

# SCS 2208 – Rapid Application Development

University of Colombo, School of Computing



## Tutorial on Bootstrap

- Bootstrap is a front-end framework that helps you build mobile responsive websites quickly and easily.
- Bootstrap was originally created by a small group of developers working at Twitter. They developed Bootstrap as an internal tool to help create consistent web interfaces.
- Since then it has seen several major updates over the years, together with the contribution of a large number of contributors. The last update is Bootstrap 4 in January 2018.

### ***Bootstrap is a front-end framework***

- A framework is similar to a library in computer programming. It contains tools, parts and existing functionality that you can use to accomplish standard tasks quicker and easier. In the case of Bootstrap, these standard tasks are creating design patterns like forms, menus, columns, buttons and other components you frequently need for websites.
- Bootstrap helps you set them up by offering a large number of CSS classes you can easily apply to HTML elements to create the site components you need. In addition to that, Bootstrap comes with a number of jQuery plugins that can provide additional functionality such as carousels, buttons, tooltips and more.

## Setting up the pre-requisites

- Create a folder called bootstrap in the computer. Inside that, create an html file called index.html and include the following content to it.

```
<!DOCTYPE html>
<html lang="en">
<head>

  <title>Bootstrap Tutorial Sample Page</title>
  <meta charset="utf-8">
  <meta name="viewport" content="width=device-width, initial-scale=1">

</head>
<body>

</body>
</html>
```

- To get Bootstrap into your page, simply paste the code below into the <head> section of your template.

```
<link rel="stylesheet"
href="https://stackpath.bootstrapcdn.com/bootstrap/4.1.3/css/bootstrap.min.css"
integrity="sha384-MCw98/SFnGE8fJT3GXwEOngsV7Zt27NXFoaoApmYm81iuXoPkFOJwJ8
ERdknLPMO" crossorigin="anonymous">
```

- When you now save the file, any browser that opens it will automatically load the Bootstrap assets.
- Load the jQuery library into your page by putting the line of code below right before where it says </body> in your page.

```
<script src="https://code.jquery.com/jquery-3.3.1.slim.min.js"
integrity="sha384-q8i/X+965DzO0rT7abK41JStQIAqVgRVzpbzo5smXKp4YfRvH+8abtT
E1Pi6jizo" crossorigin="anonymous"></script>
```

- Load the Bootstrap JavaScript library, right after the call for jQuery.

```
<script src="https://stackpath.bootstrapcdn.com/bootstrap/4.1.3/js/bootstrap.min.js"
integrity="sha384-ChfqquxZUCnJSK3+MXmPNlyE6ZbWh2IMqE241rYiqJxyMiZ6O
W/JmZQ5stwEULTy" crossorigin="anonymous"></script>
```

- You could find the latest CDN access paths given above at <https://getbootstrap.com/docs/4.2/getting-started/download/>
- This is how the index.html file should look like now.

```
<!DOCTYPE html>
<html lang="en">
  <head>

    <title>Bootstrap Tutorial Sample Page</title>
    <meta charset="utf-8">
    <meta name="viewport" content="width=device-width, initial-scale=1">
    <link rel="stylesheet"
href="https://stackpath.bootstrapcdn.com/bootstrap/4.1.3/css/bootstrap.min.css"
integrity="sha384-MCw98/SFnGE8fJT3GXwEOngsV7Zt27NXFoaoApmYm81iuXoPkFO
JwJ8ERdknLPMO" crossorigin="anonymous">

  </head>
  <body>

    <script src="https://code.jquery.com/jquery-3.3.1.slim.min.js"
integrity="sha384-q8i/X+965DzO0rT7abK41JStQIAqVgRVzpbzo5smXKp4YfRvH+8abtT
E1Pi6jizo" crossorigin="anonymous"></script>
    <script src="https://stackpath.bootstrapcdn.com/bootstrap/4.1.3/js/bootstrap.min.js"
integrity="sha384-ChfqquxZUCnJSK3+MXmPNlyE6ZbWh2IMqE241rYiqJxyMiZ6OW/J
mZQ5stwEULTy" crossorigin="anonymous"></script>
  </body>
</html>
```

## Designing the webpage

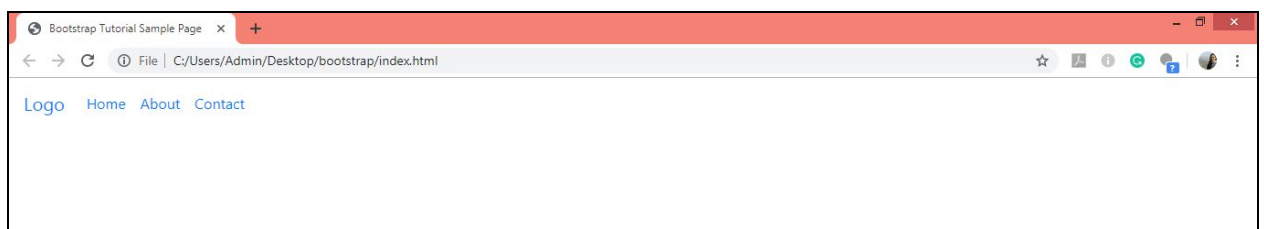
- When you browse index.html in the web browser you must see a blank page now.

