



MERN – ES6 + React

Module 05: Bootstrap Basics

Outline

Module 05

- ▶ Bootstrap Basics
- ▶ Framework concepts
- ▶ Understanding Inversion of Control
- ▶ Default Behavior of the Framework
- ▶ Extensibility nature of Framework
- ▶ Non-modifiable Framework Code

Outline

Responsive Design

▶ Basic concepts of responsive design

- Introduction to responsive design
- Viewport
- Fluid measurement
- Flexbox

▶ Bootstrap 5

- Grid System
- Typography
- Table
- Forms
- Buttons
- Navigation
- Layout

▶ RWD templates

▶ Practice

Responsive Web Design

Basic concepts

What is Responsive Web Design?

Responsive design

- ▶ Responsive web design makes your web page look good on **all devices**.
- ▶ Responsive web design uses **only HTML** and **CSS**.
- ▶ Responsive web design is not a program or a JavaScript.



Desktop



Tablet



Phone

What is The Viewport?

Responsive design

- ▶ 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.
- ▶ Setting The Viewport:

```
<meta name="viewport" content="width=device-width, initial-scale=1.0">
```

- 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.

What is The Viewport?

Responsive design



Without the viewport meta tag



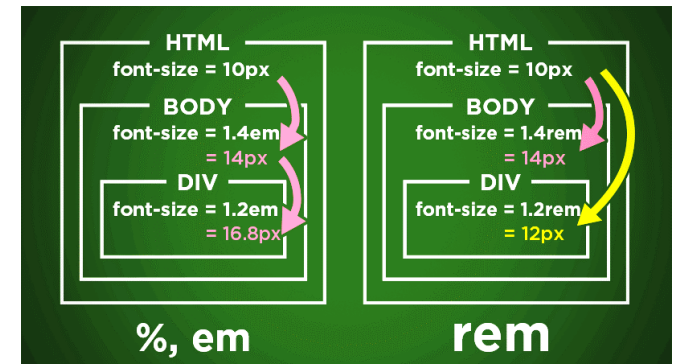
With the viewport meta tag

Fluid measurements

Responsive design

- ▶ %
 - percentage values are always relative to another value, for example a length
- ▶ em
 - font size of the element
- ▶ Rem
 - font size of the root element
- ▶ vw
 - viewport's width, 1/100th of the width of the viewport.
- ▶ vh
 - viewport's height, 1/100th of the height of the viewport.

- **1em = 12pt = 16px = 100%**
- **1in = 2.54cm = 25.4mm = 72pt = 12pc**



Flexbox

- *Flex Container*
- *Flex Items*
- *Flex Layout*

Flexbox

Flex Container + Flex Items



- ▶ The flex container becomes flexible by setting the **display** property to **flex**:

Flex container properties

- **flex-direction**
- **flex-wrap**
- flex-flow
- justify-content
- align-items
- align-content

Flex Item properties

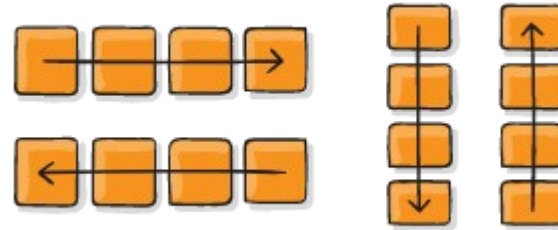
- **order**
- **flex-grow**
- flex-shrink
- flex-basis
- **flex**
- align-self

Flexbox

Flex container properties

Flex container properties

- [flex-direction](#)
- flex-wrap
- flex-flow
- justify-content
- align-items
- align-content



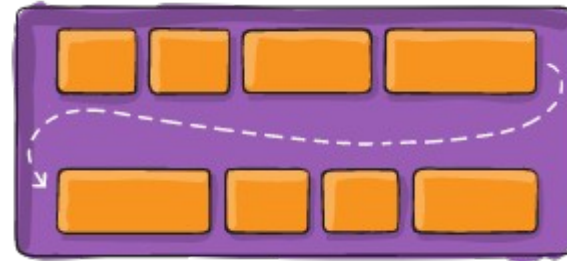
```
.container {  
  flex-direction: row | row-reverse | column | column-reverse;  
}
```

