

Responsive Web Design

Using Bootstrap CSS Framework

Topics

- What is Responsive Web Design?
- Introduction to Bootstrap Framework
- Bootstrap Components
- Bootstrap Grid System
- Bootstrap & JavaScript
- Resources - Bootstrap Themes, and more...

Responsive Web Design

Responsive Web Design (RWD)

- It is an approach to web design aimed at allowing desktop webpages to be viewed in response to the size of the screen or web browser one is viewing with.

-Source Wikipedia

RWD

- RWD uses only HTML and CSS.
- RWD makes your web page look good on all devices: desktops, tablets, and phones.
- It is called responsive web design when you use CSS and HTML to resize, hide, shrink, enlarge, or move the content to make it look good on any screen.
- It's a concept that provides mobile first approach.

Source: [w3schools.com](https://www.w3schools.com)

RWD Core

- HTML
- CSS
- Viewport
- Media Queries

Viewport

- The viewport is the user's visible area of a web page.
- The viewport varies with the device, and will be smaller on a mobile phone than on a computer screen.
- HTML5 introduced a method to let web designers take control over the viewport, through the `<meta>` tag.
- `<metaname="viewport" content="width=device-width, initial-scale=1.0">`
- A `<meta>` viewport element gives the browser instructions on how to control the page's dimensions and scaling.
- 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=1.0` part sets the initial zoom level when the page is first loaded by the browser.

Example

- `<meta name="viewport" content="width=device-width, initial-scale=1.0">`
- A `<meta>` viewport element gives the browser instructions on how to control the page's dimensions and scaling.
- 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=1.0` part sets the initial zoom level when the page is first loaded by the browser.

Media Queries

- Media query is a CSS technique introduced in CSS3.
- It uses the @media rule to include a block of CSS properties only if a certain condition is true.
- Example:

```
@media only screen and (max-width: 500px) {  
  body {  
    background-color: lightblue;  
  }  
}
```


Frameworks

- Bootstrap
- Materialize CSS
- Foundation
- Bulma CSS
- Microsoft Fluid UI
- Material Design Lite by Google
- Kendo UI
- W3.CSS
- Framework 7
- Ionic
- And more...

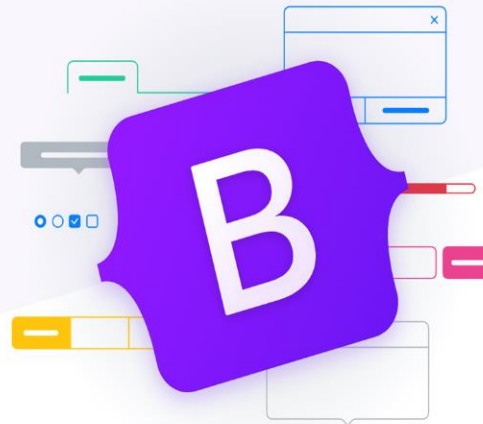
Bootstrap v4.6.x

Build fast, responsive sites with Bootstrap

Quickly design and customize responsive mobile-first sites with Bootstrap, the world's most popular front-end open source toolkit, featuring Sass variables and mixins, responsive grid system, extensive prebuilt components, and powerful JavaScript plugins.

[Get started](#)[Download](#)

Currently **v5.0.1** · [v4.6.x docs](#) · [All releases](#)



Source: <https://getbootstrap.com/>

- Bootstrap was developed by Mark Otto and Jacob Thornton at Twitter.
- It was released as an open source product in August 2011 on GitHub.
- Now, Designed and built by the Bootstrap team with the help of contributors.

Current version Bootstrap v5.0.1

Why Bootstrap?

- Modifying CSS can be tricky
- Cross browser support can be a challenge
- Designing page layout without tables
- Bootstrap makes it easier Replacement for
- HTML server controls
- Great for AJAX / SPA

Bootstrap Features

- Theme Support
- Responsive Layout
 - Containers
 - Grid System
- Components
 - TextBox
 - Buttons
 - Modal
 - Cards, etc.
- Utilities - Border, Float, Position, Text, etc.



One framework, every device.

Bootstrap easily and efficiently scales your project with one code base, from phones to tablets to desktops.

