

Module 3: Bootstrap

Bootstrap

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OBJECTIVES

1

To equip students with the basic understanding of Bootstrap framework and its features

2

Students will learn to design the page layout using Bootstrap's grid system

3

To design responsive web pages by including different UI Components using Bootstrap framework

Bootstrap

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OUTCOMES

- At the end of this module, students are expected to learn



Design a responsive layout for a webpage using container, row & column classes of Bootstrap



Develop webpages that can be viewed on various devices using grid system of Bootstrap



Build applications which facilitates slideshow component for cycling through elements – like a carousel

Bootstrap

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- Document/Video Links



<u>Topics</u>	<u>URL</u>
Learning Bootstrap 4 in 30 minutes	https://medium.freecodecamp.org/learn-bootstrap-4-in-30-minute-by-building-a-landing-page-website-guide-for-beginners-f64e03833f33
Bootstrap official documentation	https://getbootstrap.com/docs/4.3/getting-started/introduction/
Learning Bootstrap	https://pepa.holla.cz/wp-content/uploads/2015/10/Learning-Bootstrap.pdf
Bootstrap Tutorials	https://www.youtube.com/watch?v=gqOEoUR5RHg
	https://www.youtube.com/watch?v=aTLRdrRQyN4&v1=en
	https://www.youtube.com/watch?v=hnCmSXCZEPU

- Introduction
- Page Layout
- UI Components
- Responsive Web Design



Introduction

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- Need of Bootstrap
 - In spite of various advantages of CSS, it has certain disadvantages as well
 - Level of compatibility
 - Certain CSS features may not be supported by some browsers (appearance can be non uniform at different platforms)
 - Difficult to manage & maintain large applications as per the varying browser compatibility
 - Website responsiveness

Introduction

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- What's Browser Compatibility?
- E.g. consider the following code

```
<style>
  p{
    background-color: yellow;
    all: inherit;
    color: red;
  }
</style>
</head>
<body>
  <p>Hello</p>
  <p>Hello</p>
  <p>Hello</p>
  <p>Hello</p>
  <p>Hello</p>
</body>
```

