Bootstrap (v4.5)

Bootstrap is a free and open-source **CSS framework** directed at **responsive, mobile-first front-end** web development. It contains CSS- and (optionally) JavaScript-based design templates for typography, forms, buttons, navigation, and other interface components.

In Bootstrap, we Optimize code for mobile devices first and then scale up components as necessary using CSS media queries.

Integration >>

1. Downloading from https://getbootstrap.com/docs/4.5/getting-started/download/ and using the necessary scripts.

2. Using CDN,

> Bootstrap requires the use of the HTML5 doctype.

> To ensure proper rendering and touch zooming for all devices.

> Add this stylesheet link into the `<head>` section before all other stylesheets.

> Many of the Bootstrap components require the use of JS to function. So place these scripts right before the closing `</body>` tag.
>
> jQuery must come first, then Popper.js and then Bootstrap JS plugin.

```html
<!DOCTYPE html>
<html lang="en">
  <head>
    <!-- Required 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://stackpath.bootstrapcdn.com/bootstrap/4.5.0/css/bootstrap.min.css"
      integrity="sha384-9aIt2nRpC12Uk9gS9baDl411NQApFmC26EwAOH8WgZl5MYYxFfc+NcPb1dKGj7Sk"
      crossorigin="anonymous">

    <title>Bootstrap CDN</title>
  </head>
  <body>
    <h1>Hello, world!</h1>

    <!-- jQuery first, then Popper.js, then Bootstrap JS -->
    <script src="https://code.jquery.com/jquery-3.5.1.slim.min.js"
      integrity="sha384-DfXdz2htPH0lsSSs5nCTpuj/zy4C+OGpamoFVy38MVBnE+IbbVYUew+OrCXaRkfj"
      crossorigin="anonymous"></script>

    <script src="https://cdn.jsdelivr.net/npm/popper.js@1.16.0/dist/umd/popper.min.js"
      integrity="sha384-Q6E9RHvbIyZFJoft+2mJbHaEWldlvI9IOYy5n3zV9zzTtmI3UksdQRVvoxMfooAo"
      crossorigin="anonymous"></script>

    <script src="https://stackpath.bootstrapcdn.com/bootstrap/4.5.0/js/bootstrap.min.js"
      integrity="sha384-OgVRvuATP1z7JjHLkuOU7Xw704+h835Lr+6QL9UvYjZE3Ipu6Tp75j7Bh/kR0JKI"
      crossorigin="anonymous"></script>
  </body>
</html>
```

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Grid Layout >>

1. **Container:**

.bg-primary	.text-primary
.bg-secondary	.text-secondary
.bg-success	.text-success
.bg-danger	.text-danger
.bg-warning	.text-warning
.bg-info	.text-info
.bg-light	.text-light
.bg-dark	.text-dark
.bg-white	.text-body
.bg-transparent	.text-muted
	.text-white
	.text-black-50
	.text-white-50

	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%

2. Grid System:

border	border-top	border-right	border-bottom	border-left

| border-0 | border-top-0 | border-right-0 | border-bottom-0 | |

border-left-0

| border-primary | | border-success | | border-warning | | border-light | border-white |

border-secondary | border-danger | border-info | border-dark

rounded		rounded-right		rounded-left		rounded-pill	
75x75	75x75	75x75	75x75	75x75	75x75	150x75	75x75

