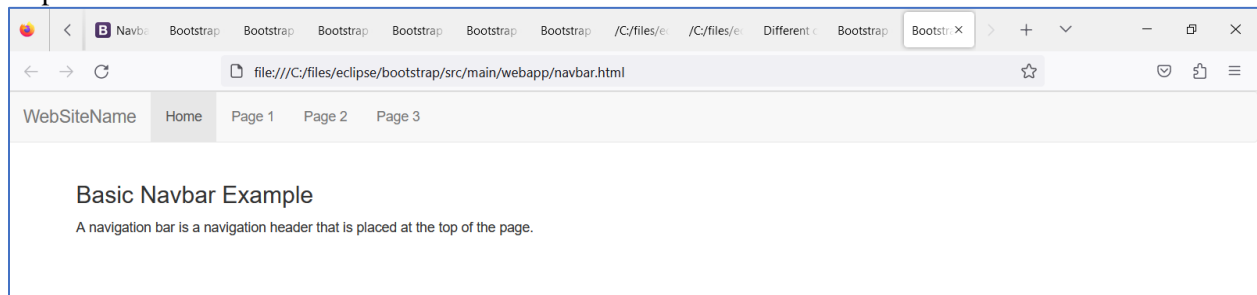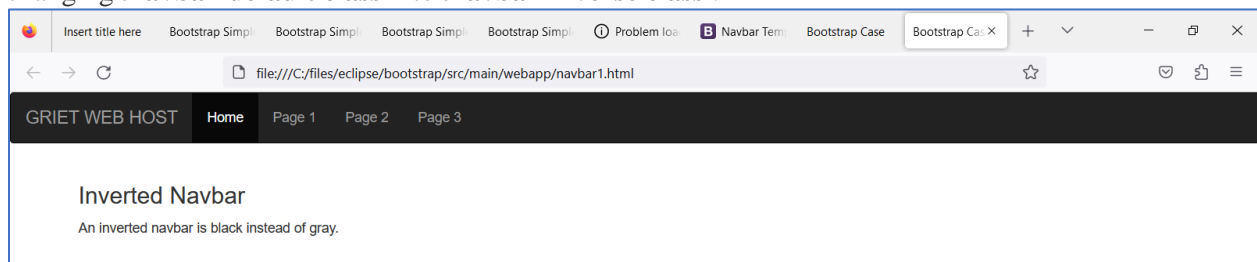
Ouput:

Bootstrap Inverted Navigation Bar

Inverted navigation bar provides an alternative black navbar. It can be used to style the default navigation bar by changing **.navbar-default class** into **.navbar-inverse class** .

Bootstrap Navigation Bar with Dropdown

You can also add dropdown menu with navigation bars. The following example adds a dropdown menu for the "page 1" button.

```html
Example: <!DOCTYPE html>
<html lang="en">
<head>
<title>Bootstrap Case</title>
<meta charset="utf-8">
<meta name="viewport" content="width=device-width, initial-scale=1">
```

```html
<link rel="stylesheet" href="bootstrap-3.3.6/css/bootstrap.min.css">

</head>
<body>

	<nav class="navbar navbar-inverse">
		<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 class="dropdown"><a class="dropdown-toggle"
					data-toggle="dropdown"		href="#">Page	1	<span
class="caret"></span></a>

					<ul class="dropdown-menu">
						<li><a href="#">Page 1-1</a></li>
						<li><a href="#">Page 1-2</a></li>
						<li><a href="#">Page 1-3</a></li>
					</ul></li>
				<li><a href="#">Page 2</a></li>
				<li><a href="#">Page 3</a></li>
			</ul>
		</div>
	</nav>

	<div class="container">
		<h3>Navbar With Dropdown</h3>
		<p>This example adds a dropdown menu for the "Page 1" button in
			the navigation bar.</p>
	</div>
	<script src="jQuery/jquery.min.js"></script>
	<script src="bootstrap-3.3.6/js/bootstrap.min.js"></script>
</body>
</html>
```
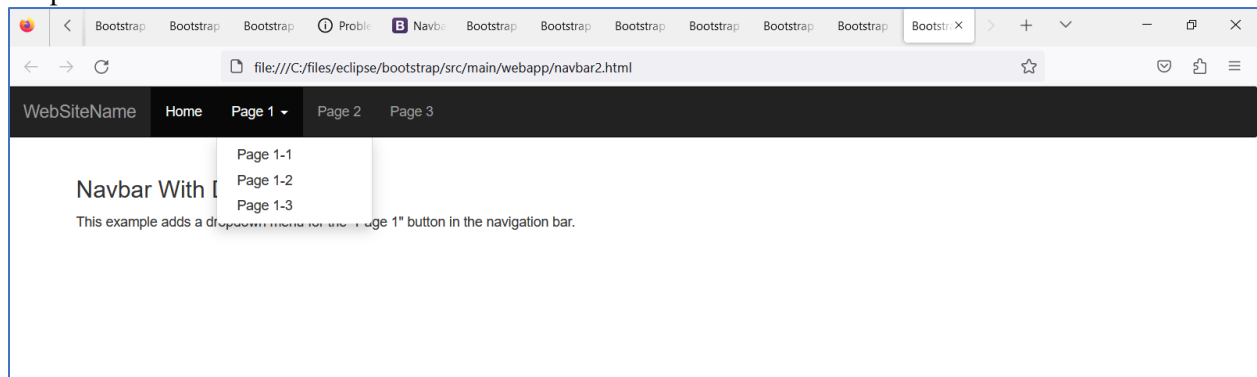
Output:

Bootstrap Right-Aligned Navigation Bar

Use the **.navbar-right class** to right-align navigation bar buttons. In the following example, we add "Sign Up"and "Log in" button to the right in the navigation bar.

```html
<!DOCTYPE html>
<html lang="en">
<head>
  <title>Bootstrap Case</title>
  <meta charset="utf-8">
  <meta name="viewport" content="width=device-width, initial-scale=1">
  <link rel="stylesheet" href="bootstrap-3.3.6/css/bootstrap.min.css">

</head>
<body>

<nav class="navbar navbar-inverse">
  <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 class="dropdown"><a class="dropdown-toggle" data-toggle="dropdown" href="#">Page 1 <span class="caret"></span></a>
        <ul class="dropdown-menu">
          <li><a href="#">Page 1-1</a></li>
          <li><a href="#">Page 1-2</a></li>
          <li><a href="#">Page 1-3</a></li>
        </ul>
      </li>
      <li><a href="#">Page 2</a></li>
      <li><a href="#">Page 3</a></li>
    </ul>
    <ul class="nav navbar-nav navbar-right">
      <li><a href="#"><span class="glyphicon glyphicon-user"></span> Sign Up</a></li>
      <li><a href="#"><span class="glyphicon glyphicon-log-in"></span> Login</a></li>
    </ul>
  </div>
</nav>

<div class="container">
  <h3>Right Aligned Navbar</h3>
  <p>The .navbar-right class is used to right-align navigation bar buttons.</p>
</div>
<script src="jQueary/jquery.min.js"></script>
<script src="bootstrap-3.3.6/js/bootstrap.min.js"></script>
</body>
</html>
```
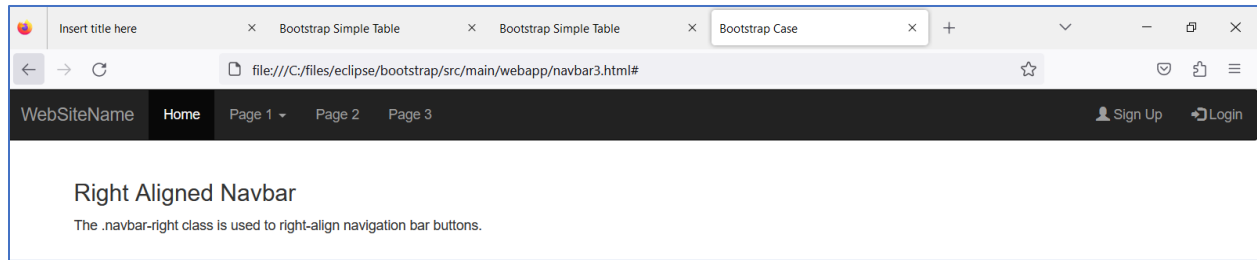
Output

3 Typography: [5M]

In this , we have covered headings, display headings, lead, inline text elements, text alignment, text wrapping, text truncate, word break, text-transform, font-weight, italics, monospace, reset color, text-decoration, colors, abbreviations, blockquotes, responsive font sizes, code, text selection, etc. of Typography.

Headings:

Bootstrap adds styles to all HTML headings (from **\<h1\>** to **\<h6\>**) by adding **bigger Bootstrap font sizes** and **bolder font-weight**.

Example of Headings:

You can try this example by running the below code snippet.

Example code of headings:

```
<h1>This is Heading 1</h1>
<h2>This is Heading 2</h2>
<h3>This is Heading 3</h3>
<h4>This is Heading 4</h4>
<h5>This is Heading 5</h5>
<h6>This is Heading 6 </h6>
```

Browser output of Headings:

The below table shows a comparison between HTML headings with and without Bootstrap.

Browser Output - HTML Headings with Bootstrap 4	Browser Output - HTML Headings without Bootstrap (normal HTML headings)
This is Heading 1 This is Heading 2 This is Heading 3 This is Heading 4 This is Heading 5 This is Heading 6	This is Heading 1 This is Heading 2 This is Heading 3 This is Heading 4 This is Heading 5 This is Heading 6

Did you see the differences?

Display Headings:

Bootstrap makes display headings **stand out more** than normal headings by adding **larger Bootstrap font sizes** and **lighter font-weight** to the headings.

It provides the following four classes for display headings:

- **display-1**: class: This class is used for **display 1** headings.
- **.display-2** class: This class is used for **display 2** headings.
- **.display-3** class: This class is used for **display 3** headings.
- **.display-4** class: This class is used for **display 4** headings.

Example of Display Headings:

You can try this example by running the below code snippet.

Example code of Display Headings:

```
<h1 class="display-1">This is Display 1</h1>
<h1 class="display-2">This is Display 2</h1>
<h1 class="display-3">This is Display 3</h1>
<h1 class="display-4">This is Display 4</h1>
```

Browser output of Display Headings:

This is Display 1
This is Display 2
This is Display 3
This is Display 4

You can compare your output of the Bootstrap headings and Display headings examples and see the differences.

Lead:

Bootstrap uses the **.lead** class to make paragraphs stand out.

Example of Lead:

You can try this example by running the below code snippet.

Example code of Lead:
```
<p class="lead">
Lorem ipsum dolor sit amet, consectetur adipiscing elit. Nullam vel enim iaculis, pretium augue non, consectetur tellus. Aenean efficitur enim interdum elit aliquet rhoncus. Ut ut nisl
 sit amet leo.
</p>
```
Browser output of lead:

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Nullam vel enim iaculis, pretium augue non, consectetur tellus. Aenean efficitur enim interdum elit aliquet rhoncus. Ut ut nisl sit amet leo.

Inline Text Elements:

Bootstrap allows you to add styles to common inline HTML 5 elements.

It uses the following tags for inline text elements:
- **<mark></mark>** tag: This tag is used to indicate **highlighted text**.
- **<del></del>** tag: This tag is used to indicate **deleted text**.
- **<s></s>** tag: This tag is used to indicate the **text that is no longer accurate**.
- **<ins></ins>** tag: This tag is used to indicate **text that is treated as an addition to the document**.
- **<u></u>** tag: This tag is used to indicate **underlined text**.
- **<small></small>** tag: This tag is used to indicate **text that is treated as fine print text**.
- **** tag: This tag is used to indicate **bold text**.
- **** tag: This tag is used to indicate **italicized text**.

Example of Inline Text Elements:
You can try this example by running the below code snippet.
Example code of Inline Text Elements:
```
<p><mark>This is highlighted text.</mark></p>
<p><del>This text is treated as deleted text.</del></p>
<p><s>This text is treated as no longer accurate.</s></p>
<p><ins>This text is treated as an addition to the document.</ins></p>
<p><u>This is underlined text.</u></p>
<p><small>This text is treated as fine print text.</small></p>
<p><strong>This is bold text.</strong></p>
<p><em>This is italicized text.</em></p>
```
Browser output of Inline Text Elements:

This is highlighted text.

~~This text is treated as deleted text.~~

~~This text is treated as no longer accurate.~~

<u>This text is treated as an addition to the document.</u>

<u>This is underlined text.</u>

This text is treated as fine print text.

This is bold text.

This is italicized text.

Text Alignment:

Bootstrap provides the following four classes for Bootstrap center text, left text, right text, and justify text.

- **.text-left** class: This class is used to convert the text into Bootstrap **align left text**.
- **.text-center** class: This class is used to convert the text into Bootstrap **align center text**.
- **.text-right** class: This class is used to convert the text into Bootstrap **align right text**.
- **.text-justify** class: This class is used to convert the text into Bootstrap **align justify text**.

Example of Text Alignments:

You can try this example by running the below code snippet.

Example code of Text Alignments:

```
<p class="text-left">This is left aligned text.</p>
<p class="text-center">This is center aligned text.</p>
<p class="text-right">This is right aligned text.</p>
<p class="text-justify">Lorem ipsum dolor sit amet, consectetur adipiscing elit. Nullam vel enim
 iaculis, pretium augue non, consectetur tellus. Aenean efficitur enim interdum elit aliquet rhoncus. Ut
 ut nisl sit amet leo.
</p>
```

Browser Output of Text Alignments:

This is left aligned text.

                              This is center aligned text.

                                                      This is right aligned text.

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Nullam vel enim iaculis, pretium augue non, consectetur tellus. Aenean efficitur enim interdum elit aliquet rhoncus. Ut ut nisl sit amet leo.

Further you can use the **.text-sm-***, **.text-md-***, **.text-lg-*** and **.text-xl-*** classes to aligned text on viewports sized **SM** (small) or wider, viewports sized **MD** (medium) or wider, viewports sized **LG** (large) or wider and viewports sized **XL** (extra-large) or wider respectively.

Text Wrapping:

Bootstrap uses the class .**text-wrap** to wrap the text and the class **.text-nowrap** class to overflow the parent.

Example of Text Wrapping:
You can try this example by running the below code snippet.
Example code of Text Wrapping:

```
<div class="text-wrap bg-info"style="width: 6rem;">This text should wrap.</div><br>
<div class="text-nowrap bg-info" style="width: 6rem;">This text should overflow the parent.</div>
```

Browser output of Text Wrapping:

This text
should wrap.

This text should overflow the parent.

Text Truncate:

Bootstrap uses the **.text-truncate** class to **truncate the text with an ellipsis**.
Example of Text Truncate:
You can try this example by running the below code snippet.
Example code of Text Truncate:

```
<div class="row">
<div class="col-2 text-truncate">This is an example for text truncate.</div>
```

</div>

Browser output of Text Truncate:

This is an examp...

Word Break:

Bootstrap uses the **.text-break** class to **avoid the breakage of the layout of the component** due to long strings of text.

Example of Word Break:

You can try this example by running the below code snippet.

Example code of Word Break:

<p   class="text-break">aaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaa</p>

Browser output of Word Break:

aaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaa

aaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaa

aaaaaaaaaaaaaaa

Text Transform:

Bootstrap provides the following three classes for text transformation.

- **.text-uppercase** class: This class is used to convert the text into **upper cased text**.
- **.text-lowercase** class: This class is used to convert the text into **lowercased text**.
- **.text-capitalize** class: This class is used to convert the text into **capitalized text** (capitalize the first letter of each word).

Example of Text Transform:

You can try this example by running the below code snippet.

Example code of Text Transform:

<p class="text-uppercase">this is uppercased text.</p>

<p class="text-lowercase">this is lowercased text.</p>

<p class="text-capitalize">this is capitalized text.</p>

Browser output of Text Transform:

THIS IS UPPERCASED TEXT.

this is lowercased text.

This Is Capitalized Text.

Font Weight:

Bootstrap uses the following classes to **change the font-weight**.

It provides the following classes for Bootstrap font-weight:

- **.font-weight-bold** class: This class is used to convert the text into **bold text**.
- **.font-weight-bolder** class: This class is used to convert the text into **bolder weight text**.
- **.font-weight-normal** class: This class is used to convert the text into **normal weight text**.
- **.font-weight-light** class: This class is used to convert the text into lightweight **text**.
- **.font-weight-lighter** class: This class is used to convert the text into **lighter weight** (relative to the parent element) **text**.

Example of Font Weight:

You can try this example by running the below code snippet.

Example code of Font Weight:

```
<p class="font-weight-bold">This is bold text.</p>

<p class="font-weight-bolder">This is bolder weight text (relative to the parent element).</p>

<p class="font-weight-normal">This is normal weight text.</p>

<p class="font-weight-light">This is light weight text.</p>

<p class="font-weight-lighter">This is lighter weight text (relative to the parent element).</p>
```

Browser output of Font Weight:

This is bold text.

This is bolder weight text (relative to the parent element).

This is normal weight text.

This is light weight text.

This is lighter weight text (relative to the parent element).

Italics:

Bootstrap uses the **.font-italic** class to convert the text into **italics text**.

Example of Italics:

You can try this example by running the below code snippet.

Example code of Italics:

```
<p class="font-italic">This is italic text.</p>
```

Browser output of Italics:

This is italic text.

Monospace:

Bootstrap uses the **.text-monospace** class to convert the text into a **monospace font**.

Example of Monospace:

You can try this example by running the below code snippet.

Example code of Monospace:

```
<p class="text-monospace">This text is in monospace</p>
```

Browser output of Monospace:

This text is in monospace

Reset Color:

Bootstrap uses the **.text-muted** class to **reset the color**.

Example of Reset color:

You can try this example by running the below code snippet.

Example code of Reset Color:

```
<p class="text-muted">
This is muted text with a <a href="#" class="text-reset">reset link</a>.
</p>
```

- **Browser output of Reset Color:**

This is muted text with a reset link.

Text Decoration:

Bootstrap uses the **.text-decoration-none** class to **remove the text decoration**.

Example of Text Decoration:

You can try this example by running the below code snippet.

Example code of Text decoration:

```
<a href="#" class="text-decoration-none">This is a non-underlined link</a>
```

Browser output of Text Decoration:

This is a non-underlined link

Text Colors:

Bootstrap utility classes help to **add colors to the text**. It provides the following classes for text colors.

- **.text-primary** class: This class is used to indicate the **primary text** color.
- **.text-secondary** class: This class is used to indicate the **secondary text** color.
- **.text-success** class: This class is used to indicate the **success text** color.
- **.text-danger** class: This class is used to indicate the **danger text** color.
- **.text-warning** class: This class is used to indicate the **warning text** color.
- **.text-info** class: This class is used to indicate the **info text** color.
- **.text-light** class: This class is used to indicate the **light text** color.
- **.text-dark** class: This class is used to indicate the **dark text** color.
- **.text-body** class: This class is used to indicate the **body text** color.
- **.text-muted** class: This class is used to indicate the **muted text** color.
- **.text-white** class: This class is used to indicate the **white text** color.
- **.text-black** class: This class is used to indicate the **black text** color.

Example of Text Colors:

You can try this example by running the below code snippet.

Example code of Text Colors:

```
<p class="text-primary">This is primary color text (.text-primary class)</p>

<p class="text-secondary">This is secondary color text (.text-secondary class)</p>
```

<p class="text-success">This is success color text (.text-success class)</p>

<p class="text-danger">This is danger color text (.text-danger class)</p>

<p class="text-warning">This is warning color text (.text-warning class)</p>

<p class="text-info">This is info color text (.text-info class)</p>

<p class="text-light bg-dark">This is light color text (.text-light class)</p>

<p class="text-dark">This is dark color text (.text-dark class)</p>

<p class="text-body">This is body color text (.text-body class)</p>

<p class="text-muted">This is muted color text (.text-muted class)</p>

<p class="text-white bg-dark">This is white color text (text-white class)</p>

<p class="text-black">This is black color text (.text-black class)</p>
Browser output of Text Colors:

This is primary color text (.text-primary class)

This is secondary color text (.text-secondary class)

This is success color text (.text-success class)

This is danger color text (.text-danger class)

This is warning color text (.text-warning class)

This is info color text (.text-info class)

This is light color text (.text-light class)

This is dark color text (.text-dark class)

This is body color text (.text-body class)

This is muted color text (.text-muted class)

This is white color text (text-white class)

This is black color text (.text-black class)

Background Colors:

Bootstrap utility classes help to **add colors to the background**.

It provides the following classes for background colors.

- **.bg-primary** class: This class is used to indicate the **primary background** color.
- **.bg-secondary** class: This class is used to indicate the **secondary background** color.
- **.bg-success** class: This class is used to indicate the **success background** color.
- **.bg-danger** class: This class is used to indicate the **danger background** color.
- **.bg-warning** class: This class is used to indicate the **warning background** color.
- **.bg-info** class: This class is used to indicate the **info background** color.
- **.bg-light** class: This class is used to indicate the **light background** color.
- **.bg-dark** class: This class is used to indicate a **dark background** color.
- **.bg-white** class: This class is used to indicate the **white background** color.
- **.bg-transparent** class: This class is used to indicate a **transparent background** color.

Example of Background Colors:

You can try this example by running the below code snippet.

Example code of Background Colors:

<div class="p-3 mb-2 bg-primary text-white">This is primary background color (.bg-primary class)</div>
<div class="p-3 mb-2 bg-secondary text-white">This is secondary background color (.bg-secondary class)</div>
<div class="p-3 mb-2 bg-success text-white">This is success background color (.bg-success class)</div>
<div class="p-3 mb-2 bg-danger text-white">This is danger background color (.bg-danger class)</div>
<div class="p-3 mb-2 bg-warning text-dark">This is warning background color (.bg-warning class)</div>
<div class="p-3 mb-2 bg-info text-white">This is info background color (.bg-info class)</div>
<div class="p-3 mb-2 bg-light text-dark">This is light background color (.bg-light class)</div>
<div class="p-3 mb-2 bg-dark text-white">This is dark background color (.bg-dark class)</div>
<div class="p-3 mb-2 bg-white text-dark">This is white background color (.bg-white class)</div>
<div class="p-3 mb-2 bg-transparent text-dark">This is transparent background color (.bg-transparent class)</div>

Browser output of Background Colors:

This is primary background color (.bg-primary class)

This is secondary background color (.bg-secondary class)

This is success background color (.bg-success class)

This is danger background color (.bg-danger class)

This is warning background color (.bg-warning class)

This is info background color (.bg-info class)

This is light background color (.bg-light class)

This is dark background color (.bg-dark class)

This is white background color (.bg-white class)

This is transparent background color (.bg-transparent class)

Background Gradient:

Bootstrap utility classes provide a way to **add different color gradients to the background**. You need to set the **$enable-gradients** variable to **true** (default is false) to enable background gradients.

The following list shows the available classes for Background Gradients.

- **.bg-gradient-primary** class: This class is used to indicate the **primary background** gradient.
- **.bg-gradient-secondary** class: This class is used to indicate the **secondary background** gradient.
- **.bg-gradient-success** class: This class is used to indicate the **success background** gradient.
- **.bg-gradient-danger** class: This class is used to indicate the **danger background** gradient.
- **.bg-gradient-warning** class: This class is used to indicate the **warning background** gradient.
- **.bg-gradient-info** class: This class is used to indicate the **info background** gradient.
- **.bg-gradient-light** class: This class is used to indicate the **light background** gradient.
- **.bg-gradient-dark** class: This class is used to indicate the **dark background** gradient.

Abbreviations:

Bootstrap allows you to style **<abbr>** element. The expanded version will be shown on hover.
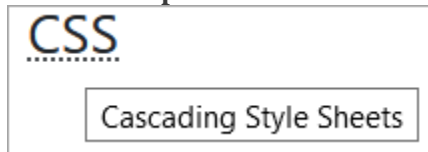
Example of Abbreviations:

You can try this example by running the below code snippet.

Example code of Abbreviations:

`<p><abbr title="Cascading Style Sheets">CSS</abbr></p>`

Browser output of Abbreviations:

CSS
Cascading Style Sheets

Blockquotes:

You can add the **.blockquote** class into a **<blockquote>** tag when the quoting content blocks from other resources.
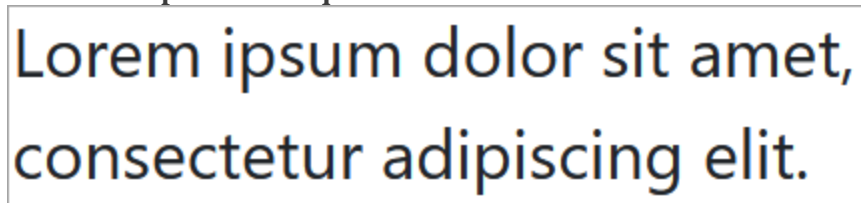
Example of Blockquotes:

You can try this example by running the below code snippet.

Example code of Blockquotes:

```
<blockquote class="blockquote">
<p>Lorem ipsum dolor sit amet, consectetur adipiscing elit.</p>
</blockquote>
```

Browser output of Blockquotes:

Lorem ipsum dolor sit amet, consectetur adipiscing elit.

Responsive Font Sizes:

Bootstrap version 4.3.0 provides a facility to enable responsive font sizes. Set the **$enable-responsive-font-sizes** Sass variable to **true** and **recompile Bootstrap** to enable responsive font sizes.

You may visit this link to get more details about Bootstrap responsive font sizes.

Code

Inline code:

Bootstrap uses the **<code>** tag to **wrap inline code segments**.

Note: Angle brackets should not be used.

Example of Inline Code:

You can try this example by running the below code snippet.

Example code of Inline Code:

This <code><section></code> should wrap as inline.

Browser output of Inline Code:

This `<section>` should wrap as inline.

Code Blocks:

Bootstrap uses the **<pre>** tags for **multiple code lines**. You may use the **.pre-scrollable** class to set **max-height: 340px** and insert a **scrollbar** (Y-axis).

Note: Angle brackets should not be used.

Example of Code Blocks:

You can try this example by running the below code snippet.

Example code of Code Blocks:

<pre><code><p>This is sample text.</p>
<p>This is another line of sample text.</p>
</code></pre>

Browser output of Code Blocks:

```
<p>This is sample text.</p>
<p>This is another line of sample text.</p>
```

Variables:

Bootstrap uses the **<var>** tag to indicate **variables**.

Example of Variables:

You can try this example by running the below code snippet.

Example code of Variables:

<var>y</var> = <var>m</var><var>x</var> + <var>c</var>

Browser output of Variables:

$y = mx + c$

User Input:

Bootstrap uses the **<kbd>** tag to indicate **keyboard input** entered by the user.

Example of User Input:

You can try this example by running the below code snippet.

Example code of User Input:

Type <kbd>cd</kbd> followed by the directory name to switch directories.
Press <kbd><kbd>ctrl</kbd> + <kbd>,</kbd></kbd> to edit settings

Browser output of User Input:

Type `cd` followed by the directory name to switch directories.
Press `ctrl + ,` to edit settings

Sample Output

Bootstrap uses the **<samp>** tag to indicate a **sample output** that belongs to a computer program.

Example of Sample Output:

You can try this example by running the below code snippet.

Example code of Sample Output:

<samp>This text is a sample output.</samp>

Browser output of Sample Output:

```
This text is a sample output.
```

Text Selection:

Bootstrap text selection **changes the way in which the content is selected when a user interacts with the content**.

It provides the following three classes for text selection.
- **.user-select-all:** This class is used to **fully select the text** when clicked by the user.
- **.user-select-auto:** This class is used to indicate the **default select behaviour**.
- **.user-select-none:** This class is used to **disable the text selection** when clicked by the user.

<u>Example of Text Selection:</u>

You can try this example by running the below code snippet.