On google chrome

On IE

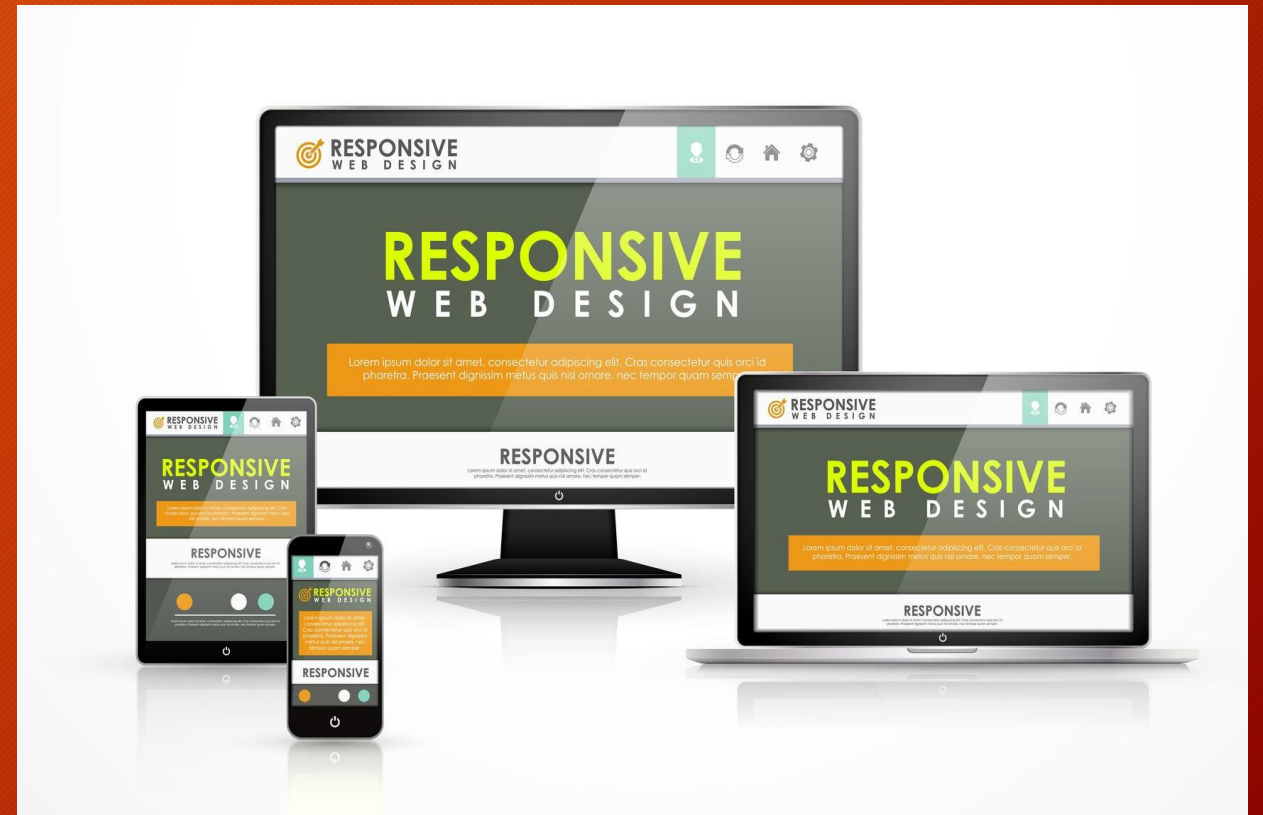
Hello
Hello
Hello
Hello
Hello

Hello
Hello
Hello
Hello
Hello

Introduction

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- Responsiveness
 - A responsive web design is all about providing an optimal viewing experience across variety of devices
 - A web page should maintain its appeal, when it is viewed in a mobile/tablet or a desktop



Introduction

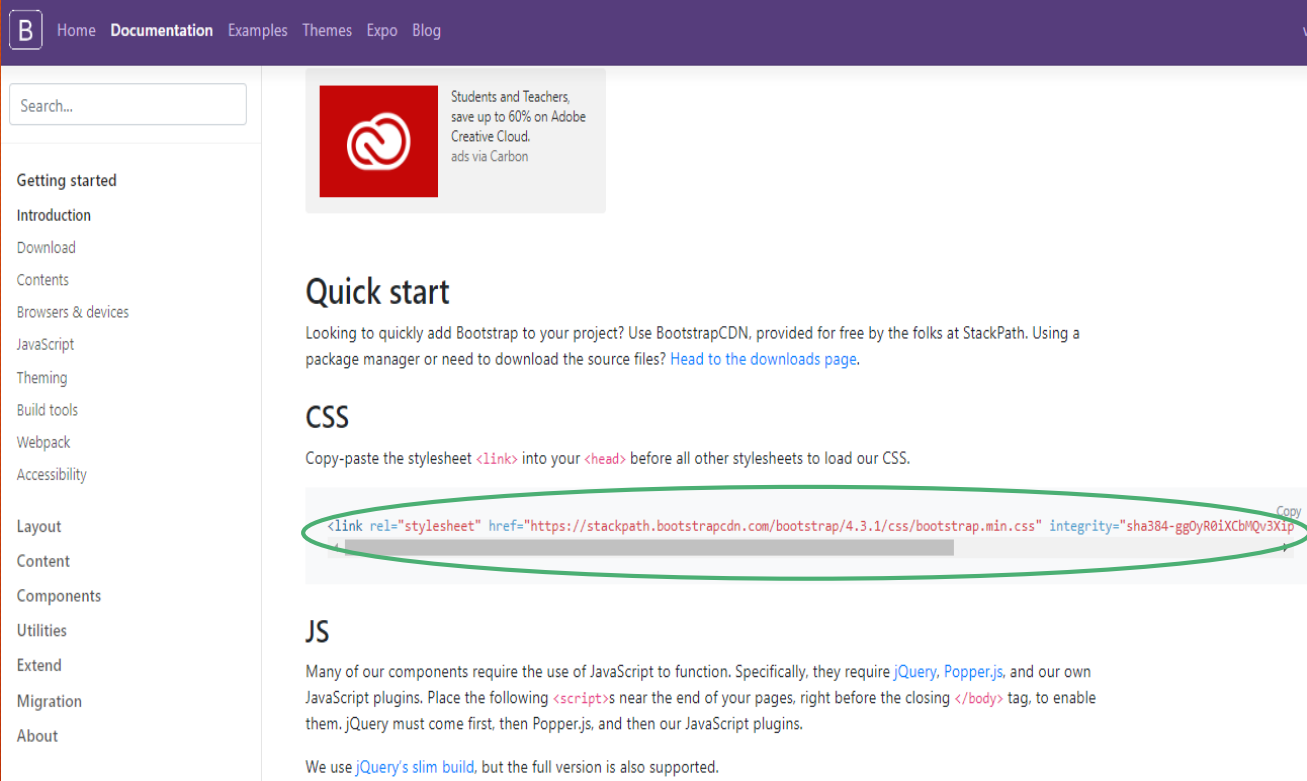
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- Bootstrap
 - was built at Twitter Inc. by Mark Otto and Jacob Thornton as a framework for internal tools
 - is a complete CSS framework offering *Grid system and configurations, Typography classes, UI components like forms, tables* and much more
 - is a widely used framework in the development of responsive websites
 - has a very good documentation which can be found [here](#)

Introduction

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- Getting Started!
 - Before going ahead, copy the “*bootstrap.min.css*” file from the website [GetBootStrap.com](https://getbootstrap.com) into your html
 - Click on “*Get Started*” & copy the link given under CSS section
 - Paste it under the `<head>` section of your html file



