

# CS3201: Computer Network Technology TY Div A n B AY 2020-21

## Study Material for Section-II-Part-III- Bootstrap

(Resource: [www.w3schools.com](http://www.w3schools.com))

### Learning Bootstrap (**HTML,CSS based design templates**)

Bootstrap 4 is the newest version of Bootstrap, which is the most popular HTML, CSS, and JavaScript framework for developing responsive, mobile-first websites.

Bootstrap is a free front-end framework for faster and easier web development

Bootstrap includes **HTML and CSS based design templates** for typography, forms, buttons, tables, navigation, modals, image carousels and many other, as well as optional JavaScript plugins

Bootstrap also gives you the ability to easily create responsive designs

### What is Responsive Web Design?

Responsive web design is about creating web sites which automatically adjust themselves to look good on all devices, from small phones to large desktops.

### Why Use Bootstrap?

Advantages of Bootstrap:

- **Easy to use:** Anybody with just basic knowledge of HTML and CSS can start using Bootstrap
- **Responsive features:** Bootstrap's responsive CSS adjusts to phones, tablets, and desktops
- **Mobile-first approach:** In Bootstrap, mobile-first styles are part of the core framework
- **Browser compatibility:** Bootstrap 4 is compatible with all modern browsers (Chrome, Firefox, Internet Explorer 10+, Edge, Safari, and Opera)

### Where to Get Bootstrap 4?

There are two ways to start using Bootstrap 4 on your own web site.

You can:

- Include Bootstrap 4 from a CDN (Content Delivery Network).
- Download Bootstrap 4 from [getbootstrap.com](https://getbootstrap.com)

MaxCDN provides CDN support for Bootstrap's CSS and JavaScript. You must also include jQuery:

```
<!-- Latest compiled and minified CSS -->
<link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootstrap/4.5
.2/css/bootstrap.min.css">

<!-- Popper JS -->
<script src="https://cdnjs.cloudflare.com/ajax/libs/popper.js/1.16.0/umd/p
opper.min.js"></script>

<!-- Latest compiled JavaScript -->
<script src="https://maxcdn.bootstrapcdn.com/bootstrap/4.5.2/js/bootstrap.
min.js"></script>

<!-- jQuery library -->
<script src="https://ajax.googleapis.com/ajax/libs/jquery/3.5.1/jquery.min
.js"></script>
```

## Create First Web Page with Bootstrap 4

### 1. Add the HTML5 doctype

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <meta charset="utf-8">
  </head>
</html>
```

### 2. Bootstrap 4 is mobile-first

Bootstrap 4 is designed to be responsive to mobile devices. **Mobile-first styles are part of the core framework.**

To ensure proper rendering and touch zooming, add the following `<meta>` tag inside the `<head>` element:

```
<meta name="viewport" content="width=device-width, initial-scale=1">
```

The `width=device-width` part sets the width of the page to follow the screen-width of the device (which will vary depending on the device).

The `initial-scale=1` part sets the initial zoom level when the page is first loaded by the browser.

### 3. Containers

Bootstrap 4 also requires a containing element to wrap site contents.

There are two container classes to choose from:

1. The `.container` class provides a responsive **fixed width container**
2. The `.container-fluid` class provides a **full width container**, spanning the entire width of the viewport



## Fixed Container

Use the `.container` class to create a responsive, fixed-width container.

Note that its width (`max-width`) will change on different screen sizes:

	Extra small <576px	Small ≥576px	Medium ≥768px	Large ≥992px	Extra large ≥1200px
max-width	100%	540px	720px	960px	1140px

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

.container has something like "width = 800px" (or em, rem etc.), a specific pixel width value at different screen widths.

```
@media screen and (max-width: 400px){
  .container {
    width: 123px;
  }
}
@media screen and (min-width: 401px) and (max-width: 800px){

  .container {
    width: 456px;
  }
}
@media screen and (min-width: 801px){
  .container {
    width: 789px;
  }
}
```

## Fluid Container

Use the `.container-fluid` class to create a full width container that will always span the entire width of the screen (`width` is always `100%`):

```
<body>
<div class="container-fluid">
  <h1>My First Bootstrap Page</h1>
```

```
<p>This is some text.</p>
</div>
</body>
```

```
.container-fluid {
  width: 100%;
}
```

## Container Padding

By default, containers have 15px left and right padding, with no top or bottom padding. Therefore, we often use **spacing utilities**, such as extra padding and margins to make them look even better. For example, `.pt-3` means "add a top padding of 16px":