Example code of Text Selection:

<p class="user-select-all">This text will be fully selected when clicked by the user.</p>
<p class="user-select-auto">This is the default select behavior.</p>
<p class="user-select-none">This text will not be selectable when clicked by the user.</p>

Browser output of Text Selection:

This text will be fully selected when clicked by the user.

This is the default select behavior.

This text will not be selectable when clicked by the user.

Frequently Asked Questions:

In this section, we will look at some of the frequently asked questions of Bootstrap typography.

Q #1) Does Bootstrap add styles to the HTML 5 headings.

Answer: Yes, it adds styles to all the HTML 5 headings.

Q #2) What is the difference between Bootstrap headings and Display headings?

Answer: The Bootstrap display headings stand out more than the normal Bootstrap headings. Bootstrap display headings have a larger font size and lighter font weight when compared to the normal Bootstrap headings.

Q #3) What are the classes used for display headings?

Answer: It supports four display headings and uses .display-1 class, .display-2 class, .display-3 class and .display-4 class.

Q #4) What is the purpose of using lead?

Answer: It is used to make paragraphs stand out.

Q #5) How can you convert a lowercase word into an uppercase word?

Answer: You can use the .text-uppercase class to covert the text into uppercase**.**

Q #6) Does Bootstrap support responsive font sizes?

Answer: Yes, it supports responsive font sizes.

Bootstrap provides several classes to style text in various ways. Bootstrap color utilities help to add a wide range of colors to the text. Further, it supports responsive font sizes.

4 Bootstrap Forms & Tables:

Bootstrap Forms

In Bootstrap, there are three types of form layouts:
- o   Vertical form (this is default)
- o   Horizontal form
- o   Inline form

Bootstrap Form Rules

There are three standard rules for these 3 form layouts:
- o   Always use **<form role="form">** (helps improve accessibility for people using screen readers)
- o   Wrap labels and form controls in **<div class="form-group">** (needed for optimum spacing)
- o   **Add class .form-control** to all textual **<input>, <textarea>, and <select>** elements

1) Bootstrap Vertical Form (Default)

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <title>Bootstrap example</title>
    <link rel="stylesheet" href="bootstrap-3.3.6/css/bootstrap.min.css"/>
  </head>
  <body>

<div class="container">
  <h1>Vertical Form Example</h1>

<form style="width:300px" action="valid.jsp">
  <div class="form-group">
    <label for="exampleInputEmail1">Email address</label>
    <input type="email" class="form-control" id="exampleInputEmail1" placeholder="Email">
  </div>
  <div class="form-group">
    <label for="exampleInputPassword1">Password</label>
    <input type="password" class="form-control" id="exampleInputPassword1" placeholder="Password">
  </div>

  <button type="submit" class="btn btn-default">Login</button>
</form>

</div>
```

```html
<script src="jQuery/jquery.min.js"></script>
 <script src="js/bootstrap.min.js"></script>
 </body>
</html>
```

Output:

2) Bootstrap Inline Form

In Bootstrap Inline forms, all elements are inline, left-aligned, and the labels are alongside.

This example is only applied to forms within viewports that are at least 768px wide!
```html
<!DOCTYPE html>
<html lang="en">
 <head>
   <title>Bootstrap example</title>
   <link rel="stylesheet" href="bootstrap-3.3.6/css/bootstrap.min.css"/>
 </head>
 <body>

<div class="container">
 <h1>Vertical Form Example</h1>

<form style="width:300px" action="valid.jsp">
 <div class="form-group">
  <label for="exampleInputEmail1">Email address</label>
  <input type="email" class="form-control" id="exampleInputEmail1" placeholder="Email">
 </div>
 <div class="form-group">
  <label for="exampleInputPassword1">Password</label>
  <input type="password" class="form-control" id="exampleInputPassword1" placeholder="Password">
 </div>

 <button type="submit" class="btn btn-default">Login</button>
```
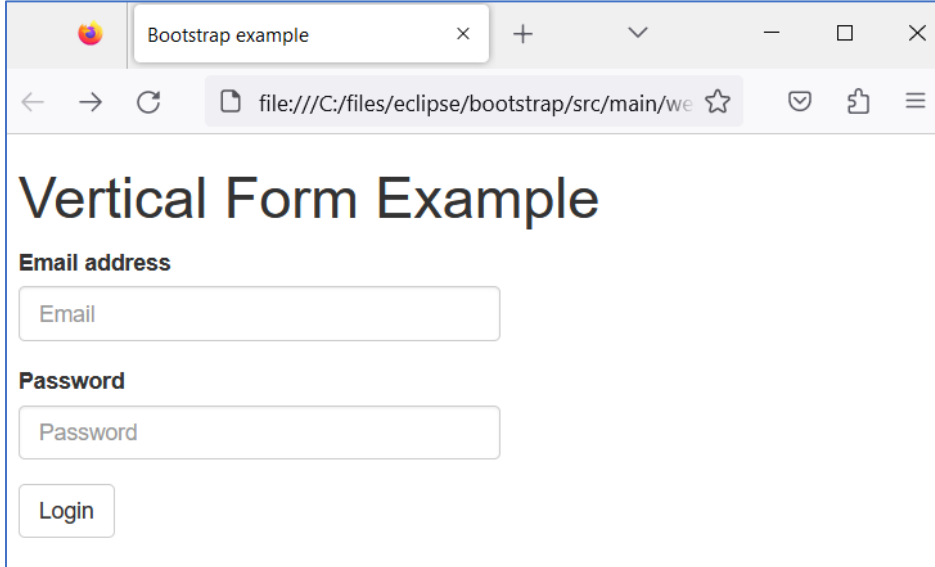
```
</form>

</div>

<script src="jQuery/jquery.min.js"></script>
 <script src="js/bootstrap.min.js"></script>
  </body>
</html>
```

Output:

3) Bootstrap Horizontal Form

You have to add some additional rules if you want to create a horizontal form.

Additional rules for a horizontal form:

- Add class .form-horizontal to the <form> element
- Add class .control-label to all <label> elements

Example:
```
<!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="bootstrap-3.3.6/css/bootstrap.min.css">

</head>
<body>

        <div class="container">
                <h2>Horizontal form Example</h2>
                <form class="form-horizontal" role="form">
                    <form style="width: 300px">
                        <div class="form-group">
                            <label class="control-label col-sm-2" for="email">Email:</label>
                            <div class="col-sm-10">
                                <input type="email" class="form-control" id="email"
                                    placeholder="Enter email">
                        </div>
```

```html
                </div>
                <div class="form-group">
                        <label class="control-label col-sm-2" for="pwd">Password:</label>
                        <div class="col-sm-10">
                                <input type="password" class="form-control" id="pwd"
                                        placeholder="Enter password">
                        </div>
                </div>

                <div class="form-group">
                        <div class="col-sm-offset-2 col-sm-10">
                                <button type="submit" class="btn btn-
default">Submit</button>
                        </div>
                </div>
        </form>
    </div>
    <script src="jQuery/jquery.min.js"></script>
    <script src="bootstrap-3.3.6/js/bootstrap.min.js"></script>

</body>
</html>
```
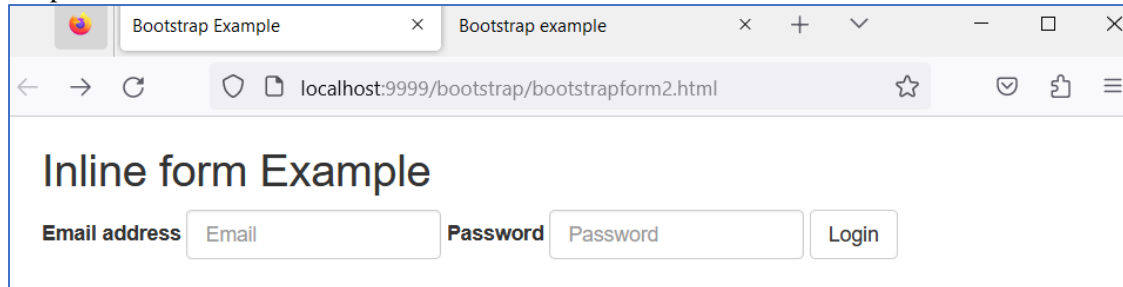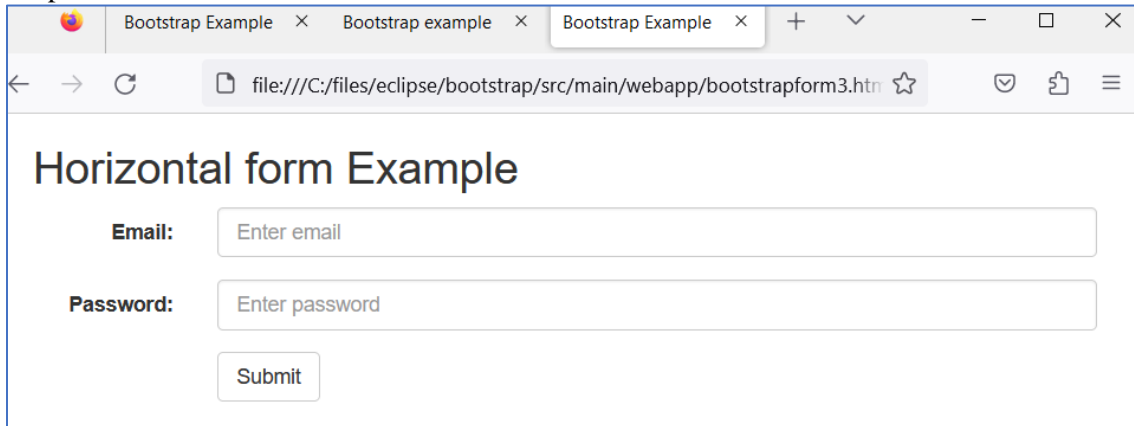
Output:

Bootstrap Tables:

In this, we have covered basic Bootstrap 4 table, table caption, table head options, small table, bordered & borderless tables, striped rows & hoverable rows, dark tables, contextual classes for table rows, table heads & table cells, contextual classes for the background of the table rows, table heads & table cells, Bootstrap responsive tables.

Creating a Bootstrap table is easy and straightforward. You need to add the **.table** class to **<table>**.

The following table summarizes the classes of Bootstrap 4 tables.

Class	Usage
.table	Convert a normal HTML table into a Bootstrap table
.thead-light	Add a light table head to a table
.thead-dark	Add a dark table head to a table
.table-sm	Convert a table into a small table.
.table-bordered	Add borders to a table.
.table-borderless	Remove borders from a table.
.table-striped	Add striped rows to a table.
.table-hover	Add hoverable rows to a table.
.table-active	Add grey color to a table.
.table-primary	Add blue color to a table.
.table-secondary	Add grey color to a table.
.table-success	Add green color to a table.
.table-danger	Add red color to a table.
.table-warning	Add orange color to a table.
.table-info	Add a light blue color to a table.
.table-light	Add a light grey color to a table.
.table-dark	Add a dark grey color to a table.
.bg-primary	Add blue color to the background of a table.
.bg-secondary	Add grey color to the background of a table.
.bg-success	Add green color to the background of a table.
.bg-danger	Add red color to the background of a table.
.bg-warning	Add orange color to the background of a table.
.bg-info	Add a light blue color to the background of a table.
.bg-light	Add a light grey color to the background of a table.
.bg-dark	Add a dark grey color to the background of a table.
.table-responsive	Make a table an always responsive table.
.table-responsive-sm	Make a table a responsive table when the screen size is small (screen width less than 576px).
.table-responsive-md	Make a table a responsive table when the screen size is medium (screen width less than 768px).
.table-responsive-lg	Make a table a responsive table when the screen size is large (screen width less than 992px).
.table-responsive-xl	Make a table a responsive table when the screen size is extra-large (screen width less than 1200px).

Example of a basic Bootstrap 4 table:

The below programming code shows an example of a basic Bootstrap 4 table. You can try this example by running the below programming code.

```html
<!DOCTYPE html>
<html lang="en">
<head>
    <link rel="stylesheet" href="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/css/bootstrap.min.css">
</head>
<body>
    <div class="container mt-3">

        <table class="table">
            <thead>
                <tr>
                    <th>#</th>
                    <th>Student</th>
                    <th>Result</th>
                </tr>
            </thead>
            <tbody>
                <tr>
                    <th>1</th>
                    <td>Oliver</td>
                    <td>Pass</td>
                </tr>
                <tr>
                    <th>2</th>
                    <td>Benjamin</td>
                    <td>Pass</td>
                </tr>
                <tr>
                    <th>3</th>
                    <td>Amelia</td>
                    <td>Absent</td>
                </tr>
            </tbody>
        </table>

    </div>
</body>
</html>
```

The below screenshot shows the browser output of the above programming code.

#	Student	Result
1	Oliver	Pass
2	Benjamin	Pass
3	Amelia	Absent

Table Head Options:

There are two types of table heads. They are:

1. **Light table head:** Add the **.thead-light** class to **<thead>** to create a light table head.
2. **Dark table head:** Add the **.thead-dark** class to **<thead>** to create a dark table head.

Example of table head options:

The below programming code shows an example of a table with a light table head and a table with a dark table head. You can try this example by running the below programming code.

```html
<!DOCTYPE html>
<html lang="en">
<head>
  <link rel="stylesheet" href="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/css/bootstrap.min.css">
</head>
<body>
  <div class="container mt-3">

    <!-- table with light heads -->
    <table class="table">
      <thead class="thead-light">
        <tr>
         <th>Name</th>
         <th>Username</th>
        </tr>
      </thead>
      <tbody>
        <tr>
          <td>Rahul</td>
          <td>rahul@example.com</td>
        </tr>
        <tr>
          <td>Praveen</td>
          <td>praveen@example.com</td>
        </tr>
      </tbody>
    </table>

    <!-- table with dark heads -->
    <table class="table">
      <thead class="thead-dark">
        <tr>
         <th>Name</th>
         <th>Username</th>
        </tr>
      </thead>
      <tbody>
        <tr>
          <td>Rahul</td>
          <td>rahul@example.com</td>
        </tr>
        <tr>
```

```
            <td>Praveen</td>
            <td>praveen@example.com</td>
          </tr>
        </tbody>
      </table>

    </div>
  </body>
</html>
```
The below screenshot shows the browser output of the above programming code. (**The first table shows a table with a light table head and the second table shows a table with a dark table head.**)

Name	Username
Rahul	rahul@example.com
Praveen	praveen@example.com

Name	Username
Rahul	rahul@example.com
Praveen	praveen@example.com

Small Table:

Add the **.table-sm** class to **<table>** to reduce the size of a table.

Example of a small table:

The below programming code shows an example of a small table. You can try this example by running the below programming code.

```
<!DOCTYPE html>
<html lang="en">
<head>
  <link rel="stylesheet" href="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/css/bootstrap.min.css">
</head>
<body>
  <div class="container mt-3">
    <div class="row">
      <div class="col">
        <table class="table table-sm">
          <thead>
            <tr>
              <th>#</th>
              <th>Student</th>
              <th>Result</th>
            </tr>
          </thead>
          <tbody>
            <tr>
              <th>1</th>
              <td>Oliver</td>
```

```html
            <td>Pass</td>
          </tr>
          <tr>
            <th>2</th>
            <td>Benjamin</td>
            <td>Pass</td>
          </tr>
          <tr>
            <th>3</th>
            <td>Amelia</td>
            <td>Absent</td>
          </tr>
        </tbody>
      </table>
    </div>
   </div>
  </div>
</body>
</html>
```

The below screenshot shows the browser output of the above programming code.

#	Student	Result
1	Oliver	Pass
2	Benjamin	Pass
3	Amelia	Absent

Table Caption:

Add the **<caption>…</caption>** element right after the opening of the table tag, <table>, to add a caption to a table.

Example of a table with a caption:

The below programming code shows an example of a table with a caption. You can try this example by running the below programming code.

```html
<!DOCTYPE html>
<html lang="en">
<head>
  <link rel="stylesheet" href="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/css/bootstrap.min.css">
</head>
<body>
  <div class="container mt-3">

    <table class="table">
      <caption>Delivery Orders</caption>
      <thead>
        <tr>
          <th>Invoice No.</th>
          <th>Status</th>
        </tr>
      </thead>
      <tbody>
```

```
      <tr>
        <td>185963</td>
        <td>Delivered</td>
      </tr>
      <tr>
        <td>199695</td>
        <td>Pending</td>
      </tr>
      <tr>
        <td>200192</td>
        <td>Pending</td>
      </tr>
    </tbody>
  </table>

  </div>
</body>
</html>
```

The below screenshot shows the browser output of the above programming code.

Invoice No.	Status
185963	Delivered
199695	Pending
200192	Pending
Delivery Orders	

Bordered And Borderless Tables:

Add the **.table-bordered** class to **<table>** to add borders to a table and add the **.table-borderless** class to **<table>** to remove borders from a table.

Example of bordered and borderless tables:

The below programming code shows an example of a bordered table and a borderless table. You can try this example by running the below programming code.

```
<!DOCTYPE html>
<html lang="en">
<head>
  <link rel="stylesheet" href="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/css/bootstrap.min.css">
</head>
<body>
  <div class="container mt-3">

    <table class="table table-bordered">
      <caption>Bordered Table</caption>
      <thead>
       <tr>
        <th>Country</th>
        <th>Capital</th>
       </tr>
```

```html
        </thead>
        <tbody>
          <tr>
            <td>India</td>
            <td>New Delhi</td>
          </tr>
          <tr>
            <td>United States</td>
            <td>Washington, D.C.</td>
          </tr>
        </tbody>
      </table>

      <table class="table table-borderless">
      <caption>Borderless Table</caption>
        <thead>
          <tr>
            <th>Country</th>
            <th>Capital</th>
          </tr>
        </thead>
        <tbody>
          <tr>
            <td>India</td>
            <td>New Delhi</td>
          </tr>
          <tr>
            <td>United States</td>
            <td>Washington, D.C.</td>
          </tr>
        </tbody>
      </table>

    </div>
</body>
</html>
```
The below screenshot shows the browser output of the above programming code. (**The first table shows a bordered table and the second table shows a borderless table.**)

Country	Capital
India	New Delhi
United States	Washington, D.C.

Bordered Table

Country	Capital
India	New Delhi
United States	Washington, D.C.

Borderless Table

Striped Rows and Hoverable Rows:

To convert rows into striped rows, add the **.table-striped** class to **\<table\>**, and to convert rows into hoverable rows, add the **.table-hover** class to **\<table\>**.

Example of striped rows and hoverable rows:

The below programming code shows an example of a table with striped rows and a table with hoverable rows. You can try this example by running the below programming code.

```html
<!DOCTYPE html>
<html lang="en">
<head>
  <link rel="stylesheet" href="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/css/bootstrap.min.css">
</head>
<body>
  <div class="container mt-3">
    <div class="row">
      <div class="col">
        <table class="table table-striped">
        <caption>Table with Striped Rows</caption>
          <thead>
            <tr>
              <th>#</th>
              <th>Subject</th>
              <th>Marks</th>
            </tr>
          </thead>
          <tbody>
            <tr>
              <th>1</th>
              <td>Computer Science</td>
              <td>92</td>
            </tr>
            <tr>
```

```html
      <th>2</th>
      <td>English </td>
      <td>85</td>
   </tr>
   <tr>
      <th>3</th>
      <td>History</td>
      <td>60</td>
   </tr>
   <tr>
      <th>4</th>
      <td>Mathematics</td>
      <td>90</td>
   </tr>
   <tr>
      <th>5</th>
      <td>Science</td>
      <td>77</td>
   </tr>
   </tbody>
</table>

<table class="table table-hover">
<caption>Table with Hoverable Rows</caption>
   <thead>
      <tr>
         <th>#</th>
         <th>Subject</th>
         <th>Marks</th>
      </tr>
   </thead>
   <tbody>
      <tr>
         <th>1</th>
         <td>Computer Science</td>
         <td>92</td>
      </tr>
      <tr>
         <th>2</th>
         <td>English </td>
         <td>85</td>
      </tr>
      <tr>
         <th>3</th>
         <td>History</td>
         <td>60</td>
      </tr>
      <tr>
         <th>4</th>
         <td>Mathematics</td>
         <td>90</td>
```

```
            </tr>
            <tr>
                <th>5</th>
                <td>Science</td>
                <td>77</td>
            </tr>
        </tbody>
    </table>
    </div>
    </div>
    </div>
</body>
</html>
```
The below screenshot shows the browser output of the above programming code.

#	Subject	Marks
1	Computer Science	92
2	English	85
3	History	60
4	Mathematics	90
5	Science	77

Table with Striped Rows

#	Subject	Marks
1	Computer Science	92
2	English	85
3	History	60
4	Mathematics	90
5	Science	77

Table with Hoverable Rows

When you move the cursor to a table row, it will turn grey.

Dark Tables:

In this section, we are going to talk about three types of dark tables. They are,

1. Bordered dark tables: Add the **.table-bordered** class and the **.table-dark** class to create a bordered dark table.
2. Borderless dark tables: Add the **.table-borderless** class and the **.table-dark** class to create a borderless dark table.
3. Dark striped tables: Add the **.table-striped** class and the **.table-dark** class to create a dark striped table.

Example of dark tables:

The below programming code shows an example of a bordered dark table, a borderless dark table, and a dark striped table. You can try this example by running the below programming code.

```
<!DOCTYPE html>
<html lang="en">
<head>
  <link rel="stylesheet" href="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/css/bootstrap.min.css">
</head>
<body>
  <div class="container mt-3">

    <table class="table table-bordered table-dark">
    <caption>Bordered Dark Table</caption>
      <thead>
        <tr>
          <th>Employee</th>
          <th>Salary</th>
        </tr>
      </thead>
      <tbody>
        <tr>
          <td>Mr. Peter</td>
          <td>$30,000</td>
        </tr>
        <tr>
          <td>Mr. Arnold</td>
          <td>$70,000</td>
        </tr>
        <tr>
          <td>Mr. Frank</td>
          <td>$30,000</td>
        </tr>
        <tr>
          <td>Mr. Hooper</td>
          <td>$25,000</td>
        </tr>
      </tbody>
    </table>

    <table class="table table-borderless table-dark">
    <caption>Borderless Dark Table</caption>
      <thead>
        <tr>
```

```html
          <th>Employee</th>
          <th>Salary</th>
        </tr>
      </thead>
      <tbody>
        <tr>
          <td>Mr. Peter</td>
          <td>$30,000</td>
        </tr>
        <tr>
          <td>Mr. Arnold</td>
          <td>$70,000</td>
        </tr>
        <tr>
          <td>Mr. Frank</td>
          <td>$30,000</td>
        </tr>
        <tr>
          <td>Mr. Hooper</td>
          <td>$25,000</td>
        </tr>
      </tbody>
</table>

<table class="table table-striped table-dark">
<caption>Dark Striped Table</caption>
    <thead>
      <tr>
        <th>Employee</th>
        <th>Salary</th>
      </tr>
    </thead>
    <tbody>
      <tr>
        <td>Mr. Peter</td>
        <td>$30,000</td>
      </tr>
      <tr>
        <td>Mr. Arnold</td>
        <td>$70,000</td>
      </tr>
      <tr>
        <td>Mr. Frank</td>
        <td>$30,000</td>
      </tr>
      <tr>
        <td>Mr. Hooper</td>
        <td>$25,000</td>
      </tr>
    </tbody>
</table>
```

</**div**>
    </**body**>
</**html**>
The below screenshot shows the browser output of the above programming code.

Contextual Classes For Table Rows, Table Heads And Table Cells
Use the following contextual classes for the table rows, table heads, and table cells. It will add various colors to the components of the table.

- **.table-active** – Add grey color to a table.
- **.table-primary** – Add blue color to a table.
- **.table-secondary** – Add grey color to a table.
- **.table-success** – Add green color to a table.
- **.table-danger** – Add red color to a table.
- **.table-warning** – Add orange color to a table.
- **.table-info** – Add a light blue color to a table.
- **.table-light** – Add a light grey color to a table.

- **.table-dark** – Add a dark grey color to a table.

Example of contextual classes for the table rows, table heads, and table cells:

The below programming code shows examples of contextual classes for the table rows, table heads, and table cells. You can try this example by running the below programming code.

```html
<!DOCTYPE html>
<html lang="en">
<head>
  <link rel="stylesheet" href="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/css/bootstrap.min.css">
</head>
<body>
  <div class="container mt-3">
    <div class="row">
      <div class="col">
        <table class="table">
        <caption>Contextual classes for table rows</caption>
          <thead>
          <tr>
           <th>Class</th>
           <th>Heading</th>
           <th>Heading</th>
          </tr>
          </thead>
          <tbody>
          <tr class="table-active">
            <th>Active</th>
            <td>Cell</td>
            <td>Cell</td>
          </tr>
          <tr class="table-primary">
            <th>Primary</th>
            <td>Cell</td>
            <td>Cell</td>
          </tr>
          <tr class="table-secondary">
            <th>Secondary</th>
            <td>Cell</td>
            <td>Cell</td>
          </tr>
          <tr class="table-success">
            <th>Success</th>
            <td>Cell</td>
            <td>Cell</td>
          </tr>
          <tr class="table-danger">
            <th>Danger</th>
            <td>Cell</td>
            <td>Cell</td>
          </tr>
          <tr class="table-warning">
            <th>Warning</th>
```

```html
        <td>Cell</td>
        <td>Cell</td>
      </tr>
      <tr class="table-info">
        <th>Info</th>
        <td>Cell</td>
        <td>Cell</td>
      </tr>
      <tr class="table-light">
        <th>Light</th>
        <td>Cell</td>
        <td>Cell</td>
      </tr>
      <tr class="table-dark">
        <th>Dark</th>
        <td>Cell</td>
        <td>Cell</td>
      </tr>
      </tbody>
    </table>
</div>
<div class="col">
    <table class="table">
    <caption>Contextual classes for table heads and table cells</caption>
      <thead>
      <tr>
        <th>Class</th>
        <th>Heading</th>
        <th>Heading</th>
      </tr>
      </thead>
      <tbody>
      <tr>
        <th class="table-active">Active</th>
        <td class="table-active">Cell</td>
        <td class="table-active">Cell</td>
      </tr>
      <tr>
        <th class="table-primary">Primary</th>
        <td class="table-primary">Cell</td>
        <td class="table-primary">Cell</td>
      </tr>
      <tr>
        <th class="table-secondary">Secondary</th>
        <td class="table-secondary">Cell</td>
        <td class="table-secondary">Cell</td>
      </tr>
      <tr>
        <th class="table-success">Success</th>
        <td class="table-success">Cell</td>
        <td class="table-success">Cell</td>
```

```
        </tr>
        <tr>
          <th class="table-danger">Danger</th>
          <td class="table-danger">Cell</td>
          <td class="table-danger">Cell</td>
        </tr>
        <tr>
          <th class="table-warning">Warning</th>
          <td class="table-warning">Cell</td>
          <td class="table-warning">Cell</td>
        </tr>
        <tr>
          <th class="table-info">Info</th>
          <td class="table-info">Cell</td>
          <td class="table-info">Cell</td>
        </tr>
        <tr>
          <th class="table-light">Light</th>
          <td class="table-light">Cell</td>
          <td class="table-light">Cell</td>
        </tr>
        <tr>
          <th class="table-dark">Dark</th>
          <td class="table-dark">Cell</td>
          <td class="table-dark">Cell</td>
        </tr>
        </tbody>
      </table>
    </div>
   </div>
  </div>
 </body>
</html>
```
The below screenshot shows the browser output of the above programming code.

Contextual classes for table rows   Contextual classes for table heads and table cells

Contextual Classes For Background of Table Rows, Table Heads And Table Cells

Use the following contextual classes for the background of the table rows, table heads, and table cells. It will add various colors to the background of the table components.

- **.bg-primary** – Add blue color to the background of a table.
- **.bg-secondary** – Add grey color to the background of a table.
- **.bg-success** – Add green color to the background of a table.
- **.bg-danger** – Add red color to the background of a table.
- **.bg-warning** – Add orange color to the background of a table.
- **.bg-info** – Add a light blue color to the background of a table.
- **.bg-light** – Add a light grey color to the background of a table.
- **.bg-dark** – Add a dark grey color to the background of a table.

Example of contextual classes for table background of the table rows, table heads, and table cells:

The below programming code shows an example of contextual classes for the background of the table rows, table heads, and table cells. You can try this example by running the below programming code.

