

ATME COLLEGE OF ENGINEERING

13th KM Stone, Mysuru, Kanakapura-Bangalore Road - 570028



A T M E
College of Engineering

DEPARTMENT OF COMPUTER SCIENCE & DESIGN

LABORATORY MANUAL OF

RESPONSIVE WEB DESIGN WITH BOOTSTRAP LABORATORY

ACADEMIC YEAR 2025-26

SUBJECT CODE: BCGL456B

[As per Choice Based Credit System (CBCS) scheme]

SEMESTER-IV

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INSTITUTIONAL MISSION AND VISION

Objectives

- To provide quality education and groom top-notch professionals, entrepreneurs and leaders for different fields of engineering, technology and management.
- To open a Training-R & D-Design-Consultancy cell in each department, gradually introduce doctoral and postdoctoral programs, encourage basic & applied research in areas of social relevance, and develop the institute as a center of excellence.
- To develop academic, professional and financial alliances with the industry as well as the academia at national and transnational levels.
- To cultivate strong community relationships and involve the students and the staff in Local community service.
- To constantly enhance the value of the educational inputs with the participation of students, faculty, parents and industry.

Vision

- Development of academically excellent, culturally vibrant, socially responsible and globally competent human resources.

Mission

- To keep pace with advancements in knowledge and make the students competitive and capable at the global level.
- To create an environment for the students to acquire the right physical, intellectual, emotional and moral foundations and shine as torch bearers of tomorrow's society.
- To strive to attain ever-higher benchmarks of educational excellence.

Course Details Syllabus

Subject Code : BCGL456B

CIE Marks 50

No. of Practical Hrs/ Week : 0:0:2:0

Exam Hours : 02

Total No. of Pedagogy 24

Exam Marks : 50

Laboratory Experiments:

Sl. No.	Experiments
1	Develop a Web page(s) with suitable HTML elements to demonstrate Bootstrap 5.0 framework classes for Headings. [Refer Book: Chapter 13.1-13.5)
2	Develop a Web page(s) with suitable HTML elements to demonstrate Bootstrap 5.0 framework classes for Text and Fonts. [Refer Book: Chapter 13.6-13.11)
3	Develop a Web page(s) with suitable HTML elements to demonstrate Bootstrap 5.0 framework classes for Lists, Colors and Bootstrap Buttons. [Refer Book: Chapter 13.13-13.14 and 13.18-13.19)
4	Develop a Web page(s) with suitable HTML elements to demonstrate Bootstrap 5.0 framework classes for Borders, Margins and Paddings. [Refer Book: Chapter 13.15-13.17)
5	Develop a Web page(s) with suitable HTML elements to demonstrate Bootstrap 5.0 framework classes for Containers. [Refer Book: Chapter 14.1-14.3)
6	Develop a Web page(s) with suitable HTML elements to demonstrate Bootstrap 5.0 framework classes for Grid System. [Refer Book: Chapter 14.4-14.7)
7	Develop a Web page(s) with suitable HTML elements to demonstrate Bootstrap 5.0 framework classes for Images, Cards and Gutters. [Refer Book: Chapter 14.8-14.10)
8	Develop a Web page(s) with suitable HTML elements to demonstrate Bootstrap 5.0 framework classes for Nav and Footers. [Refer Book: Chapter 14.11-14.12)
9	Develop a Web page(s) with suitable HTML elements to demonstrate Bootstrap 5.0 framework classes for Badges, Progress bar, spinners and Pagination. [Refer Bootstrap 5 Tutorial @ www.w3schools.com)
10	Develop a Web page(s) with suitable HTML elements to demonstrate Bootstrap 5.0 framework classes for Modals, Alerts and Popover. [Refer Bootstrap 5 Tutorial @ www.w3schools.com)
11	Develop your personal online CV or a professional CV using suitable Bootstrap classes.
12	Develop a blog post about your favourite topic or create memoirs/additional stories using suitable Bootstrap classes.

Course Learning Objectives (CLOs)

This course will enable students to

CLO1 - To learn basic classes of CSS framework: Bootstrap 5.0

CLO2 - To develop simple Webpages with Bootstrap 5.0 classes

CLO3 - To make use of Bootstrap 5.0 classes for Web based User Interfaces

Course Outcomes (COs)

At the end of the course, the student will be able to:

CO1 - Apply concepts of Bootstrap framework based layout and navigation classes to develop Web Pages

CO2 - Design Web pages to organize data and present text with features using Bootstrap framework

CO3 - Develop Web User interfaces for varieties of interactions with Bootstrap framework classes

CO4 - Build Web pages involving animations, popups and accordions with Bootstrap framework classes

CO5 - Make use of Bootstrap framework image, alert and modal classes in developing Web pages

INTRODUCTION

Bootstrap is a free and open-source collection of CSS and JavaScript/jQuery code used for creating dynamic websites layout and web applications. Bootstrap is one of the most popular front-end frameworks which has really a nice set of predefined CSS codes. Bootstrap uses different types of classes to make responsive websites. Bootstrap 5 was officially released on 16 June 2020 after several months of redefining its features.

Bootstrap is a framework that is suitable for mobile-friendly web development. It means the code and the template available on bootstrap are applicable to various screen sizes. It is responsive for every screen size. The framework is free and can be used in 2 ways that are either by downloading the zip files and including libraries/modules of bootstrap in the project or directly including the URL of bootstrap and using the online version.

Responsive web design is about creating web sites which automatically adjust themselves to look good on all devices, from small phones to large desktops.