Flexbox

Flex container properties

Flex container properties

- flex-direction
- [flex-wrap](#)
- flex-flow
- justify-content
- align-items
- align-content



```
.container {  
  flex-wrap: nowrap | wrap | wrap-reverse;  
}
```

Flexbox

Flex container properties

- flex-direction
- flex-wrap
- flex-flow
- justify-content
- align-items
- align-content

```
.container {
```

```
  justify-content: flex-start | flex-end | center | space-between | space-around |  
  space-evenly | start | end | left | right;
```

```
}
```

flex-start



flex-end



center



space-between



space-around



space-evenly

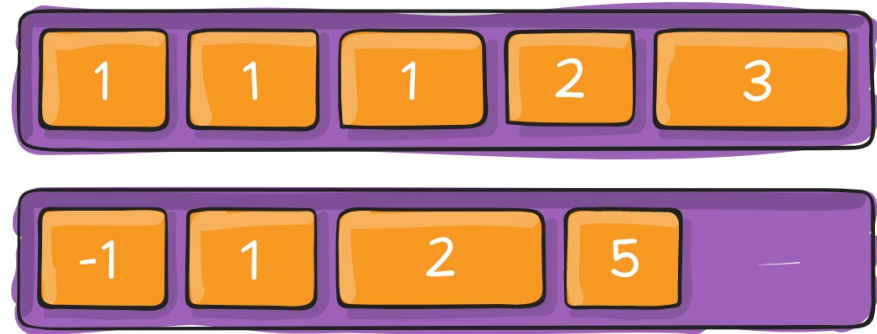


Flexbox

Flex container properties

Flex Item properties

- order
- flex-grow
- flex-shrink
- flex-basis
- flex
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Flexbox

Flex container properties

Flex Item properties

- order
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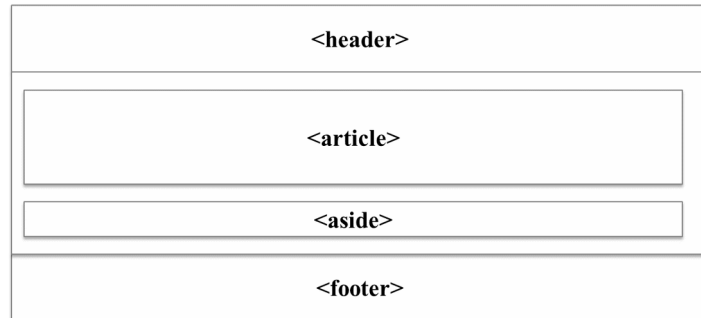
Wireframes

Wireframes provide a visual representation of your layout.

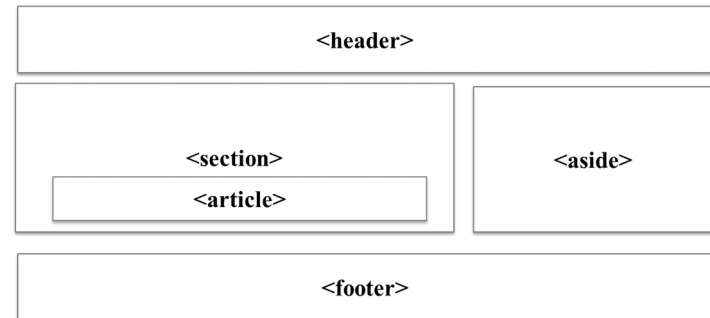
► What goes where?

- What content (including graphical) do you NEED to have on the page?
- What is the best layout for this material?

Mobile view



Larger View





Bootstrap 5

Most popular front-end framework

Frameworks

What is a framework?

- ▶ The term “web framework” can mean many things, it depends upon who you ask.
- ▶ Agreement, a framework should make your job easier by providing **code** and **structure**.