The screenshot shows the Bootstrap documentation website. The navigation bar at the top includes links for Home, Documentation, Examples, Themes, Expo, and Blog. A search bar is located on the left. The left sidebar contains a list of topics: Getting started, Introduction, Download, Contents, Browsers & devices, JavaScript, Theming, Build tools, Webpack, Accessibility, Layout, Content, Components, Utilities, Extend, Migration, and About. The main content area is titled 'Quick start' and provides instructions on how to add Bootstrap to a project. Under the 'CSS' section, a code snippet for the `<link>` tag is shown, which is circled in green. The code is: `<link rel="stylesheet" href="https://stackpath.bootstrapcdn.com/bootstrap/4.3.1/css/bootstrap.min.css" integrity="sha384-ggOyR0iXCbMQv3XIp" data-bbox="571 728 964 758`. A 'Copy' button is visible to the right of the code. Below the CSS section, the 'JS' section is partially visible, mentioning the use of jQuery and its slim build.

Introduction

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- Sample Example

```
<!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/4.3.1/css/bootstrap.min.css" integrity="sha384-ggOy"

  <title>Hello, world!</title>
</head>
<body>
  <div class="container">
    <h1 class="text-center">Hello, World !</h1>
    <p>Lorem ipsum dolor sit amet consectetur adipisicing elit. Deleniti aliquam est sunt voluptatibus? Assumenda maiores eos

    <button class="btn btn-primary">Click Me</button>
    <button class="btn btn-secondary">Click Me</button>
    <button class="btn btn-warning">Click Me</button>
    <button class="btn btn-success">Click Me</button>
    <button class="btn btn-info">Click Me</button>
    <button class="btn btn-danger">Click Me</button>
    <hr>
    
  </div>
</body>
</html>
```



Introduction

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Hello, World !

Lorem ipsum dolor sit amet consectetur adipisicing elit. Deleniti aliquam est sunt voluptatibus? Assumenda maiores eos laudantium deserunt eveniet dicta perspiciatis quidem doloremque, in similique laborum excepturi vel error placeat.

[Click Me](#)[Click Me](#)[Click Me](#)[Click Me](#)[Click Me](#)[Click Me](#)

- Container Classes

- To properly place the content in a webpage, Bootstrap needs a containing element to wrap the page contents
- Bootstrap provides two types of container classes

.container : fixed width responsive container (as in CSS3)

.container-fluid : full width responsive container, utilizing the entire width of the browser/viewport

Page Layout

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- Containers

- E.g.