rounded-top | rounded-bottom | rounded-circle | rounded-0
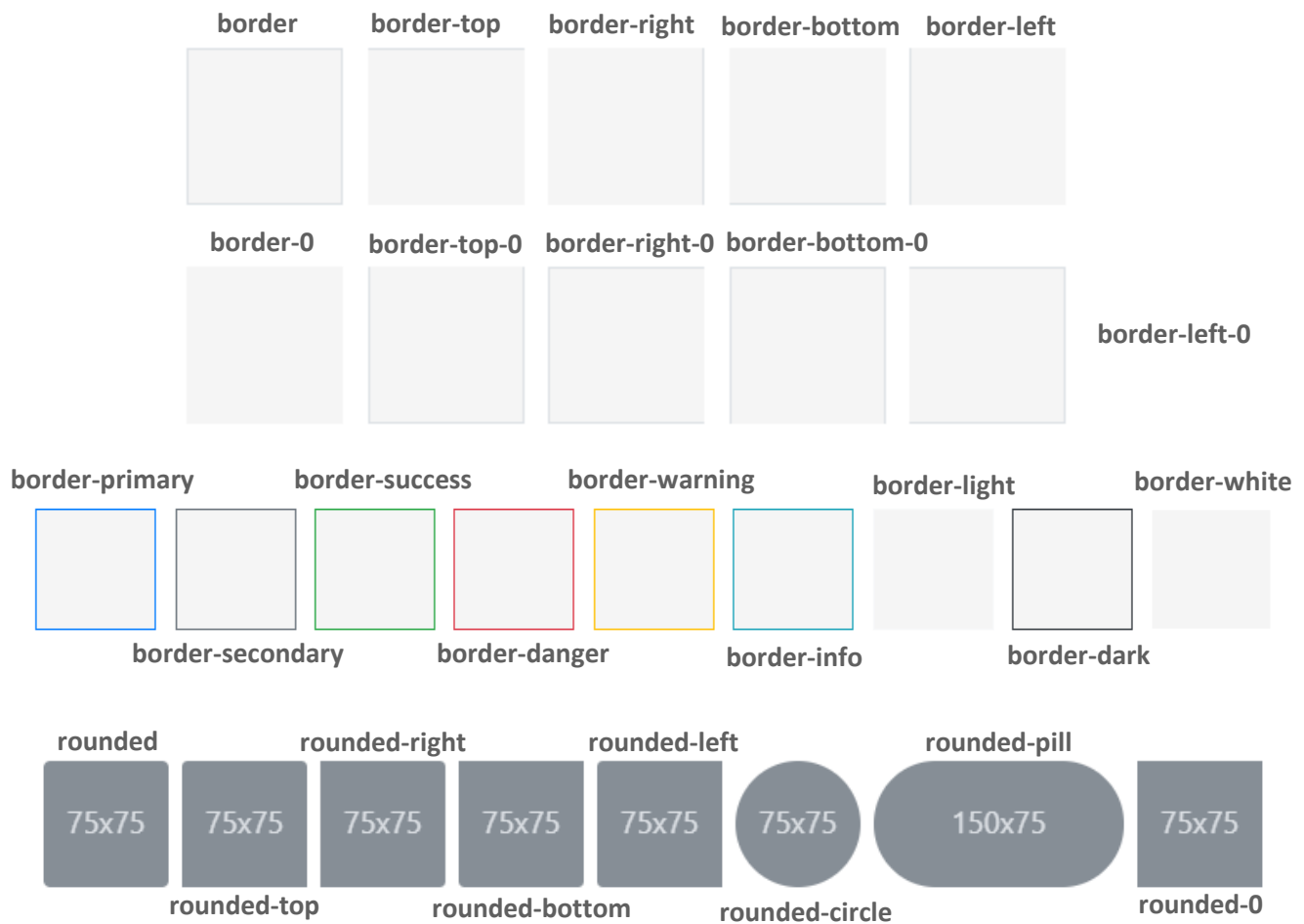
	Extra small <576px	Small ≥576px	Medium ≥768px	Large ≥992px	Extra large ≥1200px
Max container width	None (auto)	540px	720px	960px	1140px
Class prefix	.col-	.col-sm-	.col-md-	.col-lg-	.col-xl-
# of columns	12				
Gutter width	30px (15px on each side of a column)				
Nestable	Yes				
Column ordering	Yes				

- **Variation – 1**
  - i. **Equal Width –** (col, col, col), (col-sm, col-sm, col-sm), (col-md, col-md, col-md), … …
  - ii. **Equal Width Multi Line –** (col, col, w-100, col, col), (col-sm, col-sm, w-100, col-sm), … …
  - iii. **One Column Width –** (col, col-6, col), (col-sm-2, col-sm, col-sm-5, col-sm), … …
  - iv. **Variable Width Grid –** (col, col-md-auto, col-md-2)

Width 25%	**w-25**
Width 50%	**w-50**
mw-100 Width 75%	**w-75**
min-vw-25 Width 100%	**w-100** **vw-100**
Width auto	**w-auto**

