Bootstrap

- Bootstrap is an open source toolkit for developing Mobile and Web Applications with HTML, CSS and JavaScript.
- It provides a repository [library] that helps developers to build complex HTML, CSS and JavaScript page with less logic and markup.
- It provides pre-defined CSS classes and stylesheets, which you can use for any HTML page.
- Bootstrap even provides templates for web and mobile application.
- Bootstrap also provide premium features.

  www.getbootstrap.com
- Latest version 4.5
- Bootstrap 5 is coming [not stable yet]

Setup Environment for Bootstrap

- Download "Node.js" on your computer.
- Node.js is required for Package Manager.
- Package Manager is a tool used to install and maintain packages [library] for project.
- There are several package managers
    o NPM
    o Yarn
    o Bower
    o RubyGems
    o NuGet
- Download Node.js for NPM
  https://nodejs.org/en/download/
- Test Node.js version from command prompt

```
> node -v
> npm -v
```

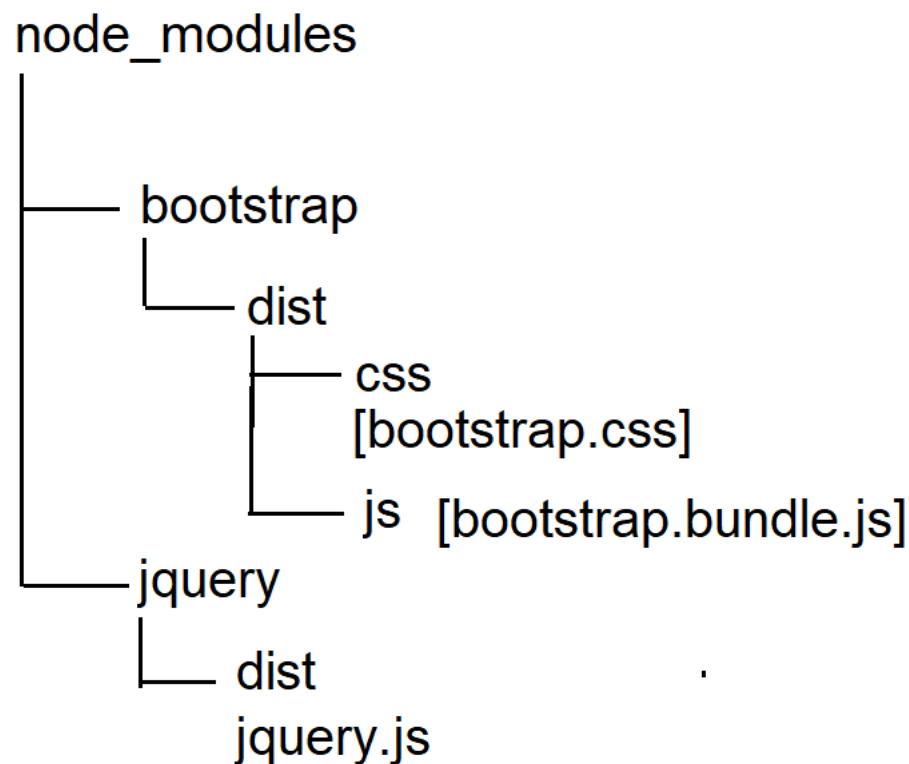## Install Bootstrap for your project with NPM:

- Open your project in VS code
- Open Terminal [Ctrl + `]
- Type the following command
  ```
  > npm install bootstrap
  ```
- Bootstrap library is added into a folder "**node_modules**"

Install jQuery for your project with NPM:

- jQuery is a library used by bootstrap for creating complex interactions.
- To install jQuery type the following command
  ```
  > npm install jquery
  ```

- jQuery library is added into "node_modules"

The basic files required for bootstrap templates from "bootstrap and jQuery" are:

```
node_modules
│
├── bootstrap
│       └── dist
│               ├── css
│               │   [bootstrap.css]
│               └── js  [bootstrap.bundle.js]
└── jquery
        └── dist
            jquery.js
```

- bootstrap.css
- jquery.js
- bootstrap.bundle.js

Note: Any jQuery file of bootstrap must be defined only after "jquery.js"

- A developer has to know about different types of CSS classes provided by **bootstrap.css** and different types of attributes provided by **bootstrap.bundle.js**
- A developer can extend existing bootstrap classes and customize according to his requirements.

