**BOOTSTRAP PROGRAMS**

**1. Setting Up Bootstrap 5**

**Exercise 1.1:**

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

**Solution:**

<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="UTF-8">

<meta name="viewport" content="width=device-width, initial-scale=1">

<title>Bootstrap 5 CDN Example</title>

<!-- Bootstrap 5 CSS via CDN -->

<link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/css/bootstrap.min.css" rel="stylesheet">

</head>

<body>

<div class="container mt-5">

<h1 class="text-primary">Hello, Bootstrap 5 (CDN)!</h1>

<p>This page is styled using Bootstrap 5 loaded via CDN.</p>

</div>

<!-- Bootstrap 5 JS via CDN -->

<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/js/bootstrap.bundle.min.js"></script>

</body>

</html>

**Exercise 1.2:**

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

**Solution:**

1. At first we have to **Download Bootstrap 5** from [https://getbootstrap.com](https://getbootstrap.com/) and extract it.
2. Then, we have to Place the bootstrap.min.css and bootstrap.bundle.min.js in your project folder (e.g., in a css and js folder).

**index.html:**

<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="UTF-8">

<meta name="viewport" content="width=device-width, initial-scale=1">

<title>Bootstrap 5 Local Example</title>

<!-- Bootstrap 5 CSS (Local) -->

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

</head>

<body>

<div class="container mt-5">

<h1 class="text-success">Hello, Bootstrap 5 !</h1>

<p>This page uses locally downloaded Bootstrap 5 CSS and JS files.</p>

</div>

<!-- Bootstrap 5 JS (Local) -->

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

</body>

</html>

**2. Bootstrap Structure and Files**

**Exercise 2.1:**

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

**Solution:**

bootstrap/

├── css/ ---- bootstrap stylesheets

│ ├── bootstrap.css

│ ├── bootstrap.min.css -----compressed version of css

│ └── bootstrap.rtl.min.css ------supports right to left languages

├── js/

│ ├── bootstrap.bundle.js

│ └── bootstrap.bundle.min.js ----includes plugins, tooltips, dropdowns, etc.

└── icons/

└── (separately downloaded Bootstrap Icons)

**Exercise 2.2:**

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

**Solution:**

<html lang="en">

<head>

<meta charset="UTF-8">

<meta name="viewport" content="width=device-width, initial-scale=1">

<title>Bootstrap JavaScript Plugins</title>

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

</head>

<body>

<div class="container mt-5">

<h2 class="mb-4">Bootstrap JS Plugin Example</h2>

<!-- Tooltip example -->

<button type="button" class="btn btn-primary" data-bs-toggle="tooltip" title="Tooltip on top">

Hover for Tooltip

</button>

<!-- Dropdown example -->

<div class="dropdown mt-3">

<button class="btn btn-secondary dropdown-toggle" type="button" data-bs-toggle="dropdown">

Dropdown Button

</button>

<ul class="dropdown-menu">

<li><a class="dropdown-item" href="#">Action</a></li>

<li><a class="dropdown-item" href="#">Another action</a></li>

</ul>

</div>

</div>

<!-- Bootstrap JS Bundle with Popper -->

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

<script>

// Initialize all tooltips

const tooltipTriggerList = document.querySelectorAll('[data-bs-toggle="tooltip"]')

tooltipTriggerList.forEach(tooltipTriggerEl => {

new bootstrap.Tooltip(tooltipTriggerEl)

})

</script>

</body>

</html>

**3. Fundamentals of Responsive Grid Layout**

**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.**

**Solution:**

<html lang="en">

<head>

<title>Responsive Grid Layout</title>

<link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/css/bootstrap.min.css" rel="stylesheet">

</head>

<body>

<div class="container mt-5">

<div class="row">

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

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

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

</div>

</div>

<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/js/bootstrap.bundle.min.js"></script>

</body>

</html>

**Exercise 3.2:**

**Use .container, .row, and .col-\* classes appropriately for responsive design.**

**Solution:**

<html lang="en">

<head>

<title>Bootstrap Grid Structure</title>

<link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/css/bootstrap.min.css" rel="stylesheet">