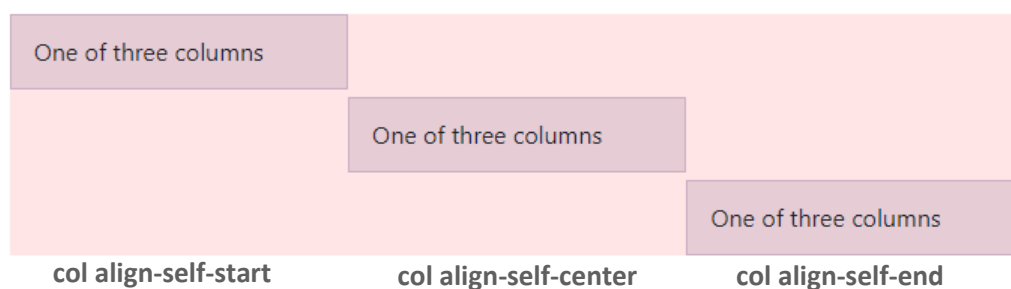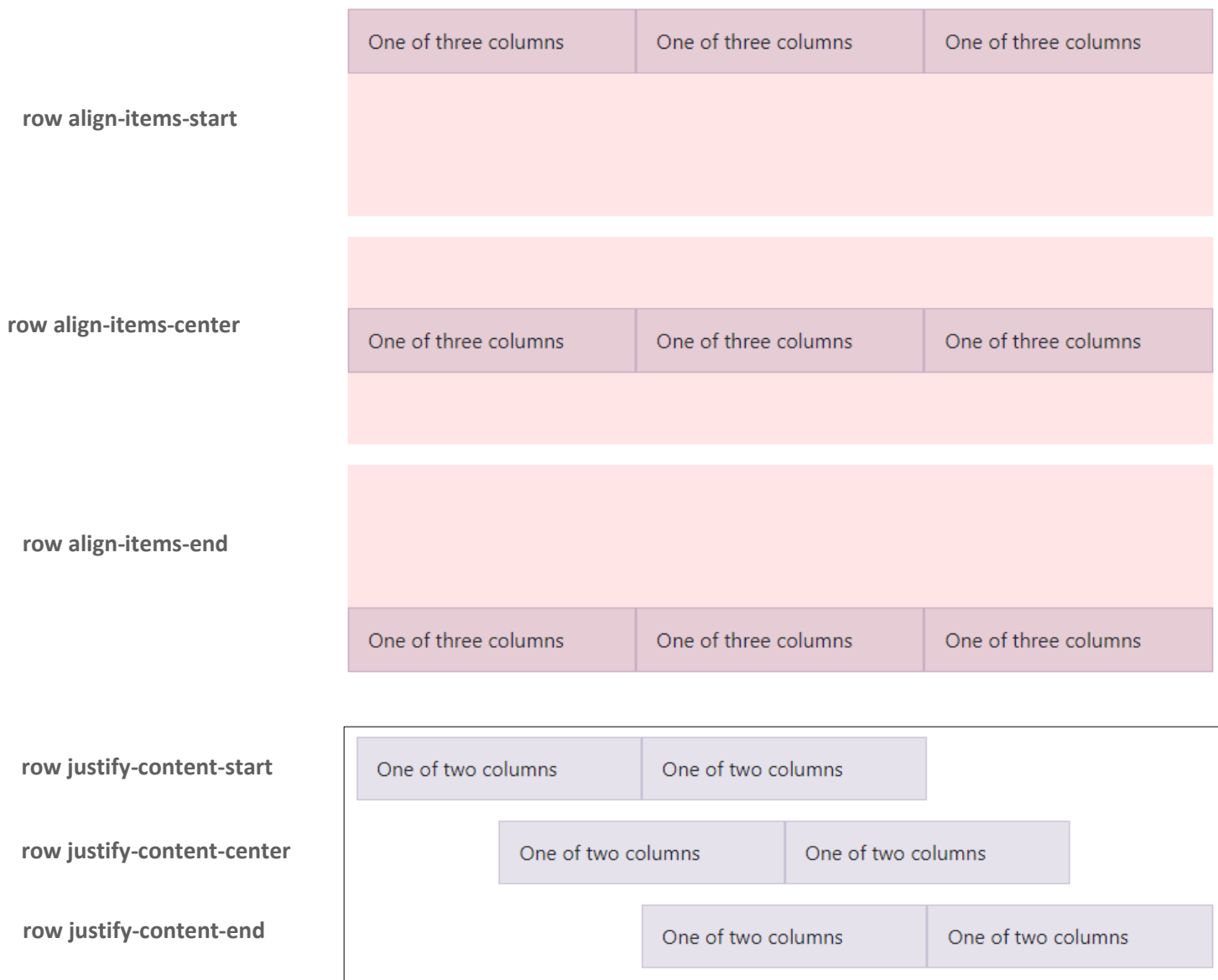| **h-25**	**h-50**	**h-75**	**h-100**	**h-auto**
Height 25%	Height 50%	Height 75%	Height 100%	Height auto

