college CD

Layout fundamentals for websites (NMW)

Class 07

Bootstrap

Bootstrap is an open-source front-end framework developed by t Twitter. It combines of HTML, CSS, and JavaScript and it is designed to help build user interface components. So, Bootstrap consists in a free collection of tools for creating a websites and web applications containing HTML and CSS-based design templates for various interface components, as well as optional JavaScript extensions.

Advantages

- Fast and efficient (time and money saving).
- Responsive, mobile first, and tested. Everything you do and implement behave as expected.
- No need to create complicated CSS as it is only needed to write the HTML and to apply the appropriate preexisting responsive CSS classes.
- Large selection of website layouts, themes, admin panels, UI components, etc. Bootstrap offers almost all the UI components imaginable.
- Bootstrap is the only front-end framework that supports both LESS and SASS.

Inconvenients

- Bootstrap having such a large collection of built-ins makes many websites looking very familiar, and dull.
- Bootstrap has an opinion of what a website should be like, how layout should be managed and you will have to work quite a bit if you want your website to look or behave differently.
- Bootstrap is heavy. So consider your target market since it may be long for pages to load.
- Like most web tools, Bootstrap won't work if JavaScript is disabled and it doesn’t provide fallbacks. You have to provide your own CSS fallback.

Quick start

In order to get to use Bootstrap, there are two ways. The first one is to download the necessary files to add to your project's folder, or to use a CDN. On top of this, you will also need to link few other resources.

Download the files :
https://getbootstrap.com/docs/4.3/getting-started/download/

CDN link :
https://maxcdn.bootstrapcdn.com/bootstrap/4.3.1/css/bootstrap.min.css

Basic Bootstrap implementation (CDN)

So, after creating an HTML5 structure, simply paste the lines of codes necessary to use Bootstrap.

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="utf-8">
    <meta name="viewport" content="width=device-width, initial-scale=1">
    <link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootstrap/4.3.1/css/bootstrap.min.css">
    <script src="https://ajax.googleapis.com/ajax/libs/jquery/3.4.1/jquery.min.js"></script>
    <script src="https://cdnjs.cloudflare.com/ajax/libs/popper.js/1.14.7/umd/popper.min.js"></script>
    <script src="https://maxcdn.bootstrapcdn.com/bootstrap/4.3.1/js/bootstrap.min.js"></script>
</head>
<body>

</body>
</html>
```

Containers

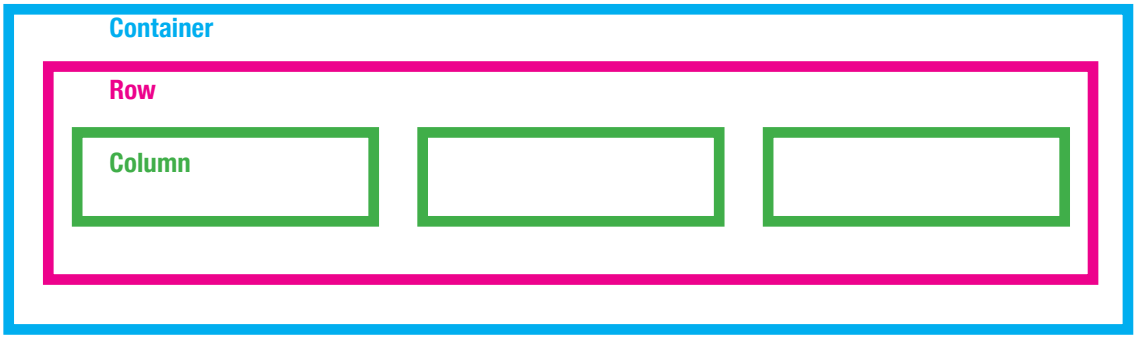
Two types of containers (both responsive) can be created with Bootstrap : fixed or fluid. To create a fixed width container, simply add ***class="container"*** to a tag such as , and for a fluid container, add ***class="container-fluid"***.

A fluid container will span over the entire available width, but the fixed container's width will vary. Using different media queries, Bootstrap adjusts the fixed container's width depending on the size of the device.

Grid system

Bootstrap includes a responsive, mobile first fluid grid system scaling up to 12 columns as the device or viewport size increases. It offers predefined classes making page layout easy. The principle is simple : The container is divided in rows which are divided in columns.

To create a row within a container, simply add ***class="row"*** to a tag. 30px gutters are automatically applied. To remove gutters from a row, simply add the class ***row-no-gutters***. Columns (or units) have a specific way to be used that will be covered right after.



Grid's specificities

	Extra small devices Phones (<768px)	**Small devices** Tablets (≥768px)	**Medium devices** Desktops (≥992px)	**Large devices** Desktops (≥1200px)
Grid behavior	Horizontal at all times	Collapsed to start, horizontal above breakpoints		
Container width	None (auto)	750px	970px	1170px
# of columns	12			
Column width	Auto	~62px	~81px	~97px
Gutter width	30px (15px on each side of a column)			
Nestable	Yes			
Offsets	Yes			
Column ordering	Yes			

Creating columns (units)

To create column, simply add ***class="col"*** to the items' tags and the grid system will manage to have each of the items using an equal number of units with a 30px gutter like in the following example.

