1.1: Create a basic HTML page and link Bootstrap 5 via CDN.

```
<!DOCTYPE html>

<html lang="en">

<head>

  <meta charset="UTF-8">

  <meta name="viewport" content="width=device-width, initial-scale=1.0">

  <title>Bootstrap 5 Setup</title>

  <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.0/dist/css/bootstrap.min.css" rel="stylesheet">

  <link href="bootstrap.min.css" rel="stylesheet" onerror="this.onerror=null; this.href='bootstrap.min.css';">

</head>

<body>

  <h1 class="text-center">Hello Bootstrap 5</h1>

</body>

</html>
```

Exercise 1.2: Set up a project using npm or downloaded Bootstrap files. Use the downloaded files in a sample HTML page.

```
<!DOCTYPE html>

<html lang="en">

<head>

  <meta charset="UTF-8">

  <meta name="viewport" content="width=device-width, initial-scale=1.0">

  <title>Bootstrap 5 Setup</title>

  <link rel="stylesheet" href="node_modules/bootstrap/dist/css/bootstrap.min.css">

<script src="node_modules/bootstrap/dist/js/bootstrap.bundle.min.js"></script>


<body>

  <h1 class="text-center">Hello Bootstrap 5</h1>
```

```
</body>

</html>
```

Exercise 2.1: Explore the structure of the downloaded Bootstrap directory. Identify and explain the purpose of the CSS, JS, and icons folders.

css/: Contains bootstrap.min.css (compiled CSS).

js/: Contains bootstrap.bundle.min.js (includes Popper.js for dropdowns/tooltips).

icons/: Optional, used when Bootstrap Icons are included.

Exercise 2.2: Modify your HTML to include Bootstrap's JavaScript plugins via bootstrap.bundle.min.js.

I have already used.

```
<script src="node_modules/bootstrap/dist/js/bootstrap.bundle.min.js"></script>
```

Exercise 3.1: Create a container with three columns that stack vertically on mobile, two-per-row on tablets, and three-per-row on desktops.

Exercise 3.2: Use .container, .row, and .col-* classes appropriately for responsive design.

```
<!DOCTYPE html>

<html lang="en">

<head>

 <meta charset="UTF-8">

 <meta name="viewport" content="width=device-width, initial-scale=1.0">

 <title>Bootstrap 5 Setup</title>

 <link rel="stylesheet" href="node_modules/bootstrap/dist/css/bootstrap.min.css">

<script src="node_modules/bootstrap/dist/js/bootstrap.bundle.min.js"></script>


<body>

  <div class="container">

    <div class="row">

      <div class="col-12 col-md-6 col-lg-4 bg-primary text-white p-3">Column 1</div>
```

```
        <div class="col-12 col-md-6 col-lg-4 bg-success text-white p-3">Column 2</div>

        <div class="col-12 col-md-6 col-lg-4 bg-danger text-white p-3">Column 3</div>

      </div>

    </div>


</body>

</html>
```
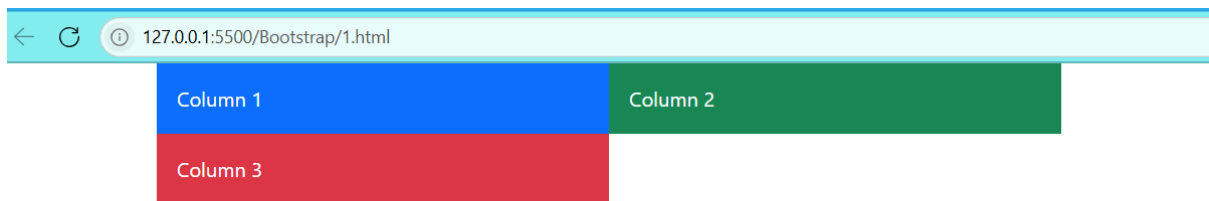

Exercise 4.1: Design a two-column layout with a sidebar (col-md-3) and content area (col-md-9).

```
<!DOCTYPE html>

<html lang="en">

<head>

 <meta charset="UTF-8">

 <meta name="viewport" content="width=device-width, initial-scale=1.0">

 <title>Bootstrap 5 Setup</title>

 <link rel="stylesheet" href="node_modules/bootstrap/dist/css/bootstrap.min.css">

<script src="node_modules/bootstrap/dist/js/bootstrap.bundle.min.js"></script>
```

```
<body>

  <div class="container">

    <div class="row">

      <div class="col-md-3 bg-light">Sidebar</div>

      <div class="col-md-9 bg-white">Main Content</div>

    </div>

  </div>
```

```
</body>

</html>
```


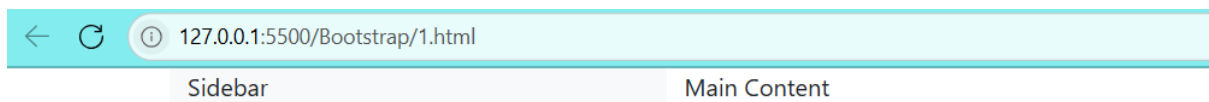**Exercise 4.2: Create a four-column layout (col-sm-3) with equal width.**

```
<body>

  <div class="container">

    <div class="row">

      <div class="col-sm-3 bg-info">1</div>

      <div class="col-sm-3 bg-secondary">2</div>

      <div class="col-sm-3 bg-warning">3</div>

      <div class="col-sm-3 bg-success">4</div>

    </div>


  </div>
```
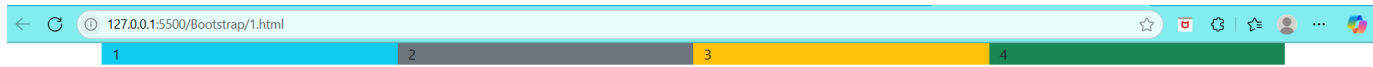
</body>

1	2	3	4

Exercise 5.1: Use justify-content-center and align-items-center to center content inside a row.