mh-100

min-vh-100
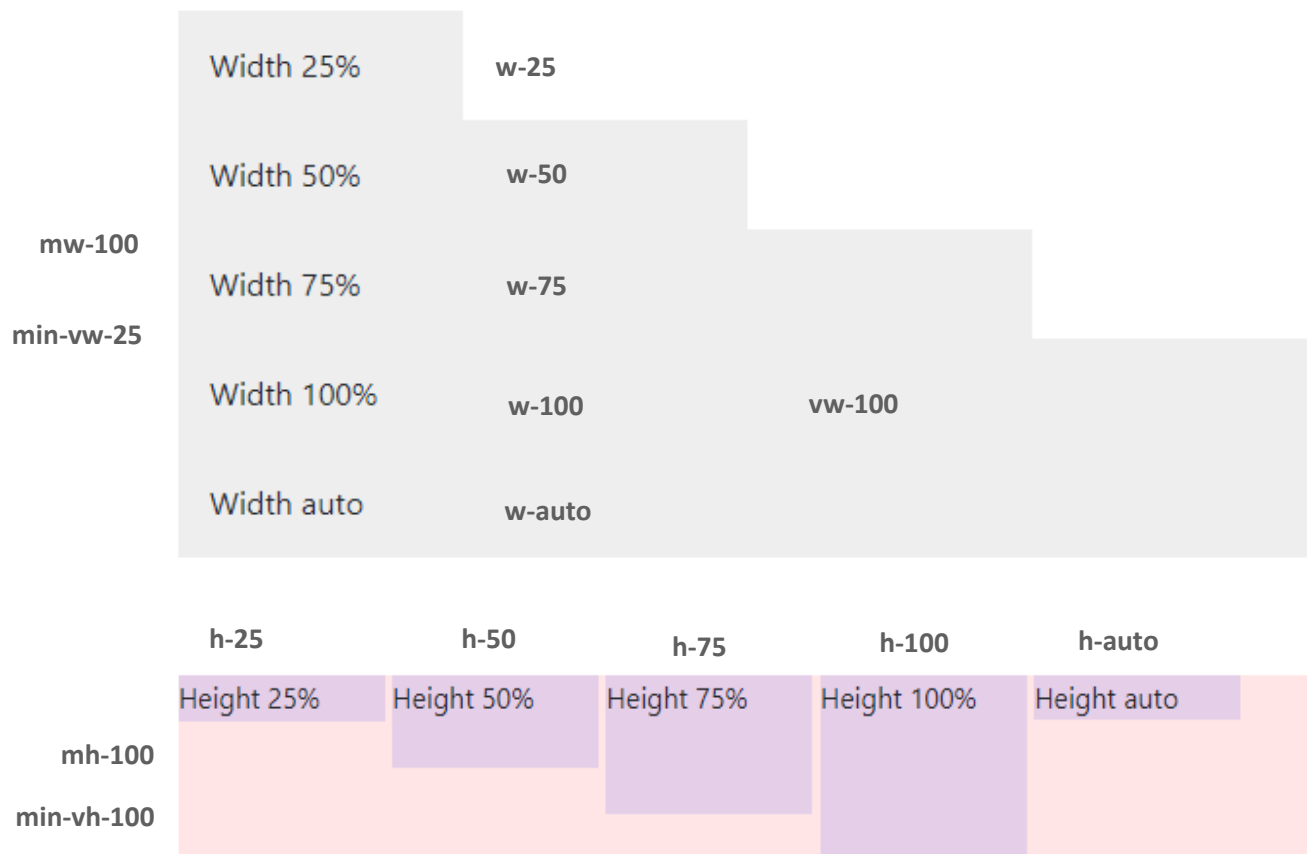
- **Variation – 2**
  - i. **Breakpoints –** col-sm, col-md, col-lg, col-xl
  - ii. **Stacked to Horizontal –** (col-8, col-4), (col-sm-2, col-sm-6, col-sm-4), … …
  - iii. **Mix and Match –** (col-6 col-sm-8 col-md-9, col-6 col-sm-4 col-md-3), … …

- **Variation – 3**
  - i. **Alignment –** (align-self-start, align-self-center, align-self-end),
    (align-items-start, align-items-center, align-items-end),
    (justify-content-start, justify-content-center, justify-content-end)

One of three columns		
	One of three columns	
		One of three columns

col align-self-start   **col align-self-center**   **col align-self-end**

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| row align-items-start | One of three columns | One of three columns | One of three columns |

| row align-items-center | One of three columns | One of three columns | One of three columns |

| row align-items-end | One of three columns | One of three columns | One of three columns |

row justify-content-start   One of two columns   One of two columns

row justify-content-center   One of two columns   One of two columns

row justify-content-end   One of two columns   One of two columns

- **Variation – 4**
    - i. **Offset –** Move elements to the right. (offset-4, offset-sm-2, offset-md-3, … …)
    - ii. **Margin & Padding**

Property -> m, p	m = margin p = padding
Sides -> t, b, l, r, x, y, blank	t = top b = bottom l = left r = right x = horizontal y = vertical
Size -> 0, 1, 2, 3, 4, 5, auto	0 = eliminate the margin 1 = $spacer * .25 where $spacer = 16px 2 = $spacer * .5 3 = $spacer 4 = $spacer * 1.5 ; 5 = $spacer * 3

| Syntax:

{property}{sides}-{size}
{property}{sides}-{breakpoint}-{size} | To center align an element, **mx-auto**
To shift rest of the elements to the right side, **mr-auto**
To set a right margin with sm breakpoint, **mr-sm-2**

To set a padding of level 3, **p-3**
To set a top padding of level 2, **pt-2** |

iii. **Nesting –** (row within row)

- **Variation - 5**
  i. **Display**

value -> none, inline, inline-block, block etc.	none = To hide the element inline = To convert into inline elements inline-block = To convert into inline-block elements. block = To convert into block level elements.
Syntax: **d-{value}** **d-{breakpoint}-{value}**	To show an element from sm to extra large screen, d-sm-block To hide an element from md to extra large screen, d-sm-none

| Display only xs screen,
d-sm-none

Display xs, sm screen,
d-md-none

Display xs, sm, md screen,
d-lg-none

Display xs, sm, md, lg screens,
d-xl-none | Hide only xs screen,
d-none d-sm-block