### 1. Adding a navigation bar

- Insert the following code which would add a navbar, just below the <body> tag.

```
<nav class="navbar navbar-expand-md">
  <a class="navbar-brand" href="#">Logo</a>
  <button class="navbar-toggler navbar-dark" type="button" data-toggle="collapse"
data-target="#main-navigation">
    <span class="navbar-toggler-icon"></span>
  </button>
  <div class="collapse navbar-collapse" id="main-navigation">
    <ul class="navbar-nav">
      <li class="nav-item">
        <a class="nav-link" href="#">Home</a>
      </li>
      <li class="nav-item">
        <a class="nav-link" href="#">About</a>
      </li>
      <li class="nav-item">
        <a class="nav-link" href="#">Contact</a>
      </li>
    </ul>
  </div>
</nav>
```

- The output on the browser would be as follows.



- Let us add more styling into the navbar that we just created. Create a blank file with your text editor and call it main.css. Save it, then add it to the head section of your Bootstrap site like this

```
<link rel="stylesheet" type="text/css" href="main.css">
```

- From here, you are able to add custom CSS to your site. For example, to style the navigation bar and its elements, you could use markup like this.

```
body {  
  padding: 0;  
  margin: 0;  
  background: #f2f6e9;  
}  
  
/*--- navigation bar ---*/  
  
.navbar {  
  background:#6ab446;  
}  
  
.nav-link,  
.navbar-brand {  
  color: #fff;  
  cursor: pointer;  
}  
  
.nav-link {  
  margin-right: 1em !important;  
}  
  
.nav-link:hover {  
  color: #000;  
}  
  
.navbar-collapse {  
  justify-content: flex-end;  
}
```

- Here's the result.



## 2. Creating a Page Content Container

- Insert the following code underneath the navbar tag.

```
<header class="page-header header container-fluid">

</header>
```

## 3. Adding a background image

- Next, let us include a full-screen background image for the header of our webpage. For that, we will have to use some jQuery to make the image stretch all the way across the screen.
- First, create a text file of the name main.js and place it inside your site folder. Then, call it before the closing </body> tag inside index.html.

```
<script src="main.js"></script>
```

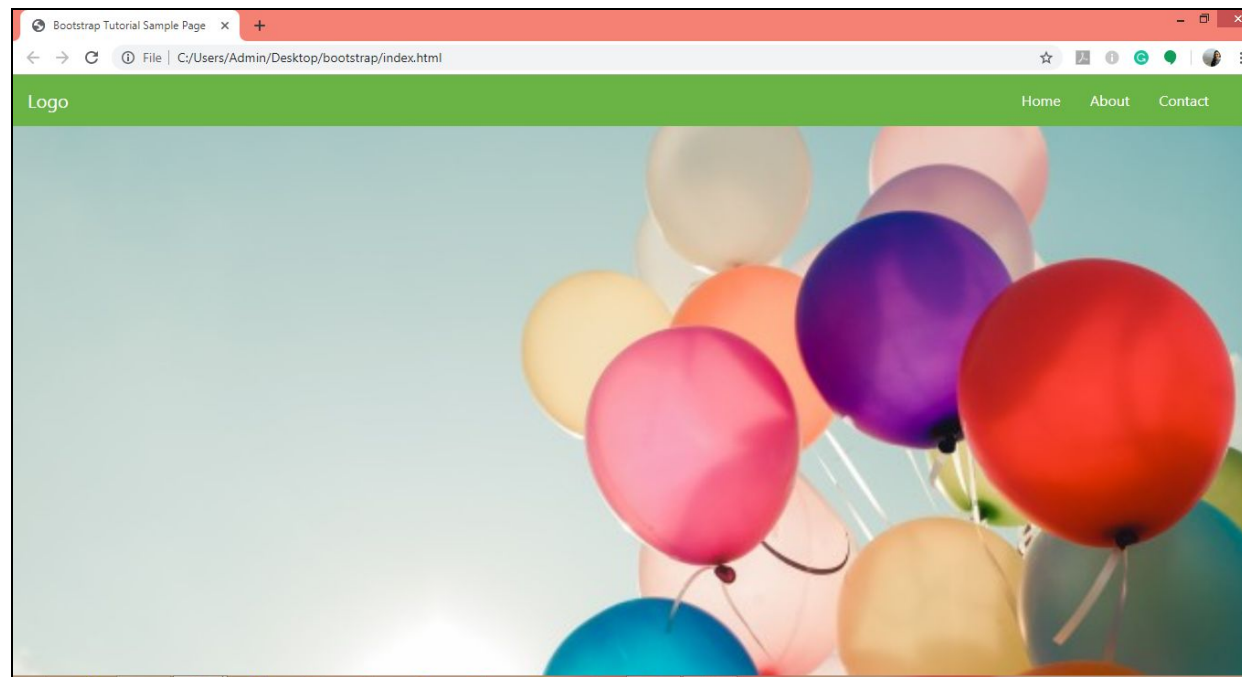
- Include the following piece of code in the main.js file.

```
$(document).ready(function(){
    $('.header').height($(window).height());
})
```

- Include the following piece of code in the main.css file.

```
.header {
    background-image: url('images/header-background.jpg');
    background-size: cover;
    background-position: center;
    position: relative;
}
```

- Here's the result.