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <meta http-equiv="X-UA-Compatible" content="ie=edge">
  <title>Document</title>
  <link rel="stylesheet" href="https://stackpath.bootstrapcdn.com/bootstrap/4.3.1/css/bootstrap.min.css">
  <style>
    body{
      font-size: large;
      font-weight: bolder;
    }
    .container{
      background-color: pink;
    }
    .container-fluid{
      color: white;
      background-color: blue;
    }
  </style>
</head>
<body>
  <div class="container">
    I am a div with class .container
  </div>
  <div class="container-fluid">
    I am a div with class .container-fluid
  </div>
</body>
</html>
```

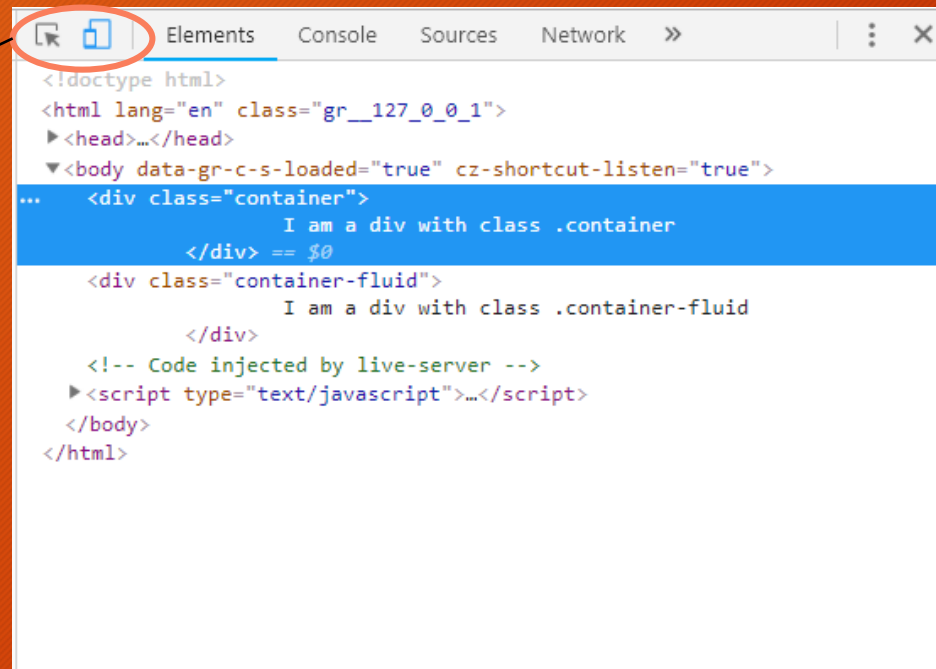


Page Layout

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- Containers
 - Run the above code on Live Server & right click & select “*inspect element*”

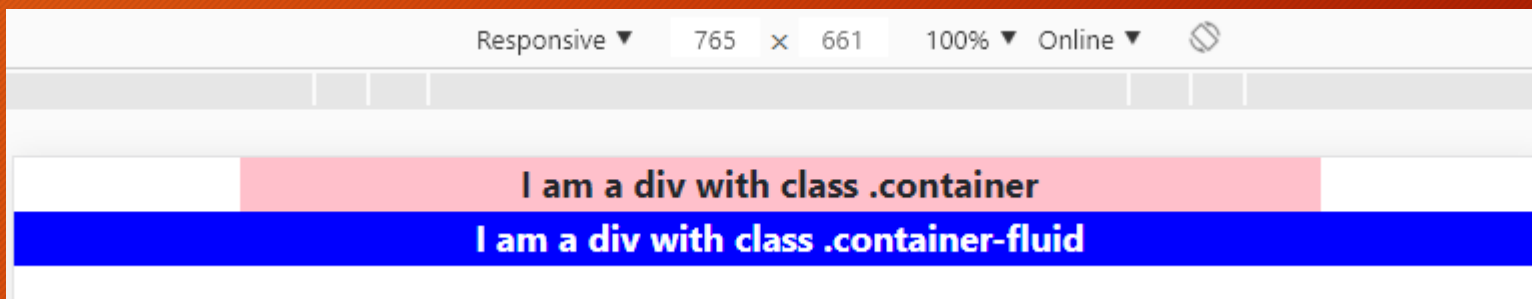
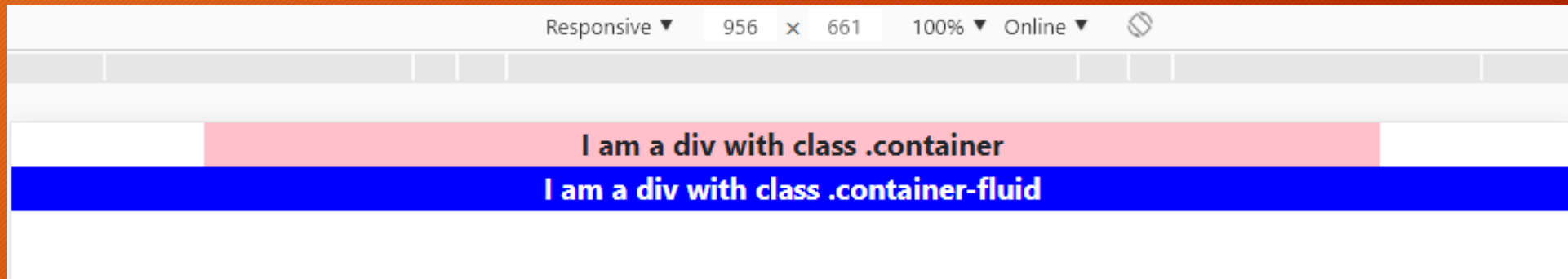
Click on the
mobile icon



Page Layout

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- Containers: Output



- Self Assessment Quiz

1. Which of the following is/are not among the features of Responsive Web Design?
 - a. Fluid Layout
 - b. Flexible Images
 - c. Typography
 - d. Calligraphy

Answer: d

- Self Assessment Quiz

2. Which among the following code gives me a fixed width container?

- a. `<div class="container-fluid"> </div>`
- b. `<div class="fixed-container"> </div>`
- c. `<div class="container"> </div>`
- d. `<div class="fixed"> </div>`

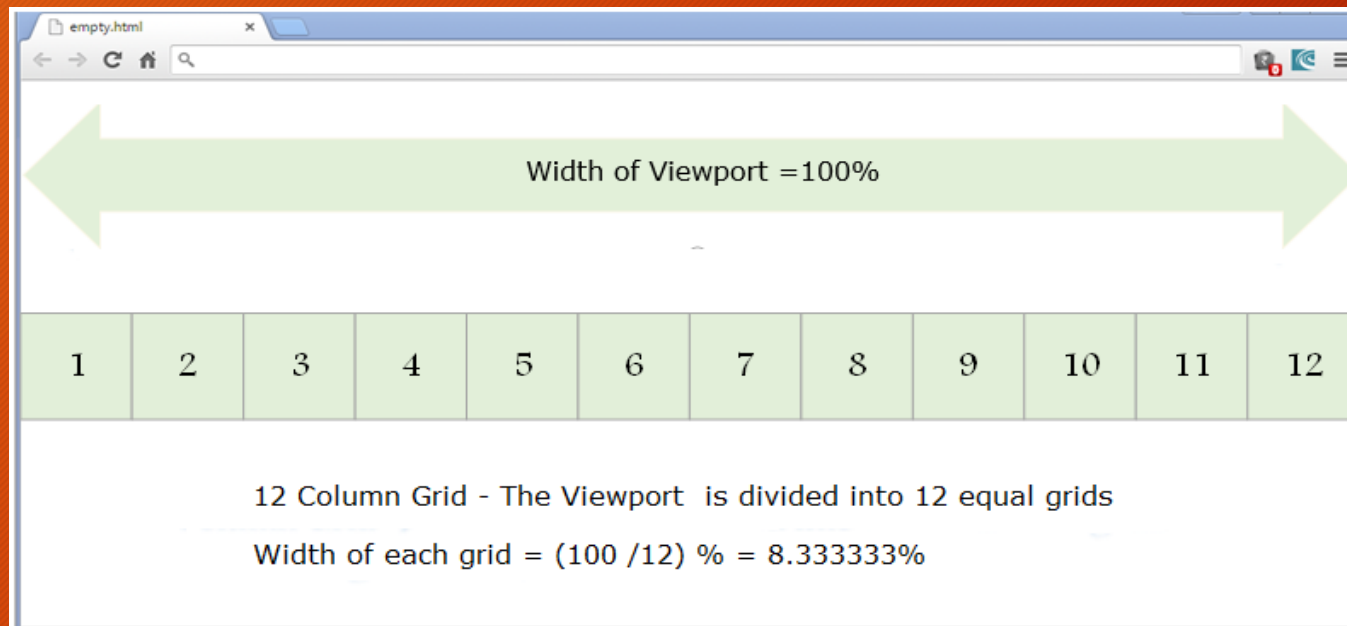
Answer: c

Page Layout

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- Grid System

- In Bootstrap, each webpage can be divided into rows and column-grids, and each row has 12 column-grids



- Grid System: Column Classes

- To create a column in Bootstrap, `.col-<sq>-<n>` class needs to be used
- Here `<sq>` is the size qualifier and `<n>` is the number of grids we want the column to occupy
- Size qualifiers can be of four types:
 - lg (for large devices with screen width $\geq 1200\text{px}$)
 - md (for medium devices with screen width $< 1200\text{px}$ and $\geq 992\text{px}$)
 - sm (for small devices with screen width $< 992\text{px}$ and $\geq 768\text{px}$)
 - xs (for extra small devices with screen width $< 768\text{px}$)

Number of grids in a column can range b/w 0 to 12

Page Layout

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- Grid System: Column Classes

	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				

Page Layout

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- Grid System: Column Classes