Hide only xs, sm screen,
d-none d-md-block

Hide only xs, sm , md screen,
d-none d-lg-block

Hide only xs, sm, md, lg screens,
d-none d-xl-block | Display only on sm,
d-none d-sm-block d-md-none

Hide only on sm,
d-sm-none d-md-block |

- **Variation – 6**
  i. **Text Operations**

   Overflow:
   - overflow-auto
   - overflow-hidden

   Box Shadow:

   - shadow-none
   - shadow-sm
   - shadow
   - shadow-lg

   here **sm, lg** represents the shadow size.

Text:

- text-justify, text-sm-justify, … …
- text-left, text-sm-left, … …
- text-center, text-md-center, … …
- text-right, text-lg-right, … …
- text-decoration-none

Font:

- font-weight-bold
- font-weight-normal
- font-italic

- **Variation – 7**
    i. **Float and Clearfix**

    Float:

    - float-left, float-sm-left, float-md-left, … …
    - float-right, float-sm-right, float-md-right, … …
    - float-none, float-sm-none, float-md-none, … …

    Clearfix:

    - clearfix

Carousel >>

```html
<div id="carouselId" class="carousel slide" data-ride="carousel">

  <!-- the main inner part of the carousel -->
  <div class="carousel-inner">
    <div class="carousel-item active" data-interval="5000">
      <img src="images/img1.jpg" class="d-block w-100" alt="Project 1">
      <div class="carousel-caption d-none d-md-block">
        <h5>Project 1</h5>
        <p>Our First Project at X city, completed on Sep, 2019</p>
      </div>
    </div>
    <div class="carousel-item"  data-interval="5000">
      <img src="images/img2.jpg" class="d-block w-100" alt="Project 2">
      <div class="carousel-caption d-none d-md-block">
        <h5>Project 2</h5>
        <p>Our Second Project at NY, completed on Jan, 2020</p>
      </div>
    </div>
    <div class="carousel-item"  data-interval="5000">
      <img src="images/img3.jpg" class="d-block w-100" alt="Project 3">
      <div class="carousel-caption d-none d-md-block">
        <h5>Project 3</h5>
        <p>Our Third Project at Singapore, completed on Apr, 2020</p>
      </div>
    </div>
  </div>
</div>
```

```
  <!-- adding indicators for each slide -->
  <ol class="carousel-indicators">
    <li data-target="#carouselId" data-slide-to="0" class="active"></li>
    <li data-target="#carouselId" data-slide-to="1"></li>
    <li data-target="#carouselId" data-slide-to="2"></li>
  </ol>

  <!-- adding left-right move buttons -->
  <a class="carousel-control-prev" href="#carouselId" role="button" data-
slide="prev">
    <span class="carousel-control-prev-icon" aria-hidden="true"></span>
    <span class="sr-only">Previous</span>
  </a>
  <a class="carousel-control-next" href="#carouselId" role="button" data-
slide="next">
    <span class="carousel-control-next-icon" aria-hidden="true"></span>
    <span class="sr-only">Next</span>
  </a>
</div>
```

For More: https://getbootstrap.com/docs/4.5/components/carousel/

Button >>

btn btn-primary

btn btn-outline-primary

```
Using anchor element,
<a class="btn btn-primary" href="#" role="button">Link</a>
Using <button> tag,
<button class="btn btn-primary" type="submit">Button</button>
Using <input type='button'> element,
<input class="btn btn-primary" type="button" value="Input">
Using <input type='submit'> element,
<input class="btn btn-primary" type="submit" value="Submit">
Using <input type='reset'> element,
<input class="btn btn-primary" type="reset" value="Reset">
```

```
<button type="button" class="btn btn-primary btn-lg">Large button</button>
<button type="button" class="btn btn-primary btn-sm">Small button</button>

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

To group multiple buttons,


```
<div class="btn-group" role="group" aria-label="Basic example">
  <button type="button" class="btn btn-secondary">Left</button>
  <button type="button" class="btn btn-secondary">Middle</button>
  <button type="button" class="btn btn-secondary">Right</button>
</div>
```

Alerts >>

```
<div class="alert alert-success alert-dismissible fade show" role="alert">
  <strong>Congratulations!</strong> Your sign up is successful.
  Click this <a href="#" class="alert-link">link</a> to Log In.

