The Bootstrap framework

Bootstrap

- Open Source CSS (and JavaScript) framework

- Allows applying "modern" styles

  - Sensible and nice-looking defaults
  - Easy to apply custom themes

- Takes care of cross-browser issues

- Simplified layout model

- Developed by Twitter

  - http://getbootstrap.com/
  - https://getbootstrap.com/docs/4.4/

Bootstrap philosophy

- Based on CCS classes

- Each class applies one "effect"

- Various classes may be combined in the same element

- Wide range of "standard" classes

- Wide range of additional "components"

  - Ready-to use interactive elements or groups of elements

- Mobile-first

  - Responsive

Using Bootstrap

- Use Bootstrap CDN

  - Bootstrap CSS – in <head>

  - Javascript support – end of <body>
    - Used by Bootstrap (bootstrap.min.js)
    - Used by some components (jQuery and Popper.js)

- Or download locally

  - https://github.com/twbs/bootstrap/releases/download/v4.4.1/bootstrap-4.4.1-dist.zip
  - npm install bootstrap

Bootstrap CDN

```
<link rel="stylesheet" href="https://stackpath.bootstrapcdn.com/bootstrap/
4.4.1/css/bootstrap.min.css" integrity="sha384-Vkoo8x4CGsO3+Hhxv8T/
Q5PaXtkKtu6ug5TOeNV6gBiFeWPGFN9MuhOf23Q9Ifjh" crossorigin="anonymous">

<script src="https://code.jquery.com/jquery-3.4.1.slim.min.js"
integrity="sha384-
J6qa4849blE2+poT4WnyKhv5vZF5SrPo0iEjwBvKU7imGFAV0wwj1yYfoRSJoZ+n"
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/4.4.1/js/
bootstrap.min.js" integrity="sha384-
wfSDF2E50Y2D1uUdj0O3uMBJnjuUD4Ih7YwaYd1iqfktj0Uod8GCExl3Og8ifwB6"
crossorigin="anonymous"></script>
```

Page structure

- Start with **Basic template**

  - https://getbootstrap.com/docs/4.4/getting-started/introduction/#starter-template
  - Notice the "responsive viewport"

    ```
    <meta name="viewport" content="width=device-width,
    initial-scale=1, shrink-to-fit=no">
    ```

- Or, choose from published **Examples**

  - https://getbootstrap.com/docs/4.4/examples/

- Remember to include your page content in a

  - ```
    <div class="container">
    ```

Starter Template

```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/4.4.1/css/bootstrap.min.css" integrity="sha384-Vkoo8x4CGsO3+Hhxv81/

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

    <!-- Optional JavaScript -->
    <!-- jQuery first, then Popper.js, then Bootstrap JS -->
    <script src="https://code.jquery.com/jquery-3.4.1.slim.min.js" integrity="sha384-J6qa4849blE2ipoT4HhyKhv5vZF5SrPo8iFjwRvKU7imGFAV0wwj1yYfoRSJ
    <script src="https://cdn.jsdelivr.net/npm/popper.js@1.16.0/dist/umd/popper.min.js" integrity="sha384-Q6E9RHvbIyZFJoft+2mJbHaEWldlvI9IOYy5n3zv
    <script src="https://stackpath.bootstrapcdn.com/bootstrap/4.4.1/js/bootstrap.min.js" integrity="sha384-wfSDF2E53Y2D1uLdj0O3uMBJnjuUD4Ih7YwaYd
  </body>
</html>
```

Adding your style

- Write your additional CSS rules in a file, and load it in the head section, after the bootstrap CSS

```
<head>
  ...
<link rel="stylesheet" href="... > // bootstrap css

<!-- Custom CSS for this document -->
<link rel="stylesheet" href="mystyle.css">
  ...
</head>
```

Containers (mandatory top-level element)

- All-in-one: responsive, fixed-width container: its max-width changes at each breakpoint

```html
<div class="container">
  <!-- Content here -->
</div>
```

- Fluid: full width container, spanning the entire width of the viewport

```html
<div class="container-fluid">
  ...
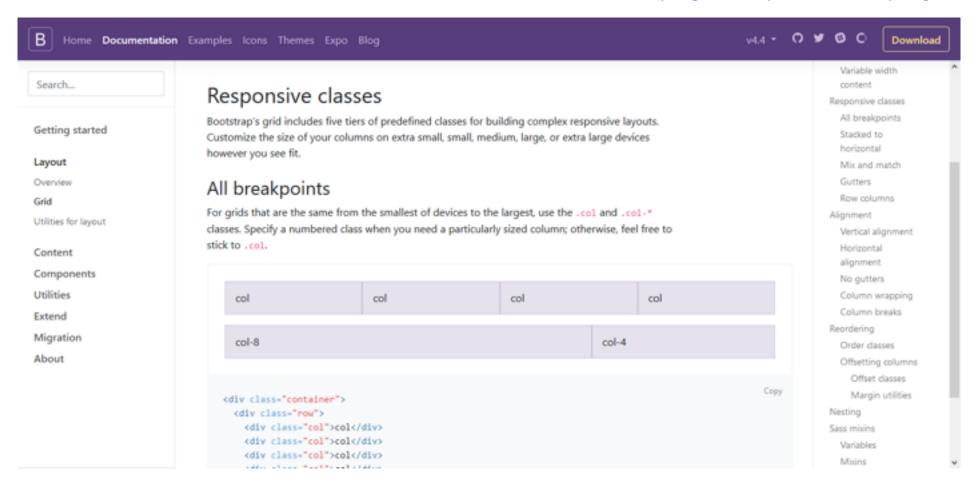</div>
```

Grid system

- Based on flexbox

- Uses a 12-column virtual grid

- The container is divided in .row blocks

- Each Row contains columns .col

  - By default, all columns have equal width
  - May specify spanning over more columns (.col-4)
  - May specify a breakpoint for that column to be visualized (.col-sm or .col-sm-4)

- 5 Breakpoints

Breakpoints

	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				

Example layouts

Page content

- Reboot – normalize and replace browser defaults

- Typography – heading and text styles

- Images and Figures – alignment and responsiveness

- Tables – rich visual styles, and responsive tables

- See: https://getbootstrap.com/docs/4.4/content/reboot/

Components

- Ready-to-use classes for creating common UI elements

- See: https://getbootstrap.com/docs/4.4/components/