- E.g.

Column width
for medium
devices with
grid size equal
to 12

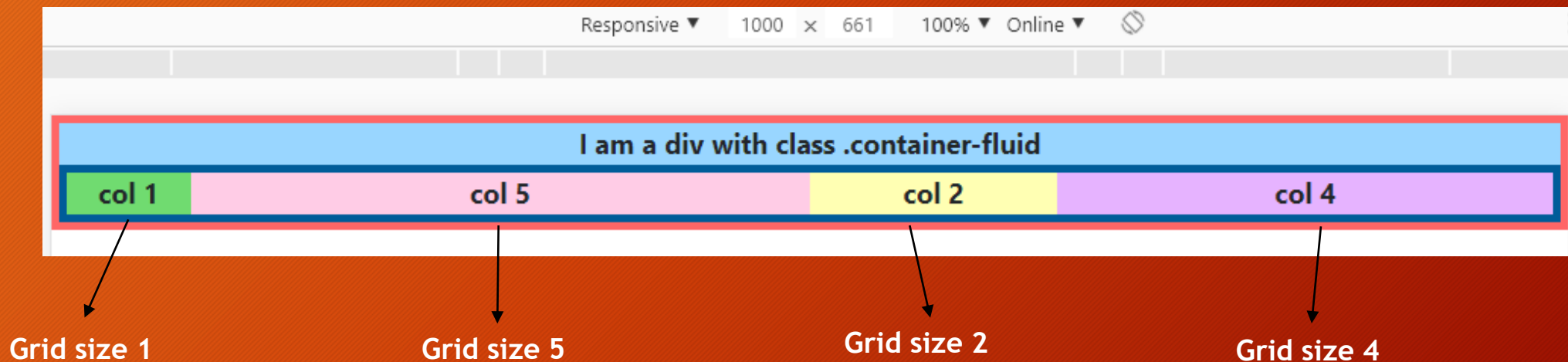
```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <meta http-equiv="X-UA-Compatible" content="ie=edge">
  <title>Document</title>
  <link rel="stylesheet" href="https://stackpath.bootstrapcdn.com/bootstrap/4.3.1/css/bootstrap.min.css">
  <style>
    body{
      font-size: large;
      font-weight: bolder;
    }
    .container{
      background-color: pink;
    }
    .container-fluid{
      background-color: #99d6ff;
      text-align: center;
    }
  </style>
</head>
<body>
  <div class="container-fluid" style="border: 5px solid #ff6666">
    I am a div with class .container-fluid
    <div class="row" style="border: 5px solid #005c99">
      <div class="col-md-1" style="background-color: #70db70;">col 1</div>
      <div class="col-md-5" style="background-color: #ffcc66;">col 5</div>
      <div class="col-md-2" style="background-color: #ffffb3;">col 2</div>
      <div class="col-md-4" style="background-color: #e6b3ff;">col 4</div>
    </div>
  </div>
</body>
</html>
```



Page Layout

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- Grid System: Column Classes
- Output



- Self Assessment Quiz

1. Which of the following will give an equal column grid system?

a. `<div class="col-md-4"/>`
`<div class="col-md-4"/>`
`<div class="col-md-4"/>`

b. `<div class="col-md-2"/>`
`<div class="col-md-3"/>`

c. `<div class="col-md-2"/>`
`<div class="col-md-2"/>`
`<div class="col-md-2"/>`

Answer: a & c

- Self Assessment Quiz

2. Which among the following will result in overflow?

a. `<div class="col-md-6">`
`<div class="col-md-3">`
`<div class="col-md-4">`

b. `<div class="col-md-3">`
`<div class="col-md-3">`
`<div class="col-md-6">`

Answer: a

- Navigation Bar
 - Navigation bar (*navbar*) is a section intended to aid users in accessing different webpages of a website
 - HTML5 provides us with `<nav>` element to create a navigation bar
 - Bootstrap has different classes which help to provide better appearance to the *navbar*
 - A responsive *navbar* collapses when viewed on smaller screens, expands otherwise (to achieve this feature, apart from `bootstrap.css`, `bootstrap.js` and `jquery.js` are also required)

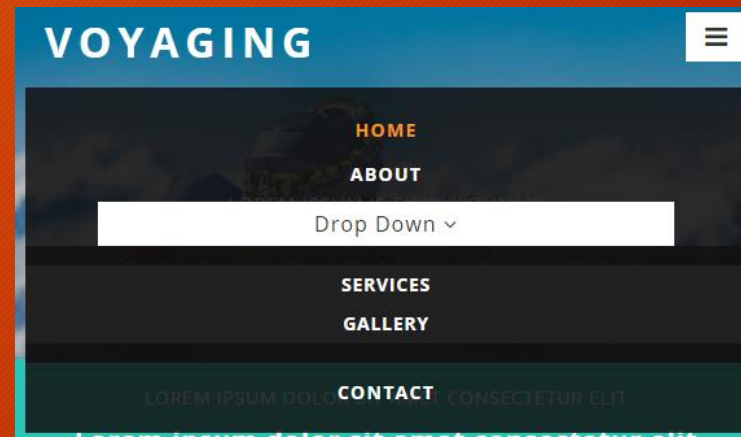
UI Components

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- Navigation Bar
 - On larger screens



- On small screens



Hamburger
menu

UI Components

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- Navigation Bar
- Basic skeleton of a navigation bar in Bootstrap is as follows:

```
<nav class="navbar navbar-default">  
  <div class="navbar-header"> ... </div>  
  <div class="collapse navbar-collapse" id="nav-collapse">  
    <ul class="nav navbar-nav"> ... </ul>  
    <ul class="nav navbar-nav navbar-right">... </ul>  
  </div>  
</nav>
```

Brand name &
Toggle button

All nav links

Left side nav
links

right side
nav links

Head to
getbootstrap.com
Under Components
section, select
"Navbar"

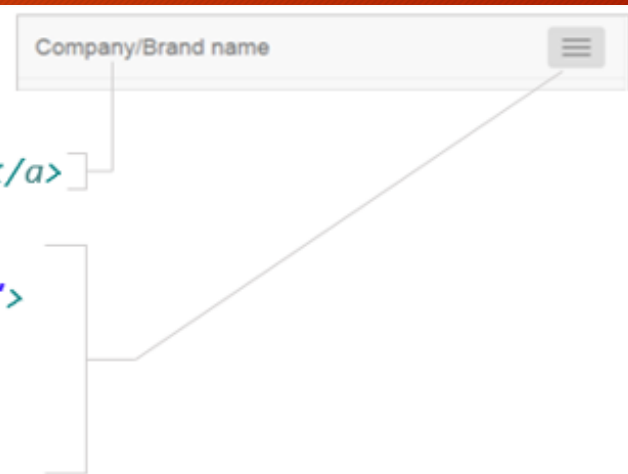
UI Components

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- Navigation Bar
 - Creating the toggle button (adding responsiveness)

Tells bootstrap to switch b/w visual states by collapsing according to the device width

