BOOTSTRAP

What is BOOT STRAP

Bootstrap is a popular **front-end framework** for developing **responsive** and **mobile-first websites** and **web applications**. It was originally created by developers at **Twitter** and later released as an open-source project.

The main **goal** of Bootstrap is to provide developers with a **collection** of **pre-designed HTML**, **CSS**, and **JavaScript components** and utilities that can be **easily integrated** into web **projects**. These components include things like **navigation bars**, **buttons**, **forms**, **dropdowns**, **modals**, and much more.

Bootstrap also includes a **responsive grid system**, which allows developers to **create layouts** that **automatically adjust** and reorganize **based on** the **size of** the **screen** or device being used. This makes it easier to build websites and applications that look and work well on a wide range of devices, from desktop computers to smartphones and tablets.

Key features of Bootstrap are:

Responsive Design: Built-in responsive grid system and responsive utilities for creating layouts that adapt to various screen sizes.

CSS Components: Pre-styled components like buttons, forms, navigation bars, and more, making it easy to create a consistent and visually appealing user interface.

JavaScript Plugins: Optional JavaScript plugins for adding interactive components like modals, tooltips, carousels, and dropdowns to your website or application.

Customization: Ability to customize and extend Bootstrap's styles and components using Sass variables and mixins.

Browser Compatibility: Bootstrap is designed to be compatible with modern web browsers, ensuring a consistent user experience across different platforms.

Mobile-first Approach / Styles: This refer to a design approach where the default styles for a website or web application are targeted towards smaller screens, such as smartphones and tablets, and then progressively enhanced for larger screens, like desktops and laptops. This approach ensures that the website or application looks and

functions well on smaller screens by default and then adapts gracefully to larger screens.

Use the below links in your html page

Breakpoints

Breakpoints are customizable widths that determine how your responsive layout behaves across device or viewport sizes in Bootstrap.

- Breakpoints are the building blocks of responsive design. Use them to control when your layout can be adapted at a particular viewport or device size.
- Use media queries to architect your CSS by breakpoint. most commonly use `min-width` in our media queries.
- Bootstrap uses a responsive grid system that divides the viewport width into 12 columns and allows developers to define breakpoints at which the layout changes.

Bootstrap provides several predefined breakpoints that target common screen sizes, including:

Extra small (xs): This applies to screens smaller than 576 pixels wide, typically used for smartphones.

Small (sm): This applies to screens equal to or larger than 576 pixels wide, typically used for tablets.

Medium (md): This applies to screens equal to or larger than 768 pixels wide, typically used for small desktops and laptops.

Large (lg): This applies to screens equal to or larger than 992 pixels wide, typically used for larger desktops and laptops.

Extra large (xl): This applies to screens equal to or larger than 1200 pixels wide, typically used for extra-large desktops and widescreen monitors.

In Bootstrap's grid system, you can use CSS classes like `.col-xs-`, `.col-sm-`, `.col-md-`, `.col-lg-`, and `.col-xl-` to define the width of columns for different screen sizes.

Additionally, Bootstrap provides utility classes like `.d-none`, `.d-sm-none`, `.d-md-none`, etc., to show or hide elements based on specific breakpoints.

```
<div class="container">
  <div class="row">
    <div class="col-xs-12 col-sm-6 col-md-4 col-lg-3 col-xl-2">
      <!-- Content for different screen sizes -->
    </div>
    <!-- More columns here -->
  </div>
</div>
```

CONTAINERS

Containers are a fundamental building block of Bootstrap that contain, pad, and align your content within a given device or viewport.

containers are the most basic layout element in Bootstrap and are required when using our default grid system. Containers are used to contain, pad, and (sometimes) center the content within them. While containers *can* be nested, most layouts do not require a nested container.

Hands On

1. Bootstrap CSS https://getbootstrap.com/docs/5.0/getting-started/introduction/

Place this link above title tag

<link href="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/css/bootstrap.min.css" rel="stylesheet" integrity="sha384-EVSTQN3/azprG1Anm3QDgpJLIm9Nao0Yz1ztcQTwFspd3yD65VohhpuuCOmLASjC" crossorigin="anonymous">

2. JavaScript bundle – place this link before the end of </body>

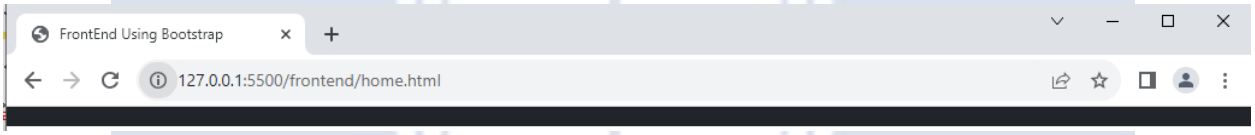
<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/js/bootstrap.bundle.min.js" integrity="sha384-MrcW6ZMFYlzcLA8Nl+NtUVF0sA7MsXsP1UyJoMp4YLEuNSfAP+JcXn/tWtIaxVXM" crossorigin="anonymous"></script>

NAV BAR

```
index.html   home.html
frontend > home.html > html
1  <!DOCTYPE html>
2  <html Lang="en">
3  <head>
4      <meta charset="UTF-8">
5      <meta name="viewport" content="width=device-width, initial-scale=1.0">
6
7      <!-- bootstrap css link from bootstrap websit -->
8      <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/css/bootstrap.min.css" rel="stylesheet" integr
9      <title>FrontEnd Using Bootstrap</title>
10 </head>
11 <body>
12
13
14
15     <script src="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/js/bootstrap.bundle.min.js" integrity="sha384
16
17 </body>
18 </html>
```

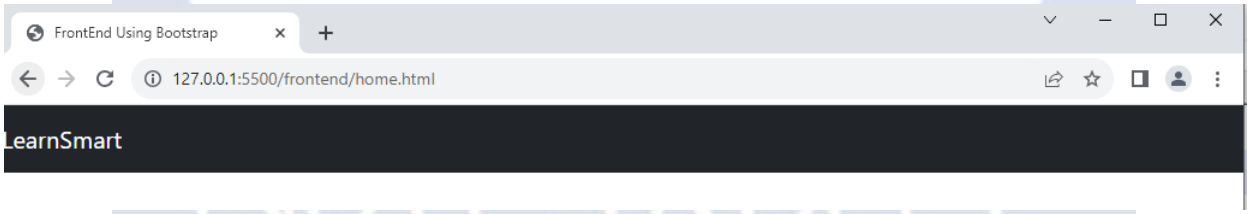
<nav class="navbar navbar-expand-lg bg-dark navbar-dark">

</nav>



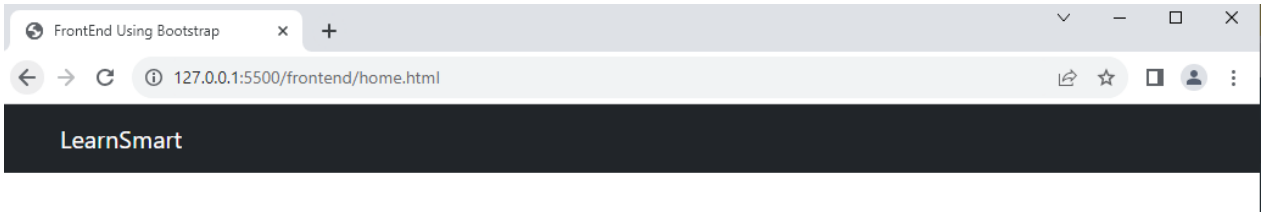
Without using container

```
<!-- brand or logo-->
<a href="#" class="navbar-brand">LearnSmart</a>
```



