

# Bootstrap 4 intro

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## LiveCoding:

Setup Environment

<https://hackmd.io/s/HJmF9fWwQ>

SASS Variable overwriting  
Grid, Components and more

# What is 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*

**Build responsive, mobile-first projects on the web with the world's most popular front-end component library.**

*Bootstrap gives you the ability to easily create responsive designs*

Bootstrap is an open source toolkit for developing with HTML, CSS, and JS. Quickly prototype your ideas or build your entire app with our Sass variables and mixins, responsive grid system, extensive prebuilt components, and powerful plugins built on jQuery.

# Yes, you can do by yourself but...

It's the most popular frontend framework nowadays used by many websites and it was created at Twitter.

*“So why is it important for me as a web developer, I can simply use the HTML, CSS skills that I have already learned, right?”*

Sure! But then with every project that you start you would have to solve the same problems again and again and again.

One main thing about web design is the concept of **familiarity**. You expect things to look a specific way and behave in a specific way. Because of this concept you will see a lot of repetition in most websites.

# Bootstrap benefits

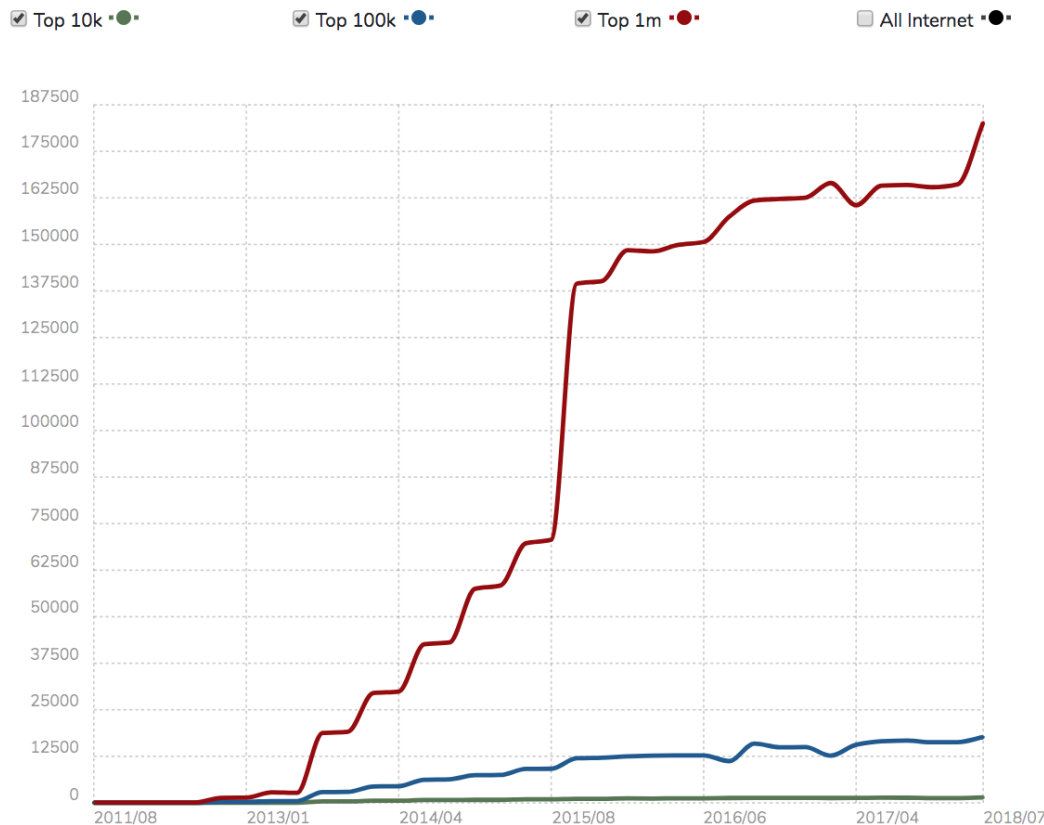
By using a framework like Bootstrap, you can avoid a lot of the repetitive stuff and get a head start with the frontend of your project. These are the main benefits of a framework

- Ease of use
- Responsive features & Mobile first approach
- Most common components are tested and ready to use
- It's configurable
- It saves a lot of time
- Documentation & community

**Downside:** many websites have a specific Bootstrap look that you can easily recognize This is bad if you want to create something unique looking. See <https://builtwithbootstrap.com>

# Stats

## Twitter Bootstrap Usage Statistics



Bootstrap was developed by Mark Otto and Jacob Thornton at **Twitter**, and released as an open source product in August 2011 on GitHub.