Bootstrap 5 (released 2021) is the newest version of Bootstrap (released 2013); with new components, faster stylesheet and more responsiveness.

Bootstrap 5 supports the latest, stable releases of all major browsers and platforms. However, Internet Explorer 11 and down is not supported.

The main differences between Bootstrap 5 and Bootstrap 3 & 4, is that Bootstrap 5 has switched to vanilla JavaScript instead of jQuery.

Advantages of Bootstrap:

1. **Easy to use:** Anybody with just basic knowledge of HTML and CSS can start using Bootstrap
2. **Responsive features:** Bootstrap's responsive CSS adjusts to phones, tablets, and desktops
3. **Mobile-first approach:** In Bootstrap, mobile-first styles are part of the core framework
4. **Browser compatibility:** Bootstrap 5 is compatible with all modern browsers (Chrome, Firefox, Edge, Safari, and Opera). Note that if you need support for IE11 and down, you must use either BS4 or BS3.

There are two ways to start using Bootstrap 5 on your own web site.

- Include Bootstrap 5 from a CDN
- Download Bootstrap 5 from getbootstrap.com

Program 1: Develop a Web page(s) with suitable HTML elements to demonstrate Bootstrap 5.0 framework classes for Headings.

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Bootstrap 5.0 Headings Demo</title>
  <!-- Bootstrap CSS -->
  <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.0-alpha1/dist/css/bootstrap.min.css" rel="stylesheet">
</head>
<body>
  <div class="container mt-5">
    <h1 class="display-1">Heading 1</h1>
    <h1 class="display-2">Heading 2</h1>
    <h1 class="display-3">Heading 3</h1>
    <h1 class="display-4">Heading 4</h1>
    <h1 class="display-5">Heading 5</h1>
    <h1 class="display-6">Heading 6</h1>
  </div>

  <!-- Bootstrap Bundle with Popper -->
  <script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.0-alpha1/dist/js/bootstrap.bundle.min.js"></script>
</body>
</html>
```

Program 2: Develop a Web Page(s) with suitable HTML elements to demonstrate Bootstrap 5.0 framework classes for Text and Fonts.

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Bootstrap 5.0 Text and Fonts Demo</title>
  <!-- Bootstrap CSS -->
  <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.0-alpha1/dist/css/bootstrap.min.css"
rel="stylesheet">
</head>
<body>
  <div class="container mt-5">
    <h1>Text Colors</h1>
    <p class="text-primary">Primary text color</p>
    <p class="text-secondary">Secondary text color</p>
    <p class="text-success">Success text color</p>
    <p class="text-danger">Danger text color</p>
    <p class="text-warning">Warning text color</p>
    <p class="text-info">Info text color</p>
    <p class="text-light bg-dark">Light text color on dark background</p>
    <p class="text-dark">Dark text color</p>
    <p class="text-muted">Muted text color</p>
    <p class="text-white bg-dark">White text color on dark background</p>

    <h1>Font Weight</h1>
    <p class="fw-light">Light font weight</p>
    <p class="fw-normal">Normal font weight</p>
    <p class="fw-bold">Bold font weight</p>

    <h1>Font Style</h1>
    <p class="fst-italic">Italic font style</p>
    <p class="fst-normal">Normal font style</p>
  </div>

  <!-- Bootstrap Bundle with Popper -->
  <script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.0-
alpha1/dist/js/bootstrap.bundle.min.js"></script>
</body>
</html>
```

program 3: Develop a Web page(s) with suitable HTML elements to demonstrate Bootstrap 5.0 framework classes for Lists, Colors and Bootstrap Buttons.

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Bootstrap Demo</title>
  <!-- Bootstrap CSS -->
  <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.0-alpha1/dist/css/bootstrap.min.css"
rel="stylesheet">
</head>
<body>

  <div class="container mt-5">
    <h2>Bootstrap 5.0 Demo</h2>

    <!-- List Group -->
    <h3 class="mt-4">List Group</h3>
    <ul class="list-group">
      <li class="list-group-item">Item 1</li>
      <li class="list-group-item">Item 2</li>
      <li class="list-group-item">Item 3</li>
    </ul>

    <!-- Colors -->
    <h3 class="mt-4">Colors</h3>
    <div class="bg-primary text-white p-3 mb-3">Primary Color</div>
    <div class="bg-secondary text-white p-3 mb-3">Secondary Color</div>
    <div class="bg-success text-white p-3 mb-3">Success Color</div>
    <div class="bg-danger text-white p-3 mb-3">Danger Color</div>
    <div class="bg-warning text-dark p-3 mb-3">Warning Color</div>
    <div class="bg-info text-white p-3 mb-3">Info Color</div>
    <div class="bg-light text-dark p-3 mb-3">Light Color</div>
    <div class="bg-dark text-white p-3 mb-3">Dark Color</div>

    <!-- Buttons -->
    <h3 class="mt-4">Buttons</h3>
    <button type="button" class="btn btn-primary mr-2">Primary Button</button>
    <button type="button" class="btn btn-secondary mr-2">Secondary Button</button>
    <button type="button" class="btn btn-success mr-2">Success Button</button>
    <button type="button" class="btn btn-danger mr-2">Danger Button</button>
    <button type="button" class="btn btn-warning mr-2">Warning Button</button>
    <button type="button" class="btn btn-info mr-2">Info Button</button>
    <button type="button" class="btn btn-light mr-2">Light Button</button>
    <button type="button" class="btn btn-dark">Dark Button</button>
  </div>
```