</head>

<body>

<div class="container mt-5">

<div class="row">

<div class="col-sm-12 col-md-6 col-lg-4 bg-warning p-3 mb-3">Column A</div>

<div class="col-sm-12 col-md-6 col-lg-4 bg-info p-3 mb-3">Column B</div>

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

</div>

</div>

<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/js/bootstrap.bundle.min.js"></script>

</body>

</html>

**4. Column Layouts and Grid Classes**

**Exercise 4.1:**

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

**Solution:**

<html lang="en">

<head>

<title>Two Column Layout</title>

<link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/css/bootstrap.min.css" rel="stylesheet">

</head>

<body>

<div class="container mt-4">

<div class="row">

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

<div class="col-md-9 bg-secondary text-white p-3">Content Area</div>

</div>

</div>

<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/js/bootstrap.bundle.min.js"></script>

</body>

</html>

**Exercise 4.2:**

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

<html lang="en">

<head>

<title>Four Column Layout</title>

<link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/css/bootstrap.min.css" rel="stylesheet">

</head>

<body>

<div class="container mt-4">

<div class="row">

<div class="col-sm-3 bg-primary text-white p-3">Col 1</div>

<div class="col-sm-3 bg-success text-white p-3">Col 2</div>

<div class="col-sm-3 bg-warning text-dark p-3">Col 3</div>

<div class="col-sm-3 bg-danger text-white p-3">Col 4</div>

</div>

</div>

<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/js/bootstrap.bundle.min.js"></script>

</body>

</html>

**5. Alignment and Reordering in Grid**

**Exercise 5.1:**

**Use justify-content-center and align-items-center to center content inside a row.**

**Solution:**

<html lang="en">

<head>

<meta charset="UTF-8">

<meta name="viewport" content="width=device-width, initial-scale=1">

<title>Centered Content</title>

<link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/css/bootstrap.min.css" rel="stylesheet">

<style>

.row-height {

height: 200px;

}

</style>

</head>

<body>

<div class="container mt-4">

<div class="row justify-content-center align-items-center row-height bg-light">

<div class="col-6 text-center bg-primary text-white p-3">

Centered Content

</div>

</div>

</div>

<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/js/bootstrap.bundle.min.js"></script>

</body>

</html>

**Exercise 5.2:**

**Reorder columns on different screen sizes using order-md-2, order-md-1.**

<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="UTF-8">

<meta name="viewport" content="width=device-width, initial-scale=1">

<title>Reorder Columns</title>

<link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/css/bootstrap.min.css" rel="stylesheet">

</head>

<body>

<div class="container mt-4">

<div class="row">

<div class="col-md-6 order-md-2 bg-success text-white p-3">Column 1 (order-md-2)</div>

<div class="col-md-6 order-md-1 bg-info text-white p-3">Column 2 (order-md-1)</div>

</div>

</div>

<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/js/bootstrap.bundle.min.js"></script>

</body>

</html>

**6. Responsive Flexbox Utilities**

**Exercise 6.1:**

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

**Solution:**

<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="UTF-8">

<meta name="viewport" content="width=device-width, initial-scale=1">

<title>Responsive Flex Navbar</title>

<link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/css/bootstrap.min.css" rel="stylesheet">

</head>

<body>

<div class="container mt-4">

<nav class="d-flex flex-column flex-md-row bg-dark text-white p-3">

<a href="#" class="text-white me-md-3 mb-2 mb-md-0">Home</a>

<a href="#" class="text-white me-md-3 mb-2 mb-md-0">About</a>

<a href="#" class="text-white">Contact</a>

</nav>

</div>

<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/js/bootstrap.bundle.min.js"></script>

</body>

</html>

**Exercise 6.2:**

**Use justify-content-between and align-items-center in a card layout.**

<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="UTF-8">

<meta name="viewport" content="width=device-width, initial-scale=1">

<title>Card Flex Utilities</title>

<link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/css/bootstrap.min.css" rel="stylesheet">