#### 4. Add an overlay

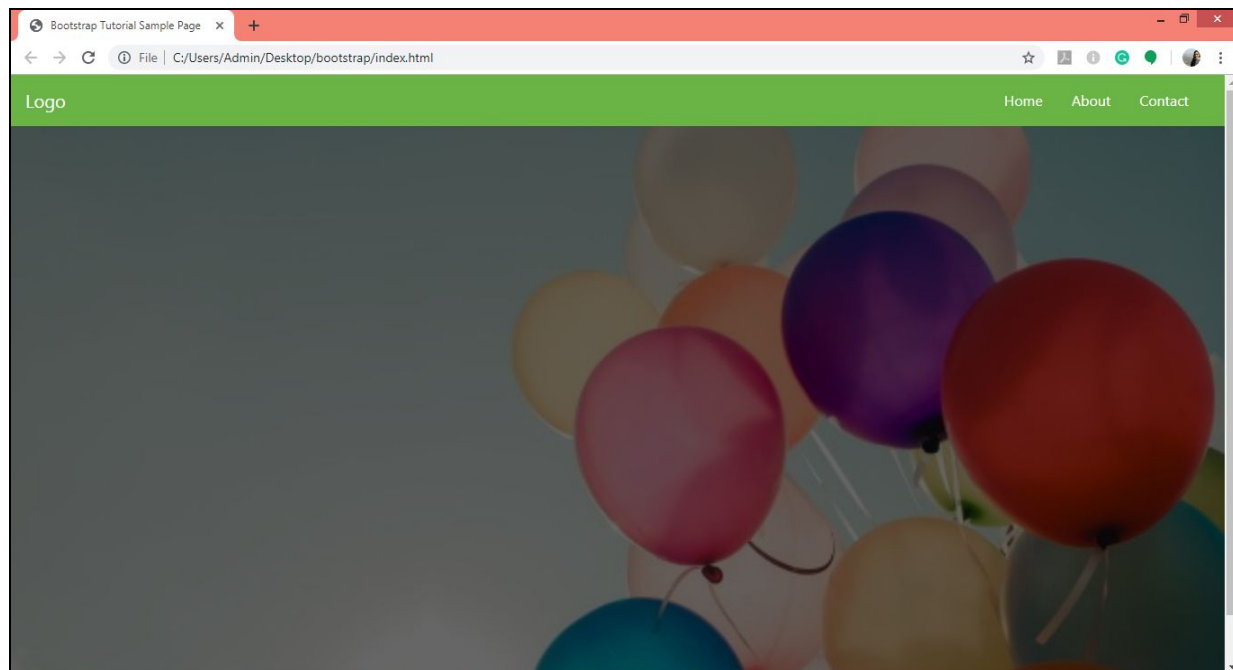
- Inorder to add an overlay on top of the image, add the following piece of code inside the header tags.

```
<div class="overlay"></div>
```

- Add the following piece of code to the main.css file.

```
.overlay {  
  position: absolute;  
  min-height: 100%;  
  min-width: 100%;  
  left: 0;  
  top: 0;  
  background: rgba(0, 0, 0, 0.6);  
}
```

- Here's the result.



## 5. Include a page title and body text

- Add this snippet inside the container you set up in the last step, below the overlay.

```
<div class="description">
  <h1>Welcome to the Bootstrap Tutorial!</h1>
  <p>Bootstrap is a front-end framework that helps you build mobile responsive
  websites quickly and easily. Bootstrap was originally created by a small group of
  developers working at Twitter. They developed Bootstrap as an internal tool to help
  create consistent web interfaces. Since then it has seen several major updates
  over the years, together with the contribution of a large number of contributors. The
  last update is Bootstrap 4 in January 2018.
  </p>
</div>
```