```
<!-- Bootstrap JS (Optional, for certain components like dropdowns, modals, etc.) -->  
<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.0-  
alpha1/dist/js/bootstrap.bundle.min.js"></script>  
</body>  
</html>
```

program 4: Develop a Web page(s) with suitable HTML elements to demonstrate Bootstrap 5.0 framework classes for Borders, Margins and Paddings.

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Bootstrap 5.0 Demo</title>
  <link href="https://stackpath.bootstrapcdn.com/bootstrap/5.0.0-alpha1/css/bootstrap.min.css"
rel="stylesheet">
  <style>
    /* Custom styles to demonstrate spacing */
    .custom-border {
      border: 2px solid red;
    }
  </style>
</head>
<body>
  <div class="container mt-5">
    <h1>Bootstrap 5.0 Demo</h1>

    <h2>Borders</h2>
    <div class="border border-primary p-3 mb-3">
      Border Example
    </div>

    <h2>Margins</h2>
    <div class="border border-dark p-3 mb-3">
      <div class="m-2 bg-info">Margin Example</div>
    </div>

    <h2>Paddings</h2>
    <div class="border border-danger p-3 mb-3">
      <div class="p-2 bg-warning">Padding Example</div>
    </div>

    <h2>Custom Border</h2>
    <div class="custom-border p-3 mb-3">
      Custom Border Example
    </div>
  </div>

  <!-- Bootstrap Bundle with Popper -->
  <script
src="https://cdnjs.cloudflare.com/ajax/libs/popper.js/2.9.2/umd/popper.min.js"></script>
  <script src="https://stackpath.bootstrapcdn.com/bootstrap/5.0.0-
alpha1/js/bootstrap.min.js"></script>
</body>
</html>
```

Program 5: Develop a Web page(s) with suitable HTML elements to demonstrate Bootstrap 5.0 framework classes for Containers.

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Bootstrap Containers Example</title>
  <!-- Bootstrap CSS -->
  <link href="https://stackpath.bootstrapcdn.com/bootstrap/5.0.0/css/bootstrap.min.css"
rel="stylesheet">
</head>
<body>

  <!-- Default Container -->
  <div class="container bg-light p-3 my-3">
    <h1>Default Container</h1>
    <p>This is a responsive, fixed-width container. It adjusts its size at different breakpoints.</p>
    
  </div>

  <!-- Fluid Container -->
  <div class="container-fluid bg-primary text-white p-3 my-3">
    <h1>Fluid Container</h1>
    <p>This container spans the entire width of the viewport, regardless of its size.</p>
    
  </div>

  <!-- Small Container -->
  <div class="container-sm bg-secondary text-white p-3 my-3">
    <h1>Small Container</h1>
    <p>This container will be 100% wide until the 'sm' breakpoint is reached (576px).</p>
    
  </div>

  <!-- Medium Container -->
  <div class="container-md bg-success text-white p-3 my-3">
    <h1>Medium Container</h1>
    <p>This container will be 100% wide until the 'md' breakpoint is reached (768px).</p>
    
  </div>

  <!-- Large Container -->
  <div class="container-lg bg-danger text-white p-3 my-3">
    <h1>Large Container</h1>
    <p>This container will be 100% wide until the 'lg' breakpoint is reached (992px).</p>
    
  </div>
```

```
<!-- Extra Large Container -->
<div class="container-xl bg-warning text-dark p-3 my-3">
  <h1>Extra Large Container</h1>
  <p>This container will be 100% wide until the 'xl' breakpoint is reached (1200px).</p>
  
</div>

<!-- Extra Extra Large Container -->
<div class="container-xxl bg-info text-white p-3 my-3">
  <h1>Extra Extra Large Container</h1>
  <p>This container will be 100% wide until the 'xxl' breakpoint is reached (1400px).</p>
  
</div>

<!-- Bootstrap JS Bundle with Popper -->
<script
src="https://stackpath.bootstrapcdn.com/bootstrap/5.0.0/js/bootstrap.bundle.min.js"></script>
</body>
</html>
```

Program 6: Develop a Web page(s) with suitable HTML elements to demonstrate Bootstrap 5.0 framework classes for Grid System.

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Bootstrap Grid System Demo</title>
  <!-- Bootstrap CSS -->
  <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.0.0-beta2/dist/css/bootstrap.min.css"
rel="stylesheet">
  <style>
    /* Adding some custom styles for demonstration purpose */
    .custom-box {
      border: 1px solid #ccc;
      padding: 20px;
      margin-bottom: 20px;
    }
  </style>
</head>
<body>
  <div class="container">
    <h1>Bootstrap Grid System Demo</h1>

    <!-- Four rows -->
    <div class="row">
      <!-- First row -->
      <div class="col">
        <div class="custom-box">Row 1, Column 1</div>
      </div>
      <div class="col">
        <div class="custom-box">Row 1, Column 2</div>
      </div>
      <div class="col">
        <div class="custom-box">Row 1, Column 3</div>
      </div>
      <div class="col">
        <div class="custom-box">Row 1, Column 4</div>
      </div>
      <div class="col">
        <div class="custom-box">Row 1, Column 5</div>
      </div>
    </div>

    <div class="row">
      <!-- Second row -->
      <div class="col">
        <div class="custom-box">Row 2, Column 1</div>
      </div>
    </div>
  </div>
</body>
</html>
```

```
</div>
<div class="col">
  <div class="custom-box">Row 2, Column 2</div>
</div>
<div class="col">
  <div class="custom-box">Row 2, Column 3</div>
</div>
<div class="col">
  <div class="custom-box">Row 2, Column 4</div>
</div>
<div class="col">
  <div class="custom-box">Row 2, Column 5</div>
</div>
</div>

<div class="row">
  <!-- Third row -->
  <div class="col">
    <div class="custom-box">Row 3, Column 1</div>
  </div>
  <div class="col">
    <div class="custom-box">Row 3, Column 2</div>
  </div>
  <div class="col">
    <div class="custom-box">Row 3, Column 3</div>
  </div>
  <div class="col">
    <div class="custom-box">Row 3, Column 4</div>
  </div>
  <div class="col">
    <div class="custom-box">Row 3, Column 5</div>
  </div>
</div>

<!-- Repeat similar structure for rows 3 and 4 -->

</div>

<!-- Bootstrap JS (Optional) -->
<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.0.0
beta2/dist/js/bootstrap.bundle.min.js"></script>
</body>
</html>
```