In June 2014 Bootstrap was the **No.1** project on GitHub!

# Setup: many ways, same result

**There are different ways to start using Bootstrap on your own web project. We'll consider these three options:**

- Include Bootstrap files from a CDN
- Download Bootstrap from [getbootstrap.com](https://getbootstrap.com) as compiled CSS and JS or as source files
- Install it in your project with NPM or another package manager

We'll check first the CDN way but what we actually won't do is to download the source files and utilize the Sass files to take advantage of variables, maps, mixins, etc.

# External files hosted on a CDN

The easiest and fastest way is to actually just copy and paste a link to the CSS/JS files of Bootstrap into the code of your project (i.e. HTML files) and you are ready to go.

## CSS

Copy-paste the stylesheet `<link>` into your `<head>` before all other stylesheets to load our CSS.

```
<link rel="stylesheet" href="https://stackpath.bootstrapcdn.com/bootstrap/4.1.3/css/
```

**Source:** <https://getbootstrap.com/docs/4.1/getting-started/introduction/>



# Why the CDN can be your choice

## **One advantage of using the Bootstrap 4 CDN:**

Many users already have downloaded Bootstrap 4 from MaxCDN when visiting another site.

As a result, it will be loaded from cache when they visit your site, which leads to faster loading time. Also, most CDN's will make sure that once a user requests a file from it, it will be served from the server closest to them, which also leads to faster loading time.

# What about JS?

Bootstrap components require the use of JavaScript to function. Specifically, they require **jQuery**, **Popper.js**, and **Bootstrap JavaScript** plugins.

*Those files can be included from the CDN in `<script>` tags near the end of your pages, right before the closing `</body>` tag.*

Bootstrap uses **jQuery** for JavaScript plugins (like carousel, modals, tooltips, etc). However, if you just use the CSS part of Bootstrap, you don't need jQuery.

**jQuery** must come first, then **Popper.js**, and then the JavaScript plugins.

# Starter template

## We create the Starter template using CDN first

<https://getbootstrap.com/docs/4.1/getting-started/introduction/#starter-template>

### NOTE:

- **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">
  <head>
    <meta charset="utf-8">
  </head>
</html>
```

- **Responsive meta tag**, Bootstrap 3 is designed to be responsive to mobile devices. Mobile-first styles are part of the core framework.

```
<meta name="viewport" content="width=device-width, initial-scale=1">
```

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** part sets the initial zoom level when the page is first loaded by the browser.

# Theming Bootstrap

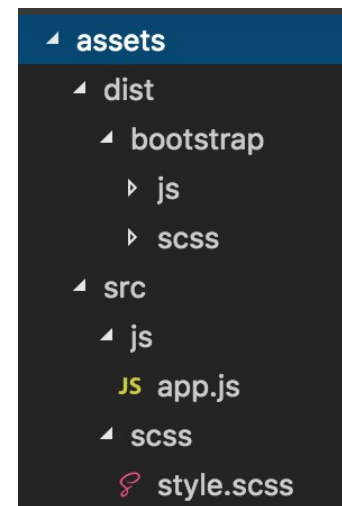
For [getbootstrap.com](https://getbootstrap.com) we can download the compiled CSS and JavaScript, source code, or include it with your favorite package managers like npm, RubyGems, and more.

**We want to be able to customize Bootstrap 4 with the built-in Sass variables, therefore we'll compile Bootstrap by downloading the source code and moving the Sass & JavaScript files we need inside our web project**

<https://getbootstrap.com/docs/4.1/getting-started/download/>

**Requirments:**

- **Download** Bootstrap source file
- We are using VS Code with a live **SASS compiler**
- We **created** our own stylesheet and **import** Bootstrap
- We will **modify/extend** Sass variables for easy theming



**Our file structure looks like this** (picture on the right):

**More about Theming:** <https://getbootstrap.com/docs/4.1/getting-started/theming/>

# SCSS

Utilize our source Sass files to take advantage of variables, maps, mixins, and more.