- After that, add the following markup to main.css.

```
.description {
  left: 50%;
  position: absolute;
  top: 45%;
  transform: translate(-50%, -55%);
  text-align: center;
```



```

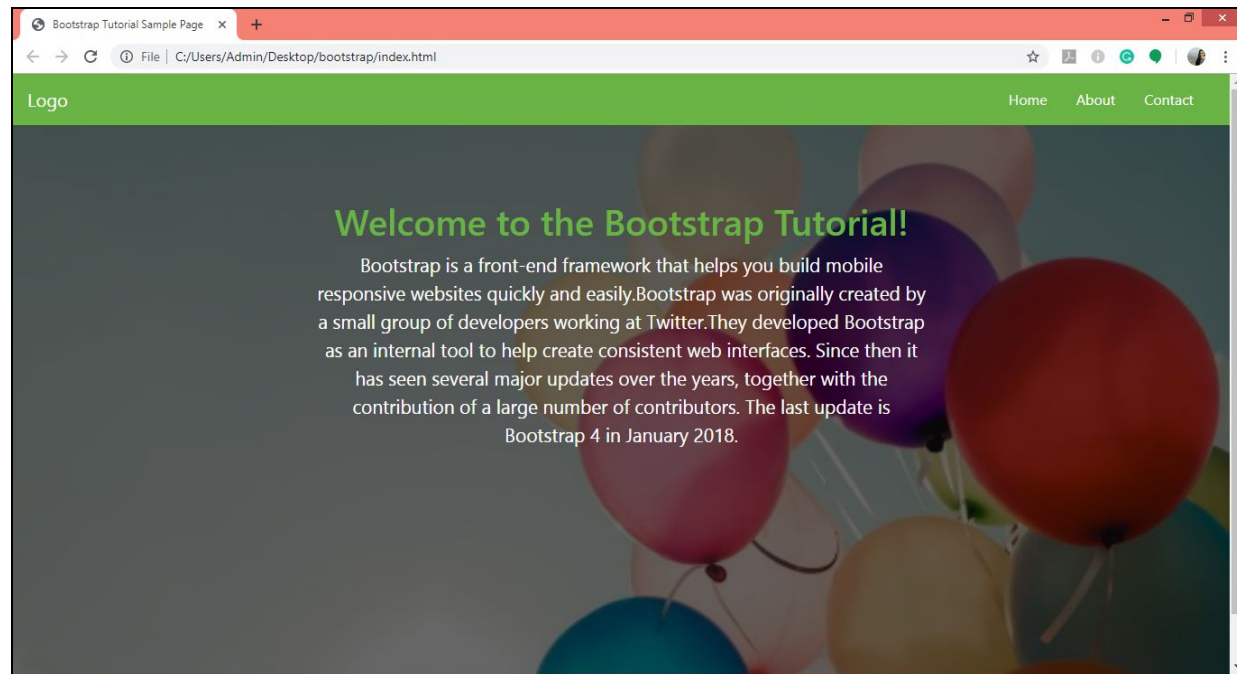
}

.description h1 {
  color: #6ab446;
}

.description p {
  color: #fff;
  font-size: 1.3rem;
  line-height: 1.5;
}

```

- Here's the result.



## 6. Create a button

- Add the following markup right below the page content inside the <description> container.

```
<button class="btn btn-outline-secondary btn-lg">Read More</button>
```

- Add the following content to the main.css file.

```

.description button {
  border: 1px solid #6ab446;
  background: #6ab446;
  border-radius: 0;
}

```

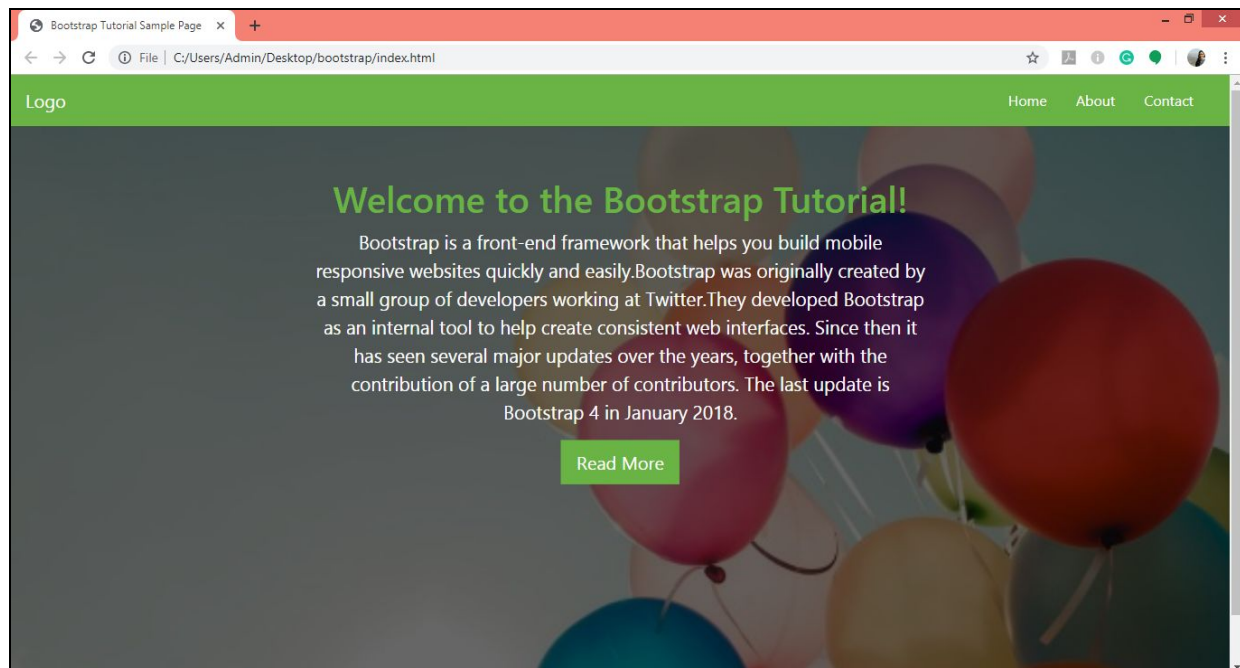
```

    color:#fff;
}

.description button:hover {
    border:1px solid #fff;
    background:#fff;
    color:#000;
}

```

- Here's the result.