Breakpoints

Breakpoint	Range
small	320px - 479px
medium	480px - 639px
large	640px - 1023px
extra large	1024px - 1365px
extra extra large	1366px - 1919px
extra extra extra large	1920px and up

Source: <https://developer.microsoft.com/en-us/fluentui#/styles/web/layout>

Breakpoints



Size class	Breakpoints	Typical screen size (diagonal)	Devices	Window sizes
Small	640px or less	4" to 6"; 20" to 65"	Phones, TVs	320x569, 360x640, 480x854
Medium	641px to 1007px	7" to 12"	Phablets, tablets	960x540
Large	1008px or greater	13" and larger	PCs, laptops, Surface Hubs	1024x640, 1366x768, 1920x1080

Source: <https://docs.microsoft.com/en-us/windows/uwp/design/layout/screen-sizes-and-breakpoints-for-responsive-design>

RWD & Bootstrap

- Mobile first approach: Since Bootstrap, the framework consists of Mobile first styles throughout the entire library instead of in separate files.
- Browser Support: Bootstrap supports the **latest, stable releases** of all major browsers and platforms. On Windows, **Internet Explorer 10-11 / Microsoft Edge**.
- Read More at - <https://getbootstrap.com/docs/4.6/getting-started/browsers-devices/>

Media Queries

- Media Queries - "conditional CSS rule".
- It simply applies some CSS based on certain conditions set forth. Media Queries in Bootstrap allow you to move, show and hide content based on viewport size.

```
// Extra small devices (portrait phones, less than 576px)
// No media query for `xs` since this is the default in Bootstrap

// Small devices (landscape phones, 576px and up)
@media (min-width: 576px) { ... }

// Medium devices (tablets, 768px and up)
@media (min-width: 768px) { ... }

// Large devices (desktops, 992px and up)
@media (min-width: 992px) { ... }

// Extra large devices (large desktops, 1200px and up)
@media (min-width: 1200px) { ... }
```

Source: getbootstrap.com

Typography

Bootstrap uses Helvetica Neue, Helvetica, Arial, and sans-serif in its default font stack.

Using typography feature of Bootstrap you can create headings, paragraphs, lists and other inline elements.

Headings:

Heading	Example
<code><h1></h1></code>	h1. Bootstrap heading
<code><h2></h2></code>	h2. Bootstrap heading
<code><h3></h3></code>	h3. Bootstrap heading
<code><h4></h4></code>	h4. Bootstrap heading
<code><h5></h5></code>	h5. Bootstrap heading
<code><h6></h6></code>	h6. Bootstrap heading

Source: getbootstrap.com

Display headings

Display 1

Display 2

Display 3

Display 4

Blockquotes

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Integer posuere erat a ante.

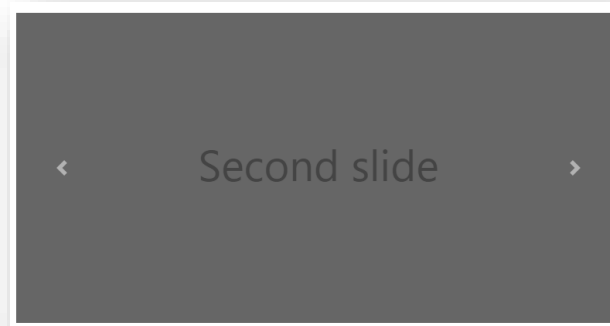
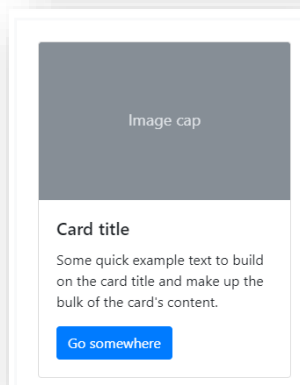
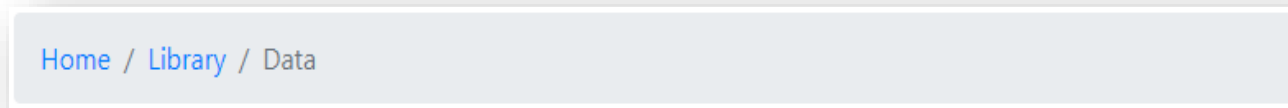
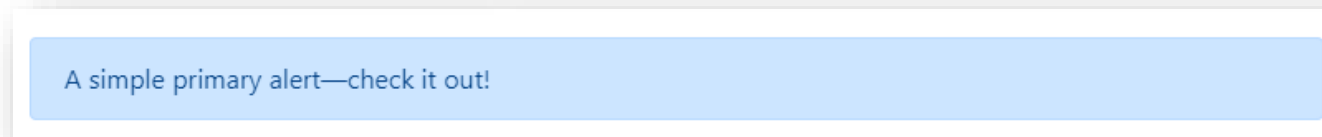
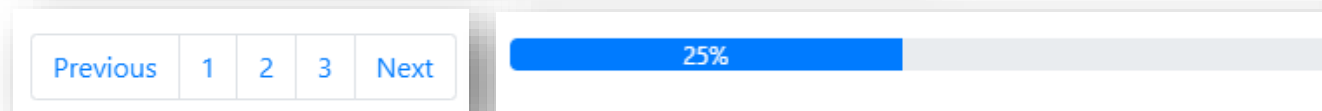
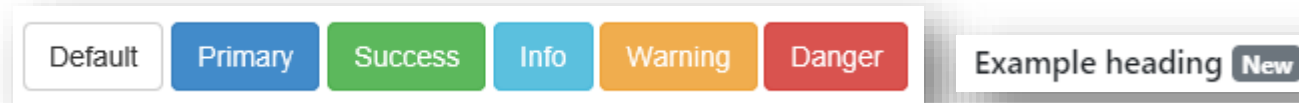
— Someone famous in *Source Title*