```
<!DOCTYPE html>
<html lang="en">
<head>
    <link rel="stylesheet" href="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/css/bootstrap.min.css">
</head>
<body>
    <div class="container mt-3">
        <div class="row">
            <div class="col">
                <table class="table">
                <caption>Contextual classes for background of table rows</caption>
                    <thead>
                    <tr>
                     <th>Class</th>
                     <th>Heading</th>
                     <th>Heading</th>
                    </tr>
```

```html
    </thead>
    <tbody>
    <tr class="bg-primary">
      <th>Primary</th>
      <td>Cell</td>
      <td>Cell</td>
    </tr>
    <tr class="bg-secondary">
      <th>Secondary</th>
      <td>Cell</td>
      <td>Cell</td>
    </tr>
    <tr class="bg-success">
      <th>Success</th>
      <td>Cell</td>
      <td>Cell</td>
    </tr>
    <tr class="bg-danger">
      <th>Danger</th>
      <td>Cell</td>
      <td>Cell</td>
    </tr>
    <tr class="bg-warning">
      <th>Warning</th>
      <td>Cell</td>
      <td>Cell</td>
    </tr>
    <tr class="bg-info">
      <th>Info</th>
      <td>Cell</td>
      <td>Cell</td>
    </tr>
    <tr class="bg-light">
      <th>Light</th>
      <td>Cell</td>
      <td>Cell</td>
    </tr>
    <tr class="bg-dark">
      <th>Dark</th>
      <td>Cell</td>
      <td>Cell</td>
    </tr>
    </tbody>
  </table>
</div>
<div class="col">
  <table class="table">
  <caption>Contextual classes for background of table heads and cells</caption>
    <thead>
    <tr>
      <th>Class</th>
```

```html
        <th>Heading</th>
         <th>Heading</th>
       </tr>
       </thead>
       <tbody>
       <tr>
          <th class="bg-primary">Primary</th>
          <td class="bg-primary">Cell</td>
          <td class="bg-primary">Cell</td>
       </tr>
       <tr>
          <th class="bg-secondary">Secondary</th>
          <td class="bg-secondary">Cell</td>
          <td class="bg-secondary">Cell</td>
       </tr>
       <tr>
          <th class="bg-success">Success</th>
          <td class="bg-success">Cell</td>
          <td class="bg-success">Cell</td>
       </tr>
       <tr>
          <th class="bg-danger">Danger</th>
          <td class="bg-danger">Cell</td>
          <td class="bg-danger">Cell</td>
       </tr>
       <tr>
          <th class="bg-warning">Warning</th>
          <td class="bg-warning">Cell</td>
          <td class="bg-warning">Cell</td>
       </tr>
       <tr>
          <th class="bg-info">Info</th>
          <td class="bg-info">Cell</td>
          <td class="bg-info">Cell</td>
       </tr>
       <tr>
          <th class="bg-light">Light</th>
          <td class="bg-light">Cell</td>
          <td class="bg-light">Cell</td>
       </tr>
       <tr>
          <th class="bg-dark">Dark</th>
          <td class="bg-dark">Cell</td>
          <td class="bg-dark">Cell</td>
       </tr>
       </tbody>
     </table>
   </div>
  </div>
 </div>
</body>
```

</**html**>
The below screenshot shows the browser output of the above programming code.

Primary	Cell	Cell
Secondary	Cell	Cell
Success	Cell	Cell
Danger	Cell	Cell
Warning	Cell	Cell
Info	Cell	Cell
Light	Cell	Cell
Dark	Cell	Cell

Contextual classes for background of table rows

Primary	Cell	Cell
Secondary	Cell	Cell
Success	Cell	Cell
Danger	Cell	Cell
Warning	Cell	Cell
Info	Cell	Cell
Light	Cell	Cell
Dark	Cell	Cell

Contextual classes for background of table heads and cells

Bootstrap Responsive Tables:

There are two types of Bootstrap responsive tables. They are,

#1) Always responsive tables: Add the **.table-responsive** class to **<div>** to create an always responsive table. It will add a horizontal scrollbar to the table when the horizontal screen width is too big.

#2) Breakpoint specific responsive tables: Add one of the below classes to **<div>** to create a breakpoint specific responsive table. It will add a horizontal scrollbar to the table when required (depending on the screen width).

- **.table-responsive-sm** – For a small screen width (less than 576px)
- **.table-responsive-md** – For a medium screen width (less than 768px)
- **.table-responsive-lg** – For a large screen width (less than 992px)
- **.table-responsive-xl** – For an extra-large screen width (less than 1200px)

Example of Bootstrap responsive tables:

The below programming code shows an example of an always responsive table and a breakpoint-specific responsive table. You can try this example by running the below programming code.

```
<!DOCTYPE html>
<html lang="en">
<head>
  <link rel="stylesheet" href="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/css/bootstrap.min.css">
</head>
<body>
  <div class="container mt-3">

    <div class="table-responsive">
      <table class="table">
      <caption>Always responsive table</caption>
       <thead>
        <tr>
          <th>#</th>
          <th>Heading</th>
          <th>Heading</th>
          <th>Heading</th>
          <th>Heading</th>
```

```html
      <th>Heading</th>
      <th>Heading</th>
      <th>Heading</th>
      <th>Heading</th>
      <th>Heading</th>
      <th>Heading</th>
      <th>Heading</th>
      <th>Heading</th>
     </tr>
    </thead>
    <tbody>
     <tr>
      <th>1</th>
      <td>Data</td>
      <td>Data</td>
      <td>Data</td>
      <td>Data</td>
      <td>Data</td>
      <td>Data</td>
      <td>Data</td>
      <td>Data</td>
      <td>Data</td>
      <td>Data</td>
      <td>Data</td>
      <td>Data</td>
     </tr>
     <tr>
      <th>2</th>
      <td>Data</td>
      <td>Data</td>
      <td>Data</td>
      <td>Data</td>
      <td>Data</td>
      <td>Data</td>
      <td>Data</td>
      <td>Data</td>
      <td>Data</td>
      <td>Data</td>
      <td>Data</td>
      <td>Data</td>
     </tr>
    </tbody>
   </table>
</div>

<div class="table-responsive-sm">
   <table class="table">
   <caption>Breakpoint specific responsive table</caption>
    <thead>
     <tr>
      <th>#</th>
```

```html
        <th>Heading</th>
        <th>Heading</th>
        <th>Heading</th>
        <th>Heading</th>
        <th>Heading</th>
        <th>Heading</th>
        <th>Heading</th>
        <th>Heading</th>
        <th>Heading</th>
        <th>Heading</th>
        <th>Heading</th>
        <th>Heading</th>
      </tr>
    </thead>
    <tbody>
      <tr>
        <th>1</th>
        <td>Data</td>
        <td>Data</td>
        <td>Data</td>
        <td>Data</td>
        <td>Data</td>
        <td>Data</td>
        <td>Data</td>
        <td>Data</td>
        <td>Data</td>
        <td>Data</td>
        <td>Data</td>
        <td>Data</td>
      </tr>
      <tr>
        <th>2</th>
        <td>Data</td>
        <td>Data</td>
        <td>Data</td>
        <td>Data</td>
        <td>Data</td>
        <td>Data</td>
        <td>Data</td>
        <td>Data</td>
        <td>Data</td>
        <td>Data</td>
        <td>Data</td>
        <td>Data</td>
      </tr>
    </tbody>
  </table>
</div>

  </div>
</body>
```

</**html**>

Output 1: Normal or full-screen view

The below screenshot shows the browser output of the above programming code on a **normal or full-screen view**.

#	Heading	Heading	Heading	Heading	Heading	Heading	Heading	Heading				
1	Data	Data	Data	Data	Data	Data	Data	Data				
2	Data	Data	Data	Data	Data	Data	Data	Data				

Always responsive table

#	Heading	Heading	Heading	Heading	Heading	Heading	Heading	Heading	Heading	Heading	Heading	Heading
1	Data	Data	Data	Data	Data	Data	Data	Data	Data	Data	Data	Data
2	Data	Data	Data	Data	Data	Data	Data	Data	Data	Data	Data	Data

Breakpoint specific responsive table

Output 2: Small screen view

The below screenshot shows the browser output of the above programming code on a **small screen view**.

#	Heading	Heading	Heading
1	Data	Data	Data
2	Data	Data	Data

Always responsive table

#	Heading	Heading	Heading
1	Data	Data	Data
2	Data	Data	Data

Breakpoint specific responsive table

Similarly, you can use the .**table-responsive-md, .table-responsive-lg** and .**table-responsive-xl** classes.

Frequently Asked Questions:

In this section, we are going to look at some of the FAQs of tables in Bootstrap 4.

Q #1) What is the main class used in Bootstrap tables?

Answer: The **.table** class is the main class used in Bootstrap tables.

Q #2) How to add a caption to a table?

Answer: Place the **<caption>…</caption>** element right after the opening of the **<table>** tag.

Q #3) What are the different table head options?

Answer: There are two table head options named **light table head** and **dark table head,** and they use the **.thead-light** and **.thead-dark** classes respectively.

Q #4) How to make a table small?

Answer: Add the **.table-sm** class to **<table>**.

Q #5) What is the class used to add borders to a table?

Answer: The **.table-bordered** class is used to add borders to a table.

Q #6) What is the class used to remove borders from a table?

Answer: The **.table-borderless** class is used to remove borders from a table.

Q #7) How to add striped rows to a table?

Answer: Add the **.table-striped** class to **<table>** to add striped rows to a table.

Q #8) How to add hoverable rows to a table?

Answer: Add the **.table-hover** class to **<table>** to add hoverable rows to a table.

Q #9) How to make a table dark?

Answer: Add the **.table-dark** class to **<table>** to make a table dark.

Q #10) What are the contextual classes used for table rows, heads, and cells?

Answer: The contextual classes used for table rows, heads and cells are .**table-active, .table-primary, .table-secondary, .table-success, .table-danger, .table-warning, .table-info, .table-light** and **.table-dark**.

Q #11) What are the contextual classes used for the background of table rows, heads, and cells?

Answer: The contextual classes used for the background of table rows, heads and cells are **.bg-primary, .bg-secondary, .bg-success, .bg-danger, .bg-warning, .bg-info, .bg-light** and **.bg-dark.**

Q #12) What are the two types of Bootstrap responsive tables?

Answer: Always responsive tables and **breakpoint-specific responsive tables** are the two types of responsive tables. They use the **.table-responsive** and **.table-responsive-*** classes respectively.

Bootstrap 4 uses a wide range of classes to add styles to an entire table or parts of a table such as table rows, table heads, and table cells. To better understand table content, a table caption may also add to a table by adding the <caption>…</caption> element straight after the opening of the <table> tag.

5 Bootstrap CSS Components

Bootstrap 4 provides a variety of customizable and reusable components which makes the development faster and easier. They are heavily based on the ***base modifier nomenclature*** i.e. the base class has many groups of shared properties together while the modifier class has a group of individual styles. For example, .btn is a *base class* and .btn-primary or .btn-success is a *modifier class*. The bootstrap components range from alerts, buttons, badges, cards to various other components.

Components of Bootstrap

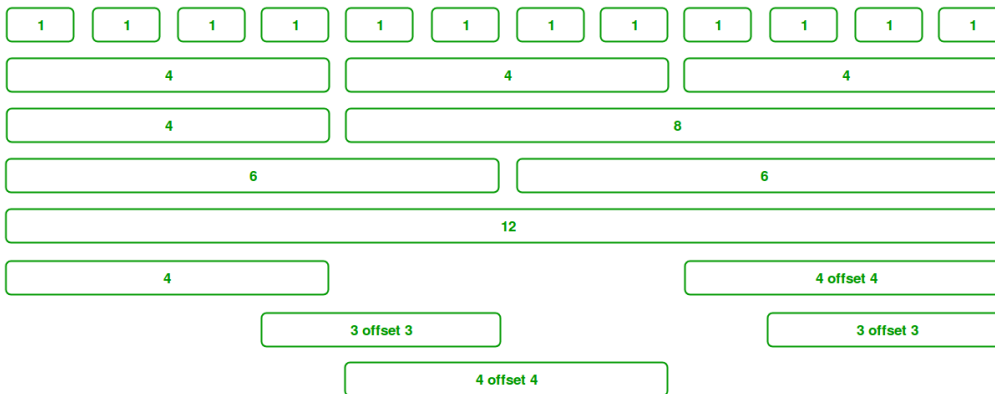|		
1.Jumbotron	9.List group	17.Carousel
2.Alerts	10.Card	18.Toast
3.Buttons	11.Dropdown	19.Tooltip
4.Button group	12.Nav	20.Popovers
5.Badge	13.Navbar	21.Collapse
6.Progress Bar	14.Forms	22.Modal
7.Spinner	15.Input group	23.Pagination
8. Scrollspy	16.Breadcrumb	24.Media object

List of components:
1. **Jumbotron**: It simply put extra attention to particular content or information by making it larger and more eye-catching.
2. **Alerts**: It is a popup with a predefined message that appears after a particular action.
3. **Buttons**: It is customized buttons that are used to perform an action in the form, dialogue box, etc. They are in multiple states, sizes and have predefined styles.
4. **Button group**: It is a group of buttons aligned in a single line and they can be arranged both vertically as well as horizontally.
5. **Badge**: It Is a labeling component that is used to add additional information.
6. **Progress Bar**: It is used to show the progress of a particular operation with a custom progress bar. They have text labels, stacked bars, and animated backgrounds.
7. **Spinner**: The spinner displays the loading state of websites or projects. They are built with HTML, CSS and don't require any JavaScript.
8. **Scrollspy**: It keeps updating the navigation bar to the currently active link based on the scroll position in the viewport.
9. **List group**: It is used to display an unordered series of content in a proper way.
10. **Card**: It provides a customizable, extensible, and flexible content container.
11. **Dropdown**: It is used to drop the menu in the format of a list of links, they are contextual and toggleable overlays.
12. **Navs**: It is used to create a basic and simple navigation menu with a .nav base class.
13. **Navbar**: The navigation bar is the headers at the top of a website or webpage.
14. **Forms**: Forms are used to take multiple inputs at once from the user. Bootstrap has two layouts available stacked and inline.
15. **Input groups**: They have extended form controls by adding a button, button group or text on either side of inputs.

16. **Breadcrumb**: It provides the location of the current page in a navigational hierarchy and also adds separators through CSS.
17. **Carousel**: It is a slide show of image or text content built with CSS 3D and JavaScript.
18. **Toast**: It displays a message for a small amount of time, a few seconds. They are alert messages designed to imitate push notifications popular in desktop and mobile systems.
19. **Tooltip**: It provides small information about the element/link when the mouse hovers over the element.
20. **Popovers**: It displays extra information about the element/link when clicked on it.
21. **Collapse**: It is a JavaScript plugin that is used to show or hide the content.
22. **Modal**: It is a small popup window positioned over the actual window.
23. **Pagination**: It is used to easily navigate between different pages, a large block of connected links is used for making them accessible.
24. **Media Object:** The Media object is used for repetitive and complex components like tweets or blogs. The images or videos are placed/aligned to the left or the right of the content.

6 Bootstrap grid system:

Bootstrap Grid System allows up to 12 columns across the page. You can use each of them individually or merge them together for wider columns. All combinations of values summing up to 12 can be used.

Grid Classes: Bootstrap grid system contains five classes which are listed below:
- **.col-** It is used for extra small screen devices (screen width less than 576px).
- **.col-sm-** It is used for small screen devices (screen width greater than or equal to 576px).
- **.col-md-** It is used for medium screen size devices (screen width greater than or equal to 768px).
- **.col-lg-** It is used for large screen size devices (screen width greater than or equal to 992px).
- **.col-xl-** It is used for xlarge screen size devices (screen width equal to or greater than 1200px).

Components of Grid System:
- **Containers:** Bootstrap requires a containing element to wrap site contents in a grid system. The word **container** is used to contain the row elements and row elements containing the column elements.
- **Rows:** Rows must be placed within the **container** or **container-fluid** for proper alignment and padding. Rows are used to create horizontal groups of columns.
- **Columns:** Grid columns are created by specifying the number of twelve available columns you wish to span. For example, three equal columns would use three col-lg-4.

Basic Structure Of The Grid System
The below code snippet shows the basic structure of the Bootstrap 4 grid system.
Note:
* is for **sm**, **md**, **lg** or **xl**, which represent **small**, **medium**, **large** or **extra-large** screen sizes.
# For Bootstrap **row size** (**1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11** or **12**).

```
<!-- Adjust the grid layout by specifying the column width and (/or) device screen size -->
<div class="row">
<div class="col-*-#"></div>
<div class="col-*-#"></div>
...
</div>
<div class="row">
<div class="col-*-#"></div>
<div class="col-*-#"></div>
...
</div>

<!-- Bootstrap automatically adjust the grid layout -->
<div class="row">
<div class="col"></div>
<div class="col"></div>
...
</div>
```

Note: Use the following code skeleton to run the rest of the below example codes.

```
<!DOCTYPE html>
<html lang="en">
<head>
<link rel="stylesheet" href="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/css/bootstrap.min.css">
</head>
<body>
<div class="container mt-3">
<!-- add code here -->
</div>
<script src="https://code.jquery.com/jquery-3.5.1.slim.min.js"></script>
<script src="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/js/bootstrap.bundle.min.js"></script>
</body>
</html>
```

Bootstrap Equal Columns

Example: Creating three equal columns.

```
<div class="row">
<div class="col bg-danger">Item 1</div>
<div class="col bg-warning">Item 2</div>
<div class="col bg-success">Item 3</div>
</div>
```

Output:

Responsive Columns

Code:

```
<div class="row">
<div class="col-md-3 bg-danger">Item 1</div>
<div class="col-md-3 bg-warning">Item 2</div>
<div class="col-md-3 bg-success">Item 3</div>
</div>
```

Output:

7 Bootstrap Modal[10M]

A modal is a dialog box or a pop-up window that appears on top of the page to show important information to the user. It is commonly used to warn users. Unlike in Bootstrap 3 modals, Bootstrap 4 rewrote the modal component with flexbox.

The following table summarizes the classes and attributes of Bootstrap 4 Modals that we have used in this tutorial.

Class	Usage
The **.modal** class	This class is used to create a basic modal.
The **.modal-dialog** class	This class is used to sets the width and horizontal & vertical alignments of the modal box.
The **.modal-content** class	This class is used to add the modal's header, body, and footer. It also sets the styles such as borders, text colors, background colors, etc.
The **.modal-dialog-centered** class	This class is used to center the modal both vertically and horizontally.
The **.modal-dialog-scrollable** class	This class is used to add a scrollbar to the modal.
The **.modal-header** class	This class is used to add a header to the modal.
The **.modal-body** class	This class is used to add a body to the modal.
The **.modal-footer** class	This class is used to add a footer to the modal.
The **.modal-sm** class	This class is used to create a small modal.
The **.modal-lg** class	This class is used to create a large modal.
The **.modal-xl** class	This class is used to create an extra-large modal.
The **.fade** class	This class is used to add a fading animation effect when opening and closing the modal.
Attribute	**Usage**
The **data-toggle="modal"** attribute	This attribute is used on a controller element, such as a button.
The **data-target="#modalID"** attribute	This attribute is used to target a specific modal to toggle.
The **data-dismiss="modal"** attribute	This attribute is used to close the modal.

Creating Basic Bootstrap 4 Modals

You can create a modal with or without JavaScript code. If not using JavaScript code, then you can use data attributes to activate modals. In this tutorial, we have used both data attributes and JavaScript code to create/activate modals.

Note: Please refer to the section **Activate Bootstrap 4 Modals via JavaScript** to learn how to activate modals via JavaScript.

The main classes used to create a basic modal are the **.modal** class, the **.modal-dialog** class, the **.modal-content** class, the **.modal-header** class, the **.modal-body** class and the **.modal-footer** class while the main data attributes used are the **data-toggle="modal"** attribute, the **data-target="#modalID"** attribute, and the **data-dismiss="modal"** attribute.

Usually, we use a button or a link to open a modal.

Important points to remember when creating a modal:
- You need to add unique **ids** to the modals if you are using multiple modals on the same page.
- The value of the **data-target** attribute (or the **href** attribute for links) of the modal controller element such as buttons (or links) should match the **id** of the modal.

Modal Components

A typical Bootstrap modal consists of three major Bootstrap components. They are:
1. The **header** component – Add the **.modal-header** class to create a modal header.
2. The **body** component – Add the **.modal-body** class to create a modal body.

3. The **footer** component – Add the **.modal-footer** class to create a modal footer. Adding a footer to the modal is optional.

Examples of Basic Modals

The below programming code shows an example of a basic modal (created using data attributes). You can try this example by running the below programming code.

```html
<!DOCTYPE html>
<html lang="en">
<head>
    <link rel="stylesheet" href="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/css/bootstrap.min.css">
</head>
<body>
    <div class="container mt-3">

        <!-- Button to open the modal -->
        <button type="button" class="btn btn-success" data-toggle="modal" data-target="#myModal">
            Click Me!
        </button>

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

                    <!-- Modal header -->
                    <div class="modal-header">
                        <h4 class="modal-title">Heading</h4>
                        <button type="button" class="close" data-dismiss="modal">&times;</button>
                    </div>

                    <!-- Modal body -->
                    <div class="modal-body">
                        Modal text…
                    </div>

                    <!-- Modal footer -->
                    <div class="modal-footer">
                        <button type="button" class="btn btn-success" data-dismiss="modal">Close</button>
                    </div>

                </div>
            </div>
        </div>

    </div>
<script src="https://code.jquery.com/jquery-3.5.1.slim.min.js"></script>
<script src="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/js/bootstrap.bundle.min.js"></script>
</body>
</html>
```
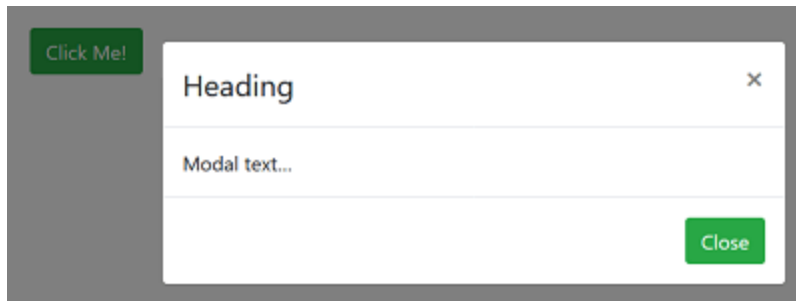
The below screenshot shows the browser output of the above programming code.

Positioning Bootstrap 4 Modal

Scrolling Modals

When you add a lot of content to a modal body, the modal becomes too large. In such situations, you can add a scrollbar to the modal to prevent the modal to become too large. Add the **.modal-dialog-scrollable** class to the **\<div\>** element with the **.modal-dialog** class to add a scrollbar to a modal.

Centered Modals

Add the **.modal-dialog-centered** class to the **\<div\>** element with the **.modal-dialog** class to create a centered modal. It centers the modal both vertically and horizontally.

Examples of Scrolling Modals and Centered Modals

The below programming code shows examples of a scrolling modal and a centered modal. You can try this example by running the below programming code.

```html
<!DOCTYPE html>
<html lang="en">
<head>
  <link rel="stylesheet" href="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/css/bootstrap.min.css">
</head>
<body>
  <div class="container mt-3">

    <!-- Button to open the modal -->
    <button type="button" class="btn btn-primary" data-toggle="modal" data-target="#myScrollableModal">
      Click Me!
    </button>

    <!-- Scrollable Modal -->
    <div class="modal" id="myScrollableModal">
      <div class="modal-dialog modal-dialog-scrollable">
        <div class="modal-content">

          <!-- Modal header -->
          <div class="modal-header">
            <h4 class="modal-title">Scrollable Modal</h4>
            <button type="button" class="close" data-dismiss="modal">&times;</button>
          </div>

          <!-- Modal body -->
          <div class="modal-body">

            <p>Lorem ipsum dolor sit amet, consectetur adipiscing elit. Sed hendrerit id augue ac efficitur.
```
Morbi egestas pretium mollis. Suspendisse pharetra ipsum ut purus vulputate euismod. Curabitur euismod

vehicula leo, eget mattis leo consequat id. Vestibulum vulputate metus id auctor tristique. Suspendisse varius suscipit mattis. Duis bibendum dignissim laoreet. Curabitur ullamcorper convallis odio, vel tempor risus. Nam odio felis, sollicitudin tincidunt velit vitae, consectetur scelerisque felis. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Aliquam elementum nisi nibh, quis bibendum dolor pretium congue. Vestibulum a ligula id felis auctor laoreet. Fusce ac pulvinar nibh. Aliquam erat volutpat.</**p**>

                                                                         <**p**>Duis lectus risus, varius eget lectus nec, vestibulum porta lectus. Curabitur scelerisque rutrum erat, at feugiat nisi lacinia vitae. Sed tempor quam at erat auctor vulputate. Curabitur blandit neque vel risus ultrices pharetra. Aliquam efficitur, neque eu blandit iaculis, sem lectus iaculis enim, nec dictum quam dui ut justo. Ut at lacus a diam lacinia commodo et a ligula. Integer feugiat lectus ex, id molestie ante euismod nec. Aliquam sit amet posuere est. Aliquam erat volutpat. Curabitur fermentum massa a nisi mollis imperdiet. Maecenas vestibulum, ipsum vel ultricies semper, erat eros tempor orci, in scelerisque lectus nunc scelerisque orci. Donec ultrices rhoncus urna. Donec volutpat quis sapien quis bibendum.</**p**>

                 </**div**>

                 <!-- Modal footer -->
                 <**div** class="modal-footer">
                    <**button** type="button" class="btn btn-primary" data-dismiss="modal">Close</**button**>
                 </**div**>

              </**div**>
            </**div**>
         </**div**>

         <!-- Button to open the modal -->
         <**button** type="button" class="btn btn-success" data-toggle="modal" data-target="#myCenteredModal">
           Click Me!
         </**button**>

         <!-- Centered Modal -->
         <**div** class="modal" id="myCenteredModal">
           <**div** class="modal-dialog modal-dialog-centered">
             <**div** class="modal-content">

                 <!-- Modal header -->
                 <**div** class="modal-header">
                    <**h4** class="modal-title">Centered Modal</**h4**>
                    <**button** type="button" class="close" data-dismiss="modal">×</**button**>
                 </**div**>

                 <!-- Modal body -->
                 <**div** class="modal-body">
                    This is a centered modal.
                 </**div**>

                 <!-- Modal footer -->
                 <**div** class="modal-footer">
                    <**button** type="button" class="btn btn-success" data-dismiss="modal">Close</**button**>
                 </**div**>

```html
            </div>
          </div>
        </div>

      </div>
<script src="https://code.jquery.com/jquery-3.5.1.slim.min.js"></script>
<script src="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/js/bootstrap.bundle.min.js"></script>
</body>
</html>
```
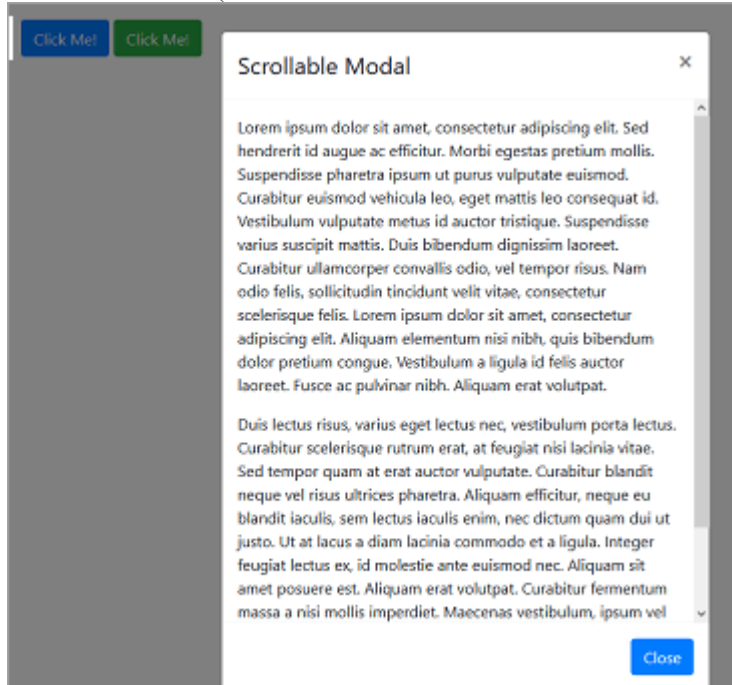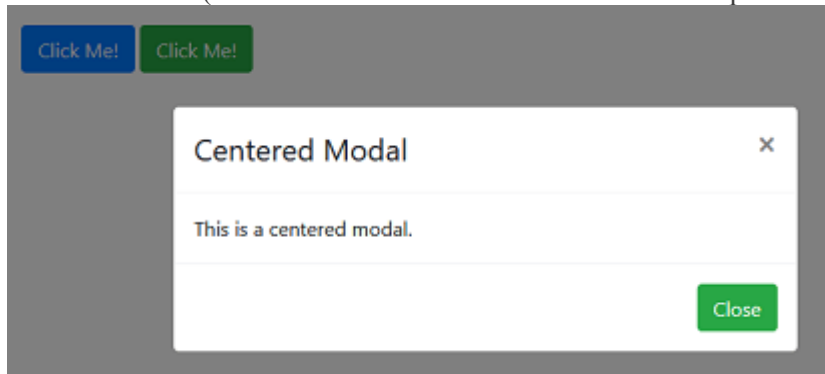
The below screenshots show the browser output of the above programming code.

Scrollable Modal (The below screenshots show the browser output when the blue "Click Me!" button is clicked.)

Centered Modal (The below screenshots show the browser output when the green "Click Me!" button is clicked.)

Bootstrap 4 Modal Sizes

There are four sizes of Modals as shown in the below list:

1. Small Modals
2. Default size Modals (medium modals)
3. Large Modals
4. Extra-large Modals

Small Modals

Add the **.modal-sm** class to create a small modal. It has a maximum width of **300 pixels**.

Default Size Modals

Default size modals are also known as Medium Modals. No need to add a specific class to create a default size modal, as it is the default size. It has a maximum width of **500 pixels**.

Large Modals

Add the **.modal-lg** class to create a large modal. It has a maximum width of **800 pixels**.

Extra Large Modals

Add the **.modal-xl** class to create an extra-large modal. It has a maximum width of **1140 pixels**.

Examples of Modal Sizes

The below programming code shows examples of a small modal, a default size modal, a large modal, and an extra-large modal. You can try this example by running the below programming code.