```
div class="navbar-header">Company/Brand Name  
  
<button type="button" class="navbar-toggle"  
  data-toggle="collapse" data-target="#nav-collapse">  
  <span class="icon-bar"></span>  
  <span class="icon-bar"></span>  
  <span class="icon-bar"></span>  
</button>  
</div>
```



UI Components

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- Navigation Bar
- Demo E.g.

Go to getbootstrap.com
Under “Getting Started”
section, copy the JS code
given

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <meta http-equiv="X-UA-Compatible" content="ie=edge">
  <title>Document</title>
  <link rel="stylesheet" href="Demo-Bootstrap/css/bootstrap.min.css">
  <script src="https://stackpath.bootstrapcdn.com/bootstrap/4.3.1/js/bootstrap.min.js" integrity="sha384-1j5mVgvd0p3pXB1rRibZUAYoIIy60rQ6VrjIEaFf/njGzIxFDsf4x0xIM+B07jRM" crossorigin="anonym"></script>
  <script src="Demo-Bootstrap/js/jquery.min.js"></script>
</head>
<body>
  <div class="container-fluid">
    <h1 class="text-center">Navigation</h1>

    <nav class="navbar navbar-expand-md bg-dark navbar-dark">

      <a class="navbar-brand" href="#">BRAND</a>

      <!-- you can also add an image or logo to represent the brand. Comment line 16 and uncomment lines 19-21!-->

      <!-- <a class="navbar-brand" href="#">
        
      </a -->

      <button class="navbar-toggler" type="button" data-toggle="collapse" data-target="#collapsibleNavbar">
        <span class="navbar-toggler-icon"></span>
      </button>
      <div class="collapse navbar-collapse" id="collapsibleNavbar">
        <ul class="navbar-nav">
          <li class="nav-item">
            <a class="nav-link" href="#">Shop</a>
          </li>
          <li class="nav-item">
            <a class="nav-link" href="#">Gallery</a>
          </li>
          <li class="nav-item">
            <a class="nav-link" href="#">Contact Us</a>
          </li>
        </ul>
      </div>
    </nav>
  </div>

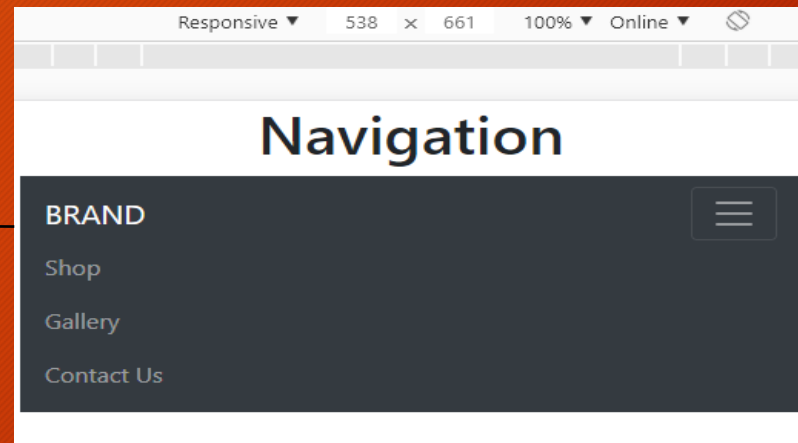
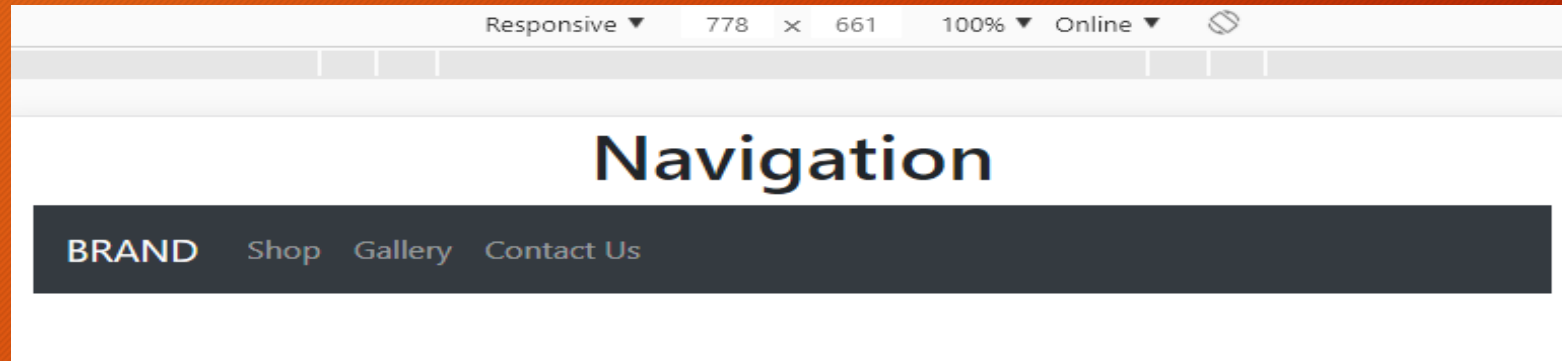
  <script src="https://code.jquery.com/jquery-3.3.1.slim.min.js" integrity="sha384-q8i/X+965DzO0rT7abK41JStQIAqVgRVzpbzo5smXKp4YfRvH+8abtTE1Pi6jizo" crossorigin="anonymous"></script>
  <script src="https://cdnjs.cloudflare.com/ajax/libs/popper.js/1.14.7/umd/popper.min.js" integrity="sha384-U02eT0CpHqdSJQ6hJty5KVphhtPhzW01c1HTMGA3JDZwrnQq4sF86dIHNDz0W1" crossorigin="anonym"></script>
  <script src="https://stackpath.bootstrapcdn.com/bootstrap/4.3.1/js/bootstrap.min.js" integrity="sha384-1j5mVgvd0p3pXB1rRibZUAYoIIy60rQ6VrjIEaFf/njGzIxFDsf4x0xIM+B07jRM" crossorigin="anonym"></script>
</body>
</html>
```

