5. Bootstrap 5 & Bootstrap Component

Bootstrap 5

Bootstrap 5 is the **latest version** of the widely popular front-end framework, Bootstrap.

Bootstrap 5 has a lot of new **exciting features** and **capabilities** that make building responsive designs even easier than before. The **biggest add-on** is that it is heavily built on **Flexbox**.

```html
<!doctype html>
<html lang="en">

<head>
  <meta charset="utf-8">
  <meta name="viewport" content="width=device-width, initial-scale=1">
  <title>Bootstrap demo</title>
  <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.2/dist/css/bootstrap.min.css"
rel="stylesheet"
    integrity="sha384-T3c6CoIi6uLrA9TneNEoa7RxnatzjcDSCmG1MXxSR1GAsXEV/Dwwykc2MPK8M2HN"
crossorigin="anonymous">
</head>

<body>
  <h1>Hello, world! </h1>
  <script
src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.2/dist/js/bootstrap.bundle.min.js"
    integrity="sha384-C6RzsynM9kWDrMNeT87bh95OGNyZPhcTNXj1NW7RuBCsyN/o0jlpcV8Qyq46cDfL"
    crossorigin="anonymous"></script>
</body>

</html>
```
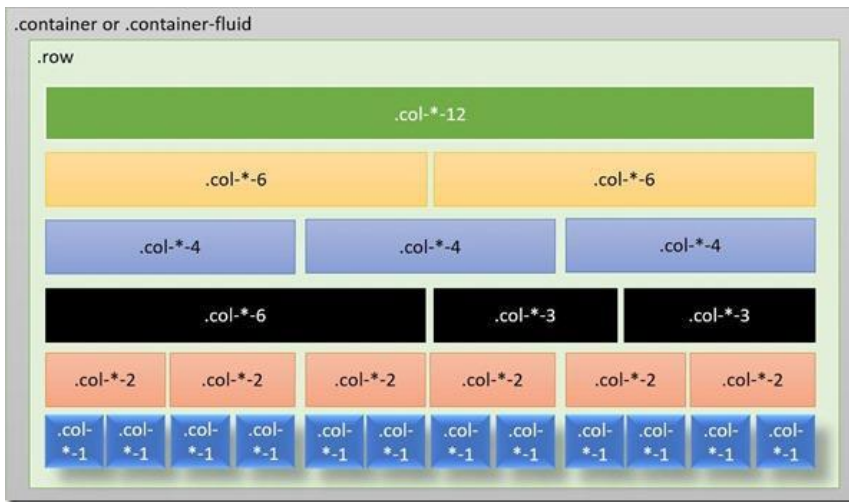
The first <link> element contains Bootstrap's CSS library, that allows us to use Bootstrap's classes in our webpage. The first <script> element pulls in the jQuery library in order to use Bootstrap's pre-built JavaScript functionality, included in the last <script> element.

How does Bootstrap work?
It uses pre-defined CSS classes to design the layout of your webpage and adds interactivity via JavaScript. By simply defining the "class" attribute on an element, Bootstrap applies styling and interactivity to that element.

Bootstrap uses a **12-column grid system** that's responsive, meaning it automatically rearranges when the screen size changes.

Now, to get started with a layout, you first create a **.container** class element to put all the content of your website in. The .container-fluid class provides a container that spans the full width of the viewport/screen. You cannot nest containers.

Next, you add a **.row** class element that will contain your .col elements. You put columns inside rows, and rows inside containers. So, a two-column webpage would look something like:

```html
<div class="container">
  <div class="row">
    <div class="col-md-6">
      <!-- First Column -->
    </div>
    <div class="col-md-6">
      <!-- Second Column -->
    </div>
  </div>
</div>
```

You can get more reference from below URLs:

https://www.w3schools.com/bootstrap/
https://getbootstrap.com/

Bootstrap Components

Bootstrap Grid

In order to make them appear nicely like this, and to also make sure they work well responsively, we'll need to wrap the cards in a grid. The grid is one of the core pieces of Bootstrap, and many developers use the library solely because of the grid.

```html
<div class="container">
  <div class="row">
    <div class="col-sm-6 col-lg-3">Column</div>
    <div class="col-sm-6 col-lg-3">Column</div>
    <div class="col-sm-6 col-lg-3">Column</div>
    <div class="col-sm-6 col-lg-3">Column</div>
  </div>
</div>
```

Above the sm breakpoint, we want each of the cards to take up half the width, so we'll give the columns a col-sm-6 class. When the screen reaches the lg breakpoint though, we want four cards in the width, so we'll do col-lg-3.

Bootstrap Form

The controls—like the <input> and <textarea>—are styled with the form-control class. They make it look like a classical Bootstrap form:

```html
<form>
  <div class="mb-3">
    <label for="exampleInputEmail1" class="form-label">Email address</label>
    <input type="email" class="form-control" id="exampleInputEmail1" aria-describedby="emailHelp">
    <div id="emailHelp" class="form-text">We'll never share your email with anyone else.</div>
  </div>
  <div class="mb-3">
    <label for="exampleInputPassword1" class="form-label">Password</label>
    <input type="password" class="form-control" id="exampleInputPassword1">
  </div>
  <div class="mb-3 form-check">
    <input type="checkbox" class="form-check-input" id="exampleCheck1">
    <label class="form-check-label" for="exampleCheck1">Check me out</label>
  </div>
  <button type="submit" class="btn btn-primary">Submit</button>
</form>
```

Bootstrap Navbar

With Bootstrap, a navigation bar can extend or collapse, depending on the screen size. A standard navigation bar is created with <nav class="navbar navbar-default">.

You can refer full list of components from below URLs:

https://getbootstrap.com/docs/5.3/getting-started/introduction/

Bootstrap Advantages

1. Fewer Cross browser bugs.
2. Responsive structures and styles.
3. Several JavaScript plugins using the jQuery.
4. Good documentation and community support.
5. Great grid system.
6. Loads of free and professional templates, WordPress themes and plugins.
7. Bootstrap approaches with pre-styled components for alerts, dropdowns, nav bars, etc. Hence, being a feature-rich, Bootstrap provides numerous advantages of using it.