```html
<!DOCTYPE html>
<html lang="en">
<head>
  <link rel="stylesheet" href="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/css/bootstrap.min.css">
</head>
<body>
  <div class="container mt-3">

    <!-- Button to open the modal -->
    <button type="button" class="btn btn-primary" data-toggle="modal" data-target="#mySmallModal">
      Click Me!
    </button>

    <!-- Small Modal -->
    <div class="modal" id="mySmallModal">
      <div class="modal-dialog modal-sm">
        <div class="modal-content">

          <!-- Modal header -->
          <div class="modal-header">
            <h4 class="modal-title">Small Modal</h4>
            <button type="button" class="close" data-dismiss="modal">&times;</button>
          </div>

          <!-- Modal body -->
          <div class="modal-body">
            Great job! You have created a small modal.
          </div>

          <!-- Modal footer -->
          <div class="modal-footer">
            <button type="button" class="btn btn-primary" data-dismiss="modal">Close</button>
```

```html
      </div>

    </div>
  </div>
</div>

<!-- Button to open the modal -->
<button type="button" class="btn btn-success" data-toggle="modal" data-target="#myDefaultModal">
  Click Me!
</button>

<!-- Default Size Modal -->
<div class="modal" id="myDefaultModal">
  <div class="modal-dialog">
    <div class="modal-content">

      <!-- Modal header -->
      <div class="modal-header">
        <h4 class="modal-title">Default Size Modal</h4>
        <button type="button" class="close" data-dismiss="modal">&times;</button>
      </div>

      <!-- Modal body -->
      <div class="modal-body">
        Great job! You have created a default size modal.
      </div>

      <!-- Modal footer -->
      <div class="modal-footer">
        <button type="button" class="btn btn-success" data-dismiss="modal">Close</button>
      </div>

    </div>
  </div>
</div>

<!-- Button to open the modal -->
<button type="button" class="btn btn-warning" data-toggle="modal" data-target="#myLargeModal">
  Click Me!
</button>

<!-- Large Modal -->
<div class="modal" id="myLargeModal">
  <div class="modal-dialog modal-lg">
    <div class="modal-content">

      <!-- Modal header -->
      <div class="modal-header">
        <h4 class="modal-title">Large Modal</h4>
        <button type="button" class="close" data-dismiss="modal">&times;</button>
      </div>
```

```html
          <!-- Modal body -->
          <div class="modal-body">
            Great job! You have created a large modal.
          </div>

          <!-- Modal footer -->
          <div class="modal-footer">
            <button type="button" class="btn btn-warning" data-dismiss="modal">Close</button>
          </div>

        </div>
      </div>
    </div>

    <!-- Button to open the modal -->
    <button type="button" class="btn btn-danger" data-toggle="modal" data-target="#myExtralargeModal">
      Click Me!
    </button>

    <!-- Extra-large Modal -->
    <div class="modal" id="myExtralargeModal">
      <div class="modal-dialog modal-xl">
        <div class="modal-content">

          <!-- Modal header -->
          <div class="modal-header">
            <h4 class="modal-title">Extra-large Modal</h4>
            <button type="button" class="close" data-dismiss="modal">&times;</button>
          </div>

          <!-- Modal body -->
          <div class="modal-body">
            Great job! You have created an extra-large modal.
          </div>

          <!-- Modal footer -->
          <div class="modal-footer">
            <button type="button" class="btn btn-danger" data-dismiss="modal">Close</button>
          </div>

        </div>
      </div>
    </div>

  </div>
<script src="https://code.jquery.com/jquery-3.5.1.slim.min.js"></script>
<script src="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/js/bootstrap.bundle.min.js"></script>
</body>
</html>
```
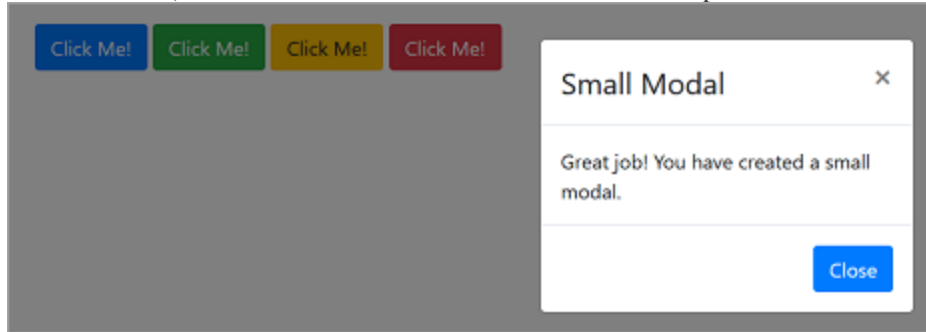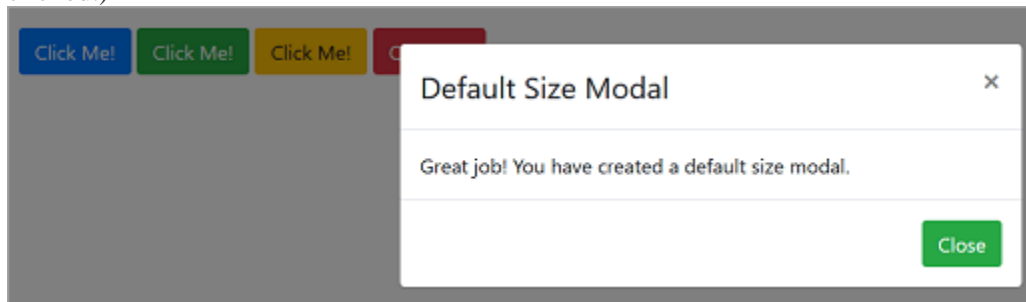**The below screenshots show the browser output of the above programming code.**
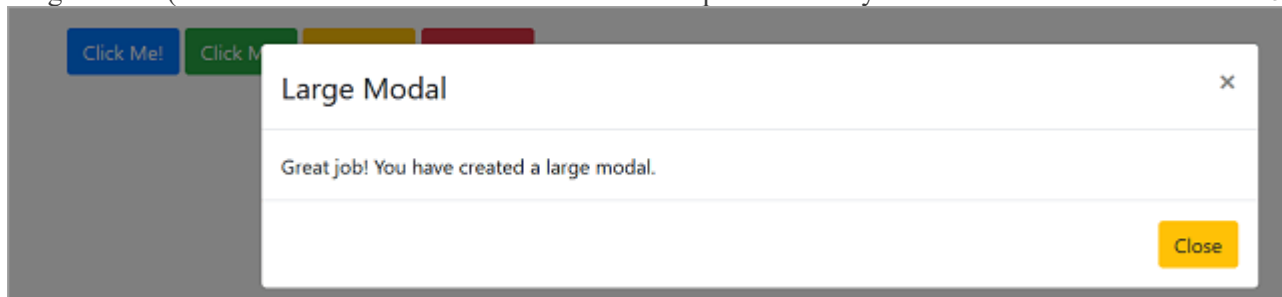
Small Modal (The below screenshots show the browser output when the blue "Click Me!" button is clicked.)

Default Size Modal (The below screenshots show the browser output when the green "Click Me!" button is clicked.)

Large Modal (The below screenshots show the browser output when the yellow "Click Me!" button is clicked.)

Extra-large Modal (The below screenshots show the browser output when the red "Click Me!" button is clicked.)

Bootstrap 4 Modals With Animation:

Add the **.fade** class to the **<div>** element with the **.modal** class. It adds a fading animation effect when opening and closing the modal. When you remove this class, the modal will appear without any animation effect.

The below programming code shows an example of a modal with fading animation. You can try this example by running the below programming code.

```html
<!DOCTYPE html>
<html lang="en">
<head>
    <link rel="stylesheet" href="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/css/bootstrap.min.css">
```

```html
</head>
<body>
    <div class="container mt-3">

        <!-- Button to open the modal -->
        <button type="button" class="btn btn-success" data-toggle="modal" data-target="#myModal">
            Click Me!
        </button>

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

                    <!-- Modal header -->
                    <div class="modal-header">
                        <h4 class="modal-title">Fading Effect</h4>
                        <button type="button" class="close" data-dismiss="modal">&times;</button>
                    </div>

                    <!-- Modal body -->
                    <div class="modal-body">
                        Did you notice the fading effect?
                    </div>

                    <!-- Modal footer -->
                    <div class="modal-footer">
                        <button type="button" class="btn btn-success" data-dismiss="modal">Close</button>
                    </div>

                </div>
            </div>
        </div>

    </div>
<script src="https://code.jquery.com/jquery-3.5.1.slim.min.js"></script>
<script src="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/js/bootstrap.bundle.min.js"></script>
</body>
</html>
```

The below screenshots show the browser output of the above programming code.

Activate Bootstrap 4 Modal via JavaScript:

Instead of using data attributes, you can use JavaScript code to activate modals.

Example of a Modal activated via JavaScript:

The below programming code shows an example of a modal activated via JavaScript. You can try this example by running the below programming code.

```html
<!DOCTYPE html>
<html lang="en">
<head>
    <link rel="stylesheet" href="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/css/bootstrap.min.css">
</head>
<body>
    <div class="container mt-3">

        <!-- Button to open the modal -->
        <button type="button" class="btn btn-danger" id="myBtn">
            Show Notice
        </button>

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

                    <!-- Modal header -->
                    <div class="modal-header">
                        <h4 class="modal-title">Notice</h4>
                        <button type="button" class="close" data-dismiss="modal">&times;</button>
                    </div>

                    <!-- Modal body -->
                    <div class="modal-body">
                        This is a modal activated via JavaScript.
                    </div>

                    <!-- Modal footer -->
                    <div class="modal-footer">
                        <button type="button" class="btn btn-primary" data-dismiss="modal">Close</button>
                    </div>

                </div>
            </div>
        </div>
```
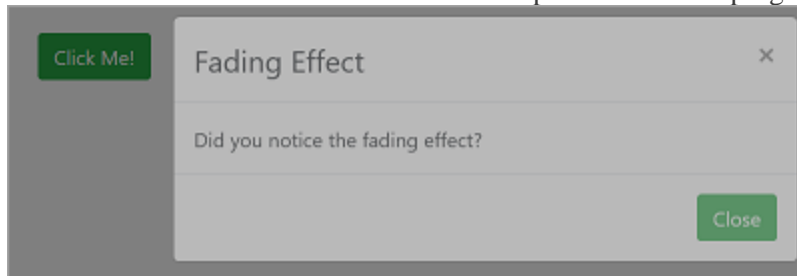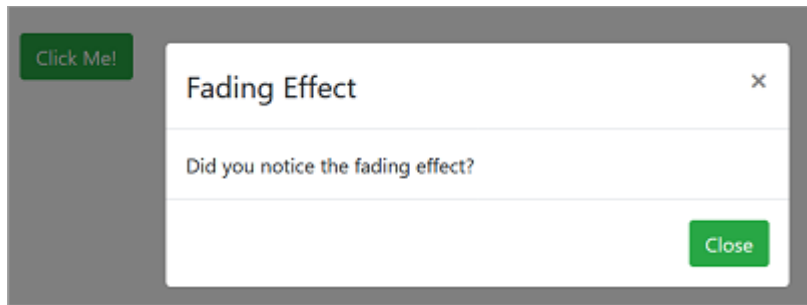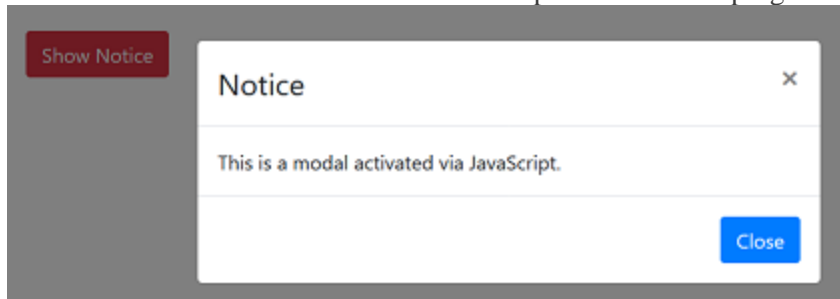
```
    </div>
<script src="https://code.jquery.com/jquery-3.5.1.slim.min.js"></script>
<script src="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/js/bootstrap.bundle.min.js"></script>
<script>
$(document).ready(function(){
  $("#myBtn").click(function(){
    $("#myModal").modal();
  });
});
</script>
</body>
</html>
```

The below screenshot shows the browser output of the above programming code.

Adding Various Content To Bootstrap 4 Modal

We have mainly used textual content for our modal examples. However, you can add various contents such as tooltips, popovers, grids, forms, videos, etc. to a modal.

Tip: You may try your own example Modals with tooltips, popovers, grids, forms, videos, etc.

Frequently Asked Questions:

In this section, we are going to look at some of the frequently asked questions (FAQs) about Modals.

Q #1) What is a Bootstrap modal?

Answer: A Bootstrap modal is a dialog box or a popup window that shows important information to the user.

Q #2) How can you show a modal?

Answer: Use a button or a link to show a modal.

Q #3) How to make the modal bigger?

Answer: Add the **.modal-lg** class to make the modal bigger.

Q #4) Can you put multiple modals on a single page?

Answer: Yes, you can put multiple modals on a single page.

Q #5) How to make modal content scrollable?

Answer: Add the **.modal-dialog-scrollable** class to make modal content scrollable.

Q #6) How can you center a modal?

Answer: Add the **.modal-dialog-centered** class to center a modal.

A modal is a dialog box or a pop-up window that is used to show important information to the user. Usually, a modal consists of three main components named Modal header, Modal body, and Modal footer. Bootstrap provides facilities to control other styling features such as the size of the modal, position of the modal, animation effect when opening and closing the modal, etc.

8 Bootstrap Dropdown:[10M]

A button can be converted into a dropdown. It is a toggleable menu that allows a user to select one option from a predefined list. You can either use the <button> element or the <a> element to trigger a dropdown.

The below table summarizes some of the main classes that we have used in this tutorial.

Class	Usage
.dropdown class	This class is one of the classes that is used to create a basic dropdown.
.dropdown-toggle class	This class is one of the classes that is used to create a basic dropdown.
.dropdown-menu class	This class is one of the classes that is used to create a basic dropdown.
.dropdown-item class	This class is one of the classes that is used to create a basic dropdown.
.btn-primary class	This class is used to add a blue color to a dropdown.
.btn-secondary class	This class is used to add a grey color to a dropdown.
.btn-success class	This class is used to add a green color to a dropdown.
.btn-danger class	This class is used to add a red color to a dropdown.
.btn-warning class	This class is used to add an orange color to a dropdown.
.btn-info class	This class is used to add a light blue color to a dropdown.
.btn-light class	This class is used to add a light grey color to a dropdown.
.btn-dark class	This class is used to add a dark grey color to a dropdown
.dropdown-header class	This class is used to add a header inside the Bootstrap dropdown menu.
.dropdown-divider class	This class is used to separate menu items by adding a horizontal line.
.btn-sm class	This class is used to create a small dropdown.
.btn-lg class	This class is used to create a large dropdown.
.active class	This class is used to create a dropdown that is in the active state.
.disabled class	This class is used to create a dropdown that is disabled.
.dropright class	This class is used to create a dropright.
.dropleft class	This class is used to create a dropleft.
.dropup class	This class is used to create a dropup.
.dropdown-menu-right class	This class is used to create a dropdown with the right menu.
.dropdown-item-text class	This class is used to create a dropdown item text.
.dropdown-toggle-split class	This class is used to create a split button dropdown.
.btn-group class	This class is used to create a button group with dropdown.
.btn-group-vertical class	This class is used to create a button group with vertical dropdown.

Example of a Basic Dropdown

```
<!DOCTYPE html>
<html lang="en">
<head>
<link rel="stylesheet" href="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/css/bootstrap.min.css">
</head>
<body>
<div class="container mt-3">

<div class="dropdown mb-3">
<button class="btn btn-primary dropdown-toggle" data-toggle="dropdown">
Dropdown Button
</button>
<div class="dropdown-menu">
<a class="dropdown-item" href="#">Action 1</a>
<a class="dropdown-item" href="#">Action 2</a>
<a class="dropdown-item" href="#">Action 3</a>
```

```
</div>
</div>

<div class="dropdown show">
<a class="btn btn-primary dropdown-toggle" href="#" data-toggle="dropdown">Dropdown Link</a>
<div class="dropdown-menu">
<a class="dropdown-item" href="#">Action 1</a>
<a class="dropdown-item" href="#">Action 2</a>
<a class="dropdown-item" href="#">Action 3</a>
</div>
</div>

</div>
<script src="https://code.jquery.com/jquery-3.5.1.slim.min.js"></script>
<script src="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/js/bootstrap.bundle.min.js"></script>
</body>
</html>
```
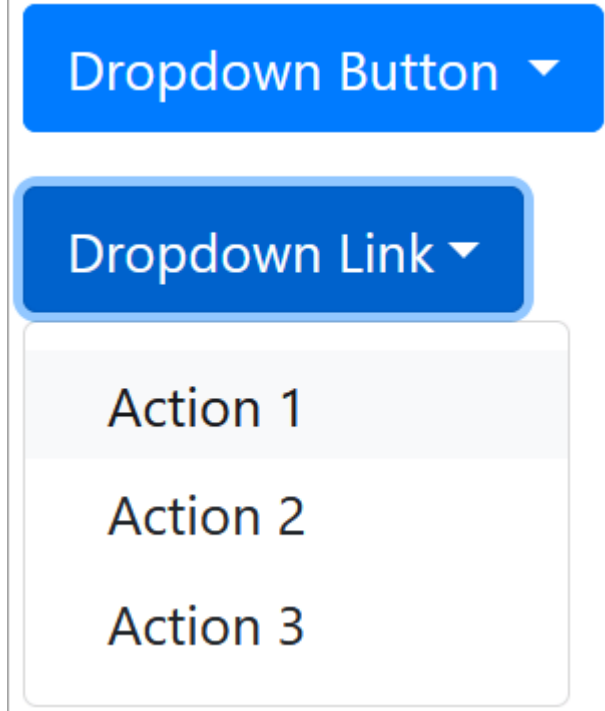
Browser output of the above Programming Code

Dropdowns With Contextual Classes:

The following list shows the eight contextual classes that you can use to create colored dropdowns.

- The **.btn-primary** class – This class is used to add a **blue color** to a dropdown.
- The **.btn-secondary** class – This class is used to add a **grey color** to a dropdown.
- The **.btn-success** class – This class is used to add a **green color** to a dropdown.
- The **.btn-danger** class – This class is used to add **red color** to a dropdown.
- The **.btn-warning** class – This class is used to add **orange color** to a dropdown.
- The **.btn-info** class – This class is used to add a **light blue color** to a dropdown.
- The **.btn-light** class – This class is used to add a **light grey color** to a dropdown.

- The **.btn-dark** class – This class is used to add a **dark grey color** to a dropdown.

Example of Dropdowns with Contextual Classes

```
<!DOCTYPE html>
<html lang="en">
<head>
<link rel="stylesheet" href="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/css/bootstrap.min.css">
</head>
<body>
<div class="container mt-3">

<div class="dropdown mb-3">
<button class="btn btn-primary dropdown-toggle" data-toggle="dropdown">
Dropdown Button
</button>
<div class="dropdown-menu">
<a class="dropdown-item" href="#">Action 1</a>
<a class="dropdown-item" href="#">Action 2</a>
</div>
</div>

<div class="dropdown mb-3">
<button class="btn btn-secondary dropdown-toggle" data-toggle="dropdown">
Dropdown Button
</button>
<div class="dropdown-menu">
<a class="dropdown-item" href="#">Action 1</a>
<a class="dropdown-item" href="#">Action 2</a>
</div>
</div>

<div class="dropdown mb-3">
<button class="btn btn-success dropdown-toggle" data-toggle="dropdown">
Dropdown Button
</button>
<div class="dropdown-menu">
<a class="dropdown-item" href="#">Action 1</a>
<a class="dropdown-item" href="#">Action 2</a>
</div>
</div>

<div class="dropdown mb-3">
<button class="btn btn-danger dropdown-toggle" data-toggle="dropdown">
Dropdown Button
</button>
<div class="dropdown-menu">
<a class="dropdown-item" href="#">Action 1</a>
<a class="dropdown-item" href="#">Action 2</a>
</div>
</div>
```

```
<div class="dropdown mb-3">
<button class="btn btn-warning dropdown-toggle" data-toggle="dropdown">
Dropdown Button
</button>
<div class="dropdown-menu">
<a class="dropdown-item" href="#">Action 1</a>
<a class="dropdown-item" href="#">Action 2</a>
</div>
</div>

<div class="dropdown mb-3">
<button class="btn btn-info dropdown-toggle" data-toggle="dropdown">
Dropdown Button
</button>
<div class="dropdown-menu">
<a class="dropdown-item" href="#">Action 1</a>
<a class="dropdown-item" href="#">Action 2</a>
</div>
</div>

<div class="dropdown mb-3">
<button class="btn btn-dark dropdown-toggle" data-toggle="dropdown">
Dropdown Button
</button>
<div class="dropdown-menu">
<a class="dropdown-item" href="#">Action 1</a>
<a class="dropdown-item" href="#">Action 2</a>
</div>
</div>

<div class="dropdown">
<button class="btn btn-light dropdown-toggle" data-toggle="dropdown">
Dropdown Button
</button>
<div class="dropdown-menu">
<a class="dropdown-item" href="#">Action 1</a>
<a class="dropdown-item" href="#">Action 2</a>
</div>
</div>

</div>
<script src="https://code.jquery.com/jquery-3.5.1.slim.min.js"></script>
<script src="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/js/bootstrap.bundle.min.js"></script>
</body>
</html>
```
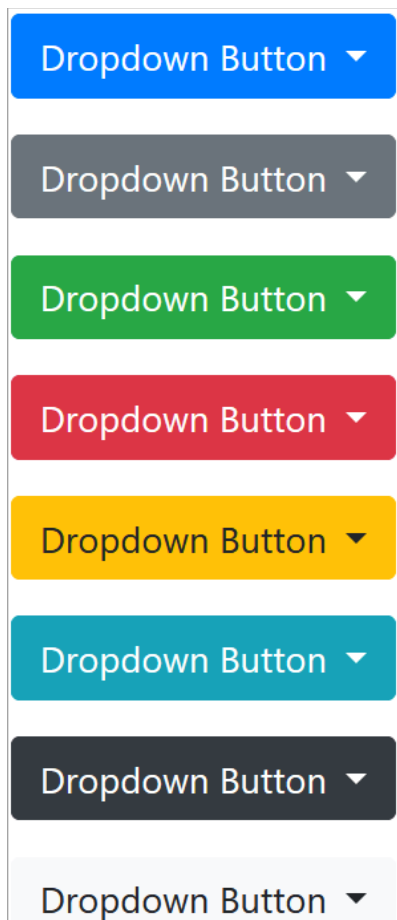
Browser output of the above Programming Code

Dropdown Header And Dropdown Divider:
Add the **.dropdown-header** class to add a header inside the Bootstrap dropdown menu and add the **.dropdown-divider** class to separate Bootstrap menu items by adding a horizontal line.

Example of Dropdown Header & Dropdown Divider:
```
<!DOCTYPE html>
<html lang="en">
<head>
<link rel="stylesheet" href="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/css/bootstrap.min.css">
</head>
<body>
<div class="container mt-3">

<div class="dropdown mb-3">
<button class="btn btn-primary dropdown-toggle" data-toggle="dropdown">
Dropdown Button
</button>
<div class="dropdown-menu">
<h5 class="dropdown-header">Dropdown Header</h5>
<a class="dropdown-item" href="#">Action 1</a>
<a class="dropdown-item" href="#">Action 2</a>
```

```
<a class="dropdown-item" href="#">Action 3</a>
<div class="dropdown-divider"></div>
<a class="dropdown-item" href="#">Action 4</a>
</div>
</div>

</div>
<script src="https://code.jquery.com/jquery-3.5.1.slim.min.js"></script>
<script src="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/js/bootstrap.bundle.min.js"></script>
</body>
</html>
```

Browser output of the above Programming Code

Dropdown Sizes And States:

Dropdown Sizes

There are three sizes of dropdowns.

1. **Small Dropdowns:** Add the **.btn-sm** class to the **<button>** element to create a small dropdown**.**
2. **Default size Dropdowns:** No need to add a specific class to create a default size dropdown as it is the default size.
3. **Large Dropdowns:** Add the **.btn-lg** class to the **<button>** element to create a large dropdown.

Dropdown States

There are two types of Dropdown States.

1. **Active State:** Add the **.active** class to create a dropdown item that is in the active state.
2. **Disabled State:** Add the **.disabled** class to disable a dropdown item.

Example of Active & Disabled items and Dropdown Sizes