- ▶ Front-end developers
 - HTML,CSS, JavaScript
- ▶ Back-end developers
 - Routing, resources, security
- ▶ Popular front-end frameworks
 - Bootstrap (2011)
 - Foundation by ZURB (2011)
 - Semantic UI (2013)
 - Pure by Yahoo! (2013)
 - Ulkit by YOOtheme(2013)

Bootstrap 5

Responsive web design

- ▶ Bootstrap 5 is the newest version of Bootstrap, which is the **most popular** HTML, CSS, and JavaScript (front-end) **framework** for creating **responsive, mobile-first** websites.
- ▶ Bootstrap includes HTML and CSS based **design templates (components)** 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**
- ▶ The **main differences** between Bootstrap 5 and Bootstrap 3 & 4, is that Bootstrap 5 has switched to JavaScript instead of jQuery.
- ▶ Bootstrap 5 is completely **free** to download and use!



Where to Get Bootstrap 5?

Responsive web design

- ▶ There are **two** ways to start using Bootstrap 5 on your own web site.
 1. Include Bootstrap 5 from a **CDN** (jsDelivr - Content Delivery Network)
 2. Download Bootstrap 5 from getbootstrap.com

```
<!-- Latest compiled and minified CSS -->
<link href="https://cdn.jsdelivr.net/npm/bootstrap@5.1.3/dist/
css/bootstrap.min.css" rel="stylesheet">

<!-- Latest compiled JavaScript -->
<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.1.3/dist/
js/bootstrap.bundle.min.js"></script>
```

Create Your First Web Page With Bootstrap 5

Responsive web design

- ▶ 1. Add the HTML5 doctype
- ▶ 2. Bootstrap 5 is mobile-first
- ▶ 3. Containers

```
<!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@5.1.3/
dist/css/bootstrap.min.css" rel="stylesheet">
  <script src="https://cdn.jsdelivr.net/npm/
bootstrap@5.1.3/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>
</div>

</body>
</html>
```

Bootstrap 5 Containers

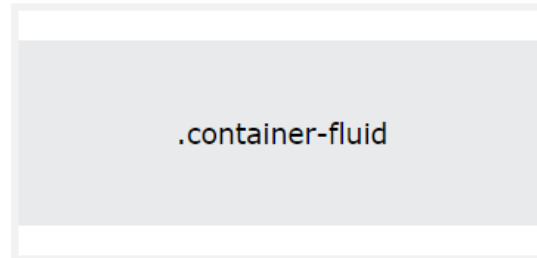
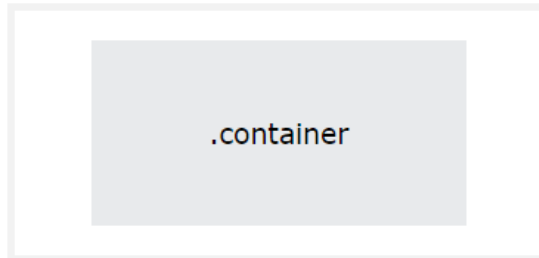
Responsive web design

- ▶ 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**

	Extra small <576px	Small ≥576px	Medium ≥768px	Large ≥992px	Extra Large ≥1200px	XXL ≥1400px
max-width	100%	540px	720px	960px	1140px	1320px

2. The `.cc` of the viewport

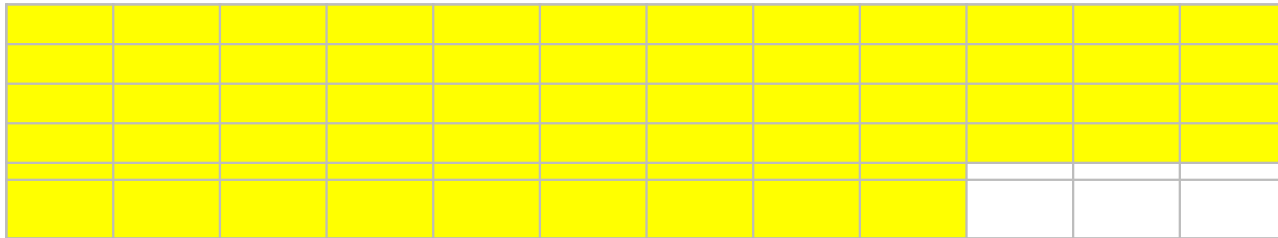


Bootstrap 5 Grid System

Responsive web design



- ▶ 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**:



~~8 columns = 200%~~

Grid classes

Bootstrap 5 Grid System

- `.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)

```
<div class= "container">  
  <div class= "row">  
    <div class= "col-xx-yy">
```

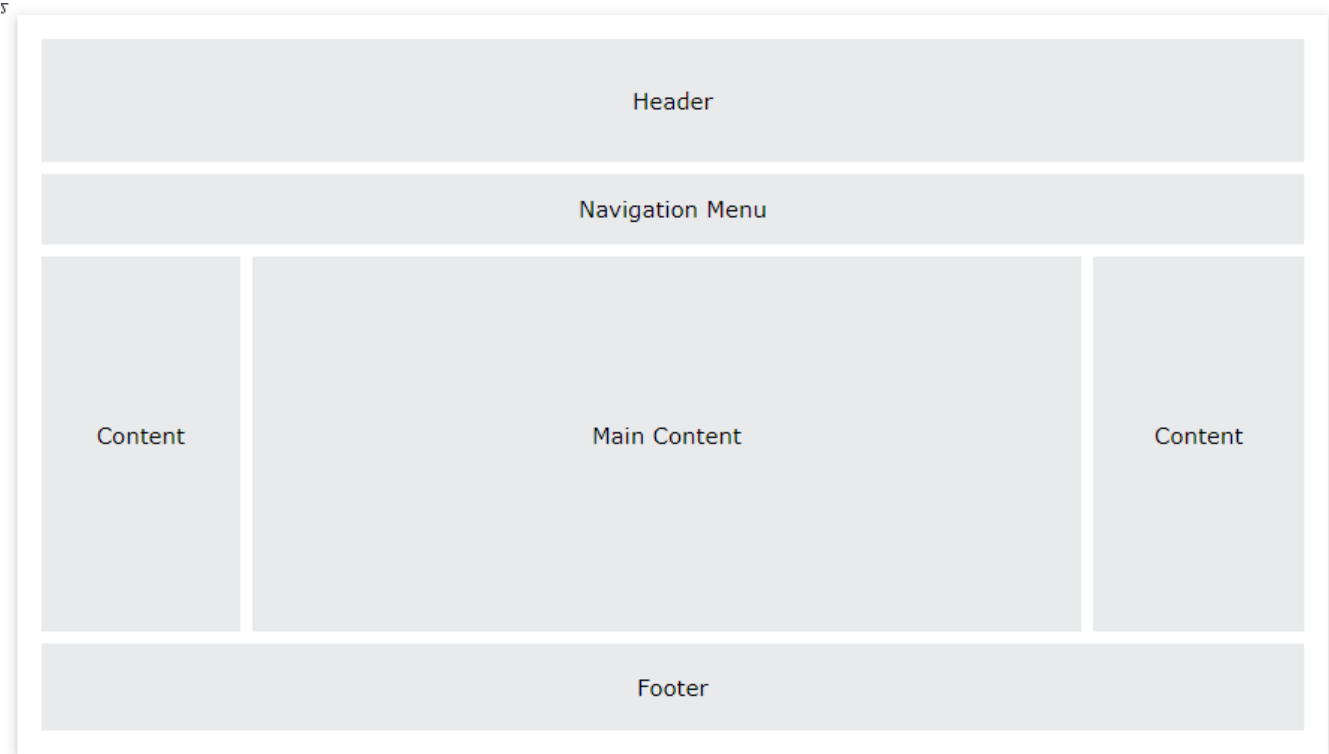
The “xx” component is the viewport size: xs, sm, md, lg

The “yy” component is the number of columns: 0..12

```
<img src = "pic.jpg" class="col-xs-12 col-sm-6 col-md-3 col-lg-2">
```


Bootstrap 5 Grid System

Layout design Challenge



Summary

Module 05

- ▶ Bootstrap Basics
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- ▶ Extensibility nature of Framework
- ▶ Non-modifiable Framework Code