Ex:

```
<!DOCTYPE html>
<html>
  <head>
    <title>Demo</title>
```

```html
    <link rel="stylesheet"
href="../node_modules/bootstrap/dist/css/bootstrap.css">
  </head>
  <body class="container">
    <h1 class="text-primary text-center">Welcome to Bootstrap</h1>
    <button class="btn btn-outline-primary">Submit</button>
  </body>
</html>
```

Bootstrap Containers

- Containers are used for basic layout design.
- Containers are defined with margin and padding.

- Containers are controller with "@media()" feature, which can make your content responsive.
- Bootstrap provides 3 different container classes
  - o .container
  - o .container-fluid
  - o .container-sizes[sm, md, lg, xl]

Container Class	Resolution
.container	Min 540px – Max 1200px - width
.container-sm	Min 540px – max 1140px [mobile]
.container-md	Min 100% - max 1140px [tab]

.container-lg	Min 100% - max 1140px [laptop]
.container-xl	Min 100% - max 1140px [desktop]
.container-fluid	Min 100% - max 100% [responsive]

Ex:

```
<!DOCTYPE html>
<html>
  <head>
    <title>Demo</title>
    <link rel="stylesheet" href="../node_modules/bootstrap/dist/css/bootstrap.css">
    <style>
      div {
```

```
        border:2px solid darkcyan;

        margin-top: 10px;

        }

    </style>

</head>

<body>

  <div class="container">

    Container

  </div>

  <div class="container-sm">

    Container-sm

  </div>

  <div class="container-fluid">

    Container Fluid

  </div>

</body>
```

</html>

Bootstrap Grid Classes

- Grid is designed by using the classes
    o .row
    o .col
- They provide responsive grid design.

Defining a row: You can define a row in grid system by using the following classes.

Class Name	Description
.row	Single row
.row-cols-number	The number of columns in row.
.row-cols-sm-number	For small screen
.row-cols-md-number	For medium screen

Note: Row number can be defined only from 1 to 6.

Defining a column: You can define a column in grid system by using the following classes.

Class	Description
.col	It specifies a column
.col-sm	540px [mobile]
.col-md	720px [tab]
.col-lg	960px [laptop]
.col-xl	1140px [desktop]

Note: In a grid system you can defined columns range from 1 to 12 only.

col-3   30% of browser

col-9   70% of browser

col-12 100% of browser

You can use responsive according to device.

Col-sm-3

Col-lg-3

Col-md-3

Ex:

```
<!DOCTYPE html>
<html>
  <head>
    <title>Demo</title>
    <link rel="stylesheet" href="../node_modules/bootstrap/dist/css/bootstrap.css">
    <style>
        .col-3 {
            border-right: 2px solid;
```

```
            }
            .col-2{
                border-right: 2px dotted;
            }
        </style>
    </head>
    <body class="container-fluid">
        <h2>Product Details</h2>
        <dl class="row">
            <dt class="col-2">Name</dt>
            <dd class="col-10">Samsung
TV</dd>
            <dt class="col-2">Price</dt>
            <dd class="col-10">&#8377;
45600.44</dd>
            <dt class="col-2">Stock</dt>
            <dd class="col-10">Available</dd>
```

```html
        <dt class="col-2">Shipped To</dt>
        <dd class="col-10">Delhi</dd>
    </dl>
    <div class="row">
        <div class="col-3">
            <p class="text-justify">Depending on how you obtained the Windows software, this is a license agreement between (i) you and the device manufacturer or software installer that distributes the software with your device; or (ii) you and Microsoft Corporation (or, based on where you live or, if a business, where your principal place of business is located, one of its affiliates) if you acquired the software from a retailer.</p>
        </div>
        <div class="col-9">
```