```
$body-bg: $red;  
$body-color: $white;  
$enable-rounded: true (default) or false;  
$enable-gradients: true or false (default);
```

**this is but a tiny snippet of `_variables.scss`**

```
$primary: $blue !default;  
$secondary: $gray-600 !default;  
$success: $green !default;  
$info: $cyan !default;  
$warning: $yellow !default;  
$danger: $red !default;  
$light: $gray-100 !default;  
$dark: $gray-800 !default;
```



# Grid System

Most websites are designed with an underlaying grid, so that all elements are nicely aligned.

This historically started way back in fifteenth century when Johannes Gutenberg invented book printing in germany.

And it has evolved over all the years and is now beeing used in websites. Webpages are also called webpages because they resemble the pages of a book.

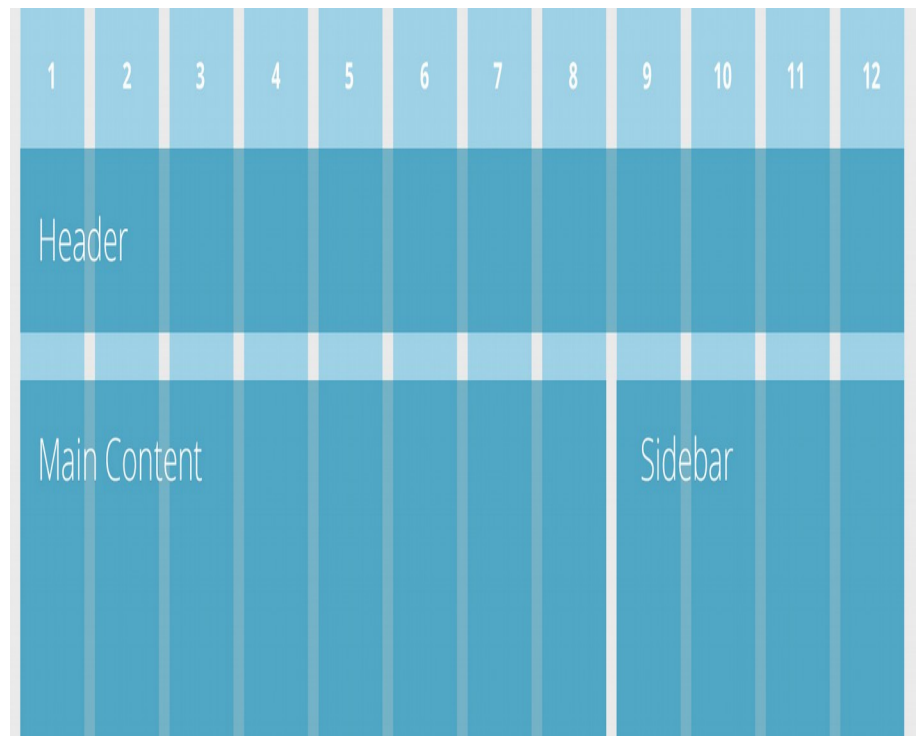
<div><div>The Grid System</div><div>The ultimate resource in grid systems.</div><div><i>"The grid system is an aid, not a guarantee. It permits a number of possible uses and each designer can look for a solution appropriate to his personal style. But one must learn how to use the grid; it is an art that requires practice."</i></div><div>Josef Müller-Brockmann</div></div>			
Articles	Tools	Books	Templates
<b>Musings on the Relationship Between Grids and Guides</b> An article that takes a look at the relationship between the grid and the use of guides. 06.Feb.2011	<b>GuideGuide</b> A columns, rows and mid-points panel for Photoshop CS4 & CS5. 06.Feb.2011	<b>Ordering Disorder: Grid Principles for Web Design</b> Ordering Disorder is a book by Khoi Vinh that delivers a definitive take on grids and the Web and provides both the big ideas and techniques of grid-based design. 11.Nov.2010	<b>960px Grid Templates</b> A selection of 960 pixel wide uniform grid templates ranging from 3-columns to 16-column for both Adobe Photos and Fireworks. 11.Nov.2010

# Grid System on the Web

Because of the heavy use of mobile devices, many grid systems use a flexible or adaptive approach to grids.

A very common thing, is the use of a grid with **12 columns**, like the default of Bootstrap.

*Why 12 columns?* Simply because you can easily divide it by the number 2, 3, 4 and 6. Bootstraps grid is also fully responsive and heavily tested so you don't have to worry about it and don't need to do any of the complicated stuff.



# Bootstrap 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.

**A grid systems consist of a container, a row and columns.**

The classes name are (guess what!): container, row and col.

- Inside the **container** you will basically put all your horizontal rows. You can have as many containers on your website as you want, but you shouldn't put a container inside another container.