## 7. Set up a three column section

- Add the following piece of code after `<div class="description">`

```

<div class="container features">
  <div class="row">
    <div class="col-lg-4 col-md-4 col-sm-12">
      <h3 class="feature-title">CSS</h3>
      
      <p>CSS stands for Cascading Style Sheets. CSS describes how
      HTML elements are to be displayed on screen, paper, or in other media.
      CSS saves a lot of work. It can control the layout of multiple web pages
      all at once. External stylesheets are stored in CSS files.</p>
    </div>
    <div class="col-lg-4 col-md-4 col-sm-12">

```

```
<h3 class="feature-title">Javascript</h3>

<p>JavaScript, often abbreviated as JS, is a high-level, interpreted
programming language that conforms to the ECMAScript specification.
JavaScript has curly-bracket syntax, dynamic typing, prototype-based
object-orientation, and first-class functions.</p>
</div>
<div class="col-lg-4 col-md-4 col-sm-12">
</div>
</div>
</div>
```

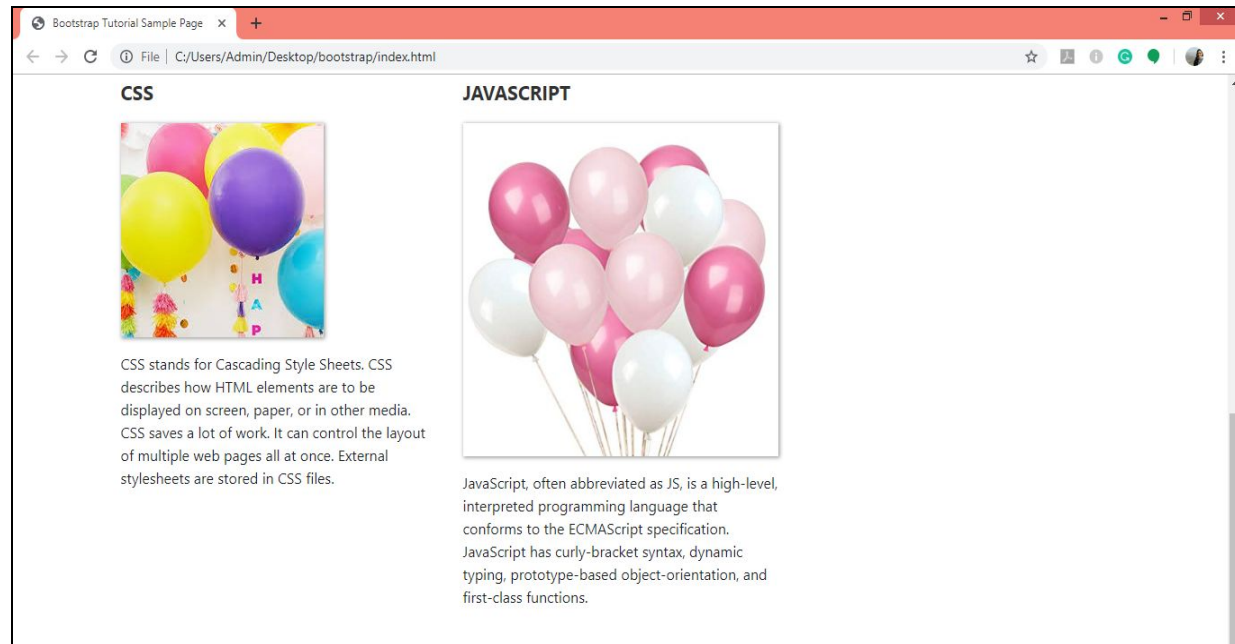
- Add the following lines of code to the main.css file.

```
.features {
  margin: 4em auto;
  padding: 1em;
  position: relative;
}

.feature-title {
  color: #333;
  font-size: 1.3rem;
  font-weight: 700;
  margin-bottom: 20px;
  text-transform: uppercase;
}

.features img {
  -webkit-box-shadow: 1px 1px 4px rgba(0, 0, 0, 0.4);
  -moz-box-shadow: 1px 1px 4px rgba(0, 0, 0, 0.4);
  box-shadow: 1px 1px 4px rgba(0, 0, 0, 0.4);
  margin-bottom: 16px;
}
```

- Here's the result.