UI Components

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- Responsive Navigation Bar

- Output

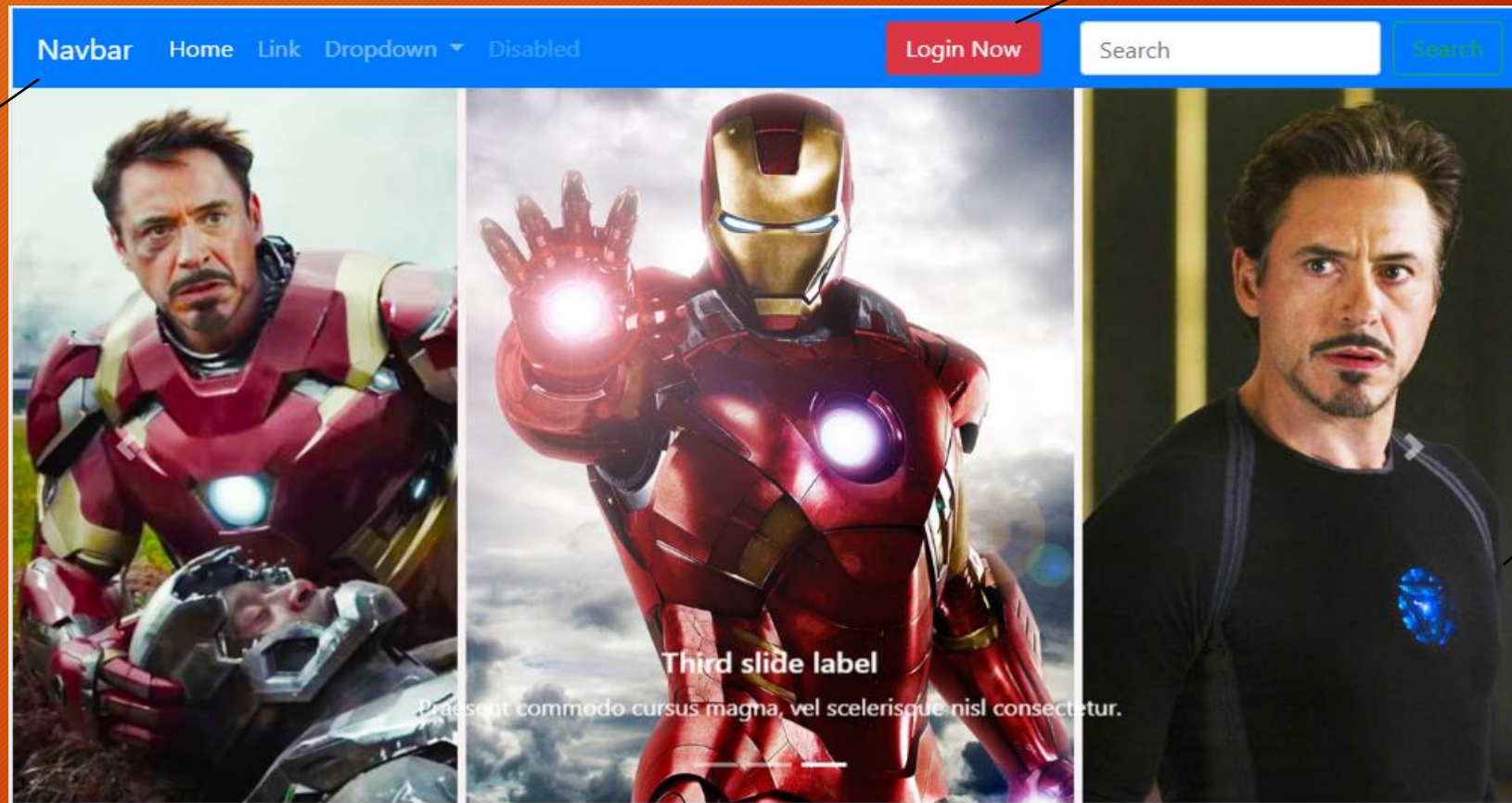


On small
screens

Responsive Web Design

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- Demo Responsive Web Design



Toggle
Navbar

Clickable Login Form using
"Button Trigger Modal"

carousel

Thank You