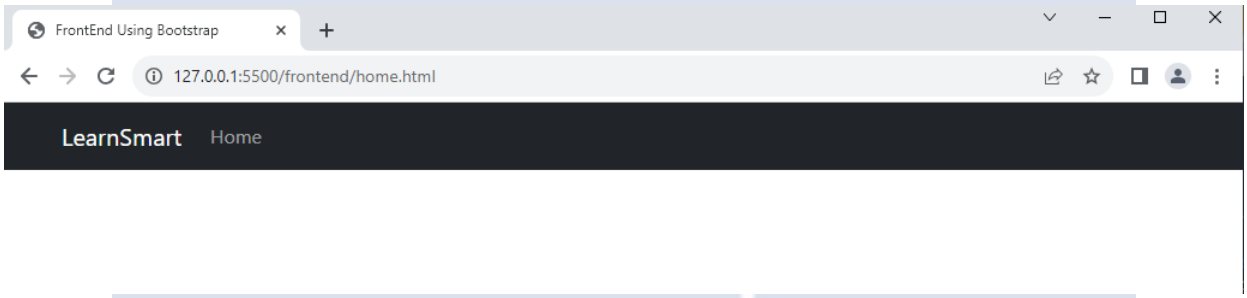
Placing the same code inside the container

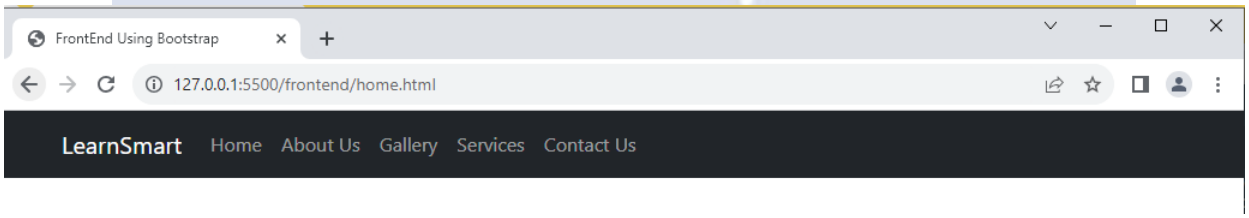
```
<div class="container">
   <!-- brand or logo -->
    <a href="#" class="navbar-brand">LearnSmart</a>
</div>
```



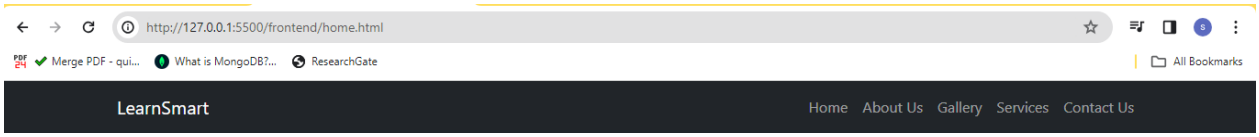
Collapse Navbar-collapse is used to render the design based on the screen size. The screen size is set to large(lg) and when the breakpoint is less than large or medium the size gets auto adjusted and the navbar collapses accordingly.

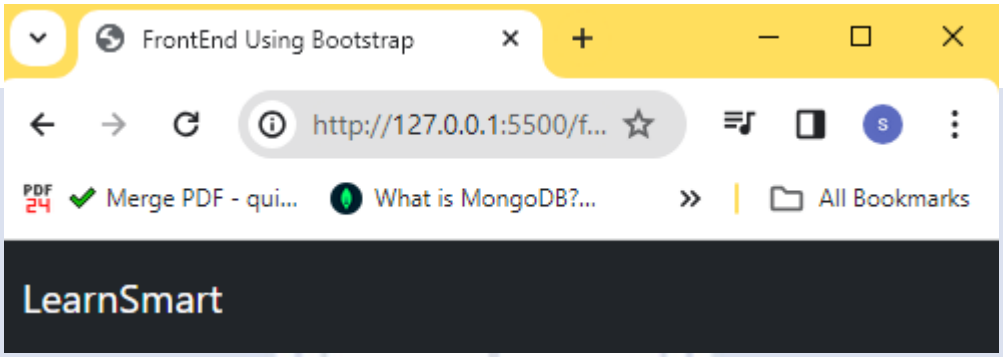
```
<div class="collapse navbar-collapse">
   <!-- add list items in ul -->
   <ul class="navbar-nav">
                        <!-- for each item we use nav-item -->
        <li class="nav-item">
                        <!-- for each link we use nav-link -->
        <a href="#" class="nav-link">Home</a>
        </li>
   </ul>

</div>
```





Use **ms-auto** in
<ul class="navbar-nav ms-auto">

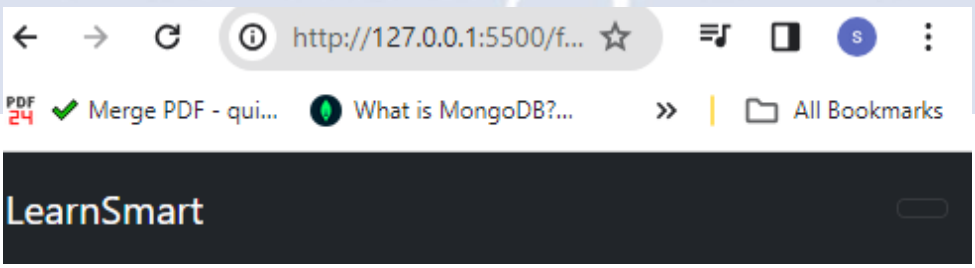




If you have noticed the smaller the breakpoint they have item disappear. To overcome this problem we will use a button and place the items inside a button and when the breakpoint is small the items will be moved inside the button.

Classes to use are **navbar-toggler**
Define a button between logo and navbar items

<!-- define a button and use navbar-toggler class →
<button class="navbar-toggler" type="button"> </button>

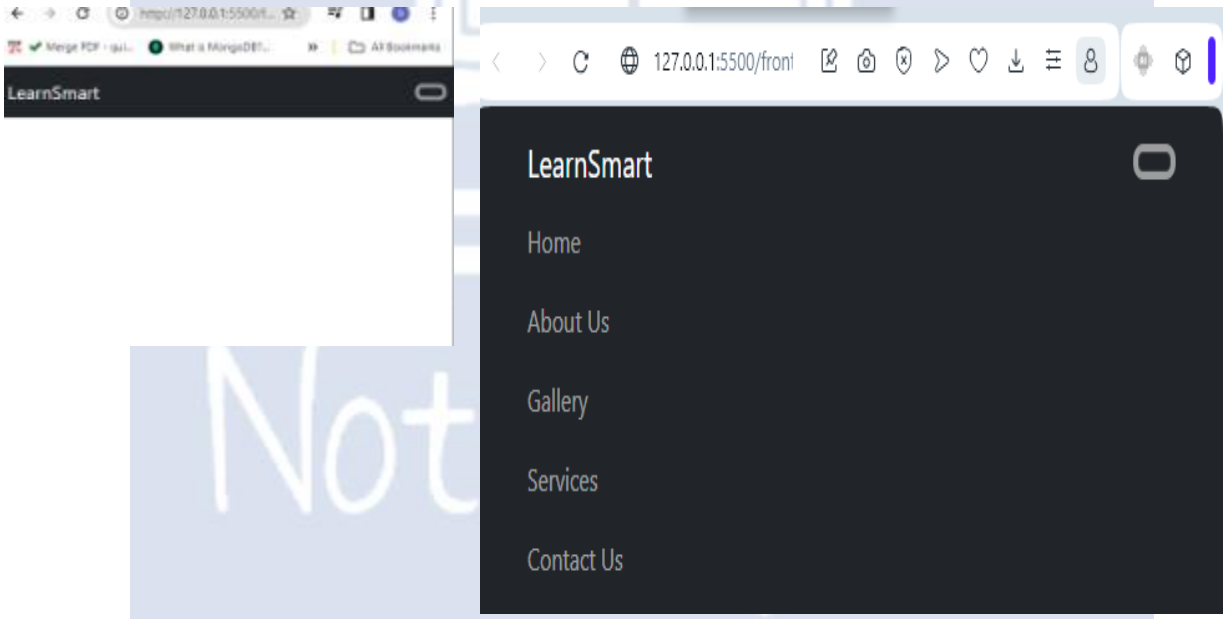


Use an attribute called **data-bs-toggle** and **set value** to **collapse** to collapse the content.