```html
<!DOCTYPE html>
<html lang="en">
<head>
<link rel="stylesheet" href="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/css/bootstrap.min.css">
</head>
<body>
<div class="container mt-3">

<div class="dropdown mb-3">
<button class="btn btn-success btn-sm dropdown-toggle" data-toggle="dropdown">
Small Dropdown Button
</button>
<div class="dropdown-menu">
<a class="dropdown-item" href="#">Action 1</a>
<a class="dropdown-item" href="#">Action 2</a>
</div>
</div>

<div class="dropdown mb-3">
<button class="btn btn-success dropdown-toggle" data-toggle="dropdown">
Regular Dropdown Button
</button>
<div class="dropdown-menu">
<a class="dropdown-item" href="#">Action 1</a>
<a class="dropdown-item" href="#">Action 2</a>
</div>
</div>

<div class="dropdown mb-3">
<button class="btn btn-success btn-lg dropdown-toggle" data-toggle="dropdown">
Large Dropdown Button
</button>
<div class="dropdown-menu">
<a class="dropdown-item" href="#">Action 1</a>
<a class="dropdown-item" href="#">Action 2</a>
</div>
</div>

<div class="dropdown mb-3">
<button class="btn btn-danger dropdown-toggle" data-toggle="dropdown">
Dropdown Button
</button>
<div class="dropdown-menu">
<a class="dropdown-item" href="#">Regular Action</a>
<a class="dropdown-item active" href="#">Active Action</a>
<a class="dropdown-item disabled" href="#">Disabled Action</a>
</div>
</div>

</div>
<script src="https://code.jquery.com/jquery-3.5.1.slim.min.js"></script>
```
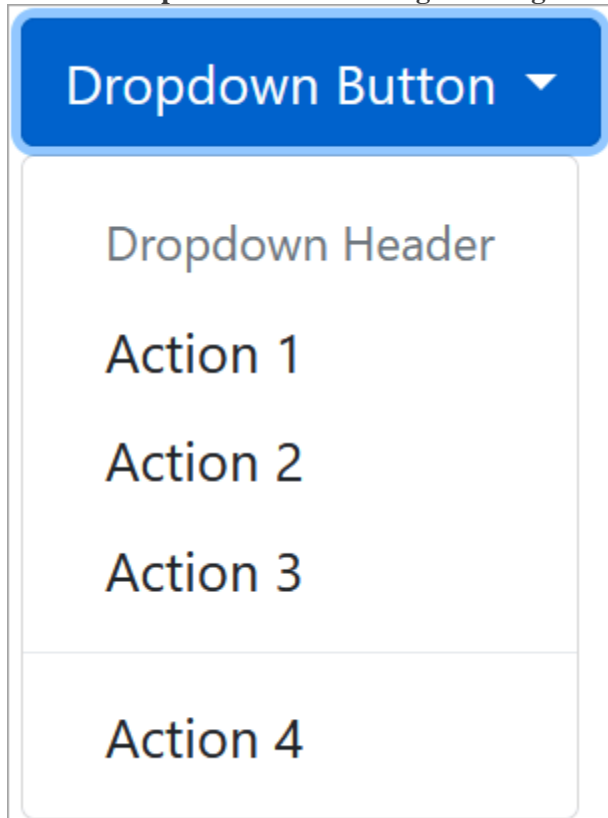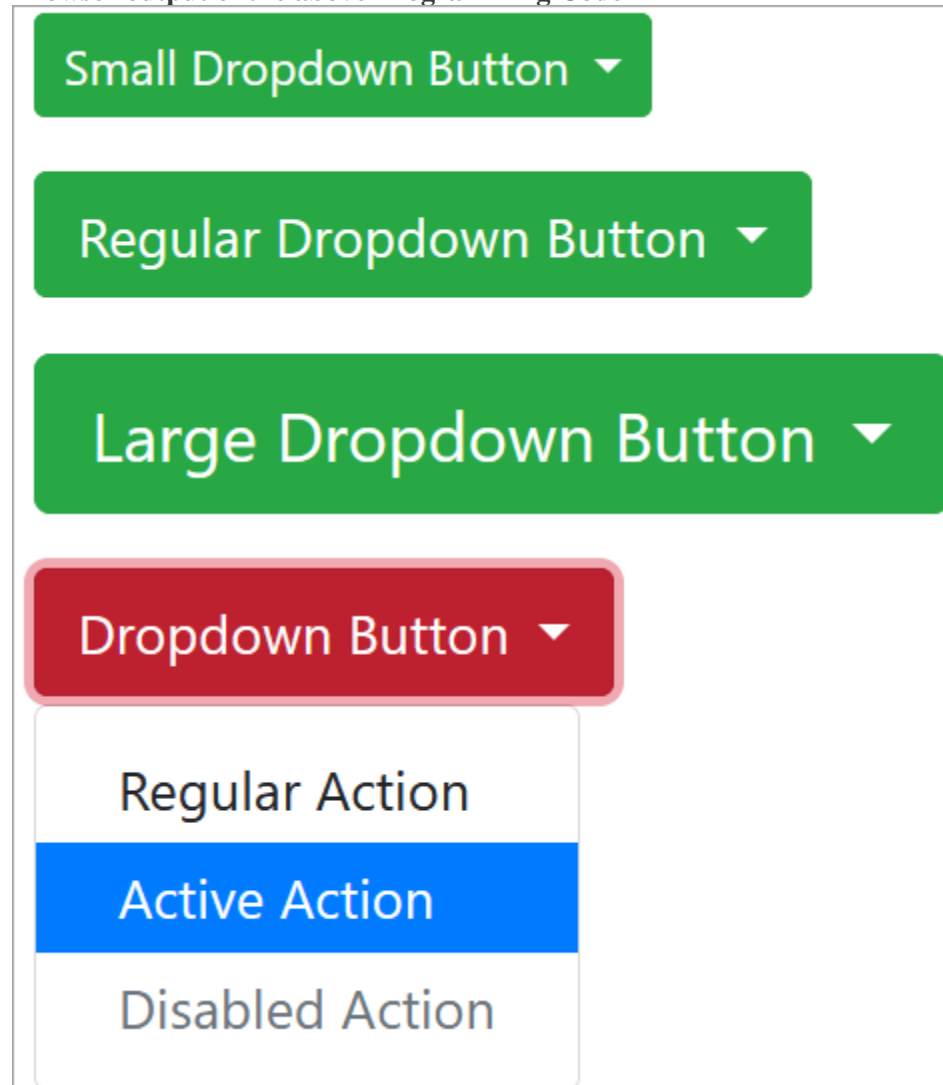
```
<script src="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/js/bootstrap.bundle.min.js"></script>
</body>
</html>
```
Browser output of the above Programming Code

Dropright, Dropleft, Dropup And Dropdown Right Menu:

Add the **.dropright** class and the **.dropleft** class to create a dropright and a dropleft respectively. Instead of adding the **.dropdown** class, you can add the **.dropup** class to create a dropup.

By default, the dropdown menu is left-aligned. To make the dropdown menu right-aligned, add the **.dropdown-menu-right** class.

Example of Dropright, Dropleft, Dropup & Dropdown Right Menu:
```
<!DOCTYPE html>
<html lang="en">
<head>
<link rel="stylesheet" href="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/css/bootstrap.min.css">
</head>
<body>
```

```html
<div class="container mt-3">

<div class="dropdown dropright">
<button class="btn btn-primary dropdown-toggle" data-toggle="dropdown">
Dropright
</button>
<div class="dropdown-menu">
<a class="dropdown-item" href="#">Action 1</a>
<a class="dropdown-item" href="#">Action 2</a>
</div>
</div>

<div class="dropdown dropleft float-right">
<button class="btn btn-primary dropdown-toggle" data-toggle="dropdown">
Dropleft
</button>
<div class="dropdown-menu">
<a class="dropdown-item" href="#">Action 1</a>
<a class="dropdown-item" href="#">Action 2</a>
</div>
</div>

<div class="dropup mt-5 mb-5">
<button class="btn btn-primary dropdown-toggle" data-toggle="dropdown">
Dropup
</button>
<div class="dropdown-menu">
<a class="dropdown-item" href="#">Action 1</a>
<a class="dropdown-item" href="#">Action 2</a>
</div>
</div>

<div class="dropdown">
<button class="btn btn-primary dropdown-toggle" data-toggle="dropdown">
Dropdown Menu Right
</button>
<div class="dropdown-menu dropdown-menu-right">
<a class="dropdown-item" href="#">Action 1</a>
<a class="dropdown-item" href="#">Action 2</a>
</div>
</div>

</div>
<script src="https://code.jquery.com/jquery-3.5.1.slim.min.js"></script>
<script src="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/js/bootstrap.bundle.min.js"></script>
</body>
</html>
```
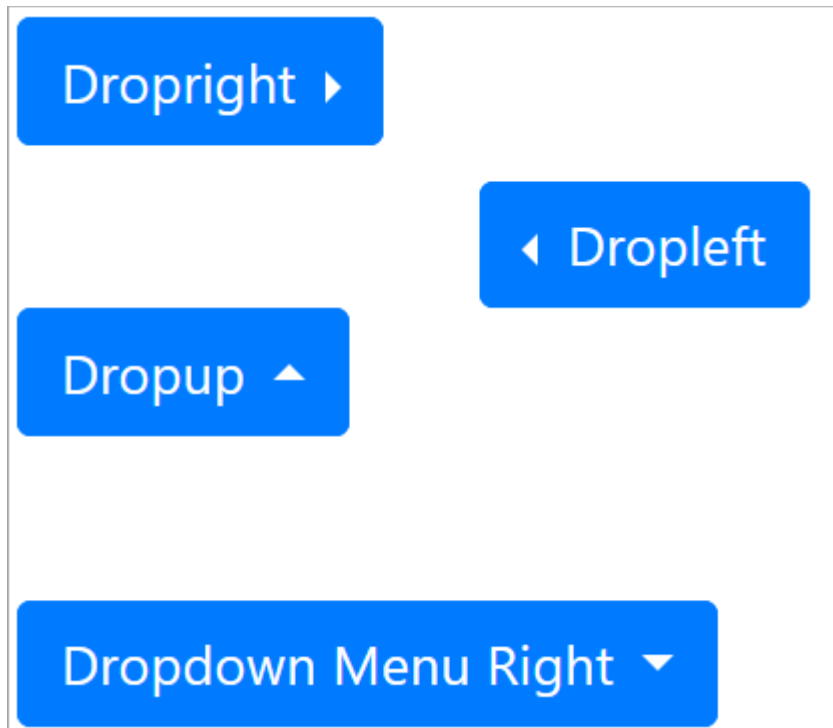**Browser output of the above Programming Code**

Bootstrap Dropdown Text:

Add the **.dropdown-item-text** class to add plain text to a dropdown item. You can also use it in links for default styling of links.

Example of Dropdown Text
```
<!DOCTYPE html>
<html lang="en">
<head>
<link rel="stylesheet" href="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/css/bootstrap.min.css">
</head>
<body>
<div class="container mt-3">

<div class="dropdown">
<button type="button" class="btn btn-primary dropdown-toggle" data-toggle="dropdown">
Dropdown Button
</button>
<div class="dropdown-menu">
<a class="dropdown-item" href="#">Regular Action</a>
<a class="dropdown-item-text" href="#">Text Link</a>
<span class="dropdown-item-text">Plain Text</span>
</div>
</div>

</div>
<script src="https://code.jquery.com/jquery-3.5.1.slim.min.js"></script>
```

```
<script src="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/js/bootstrap.bundle.min.js"></script>
</body>
</html>
```
Browser output of the above Programming Code

Split Button Dropdown
Split button dropdowns are similar to regular dropdowns (single button dropdowns), but they have proper spacing around the dropdown caret.

Example of Split Button Dropdown
```
<!DOCTYPE html>
<html lang="en">
<head>
<link rel="stylesheet" href="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/css/bootstrap.min.css">
</head>
<body>
<div class="container mt-3">

<div class="btn-group">
<button type="button" class="btn btn-warning">Split Button Dropdown</button>
<button type="button" class="btn btn-warning dropdown-toggle dropdown-toggle-split" data-toggle="dropdown"></button>
<div class="dropdown-menu">
<a class="dropdown-item" href="#">Action 1</a>
<a class="dropdown-item" href="#">Action 2</a>
</div>
</div>

</div>
<script src="https://code.jquery.com/jquery-3.5.1.slim.min.js"></script>
<script src="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/js/bootstrap.bundle.min.js"></script>
</body>
</html>
```
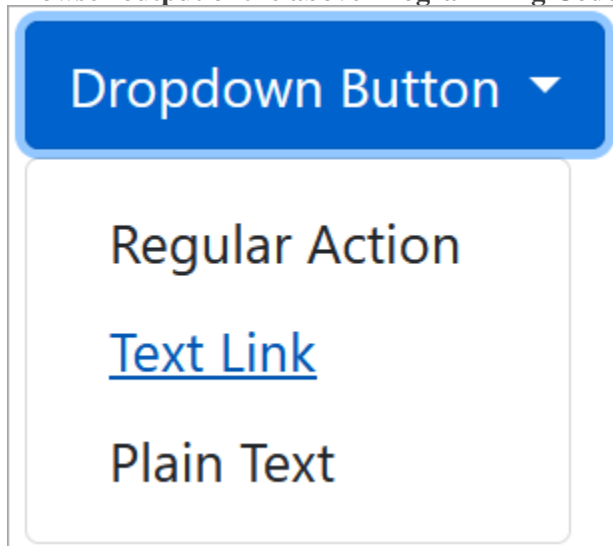**Browser Output of the above Programming Code**

Button Group With Dropdown:

Instead of using a single button, you can use a button group to create a button group with a dropdown. It can be either in the horizontal direction or vertical direction.

Example of (horizontal) Button Group & Vertical Button Group Dropdown:
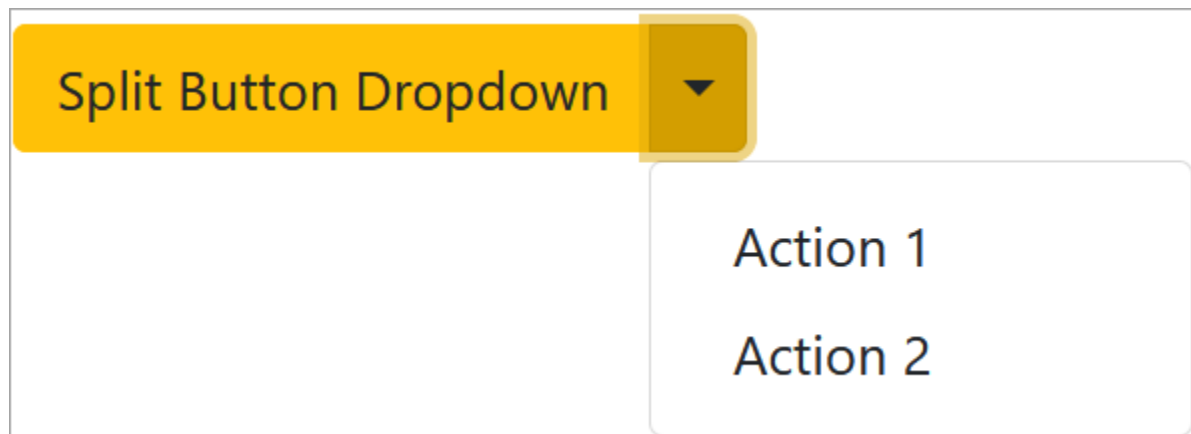
```
<!DOCTYPE html>
<html lang="en">
<head>
<link rel="stylesheet" href="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/css/bootstrap.min.css">
</head>
<body>
<div class="container mt-3">

<div class="btn-group mx-3">
<button class="btn btn-danger">Asia</button>
<button class="btn btn-warning">Africa</button>

<div class="btn-group">
<button class="btn btn-success dropdown-toggle" data-toggle="dropdown">
Europe
</button>
<div class="dropdown-menu">
<a class="dropdown-item" href="#">Dropdown link</a>
<a class="dropdown-item" href="#">Dropdown link</a>
</div>
</div>
</div>

<div class="btn-group-vertical">
<button class="btn btn-danger">Asia</button>
<button class="btn btn-warning">Africa</button>
<div class="btn-group">
<button class="btn btn-success dropdown-toggle" data-toggle="dropdown">
Europe
</button>
<div class="dropdown-menu">
<a class="dropdown-item" href="#">Dropdown link</a>
<a class="dropdown-item" href="#">Dropdown link</a>
```

```
</div>
</div>
</div>

</div>
<script src="https://code.jquery.com/jquery-3.5.1.slim.min.js"></script>
<script src="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/js/bootstrap.bundle.min.js"></script>
</body>
</html>
```
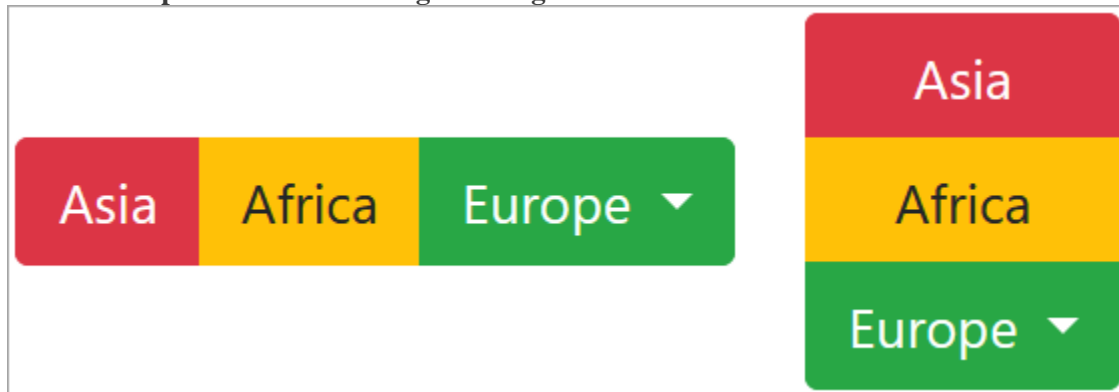**Browser output of the above Programming Code**

Frequently Asked Questions(FAQ's):

In this section, we will look at some of the frequently asked questions about Bootstrap 4 dropdowns.

Q #1) Which main classes are used to create a basic Dropdown?

Answer: The main classes that are used to create a basic dropdown are the .dropdown class, .dropdown-toggle class, .dropdown-menu class and .dropdown-item class.

Q #2) What contextual classes are used to create Colored Dropdowns?

Answer: Eight contextual classes can be used to create colored dropdowns. They are the **.btn-primary** class, **.btn-secondary** class, **.btn-success** class, **.btn-danger** class, **.btn-warning** class, **.btn-info** class, **.btn-light** class and **.btn-dark** class.

Q #3) What is the purpose of a Dropdown Header?

Answer: The purpose of a dropdown header is to add a header inside the Bootstrap dropdown menu.

Q #4) What is the purpose of a Dropdown Divider?

Answer: The purpose of a dropdown divider is to separate Bootstrap menu items by adding a horizontal line.

Q #5) What are the different sizes of Dropdowns?

Answer: There are three sizes of dropdowns i.e. **Small dropdown size, Default dropdown size, and Large dropdown size.**

Q #6) Which class is used to create a Small Dropdown?

Answer: The **.btn-sm** class is used to create a Small dropdown.

Q #7) Which class is used to create a Large Dropdown?

Answer: The **.btn-lg** class is used to create a Large dropdown.

Q #8) What are the two types of Dropdown States?

Answer: The two types of dropdown states are the **Active** state and the **Disabled** state.

Q #9) Which class is used for an Active Dropdown item?

Answer: The **.active** class is used for an Active dropdown item.

Q #10) How to create an Inactive or Disabled dropdown item?

Answer: Add the .**disabled** class to create an Inactive or Disabled dropdown item.

Q #11) Which classes are used to create Dropright, Dropleft, Dropup, and a Dropdown with Right menu?

Answer: The classes that are used to create a Dropright, Dropleft, Dropup and a dropdown with the right menu are the **.dropright** class, **.dropleft** class, **.dropup** class and the **.dropdown-menu-right** class respectively.

Q #12) How can you create a Dropdown Text?

Answer: Add the **.dropdown-item-text** class to create a dropdown text.

Q #13) Which class is used to create a Split Button Dropdown?

Answer: The **.dropdown-toggle-split class** is used to create a split button dropdown.

Q #14) Can we create a button group with Dropdown?

Answer: Yes, we can create a button group with Dropdown.

A dropdown is a toggleable menu that allows a user to select one option from a predefined list. Eight contextual classes can be used to create colored dropdowns. You can also control other styling features such as dropdown size, state, etc.

9 Bootstrap Tabs and Tooltip[10 M]

Bootstrap Tabs:

Basic Tabs

Bootstrap tabs are nav components.

Add a **<nav>** element with the **.nav** class and the **.nav-tabs** class, followed by the **<a>** elements with the **.nav-item** class and the **.nav-link** class to create a tabbed navigation interface.

Tabs with Dropdowns

You can create tabs with dropdowns.

In addition to the the **.nav** class, the **.nav-tabs** class, the **.nav-item** class and the **.nav-link** class, we need the **.dropdown** class, the **.dropdown-toggle** class, the **.dropdown-menu** class, the **.dropdown-item** class and the **data-toggle="dropdown"** attribute to create tabs with dropdowns.

Toggleable Tabs

Toggleable tabs are also known as dynamic tabs.

We use the **.tab-content** class and the **.tab-pane** class to create tab panes. Further, we need the **data-toggle="tab"** attribute to make the tabs toggleable.

Fill Tabs

Add the **.nav-fill** class to create filled tabs. The **.nav-fill** class allows nav items to fill all horizontal space but does not have the same width. Nav items will have different widths based on their content.

Justified Tabs

Add the **.nav-justified** class to allow nav items to fill all horizontal space and every nav item has the same width.

Examples of Tabs

The below programming code shows the following examples related to tabs.

- Basic tabs
- Tabs with a dropdown
- Toggleable tabs
- Fill tabs
- Justified tabs

You can try this example by running the below programming code.

```html
<!DOCTYPE html>
<html lang="en">
<head>
  <link rel="stylesheet" href="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/css/bootstrap.min.css">
</head>
<body>
```

```html
<h6>Basic Tabs</h6>
<nav class="nav nav-tabs mb-5">
    <!--Home is an Active Tab-->
    <a href="#" class="nav-item nav-link active">Home</a>
    <a href="#" class="nav-item nav-link">Our Work</a>
    <a href="#" class="nav-item nav-link">Contact Us</a>
</nav>

<h6>Tabs with a Dropdown</h6>
<nav class="nav nav-tabs mb-5">
    <a href="#" class="nav-item nav-link">Home</a>
    <a href="#" class="nav-item nav-link">Our Work</a>
    <div class="nav-item dropdown">
        <!--A Tab with a Dropdown-->
        <a href="#" class="nav-link dropdown-toggle" data-toggle="dropdown">Contact Us</a>
        <div class="dropdown-menu">
            <a href="#" class="dropdown-item">Email</a>
            <a href="#" class="dropdown-item">Fax</a>
            <a href="#" class="dropdown-item">Phone</a>
        </div>
    </div>
</nav>

<h6>Toggleable Tabs</h6>
<!--Nav Tabs-->
<nav class="nav nav-tabs">
    <a href="#home" class="nav-item nav-link" data-toggle="tab">Home</a>
    <a href="#work" class="nav-item nav-link" data-toggle="tab">Our Work</a>
    <a href="#contact" class="nav-item nav-link" data-toggle="tab">Contact Us</a>
</nav>
<!--Nav Panes-->
<div class="tab-content mb-5">
    <!--The Tab Pane with the #home is an Active Tab Pane-->
    <div class="tab-pane container active" id="home">Sample content 1</div>
    <div class="tab-pane container fade" id="work">Sample content 2</div>
    <div class="tab-pane container fade" id="contact">Sample content 3</div>
</div>

<h6>Fill Tabs</h6>
<nav class="nav nav-tabs nav-fill mb-5">
    <a href="#" class="nav-item nav-link">Home</a>
    <a href="#" class="nav-item nav-link">Our Creative Work</a>
    <!--Contact Us is an Active Tab-->
    <a href="#" class="nav-item nav-link active">Contact Us</a>
</nav>

<h6>Justified Tabs</h6>
<nav class="nav nav-tabs nav-justified">
    <a href="#" class="nav-item nav-link">Home</a>
    <a href="#" class="nav-item nav-link">Our Creative Work</a>
```

```html
    <!--Contact Us is an Active Tab-->
    <a href="#" class="nav-item nav-link active">Contact Us</a>
  </nav>

<script src="https://code.jquery.com/jquery-3.5.1.slim.min.js"></script>
<script src="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/js/bootstrap.bundle.min.js"></script>
</body>
</html>
```

The below screenshot shows the browser output of the above programming code.

Bootstrap tooltip:

In this , you will learn what a Bootstrap 4 tooltip is, how to create a Bootstrap tooltip, tooltips with HTML, tooltip positions, and frequently asked questions

The following table summarizes the attributes that we have used in this tutorial.

Attribute	Usage
The **data-toggle** attribute	This attribute is used to create a tooltip.
The **title** attribute	This attribute is used to display tooltip text.
The **data-placement** attribute	This attribute is used to set the position of the tooltip.

A Bootstrap tooltip is a tiny pop-up that appears when a user places the cursor over an element.

Create A Bootstrap 4 Tooltip

Add the **data-toggle** attribute and the **title** attribute to an element like a link or a button. The value of the **title** attribute should be the text that you want to display inside the tooltip.

Important – You need to add the 3rd party library called **Popper.js** in your project as it is required to work tooltips properly (for positioning).

The below programming code shows a basic example. You can try this example by running the below programming code.

Important – Tooltips must be initialized with jQuery as shown in the below example.