<p>Depending on how you obtained the Windows software, this is a license agreement between (i) you and the device manufacturer or software installer that distributes the software with your device; or (ii) you and Microsoft Corporation (or, based on where you live or, if a business, where your principal place of business is located, one of its affiliates) if you acquired the software from a retailer.</p>

<p>Depending on how you obtained the Windows software, this is a license agreement between (i) you and the device manufacturer or software installer that distributes the software with your device; or (ii) you and Microsoft Corporation (or, based on where you live or, if a business, where your principal place of business is located, one of its

affiliates) if you acquired the software from a retailer.</p>

        `<p>`Depending on how you obtained the Windows software, this is a license agreement between (i) you and the device manufacturer or software installer that distributes the software with your device; or (ii) you and Microsoft Corporation (or, based on where you live or, if a business, where your principal place of business is located, one of its affiliates) if you acquired the software from a retailer.</p>

       </div>

     </div>

   </body>

</html>

Ex: Layout with rows and cols

```html
<!DOCTYPE html>
<html>
  <head>
    <title>Layout</title>
    <link rel="stylesheet"
href="../node_modules/bootstrap/dist/css/bootstrap.css">
    <link rel="stylesheet"
href="../Fonts/css/all.css">
    <style>
      .container-fluid {
        width: 90%;
      }
      #header, #footer {
        background-color: darkcyan;
        color:white;
        text-align: center;
```

```
        }
        #section {
            height: 500px;
        }
        .col-2{
            border-right: 3px solid darkcyan;
        }
    </style>
</head>
<body class="container-fluid">
    <div class="row" id="header">
        <div class="col">
            <h1><span class="fa fa-shopping-cart"></span> Amazon Shopping</h1>
        </div>
    </div>
```

```html
<div class="row" id="section">
    <div class="col-2">
        <ul>
            <li>Home</li>
            <li>Electronics</li>
            <li>Footwear</li>
        </ul>
    </div>
    <div class="col-7">
        <h2>Amazon Home</h2>
        <img src="../Images/shoe.jpg" width="100" height="100">
        <img src="../Images/jblspeaker.jpg" width="100" height="100">
        <img src="../Images/jeans.jpg" width="100" height="100">
```

```html
        </div>
        <div class="col-3">
            <h2>Your Cart Summary</h2>
            <dl class="row">
                <dt class="col-sm-4">Total Items</dt>
                    <dd class="col-sm-8">3</dd>
                    <dt class="col-sm-4">Total Amount</dt>
                    <dd class="col-sm-8">&#8377; 4500.00</dd>
                </dl>
            </div>
        </div>
        <div class="row" id="footer">
            <div class="col">
                <div class="text-center">
```

```
                &copy; copyright 2020
            </div>
          </div>
        </div>
      </body>
    </html>
```


Bootstrap Colors

- Bootstrap provides pre-defined class for background, foreground, border.
- The bootstrap contextual colors:
  - Primary
  - Secondary
  - Dark
  - Light
  - Success
  - Warning
  - Danger
  - Info etc.
- If you want color for text (foreground) you can use "text-contextual"
  - .text-primary
  - .text-secondary
  - .text-dark
  - .text-success etc.
- If you want color for background you can use "bg-contextual"
  - .bg-primary

o .bg-secondary

o .bg-dark

o .bg-danger etc.

- If you want color for border you can use "border-contextual"

o .border-primary

o .border-danger etc.