```
<div class="container">
    <div class="row">
        <div class="col">
            <h5>Column 1</h5>
            <p>Lorem ipsum dolor sit amet, consectetur adipis...</p>
        </div>
        <div class="col" >
            <h5>Column 2</h5>
            <p>Lorem ipsum dolor sit amet, consectetur adipis...</p>
        </div>
    </div>
</div>
```

Column 1

Lorem ipsum dolor sit amet, consectetur adipisicing elit...

Column 2

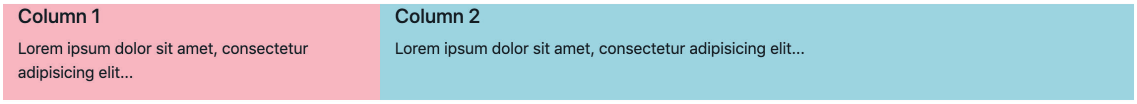
Lorem ipsum dolor sit amet, consectetur adipisicing elit...

Remember :
Bootstrap is mobile-first. So when building a page, always order elements the way you want them to appear on mobile first.

Adjusting columns' width

When ever it is needed to adjust the width of an item, it's only needed to use ***class="col-****" to the item's tag and replace the star with the number of units (columns) the element should span over, like in the following example:

```
<div class="container">
    <div class="row">
        <div class="col-4">
            <h5>Column 1</h5>
            <p>Lorem ipsum dolor sit amet, consectetur adipis...</p>
        </div>
        <div class="col-8" >
            <h5>Column 2</h5>
            <p>Lorem ipsum dolor sit amet, consectetur adipis...</p>
        </div>
    </div>
</div>
```



Responsive container measurements

For responsive behaviours, media queries are normally used for the layout of a page to adapt to the size of the screen or viewport. With Bootstrap, things are a little bit different. Predefined media queries are set using classes and viewports are identified based on their sizes:

Extra small devices/xs (Phones)	< 768px
Small devices/sm (Tablets)	≥ 768px
Medium devices/md (Desktops)	≥ 992px
Large devices/lg (Desktops)	≥ 1200px

Responsiveness

Bootstrap uses classes to produce responsive layout. Let imagine we want six items using two units each on a row for medium devices. The class for the items would then need to be ***class="col-md-2"***. For the items to use a full row on small devices, the class would need to be ***col-sm-12***.

```
<div class="col-md-2 col-sm-12">A responsive item<div>
```

Explanation:
These classes signify the items would occupy two units (columns) on medium devices (3 items per row), and twelve units (one full-width item per row) on small devices.

Column offset

It is possible to move an items to the right using the class ***col-md-offset-****, replacing the star with a number representing how many units (columns) you want the item to be moved away.

```
<div class="container">
    <div class="row">
        <div class="col-md-2">My item 1</div>
        <div class="col-md-2 offset-md-2">My item 2</div>
    </div>
</div>
```

Important:
Even though the official way to code the offset class is supposed to be ***col-md-offset-****, in many cases this manner won't work while ***offset-md-**** actually works.

Nested columns

It is possible to have columns nested into an existing column. To do so, simply add a row containing the wanted columns to the existing column.

```
<div class="container">
    <div class="row">
        <div class="col-md-4">
            <div class="row">
                <div class="col-6">a</div>
                <div class="col-6">b</div>
            </div>
        </div>
    <div class="col-md-8">My item</div>
</div>
```

Custom CSS

Of course, it is possible to change existing Bootstrap CSS. To do so, simply link your personal custom CSS after all the Bootstrap links in the <head> section of the HTML document.

Text and typography

There are many things to know when it comes to text and typography in Bootstrap. Here are the main things one should know, bur we encourage you to discover more reading the framework's documentation.

Generalities

Default font-size is set to *16px*.
Default line-height is set to *1.5rem*.
Default font-family is set to *"Helvetica Neue", Helvetica, Arial, sans-serif*.
All <p> elements are set with *margin-top: 0* and *margin-bottom: 1rem*.

Headings

Just like in straight HTML, headings are used for titles, subtitles, etc. They use a bolder font-weight and increasing font-size.

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)

Display headings

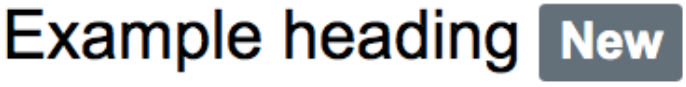
Display heading can be used when it is wanted for a heading to stand out more than usual headings (larger font-size and lighter font-weight).