Program 7: Develop a Web page(s) with suitable HTML elements to demonstrate Bootstrap 5.0 framework classes for Images, Cards and Gutters.

```

<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Bootstrap 5 Demo</title>
  <link href="https://stackpath.bootstrapcdn.com/bootstrap/5.0.0/css/bootstrap.min.css"
rel="stylesheet">
</head>
<body>
  <div class="container mt-5">
    <h1 class="mb-4">Bootstrap 5.0 Demo</h1>

    <!-- Images Section -->
    <section>
      <h2>Images</h2>
      <div class="row">
        <div class="col-md-4">
          
          <p>Responsive image with rounded corners</p>
        </div>
        <div class="col-md-4">
          
          <p>Thumbnail image</p>
        </div>
        <div class="col-md-4">
          
          <p>Circular image</p>
        </div>
      </div>
    </section>

    <!-- Cards Section -->
    <section class="mt-5">
      <h2>Cards</h2>
      <div class="row">
        <div class="col-md-4">
          <div class="card">
            
            <div class="card-body">
              <h5 class="card-title">Card title</h5>
              <p class="card-text">Some quick example text to build on the card title and make up the
bulk of the card's content.</p>
              <a href="#" class="btn btn-primary">Go somewhere</a>
            </div>
          </div>
        </div>
      </div>
    </section>
  </div>

```

```

</div>
<div class="col-md-4">
  <div class="card">
    
    <div class="card-body">
      <h5 class="card-title">Card title</h5>
      <p class="card-text">Some quick example text to build on the card title and make up the
bulk of the card's content.</p>
      <a href="#" class="btn btn-primary">Go somewhere</a>
    </div>
  </div>
</div>
</div>
<div class="col-md-4">
  <div class="card">
    
    <div class="card-body">
      <h5 class="card-title">Card title</h5>
      <p class="card-text">Some quick example text to build on the card title and make up the
bulk of the card's content.</p>
      <a href="#" class="btn btn-primary">Go somewhere</a>
    </div>
  </div>
</div>
</div>
</div>
</section>

<!-- Gutters Section -->
<section class="mt-5">
  <h2>Gutters</h2>
  <div class="row gy-3">
    <div class="col-md-4">
      <div class="p-3 border bg-light">Custom column padding with gutters</div>
    </div>
    <div class="col-md-4">
      <div class="p-3 border bg-light">Custom column padding with gutters</div>
    </div>
    <div class="col-md-4">
      <div class="p-3 border bg-light">Custom column padding with gutters</div>
    </div>
  </div>

  <div class="row gx-2">
    <div class="col-md-4">
      <div class="p-2 border bg-light">Custom column padding with gutters</div>
    </div>
    <div class="col-md-4">
      <div class="p-2 border bg-light">Custom column padding with gutters</div>
    </div>
  </div>

```

```
    <div class="p-2 border bg-light">Custom column padding with gutters</div>
  </div>
</div>
</section>
</div>

<script
src="https://stackpath.bootstrapcdn.com/bootstrap/5.0.0/js/bootstrap.bundle.min.js"></script>
</body>
</html>
```

Program 8: Develop a Web page(s) with suitable HTML elements to demonstrate Bootstrap 5.0 framework classes for Nav and Footers.

```

<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Bootstrap 5 Nav and Footer Example</title>
  <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/css/bootstrap.min.css"
rel="stylesheet">
  <script
src="https://cdn.jsdelivr.net/npm/@popperjs/core@2.9.2/dist/umd/popper.min.js"></script>
  <script src="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/js/bootstrap.min.js"></script>
</head>
<body>

  <!-- Navigation Bar -->
  <nav class="navbar navbar-expand-lg navbar-light bg-primary">
    <div class="container-fluid">
      <a class="navbar-brand" href="#">Navbar</a>
      <button class="navbar-toggler" type="button" data-bs-toggle="collapse" data-bs-
target="#navbarNav" aria-controls="navbarNav" aria-expanded="false" aria-label="Toggle
navigation">
        <span class="navbar-toggler-icon"></span>
      </button>
      <div class="collapse navbar-collapse" id="navbarNav">
        <ul class="navbar-nav">
          <li class="nav-item">
            <a class="nav-link active" aria-current="page" href="#">Home</a>
          </li>
          <li class="nav-item">
            <a class="nav-link" href="https://flipkart.com">Features</a>
          </li>
          <li class="nav-item">
            <a class="nav-link" href="https://amazon.com">Pricing</a>
          </li>
          <li class="nav-item">
            <a class="nav-link disabled" href="#" tabindex="-1" aria-disabled="true">Disabled</a>
          </li>
        </ul>
      </div>
    </div>
  </nav>

  <!-- Main Content -->
  <div class="container mt-5">
    <h1 class="text-center">Welcome to Bootstrap 5 Example</h1>
    <p class="text-center">This is a simple example to demonstrate Bootstrap 5 navigation bar and