  <button type="button" class="close" data-dismiss="alert" aria-label="Close">
    <span aria-hidden="true">&times;</span>
  </button>
</div>
```

Success! This alert box indicates a successful or positive action. ✕

Info! This alert box indicates a neutral informative change or action. ✕

Warning! This alert box indicates a warning that might need attention. ✕

Danger! This alert box indicates a dangerous or potentially negative action. ✕

Primary! This alert box indicates an important action. ✕

Secondary! This alert box indicates a less important action. ✕

Dark! Dark grey alert box. ✕

Light! Light grey alert box. ✕

Breadcrumb >>

Home / Library / Data

```html
<nav aria-label="breadcrumb">
  <ol class="breadcrumb">
    <li class="breadcrumb-item"><a href="#">Home</a></li>
    <li class="breadcrumb-item"><a href="#">Library</a></li>
    <li class="breadcrumb-item active" aria-current="page">Data</li>
  </ol>
</nav>
```

Jumbotron >>

A lightweight, flexible component that can optionally extend the entire viewport to showcase key marketing messages on your site. It is a simple **Hero Unit** where blocks are large visual elements that are meant to grab attention and showcase key content.

Hello, world!

This is a simple hero unit, a simple jumbotron-style component for calling extra attention to featured content or information.

It uses utility classes for typography and spacing to space content out within the larger container.

Learn more

```html
<div class="jumbotron">
  <h1>Hello, world!</h1>
  <p>This is a simple hero unit, a simple jumbotron-style component for
   calling extra attention to featured content or information.</p>
  <hr class="my-4">
  <p>It uses utility classes for typography and spacing to space content out
   within the larger container.</p>
  <a class="btn btn-primary btn-lg" href="#" role="button">Learn more</a>
</div>
```

Modal >>

```html
<!-- Button trigger modal -->
<button type="button" class="btn btn-primary" data-toggle="modal" data-target="#exampleModal">
  Launch demo modal
</button>

<!-- Modal -->
<div class="modal fade" id="exampleModal" tabindex="-1" role="dialog" aria-labelledby="exampleModalLabel" aria-hidden="true">
  <div class="modal-dialog">
    <div class="modal-content">
      <div class="modal-header">
        <h5 class="modal-title" id="exampleModalLabel">Modal title</h5>
        <button type="button" class="close" data-dismiss="modal" aria-label="Close">
          <span aria-hidden="true">&times;</span>
        </button>
      </div>
      <div class="modal-body">
        ...
      </div>
      <div class="modal-footer">
        <button type="button" class="btn btn-secondary" data-dismiss="modal">Close
</button>
        <button type="button" class="btn btn-primary">Save changes</button>
      </div>
    </div>
  </div>
</div>
```

To stop outside click functionality:

```html
<div class="modal fade" id="staticBackdrop" data-backdrop="static" data-keyboard="false" tabindex="-1" role="dialog" aria-labelledby="staticBackdropLabel" aria-hidden="true">
  … … …
</div>
```

To make the modal body scrollable:

```html
<!-- Scrollable modal -->
<div class="modal-dialog modal-dialog-scrollable">
  ...
</div>
```

To vertically center the modal position:

```html
<!-- Vertically centered modal -->
<div class="modal-dialog modal-dialog-centered">
  ...
</div>
```

Forms >>

Textual Form Controls:
<input type="text">
<input type="email">
<input type="url">
<input type="search">
<input type="password">
	``html
	<div class="form-group">
	    <label for="id">Email address</label>
	    <input type="email" class="form-control" id="id">
	    <small id="helptext" class="form-text text-muted">
	      We'll never share your email with anyone else.
	    </small>
	</div>
	``
	
	• For plain text, use `.form-control-plaintext`
	
	• Use `.form-group row` and grid columns (`.col`, `.col-3`) for horizontally align the elements within the form group.
	
	``html
	<div class="form-group row">
	  <label for="id1" class="col-sm-2 col-form-label">Email</label>
	  <div class="col-sm-10">
	    <input type="email" class="form-control" id="id1">
	  </div>
	</div>
	``

Dropdown Box
<select>
… …
</select>
	``html
	<div class="form-group">
	    <label for="id">Example select</label>
	    <select class="form-control" id="id">
	      <option>1</option>
	      <option>2</option>
	      <option>3</option>
	      <option>4</option>
	      <option>5</option>
	    </select>
	  </div>
	``

Textarea	```html
	<div class="form-group">
	  <label for="id">Example textarea</label>
	  <textarea class="form-control" id="id" rows="3"></textarea>
	</div>
	``

<input type="file">	```html
	<div class="form-group">
	    <label for="id">Example file input</label>
	    <input type="file" class="form-control-file" id="id">
	</div>
	``

<input type="range">	```html
	<div class="form-group">
	    <label for="id">Example Range input</label>
	    <input type="range" class="form-control-range" id="id">
	</div>
	``

<input type="checkbox">	```html
	<div class="form-check">
	  <input class="form-check-input" type="checkbox" value="" id="id">
	  <label class="form-check-label" for="id">
	    Default checkbox
	  </label>
	</div>
	``
	
	To use as inline element, use `.form-check .form-check-inline`

<input type="radio">	```html
	<div class="form-check">
	  <input class="form-check-input" type="radio" name="name" id="id"
	value="option1" checked>
	  <label class="form-check-label" for="id">
	    Default radio
	  </label>
	</div>
	``
	
	To use as inline element, use `.form-check .form-check-inline`

| Inline Form | ```html
<form class="form-inline">
  <label class="sr-only" for="inlineFormInputName2">Name</label>
  <input type="text" class="form-control mb-2 mr-sm-2" id="inlineFormInputName2" placeholder="Jane Doe">

  <div class="form-check mb-2 mr-sm-2">
    <input class="form-check-input" type="checkbox" id="inlineFormCheck">
    <label class="form-check-label" for="inlineFormCheck">
      Remember me
    </label>
  </div>

  <button type="submit" class="btn btn-primary mb-2">Submit</button>
</form>
``` |
|---|---|
| Form Grid | ```html
<form>
  <div class="row">
    <div class="col">
      <input type="text" class="form-control" placeholder="First name">
    </div>