<body>

   <div class="row justify-content-center align-items-center" style="height: 100vh;">

      <div class="col-6 bg-light p-5 text-center">Centered Content</div>

    </div>

   <div class="container">

     <div class="row">

       <div class="col-sm-3 bg-info">1</div>

       <div class="col-sm-3 bg-secondary">2</div>

       <div class="col-sm-3 bg-warning">3</div>

       <div class="col-sm-3 bg-success">4</div>

     </div>

    </div>

</body>

Centered Content
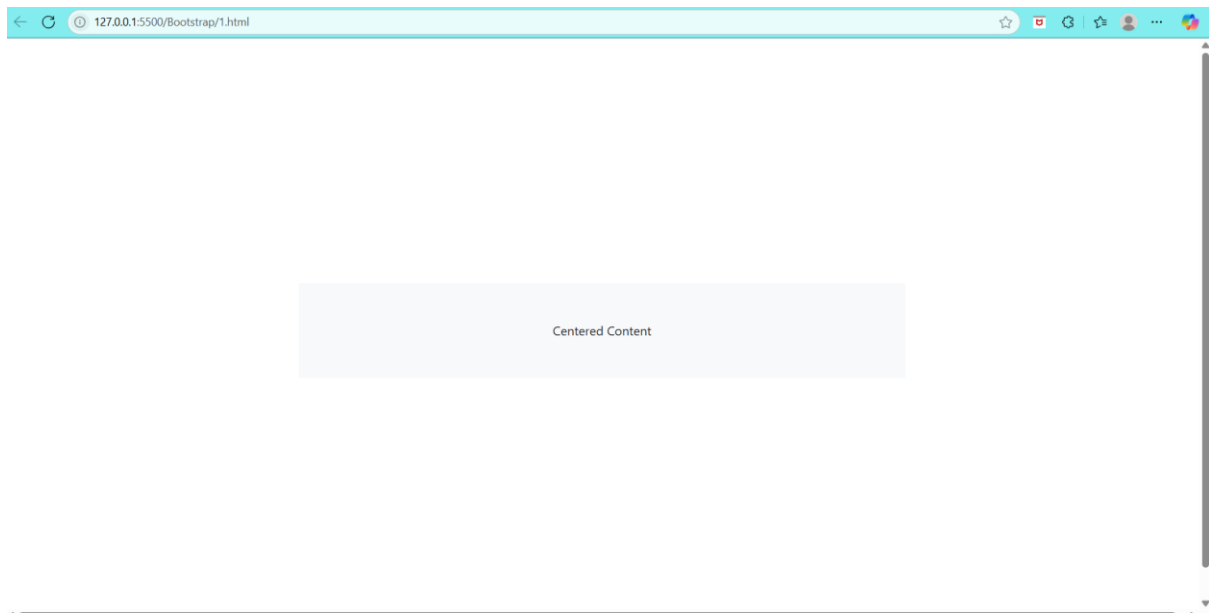
Exercise 5.2: Reorder columns on different screen sizes using order-md-2, order-md-1.

```
<body>
  <div class="container">
    <div class="row">
      <div class="col-md-6 order-md-2 bg-warning">Second on Desktop</div>
      <div class="col-md-6 order-md-1 bg-info">First on Desktop</div>
    </div>
  </div>
</body>
</html>
```
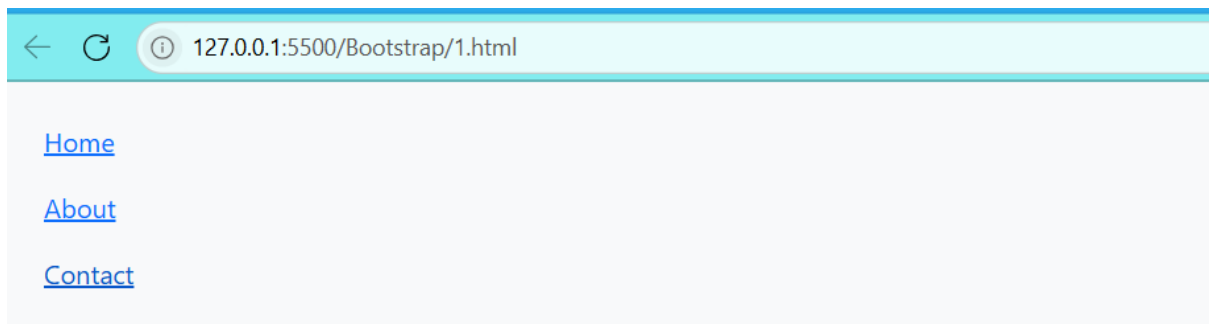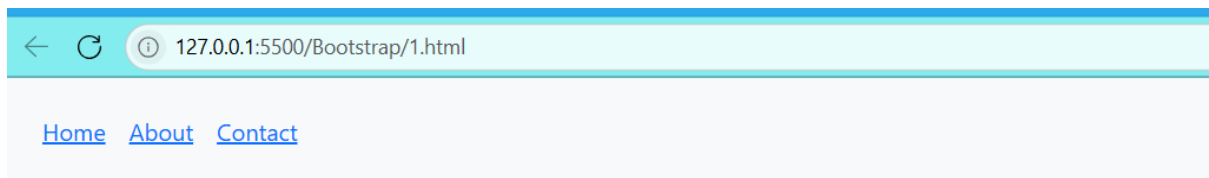
First on Desktop   Second on Desktop