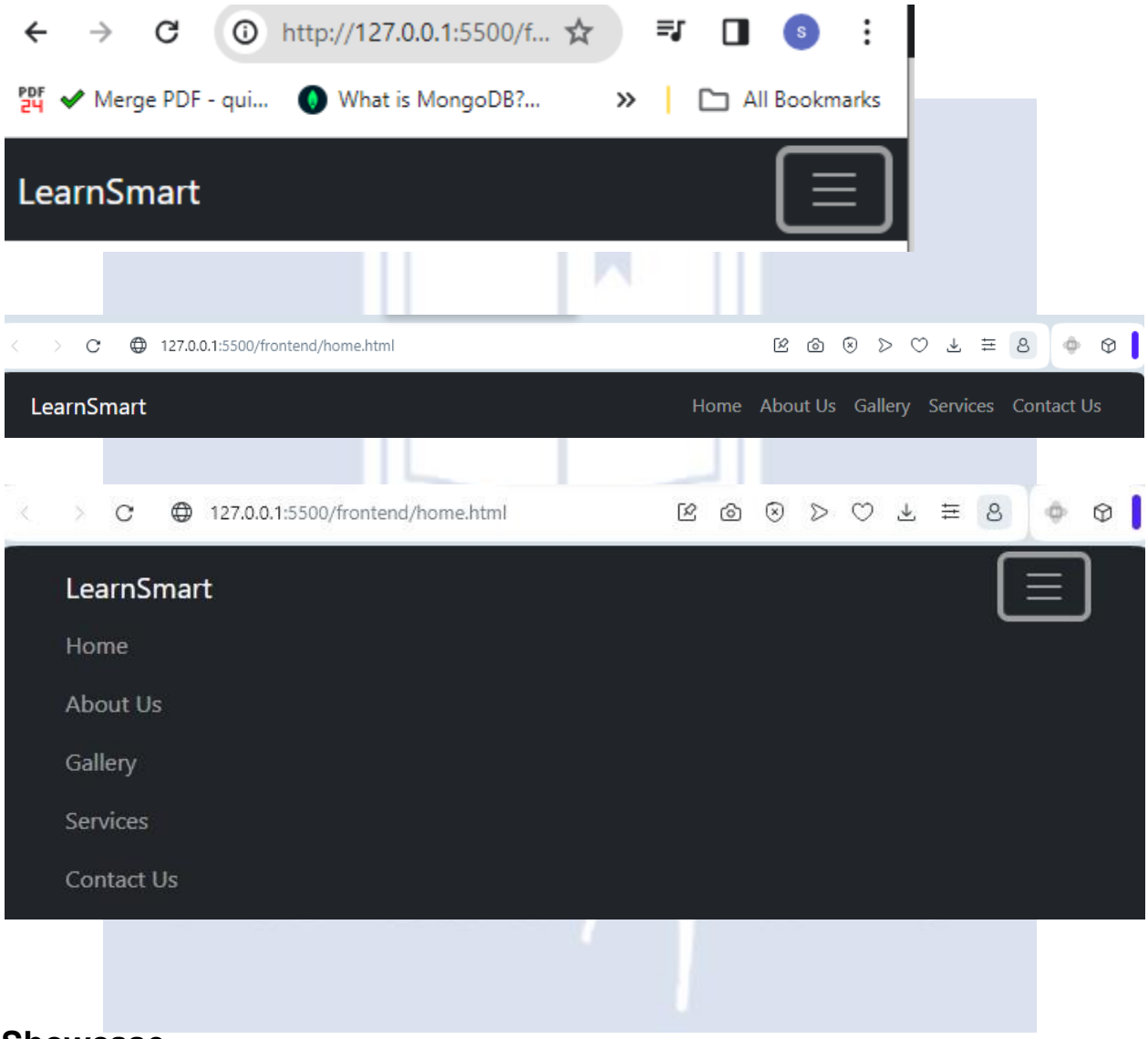
Include **data-bs-target** and give the **Id** to link the collapsible content to button.

Give an id name to the **collapse navbar-collapse**

```
<button class="navbar-toggler" type="button" data-bs-toggle="collapse"
data-bs-target="#navmenu">

        </button>
    <!-- collapse class is used to collapse the navbar based on the break
point -->

    <div class="collapse navbar-collapse" id="navmenu">
```



As you can see the toggle button has no icon inside it . To place an icon inside the Toggle button we use span element followed by class navbar-toggler- icon



Showcase

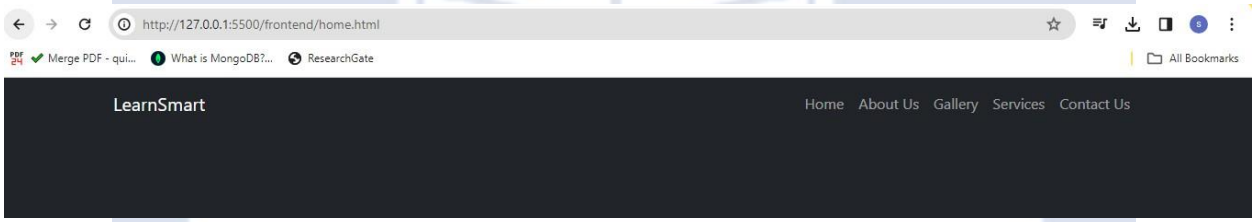
Define a Section using <section> use bg-dark for the background of the section; text-light for the text color; p-5 padding ; text-center to alight the text.

Note: padding can be defined as either pt-1,pt-2,pt-3,pt-4,pt-5 similarly we use pb, px, py where pt is Padding top, pb - padding bottom, px - padding x axis; py padding y-axis.

```
<section class="bg-dark text-light p-5 text-center">

</section>
```

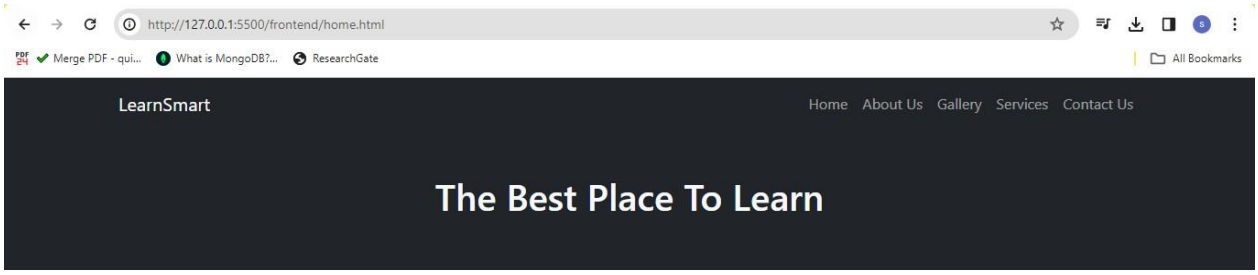
You will notice zero change. Define a container class in section and you will be able to see the changes.