```html
<!DOCTYPE html>
<html lang="en">
<head>
    <link rel="stylesheet"
href="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/css/bootstrap.min.css">
</head>
<body>
    <div class="container mt-5">

        <a href="#" data-toggle="tool-tip" title="Yay!">Basic Tooltip</a><br>

    </div>
<script src="https://code.jquery.com/jquery-3.5.1.slim.min.js"></script>
<script src="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/js/bootstrap.bundle.min.js"></script>
<script>

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

</body>
</html>
```
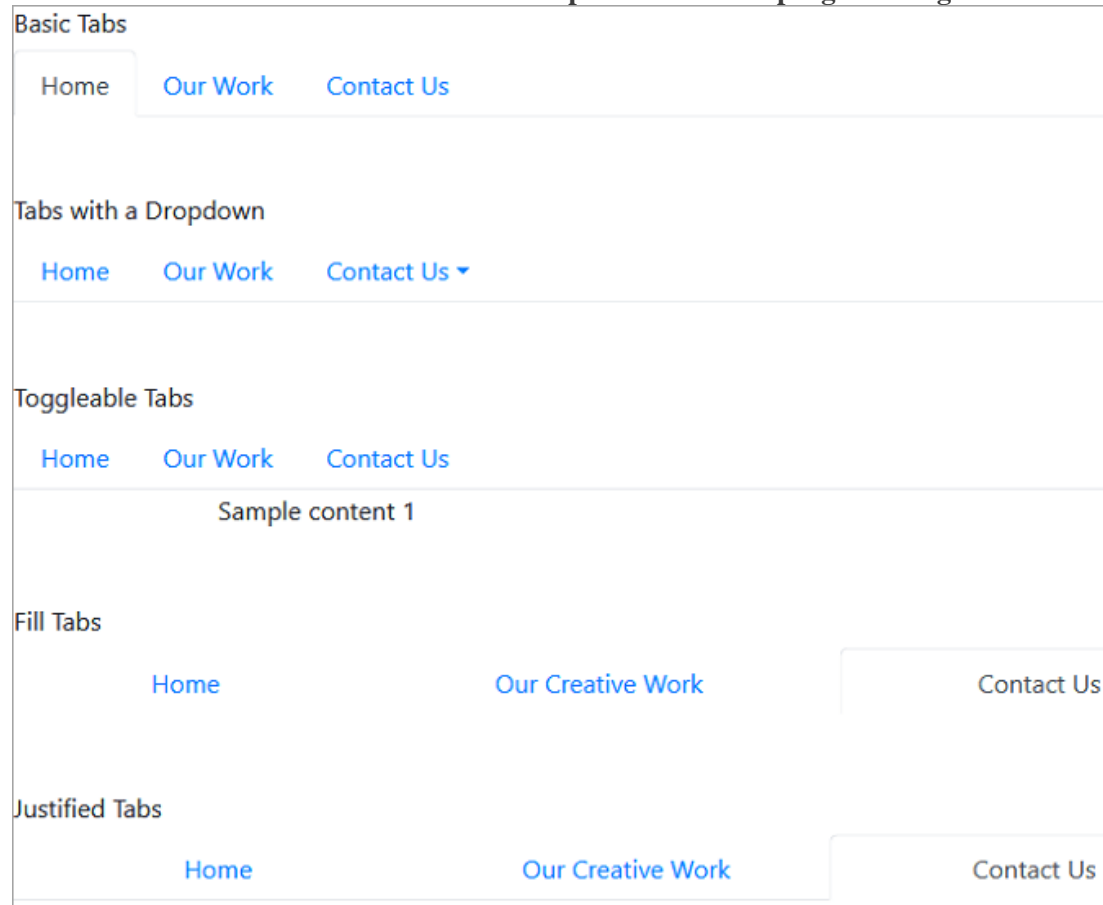
Note: Place the cursor over the above link (hover) to see the tooltip.

The below screenshots show the browser output of the above programming code.

- **Before hovering over the element:**

- **After hovering over the element:**

Note: The default tooltip position is at the top of the element. Therefore, you need to keep enough space at the top of the element as shown in the above screenshots. Otherwise, the tooltip position will change, as shown in the below screenshot.

Bootstrap Tooltips With HTML
You can also use HTML inside the tooltip.
The below programming code shows an example. You can try this example by running the below programming code.

```
<!DOCTYPE html>
<html lang="en">
<head>
        <link rel="stylesheet"
href="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/css/bootstrap.min.css">
</head>
<body>
        <div class="container mt-5">

                <button type="button" class="btn btn-primary mt-4" data-toggle="tool-tip" data-
html="true" title="<b>This</b> <u>is</u> <i>HTML.</i>">
                    My Text
                 </button>

        </div>

<script src="https://code.jquery.com/jquery-3.5.1.slim.min.js"></script>
<script src="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/js/bootstrap.bundle.min.js"></script>

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

</body>
</html>
```

Note: Place the cursor over the above button (hover) to see the tooltip.
The below screenshots show the browser output of the above programming code.
- **Before hovering over the element:**

- **After hovering over the element:**

Bootstrap Tooltip Positions

There are four tooltip positions, as shown in the below list. These positions specify the direction in which a tooltip appears.

1. **Top** – Appears on top of the element. This is the default position.
2. **Bottom** – Appears on the bottom of the element.
3. **Left** – Appears on the left of the element.
4. **Right** – Appears on the right of the element.

You need to add the **data-placement** attribute to set the position of the tooltip.

The below programming code shows a few examples. You can try these examples by running the below programming code:

```html
<!DOCTYPE html>
<html lang="en">
<head>
    <link rel="stylesheet"
href="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/css/bootstrap.min.css">
</head>
<body>
        <div class="container mt-5">

            <button class="btn btn-danger mt-4" data-toggle="tool-tip" data-placement="top"
title="Yay!">Top</button>
            <button class="btn btn-warning mt-4" data-toggle="tool-tip" data-placement="bottom"
title="Yay!">Bottom</button>
            <button class="btn btn-success mt-4" data-toggle="tool-tip" data-placement="left"
title="Yay!">Left</button>
            <button class="btn btn-info mt-4" data-toggle="tool-tip" data-placement="right"
title="Yay!">Right</button><br>
```

```
<script src="https://code.jquery.com/jquery-3.5.1.slim.min.js"></script>
<script src="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/js/bootstrap.bundle.min.js"></script>

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


</body>
</html>
```
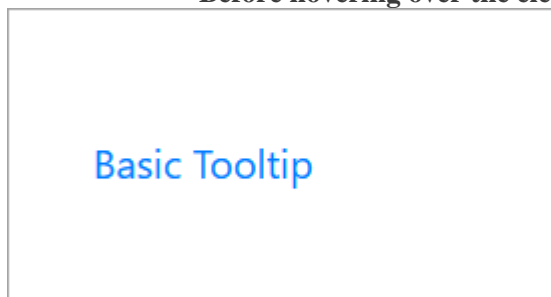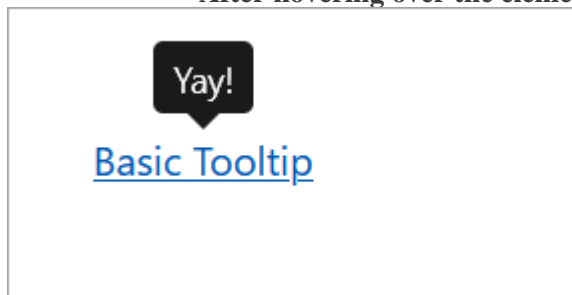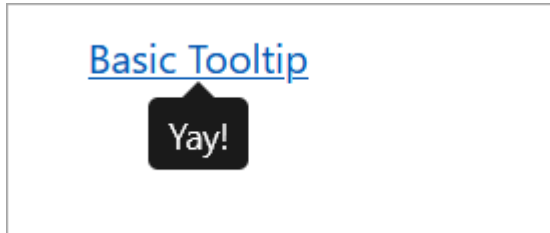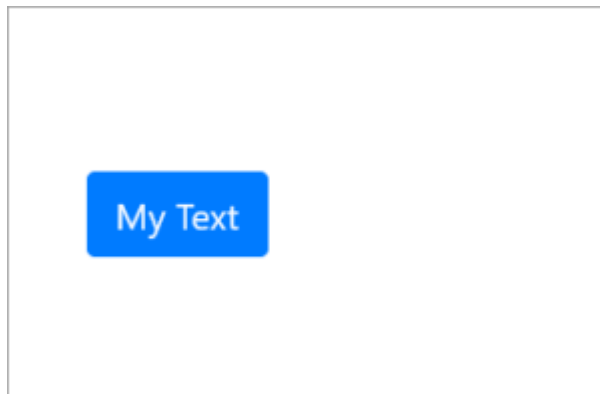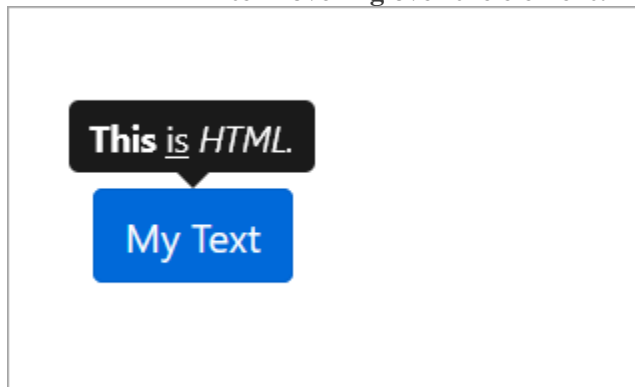
The below screenshot shows the browser output of the above programming code.

Note: Place the cursor over the above buttons (hover) to see the four tooltip positions: top, bottom, left, and right. Also, don't forget to keep enough space at the top of the elements.

Usage

#1) Options

There are two ways to pass options.

    1.   Via data attributes
    2.   Via JavaScript

The following table shows the available options:

	Name	Type	Default	Description
1	animation	boolean	true	Specify whether to apply a CSS fade transition when opening and closing the tooltip. true - apply a CSS fade transition false - do not apply a CSS fade transition
2	container	string or element or false	false	Append the tooltip to a specific element. Example: container: 'body'
3	delay	number or object	0	The delay in ms, it will take to open and close the tooltip. It does not apply to the manual trigger type.
4	html	boolean	false	Specify whether to insert HTML in the tooltip true - insert HTML false - do not insert HTML
5	placement	string or function	'top '	The tooltip position. 1. auto - dynamically reorient the tooltip 2. top - tooltip appears on the top 3. bottom - tooltip appears on the bottom

	Name	Type	Default	Description
				4. left - tooltip appears on the left 5. right - tooltip appears on the right
6	selector	string or false	false	Add the tooltip to specified targets.
7	template	string	(the basic structure)	The basic HTML structure to use when creating the tooltip.
8	title	string or element or function	''	The default value of the title if the title attribute is not present.
9	trigger	string	'hover focus'	How tooltip is triggered. 1. click - trigger a tooltip using a click 2. hover - trigger a tooltip on hover 3. focus - trigger a tooltip when it gets focus 4. manual - trigger a tooltip manually
10	offset	number or string or function	0	The offset of the tooltip relative to the target.
11	fallbackPlacement	string or array	'flip'	Specify the fallback position.
12	boundary	string or element	'scrollParent'	Specify the boundary of the tooltip.
13	sanitize	boolean	true	Enable or disable the sanitization.
14	whiteList	object	Default value	The object that contains allowed attributes and tags.
15	sanitizeFn	null or function	null	Provide your own sanitize function.
16	popperConfig	null or object	null	Change the default Popper.js configuration.

#2) Methods

The following table shows the available methods:

	Method	Description	Example
1	$().tooltip (options)	Activate the tooltip with an option.	-
2	.tooltip('show')	Show the tooltip.	$('#element').tooltip('show')
3	.tooltip('hide')	Hide the tooltip.	$('#element').tooltip('hide')
4	.tooltip('toggle')	Toggle the tooltip.	$('#element').tooltip('toggle')
5	.tooltip('dispose')	Hide and destroy the tooltip.	$('#element').tooltip('dispose')
6	.tooltip('enable')	Enable the tooltip.	$('#element').tooltip('enable')
7	.tooltip('disable')	Disable the tooltip.	$('#element').tooltip('disable')
8	.tooltip('toggleEnabled')	Toggle the ability of tooltip (to be shown or hidden).	$('#element').tooltip('toggleEnabled')
9	.tooltip('update')	Update the position of the tooltip.	$('#element').tooltip('update')

#3) Events

The following table shows the available events:

	Event	Description	Example

1	show.bs.tooltip	This event is fired when the tooltip is about to be shown to the user.	$('#myTooltip').on('show.bs.tooltip',
			function () {
			// write your code here
			})

2	shown.bs.tooltip	This event is fired when the tooltip is fully visible to the user (after the completion of CSS transitions)	$('#myTooltip').on('shown.bs.tooltip',
			function () {
			// write your code here
			})

3	hide.bs.tooltip	This event is fired when the tooltip is about to be hidden from the user.	$('#myTooltip').on('hide.bs.tooltip',
			function () {
			// write your code here
			})

	Event	Description	Example
4	hidden.bs.tooltip	This event is fired when the tooltip is fully hidden from the user (after the completion of CSS transitions).	$('#myTooltip').on('hidden.bs.tooltip', function () { // write your code here })
5	inserted.bs.tooltip	This event is fired after occurring the show.bs.tooltip event when the tooltip template has been added to the DOM.	$('#myTooltip').on('inserted.bs.tooltip', function () { // write your code here })

Frequently Asked Questions

In this section, we will discuss some of the FAQs about the topic. These questions will help you prepare for your examinations and interviews.

Q #1) What does a tooltip mean?
Answer: It is a tiny pop-up box that appears when a user places the cursor over an element.

Q #2) Where do you position tooltips?
Answer: The four types of positions are **top**, **right**, **bottom**, and **left**. The default position is at the top of the element.

Q #3) Why a tooltip is not working?
Answer: There can be a few reasons for that. One possible reason is that you didn't include the **popper.js** file in your project.

Q #4) Do tooltips work on mobile?
Answer: Yes, it works on mobile devices.

Q #5) How do I use Bootstrap 4 tooltips?
Answer: You can use the **data-toggle** attribute and the **title** attribute to create a tooltip.

Q #6) How do I change the tooltip position in Bootstrap?
Answer: You can change the position by adding the **data-placement** attribute and set the values.

A Bootstrap tooltip is a small pop-up that appears when a user places the cursor over an element. You can change the position of the tooltip as there are four available positions. Also, you can add tooltips with HTML.

10 Bootstrap Collapse:

A Bootstrap collapse is used to show or hide a large volume of content. In other words, it toggles the visibility of the content.

There are different types of collapse components like Bootstrap collapse navbars, Bootstrap collapse tables, collapsible panels, collapsible list groups, etc.

The following table summarizes the main classes that we have used in this tutorial:

Class	Usage
The **.collapse** class	This class is used to create a collapse.
The **.show** class	This class is used to show the content by default.
The **.collapsing** class	This class is added when the transition begins and removed when the transition ends.

How To Create Bootstrap 4 Collapse

The main class used to create this component is the **.collapse** class. You can use a button or a link to create a basic collapse. If you use a button, then use the **data-target** attribute and if you use a link, use the **href** attribute to specify the target. In both cases, add the **data-toggle** attribute.

By default, the collapse component hides the content. To show the content by default, add the **.show** class.

Furthermore, the **.collapsing** class applies during the transition. It is added when the transition begins and removed when the transition ends.

Let's do a few examples.

Example 1 – Basic collapse using a button and a link (button link)
You can try this example by running the below programming code:

```html
<!DOCTYPE html>
<html lang="en">
<head>
    <link rel="stylesheet" href="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/css/bootstrap.min.css">
</head>
<body>
    <div class="container mt-3">
        <p>
            <a class="btn btn-primary" data-toggle="collapse" href="#example" role="button">
                Link with href
            </a>
            <button class="btn btn-primary" type="button" data-toggle="collapse" data-target="#example">
                Button with data-target
            </button>
        </p>
        <div class="collapse" id="example">
            <div class="card card-body">
                Sample content
            </div>
        </div>
    </div>

    <script src="https://code.jquery.com/jquery-3.5.1.slim.min.js"></script>
    <script src="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/js/bootstrap.bundle.min.js"></script>
</body>
</html>
```

The below screenshot shows the browser output of the above programming code:
Before clicking any button:

After clicking any button:

Note – After clicking any button, you need to click that button again to hide the content before clicking any other button.

Example 2 – Collapse with navbar
You can try this example by running the below programming code:

```
<!DOCTYPE html>
<html lang="en">
<head>
   <link rel="stylesheet" href="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/css/bootstrap.min.css">
</head>
<body>
   <div class="container mt-3">
      <div class="collapse" id="example">
         <div class="bg-dark p-4">
            <p class="text-white">Sample content...</p>
         </div>
      </div>
      <nav class="navbar navbar-dark bg-dark">
         <button class="navbar-toggler" type="button" data-toggle="collapse" data-target="#example">
            <span class="navbar-toggler-icon"></span>
         </button>
      </nav>
   </div>

<script src="https://code.jquery.com/jquery-3.5.1.slim.min.js"></script>
<script src="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/js/bootstrap.bundle.min.js"></script>
</body>
</html>
```
The below screenshot shows the browser output of the above programming code.
Before clicking the button:

After clicking the button:

Bootstrap Collapse With Multiple Targets
Instead of targeting a single target, you can add multiple targets too.
The below programming code shows an example of collapse with multiple targets:
```
<!DOCTYPE html>
<html lang="en">
<head>
   <link rel="stylesheet" href="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/css/bootstrap.min.css">
</head>
<body>
```

```html
    <div class="container mt-3">
      <p>
        <a class="btn btn-primary" data-toggle="collapse" href="#example1" role="button">Toggle element 1</a>
        <button class="btn btn-primary" type="button" data-toggle="collapse" data-target="#example2">Toggle element 2</button>
        <button class="btn btn-primary" type="button" data-toggle="collapse" data-target=".multi-target">Toggle both elements</button>
      </p>
      <div class="row">
        <div class="col">
          <div class="collapse multi-target" id="example1">
            <div class="card card-body">
              This is the first sample content.
            </div>
          </div>
        </div>
        <div class="col">
          <div class="collapse multi-target" id="example2">
            <div class="card card-body">
              This is the second sample content.
            </div>
          </div>
        </div>
      </div>
    </div>
<script src="https://code.jquery.com/jquery-3.5.1.slim.min.js"></script>
<script src="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/js/bootstrap.bundle.min.js"></script>
</body>
</html>
```
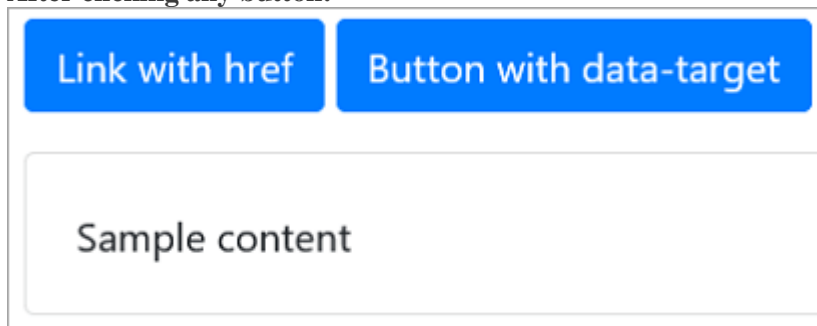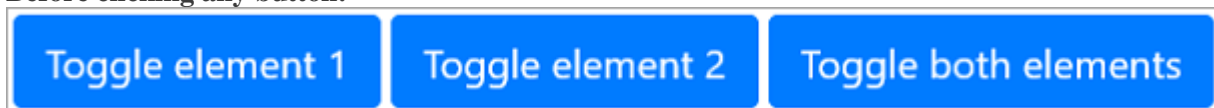
The below screenshot shows the browser output of the above programming code:
Before clicking any button:

After clicking the Toggle element 1 button:

Note: After clicking any button, you need to click that button again to hide the content before clicking any other button.

After clicking the Toggle element 2 button:

Toggle element 1   Toggle element 2   Toggle both elements

This is the second sample content.

After clicking the **Toggle both elements** button

Toggle element 1   Toggle element 2   Toggle both elements

This is the first sample content.

This is the second sample content.

Frequently Asked Questions

In this section, we will discuss some of the FAQs related to this topic. These questions will help you prepare for your examinations and interviews confidently.

Q #1) What is Bootstrap collapse?

Answer: It is a Bootstrap component that toggles the visibility of content.

Q #2) How do I close a collapse?

Answer: You can close it by clicking back the element.

Q #3) How do I enable collapse by default?

Answer: Add the **.show** class to enable it by default.

Q #4) What does Bootstrap navbar collapse do?

Answer: It wraps navbar items.

Q #5) How do I make the Bootstrap navbar collapse?

Answer: Inside a nav element with navbar classes, add a button with the **.navbar-toggler** class, the **data-toggle** attribute, and the **data-target** attribute. Next, add relevant content inside a div element with the **collapse** class. The id value of the data-target attribute must match with the id (the value of the id attribute) of the button.

Q #6) Why is my collapse not working?

Answer: There can be a few reasons for that. One possible reason is that you didn't include the Bootstrap JS file in your project.

A collapse is used to toggle the visibility of content. You can also combine the collapse component with other components like tables, navbars, etc.

11 Bootstrap accordion[10 M]

A Bootstrap accordion is a vertically stacked list of items that can be toggled. It is similar to a collapse but uses the card component.

The following table summarizes the main classes and attributes that we have used in this tutorial.

Class or Attribute	Usage
The **.accordion** class	This class is used to create an accordion.
The **data-parent** attribute	This attribute is used to ensure that all collapsible elements under the specified parent will be closed when a collapsible item is shown.
The **.show** class	This class is used to open an accordion by default.
The **.bg-primary** class	This class is used to add a blue color to the component.
The **.bg-secondary** class	This class is used to add a grey color to the component.
The **.bg-success** class	This class is used to add a green color to the component.
The **.bg-danger** class	This class is used to add a red color to the component.
The **.bg-warning** class	This class is used to add an orange color to the component.
The **.bg-info** class	This class is used to add a light blue color to the component.
The **.bg-white** class	This class is used to add a white color to the component.
The **.bg-light** class	This class is used to add a light grey color to the component.
The **.bg-dark** class	This class is used to add a dark grey color to the component.

How To Create A Bootstrap Accordion

Add the **.accordion** class as a wrapper to create an accordion. It extends the default collapsible behavior.

If you want to make an accordion open (to show the collapsible content) by default, you need to add an additional class called the **.show** class. Otherwise, the accordion will not open by default, and you have to click the element to make it open.

Further, you can use custom CSS to add icons to accordions (**for example,** a Bootstrap accordion with arrow icons, etc.).

Example:
The below programming code shows an example of a basic accordion:

```html
<!DOCTYPE html>
<html lang="en">
<head>
   <link rel="stylesheet" href="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/css/bootstrap.min.css">
</head>
<body>
   <div class="container mt-3">

      <div class="accordion" id="example">

        <div class="card">
          <div class="card-header">
            <a data-toggle="collapse" href="#collapse1">
              Collapsible Group Item 1
            </a>
          </div>
          <div id="collapse1" class="collapse show" data-parent="#example">
            <div class="card-body">
              Lorem ipsum dolor sit amet, consectetur adipiscing elit. Maecenas porttitor.
```

```html
          </div>
        </div>
      </div>

      <div class="card">
        <div class="card-header">
          <a data-toggle="collapse" href="#collapse2">
            Collapsible Group Item 2
          </a>
        </div>
        <div id="collapse2" class="collapse" data-parent="#example">
          <div class="card-body">
            Lorem ipsum dolor sit amet, consectetur adipiscing elit. Maecenas porttitor.
          </div>
        </div>
      </div>

      <div class="card">
        <div class="card-header">
          <a data-toggle="collapse" href="#collapse3">
            Collapsible Group Item 3
          </a>
        </div>
        <div id="collapse3" class="collapse" data-parent="#example">
          <div class="card-body">
            Lorem ipsum dolor sit amet, consectetur adipiscing elit. Maecenas porttitor.
          </div>
        </div>
      </div>

    </div>

  </div>

<script src="https://code.jquery.com/jquery-3.5.1.slim.min.js"></script>
<script src="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/js/bootstrap.bundle.min.js"></script>

</body>
</html>
```
The below screenshot shows the browser output of the above programming code.

Collapsible Group Item 1
Lorem ipsum dolor sit amet, consectetur adipiscing elit. Maecenas porttitor.
Collapsible Group Item 2
Collapsible Group Item 3

Accordion With Background Colors:

Use the following classes for background colors to create colored accordions:

- The **.bg-primary** class: This class is used to add a blue color to the component.
- The **.bg-secondary** class: This class is used to add a grey color to the component.
- The **.bg-success** class: This class is used to add a green color to the component.
- The **.bg-danger** class: This class is used to add red color to the component.
- The **.bg-warning** class: This class is used to add orange color to the component.
- The **.bg-info** class: This class is used to add a light blue color to the component.
- The **.bg-white** class: This class is used to add a white color to the component.
- The **.bg-light** class: This class is used to add a light grey color to the component.
- The **.bg-dark** class: This class is used to add a dark grey color to the component.

The below programming code shows an example of accordions with background colors:

```html
<!DOCTYPE html>
<html lang="en">
<head>
  <link rel="stylesheet" href="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/css/bootstrap.min.css">
</head>
<body>
  <div class="container mt-3">

    <div class="accordion" id="example">

      <div class="card bg-primary">
        <div class="card-header">
          <a class="text-light" data-toggle="collapse" href="#item1">
            Collapsible Group Item 1
          </a>
        </div>
        <div id="item1" class="collapse show" data-parent="#example">
          <div class="card-body">
            Lorem ipsum dolor sit amet, consectetur adipiscing elit. Maecenas porttitor.
          </div>
        </div>
      </div>

      <div class="card bg-secondary">
        <div class="card-header">
          <a class="text-light" data-toggle="collapse" href="#item2">
```

```html
        Collapsible Group Item 2
      </a>
    </div>
    <div id="item2" class="collapse" data-parent="#example">
      <div class="card-body">
        Lorem ipsum dolor sit amet, consectetur adipiscing elit. Maecenas porttitor.
      </div>
    </div>
  </div>

  <div class="card bg-success">
    <div class="card-header">
    <a class="text-light" data-toggle="collapse" href="#item3">
      Collapsible Group Item 3
    </a>
    </div>
    <div id="item3" class="collapse" data-parent="#example">
      <div class="card-body">
        Lorem ipsum dolor sit amet, consectetur adipiscing elit. Maecenas porttitor.
      </div>
    </div>
  </div>

  <div class="card bg-danger">
    <div class="card-header">
      <a class="text-light" data-toggle="collapse" href="#item4">
        Collapsible Group Item 4
      </a>
    </div>
    <div id="item4" class="collapse" data-parent="#example">
      <div class="card-body">
        Lorem ipsum dolor sit amet, consectetur adipiscing elit. Maecenas porttitor.
      </div>
    </div>
  </div>

  <div class="card bg-warning">
    <div class="card-header">
      <a class="text-light" data-toggle="collapse" href="#item5">
        Collapsible Group Item 5
      </a>
    </div>
    <div id="item5" class="collapse" data-parent="#example">
      <div class="card-body">
        Lorem ipsum dolor sit amet, consectetur adipiscing elit. Maecenas porttitor.
      </div>
    </div>
  </div>

  <div class="card bg-info">
    <div class="card-header">
```

```html
        <a class="text-light" data-toggle="collapse" href="#item6">
          Collapsible Group Item 6
        </a>
      </div>
      <div id="item6" class="collapse" data-parent="#example">
        <div class="card-body">
          Lorem ipsum dolor sit amet, consectetur adipiscing elit. Maecenas porttitor.
        </div>
      </div>
    </div>

    <div class="card bg-white">
      <div class="card-header">
        <a class="text-dark" data-toggle="collapse" href="#item7">
          Collapsible Group Item 7
        </a>
      </div>
      <div id="item7" class="collapse" data-parent="#example">
        <div class="card-body">
          Lorem ipsum dolor sit amet, consectetur adipiscing elit. Maecenas porttitor.
        </div>
      </div>
    </div>

    <div class="card bg-light">
      <div class="card-header">
        <a class="text-dark" data-toggle="collapse" href="#item8">
          Collapsible Group Item 8
        </a>
      </div>
      <div id="item8" class="collapse" data-parent="#example">
        <div class="card-body">
          Lorem ipsum dolor sit amet, consectetur adipiscing elit. Maecenas porttitor.
        </div>
      </div>
    </div>

    <div class="card bg-dark">
      <div class="card-header">
        <a class="text-light" data-toggle="collapse" href="#item9">
          Collapsible Group Item 9
        </a>
      </div>
      <div id="item9" class="collapse" data-parent="#example">
        <div class="card-body text-white">
          Lorem ipsum dolor sit amet, consectetur adipiscing elit. Maecenas porttitor.
        </div>
      </div>
    </div>

  </div>
```

```
    </div>
<script src="https://code.jquery.com/jquery-3.5.1.slim.min.js"></script>
<script src="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/js/bootstrap.bundle.min.js"></script>