Exercise 6.1: Create a navbar using d-flex, flex-column, and flex-md-row for responsive behavior.

```
<body>

    <nav class="d-flex flex-column flex-md-row bg-light p-3">

        <a class="p-2" href="#">Home</a>

        <a class="p-2" href="#">About</a>

        <a class="p-2" href="#">Contact</a>

    </nav>


</body>
```


Exercise 6.2: Use justify-content-between and align-items-center in a card layout.

```
<body>

    <div class="card d-flex flex-row justify-content-between align-items-center p-3">

        <div>Content</div>

        <button class="btn btn-primary">Action</button>

    </div>



</body>
```

Content   Action

Exercise 7.1: Create a sample page with different Bootstrap typography utilities: display-1, lead, text-muted, fw-bold, etc.
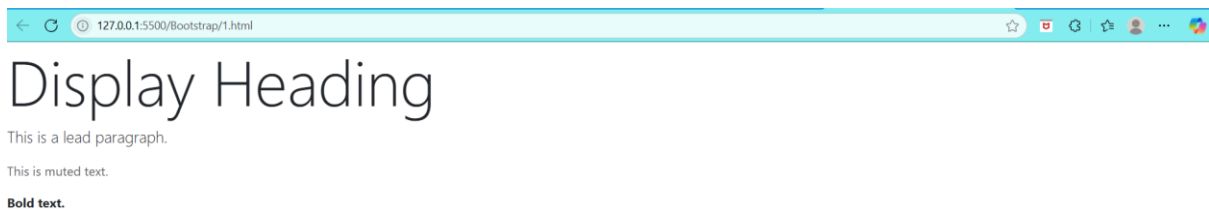
<body>

   <h1 class="display-1">Display Heading</h1>

<p class="lead">This is a lead paragraph.</p>

<p class="text-muted">This is muted text.</p>

<p class="fw-bold">Bold text.</p>
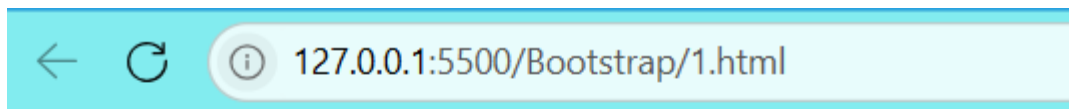
</body>

Exercise 7.2: Use text-uppercase, text-lowercase, text-capitalize.

<body>

   <p class="text-uppercase">uppercase</p>

   <p class="text-lowercase">LOWERCASE</p>

   <p class="text-capitalize">capitalize each word</p>

 </body>

Exercise 8.1: Create a registration form using Bootstrap form components like form-control, form-check, and input-group.

```
<form>

    <div class="mb-3">

     <label class="form-label">Name</label>

    <input type="text" class="form-control" id="name" placeholder="Enter your name">

    </div>

    <div class="form-check">

     <input type="checkbox" class="form-check-input" id="agree">

     <label class="form-check-label" for="agree">Agree</label>

    </div>

    </form>
```


Exercise 8.2: Style a login form using form-floating.

```
<body>

   <form>

    <div class="mb-3">

     <label class="form-label">Name</label>
```

```
    <input type="text" class="form-control" id="name" placeholder="Enter your name">

    </div>

    <div class="form-check">

      <input type="checkbox" class="form-check-input" id="agree">

      <label class="form-check-label" for="agree">Agree</label>

    </div>

    </form>

    <div class="form-floating mb-3">

      <input type="email" class="form-control" placeholder="Email">

      <label>Email address</label>

    </div>

</body>
```
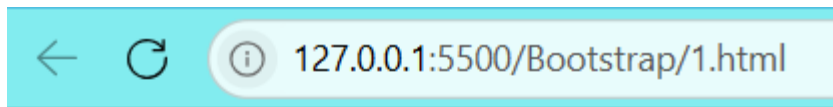

Exercise 9.1: Create buttons using all contextual classes: btn-primary, btn-secondary, btn-outline-*, etc.

```
 <button class="btn btn-primary">Primary</button>

<button class="btn btn-outline-danger">Outline</button>
```