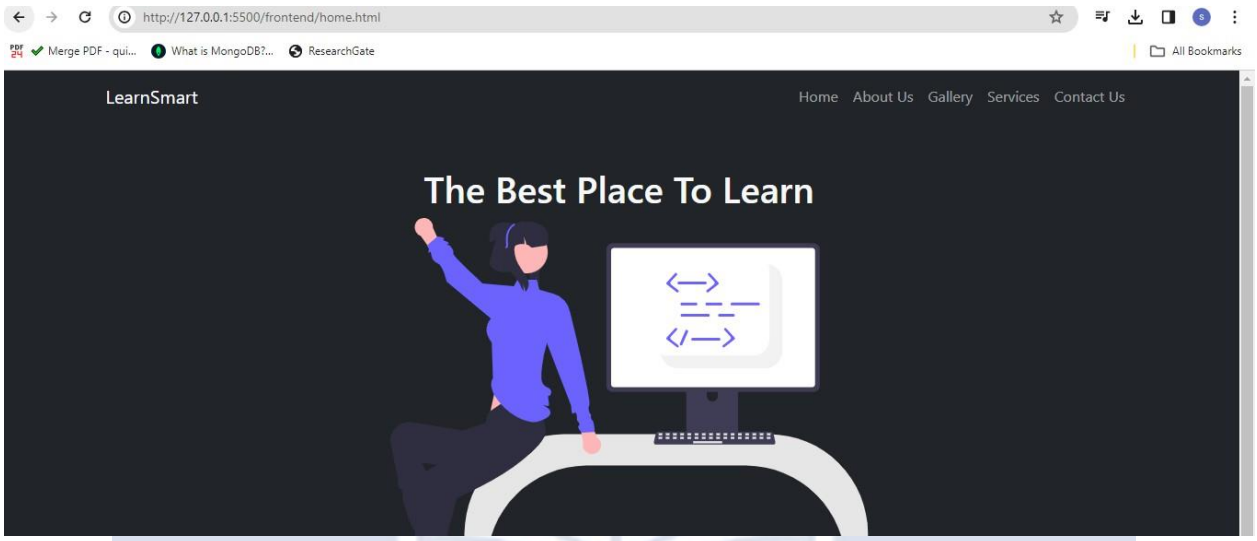
```
<section class="bg-dark text-light p-5 text-center">
        <div class=”container”>

        </div>
</section>
```



Define a flex box using div tag and create a div and an img inside it

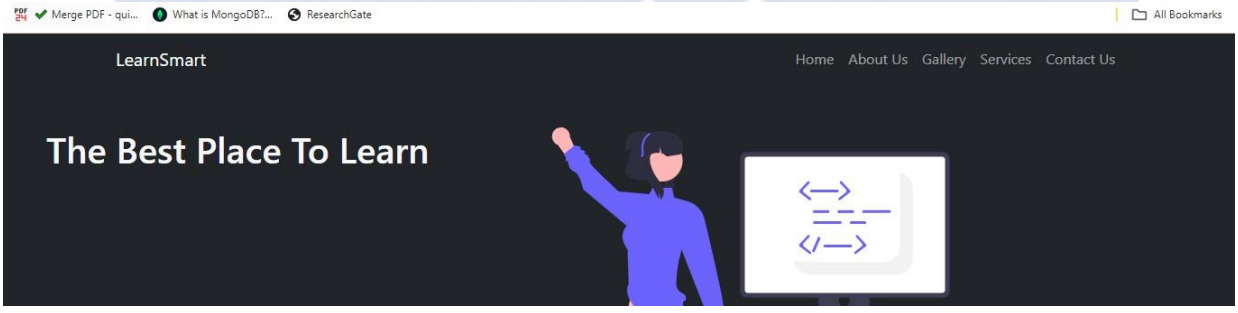
```
<div>//flex box
        <div>
            <h1>The Best Place To Learn</h1>
        </div>
        <img src=”sample.svg”>
</div>
```





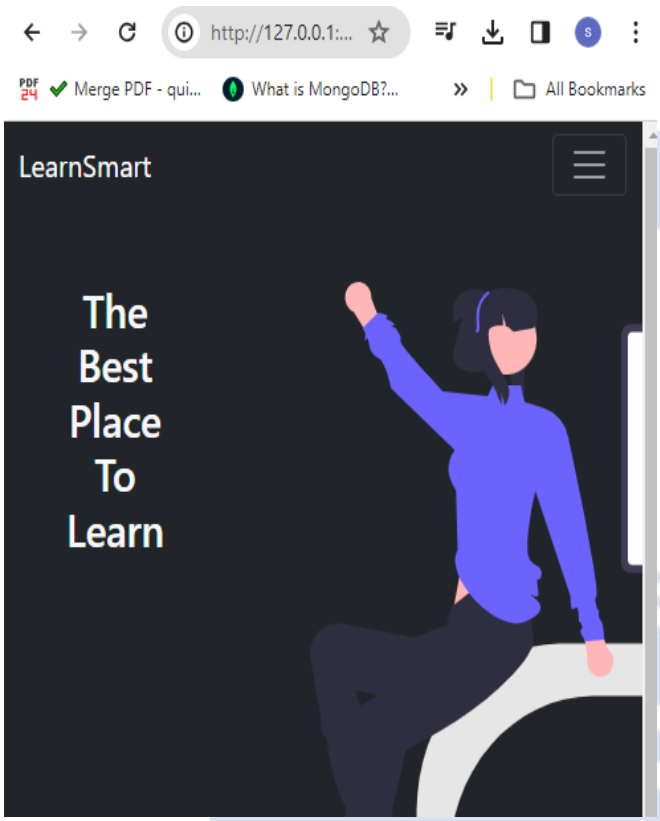
To align them side by side we use a class called **d-flex** to implement flex box

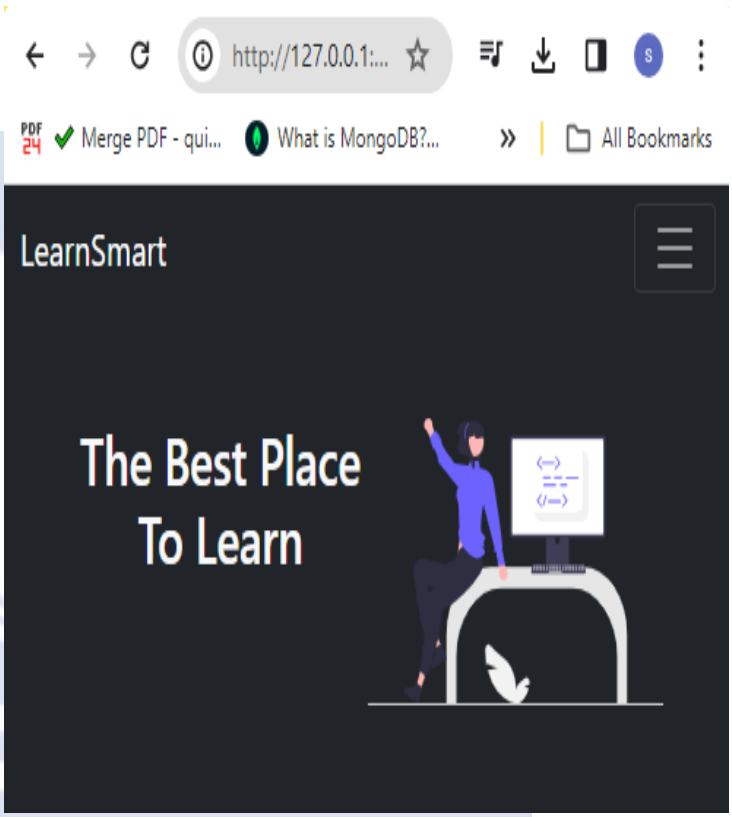
```
<div class="d-flex">//flex box
        <div>
            <h1>The Best Place To Learn</h1>
        </div>
        <img src="sample.svg">
</div>
```