```

```

footer.</p>
</div>

```

```

<!-- Footer -->
<footer class="bg-light text-center text-lg-start">
  <div class="container p-4">
    <div class="row">
      <div class="col-lg-6 col-md-12 mb-4 mb-md-0">
        <h5 class="text-uppercase">Footer Content</h5>
        <p>
          Here you can use rows and columns to organize your footer content. Lorem ipsum dolor sit
amet,
          consectetur adipisicing elit.
        </p>
      </div>

```

```

<div class="col-lg-3 col-md-6 mb-4 mb-md-0">
  <h5 class="text-uppercase">Links</h5>
  <ul class="list-unstyled mb-0">
    <li>
      <a href="https://example.com/link1" class="text-dark">Link 1</a>
    </li>
    <li>
      <a href="https://google.com/link2" class="text-dark">Link 2</a>
    </li>
    <li>
      <a href="https://atme.edu.in/link3" class="text-dark">Link 3</a>
    </li>
    <li>
      <a href="https://vtu.ac.in/link4" class="text-dark">Link 4</a>
    </li>
  </ul>
</div>

```

```

<div class="col-lg-3 col-md-6 mb-4 mb-md-0">
  <h5 class="text-uppercase mb-0">Links</h5>
  <ul class="list-unstyled">
    <li>
      <a href="https://example.com/link5" class="text-dark">Link 5</a>
    </li>
    <li>
      <a href="https://outlook.com/link6" class="text-dark">Link 6</a>
    </li>
    <li>
      <a href="https://gmail.com/link7" class="text-dark">Link 7</a>
    </li>
    <li>
      <a href="https://example.com/link8" class="text-dark">Link 8</a>
    </li>

```

```
    </ul>
  </div>
</div>

<div class="text-center p-3" style="background-color: rgba(0, 0, 0, 0.2);">
  © 2024 Copyright:
  <a class="text-dark" href="https://yourwebsite.com">YourWebsite.com</a>
</div>
</footer>

</body>
</html>
```

Program 9: Develop a Web page(s) with suitable HTML elements to demonstrate Bootstrap 5.0 framework classes for Badges, Progress bar, spinners and Pagination.

```

<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Bootstrap 5 Components Example</title>
  <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/css/bootstrap.min.css"
rel="stylesheet">
  <script
src="https://cdn.jsdelivr.net/npm/@popperjs/core@2.9.2/dist/umd/popper.min.js"></script>
  <script src="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/js/bootstrap.min.js"></script>
</head>
<body>

  <!-- Container -->
  <div class="container mt-5">
    <!-- Badges -->
    <section>
      <h2>Badges</h2>
      <p>Here are some examples of Bootstrap badges:</p>
      <span class="badge bg-primary">Primary</span>
      <span class="badge bg-secondary">Secondary</span>
      <span class="badge bg-success">Success</span>
      <span class="badge bg-danger">Danger</span>
      <span class="badge bg-warning text-dark">Warning</span>
      <span class="badge bg-info text-dark">Info</span>
      <span class="badge bg-light text-dark">Light</span>
      <span class="badge bg-dark">Dark</span>
    </section>

    <!-- Progress Bars -->
    <section class="mt-5">
      <h2>Progress Bars</h2>
      <p>Here are some examples of Bootstrap progress bars:</p>
      <div class="progress mb-3">
        <div class="progress-bar" role="progressbar" style="width: 25%;" aria-valuenow="25" aria-
valuemin="0" aria-valuemax="100">25%</div>
      </div>
      <div class="progress mb-3">
        <div class="progress-bar bg-success" role="progressbar" style="width: 50%;" aria-
valuemin="0" aria-valuemax="100">50%</div>
      </div>
      <div class="progress mb-3">
        <div class="progress-bar bg-info" role="progressbar" style="width: 75%;" aria-valuenow="75"
aria-valuenow="75" aria-valuemin="0" aria-valuemax="100">75%</div>
      </div>

```

```

<div class="progress">
  <div class="progress-bar bg-danger" role="progressbar" style="width: 100%;" aria-
valuenow="100" aria-valuemin="0" aria-valuemax="100">100%</div>
</div>
</section>

```

```

<!-- Spinners -->
<section class="mt-5">
  <h2>Spinners</h2>
  <p>Here are some examples of Bootstrap spinners:</p>
  <div class="spinner-border text-primary" role="status">
    <span class="visually-hidden">Loading...</span>
  </div>
  <div class="spinner-border text-secondary" role="status">
    <span class="visually-hidden">Loading...</span>
  </div>
  <div class="spinner-border text-success" role="status">
    <span class="visually-hidden">Loading...</span>
  </div>
  <div class="spinner-border text-danger" role="status">
    <span class="visually-hidden">Loading...</span>
  </div>
  <div class="spinner-border text-warning" role="status">
    <span class="visually-hidden">Loading...</span>
  </div>
  <div class="spinner-border text-info" role="status">
    <span class="visually-hidden">Loading...</span>
  </div>
  <div class="spinner-border text-light" role="status">
    <span class="visually-hidden">Loading...</span>
  </div>
  <div class="spinner-border text-dark" role="status">
    <span class="visually-hidden">Loading...</span>
  </div>
</section>