Exercise 9.2: Add button groups using btn-group, and create toggle buttons with checkboxes.

```
<div class="btn-group" role="group">

  <input type="checkbox" class="btn-check" id="btn1">

  <label class="btn btn-outline-primary" for="btn1">Toggle</label>

</div>
```
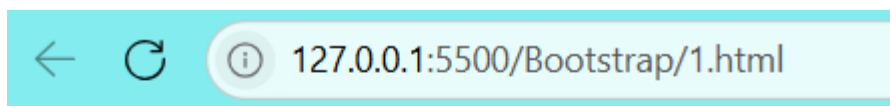
Exercise 10.1: Create a responsive navbar with logo, navigation links, and a search form.

```
<nav class="navbar navbar-expand-lg navbar-light bg-light">

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

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

```
    <ul class="navbar-nav me-auto">

      <li class="nav-item"><a class="nav-link" href="#">Home</a></li>

    </ul>

    <form class="d-flex">

      <input class="form-control me-2" placeholder="Search">

    </form>

  </div>

  </nav>
```


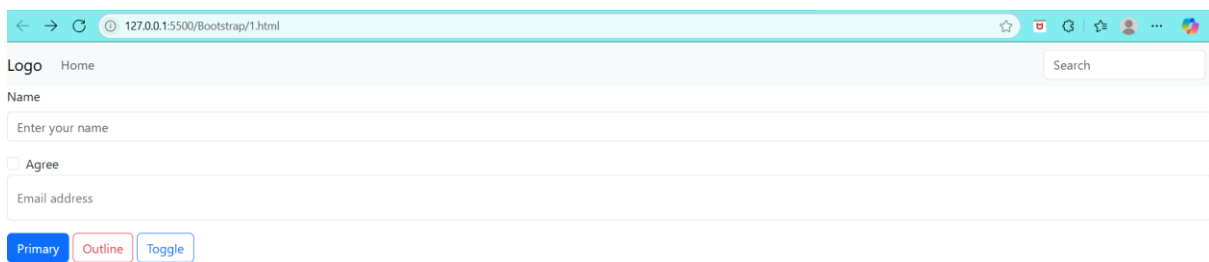**Exercise 10.2: Use nav, nav-tabs, nav-pills for creating tabbed navigation.**

```
  <ul class="nav nav-tabs">

      <li class="nav-item">

        <a class="nav-link active" href="#">Tab 1</a>

      </li>

    </ul>
```

Exercise 11.1: Create a profile card using card, card-body, card-title, and card-img-top.

```
<div class="card" style="width: 18rem;">

    <img src="Sayantan.png" class="card-img-top" alt="...">

    <div class="card-body">

      <h5 class="card-title">Profile Pic</h5>

      <p class="card-text">Java Full Stack Developer</p>

    </div>

   </div>
```

Exercise 11.2: Design a media object layout using media and align an image to the left of the content.

```
<div class="d-flex">

    <img src="Sayantan.png" class="me-3 custom-img" alt="Description of Sayantan">
```

```
  <div>

    <h5>Media Title</h5>

    <p>Media body text.</p>

  </div>

</div>
```
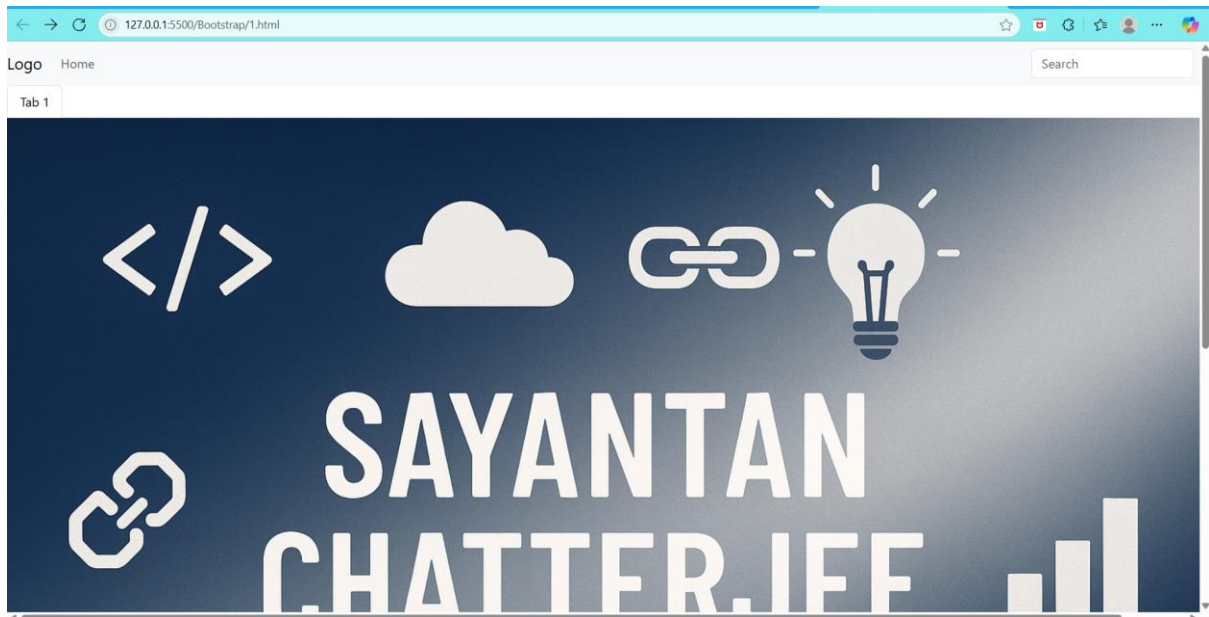

Exercise 12.1: Apply margin (m-3, mt-4) and padding (p-2, py-5) utilities on layout sections.