Tables

#	First	Last	Handle
1	Mark	Otto	@mdo
2	Jacob	Thornton	@fat
3	Larry	the Bird	@twitter

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1	Mark	Otto	@mdo
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Components

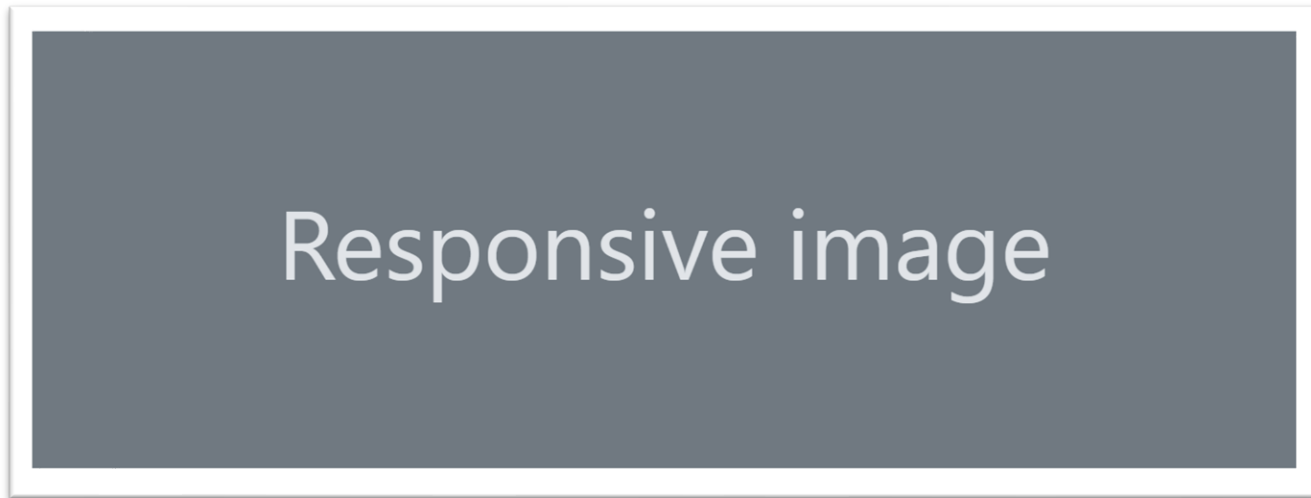


Source: getbootstrap.com

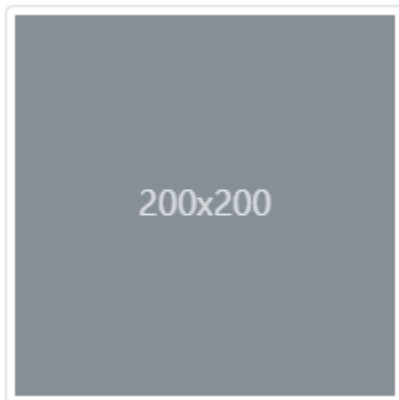
Images

```

```



Source: [getbootstrap.com](https://getbootstrap.com/docs/4.0/components/images/)



Source: [getbootstrap.com](https://getbootstrap.com/docs/4.0/components/images/)

```

```

Grid System

Bootstrap's grid system uses a series of containers, rows, and columns to layout and align content. It's built with [flexbox](#) and is fully responsive.

	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				

Source: [getbootstrap.com](https://getbootstrap.com/docs/4.0/layout/grid/)

Grid System

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

.col-md-1	.col-md-1	.col-md-1	.col-md-1	.col-md-1	.col-md-1	.col-md-1	.col-md-1	.col-md-1	.col-md-1	.col-md-1	.col-md-1
.col-md-8								.col-md-4			
.col-md-4				.col-md-4				.col-md-4			
.col-md-6						.col-md-6					

Source: getbootstrap.com

Resources

- <https://getbootstrap.com>
- <https://icons.getbootstrap.com>
- <https://startbootstrap.com>
- <https://bootsnipp.com>
- <https://www.bootstrapdash.com>
- <https://themes.getbootstrap.com>
- <https://mdbootstrap.com>
- Bootstrap Studio
- Mobirise
- Visual Studio Code

THANK YOU!

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