```
<h1>Display Headings</h1>
<h1 class="display-1">Display 1</h1>
<h1 class="display-2">Display 2</h1>
<h1 class="display-3">Display 3</h1>
<h1 class="display-4">Display 4</h1>
```

Display Headings
Display 1

Badges

Badges are used to supply supplementary information to any content in a contrasted shaded box.




```
<h1>Example heading <span  class="badge badge-secondary">New</span></h1>
<h2>Example heading <span  class="badge badge-primary">New</span></h2>
<h3>Example heading <span  class="badge badge-success">New</span></h3>
```

Pill badge


```
<span class="badge badge-pill badge-primary">Primary</span>
<span class="badge badge-pill badge-secondary">Secondary</span>
<span class="badge badge-pill badge-success">Success</span>
<span class="badge badge-pill badge-danger">Danger</span>
<span class="badge badge-pill badge-warning">Warning</span>
<span class="badge badge-pill badge-info">Info</span>
<span class="badge badge-pill badge-light">Light</span>
<span class="badge badge-pill badge-dark">Dark</span>
```

Contextual classes

Contextual classes are those made with suffixes such as success, info, warning, danger, etc. They can be add to prefixes in classes to make element a certain color.

Text color :

.text-muted	This text is muted
.text-primary	This text is primary
.text-success	This text is success
.text-info	This text is info
.text-warning	This text is warning
.text-danger	This text is danger
.text-secondary	This text is secondary
.text-white	This text is white
.text-dark	This text is dark
.text-body	(default body color/often black)
.text-light	This text is light

Background color :

.bg-danger	.bg-primary
.bg-info	.bg-success

Text opacity

To add 50% opacity for black or white text using the *.text-black-50* or *.text-white-50* classes

Examples:

Black text with 50% opacity on white background
White text with 50% opacity on black background

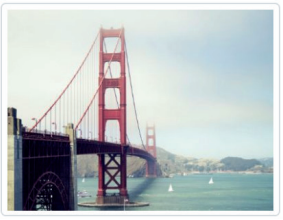
Various tags and classes

<small>	Used to create a lighter, secondary text in any heading
<mark>	Element with a pale yellow background color and some padding
<abbr>	Element with a dotted border bottom
.blockquote	Class to a <blockquote> for quoting blocks of content
.blockquote-footer	Class for the <footer> of a blockquote for author/source
.font-weight-bold	Class for bold text
.font-weight-bolder	Class for bolder text
.font-italic	Class for italic text
.font-weight-light	Class for light weight text
.font-weight-lighter	Class for lighter weight text
.font-weight-normal	Class for normal text
.lead	Class to make a paragraph stand out
.small	Class for smaller text (set to 80% of the size of the parent)
.text-left	Class for text to be left-aligned (center/right/justify)
.text-*-left	Class to align text on small, medium, large or xlarge (center/right/justify)
.text-break	Prevents long text from breaking layout
.text-decoration-none	Removes the underline from a link
.text-monospace	Class to make monospaced text
.text-nowrap	Class to apply no wrap text
.text-lowercase	Class to make lowercased text
.text-uppercase	Class to make uppercased text
.text-capitalize	Class to make capitalized text
.initialism	Class to make slightly smaller font size in a <abbr>
.list-unstyled	Removes the default list-style and left margin on list items Only applies to immediate children list items
.list-inline	Places all list items on a single line
.pre-scrollable	Makes a <pre> element scrollable

Images

Image Shapes

.rounded	Adds rounded corners to an image
.rounded-circle	Shapes the image to a circle
.img-thumbnail	Shapes the image to a thumbnail (bordered)



Example :

Aligning Images

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

Example :

Centered Image

Centers an image by adding the classes ***.mx-auto*** (margin:auto) and ***.d-block*** (display:block) to the image.

Example :

Responsive Images

For images to scale nicely to the parent element, the class **.img-fluid** can be used.

Example :

Borders

It is possible to add or remove predefined borders for a given container using the following classes:
<span ***class="border***">

<span **class="border border-0"**>
<span **class="border border-top-0"**> **** top, bottom, left, right***

Border radius