```

```

<!-- Pagination -->
<section class="mt-5">
  <h2>Pagination</h2>
  <p>Here are some examples of Bootstrap pagination:</p>
  <nav aria-label="Page navigation example">
    <ul class="pagination">
      <li class="page-item"><a class="page-link" href="#">Previous</a></li>
      <li class="page-item"><a class="page-link" href="http://google.com">1</a></li>
      <li class="page-item"><a class="page-link" href="#">2</a></li>
      <li class="page-item"><a class="page-link" href="#">3</a></li>
      <li class="page-item"><a class="page-link" href="#">Next</a></li>
    </ul>
  </nav>

```

```
<nav aria-label="Page navigation example">
<ul class="pagination justify-content-center">
  <li class="page-item disabled">
    <a class="page-link" href="#" tabindex="-1" aria-disabled="true">Previous</a>
  </li>
  <li class="page-item"><a class="page-link" href="#">1</a></li>
  <li class="page-item"><a class="page-link" href="#">2</a></li>
  <li class="page-item"><a class="page-link" href="#">3</a></li>
  <li class="page-item">
    <a class="page-link" href="#">Next</a>
  </li>
</ul>
</nav>
```

```
<nav aria-label="Page navigation example">
<ul class="pagination justify-content-end">
  <li class="page-item"><a class="page-link" href="#">Previous</a></li>
  <li class="page-item"><a class="page-link" href="#">1</a></li>
  <li class="page-item"><a class="page-link" href="#">2</a></li>
  <li class="page-item"><a class="page-link" href="#">3</a></li>
  <li class="page-item"><a class="page-link" href="#">Next</a></li>
</ul>
</nav>
</section>
</div>

</body>
</html>
```

Program 10: Develop a Web page(s) with suitable HTML elements to demonstrate Bootstrap 5.0 framework classes for Modals, Alerts and Popover.

```

<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Bootstrap 5 Example: Modals, Alerts, and Popovers</title>
  <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/css/bootstrap.min.css"
rel="stylesheet">
  <script
src="https://cdn.jsdelivr.net/npm/@popperjs/core@2.9.2/dist/umd/popper.min.js"></script>
  <script src="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/js/bootstrap.min.js"></script>
</head>
<body>

  <!-- Modals -->
  <div class="container mt-5">
    <h2>Modals</h2>
    <p>Example of modals in Bootstrap:</p>
    <!-- Button trigger modal -->
    <button type="button" class="btn btn-primary" data-bs-toggle="modal" data-bs-
target="#exampleModal">
      Launch demo modal
    </button>

    <!-- Modal -->
    <div class="modal fade" id="exampleModal" tabindex="-1" aria-
labelledby="exampleModalLabel" aria-hidden="true">
      <div class="modal-dialog">
        <div class="modal-content">
          <div class="modal-header">
            <h5 class="modal-title" id="exampleModalLabel">Modal title</h5>
            <button type="button" class="btn-close" data-bs-dismiss="modal" aria-
label="Close"></button>
          </div>
          <div class="modal-body">
            This is the content of the modal.
          </div>
          <div class="modal-footer">
            <button type="button" class="btn btn-secondary" data-bs-dismiss="modal">Close</button>
            <button type="button" class="btn btn-primary">Save changes</button>
          </div>
        </div>
      </div>
    </div>
  </div>

```

```
<!-- Alerts -->
<div class="container mt-5">
  <h2>Alerts</h2>
  <p>Example of alerts in Bootstrap:</p>
  <div class="alert alert-primary" role="alert">
    A simple primary alert—check it out!
  </div>
  <div class="alert alert-secondary" role="alert">
    A simple secondary alert—check it out!
  </div>
  <div class="alert alert-success" role="alert">
    A simple success alert—check it out!
  </div>
  <div class="alert alert-danger" role="alert">
    A simple danger alert—check it out!
  </div>
  <div class="alert alert-warning" role="alert">
    A simple warning alert—check it out!
  </div>
  <div class="alert alert-info" role="alert">
    A simple info alert—check it out!
  </div>
  <div class="alert alert-light" role="alert">
    A simple light alert—check it out!
  </div>
  <div class="alert alert-dark" role="alert">
    A simple dark alert—check it out!
  </div>
</div>

<!-- Popovers -->
<div class="container mt-5 mb-5">
  <h2>Popovers</h2>
  <p>Example of popovers in Bootstrap:</p>
  <button type="button" class="btn btn-lg btn-danger" data-bs-toggle="popover" title="Popover
title" data-bs-content="And here's some amazing content. It's very engaging. Right?">
    Click to toggle popover
  </button>
</div>

<script>
  // Initialize popovers
  var popoverTriggerList = [].slice.call(document.querySelectorAll('[data-bs-toggle="popover"]'))
  var popoverList = popoverTriggerList.map(function (popoverTriggerEl) {
    return new bootstrap.Popover(popoverTriggerEl)
  })
</script>
</body>
</html>
```