```
<div class="container pt-3"></div>
```

## Container Border and Color

```
<body>
  <div class="container p-3 my-3 border">
    <h1>My First Bootstrap Page</h1>
    <p>This container has a border and some extra padding and margins.</p>
  </div>
  <div class="container p-3 my-3 bg-dark text-white">
    <h1>My First Bootstrap Page</h1>
    <p>This container has a dark background color and a white text, and some extra
padding and margins.</p>
  </div>
  <div class="container p-3 my-3 bg-primary text-white">
    <h1>My First Bootstrap Page</h1>
    <p>This container has a blue background color and a white text, and some extra
padding and margins.</p>
  </div>
</body>
```

## My First Bootstrap Page

This container has a dark background color and a white text, and some extra padding and margins.

## My First Bootstrap Page

This container has a blue background color and a white text, and some extra padding and margins.

# Responsive Containers

You can also use the `.container-sm|md|lg|xl` classes to create responsive containers.

The `max-width` of the container will change on different screen sizes/viewports:

Class	Extra small <576px	Small ≥576px	Medium ≥768px	Large ≥992px	Extra large ≥1200px
<code>.container-sm</code>	100%	540px	720px	960px	1140px
<code>.container-md</code>	100%	100%	720px	960px	1140px
<code>.container-lg</code>	100%	100%	100%	960px	1140px
<code>.container-xl</code>	100%	100%	100%	100%	1140px

```
<div class="container-sm">.container-sm</div>
<div class="container-md">.container-md</div>
<div class="container-lg">.container-lg</div>
<div class="container-xl">.container-xl</div>
```

## Bootstrap 4 Grid System (For Responsive Columns)

Bootstrap's grid system is built with flexbox and allows up to 12 columns across the page.

If you do not want to use all 12 columns individually, you can group the columns together to create wider columns:

The grid system is responsive, and the columns will re-arrange automatically depending on the screen size.

span 1	span 1	span 1	span 1	span 1	span 1	span 1	span 1	span 1	span 1	span 1	span 1
span 4				span 4				span 4			
span 4				span 8							
span 6						span 6					
span 12											

The Bootstrap 4 grid system has five classes:

- **.col-** (extra small devices - screen width less than 576px)
- **.col-sm-** (small devices - screen width equal to or greater than 576px)
- **.col-md-** (medium devices - screen width equal to or greater than 768px)
- **.col-lg-** (large devices - screen width equal to or greater than 992px)
- **.col-xl-** (xlarge devices - screen width equal to or greater than 1200px)

Bootstrap automatically handle the layout -->

```
<div class="row">
  <div class="col"></div>
  <div class="col"></div>
  <div class="col"></div>
</div>
```

## Bootstrap 4 Text/Typography

Bootstrap 4 uses a default `font-size` of 16px, and its `line-height` is 1.5.

The default `font-family` is "Helvetica Neue", Helvetica, Arial, sans-serif.

In addition, all `<p>` elements have `margin-top: 0` and `margin-bottom: 1rem` (16px by default).

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

```
  <h1>h1 Bootstrap heading (2.5rem = 40px)</h1>
```

```
  <h2>h2 Bootstrap heading (2rem = 32px)</h2>
```

```
  <h3>h3 Bootstrap heading (1.75rem = 28px)</h3>
```

```
  <h4>h4 Bootstrap heading (1.5rem = 24px)</h4>
```

```
  <h5>h5 Bootstrap heading (1.25rem = 20px)</h5>
```

```
  <h6>h6 Bootstrap heading (1rem = 16px)</h6>
```

```
</div>
```



**h1 Bootstrap heading (2.5rem = 40px)**

**h2 Bootstrap heading (2rem = 32px)**

**h3 Bootstrap heading (1.75rem = 28px)**

**h4 Bootstrap heading (1.5rem = 24px)**

**h5 Bootstrap heading (1.25rem = 20px)**

**h6 Bootstrap heading (1rem = 16px)**

## Bootstrap 4 Text Colors

The classes for text colors are: `.text-muted`, `.text-primary`, `.text-success`, `.text-info`, `.text-warning`, `.text-danger`, `.text-secondary`, `.text-white`, `.text-dark`, `.text-body` (default body color/often black) and `.text-light`:

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