```
<div class="container">

    <div class="bg-primary text-white m-3 p-3">

      Margin 3 and Padding 3

    </div>

    <div class="bg-secondary text-white mt-4 py-5">

      Top Margin 4 and Vertical Padding 5

    </div>

    </div>
```
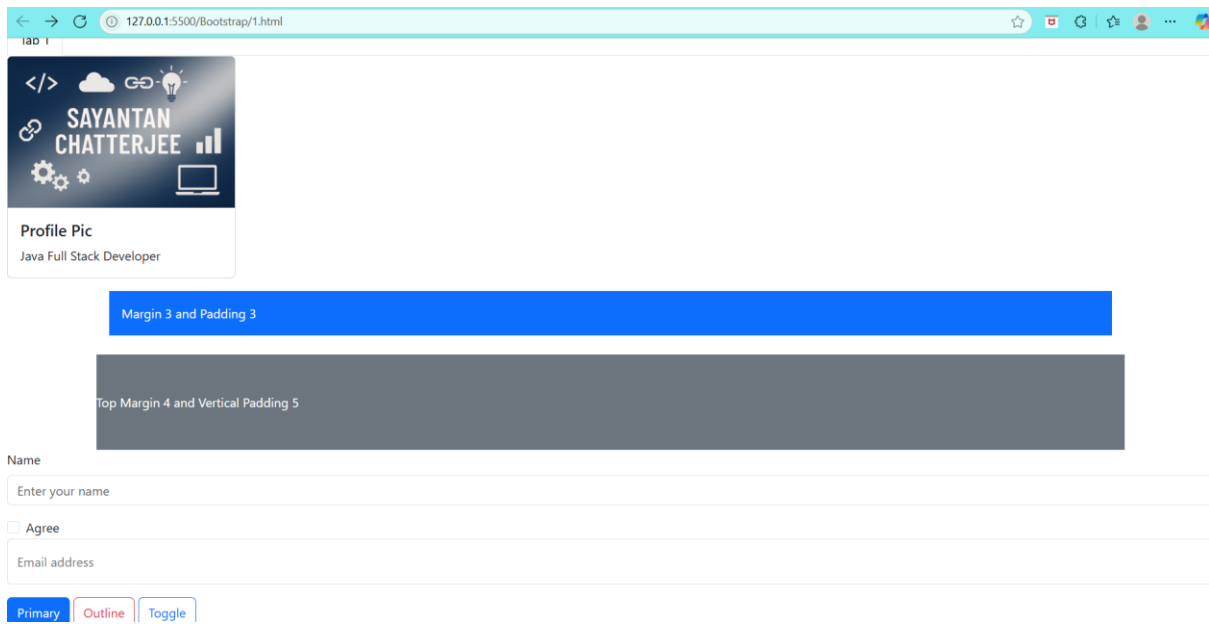
Exercise 12.2: Build a pricing section where spacing improves the layout.

```
<div class="container py-5">

    <div class="row text-center">

     <div class="col-md-4 mb-4">

       <div class="p-4 border rounded">

         <h4>Basic</h4>

         <p class="display-6">Rs 10</p>

         <button class="btn btn-outline-primary">Select</button>

       </div>

     </div>

     <div class="col-md-4 mb-4">

       <div class="p-4 border rounded">

         <h4>Intermediate</h4>

         <p class="display-6">Rs 50</p>

         <button class="btn btn-outline-primary">Select</button>

       </div>

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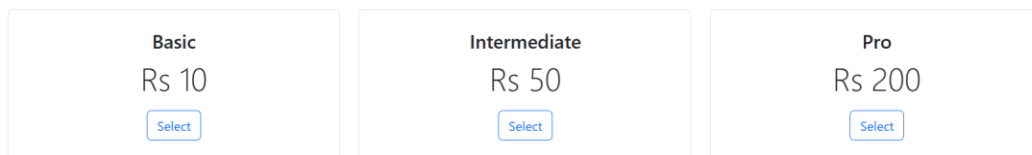
```
<div class="col-md-4 mb-4">

  <div class="p-4 border rounded">

    <h4>Pro</h4>

    <p class="display-6">Rs 200</p>

    <button class="btn btn-outline-primary">Select</button>

  </div>

 </div>

 </div>

</div>
```