Program 11: Develop your personal online CV or a professional CV using suitable Bootstrap classes.

```

<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>CV Example</title>
  <!-- Bootstrap CSS -->
  <link href="https://stackpath.bootstrapcdn.com/bootstrap/5.0.0/css/bootstrap.min.css"
rel="stylesheet">
</head>
<body>
  <div class="container mt-5">
    <!-- Header Section -->
    <div class="row mb-4">
      <div class="col text-center">
        <h1 class="display-4">John Doe</h1>
        <p class="lead">Software Engineer</p>
        <p>Email: john.doe@example.com | Phone: (123) 456-7890</p>
      </div>
    </div>

    <!-- Experience Section -->
    <div class="row mb-4">
      <div class="col">
        <h2>Experience</h2>
        <div class="card mb-3">
          <div class="card-body">
            <h5 class="card-title">Senior Software Engineer</h5>
            <h6 class="card-subtitle mb-2 text-muted">ABC Tech | Jan 2020 - Present</h6>
            <p class="card-text">Responsible for developing and maintaining web applications
using modern technologies.</p>
          </div>
        </div>
        <div class="card mb-3">
          <div class="card-body">
            <h5 class="card-title">Software Developer</h5>
            <h6 class="card-subtitle mb-2 text-muted">XYZ Solutions | Jun 2015 - Dec 2019</h6>
            <p class="card-text">Worked on various client projects, delivering high-quality
software solutions on time.</p>
          </div>
        </div>
      </div>
    </div>

    <!-- Education Section -->

```

```
<div class="row mb-4">
  <div class="col">
    <h2>Education</h2>
    <div class="card mb-3">
      <div class="card-body">
        <h5 class="card-title">Bachelor of Science in Computer Science</h5>
        <h6 class="card-subtitle mb-2 text-muted">University of Tech | 2011 - 2015</h6>
        <p class="card-text">Graduated with honors, focusing on software engineering and
data structures.</p>
      </div>
    </div>
  </div>
</div>

<!-- Skills Section -->
<div class="row mb-4">
  <div class="col">
    <h2>Skills</h2>
    <ul class="list-group">
      <li class="list-group-item">Programming Languages: Python, JavaScript, Java</li>
      <li class="list-group-item">Frameworks: React, Node.js, Django</li>
      <li class="list-group-item">Tools: Git, Docker, Jenkins</li>
      <li class="list-group-item">Databases: MySQL, PostgreSQL, MongoDB</li>
    </ul>
  </div>
</div>

<!-- Bootstrap JS and dependencies -->
<script src="https://code.jquery.com/jquery-3.5.1.slim.min.js"></script>
<script
src="https://cdn.jsdelivr.net/npm/@popperjs/core@2.5.4/dist/umd/popper.min.js"></script>
<script
src="https://stackpath.bootstrapcdn.com/bootstrap/5.0.0/js/bootstrap.min.js"></script>
</body>
</html>
```

Program 12: Develop a blog post about your favourite topic or create memoirs/additional stories using suitable Bootstrap classes.

```

<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>The Joys of Traveling</title>
  <link href="https://stackpath.bootstrapcdn.com/bootstrap/4.5.2/css/bootstrap.min.css"
rel="stylesheet">
  <style>
    .header-image {
      height: 400px;
      object-fit: cover;
    }
  </style>
</head>
<body>
  <!-- Navbar -->
  <nav class="navbar navbar-expand-lg navbar-dark bg-dark">
    <a class="navbar-brand" href="#">Travel Blog</a>
    <button class="navbar-toggler" type="button" data-toggle="collapse" data-
target="#navbarNav" aria-controls="navbarNav" aria-expanded="false" aria-label="Toggle
navigation">
      <span class="navbar-toggler-icon"></span>
    </button>
    <div class="collapse navbar-collapse" id="navbarNav">
      <ul class="navbar-nav ml-auto">
        <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>

  <!-- Header Image -->
  <header class="mb-4">
    
  </header>

  <!-- Blog Post Content -->
  <div class="container">

```

```

<article class="mb-5">
  <h1 class="mb-4">The Joys of Traveling</h1>
  <p class="lead">Exploring new places and experiencing new cultures is one of the greatest
joys in life. Traveling opens up your mind and heart to the wonders of the world.</p>

```

```

  <p>From the bustling streets of Tokyo to the serene beaches of Bali, every destination offers
a unique adventure. Whether it's savoring the local cuisine, meeting new people, or simply taking in
the breathtaking scenery, each moment spent traveling is a treasure.</p>

```

```

  <h2 class="my-4">Unforgettable Experiences</h2>
  <p>One of the most memorable trips I took was to Italy. The rich history, stunning
architecture, and delicious food made it an unforgettable experience. Walking through the ancient
streets of Rome, marveling at the art in Florence, and cruising through the canals of Venice are
memories I will cherish forever.</p>

```

```

<div class="row">
  <div class="col-md-6">
    
  </div>
  <div class="col-md-6">
    
  </div>
</div>

```

```

  <h2 class="my-4">Cultural Immersion</h2>
  <p>Traveling also allows you to immerse yourself in different cultures. I remember visiting a
traditional tea ceremony in Japan, where I learned about the significance of each gesture and the
beauty of simplicity. These cultural experiences provide a deeper understanding of the world and
its diverse traditions.</p>

```

```

  <blockquote class="blockquote my-4">
    <p class="mb-0">"Traveling - it leaves you speechless, then turns you into a storyteller." -
Ibn Battuta</p>
  </blockquote>

```

```

  <p>Another aspect of traveling that I love is the opportunity to disconnect from the routine of
everyday life. It gives you the chance to recharge and gain a new perspective. Whether it's a short
weekend getaway or a long international trip, traveling rejuvenates the soul.</p>

```

```

  <h2 class="my-4">Tips for Aspiring Travelers</h2>
  <p>If you're planning your next adventure, here are a few tips to make the most of your
travels:</p>
  <ul>
    <li>Plan ahead but be flexible. Allow room for spontaneous adventures.</li>
    <li>Learn a few phrases of the local language. It goes a long way in connecting with
people.</li>
    <li>Travel light. Carry only essentials to make your journey easier.</li>
    <li>Respect local customs and traditions. Be a responsible traveler.</li>
  </ul>

