**Tutorial 5 Learning Bootstrap**

**1. Bootstrap**

* Bootstrap is a free front-end framework for faster and easier web development
* Bootstrap includes HTML and CSS based design templates for typography, forms, buttons, tables, navigation, modals, image carousels and many other, as well as optional JavaScript plugins
* Bootstrap also gives you the ability to easily create responsive designs
* Bootstrap 5 (released 2021) is the newest version of Bootstrap (released 2013); with new components, faster stylesheet and more responsiveness.
* Bootstrap 5 supports the latest, stable releases of all major browsers and platforms. However, Internet Explorer 11 and down is not supported.
* The main differences between Bootstrap 5 and Bootstrap 3 & 4, is that Bootstrap 5 has switched to vanilla JavaScript instead of jQuery.

**1.1 Why Use 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 5 is compatible with all modern browsers (Chrome, Firefox, Edge, Safari, and Opera).

**1.2 Bootstrap 5 CDN**

|  |
| --- |
| <!-- Latest compiled and minified CSS -->  *<link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/css/bootstrap.min.css" rel="stylesheet">*  <!-- Latest compiled JavaScript -->  *<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/js/bootstrap.bundle.min.js"></script>* |

**2. Bootstrap Component**

**2.1 Bootstrap 5 Containers**

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

|  |
| --- |
| <!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 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">  <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>  <p>Resize the browser window to see that the container width will change at different breakpoints.</p>  </div>  </body>  </html> |

**2.1.1 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%)

|  |
| --- |
| <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> |

**2.1.2 Container Padding**

By default, containers have 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-5 means "add a large **top padding**":

|  |
| --- |
| <div class="container pt-5">  <h1>My First Bootstrap Page</h1>  <p>This container has an extra top padding.</p>  <p>Try to remove the .pt-5 class to see the difference.</p>  </div> |

**2.1.3 Container Border and Color**

Other utilities, such as borders and colors, are also often used together with containers

|  |
| --- |
| <div class="container p-5 my-5 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-5 my-5 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-5 my-5 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> |

**2.2 Bootstrap 5 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:

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

Make sure that the sum adds up to 12 or fewer (it is not required that you use all 12 available columns).

**2.2.1 Grid Classes**

The Bootstrap 5 grid system has six 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)
* .col-xxl- (xxlarge devices - screen width equal to or greater than 1400px)

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

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

|  |
| --- |
| <div class="container-fluid mt-3">  <h1>Three equal width columns</h1>  <p>Note: Try to add a new div with class="col" inside the row class - this will create four equal-width columns.</p>  <div class="row">  <div class="col p-3 bg-primary text-white">.col</div>  <div class="col p-3 bg-dark text-white">.col</div>  <div class="col p-3 bg-primary text-white">.col</div>  </div>  </div> |

**2.2.1 Responsive Columns**

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="container-fluid mt-3">  <h1>Responsive Columns</h1>  <p>Resize the browser window to see the effect.</p>  <p>The columns will automatically stack on top of each other when the screen is less than 576px wide.</p>  <div class="row">  <div class="col-sm-3 p-3 bg-primary text-white">.col</div>  <div class="col-sm-3 p-3 bg-dark text-white">.col</div>  <div class="col-sm-3 p-3 bg-primary text-white">.col</div>  <div class="col-sm-3 p-3 bg-dark text-white">.col</div>  </div>  </div> |

**2.3 <h1> - <h6>**

Bootstrap 5 styles HTML headings (<h1> to <h6>)  with a bolder font-weight and a responsive font-size.

|  |
| --- |
| <div class="container mt-3">  <p>The font-size of each Bootstrap heading depends on the screen size. Try to resize the browser window to see the effect.</p>  <h1>h1 Bootstrap heading</h1>  <h2>h2 Bootstrap heading</h2>  <h3>h3 Bootstrap heading</h3>  <h4>h4 Bootstrap heading</h4>  <h5>h5 Bootstrap heading</h5>  <h6>h6 Bootstrap heading</h6>  </div> |

**2.4 Text Colors**

Bootstrap 5 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*.

|  |
| --- |
| <div class="container mt-3">  <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> |