Exercise 13.1: Create a dashboard page using contextual background classes (bg-primary, bg-warning, etc.) and text colors.

```
<div class="container-fluid">

    <div class="row">

     <div class="col-md-3 bg-primary text-white p-3">Sidebar</div>

     <div class="col-md-9 bg-warning text-dark p-3">Main Content</div>

    </div>

    </div>
```
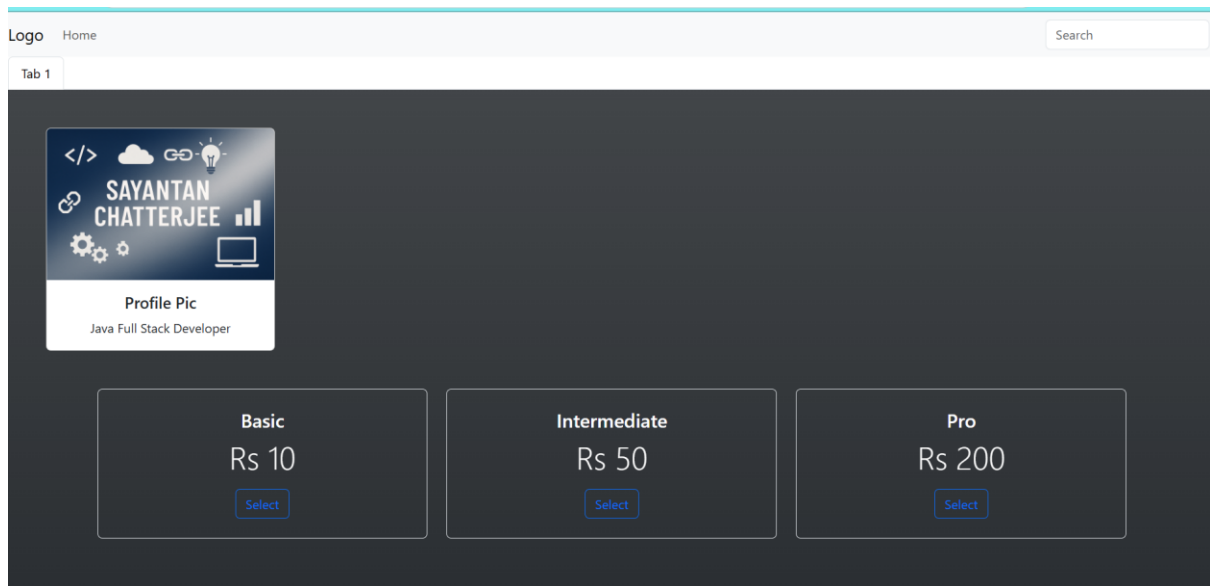

Exercise 13.2: Use bg-gradient with bg-dark and white text.

```
 <div class="bg-dark bg-gradient text-white p-5 text-center">

</div>
```

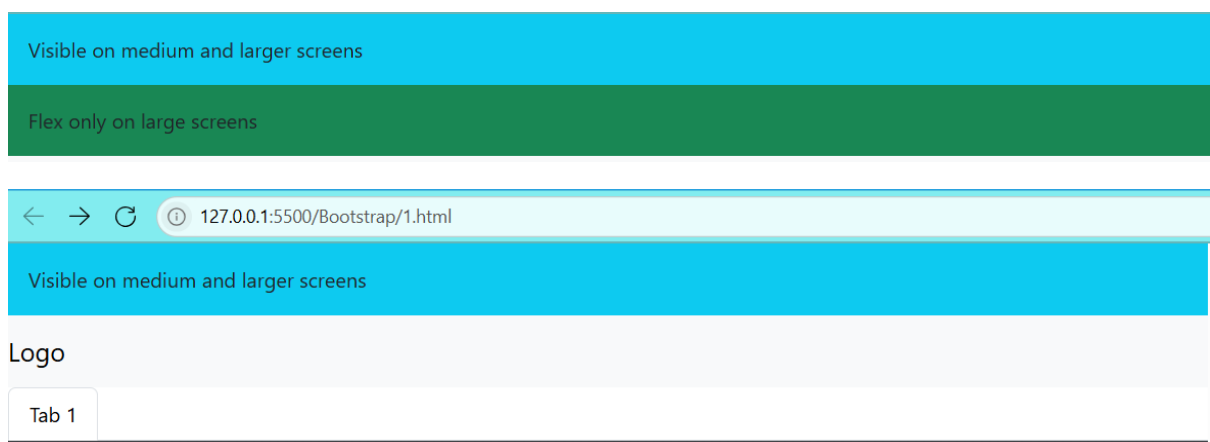**Exercise 14.1: Use d-none, d-md-block, d-lg-flex to hide/show sections based on screen size.**

```
<div class="d-none d-md-block bg-info p-3">

    Visible on medium and larger screens

</div>

<div class="d-lg-flex d-none p-3 bg-success">

  Flex only on large screens

</div>
```