Syntax:

```
<!DOCTYPE html>
<html>
  <head>
    <title>Colors</title>
    <link rel="stylesheet" href="../node_modules/bootstrap/dist/css/bootstrap.css">
    <style>
      #box {
        margin-top: 10px;
```

```html
      }
    </style>
  </head>
  <body class="container-fluid">
    <div class="text-primary">Primary</div>
    <div class="text-secondary">Secondary</div>
    <div class="text-dark">Dark</div>
    <div class="text-warning">Warning</div>
    <div class="text-danger">Danger</div>
    <h2>Backgrounds</h2>
    <div class="text-light">
    <div class="bg-primary">Primary</div>
```

```html
    <div class="bg-secondary">Secondary</div>
    <div class="bg-dark">Dark</div>
    <div class="bg-warning">Warning</div>
    <div class="bg-danger">Danger</div>
    </div>
    <h2>Borders</h2>
    <div class="text-primary">
        <div id="box" class="border border-primary">Primary</div>
        <div id="box" class="border border-secondary">Secondary</div>
        <div id="box" class="border border-dark">Dark</div>
        <div id="box" class="border border-warning">Warning</div>
```

```html
        <div id="box" class="border border-danger">Danger</div>
    </div>
  </body>
</html>
```

Ex:

```html
<!DOCTYPE html>
<html>
  <head>
    <title>Layout</title>
    <link rel="stylesheet" href="../node_modules/bootstrap/dist/css/bootstrap.css">
    <link rel="stylesheet" href="../Fonts/css/all.css">
    <style>
      .container-fluid {
```

```
            width: 90%;
        }
        #section {
            height: 500px;
        }
        .col-2{
            border-right: 3px solid darkcyan;
        }
    </style>
</head>
<body class="container-fluid">
    <div class="row bg-info text-light text-center border border-danger" id="header">
        <div class="col">
            <h1><span class="fa fa-shopping-cart"></span> Amazon Shopping</h1>
```

```html
        </div>
    </div>
    <div class="row" id="section">
        <div class="col-2">
            <ul>
                <li>Home</li>
                <li>Electronics</li>
                <li>Footwear</li>
            </ul>
        </div>
        <div class="col-7">
            <h2>Amazon Home</h2>
            <img src="../Images/shoe.jpg"
width="100" height="100">
            <img
src="../Images/jblspeaker.jpg"
width="100" height="100">
```

```html
            <img src="../Images/jeans.jpg" width="100" height="100">
        </div>
        <div class="col-3">
            <h2>Your Cart Summary</h2>
            <dl class="row">
                <dt class="col-sm-4">Total Items</dt>
                <dd class="col-sm-8">3</dd>
                <dt class="col-sm-4">Total Amount</dt>
                <dd class="col-sm-8">&#8377; 4500.00</dd>
            </dl>
        </div>
    </div>
    <div class="row" id="footer">
```

```html
        <div class="col">

            <div class="bg-info text-light text-center">

                &copy; copyright 2020

            </div>

        </div>

    </div>

  </body>

</html>
```

Bootstrap Images

- Bootstrap provides following classes for Images
  - o .img-fluid   : Will keep responsive image height and width
  - o .img-thumbnail   : Shows a thumbnail style preview.

Ex:

```html
<!DOCTYPE html>
<html>
  <head>
    <title>Images</title>
    <link rel="stylesheet"
href="../node_modules/bootstrap/dist/css/bootstrap.css">
      <style>
        img {
          width: 100px;
          height: 100px;
        }
      </style>
    </head>
    <body class="container-fluid">
      <div>
```

```
        <img class="img-fluid img-
thumbnail" src="../Images/shoe.jpg">
    </div>
    <div>
        <img class="img-fluid img-
thumbnail" src="../Images/shirt.jpg">
    </div>
  </body>
</html>
```

Bootstrap Tables

- Bootstrap provides following classes to present tables in more easy and interactive manner.
  - o .table (base class – you must configure table to define other effects)

- .table-contextual [colors for table: primary, secondary..]
- .thead-contextual [colors]
- .table-stripped
- .table-bordered
- .table-borderless
- .table-hove
- .table-sm, md, lg, xl (different size for tables)
- .table-responsive