## 8. Add a contact form

- Add the following lines of code inside the remaining empty column.

```
<h3 class="feature-title">Get in Touch!</h3>
<div class="form-group">
  <input type="text" class="form-control" placeholder="Name" name="">
</div>
<div class="form-group">
  <input type="email" class="form-control" placeholder="Email Address"
name="email">
</div>
<div class="form-group">
  <textarea class="form-control" rows="4"></textarea>
</div>
<input type="submit" class="btn btn-secondary btn-block" value="Send"
name="">
```

- Add the following lines of code to the main.css file.

```
.features .form-control,
.features input {
  border-radius: 0;
}
```

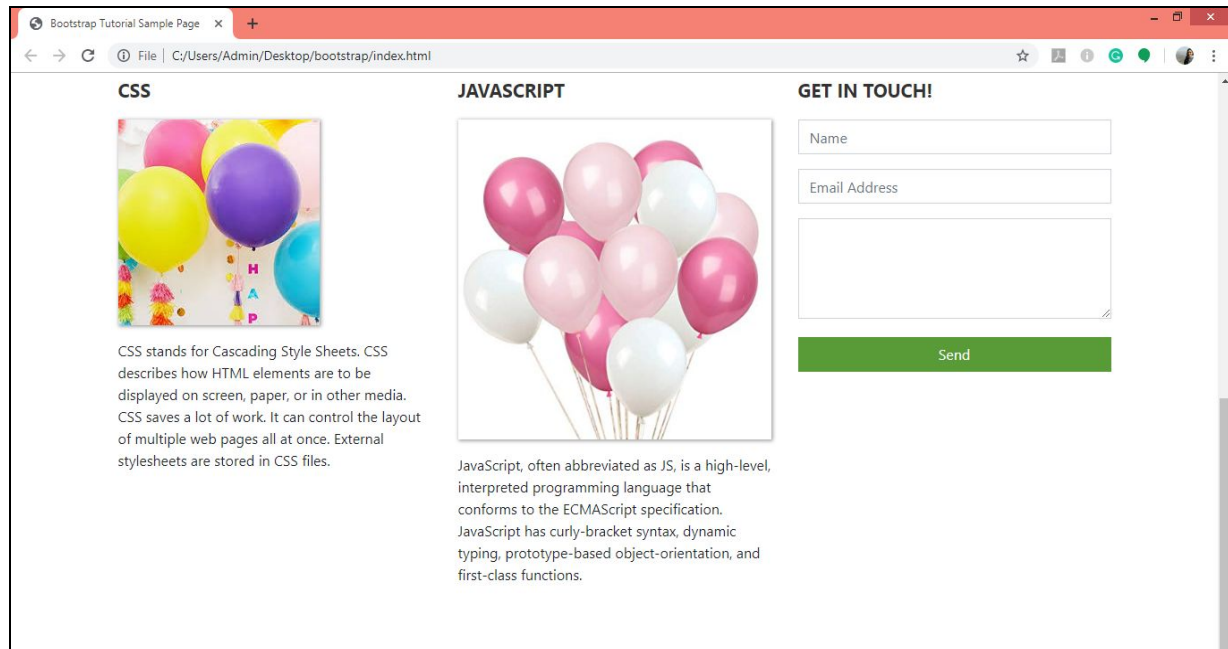
```

.features .btn {
  background-color: #589b37;
  border: 1px solid #589b37;
  color: #fff;
  margin-top: 20px;
}

.features .btn:hover {
  background-color: #333;
  border: 1px solid #333;
}

```

- Here's the result.



## 9. Create a two column footer

- Add the following piece of code to towards the end of the body section, before the script tags.

```

<footer class="page-footer">
  <div class="container">
    <div class="row">
      <div class="col-lg-8 col-md-8 col-sm-12">
        <h6 class="text-uppercase font-weight-bold">Additional Information
on Bootstrap</h6>
        <p>Of course, there is more to learn. Thanks to this basic Bootstrap