To place the image inside a container we use a class inside the image tag by name “img-fluid” w-50 reduces the image by 50%

<img src=”sample.svg” class=”img-fluid w-50”> below is the output without img-fluid and with img-fluid class





To Disable Flexbox on small /mobile Screen use breakpoint sm on flex cla Ss.

D-sm-flex

Buttons

class=”btn btn-primary”

Alerts

Must be placed in div class and write the alert message accordingly.
class=”alert alert-primary”

Images

Used to display images either rounded/ circle / in thumbnail format.

class=”img-rounded”
class=”img-thumbnail”
class=”img-circle”

```
<img src="1.png" class="img-thumbnail" alt="ashneer grover"/>
<img src="1.png" class="img-circle" alt="ashneer grover"/>
<img src="1.png" class="img-rounded" alt="ashneer grover"/>
```

Badges

Badges scale to match the size of the immediate parent element by using relative font sizing.
We use “badge bg-primary” class for the following output.

```
<h2>
        Oversleeping is <span class="badge bg-danger">Bad</span>
</h2>
```

Oversleeping is Bad

Class =”badge rounded-pill” Oversleeping is Bad

Inbox 99+

```
<button class="btn btn-primary">
      Inbox <span class="badge bg-dark">99+</span>
</button>
```

Dropdown

A dropdown menu is a toggleable menu that allows the user to choose one value from a predefined list.
If you want the items to be triggered to the top use
dropup class
dropend triggers to the right and **dropstart** to the left .

Subject Lists

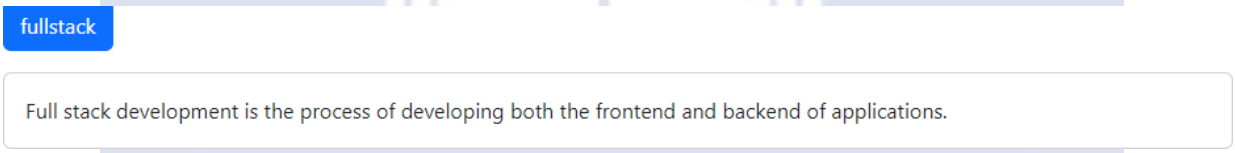
SPM
Web
MS
RM

```
<div class="dropdown">
   <button class="btn btn-secondary dropdown-toggle"
data-bs-toggle="dropdown">Subject Lists</button>
   <ul class="dropdown-menu" >

    <li><a href="#" class="dropdown-item">SPM</a></li>
    <li class="dropdown-item">Web</li>
    <li>MS</li>
        <li>RM</li>
   </ul>
</div>
```

Collapse

The collapse plugin is used to show and hide content.
Buttons or anchors are used as triggers that are mapped to specific elements you toggle.

```
<p>
  <button class="btn btn-primary" data-bs-toggle="collapse"
data-bs-target="#fullstackcollapse">fullstack</button>
</p>
<div class="collapse" id="fullstackcollapse">
   <div class="card card-body">
      Full stack development is the process of developing both the frontend
and backend of applications.
   </div>
</div>
</div>
```



Pagination

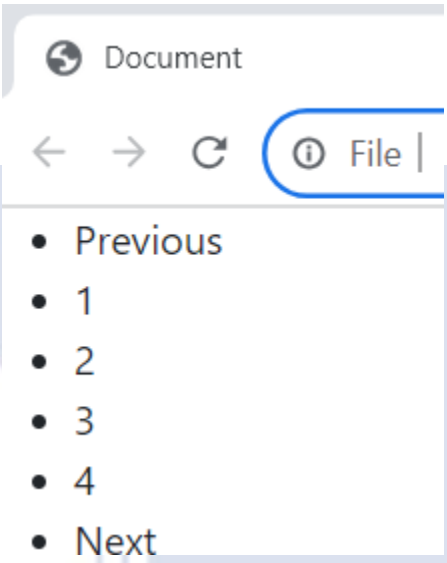
Pagination is the concept in which, we divide our records into multiple sets where each set contains the same number of records. We display each set of records on separate pages in the application.

In React Js, we implement the page in such a way that it is divided into multiple pages. And depending on the page number, we fetch the corresponding set of data and display this particular set on our React page.

Consider we have a dataset that consists of 500 records that a user of the application may request. Let us assume that we are interested in showing only 10 records on a single react page.

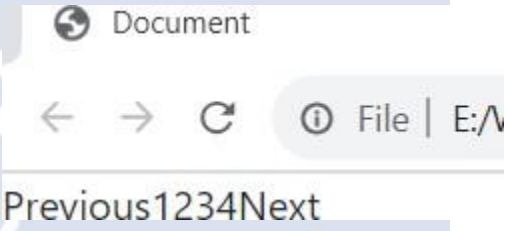
Consider the below code and output

```
<ul>
    <li>Previous</li>
    <li>1</li>
    <li>2</li>
    <li>3</li>
    <li>4</li>
    <li>Next</li>
</ul>
```



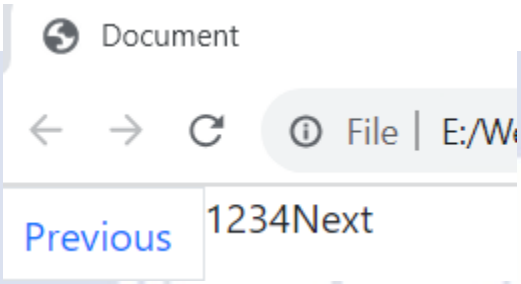
After applying **Pagination** class to **ul** the out put is as follows

```
<ul class="pagination">
    <li>Previous</li>
    <li>1</li>
    <li>2</li>
    <li>3</li>
    <li>4</li>
    <li>Next</li>
</ul>
```



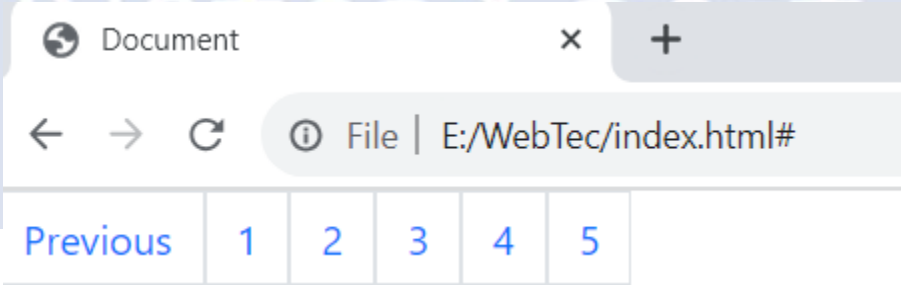
As pagination divides the response from the db into navigational pages with equal records, we use **page-item** class for **li** elements and **page-link** class for **links** elements (**anchor** elements).

```
<ul class="pagination">
    <li calss="page-item"><a class="page-link" href="#">Previous</a></li>
    <li>1</li>
    <li>2</li>
    <li>3</li>
    <li>4</li>
    <li>Next</li>
</ul>
```