- **Rows** are usually the direct children of your container and represent a horizontal section in your layout. The row can hold as many columns as you want. You should avoid putting rows inside of other rows.
- **Columns** also are the main ingredient for the responsive behavior of the grid. In a grid layout, content must be placed within columns and only columns may be immediate children of rows.

Bootstrap Grid Documentation

<https://getbootstrap.com/docs/4.1/layout/grid/>

Flexbox

[https://developer.mozilla.org/en-US/docs/Web/CSS/CSS\\_Flexible\\_Box\\_Layout/Basic\\_Concepts\\_of\\_Flexbox](https://developer.mozilla.org/en-US/docs/Web/CSS/CSS_Flexible_Box_Layout/Basic_Concepts_of_Flexbox)



# Grid classes

**The Bootstrap 4 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)

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

**Tip:** Each class scales up, so if you wish to set the same widths for sm and md, you only need to specify sm.

# Grid Rules

## Some Bootstrap 4 grid system rules:

- Rows must be placed within a **.container** (fixed-width) or **.container-fluid** (full-width) for proper alignment and padding
- Use **.row** to create horizontal groups of columns
- Content should be placed within columns, and only columns may be immediate children of rows
- Predefined classes like **.row** and **.col-sm-4** are available for quickly making grid layouts
- Columns create gutters (gaps between column content) via padding. That padding is offset in rows for the first and last column via negative margin on **.rows**
- Grid columns are created by specifying the number of 12 available columns you wish to span. For example, three equal columns would use three **.col-sm-4**
- Column widths are in percentage, so they are always fluid and sized relative to their parent element

# Grid Examples: live coding!

- **Container vs Container Fluid**
- **Auto Layout**
- **Stacked to Horizontal**
- **Small, Medium, Large, XLarge devices**
- **Nested Columns**
- **Mix and Match**

# Components

Now let's explore some useful components that Bootstrap 4 provides, beyond the grid.

- **Navigation Bars**, a navigation header that is placed at the top of the page;
- **Jumbotron**, indicates a big grey box for calling extra attention to some special content or information;
- **Carousel**, an image slideshow for cycling through elements;
- **Modal**, a dialog box/popup window that is displayed on top of the current page;
- **Buttons, Progressbar, Alerts, etc**

# Reference

[\*\*https://getbootstrap.com/docs\*\*](https://getbootstrap.com/docs)

[\*\*https://www.w3schools.com/bootstrap4\*\*](https://www.w3schools.com/bootstrap4)

[\*\*https://devdocs.io/bootstrap~4\*\*](https://devdocs.io/bootstrap~4)

[\*\*https://hackerthemes.com/bootstrap-cheatsheet\*\*](https://hackerthemes.com/bootstrap-cheatsheet)