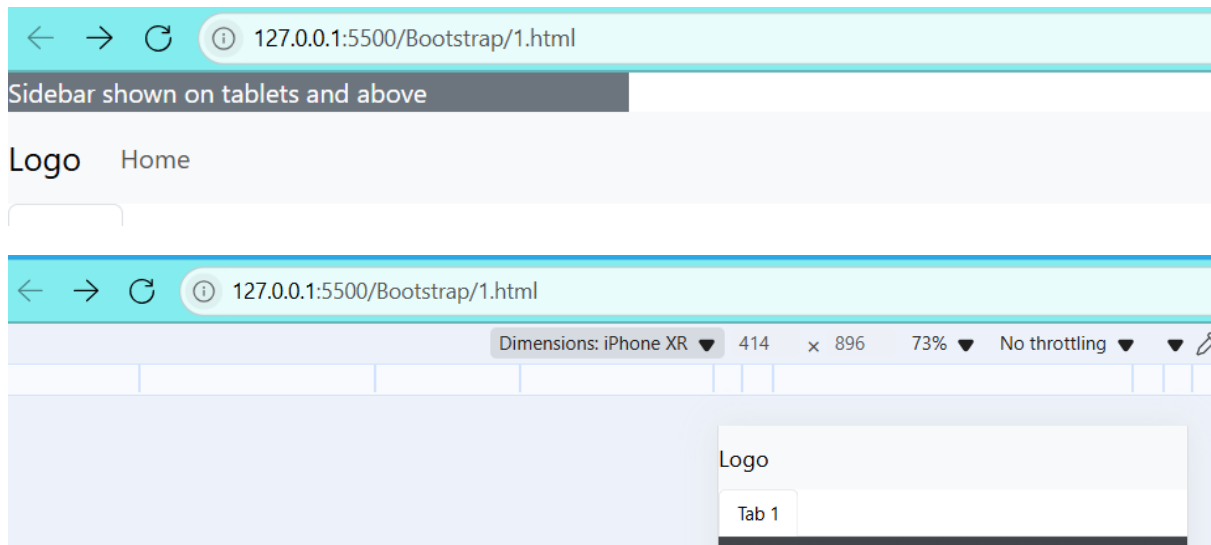**Exercise 14.2: Create a responsive sidebar that only shows on tablets and above.**

```
<div class="d-none d-md-block col-md-3 bg-secondary text-white">
```

Sidebar shown on tablets and above

    </div>

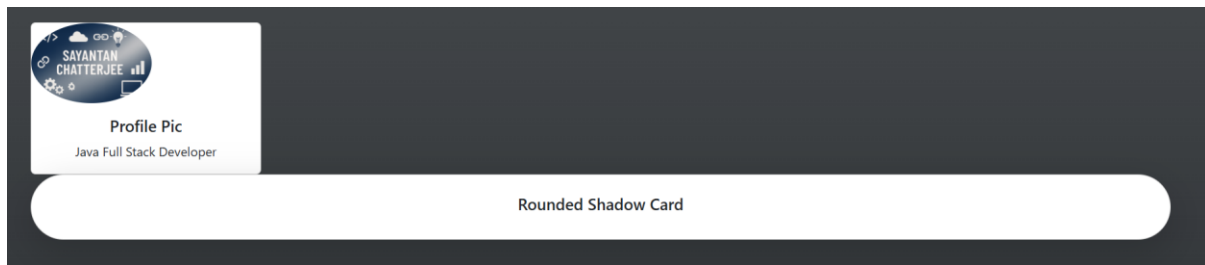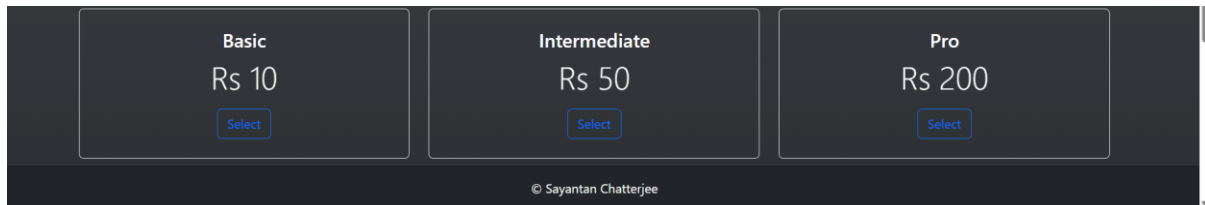**Exercise 15.1: Add border utilities like border, border-primary, border-3, and rounded-circle to an image.**

<img src="Sayantan.png" class="border-primary border-3 rounded-circle" alt="Avatar" width="150">

Exercise 15.2: Use shadow, shadow-lg and rounded-pill in a card.

<div class="card shadow-lg rounded-pill p-4">

    <h5 class="card-title">Rounded Shadow Card</h5>

    </div>

Exercise 16.1: Create a fixed footer using position-fixed bottom-0.

<footer class="bg-dark text-white text-center position-fixed bottom-0 w-100 py-3">

© Sayantan Chatterjee

</footer>

Exercise 16.2: Use position-relative and position-absolute to overlay a badge over an image.

<div class="position-relative d-inline-block">

<img src="Sayantan.png" alt="Product">

New

</div>

© Sayantan Chatterjee

Exercise 17.1: Install and use Bootstrap Icons in a webpage: add social media icons in the footer.

<footer class="bg-dark text-white text-center position-fixed bottom-0 w-100 py-3">