Applying the classes on li and <a> we get the below output

```
<ul class="pagination">
    <li calss="page-item"><a class="page-link" href="#">Previous</a></li>
    <li calss="page-item"><a class="page-link" href="#">1</a></li>
    <li calss="page-item"><a class="page-link" href="#">2</a></li>
    <li calss="page-item"><a class="page-link" href="#">3</a></li>
    <li calss="page-item"><a class="page-link" href="#">4</a></li>
    <li calss="page-item"><a class="page-link" href="#">5</a></li>

</ul>
```



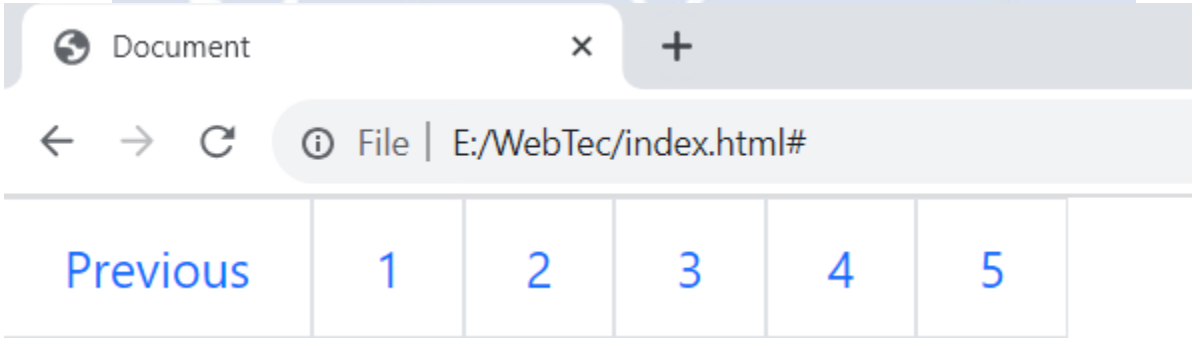
```
<nav aria-label="Page navigation demo">
    <ul class="pagination">
        <li calss="page-item"><a class="page-link" href="#">Previous</a></li>
        <li calss="page-item"><a class="page-link" href="#">1</a></li>
        <li calss="page-item"><a class="page-link" href="#">2</a></li>
        <li calss="page-item"><a class="page-link" href="#">3</a></li>
        <li calss="page-item"><a class="page-link" href="#">4</a></li>
        <li calss="page-item"><a class="page-link" href="#">5</a></li>

    </ul>
</nav>
```

We place the entire code as part of <nav> as we are implementing navigational links . we also use aria-label - this is an attribute which provides description about the navigational component . it is always recommended to use meaningful label names.

In addition to this we can define the size of the pagination elements by declaring the breakpoint.

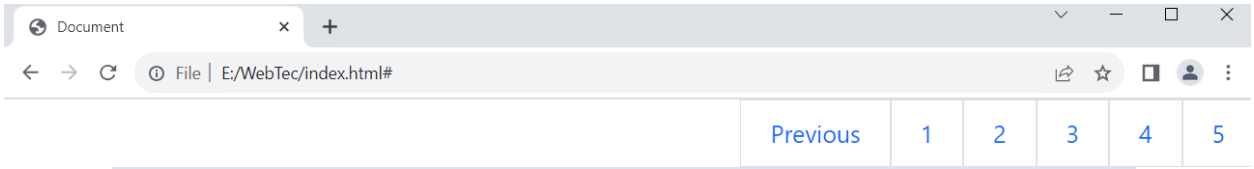
We use pagination-lg /pagination-md-pagination-sm …classes accordingly. We will mention this class in the unordered list element.

```
<nav aria-label="Page navigation demo">
    <ul class="pagination pagination-lg">
```

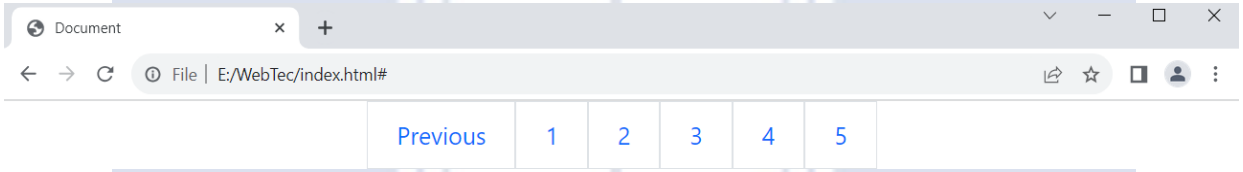


We can align the pagination to center or to the right of the page by using justify-content-center / justify-content-end.

```
<ul class="pagination pagination-lg justify-content-end">
```




```
<ul class="pagination pagination-lg justify-content-center">
```



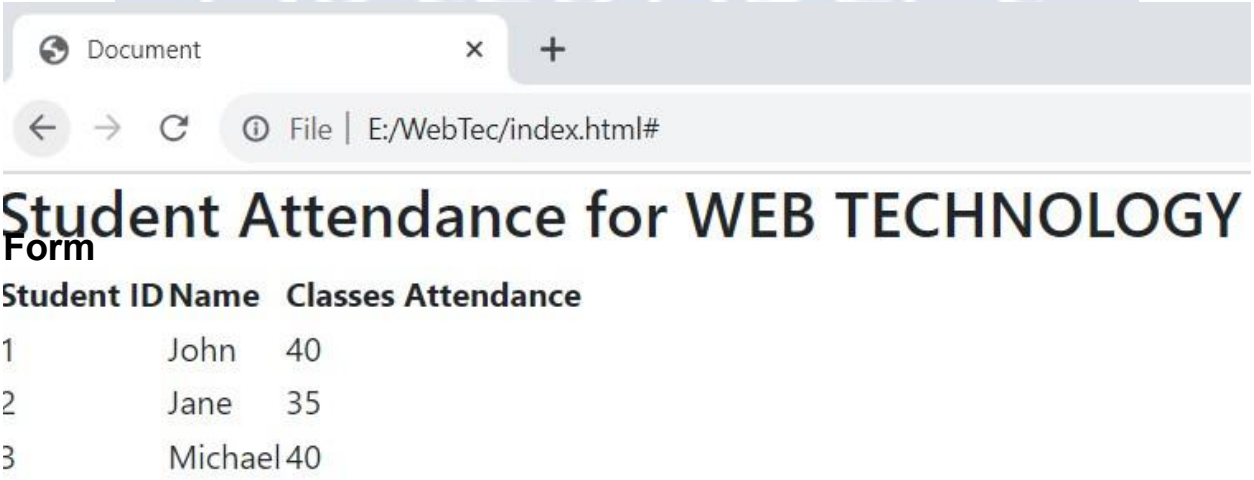
Tables

Tables in Bootstrap uses the following classes and attributes

Table tag	class	attribute	value	remarks
<table>	.table .table-primary .table-secondary .table-danger .table-info			

Stripped table	.table table-striped .table table-striped table-dark			
Hoverable table	.table table-hover			
Active table	.			
<th>		scope	col	
<tr>	.table-primary .table-secondary .table-danger .table-info			
<td>	.table-primary .table-secondary .table-danger .table-info			
borders	table-bordered / table-borderless			