    <div class="col">
      <input type="text" class="form-control" placeholder="Last name">
    </div>
  </div>
</form>
``` |
| Form Validation | ```html
<form class="was-validated">
  <div class="mb-3">
    <label for="validationTextarea">Textarea</label>
    <textarea class="form-control is-invalid" id="validationTextarea" placeholder="Required example textarea" required></textarea>
    <div class="invalid-feedback">
      Please enter a message in the textarea.
    </div>
  </div>
``` |

Navbar >>

| Color Schemes | ```html
<nav class="navbar navbar-expand-md navbar-dark bg-dark">
  <!-- Navbar content -->
</nav>

<nav class="navbar navbar-light" style="background-color: #e3f2fd;">
  <!-- Navbar content -->
</nav>
``` |
|---|---|
| Placement | ```html
<nav class="navbar fixed-top navbar-light bg-light">
  <a class="navbar-brand" href="#">Fixed top</a>
</nav>

<nav class="navbar sticky-top navbar-light bg-light">
  <a class="navbar-brand" href="#">Sticky top</a>
</nav>
``` |

Brand	```html
	<!-- As a link -->
	<nav class="navbar navbar-light bg-light">
	  Navbar
	</nav>
	
	<nav class="navbar navbar-light bg-light">
	
	    <img src="img.jpg" width="30" height="30" alt=""
	    loading="lazy">
	
	</nav>
	``

Toggler	```html
	<nav class="navbar navbar-expand-lg navbar-light bg-light">
	  <button class="navbar-toggler" type="button" data-
	toggle="collapse" data-target="#navbarId" aria-
	controls="navbarTogglerDemo03" aria-expanded="false" aria-
	label="Toggle navigation">
	
	  </button>
	  Navbar
	
	  <div class="collapse navbar-collapse" id="navbarId">
	    Navbar content … …
	  </div>
	</nav>
	``

Navbar Items	```html
	<ul class="navbar-nav">
	    <li class="nav-item active">
	      Features
	
	    <li class="nav-item">
	      <a class="nav-link disabled" href="#" tabindex="-1" aria-
	disabled="true">Disabled
	
	``

Navbar Dropdown	```html
	<li class="nav-item dropdown">
	    <a class="nav-link dropdown-toggle" href="#"
	id="navbarDropdownId" role="button" data-toggle="dropdown" aria-
	haspopup="true" aria-expanded="false">
	        Dropdown link
	
	    <div class="dropdown-menu" aria labelledby =
	"navbarDropdownId">
	        Action
	        Another action
	        Something else
	here
	    </div>
	
	``

Form Elements	```html
	<form class="form-inline my-2 my-lg-0">
	    <input class="form-control mr-sm-2" type="search"
	placeholder="Search" aria-label="Search">
	    <button class="btn btn-outline-success my-2 my-sm-0"
	type="submit">Search</button>
	    </form>
	``

Card >> 🔗

```html
<div class="card" style="width: 18rem;">
  <img src="..." class="card-img-top" alt="...">
  <div class="card-body">
    <h5 class="card-title">Card title</h5>
    <p class="card-text">Some quick example text to build
     on the card title and make up the bulk of the card's
     content.</p>
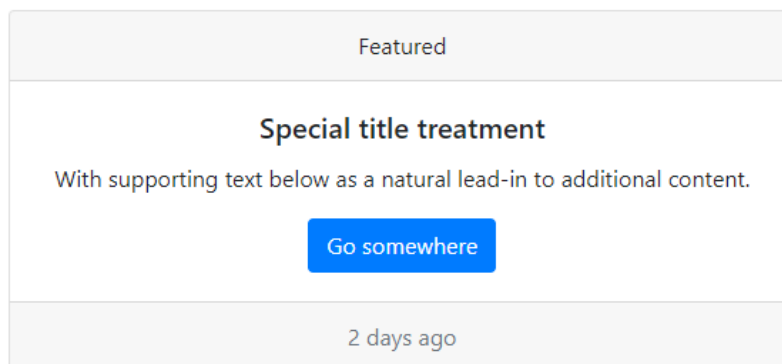    <a href="#" class="btn btn-primary">Go somewhere</a>
  </div>
</div>
```
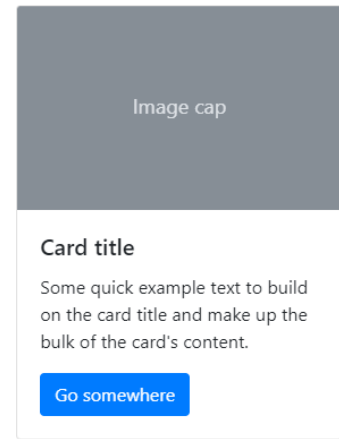
To add card subtitle within card body,
```html
<h6 class="card-subtitle mb-2 text-muted">Card subtitle</h6>
```