</body>
</html>
```
The below screenshot shows the browser output of the above programming code:

Frequently Asked Questions:

In this section, we will discuss some of the FAQs of the accordion. These questions will help you to prepare for your examinations and interviews confidently.

Q #1) What is the Bootstrap 4 accordion?

Answer: It is a vertically stacked list of items that can be toggled.

Q #2) What is the use of accordion?

Answer: They are used to toggle between items to hide and show a large amount of content.

Q #3) Is accordion hard to learn?

Answer: No, it is easy to learn. There are no advanced concepts.

Q #4) How do I change the color of my accordion in Bootstrap?

Answer: You can use one of the background color classes like the **.bg-primary** class, the **.bg-secondary** class, the **.bg-success** class, the **.bg-danger** class, the **.bg-warning** class, the **.bg-info** class, the **.bg-white** class, the **.bg-light** class and the **.bg-dark** class to change the color.

Q #5) How do I make an accordion open by default in Bootstrap?
Answer: You can add the **.show** class to make an accordion open by default.
Q #6) How do you expand all accordion panels?
Answer: By adding the **.show** class to all panels.

Accordions are similar to collapses, but the card component is used to create an accordion. Bootstrap uses background color classes to add colors to accordions. Further, there are several types of accordions, like an accordion with a background color, accordion with icons, etc.

12 Bootstrap Carousel[10 M]

In this Bootstrap 4 carousels, we have covered an introduction to Bootstrap 4 carousels, a carousel with slides only, with controls, with indicators, with captions, fade transition between slides, data interval between slides, activating carousels using JavaScript and FAQs about Bootstrap 4 carousels.
In simple terms, a carousel is a slide show of images. The images may be in the form of slides of text too.
You can activate carousels by either using JavaScript code or without using JavaScript code. If you are not using JavaScript code for activating carousels, then you can use data attributes to activate carousels. In this tutorial, we have used both data attributes and JavaScript code to create/activate Bootstrap carousels.
The below table summarizes the classes and attributes of Bootstrap 4 carousels that we have used in this tutorial.

Class	Usage
The **.carousel** class	This class is used to create a carousel.
The **.slide** class	This class is used to add an animation when moving from one slide to another.
The **.carousel-inner** class	This class is used to add slides to the carousel.
The **.carousel-item** class	This class is used to specify the slide content.
The **.active** class	This class is used to indicate the currently active slide when loading the application.
The **.carousel-indicators** class	This class is used to add indicators to the carousel.
The **.carousel-control-prev** class	This class is used to create the previous button.
The **.carousel-control-next** class	This class is used to create the next button.
The **.carousel-control-prev-icon** class	This class is used to create the previous button.
The **.carousel-control-next-icon** class	This class is used to create the next button.
The **.carousel-caption** class	This class is used to add a caption to the slide.
The **.carousel-fade** class	This class is used to add a fade transition, instead of a slide, when moving from one slide to another.
Attribute	**Usage**
The **data-ride="carousel"** attribute	This attribute is used to activate the carousel.
The **data-slide** attribute	This attribute is used to specify to which slide to move. It accepts the **prev** value and the **next** value.
The **data-slide-to** attribute	This attribute is used to specify to which slide to move. It accepts numbers.
The **data-interval** attribute	This attribute is used to specify the amount of time to delay between two adjacent slides.

Usually, a Bootstrap carousel consists of several components such as,
- Slides
- Controls
- Indicators

- Captions

Usually, a carousel consists of two or more slides. The **.carousel-inner** class and the **.carousel-item** class are used to create the carousel items or the slides.

You need to add the **.active** class for one of the slides to indicate the currently active slide of the carousel while loading the application.

Note: If you don't use the **.active** class, then the carousel will not be visible.

Please refer to the section "Carousel Examples" for an example of a carousel with slides only.

Carousel With Controls

You can add previous and next controls to the carousel. Add the **.carousel-control-prev** class, the **.carousel-control-next** class, the **.carousel-control-prev-icon** class and the **.carousel-control-next-icon** class to add controls to the carousel.

Adding controls are optional, but it helps the user to easily navigate between the slides by clicking the previous or next controls. Please refer to the section "Carousel Examples" for an example of a carousel with controls.

Carousel With Indicators

Add the **.carousel-indicators** class to add indicators to the carousel. Similar to controls, adding indicators to the carousel is also optional. It provides easy navigation between slides by clicking on the relevant indicator.

Please refer to the section "Carousel Examples" for an example of a carousel with indicators (and controls).

Bootstrap Carousel Examples

The below programming code shows examples of:
- Carousel with slides only,
- Carousel with controls and
- Carousel with indicators.

Important points to remember:
- You need to add unique **id**s to the carousels if you are using multiple carousels on the same page.
- The controllers and indicators should have the **data-target** attribute (or the **href** attribute for links) that matches the **id** of the carousel elements.
- The **data-slide** attribute is used to specify which slide to move and it accepts the **prev** value and the **next** value.
- The **data-slide-to** attribute is used to specify which slide to move and it accepts numbers.

You can try this example by running the below programming code.

```
<!DOCTYPE html>
<html lang="en">
<head>
<link rel="stylesheet" href="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/css/bootstrap.min.css">
</head>
<body>
<div class="container mt-3">

<h3>A carousel with slides only</h3>
<div id="mySlideshow1" class="carousel slide mb-3" data-ride="carousel">

<!-- Slideshow -->
<div class="carousel-inner">
<div class="carousel-item active">
<img class="d-block w-100" src="slide1.png" alt="Slide 1" height="500">
</div>
<div class="carousel-item">
<img class="d-block w-100" src="slide2.png" alt="Slide 2" height="500">
</div>
```

```html
<div class="carousel-item">
<img class="d-block w-100" src="slide3.png" alt="Slide 3" height="500">
</div>
</div>

</div>

<h3>A carousel with controls</h3>
<div id="mySlideshow2" class="carousel slide mb-3" data-ride="carousel">

<!-- Slideshow -->
<div class="carousel-inner">
<div class="carousel-item active">
<img class="d-block w-100" src="slide1.png" alt="Slide 1" height="500">
</div>
<div class="carousel-item">
<img class="d-block w-100" src="slide2.png" alt="Slide 2" height="500">
</div>
<div class="carousel-item">
<img class="d-block w-100" src="slide3.png" alt="Slide 3" height="500">
</div>
</div>

<!-- Left and right controls -->
<a class="carousel-control-prev" href="#mySlideshow2" data-slide="prev">
<span class="carousel-control-prev-icon"></span>
</a>
<a class="carousel-control-next" href="#mySlideshow2" data-slide="next">
<span class="carousel-control-next-icon"></span>
</a>

</div>

<h3>A carousel with indicators</h3>
<div id="mySlideshow3" class="carousel slide mb-3" data-ride="carousel">

<!-- Indicators -->
<ul class="carousel-indicators">
<li data-target="#mySlideshow3" data-slide-to="0" class="active"></li>
<li data-target="#mySlideshow3" data-slide-to="1"></li>
<li data-target="#mySlideshow3" data-slide-to="2"></li>
</ul>

<!-- Slideshow -->
<div class="carousel-inner">
<div class="carousel-item active">
<img class="d-block w-100" src="slide1.png" alt="Slide 1" height="500">
</div>
<div class="carousel-item">
<img class="d-block w-100" src="slide2.png" alt="Slide 2" height="500">
</div>
```

```
<div class="carousel-item">
<img class="d-block w-100" src="slide3.png" alt="Slide 3" height="500">
</div>
</div>

<!-- Left and right controls -->
<a class="carousel-control-prev" href="#mySlideshow3" data-slide="prev">
<span class="carousel-control-prev-icon"></span>
</a>
<a class="carousel-control-next" href="#mySlideshow3" data-slide="next">
<span class="carousel-control-next-icon"></span>
</a>

</div>

</div>
<script src="https://code.jquery.com/jquery-3.5.1.slim.min.js"></script>
<script src="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/js/bootstrap.bundle.min.js"></script>
</body>
</html>
```

Note: Images or slides of the text that are used to create carousel slides need to be put in your project folder.

The below screenshot shows the browser output of the above programming code.

Carousel With Captions:

You can add captions such as headings or descriptions to the carousel. Wrap caption elements such as **<h1>**, **<p>**, etc. in a **<div>** element with the **.carousel-caption** class to create a carousel with a caption. It helps the user for a better understanding of the content of the slides.

Example of Carousel with a caption:
The below programming code shows an example of a carousel with a caption.

```
<html lang="en">
<head>
<link rel="stylesheet" href="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/css/bootstrap.min.css">
</head>
<body>
<div class="container mt-3">

<div id="mySlideshow" class="carousel slide" data-ride="carousel">

<!-- Indicators -->
<ul class="carousel-indicators">
<li data-target="#mySlideshow" data-slide-to="0" class="active"></li>
<li data-target="#mySlideshow" data-slide-to="1"></li>
<li data-target="#mySlideshow" data-slide-to="2"></li>
</ul>

<!-- Slideshow -->
<div class="carousel-inner">
<div class="carousel-item active">
<img class="d-block w-100" src="slide1.png" alt="Slide 1" height="500">
<div class="carousel-caption">
<h1>First Slide</h1>
<p>This is the first slide.</p>
</div>
</div>
<div class="carousel-item">
<img class="d-block w-100" src="slide2.png" alt="Slide 2" height="500">
<div class="carousel-caption">
<h1>Second Slide</h1>
<p>This is the second slide.</p>
</div>
</div>
<div class="carousel-item">
<img class="d-block w-100" src="slide3.png" alt="Slide 3" height="500">
<div class="carousel-caption">
<h1>Third Slide</h1>
<p>This is the third slide.</p>
</div>
</div>
</div>

<!-- Left and right controls -->
<a class="carousel-control-prev" href="#mySlideshow" data-slide="prev">
<span class="carousel-control-prev-icon"></span>
</a>
<a class="carousel-control-next" href="#mySlideshow" data-slide="next">
<span class="carousel-control-next-icon"></span>
</a>
```

```
</div>

</div>
<script src="https://code.jquery.com/jquery-3.5.1.slim.min.js"></script>
<script src="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/js/bootstrap.bundle.min.js"></script>
</body>
</html>
```
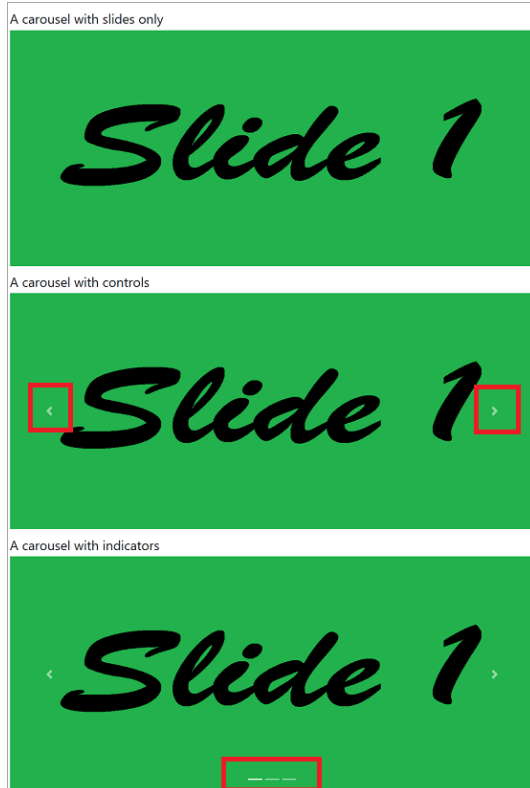**The below screenshot shows the browser output of the above programming code.**

Fade Transition Between Slides:

Add the **.carousel-fade** class to add a fade transition, instead of a slide, while moving from one slide to another.
The below programming code shows an example of a carousel with a fade transition.

```
<!DOCTYPE html>
<html lang="en">
<head>
<link rel="stylesheet" href="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/css/bootstrap.min.css">
</head>
<body>
<div class="container mt-3">

<div id="mySlideshow" class="carousel slide carousel-fade mb-3" data-ride="carousel">

<!-- Indicators -->
<ul class="carousel-indicators">
<li data-target="#mySlideshow" data-slide-to="0" class="active"></li>
<li data-target="#mySlideshow" data-slide-to="1"></li>
<li data-target="#mySlideshow" data-slide-to="2"></li>
</ul>

<!-- Slideshow -->
<div class="carousel-inner">
<div class="carousel-item active">
<img class="d-block w-100" src="slide1.png" alt="Slide 1" height="500">
</div>
<div class="carousel-item">
<img class="d-block w-100" src="slide2.png" alt="Slide 2" height="500">
</div>
<div class="carousel-item">
<img class="d-block w-100" src="slide3.png" alt="Slide 3" height="500">
</div>
</div>
```

```
<!-- Left and right controls -->
<a class="carousel-control-prev" href="#mySlideshow" data-slide="prev">
<span class="carousel-control-prev-icon"></span>
</a>
<a class="carousel-control-next" href="#mySlideshow" data-slide="next">
<span class="carousel-control-next-icon"></span>
</a>

</div>

</div>
<script src="https://code.jquery.com/jquery-3.5.1.slim.min.js"></script>
<script src="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/js/bootstrap.bundle.min.js"></script>
</body>
</html>
```
The below screenshots show the browser output of the above programming code.

Tip: Carefully identify the fade transition while moving from one slide to another.

Data Interval Between Slides:

Add the **data-interval** attribute to a carousel item (slide) to specify the amount of time (in milliseconds) to delay between two adjacent slides.

The below programming code shows an example of a carousel with the data interval attribute.

```
<!DOCTYPE html>
<html lang="en">
<head>
<link rel="stylesheet" href="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/css/bootstrap.min.css">
</head>
<body>
<div class="container mt-3">

<div id="mySlideshow" class="carousel slide mb-3" data-ride="carousel">

<!-- Indicators -->
<ul class="carousel-indicators">
<li data-target="#mySlideshow" data-slide-to="0" class="active"></li>
<li data-target="#mySlideshow" data-slide-to="1"></li>
<li data-target="#mySlideshow" data-slide-to="2"></li>
</ul>

<!-- Slideshow -->
<div class="carousel-inner">
<div class="carousel-item active">
<img class="d-block w-100" src="slide1.png" alt="Slide 1" height="500">
</div>
<div class="carousel-item" data-interval="1000">
<img class="d-block w-100" src="slide2.png" alt="Slide 2" height="500">
</div>
<div class="carousel-item" data-interval="2000">
<img class="d-block w-100" src="slide3.png" alt="Slide 3" height="500">
</div>
</div>

<!-- Left and right controls -->
<a class="carousel-control-prev" href="#mySlideshow" data-slide="prev">
<span class="carousel-control-prev-icon"></span>
</a>
<a class="carousel-control-next" href="#mySlideshow" data-slide="next">
<span class="carousel-control-next-icon"></span>
</a>

</div>

</div>
<script src="https://code.jquery.com/jquery-3.5.1.slim.min.js"></script>
<script src="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/js/bootstrap.bundle.min.js"></script>
</body>
```

</html>

Please note that the browser output of the above code is visually similar to the browser output of the example in section "Fade Transition between Slides" (except the fade transition).

Tip: Carefully identify the time delay between the carousel items (slides) and verify whether it matches your code or not.

Activating Carousels Using JavaScript

Instead of using data attributes, you can use JavaScript code to activate carousels.

The below programming code shows an example of activating a carousel using JavaScript code.

```
<!DOCTYPE html>
<html lang="en">
<head>
<link rel="stylesheet" href="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/css/bootstrap.min.css">
</head>
<body>
<div class="container mt-3">

<div id="mySlideshow" class="carousel slide" data-ride="carousel">

<!-- Indicators -->
<ul class="carousel-indicators">
<li id="slide-1" class="active"></li>
<li id="slide-2"></li>
<li id="slide-3"></li>
</ul>

<!-- Slideshow -->
<div class="carousel-inner">
<div class="carousel-item active">
<img class="d-block w-100" src="slide1.png" alt="Slide 1" height="500">
</div>
<div class="carousel-item">
<img class="d-block w-100" src="slide2.png" alt="Slide 2" height="500">
</div>
<div class="carousel-item">
<img class="d-block w-100" src="slide3.png" alt="Slide 3" height="500">
</div>
</div>

<!-- Left and right controls -->
<a class="carousel-control-prev">
<span class="carousel-control-prev-icon"></span>
</a>
<a class="carousel-control-next">
<span class="carousel-control-next-icon"></span>
</a>

</div>

</div>
<script src="https://code.jquery.com/jquery-3.5.1.slim.min.js"></script>
<script src="https://cdn.jsdelivr.net/npm/bootstrap@4.5.3/dist/js/bootstrap.bundle.min.js"></script>
```

```
<script>
$(document).ready(function(){

// Carousel activation
$("#mySlideshow").carousel();

// Enabling carousel controls
$(".carousel-control-prev").click(function(){
$("#mySlideshow").carousel('prev');
});
$(".carousel-control-next").click(function(){
$("#mySlideshow").carousel('next');
});

// Enabling carousel indicators
$("#slide-1").click(function(){
$("#mySlideshow").carousel(0);
});
$("#slide-2").click(function(){
$("#mySlideshow").carousel(1);
});
$("#slide-3").click(function(){
$("#mySlideshow").carousel(2);
});
});
</script>
</body>
</html>
```

Please note that the browser output of the above code is visually similar to the browser output of the example in section "Fade Transition between Slides" (except the fade transition).

Frequently Asked Questions

In this section, we will look at some of the frequently asked questions about Bootstrap 4 carousels.

Q #1) What are the different components of a Bootstrap carousel?

Answer: The different components of a Bootstrap carousel are **slides**, **controls**, **indicators,** and **captions**.

Q #2) Which main classes are used to create a carousel with slides only?

Answer: The main classes used to create a carousel with slides only are the **.carousel** class, the **.slide** class, the **.carousel-inner** class, the **.carousel-item** class, and the **.active** class.

Q #3) What is the main attribute that is used to activate a carousel?

Answer: The main attribute that is used to activate a carousel is the **data-ride="carousel"** attribute.

Q #4) Is it mandatory to add controls to a carousel?

Answer: No, it is not mandatory to add controls to a carousel.

Q #5) Which classes are used to create carousel controls?

Answer: The classes that are used to create carousel controls are the **.carousel-control-prev** class, the **.carousel-control-next** class, the **.carousel-control-prev-icon** class and the **.carousel-control-next-icon** class.

Q #6) Is it mandatory to add indicators to a carousel?

Answer: No, it is not mandatory to add indicators to a carousel.

Q #7) Which main class is used to create carousel indicators?

Answer: The main class that is used to create carousel indicators is the **.carousel-indicators** class.

Q #8) Which class is used to indicate the currently active slide of a carousel while loading the application?

Answer: The **.active** class is used to indicate the currently active slide of a carousel while loading the application.

Q #9) What will happen if you don't add the .active class for one of the slides while creating a carousel?
Answer: The carousel will not be visible if you don't add the **.active** class for one of the slides.

Q #10) Is it mandatory to add a caption to a carousel?
Answer: No, it is not mandatory to add a caption to a carousel.

Q #11) What kind of elements can be added to the carousel as a caption?
Answer: The elements like headings (**<h1>** to **<h6>** elements), paragraphs, etc. can be added to the carousel as a caption.

Q #12) How to add a caption to a carousel?
Answer: Wrap elements like **<h1>**, **<p>**, etc. in a **<div>** element with the **.carousel-caption** class.

Q #13) What is the function of the data-interval attribute in carousels?
Answer: The function of the **data-interval** attribute in carousels is to specify the amount of time (in milliseconds) to delay between two adjacent slides.

Q #14) Which class is used to add a fade transition to the Bootstrap slider?
Answer: The class used to add a fade transition to the Bootstrap slider is the **.carousel-fade** class.

Q #15) How can we create a working carousel without using JavaScript code?
Answer: We can use data attributes to create a working carousel without using JavaScript code.

A carousel is a slide show of images or (slides of) text. Adding controls and indicators are optional, but they provide different options to navigate between slides.
Captions such as headings and paragraphs can be added to the carousel as well. Further, the developer can control the time delay between slides while moving from one slide to another.

2 Marks Questions and Answers

Q #1) Define what Bootstrap is.

Answer: Bootstrap is a front-end framework that is commonly used to create HTML, CSS, and JS web applications. Its layout is very responsive, fast, and easy to use. It mostly focuses on building mobile applications using design templates. You can also create interactive components like drop-downs, forms, buttons, button groups, alerts, cards, tabs, and many more components.

Q #2) Why Bootstrap is used for mobile application developments?

Answer: It is used for mobile application developments because it has several responsive features and design templates that are easy to use. In other terms, it uses a Mobile-first approach.

Q #3) What are the main features of Bootstrap 4.

Answer: Its features include:

- Free and open-source.
- Compatible with almost all modern browsers like Google Chrome, Firefox, Safari, Opera, and Internet Explorer.
- Responsive features.
- Easy to use.

- Lightweight.
- Consists of several components and utilities.
- Support for jQuery plugins.
- Easily customizable.
- Mobile-friendliness.
- Simple integration.
- Good documentation support.
- Availability of a large number of templates, themes, and plugins.

Q #4) Name key components of Bootstrap 4.

Answer: Its key components include:

- **Scaffolding:** Bootstrap built on a responsive grid system consists of a 12-column grid.
- **JS Plugins:** Contains JS and jQuery plugins.
- **CSS:** Contains CSS files.

Q #5) What do you understand by the term container?

Answer: Containers are the most fundamental components in Bootstrap. It behaves like a container where you can put HTML code, and it is a part within the page where the content of the site can be placed to make it responsive and fast.

Q #6) What do you mean by Bootstrap ClassLoader?

Answer: Bootstrap ClassLoader is a part of Java and a main parental class of class loader.

Q #7) How many types of layouts are there in Bootstrap 4?

Answer: There are two types of layouts in Bootstrap 4.

They are:

- Fluid layout
- Fixed layout

Q #8) What is the fluid layout?

Answer: The fluid layout is useful when you need to make an app that involves the full width of the screen. The fluid layout adjusts itself according to the browser size.

Q #9) What is the fixed layout?

Answer: The fixed layout is the default layout type and it also responsive and easy to use. Unlike the fluid layout, it cannot adjust itself according to the browser size. The fixed layout should be 940px in most cases.

Q #10) How can you display code in Bootstrap?

Answer: You can display code in two ways.

They are:

- Using the **<code>** tag – This method is used to display code as inline code.

- Using the **<pre>** tag – This method is used to display code as a standalone block.

Q #11) How can you make an image round in Bootstrap 4?

Answer: You can use the **.rounded** class to make an image round.

Q #12) What is a progress bar?

Answer: A progress bar is an indicator to show the progress of a particular process.

Q #13) Name the contextual classes that are used with the progress bar.

Answer: The contextual classes used with the progress bar are as follows:

- The .bg-primary class
- The .bg-secondary class
- The .bg-success class
- The .bg-danger class
- The .bg-warning class
- The .bg-info class
- The .bg-white class
- The .bg-light class
- The .bg-dark class

=> For more details, please refer to our progress bar tutorial.

Q #14) What are responsive utility classes in Bootstrap?

Answer: Responsive utility classes in Bootstrap are a set of classes that are used to conceal or exhibit the HTML elements based on screen resolution that discerns by media query in Bootstrap.

Example: "hidden-md-down"

Q #15) What are the different button styles in Bootstrap 4?

Answer: In Bootstrap 4, there are lots of styles that we can use with the buttons.

Some of them are:

- Buttons with colors
- Buttons with a colored outline
- Small buttons
- Large buttons
- Block-level buttons
- Button links

=> For more details, please refer to the button tutorial.

Q #16) What are Bootstrap alerts?

Answer: Bootstrap alerts are used to create presume alert messages, which add styles to make the messages more noticeable to the user.

The following contextual classes can be used to create colourful alerts:

- The .alert-primary class
- The .alert-secondary class
- The .alert-success class
- The .alert-danger class
- The .alert-warning class
- The .alert-info class
- The .alert-light class
- The .alert-dark class

=> For more details, please refer to our alerts tutorial.

Q #17) Define Bootstrap 4 thumbnails.

Answer: It is a way to use the layout images, videos, text, etc. in a grid system. We can create thumbnails by adding a tag with the **.img-thumbnail** class around the image.

Q #18) Explain the modal in Bootstrap4.

Answer: A model is an inherited window that is layered over its parent window. This is used to augment the user experience and add different functionalities. Model windows are created with the help of the modal plugin.

Q #19) Which are the classes used for pagination in Bootstrap4?

Answer: The classes used for pagination are the **.pagination class**, the **.page-item** class, the **.page-link** class, the **.pagination-sm** class, the **.pagination-lg** class, the **.active** class and the **.disabled** class.

The following table provides more information about the above classes:

	Class	Function
1	The **.pagination** class, the **.page-item** class and the **.page-link** class	These three classes are used to create basic pagination.
2	The **.pagination-sm** class	It creates small pagination while decreasing the font size and spacing of the pagination nav.
3	The **.pagination-lg** class	It creates large pagination while increasing the font size and spacing of the pagination nav.
4	The **.active** class	It highlights the current page.
5	The **.disabled** class	It makes the page link un-clickable.

Q #20) Explain what Bootstrap's collapsing elements is.

Answer: It allows you to collapse any particular element without using any JavaScript code.

To use this feature in Bootstrap, you have to add data-toggle=" collapse" to the controller element along with a data target to automatically assign the control of a collapsible element. We can use this by writing **.collapse(options)** etc.

Q #21) What is well in Bootstrap 3?

Answer: Bootstrap well is a form of container which thrives or makes the content look recessed on the web page. It also wraps the content using the **.well** class.

Q #22) Explain the uses of the carousel plugin in Bootstrap.

Answer: The carousel plugin in Bootstrap is used to make sliders on the web pages or your site. Several carousel plugins are used in Bootstrap to display large contents within a small space by adding sliders.

Example: **.carousel(options), .carousel('pause'), .carousel(cycle'), .carousel('prev'), .carousel('next')**.

Q #23) What will be the output of the below code and why?