```
<h2>Contextual Colors</h2>
```

```
<p>Use the contextual classes to provide "meaning through colors":</p>
```

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

```
<p class="text-primary">This text is important.</p>
```

```
<p class="text-success">This text indicates success.</p>
```

```
<p class="text-info">This text represents some information.</p>
```

```
<p class="text-warning">This text represents a warning.</p>
```

```
<p class="text-danger">This text represents danger.</p>
```

```
<p class="text-secondary">Secondary text.</p>
```

```
<p class="text-dark">This text is dark grey.</p>
```

```
<p class="text-body">Default body color (often black).</p>
```

<p class="text-light">This text is light grey (on white background).</p>

<p class="text-white">This text is white (on white background).</p>

</div>

</body>

</html>

## Contextual Colors

Use the contextual classes to provide "meaning through colors":

This text is muted.

This text is important.

This text indicates success.

This text represents some information.

This text represents a warning.

This text represents danger.

Secondary text.

This text is dark grey.

Default body color (often black).

## Background Colors

The classes for background colors are: `.bg-primary`, `.bg-success`, `.bg-info`, `.bg-warning`, `.bg-danger`, `.bg-secondary`, `.bg-dark` and `.bg-light`.

Note that background colors do not set the text color, so in some cases you'll want to use them together with a `.text-*` class.

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

```
<h2>Contextual Backgrounds</h2>
```

```
<p>Use the contextual background classes to provide "meaning through colors".</p>
```

```
<p>Note that you can also add a .text-* class if you want a different text color:</p>
```

```
<p class="bg-primary text-white">This text is important.</p>
```

```
<p class="bg-success text-white">This text indicates success.</p>
```

```
<p class="bg-info text-white">This text represents some information.</p>
```

```
<p class="bg-warning text-white">This text represents a warning.</p>
```

```
<p class="bg-danger text-white">This text represents danger.</p>
```

```
<p class="bg-secondary text-white">Secondary background color.</p>
```

```
<p class="bg-dark text-white">Dark grey background color.</p>
```

```
<p class="bg-light text-dark">Light grey background color.</p>
```

```
</div>
```

## Contextual Backgrounds

Use the contextual background classes to provide "meaning through colors".

Note that you can also add a `.text-*` class if you want a different text color:

This text is important.

This text indicates success.

This text represents some information.

This text represents a warning.

This text represents danger.

Secondary background color.

Dark grey background color.

Light grey background color.

# Bootstrap 4 Tables

## Basic Table

A basic Bootstrap 4 table has a light padding and horizontal dividers.

The `.table` class adds basic styling to a table:

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

## Striped Rows

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

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

## Bordered Table

The `.table-bordered` class adds borders on all sides of the table and cells:

## Hover Rows

The `.table-hover` class adds a hover effect (grey background color) on table rows:

## Black/Dark Table

The `.table-dark` class adds a black background to the table:

## Dark Striped Table

Combine `.table-dark` and `.table-striped` to create a dark, striped table:

## Hoverable Dark Table

The `.table-hover` class adds a hover effect (grey background color) on table rows:

## Borderless Table

The `.table-borderless` class removes borders from the table:

## Contextual Classes

Contextual classes can be used to color the whole table (`<table>`), the table rows (`<tr>`) or table cells (`<td>`).

## Table Head Colors

The `.thead-dark` class adds a black background to table headers, and the `.thead-light` class adds a grey background to table headers:

# Bootstrap 4 Images

The `.rounded` class adds rounded corners to an image:

The `.rounded-circle` class shapes the image to a circle:

The `.img-thumbnail` class shapes the image to a thumbnail (bordered):

Rounded Corners:



Circle:



Thumbnail:



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