```

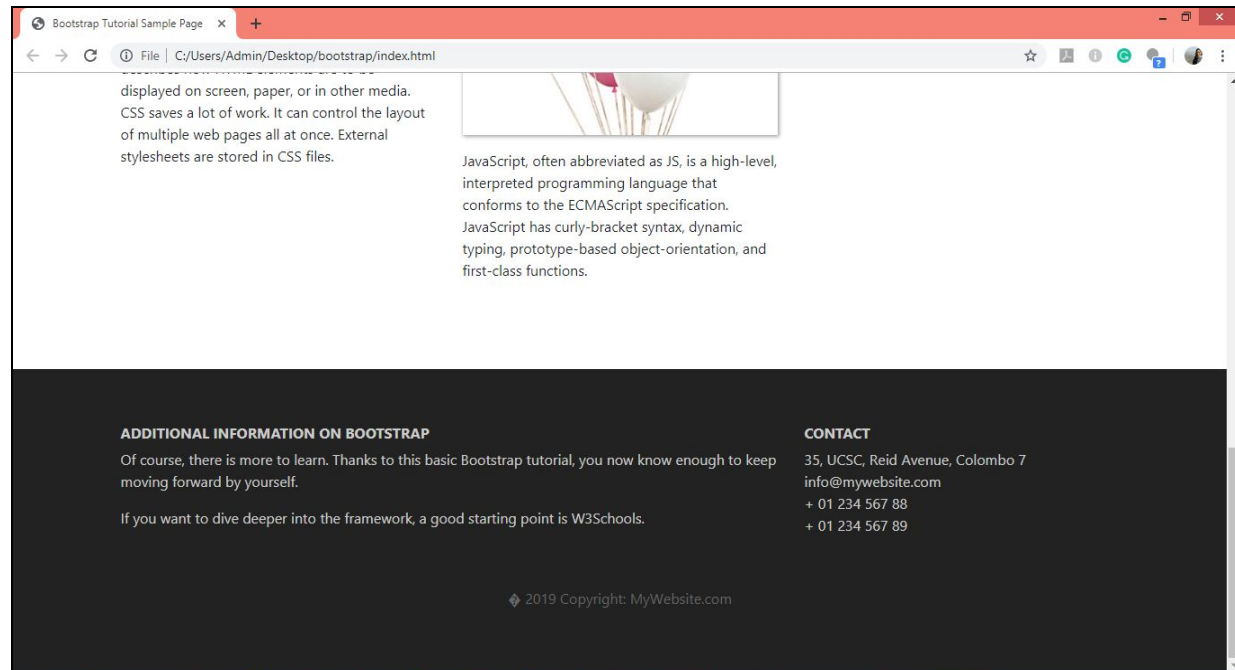
```
tutorial, you now know enough to keep moving forward by yourself. </p>
  <p> If you want to dive deeper into the framework, a good starting
point is W3Schools.</p>
</div>
<div class="col-lg-4 col-md-4 col-sm-12">
  <h6 class="text-uppercase font-weight-bold">Contact</h6>
  <p>35, UCSC, Reid Avenue, Colombo 7
  <br/>info@mywebsite.com
  <br/>+ 01 234 567 88
  <br/>+ 01 234 567 89</p>
</div>
</div>
<div class="footer-copyright text-center">© 2019 Copyright:
MyWebsite.com</div>
</footer>
```

- Add the following code snippet to the main.css file.

```
.page-footer {
  background-color: #222;
  color: #ccc;
  padding: 60px 0 30px;
}

.footer-copyright {
  color: #666;
  padding: 40px 0;
}
```

- Here's the result



## 10. Add Media Queries

- Although the page is fully responsive, in the mobile view of the browser, the upper section doesn't come out quite right yet.
- Add the following piece of code to the main.css file, in order to solve the said issue.