**2.5 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*.

|  |
| --- |
| <div class="container mt-3">  <h2>Contextual Backgrounds</h2>  <p>Use the contextual background classes to provide "meaning through colors".</p>  <div class="bg-primary p-3"></div>  <div class="bg-success p-3"></div>  <div class="bg-info p-3"></div>  <div class="bg-warning p-3"></div>  <div class="bg-danger p-3"></div>  <div class="bg-secondary p-3"></div>  <div class="bg-dark p-3"></div>  <div class="bg-light p-3"></div>  </div> |

|  |
| --- |
| <div class="container mt-3">  <h2>Background Color with Contrasting Text Color</h2>  <p class="text-bg-primary">This text is important.</p>  <p class="text-bg-success">This text indicates success.</p>  <p class="text-bg-info">This text represents some information.</p>  <p class="text-bg-warning">This text represents a warning.</p>  <p class="text-bg-danger">This text represents danger.</p>  <p class="text-bg-secondary">Secondary background color.</p>  <p class="text-bg-dark">Dark grey background color.</p>  <p class="text-bg-light">Light grey background color.</p>  </div> |

**2.6 Bootstrap 5 Tables**

A basic Bootstrap 5 table has a light padding and horizontal dividers.

The .table class adds basic styling to a table.

|  |
| --- |
| <div class="container mt-3">  <h2>Basic Table</h2>  <p>The .table class adds basic styling (light padding and horizontal dividers) to a table:</p>  <table class="table">  <thead>  <tr>  <th>Firstname</th>  <th>Lastname</th>  <th>Email</th>  </tr>  </thead>  <tbody>  <tr>  <td>John</td>  <td>Doe</td>  <td>john@example.com</td>  </tr>  <tr>  <td>Mary</td>  <td>Moe</td>  <td>mary@example.com</td>  </tr>  <tr>  <td>July</td>  <td>Dooley</td>  <td>july@example.com</td>  </tr>  </tbody>  </table>  </div> |

**2.6.1 Hover Rows**

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

|  |
| --- |
| <div class="container mt-3">  <h2>Hover Rows</h2>  <p>The .table-hover class enables a hover state (grey background on mouse over) on table rows:</p>  <table class="table table-hover">  <thead>  <tr>  <th>Firstname</th>  <th>Lastname</th>  <th>Email</th>  </tr>  </thead>  <tbody>  <tr>  <td>John</td>  <td>Doe</td>  <td>john@example.com</td>  </tr>  <tr>  <td>Mary</td>  <td>Moe</td>  <td>mary@example.com</td>  </tr>  <tr>  <td>July</td>  <td>Dooley</td>  <td>july@example.com</td>  </tr>  </tbody>  </table>  </div> |

**2.6.2 Hoverable Dark Table**

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

|  |
| --- |
| <div class="container mt-3">  <table class="table table-dark table-hover">  <thead>  <tr>  <th>Firstname</th>  <th>Lastname</th>  <th>Email</th>  </tr>  </thead>  <tbody>  <tr>  <td>John</td>  <td>Doe</td>  <td>john@example.com</td>  </tr>  <tr>  <td>Mary</td>  <td>Moe</td>  <td>mary@example.com</td>  </tr>  <tr>  <td>July</td>  <td>Dooley</td>  <td>july@example.com</td>  </tr>  </tbody>  </table>  </div> |

**2.7 Bootstrap 5 Images**

**2.7.1 Image Shapes**

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)

|  |
| --- |
| <div class="container mt-3">  <h2>Rounded Corners</h2>  <p>The .rounded class adds rounded corners to an image:</p>  <img src="cinqueterre.jpg" class="rounded" alt="Cinque Terre" width="304" height="236">  </div> |

**2.7.2 Aligning Images**

Float an image to the left with the .float-start class or to the right with .float-end

|  |
| --- |
| <div class="container mt-3">  <h2>Aligning images</h2>  <p>Use the float classes to float the image to the left or to the right:</p>  <img src="paris.jpg" class="float-start" alt="Paris" width="304" height="236">  <img src="paris.jpg" class="float-end" alt="Paris" width="304" height="236">  </div> |

**2.8.2 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

|  |
| --- |
| <div class="container mt-3">  <h2>Image</h2>  <p>The .img-fluid class makes the image scale nicely to the parent element (resize the browser window to see the effect):</p>  <img class="img-fluid" src="ny.jpg" alt="New York" width="1100" height="500">  </div> |