Consider the below table



BootStrap Carousel Plugin

Let us apply the bootstrap classes to change the look and feel of the table

Class:table

Student Attendance for WEB TECHNOLOGY

Student ID	Name	Classes Attendance
1	John	40
2	Jane	35
3	Michael	40

```
<div class="container">
<h2>Student Attendance for WEB TECHNOLOGY</h2>
<table class="table">
    <thead>
        <tr>
```

Class:table table-primary

File | E:/WebTec/index.html#

Student Attendance for WEB TECHNOLOGY

Student ID	Name	Classes Attendance
1	John	40
2	Jane	35
3	Michael	40

Class:table table-primary

Class:table table-dark

Document

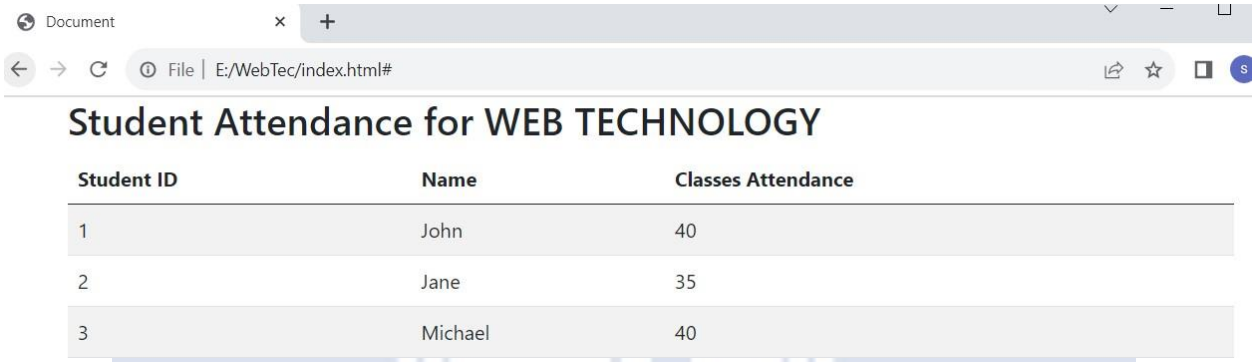
File | E:/WebTec/index.html#

Student Attendance for WEB TECHNOLOGY

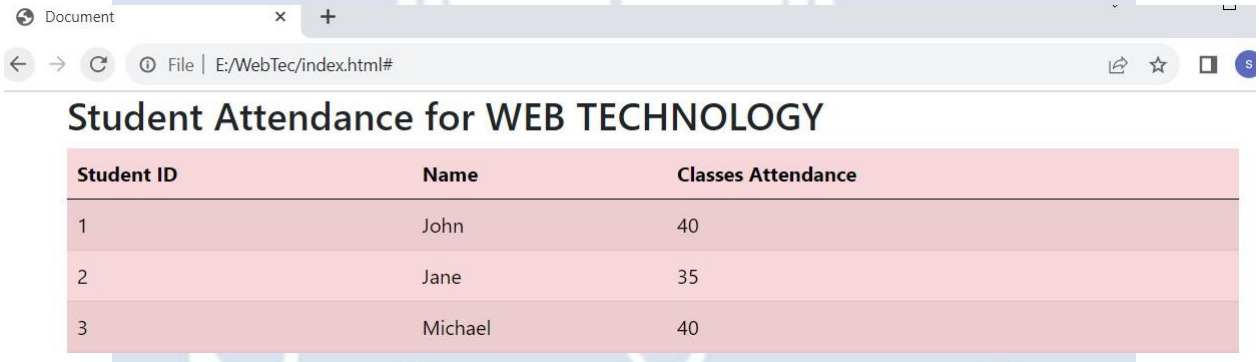
Student ID	Name	Classes Attendance
1	John	40
2	Jane	35
3	Michael	40

And all the inbuilt classes such as table-secondary, table-warning, table-danger, table-info, table-light .

Class:table table-striped

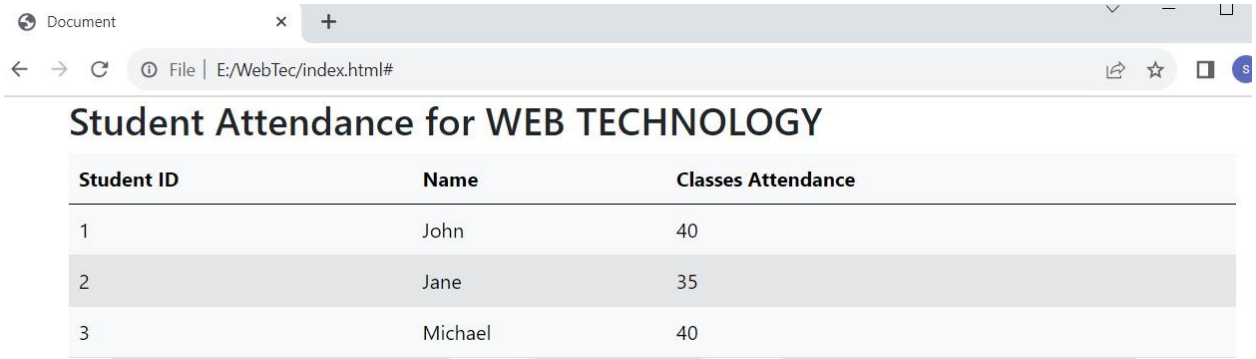


Class:table table-striped table-danger or any combination of previous table color classes.




```
<div class="container">
<h2>Student Attendance for WEB TECHNOLOGY</h2>
<table class="table table-striped table-danger">
    <thead>
        <tr>
```

Class:table table-hover table-light or any combination of previous table color classes.

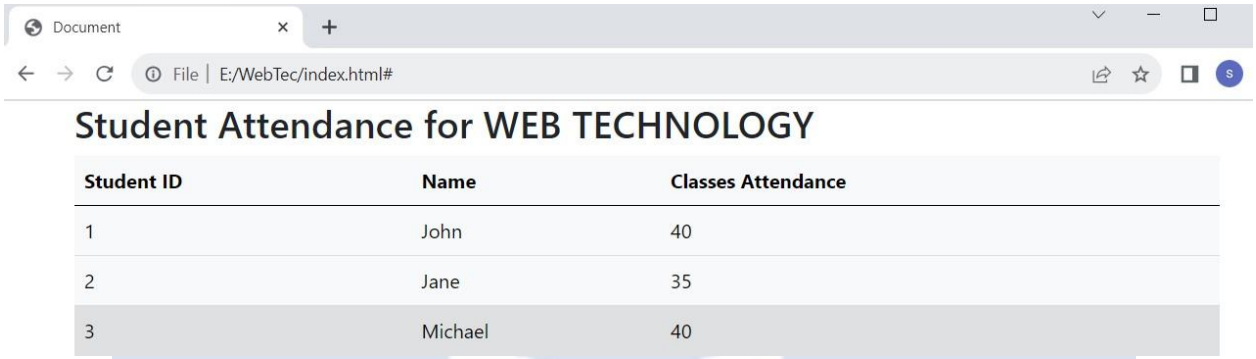



```
<table class="table table-light table-hover">
    <thead>
```