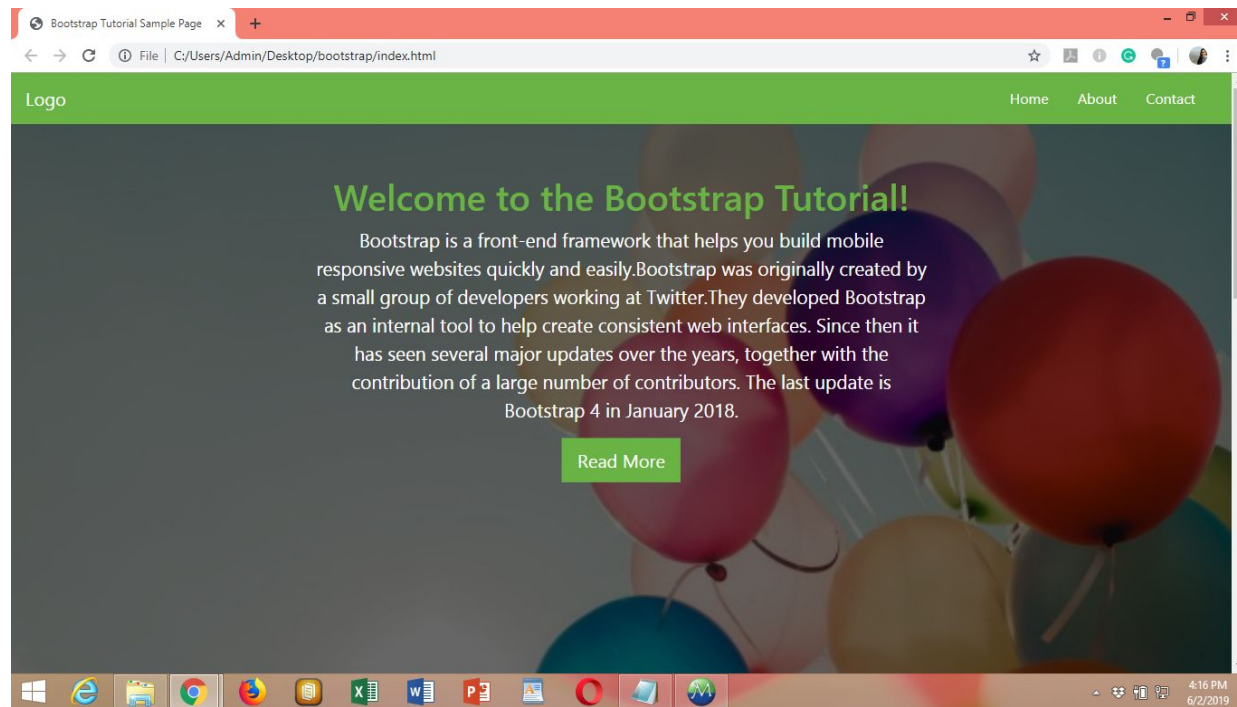
```
@media (max-width: 575.98px) {

  .description {
    left: 0;
    padding: 0 15px;
    position: absolute;
    top: 10%;
    transform: none;
    text-align: center;
  }

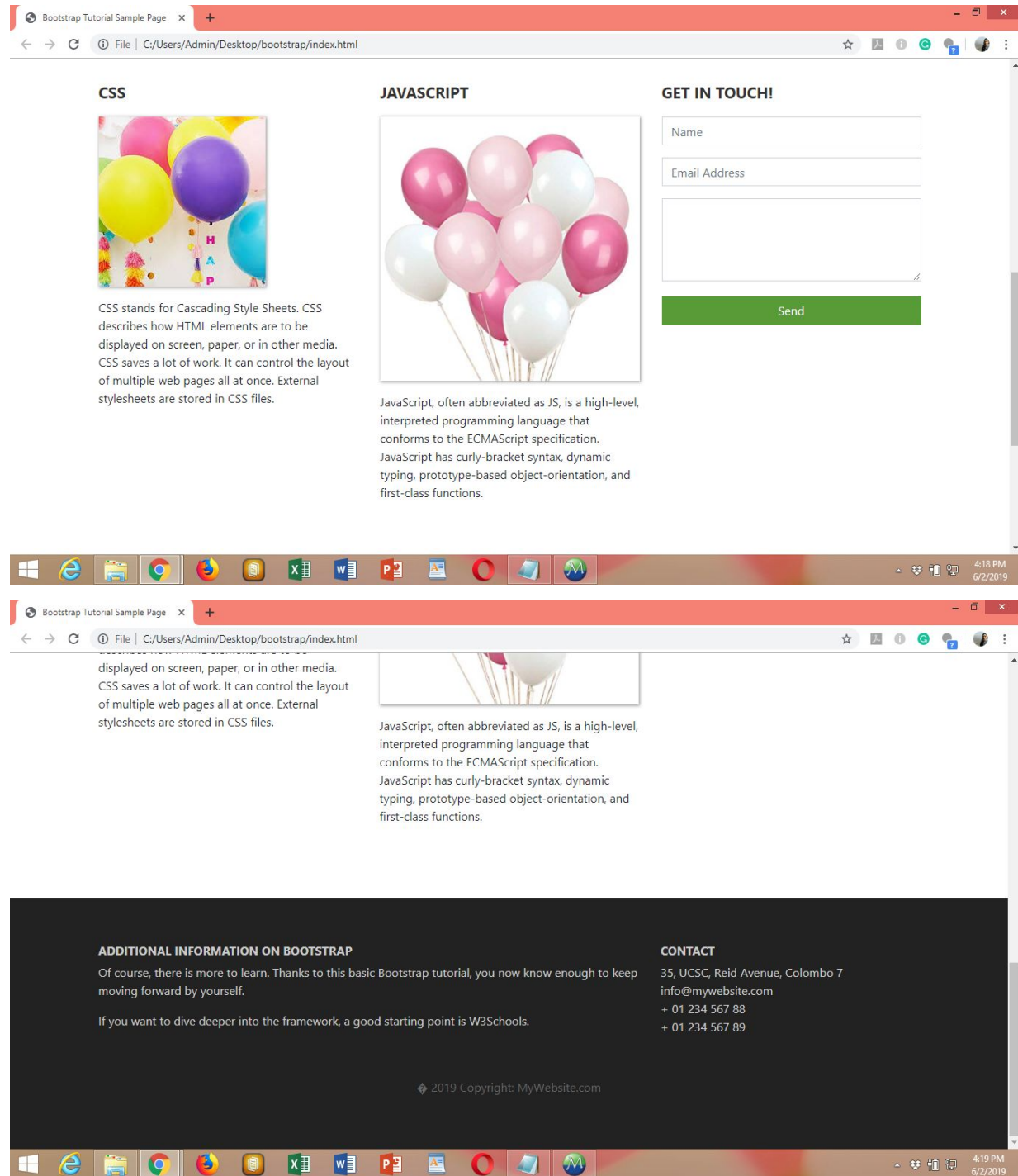
  .description h1 {
    font-size: 2em;
  }
}
```

```
.description p {  
  font-size: 1.2rem;  
}  
  
.features {  
  margin: 0;  
}  
  
}
```

- Final web page should look as given below. Try to improve it by adding more Bootstrap and CSS features.







## Activity

- Add **accordion**, **carousel** and **breadcrumbs** suitably to the website you developed. Refer w3schools to complete this activity.