```html
<div class="progress">
     <div class="progress-bar bg-success" style="width: 65%">
        <span class="sr-only">75% successfully completed</span>
     </div>
     <div class="progress-bar bg-warning" style="width: 20%">
        <span class="sr-only">30% completed with warnings</span>
     </div>
     <div class="progress-bar bg-danger" style="width: 15%">
         <span class="sr-only">15% did not complete</span>
     </div>
</div>
```

Answer: If we place multiple bars with the same **.progress** parent element, Bootstrap will pile them into one single progress bar. As we know, in Bootstrap the sum of the progress bar is 100%. So, the progress bar will give the result full width and fully populated.

Q #24) How can we customize links to pagination?

Answer: We can customize the links by using the **.disabled** class for unclickable links and the **.active** class for indicating the current page.

Q #25) Explain input groups in Bootstrap4.

Answer: Input group is put out from controls.

We can prepend and append addons elements to a .form-control in front of or behind text inputs by using the **.input-group-prepend** class and the **.input-group-append** class respectively. Further, you can use the **.input-group-sm** class to make a small input group and the **.input-group-lg** class to make a large input group.

Q #26) How can you create a tabbed navigation menu?

Answer: We can create a tabbed navigation menu by making a basic unordered list with the **.nav** base class and the **.nav-tabs** class.

Q #27) How can you create a pills navigation menu?

Answer: A pills navigation menu can be created by making an unordered list with the base class of **.nav** the **.nav-pills** class.

Q #28) Explain briefly how a navbar works.

Answer: A navbar is an eminent feature to make a responsive meta component that works as navigation headers for your application and site. In the mobile view, the navbar collapses and becomes horizontal as the available viewport width increases.

Q #29) What are the two methods of creating a navbar in Bootstrap 4?

Answer: We can create a navbar using the following two methods:

- Using an <ul> element and <li> elements
- Without using the <ul> and <li> elements

Q #30) What is breadcrumb?

Answer: Breadcrumb is an efficient way to show hierarchy-based information for a site. This can show the information like published date, categories or tags in a blog, etc. It may also tell the user about the current page location within a navigational hierarchy.

We can use the **.breadcrumb** class to create a breadcrumb.

Q #31) What are labels?

Answer: Labels are used for offering counts, tips, or other things to provide markup on web pages. We use the **<label> tag** to indicate labels.

Q #32) What are badges in Bootstrap4?

Answer: Badges are small count and labelling components. We use the **.badge** class and a contextual class (.badge-*) to create a badge.

Q #33) What is the function of a jumbotron in Bootstrap 4?

Answer: It is used to increase the size of headings and to add more margin for landing page content. To create a jumbotron we have to create a container <div> element with the **.jumbotron** class.

Q #34) How can we make an image responsive in Bootstrap4?

Answer: Add the .img-fluid class to the <img> tag to make an image responsive. It applies the styles, .max-width: 100% and height: auto. So it can match nicely with the parent element.

Q #35) What do you mean by normalize in Bootstrap?

Answer: Bootstrap normalize is a small CSS file that is used to make cross-browser consistency.

Q #36) What is lead?

Answer: Lead makes a paragraph stand out. The .lead class is used for this purpose and it enlarges the font and taller increases the line-height as well.

Q #37) What are panels in Bootstrap 3?

Answer: Panels are components that are used when you want to put your DOM component in a box. So, to retrieve a basic panel, we just need to add the **.panel** class to the <div> element. We can also add the **.panel-default** class to this element.

Q #38) How will you create a Bootstrap 3 panel with headings?

Answer: There are two ways to add panel headings:

The first method is directly using the **.panel-heading** class to add heading containers in a panel. The second method is by using any heading tag from <h1> to <h6> with the **.panel-title** class to add more styles to the headings.

Q #39) What is a scrollspy in Bootstrap?

Answer: It is an auto-updating nav component that allows in fetching section of the page based on the scroll position. The .active class will update accordingly from one nav item to another based on the scroll position.

Q #40) What is the function of the affix plugin in Bootstrap 3?

Answer: Affix is a jQuery plugin. It allows <div> element to be attached to a location on the page.

Example: Use of the social icon on a page. The icons will start in a location, but when the page hits on a certain mark, it will block the <div> element in place and will stop the scrolling for the rest of the page.

Q #41) What is the purpose of the grid system?

Answer: By using the grid system, we can make up to 12 columns across a page. Different classes have been defined for this purpose.

Q #42) What are grid classes in Bootstrap 4?

Answer: There are five grid classes in Bootstrap.

They are:

- .col-*
- .col-sm-*
- .col-md-*
- .col-lg-*
- .col-xl-*

The following table shows detailed information about the grid classes.

	Class Prefix	Suitable Device Type
1	.col-*	For an extra small device (a device with a screen width less than 576px)
2	.col-sm-*	For a small device (a device with a screen width equal to or greater than 576px)
3	.col-md-*	For a medium device (a device with a screen width equal to or greater than 768px)
4	.col-lg-*	For a large device (a device with a screen width equal to or greater than 992px)
5	.col-xl-*	For an extra-large device (a device with a screen width equal to or greater than 1200px)

Q #43) What are the global styles that are used in Bootstrap 4 default typography?

Answer: These are as follows:

- **Font family** – Native font stack
- **Font size** – Default root font size of the browser that is usually 16px
- **Line height** – 1.5

Q #44) What will be the output of the below code?

```html
<div class="row">
    <div class="col-6 col-md-4">A</div>
    <div class="col-6 col-md-4">B</div>
    <div class="col-6 col-md-4">C</div>
</div>
```

Answer: According to the above code segment, the columns start at 50% of width on mobile devices and reduce up to 33.3% of width on desktop devices.

Q #45) What are the dependencies required to work Bootstrap properly?

Answer: jQuery is the only dependency required to work Bootstrap properly.

Q #46) Explain the function of the following code segment.

```html
<a href="#">Home <span class="badge badge-primary">36</span></a>
```

Answer: This code will produce a link with an inline badge which will give an important notification to the user like number received, messages received, or the number of requests, etc. Further, the **.badge-primary** class will add a blue color to the badge.

Q #47) What is a toast and what are the main components of a toast?

Answer: It is like an alert box that appears for a small time. The main components of a toast are the toast header and the toast body.

Q #48) Make a comparison between Bootstrap and Foundation frameworks?

Answer: Both are popular front-end frameworks.

The following table shows a comparison between the two frameworks.

	Parameter	Bootstrap	Foundation
1	About	The most popular framework for HTML, CSS, and JavaScript	The most advanced responsive front-end framework
2	Current Version	Version 5	Version 6
3	Developer	Bootstrap Core Team	ZURB
4	Released in	2011	2011
5	Browser support	Almost all modern browsers	Almost all modern browsers

	Parameter	Bootstrap	Foundation
6	Written in	HTML CSS Less/Sass JavaScript	HTML CSS Sass JavaScript
7	Preprocessors	Less / Sass	Sass
8	License	MIT License	MIT License
9	Official website	https://getbootstrap.com/	https://get.foundation/
10	GitHub stars	149k	29k

Q #49) Explain Glyphicons in Bootstrap 3?

Answer: Glyphicons are reusable components that provide beautiful icons (these icons are known as glyphs) under a wide range of categories. It can almost use anywhere in your code. Glyphicons do not only provide icons or glyphs, they also provide support for dropdowns, input groups, navigation, alerts, etc.

Note: Bootstrap 4 does not support Glyphicons. Therefore, you can use the following icon sets when dealing with v4.

- Font Awesome
- Iconic
- Octicons

Q #50) What is the function of the transition plugin in Bootstrap?

Answer: It provides simple transition effects like sliding or fading in modals.

Q #51) Explain the concept of creating a basic form in Bootstrap.

Answer: First, add a <form> element. Then, inside the form element, wrap labels and controls in a <div> element with the .form-group class. Next, the .form-control class to text input elements like <input>, <textarea> and <select> elements.

Q #52) What are the different options for adding Bootstrap to your project?

Answer: There are several options to add Bootstrap to your project.

They are:

- Using ready-to-use compiled CSS and JS code.
- Using source files.
- Installing via Bootstrap CDN.
- Installing via package managers such as NPM, Yarn, RubyGems, Composer, etc.

Q #53) Can we learn Bootstrap without learning CSS?

Answer: The simple answer is no. We cannot learn it without learning CSS as it is a CSS framework. Therefore, knowledge of CSS is essential to understand the basic concepts of Bootstrap.

Q #54) Is there any relationship between Bootstrap and JavaScript?

Answer: Yes, there is a relationship between the two technologies. Some Bootstrap components require JavaScript to work properly.

Some of the components that require JavaScript are shown in the below list:

- Alerts – To close alerts
- Buttons – To toggle buttons
- Checkbox – For checkbox functionality
- Radio button – For radio button functionality
- Carousels – For sliding behaviour of carousels
- Dropdowns – For displaying and positioning dropdowns
- Modals – For displaying, positioning, and scrolling modals
- Navbar – To extend collapse plugin to implement responsive behaviour
- Toasts – For displaying and dismissing toasts
- Tooltips – For displaying and positioning tooltips
- Popovers – For displaying and positioning popovers
- Scrollspy – For scrolling behaviour and navigation updates

Q #55) Name some alternatives to Bootstrap.

Answer: There are lots of alternatives. **Some of them are shown in the below list.**

- Foundation
- Bulma
- Materialize
- Material Design Lite
- Skeleton
- Pure CSS
- Semantic UI
- Uikit

Q #56) What is flexbox in Bootstrap 4?

Answer: Flexbox is a flexible box layout module. You can easily build a flexible layout design using flexbox without using float or positioning.

Q #57) What is the class used to give a Bootstrap 4 table a dark color?

Answer: We can use the .table-dark class to give a Bootstrap 4 table a dark color.

These interview questions and answers will help you to crack any Bootstrap interview for fresher as well as experienced level. And these are the most frequent questions that are asked in the interviews.

Chapter 2

AJAX[5M]

AJAX = **A**synchronous **J**avaScript **A**nd **X**ML.

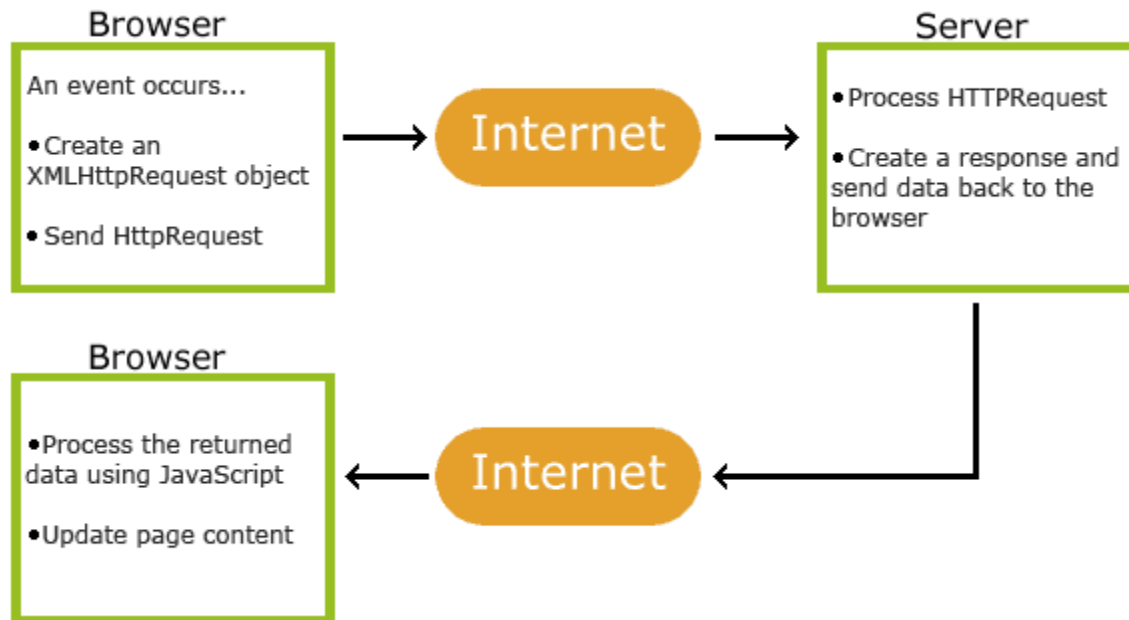AJAX is not a programming language.

AJAX just uses a combination of:

- A browser built-in XMLHttpRequest object (to request data from a web server)
- JavaScript and HTML DOM (to display or use the data)

AJAX is a misleading name. AJAX applications might use XML to transport data, but it is equally common to transport data as plain text or JSON text.

AJAX allows web pages to be updated asynchronously by exchanging data with a web server behind the scenes. This means that it is possible to update parts of a web page, without reloading the whole page.

How AJAX Works

Browser

An event occurs...

- Create an XMLHttpRequest object
- Send HttpRequest

Internet

Server

- Process HTTPRequest
- Create a response and send data back to the browser

Browser

- Process the returned data using JavaScript
- Update page content

Internet

- 1. An event occurs in a web page (the page is loaded, a button is clicked)
- 2. An XMLHttpRequest object is created by JavaScript
- 3. The XMLHttpRequest object sends a request to a web server
- 4. The server processes the request
- 5. The server sends a response back to the web page
- 6. The response is read by JavaScript
- 7. Proper action (like page update) is performed by JavaScript

Example:

<!DOCTYPE html>

<html>

<body>

<div id="demo">

<h1>The XMLHttpRequest Object</h1>

<button type="button" onclick="loadDoc()">Change Content</button>

</div>

<script>

function loadDoc() {

var xhttp = new XMLHttpRequest();

xhttp.onreadystatechange = function() {

```
    if (this.readyState == 4 && this.status == 200) {

      document.getElementById("demo").innerHTML =

      this.responseText;

    }

  };

  xhttp.open("GET", "ajax_info.txt", true);

  xhttp.send();

}
</script>


</body>

</html>
```

Ouput:

AJAX Example Explained

HTML Page

```
<!DOCTYPE html>
<html>
<body>

<div id="demo">
  <h2>Let AJAX change this text</h2>
```

```
  <button type="button" onclick="loadDoc()">Change Content</button>
</div>

</body>
</html>
```

The HTML page contains a <div> section and a <button>.

The <div> section is used to display information from a server.

The <button> calls a function (if it is clicked).

The function requests data from a web server and displays it:

Function loadDoc()

```
function loadDoc() {
  var xhttp = new XMLHttpRequest();
  xhttp.onreadystatechange = function() {
    if (this.readyState == 4 && this.status == 200) {
     document.getElementById("demo").innerHTML = this.responseText;
    }
  };
  xhttp.open("GET", "ajax_info.txt", true);
  xhttp.send();
}
```

The "**ajax_info.txt**" file used in the example above, is a simple text file and looks like this:

```
<h1>AJAX</h1>
<p>AJAX is not a programming language.</p>
<p>AJAX is a technique for accessing web servers from a web page.</p>
<p>AJAX stands for Asynchronous JavaScript And XML.</p>
```

Bootstrap MCQ

1) Who developed the bootstrap?
a.   James Gosling
    b.   Mark Jukervich
    c.   Dennis Ritchie

d. Mark Otto and Jacob Thornton

Hide Answer Workspace

Answer: (d) Mark Otto and Jacob Thornton

Explanation: Mark Otto and Jacob Thornton developed bootstrap at Twitter. It was released as an open-source product in August 2011 on GitHub.

---

2) Is Bootstrap3 mobile-first?

a. True
b. False
c. Can't say
d. May be

Hide Answer Workspace

Answer: (a) True

Explanation: Bootstrap 3 is the most stable version of Bootstrap, and it is still supported by the team for critical bugfixes and documentation changes. Bootstrap is more than efficient to create a responsive and mobile-first website.

---

3) Which of the following class in Bootstrap is used to provide a responsive fixed width container?

a. .container-fixed
b. .container-fluid
c. .container
d. All of the above

Hide Answer Workspace

Answer: (c) .container

Explanation: In Bootstrap, a container is used to set the content's margins dealing with the responsive behaviors of your layout. The .container class is used to create boxed content.

---

4) How many columns are allowed in a bootstrap grid system?

a. 13
b. 12
c. 3
d. 5

Hide Answer Workspace

Answer: (b) 12

Explanation: The Bootstrap Grid System allows up to 12 columns across the page. You can use all 12 columns individually, or you can groups the columns together to create wider columns.

---

5) Which of the following class in bootstrap is used to create a big box for calling extra attention?

a. .box
b. .container
c. .container-fluid
d. .jumbotron

Hide Answer Workspace

Answer: (d) .jumbotron

Explanation: A Bootstrap jumbotron specifies a big box for getting extra attention to some special content or information. It is displayed as a grey box with rounded corners. It can also enlarge the font sizes of the text inside it. The class .jumbotron within the <div> element is used to create a jumbotron.

---

6) The correct syntax of creating a standard navigation bar is -
a.   <nav class="navigationbar navbar">
b.   <nav class="navbar navbar-default">
c.   <nav class="nav navbar">
d.   <nav class="navbar default">
Hide Answer Workspace
Answer: (b) <nav class="navbar navbar-default">
Explanation: A navigation bar is like a navigation header that is placed at the top of the page. You can collapse or extend it according to the screen size. You can create a standard navigation bar at the top of the page with <nav class="navbar navbar-default">.

---

7) Which of the following is the correct syntax of creating a standard navigation tab?
a.   <ul class="navigation nav-tabs">
b.   <ul class="nav tab">
c.   <ul class="nav nav-tabs">
d.   <ul class="navigation tabs">
Hide Answer Workspace
Answer: (c) <ul class="nav nav-tabs">
Explanation: We can create a basic navigation tab with <ul class="nav nav-tabs">.

---

8) Which of the following class is used to create a black navigation bar?
a.   .navbar-default
b.   .navbar-inverse
c.   .navbar-black
d.   .navbar-dark
Hide Answer Workspace
Answer: (b).navbar-inverse
Explanation: Inverted navigation bar provides an alternative black navbar. It can be used to style the default navigation bar by changing .navbar-default class into .navbar-inverse class.

---

9) The plugin used to create a cycle through elements as a slideshow is -
a.   slideshow
b.   scrollspy
c.   carousel
d.   None of the above
Hide Answer Workspace
Answer: (c) carousel
Explanation: The Bootstrap carousel is a flexible, responsive way that is used to add a slider to your webpage. The carousel plugin is a component for cycling through an element, like a slideshow. If you want to add plugin functionality individually, then you have to use carousel.js file or all at once (using "bootstrap.js" or "bootstrap.min.js").

---

10) Which of the following class in Bootstrap is used to create a dropdown menu?
a.   .dropdown
b.   .select
c.   .select-list
d.   None of the above
Hide Answer Workspace
Answer: (a) .dropdown

Explanation: Dropdown menus are toggleable, contextual menus, used for displaying links in a list format. It facilitates users to choose one value from a predefined list. We have to wrap dropdown menu within the class .dropdown to create Bootstrap Dropdown.

---

11) Which of the following class in Bootstrap is used to create a basic list group?

a.   .grouped-list
b. .select-list
c. .list-group
d. .list-grouped

Hide Answer Workspace

Answer: (c) .list-group

Explanation: The class ".list-group" within the <ul> element and the class ".list-group-item" within the element are used to create a basic list group. Bootstrap list group is used to create a group of list with list items.

---

12) The class used to shape an image to a circle is -

a.   .img-rounded
b. .img-circle
c. .img-rounded
d. None of the above

Hide Answer Workspace

Answer: (b) .img-circle

Explanation: The class .img-circle is used to shape the image into a circle (IE8 does not support rounded corners).

---

13) Which of the following class in Bootstrap is used to add a zebra-stripe to a table?

a.   .tab-striped
b. .zebra-strip
c. .table-stripped
d. .table-striped

Hide Answer Workspace

Answer: (d) .table-striped

Explanation: We can create different types of Bootstrap tables by using different classes to style them. The .table-striped class is used to add zebra-stripes to a table.

---

14) Which of the following class in Bootstrap is used to create a large button?

a.   .btn-xl
b. .btn-lrg
c. .btn-large
d. .btn-lg

Hide Answer Workspace

Answer: (d).btn-lg

Explanation: We can use the .btn-lg class in bootstrap to create a large button.

---

15) Which of the following plugin in Bootstrap is used to create a modal window?

a.   popup
b. alert
c. modal
d. window

Hide Answer Workspace

Answer: (c) modal

Explanation: The bootstrap modal plugin is a dialog box/popup window that is displayed on top of the current page.

---

16) Which of the following class in Bootstrap is used to create basic pagination?

a.   .page
  b. .pagin
  c. .paginate
  d. .pagination

Hide Answer Workspace

Answer: (d) .pagination

Explanation: Pagination is used to sort the web pages of your website in an organized manner. It becomes very necessary if your website has a lot of web pages. We can add the .pagination class to get the pagination on our page.

---

17) Which of the following class in Bootstrap is used to create a badge?

a.   .tag
  b. .badge
  c. .page
  d. .flag

Hide Answer Workspace

Answer: (b) .badge

Explanation: Bootstrap Badges are numerical indicators used to show that how many items are associated with the specific link. Badges are used to highlight new or unread items. The class .badge within the element is used to create badges.

---

18) The class in Bootstrap used to provide rounded corners to the image is -

a.   .img-circle
  b. .image-circle
  c. .image-rounded
  d. .img-rounded

Hide Answer Workspace

Answer: (d) .img-rounded

Explanation: The class .img-rounded is used to add rounded corners to an image (IE8 does not support rounded corners). It adds border-radius: 6px to give the image rounded corners.

---

19) Which of the following class in Bootstrap is used to create a panel?

a.   .panel
  b. .container
  c. .box
  d. .jumbotron

Hide Answer Workspace

Answer: (a) .panel

Explanation: In Bootstrap, a panel is a bordered box with some padding around its element. The class .panel is used within the <div> element to create Bootstrap panels.

---

20) Using which of the following, we can create a pager in Bootstrap?

a.   .carousel

b. .collapse
c. .pager
d. None of the above
Hide Answer Workspace

Answer: (c) .pager

Explanation: Bootstrap pager is a form of pagination. The ".pager" class is used within the <ul> element to create the previous / next buttons. It is used to create previous and next buttons (links).

---

21) The class in Bootstrap which is used to specify the collapsible elements is -
a. .collapse
b. .carousel
c. .pager
d. None of the above
Show Answer Workspace

---

22) Which of the following class in Bootstrap is used to create a well?
a. .wel
b. .well
c. .well-container
d. .container-well
Hide Answer Workspace

Answer: (b) .well

Explanation: In Bootstrap, wells are used to add a rounded border around an element with a gray background color and some padding. It is like a container that displays the content. The class .well is used with <div> element to add well.

---

23) The class used for creating the large size wells is -
a. .well-large
b. .well-big
c. .well-lg
d. .well-sm
Hide Answer Workspace

Answer: (c) .well-lg

Explanation: By default, the size of the wells is medium, but you can change the size of the well according to your need. The ".well-lg" class is used for large wells.

---

24) The class used for creating the small size wells is -
a. .well-small
b. .well-short
c. .well-lg
d. .well-sm
Hide Answer Workspace

Answer: (d) .well-sm

Explanation: By Default, wells size is medium, but you can change the size of the well according to your need. The .well-sm class is used for small wells.

---

25) Which of the following class in Bootstrap is used for creating the large size modals?
a. .modal-large
b. .modal-sm

c. .modal-big

d. .modal-lg

Hide Answer Workspace

Answer: (d) .modal-lg

Explanation: We can use the .modal-lg class for large modals. The size class is added to the <div> element with class .modal-dialog.

---

26) Which of the following class in Bootstrap is used for creating the small size modals?

a.   .modal-large

b. .modal-sm

c. .modal-big

d. .modal-lg

Hide Answer Workspace

Answer: (b) .modal-sm

Explanation: We can use the .modal-sm class for creating the small modals. The size class is added to the <div> element with class .modal-dialog.

---

27) Which of the following class in Bootstrap is used to indicate the uppercased text?

a.   .text-capitalize

b. .text-upper

c. .uppercase

d. .text-uppercase

Hide Answer Workspace

Answer: (d) .text-uppercase

Explanation: We can use the ".text-uppercase" class to make the text appear in uppercase.

---

28) Which of the following plugin is used to create a tooltip?

a.   popover

b. tooltip

c. modal

d. None of the above

Hide Answer Workspace

Answer: (b) tooltip

Explanation: Tooltips are a great way to display extra information about something when the user moves the mouse cursor over an element.

---

29) Which of the following is the correct syntax to insert search icon?

a.

b.

c.

d.

Hide Answer Workspace

Answer: (c)

Explanation: Glyphicons are the icon fonts that are used in web projects. Bootstrap provides 260 Glyphicons from the Glyphicons Halflings set. The correct syntax of inserting the search icon using Bootstrap is:

---

30) Which of the following class is used to add a heading to the panel?

a.   .panel-head

b. .panel-header
c. .panel-heading
d. .panel-content
Hide Answer Workspace
Answer: (c) .panel-heading
Explanation: In Bootstrap, a panel is a bordered box with some padding around its element. The .panel-heading class is used to add a heading to the panel.

---

31) Which of the following is correct method to add a success button?
a.   <button class = "btn btn-success"> success </button>
b.   <button class = "btn button-success"> success </button>
c.   <button class = "button btn-success"> success </button>
d.   <button class = "button btn-primary"> success </button>
Hide Answer Workspace
Answer: (a) <button class = "btn btn-success"> success </button>
Explanation: There are various styles to add a button in Bootstrap. The syntax for creating a success button in Bootstrap is: <button class = "btn btn-success"> success </button>.

---

32) Which of the following class in Bootstrap is used to create a label?
a.   .label
b.   .badge
c.   .flag
d.   .popover
Hide Answer Workspace
Answer: (a) .label
Explanation: Bootstrap labels are used to specify the additional information about something like offering counts, tips, or other makeup for pages. The class .label is used to display the labels.

---

33) Is it true that the Bootstrap grid system works across multiple devices?
a.   True
b.   False
c.   Can't say
d.   May be
Hide Answer Workspace
Answer: (a) True
Explanation: Bootstrap Grid System is responsive, and the columns are re-arranged automatically according to the screen size. The Bootstrap Grid System allows up to 12 columns across the page. You can use all 12 columns individually, or you can groups the columns together to create wider columns.

---

34) Glyphicons in Bootstrap are used for -
a.   Using different icons on a webpage such as print, envelope, etc.
b.   Removing different icons on the page
c.   Selecting different icons on the page
d.   None of the above
Hide Answer Workspace
Answer: (a) Using different icons on a webpage such as print, envelope, etc.
Explanation: None

---

35) What is the default layout of the Bootstrap form?

a.   Horizontal
   b. Inline
   c. Vertical
   d. None of the above
Hide Answer Workspace
Answer: (c) Vertical
Explanation: In Bootstrap, there are three types of form layouts that are - vertical, horizontal, and inline. The default layout of the Bootstrap form is vertical.

---

36) Which of the following class indicates the capitalized text?
a.   .text-capitalize
   b. .text-upper
   c. .uppercase
   d. .text-uppercase
Hide Answer Workspace
Answer: (a) .text-capitalize
Explanation: We can use the ".text-capitalize" class to make the text appear in uppercase.

---

37) The class used to right align the navigation bar buttons is -
a.   .navbar-rgt
   b. .navbar-btn
   c. .navbar-right
   d. .navbar-default
Hide Answer Workspace
Answer: (c) .navbar-right
Explanation: The .navbar-right class is used to right-align the navigation bar buttons.

---

38) Which of the following class is used to create a thumbnail image?
a.   .img-circle
   b. .img-nail
   c. .img-thumb
   d. .img-thumbnail
Hide Answer Workspace
Answer: (d) .img-thumbnail
Explanation: The class .img-thumbnail is used to shape an image into a thumbnail. It adds a bit of padding and a gray border.

---

39) Which of the following class in Bootstrap is used to create a button as a link?
a.   .btn-anchor
   b. .btn-link
   c. .btn-hyperlink
   d. None of the above
Hide Answer Workspace
Answer: (b) .btn-link
Explanation: There are various styles of the button are available in Bootstrap. By using the .btn-link class, we can create a button as a link.

---

40) Which of the following grid class in Bootstrap is used for desktops?
a.   xs

b. sm
c. lg
d. md

Hide Answer Workspace

Answer: (d) md

Explanation: Basically, there are four classes in Bootstrap grid system that is xs, sm, md, and lg. From these classes, we can use the md class for the devices like desktops.

---

41) The class "xs" in Bootstrap is used for -

a.   tablets
b. phones
c. desktop
d. All of the above

Hide Answer Workspace

Answer: (b) phones

Explanation: Basically, there are four classes in Bootstrap grid system that is xs, sm, md, and lg. The xs class is used for small devices such as phones.

---

42) Which of the following class in Bootstrap is used to create an animated progress bar?

a.   .active
b. .progress-success
c. .progress-active
d. None of the above

Hide Answer Workspace

Answer: (a) .active

Explanation: The progress bar shows how far a user is in a process. In Bootstrap, there are several types of progress bars. The class .active is used to create an animated progress bar.

---

43) Which of the following statement is correct about the Bootstrap wells?

a.   By default, the size of wells is medium.
b. Using .well-sm and .well-lg classes, we can change the size of wells.
c. The .well-sm class is for small wells, and the .well-lg class is for large wells. And both classes should be used in conjunction with .well class.
d. All of the above

Hide Answer Workspace

Answer: (d) All of the above

Explanation: The class .well is used with

element to add well. By Default, wells size is medium, but you can change the size of the well according to your need. The .well-sm class is used for small wells, and the .well-lg class is used for large wells.