© Sayantan Chatterjee <footer class="text-center">

   <i class="bi bi-facebook me-3"></i>

   <i class="bi bi-twitter me-3"></i>

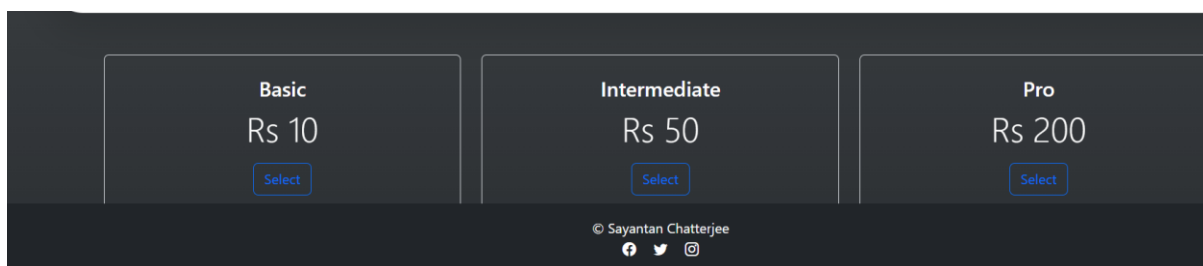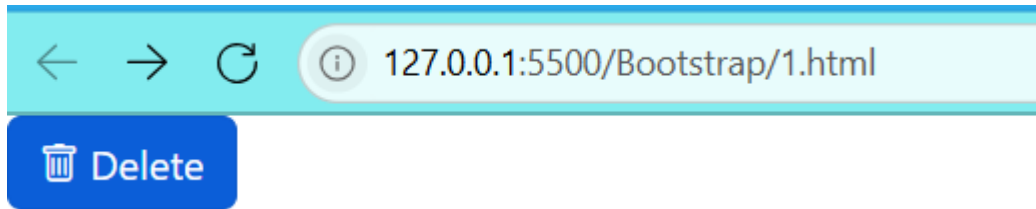   <i class="bi bi-instagram"></i>

 </footer>

</footer>

Exercise 17.2: Replace text buttons with icon-only buttons using Bootstrap Icons.

<button type="button" class="btn btn-primary" title="Delete">

```
    <i class="bi bi-trash"></i>

    Delete

  </button>
```


Exercise 18.1: Add a modal popup triggered by a button.

```
<div class="modal fade" id="myModal">

  <div class="modal-dialog">

    <div class="modal-content">

      <div class="modal-header">

        <h5 class="modal-title">Modal Title</h5>

        <button type="button" class="btn-close" data-bs-dismiss="modal" title="Close
modal"></button>

      </div>

      <div class="modal-body">Hello from modal!</div>

    </div>

  </div>

</div>
```
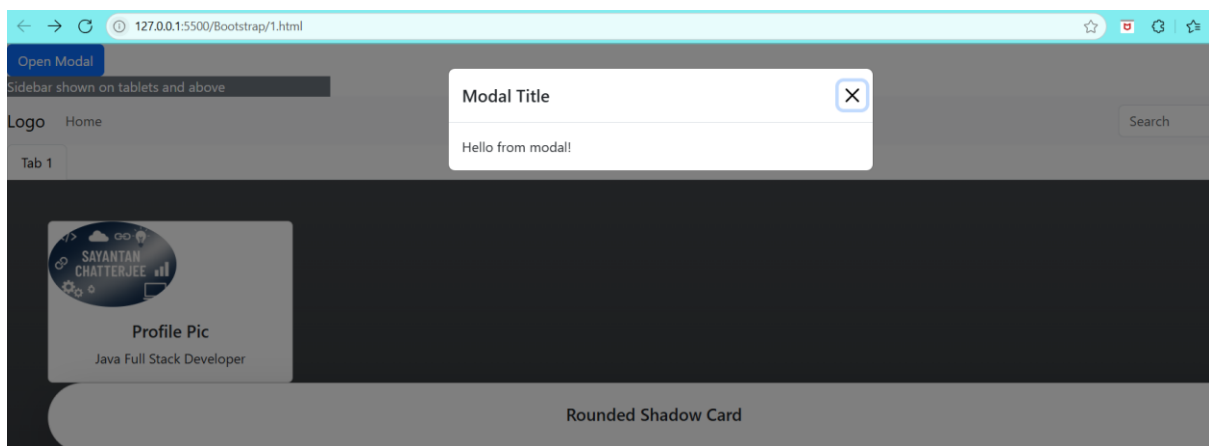
Exercise 18.2: Create a collapsible accordion using accordion and Bootstrap JavaScript behavior.

```
<div class="accordion" id="myAccordion">

  <div class="accordion-item">

    <h2 class="accordion-header" id="headingOne">

      <button class="accordion-button" data-bs-toggle="collapse" data-bs-
target="#collapseOne">

        Accordion Item #1

      </button>

    </h2>

    <div id="collapseOne" class="accordion-collapse collapse show" data-bs-
parent="#myAccordion">

      <div class="accordion-body">This is the first item's content.</div>

    </div>

  </div>

 </div>
```
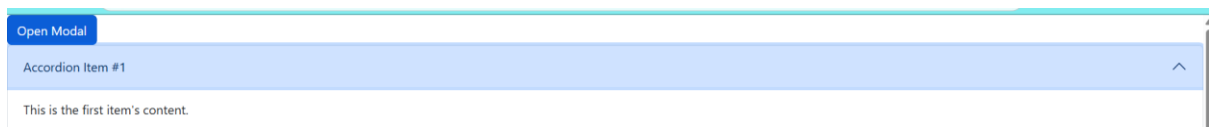
Open Modal	
Accordion Item #1	^
This is the first item's content.	

Exercise 19.1: Set up a Bootstrap 5 project with Sass using npm.

Exercise 19.2: Customize primary colors and border radius via _variables.scss and recompile Bootstrap.

html

```
<link rel="stylesheet" href="css/bootstrap-custom.css">
```

Custom scss

```
$primary: #ff5722;

$border-radius: 1rem;


@import "../node_modules/bootstrap/scss/bootstrap";
```