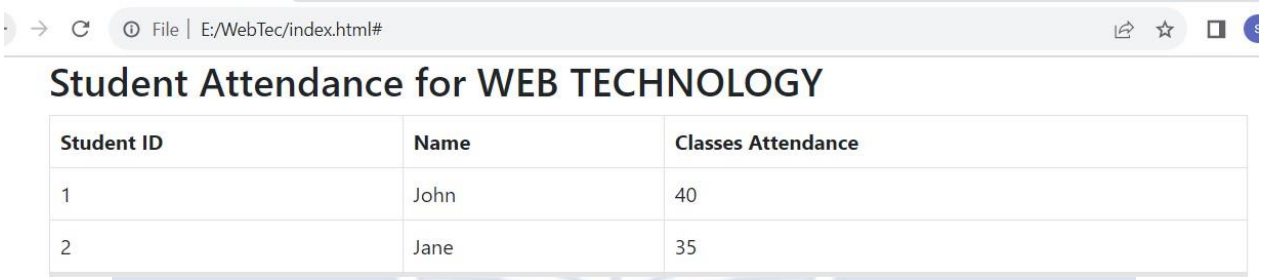
class : table-active is applied on to table row or on to table column to highlight the row or column when the table is loaded onto the webpage.

```
  <tbody>
      <tr>
          <td scope="col">1</td>
          <td>John</td>
          <td>40</td>
      </tr>
      <tr>
          <td>2</td>
          <td>Jane</td>
          <td>35</td>
      </tr>
      <tr class="table-active">
          <td>3</td>
          <td>Michael</td>
          <td>40</td>
      </tr>
      <!-- Add more rows as needed -->
  </tbody>
table>
```

In the above code row 2 is set to active and when the page is loaded it highlights row 3.

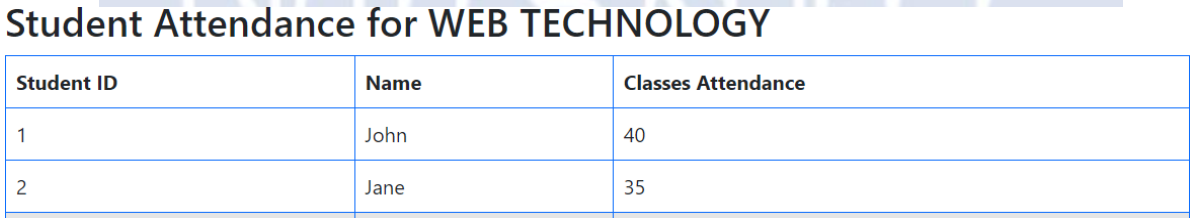


Class:table table-bordered



We can also use table-bordered along with border-primary and other border-defaultcolor classes (secondary/warning, danger etc)

```
<table class="table table-bordered border-primary">
    <thead>
        <tr>
```



CAROUSEL PLUGIN

A slideshow component for cycling through elements—images or slides of text—like a carousel.

The carousel is a slideshow for cycling through a series of content, built with CSS 3D transforms and a bit of JavaScript. It works with a series of images, text, or custom markup. It also includes support for previous/next controls and indicators.

- `.active` class needs to be added to one of the slides
- Also be sure to set a unique `id` on the `.carousel` for optional controls,
- Control and indicator elements must have a `data-bs-target` attribute (or `href` for links) that matches the `id` of the `.carousel` element.
- the `.d-block` and `.w-100` on carousel images to prevent browser default image alignment.

Classes - carousel, carousel slide, carousel-inner, carousel-item, carousel-item active; d-block w-100

```
<!-- CAROUSEL  -->

    <div id="slidingimages" class="carousel slide" data-bs-ride="carousel">

        <div class="carousel-inner">
            <div class="carousel-item active">
                <img src="1.jpg" class="d-block w-100" alt="bi1">
            </div>
            <div class="carousel-item">
                <img src="2.jpg" alt="" class="d-block w-100">
            </div>
            <div class="carousel-item">
                <img src="3.jpg" alt="" class="d-block w-100">
            </div>
            <div class="carousel-item">
                <img src="4.jpg" alt="" class="d-block w-100">
            </div>
            <div class="carousel-item">
                <img src="5.jpg" alt="" class="d-block w-100">
            </div>
        </div>

    </div>
```

https://drive.google.com/file/d/1mc1paMbRCoRNsPlu4AeJeZDg1TkV2LMM/view?usp=drive_link

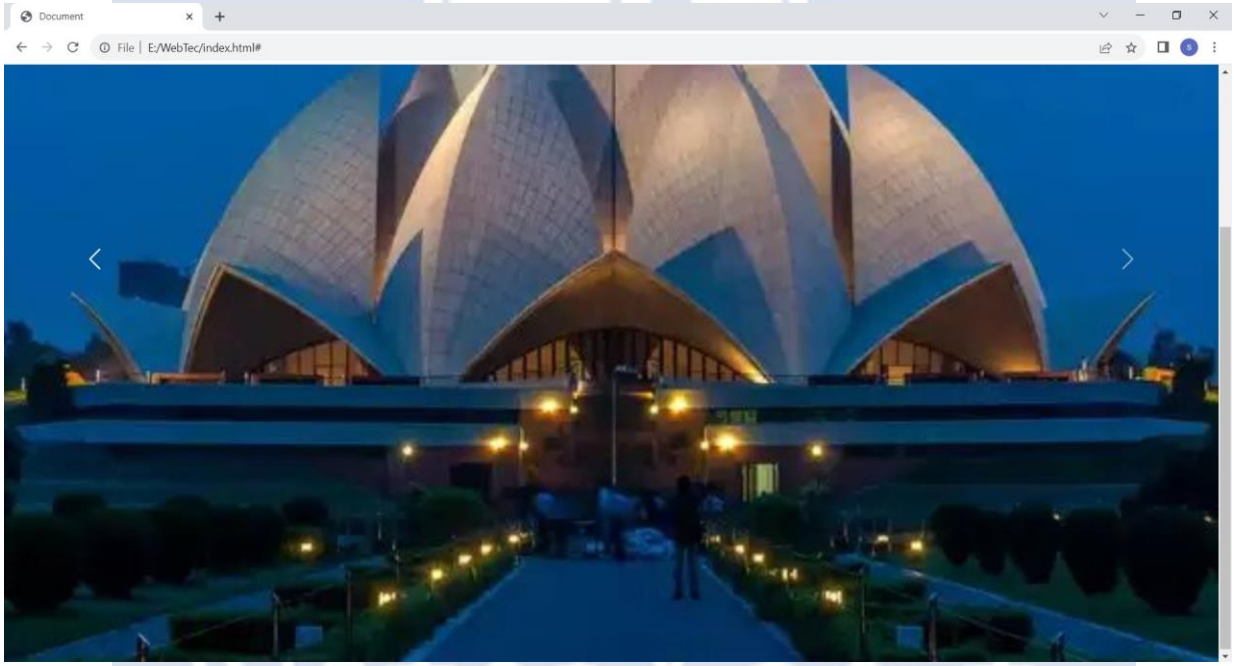
Use the above link to see the output of carousel

Additional Information on carousel

To add controls to carousel we use button element or <a> element with role ="button"

Classes to use are : carousel-control-prev /carousel-control-next
Carousel-control-prev-icon /Carousel-control-next-icon
Visually-hidden

```
<button class="carousel-control-prev" type="button"
data-bs-target="#slidingimages" data-bs-slide="prev">
                <span class="carousel-control-prev-icon" aria-hidden="true"></span>
                <span  class="visually-hidden">Previous</span>
            </button>
            <button class="carousel-control-next" type="button"
data-bs-target="#slidingimages" data-bs-slide="next">
                <span class="carousel-control-next-icon" aria-hidden="true"></span>
                <span  class="visually-hidden">Next</span>
            </button>
```



FORMS