

Lecture No: 7**Topic: Bootstrap****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.
- Bootstrap is the most popular HTML, CSS, and JavaScript framework for developing responsive, mobile-first web sites.
- Bootstrap is completely free to download and use.

What is Bootstrap?

- Bootstrap is a web design framework that makes it easy for you to build responsive websites quickly and effectively.
- Web developers (Mark Otto and Jacob Thornton) at Twitter created Bootstrap to help them build their website. They released it as an open source framework in August 2011 on GitHub, and it has become one of the most popular frameworks on the Web.

Why Use Bootstrap?

- **Mobile first approach:** Bootstrap 3 framework consists of Mobile first styles throughout the entire library instead of them in separate files.
- **Browser Support:** It is supported by all popular browsers.
- **Easy to get started:** With just the knowledge of HTML and CSS anyone can get started with Bootstrap. Also the Bootstrap official site has a good documentation.
- **Responsive design:** Bootstrap's responsive CSS adjusts to Desktops, Tablets and Mobiles.

**Other Advantages**

- Provides a clean and uniform solution for building an interface for developers.
- It contains beautiful and functional built-in components which are easy to customize.
- It also provides web-based customization.
- And best of all it is an open source.

What Bootstrap Package Includes?

- **Scaffolding:** Bootstrap provides a basic structure with Grid System, link styles, and background. This is covered in detail in the section Bootstrap Basic Structure.
- **CSS:** Bootstrap comes with the feature of global CSS settings, fundamental HTML elements styled and enhanced with extensible classes, and an advanced grid system. This is covered in detail in the section Bootstrap with CSS.
- **Components:** Bootstrap contains over a dozen reusable components built to provide iconography, dropdowns, navigation, alerts, pop-overs, and much more. This is covered in detail in the section Layout Components.
- **JavaScript Plugins:** Bootstrap contains over a dozen custom jQuery plugins. You can easily include them all, or one by one. This is covered in details in the section Bootstrap Plugins.
- **Customize:** You can customize Bootstrap's components and jQuery plugins to get your very own version.

Bootstrap – Environment Setup

Option 1: Download Bootstrap

You can download the latest version of Bootstrap from <http://getbootstrap.com/>.

OR

Option 2: Include Bootstrap 4 from a CDN

Bootstrap V5

Bootstrap 5 was released May 5, 2021

Bootstrap 5 beta 3 was released on March 22, 2021.

Bootstrap 5 beta 2 was released on February 10, 2021.

Bootstrap 5 beta 1 was released on December 7, 2020.

Bootstrap 5 alpha 3 was released on November 11, 2020.

Bootstrap 5 alpha 2 was released on September 29, 2020.

Bootstrap 5 first alpha was officially released on June 16, 2020.

Ref:[https://mdbootstrap.com/docs/standard/bootstrap-](https://mdbootstrap.com/docs/standard/bootstrap-5/#:~:text=Latest%20news%20%26%20summary,released%20on%20March%2022%2C%202021.)

5/#:~:text=Latest%20news%20%26%20summary,released%20on%20March%2022%2C%202021.

Should I use my own CSS or Bootstrap?

- **Consider Bootstrap when...**

- Time is of the essence
- The design easily fits into Bootstrap's patterns
- You will have control over the final HTML
- You will need many of the design patterns Bootstrap offers
- You do not have a lot of experience in writing cross-browser compliant CSS and HTML

- **Consider rolling your own when**

- You have a reasonable deadline for writing the front end
- The design does not easily fit into Bootstrap
- You will be working with a content management system, or another software platform that requires modification to the HTML
- You only need one or two things Bootstrap has to offer
- You have experience writing CSS and HTML for websites

Using Bootstrap

- If you don't want to download and host Bootstrap yourself, you can include it from a CDN (Content Delivery Network).
- MaxCDN provides CDN support for Bootstrap's CSS and JavaScript. You must also include jQuery:
<https://www.w3schools.com/bootstrap5/index.php>

Or

<https://getbootstrap.com/docs/5.0/getting-started/download/>

SOURCE CODE:

```
<!DOCTYPE html>
<html lang="en">
<head>
  <title>Bootstrap 5 Example</title>
  <meta charset="utf-8">
  <meta name="viewport" content="width=device-width, initial-scale=1">
  <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/css/bootstrap.min.css" rel="stylesheet">
  <script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/js/bootstrap.bundle.min.js"></script>
</head>
<body>

<div class="container-fluid p-5 bg-primary text-white text-center">
  <h1>My First Bootstrap Page</h1>
  <p>Resize this responsive page to see the effect!</p>
</div>

<div class="container mt-5">
  <div class="row">
    <div class="col-sm-4">
      <h3>Column 1</h3>
      <p>Lorem ipsum dolor sit amet, consectetur adipisicing elit...</p>
      <p>Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris...</p>
    </div>
    <div class="col-sm-4">
```

```

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

```

What is CDN?