```
<h2>Thumbnail</h2>
```

```
<p>The .img-thumbnail class creates a thumbnail of the image:</p>
```

```

```

```
</div>
```

## Aligning Images

Float an image to the right with the `.float-right` class or to the left with `.float-left`. Center an image by adding the utility classes `.mx-auto` (margin:auto) and `.d-block` (display:block) to the image:

## Responsive Images

Images come in all sizes. So do screens. Responsive images automatically adjust to fit the size of the screen.

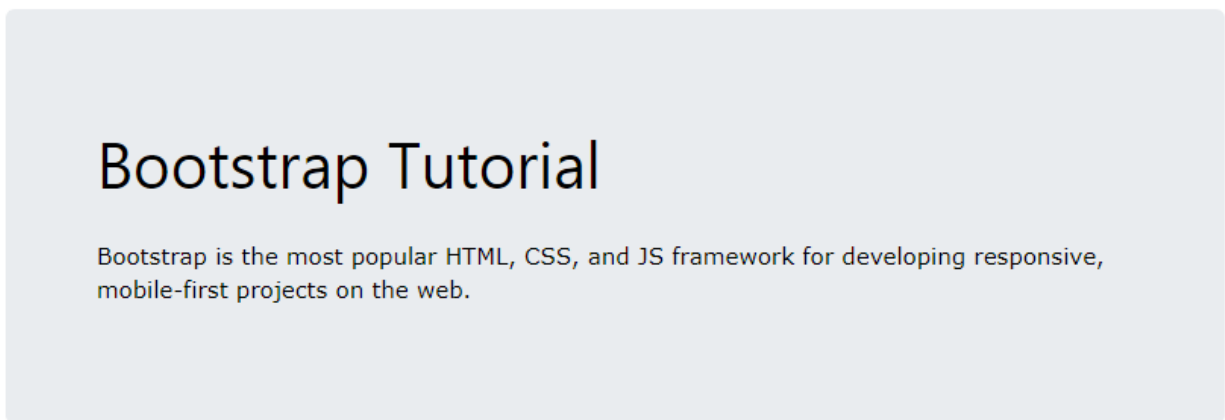
Create responsive images by adding an `.img-fluid` class to the `<img>` tag. The image will then scale nicely to the parent element.

The `.img-fluid` class applies `max-width: 100%;` and `height: auto;` to the image:

## Bootstrap 4 Jumbotron

A jumbotron indicates a big grey box for calling extra attention to some special content or information.

```
<div class="jumbotron">
  <h1>Bootstrap Tutorial</h1>
  <p>Bootstrap is the most popular HTML, CSS...</p>
</div>
```



## Full-width Jumbotron

If you want a full-width jumbotron without rounded borders, add the `.jumbotron-fluid` class and a `.container` or `.container-fluid` inside of it:

### Example

```
<div class="jumbotron jumbotron-fluid">
  <div class="container">
    <h1>Bootstrap Tutorial</h1>
    <p>Bootstrap is the most popular HTML, CSS...</p>
  </div>
</div>
```



# Bootstrap 4 Alerts

Bootstrap 4 provides an easy way to create predefined alert messages:

Alerts are created with the `.alert` class, followed by one of the contextual classes `.alert-success`, `.alert-info`, `.alert-warning`, `.alert-danger`, `.alert-primary`, `.alert-secondary`, `.alert-light` or `.alert-dark`:

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

```
  <h2>Alerts</h2>
```

```
  <p>Alerts are created with the .alert class, followed by a contextual color classes:</p>
```

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

```
    <strong>Success!</strong> This alert box could indicate a successful or positive action.
```

```
  </div>
```

```
  <div class="alert alert-info">
```

```
    <strong>Info!</strong> This alert box could indicate a neutral informative change or action.
```

```
  </div>
```

```
  <div class="alert alert-warning">
```

```
    <strong>Warning!</strong> This alert box could indicate a warning that might need attention.
```

```
  </div>
```

```
  <div class="alert alert-danger">
```

```
    <strong>Danger!</strong> This alert box could indicate a dangerous or potentially negative action.
```

```
  </div>
```

```
  <div class="alert alert-primary">
```

```
    <strong>Primary!</strong> Indicates an important action.
```

```
  </div>
```

```
  <div class="alert alert-secondary">
```

```
    <strong>Secondary!</strong> Indicates a slightly less important action.
```

```
  </div>
```

```
<div class="alert alert-dark">

  <strong>Dark!</strong> Dark grey alert.

</div>

<div class="alert alert-light">

  <strong>Light!</strong> Light grey alert.

</div>

</div>
```

---

## Alerts

Alerts are created with the .alert class, followed by a contextual color classes:

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

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

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

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

**Primary!** Indicates an important action.

**Secondary!** Indicates a slightly less important action.

**Dark!** Dark grey alert.

**Light!** Light grey alert.