To add card header, footer section:
```html
<div class="card text-center">
  <div class="card-header">
    Featured
  </div>
  <div class="card-body">
    <h5 class="card-title">Special title treatment</h5>
    <p class="card-text">With supporting text below as a natural lead-in to
additional content.</p>
    <a href="#" class="btn btn-primary">Go somewhere</a>
  </div>
  <div class="card-footer text-muted">
    2 days ago
  </div>
</div>
```

output:

To create image overlay,
```html
<div class="card bg-dark text-white">
  <img src="..." class="card-img" alt="...">
  <div class="card-img-overlay">
    <h5 class="card-title">Card title</h5>
    <p class="card-text">This is a wider card with supporting text below as a
natural lead-in to additional content. This content is a little bit longer.</p>
    <p class="card-text">Last updated 3 mins ago</p>
  </div>
</div>
```

output:

To create a deck of cards,

```html
<div class="card-deck">
  <div class="card">
    <img src="..." class="card-img-top" alt="...">
    <div class="card-body">
      <h5 class="card-title">Card title</h5>
      <p class="card-text">This is a wider card with supporting text below as a natural
lead-in to additional content. This content is a little bit longer.</p>
    </div>
    <div class="card-footer">
      <small class="text-muted">Last updated 3 mins ago</small>
    </div>
  </div>

  <div class="card">
    <img src="..." class="card-img-top" alt="...">
    <div class="card-body">
      <h5 class="card-title">Card title</h5>
      <p class="card-text">This card has supporting text below as a natural lead-in to
additional content.</p>
    </div>
    <div class="card-footer">
      <small class="text-muted">Last updated 3 mins ago</small>
    </div>
  </div>

  <div class="card">
    <img src="..." class="card-img-top" alt="...">
    <div class="card-body">
      <h5 class="card-title">Card title</h5>
      <p class="card-text">This is a wider card with supporting text below as a natural
lead-in to additional content. This card has even longer content than the first to show
that equal height action.</p>
    </div>
    <div class="card-footer">
      <small class="text-muted">Last updated 3 mins ago</small>
    </div>
  </div>
</div>
```

output:

References:
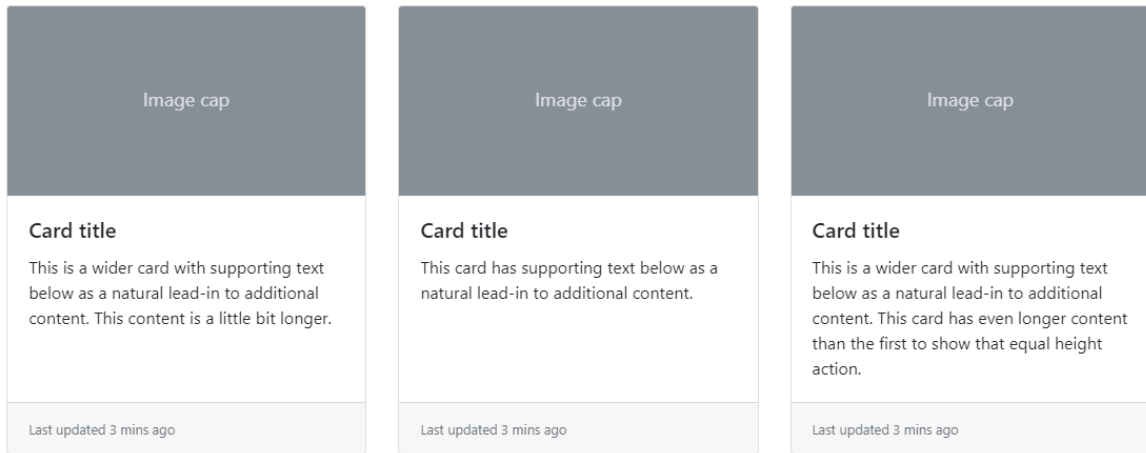
- https://getbootstrap.com/docs/4.5/getting-started/introduction/
- https://www.w3schools.com/bootstrap4/bootstrap_ref_all_classes.asp