- CDN - Content Delivery Network
 - A content delivery network (CDN) is a system of distributed servers ([network](#)) that deliver pages and other web content to a user, based on the geographic locations of the user, the origin of the webpage and the content delivery [server](#).

Create First Web Page With Bootstrap

1. Add the HTML5 doctype

- Bootstrap uses HTML elements and CSS properties that require the HTML5 doctype.
- Always include the HTML5 doctype at the beginning of the page, along with the lang attribute and the correct character set:

```

<!doctype html>
<html lang="en"> ...
</html>

```

2. Bootstrap is mobile-first

- Bootstrap 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:

```

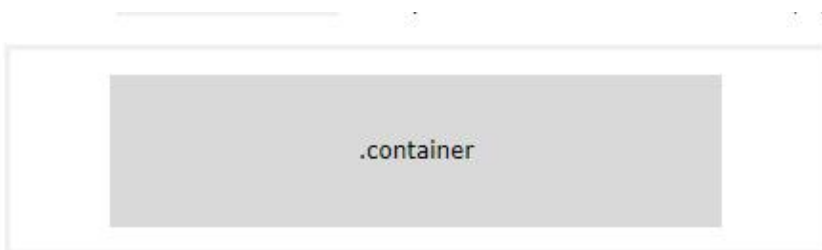
<meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no">

```

Topic: Bootstrap LAYOUT

Containers are used to pad the content inside of them, and there are two container classes available:

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:

Code Snippet

```

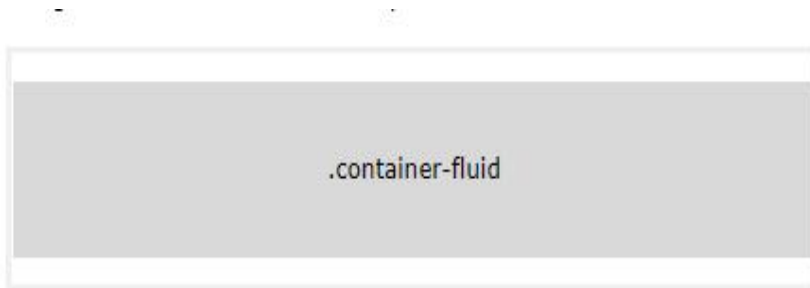
<div class="container">
  <h1>My First Bootstrap Page</h1>
  <p>This part is inside a .container class.</p>
  <p>The .container class provides a responsive fixed width container.</p>
</div>

```

<p>Resize the browser window to see that its
breakpoints.</p>

</div>

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



- **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%):

Code Snippet

```
<div class="container-fluid">
  <h1>My First Bootstrap Page</h1>
  <p>This part is inside a .container- fluid class.</p>
  <p>The .container-fluid class provides a full width container, spanning the entire width of the
  viewport.</p>
</div>
```

| | Extra small <576px | Small ≥576px | Medium ≥768px | Large ≥992px | Extra large ≥1200px |
|------------------|-----------------------|-----------------|------------------|-----------------|------------------------|
| .container | 100% | 540px | 720px | 960px | 1140px |
| .container-sm | 100% | 540px | 720px | 960px | 1140px |
| .container-md | 100% | 100% | 720px | 960px | 1140px |
| .container-lg | 100% | 100% | 100% | 960px | 1140px |
| .container-xl | 100% | 100% | 100% | 100% | 1140px |
| .container-fluid | 100% | 100% | 100% | 100% | 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":

CODE SNIPPET:

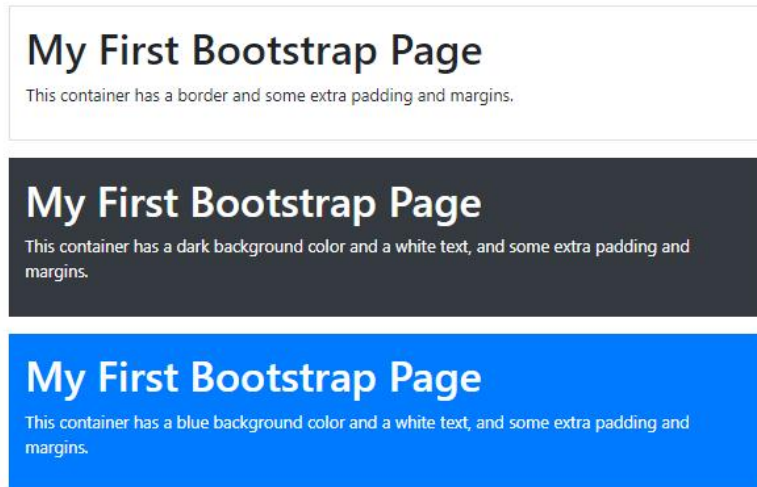
```
<div class="container pt-3">
```

Container Border and Color**CODE SNIPPET:**

```

<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-
primary text-white">
  <h1>My First Bootstrap
Page</h1>
  <p>This container has a
background color and a white
and some extra padding
margins.</p>
</div>

```



3 bg-

blue
text,
and**Grid System**

- 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.

12 columns

| | | | | | | | | | | | |
|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 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 | | | | | | | | | | | |

Grid Classes

The Bootstrap 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)

Basic Structure of a Bootstrap Grid

<!-- Control the column width, and how they should appear on different devices -->

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

<!-- Or let Bootstrap automatically handle the layout -->

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

Three Equal Columns

The following example shows how to create three equal-width columns, on all devices and screen widths:

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

## Responsive Columns

|           |           |           |           |
|-----------|-----------|-----------|-----------|
| .col-sm-3 | .col-sm-3 | .col-sm-3 | .col-sm-3 |
|-----------|-----------|-----------|-----------|

- The following example shows how to create four equal-width columns starting at tablets and scaling to extra-large desktops. **On mobile phones or screens that are less than 576px wide, the columns will automatically stack on top of each other:**
- ```
<div class="row">
  <div class="col-sm-3">.col-sm-3</div>
  <div class="col-sm-3">.col-sm-3</div>
  <div class="col-sm-3">.col-sm-3</div>
  <div class="col-sm-3">.col-sm-3</div>
</div>
```

Two Unequal Responsive Columns

| | |
|-----------|-----------|
| .col-sm-4 | .col-sm-8 |
|-----------|-----------|

The following example shows how to get two various-width columns starting at tablets and scaling to large extra desktops:

- ```
<div class="row">
 <div class="col-sm-4">.col-sm-4</div>
 <div class="col-sm-8">.col-sm-8</div>
</div>
```

## Bootstrap Colors

### Text Colors

- Bootstrap has some contextual classes that can be used to provide "meaning through 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:
- Contextual text classes can also be used on links, which will add a darker hover color:

# Contextual Link Colors

Hover over the links.

Muted link, [Primary link](#), [Success link](#), [Info link](#), [Warning link](#), [Danger link](#), [Secondary link](#), [Dark grey link](#), [Body/black link](#).

- You can also add 50% opacity for black or white text with the `.text-black-50` or `.text-white-50` classes:

## Opacity Text Colors

Add 50% opacity for black or white text with the `.text-black-50` or `.text-white-50` classes:

Black text with 50% opacity on white background

White text with 50% opacity on black background

### 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.

#### References:

- Carey, P. (2018). *New perspectives on HTML5, CSS3, and Javascript*. Australia : Cengage Learning
- Jenkins, S. (2013). *Web Design All-in-One for Dummies*. John Wiley & Sons.
- W3Schools online web tutorials. (n.d.). <https://www.w3schools.com/>
- Sklar, J. (2012). *Web Design Principles*.
- Plumley, G. (2011). *Website design and development : 100 questions to ask before building a website*. Indianapolis, IN : Wiley Pub.
- Contributors, M. O. J. T. a. B. (n.d.). *Introduction*. <https://getbootstrap.com/docs/5.0/getting-started/introduction/>