```

<p>Traveling is more than just visiting new places; it's about embracing new experiences, creating lasting memories, and growing as a person. So pack your bags, embark on a new journey, and discover the joys of traveling!</p>

</article>

</div>

<!-- Footer -->

<footer class="bg-dark text-white text-center py-3">

<p class="mb-0">© 2024 Travel Blog. All rights reserved.</p>

</footer>

<script src="https://code.jquery.com/jquery-3.5.1.slim.min.js"></script>

<script

src="https://cdn.jsdelivr.net/npm/@popperjs/core@2.5.2/dist/umd/popper.min.js"></script>

<script

src="https://stackpath.bootstrapcdn.com/bootstrap/4.5.2/js/bootstrap.min.js"></script>

</body>

</html>

Viva Questions

1. What is Responsive Web Design? Why is it important?
2. How does Bootstrap 5 help in creating responsive websites?
3. What are the key principles of Responsive Web Design?
4. What is Bootstrap, and how is it different from other CSS frameworks?
5. What are the key features introduced in Bootstrap 5 compared to Bootstrap 4?
6. How does Bootstrap 5 handle responsiveness without relying on jQuery?
7. Can you explain the Bootstrap grid system?
8. What is the difference between container, container-fluid, and container-{breakpoint} classes?
9. How do you create a responsive layout using rows and columns in Bootstrap 5?
10. What are breakpoints in Bootstrap 5? List the default breakpoints.
11. How do you apply styles for different breakpoints in Bootstrap 5?
12. Can you explain the difference between col-md-* and col-lg-*?
13. What are utility classes in Bootstrap 5, and how are they used?
14. How do you customize typography in Bootstrap 5?
15. What are text alignment and display utility classes? Provide examples.
16. What are Bootstrap components? Can you name a few commonly used ones?
17. How do you implement a responsive navbar in Bootstrap 5?
18. Can you explain how to create and customize a carousel using Bootstrap 5?
19. How does Bootstrap 5 use Flexbox for layout management?
20. What are the classes for aligning items and justifying content in Bootstrap 5?
21. How do you create responsive forms in Bootstrap 5?
22. What are the classes used for form validation in Bootstrap 5?
23. How do media queries work in Bootstrap 5?
24. Can you override default media queries to customize the design?
25. How can you customize the default Bootstrap styles for a project?
26. What is the purpose of the custom.scss file in Bootstrap?
27. How does Bootstrap 5 ensure better performance in web design?
28. What features does Bootstrap 5 provide to enhance accessibility?
29. How do you include Bootstrap 5 in a project? What are the different methods?
30. How do you troubleshoot issues when a Bootstrap component doesn't work as expected?

31. Demonstrate how to create a responsive grid layout for a portfolio website.
32. Show how to create a responsive card layout using Bootstrap 5.
33. Implement a sticky footer using Bootstrap 5 utilities.
34. How can you make images responsive using Bootstrap 5?
35. What does the `.img-fluid` class do in Bootstrap 5?
36. Explain the difference between `.rounded`, `.rounded-circle`, and `.img-thumbnail` classes.
37. How would you align an image to the center using Bootstrap?
38. Can you combine multiple image classes, like `.img-thumbnail` and `.rounded`? If so, how?
39. What is the grid system in Bootstrap, and how does it work?
40. How many columns does the Bootstrap grid system divide the screen into?
41. What is the purpose of breakpoints in the grid system?
42. Explain the difference between `.col`, `.col-{number}`, and `.col-{breakpoint}-{number}`.
43. How do you create a nested grid structure in Bootstrap 5?
44. What is the purpose of `.container`, `.container-fluid`, and `.container-{breakpoint}` classes?
45. What are the different button styles available in Bootstrap 5?
46. How do you create an outline button in Bootstrap 5?
47. How can you adjust the size of buttons in Bootstrap 5?
48. What class would you use to make a block-level button?
49. How do you disable a button using Bootstrap classes?
50. How many predefined color classes are available in Bootstrap 5?
51. What is the difference between `.text-{color}` and `.bg-{color}`?
52. How do you apply hover effects using Bootstrap color classes?
53. Explain how to use the `.border-{color}` class with an example.
54. Can you customize Bootstrap colors? If so, how?
55. What is the purpose of the navbar component in Bootstrap 5?
56. Explain the difference between `.navbar-light` and `.navbar-dark`.
57. How can you make a navbar responsive in Bootstrap 5?
58. What is the function of the navbar-toggler button in a responsive navbar?
59. How do you add a brand logo to a navbar?
60. Explain how you can align navbar items to the right using Bootstrap classes.
61. What is the purpose of a spinner in Bootstrap 5?
62. What are the two types of spinners in Bootstrap 5?
63. How do you change the color of a spinner?

64. What is the difference between spinner-border and spinner-grow classes?
65. How can you make a spinner accessible for screen readers?
66. What are gutters in Bootstrap 5?
67. How do you customize gutters using Bootstrap classes?
68. Explain the difference between .g-{size}, .gx-{size}, and .gy-{size}.
69. How do gutters affect the spacing between rows and columns?
70. Can you have zero gutters in a Bootstrap grid layout? How?
71. Demonstrate how to create a responsive grid layout with images of varying sizes.
72. Show how to build a navbar that collapses into a toggle menu on smaller screens.
73. Create a layout with a spinner at the center of the page for loading purposes.
74. Implement a grid layout with custom vertical and horizontal gutters.
75. Design a form with buttons styled in different colors and sizes using Bootstrap.