Ex:

```
<!DOCTYPE html>
<html>
  <head>
    <title>Tables</title>
```

```html
    <link rel="stylesheet"
href="../node_modules/bootstrap/dist/cs
s/bootstrap.css">
  </head>
  <body class="container-fluid">
    <table class="table table-hover table-
sm table-bordered table-success">
      <thead class="thead-light">
        <tr>
          <th rowspan="3">Header
Section</th>
        </tr>
        <tr>
          <th colspan="2">Name</th>
          <th colspan="3">Address</th>
        </tr>
        <tr>
```

```html
        <td>First Name</td>
        <td>Last Name</td>
        <td>City</td>
        <td>State</td>
        <td>Postal Code</td>
    </tr>
  </thead>
  <tbody>
    <tr>
      <th rowspan="4">Body Section</th>
    </tr>
    <tr>
      <td> </td>
      <td> </td>
      <td> </td>
```

```html
      <td> </td>
      <td> </td>
   </tr>
   <tr>
      <td> </td>
      <td> </td>
      <td> </td>
      <td> </td>
      <td> </td>
   </tr>
   <tr>
      <td> </td>
      <td> </td>
      <td> </td>
      <td> </td>
      <td> </td>
```

```html
            </tr>
        </tbody>
        <tfoot>
            <tr>
                <th rowspan="3">Footer Section</th>
            </tr>
            <tr>
                <td colspan="5" align="center">&copy; copyright 2020</td>
            </tr>
        </tfoot>
    </table>
  </body>
</html>
```

EX: Responsive

```
<!DOCTYPE html>
<html>
  <head>
    <link rel="stylesheet" href="../node_modules/bootstrap/dist/css/bootstrap.css">
  </head>
  <body class="container-fluid">
    <h2>Products Data</h2>
    <table class="table table-responsive table-hover">
      <thead>
        <tr>
          <th>Col-1</th>
          <th>Col-2</th>
          <th>Col-3</th>
```

```
            <th>Col-4</th>
            <th>Col-5</th>
            <th>Col-6</th>
            <th>Col-7</th>
            <th>Col-8</th>
            <th>Col-9</th>
            <th>Col-10</th>
            <th>Col-11</th>
            <th>Col-12</th>
            <th>Col-13</th>
            <th>Col-14</th>
            <th>Col-15</th>
            <th>Col-16</th>
        </tr>
    </thead>
    <tbody>
```

```html
<tr>
    <td>cell-1</td>
    <td>cell-1</td>
    <td>cell-1</td>
    <td>cell-1</td>
    <td>cell-1</td>
    <td>cell-1</td>
    <td>cell-1</td>
    <td>cell-1</td>
    <td>cell-1</td>
    <td>cell-1</td>
    <td>cell-1</td>
    <td>cell-1</td>
    <td>cell-1</td>
    <td>cell-1</td>
```

```
      <td>cell-1</td>
  </tr>
  <tr>
    <td>cell-1</td>
    <td>cell-1</td>
    <td>cell-1</td>
    <td>cell-1</td>
    <td>cell-1</td>
    <td>cell-1</td>
    <td>cell-1</td>
    <td>cell-1</td>
    <td>cell-1</td>
    <td>cell-1</td>
    <td>cell-1</td>
    <td>cell-1</td>
```

```
            <td>cell-1</td>

            <td>cell-1</td>

            <td>cell-1</td>

        </tr>

      </tbody>

    </table>

  </body>

</html>
```

Margin and Padding in Bootstrap

- Bootstrap provides the following
  classes for margin and padding
    - o .m   : margin
    - o .p   : padding
    - o .t   : top
    - o .b   : bottom
    - o .l   : left
    - o .r   : right

o .x   : left and right

o .y   : top and bottom

Syntax:

ml   : margin-left

pl   : padding-left

Size for Margin and padding can be defined from 0 to 5 points or auto.

1   : no space or marign

2   : .25

3   : .5

4   : default

5   : 1.5

6   : 3 fractions

auto: sets margin and padding according to width and height

Ex:

<!DOCTYPE html>

<html>

```html
<head>
    <link rel="stylesheet" href="../node_modules/bootstrap/dist/css/bootstrap.css">
</head>
<body class="container-fluid">
    <div class="border border-danger">
        <img class="ml-5 pt-2 pb-2 " src="../Images/shoe.jpg" width="100" height="100">
    </div>
</body>
</html>
```