</head>

<body>

<div class="container mt-4">

<div class="card p-3">

<div class="d-flex justify-content-between align-items-center">

<div>

<h5 class="card-title mb-0">Card Title</h5>

<p class="card-text">Subtitle or description</p>

</div>

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

</div>

</div>

</div>

<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/js/bootstrap.bundle.min.js"></script>

</body>

</html>

**7. Typography**

**Exercise 7.1:**

**Create a sample page with different Bootstrap typography utilities: display-1, lead, text-muted, fw-bold, etc.**

**Solution:**

<html lang="en">

<head>

<meta charset="UTF-8">

<meta name="viewport" content="width=device-width, initial-scale=1">

<title>Typography Example</title>

<link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/css/bootstrap.min.css" rel="stylesheet">

</head>

<body>

<div class="container mt-4">

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

<p class="lead">This is a lead paragraph that stands out from regular text.</p>

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

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

</div>

<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/js/bootstrap.bundle.min.js"></script>

</body>

</html>

**Exercise 7.2:**

**Use text-uppercase, text-lowercase, text-capitalize.**

<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="UTF-8">

<meta name="viewport" content="width=device-width, initial-scale=1">

<title>Text Transform</title>

<link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/css/bootstrap.min.css" rel="stylesheet">

</head>

<body>

<div class="container mt-4">

<p class="text-uppercase">this text will be uppercase</p>

<p class="text-lowercase">THIS TEXT WILL BE LOWERCASE</p>

<p class="text-capitalize">this text will be capitalized</p>

</div>

<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/js/bootstrap.bundle.min.js"></script>

</body>

</html>

**8. Forms**

**Exercise 8.1:**

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

**Solution:**

<html lang="en">

<head>

<title>Registration Form</title>

<link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/css/bootstrap.min.css" rel="stylesheet">

</head>

<body>

<div class="container mt-4">

<h3>Registration Form</h3>

<form>

<div class="mb-3">

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

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

</div>

<div class="mb-3">

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

<div class="input-group">

<span class="input-group-text">@</span>

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

</div>

</div>

<div class="mb-3">

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

<input type="password" class="form-control" placeholder="Enter your password">

</div>

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

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

<label class="form-check-label" for="termsCheck">Agree to terms</label>

</div>

<button type="submit" class="btn btn-primary">Register</button>

</form>

</div>

<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/js/bootstrap.bundle.min.js"></script>

</body>

</html>

**Exercise 8.2:**

**Style a login form using form-floating.**

**Solution:**

<html lang="en">

<head>

<meta charset="UTF-8">

<meta name="viewport" content="width=device-width, initial-scale=1">

<title>Login Form</title>

<link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/css/bootstrap.min.css" rel="stylesheet">

</head>

<body>

<div class="container mt-5" style="max-width: 400px;">

<h3 class="mb-4">Login</h3>

<form>

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

<input type="email" class="form-control" id="floatingEmail" placeholder="name@example.com">

<label for="floatingEmail">Email address</label>

</div>

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

<input type="password" class="form-control" id="floatingPassword" placeholder="Password">

<label for="floatingPassword">Password</label>

</div>

<button type="submit" class="btn btn-primary w-100">Login</button>

</form>

</div>

<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/js/bootstrap.bundle.min.js"></script>

</body>

</html>

**9. Buttons**

**Exercise 9.1:**

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

**Solution:**

<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="UTF-8" />

<meta name="viewport" content="width=device-width, initial-scale=1" />

<title>Contextual Buttons</title>

<link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/css/bootstrap.min.css" rel="stylesheet" />

</head>

<body>

<div class="container mt-4">

<button class="btn btn-primary me-2 mb-2">Primary</button>

<button class="btn btn-secondary me-2 mb-2">Secondary</button>

<button class="btn btn-success me-2 mb-2">Success</button>

<button class="btn btn-danger me-2 mb-2">Danger</button>

<button class="btn btn-warning me-2 mb-2">Warning</button>

<button class="btn btn-info me-2 mb-2">Info</button>

<button class="btn btn-light me-2 mb-2">Light</button>

<button class="btn btn-dark me-2 mb-2">Dark</button>

<br />

<button class="btn btn-outline-primary me-2 mb-2">Outline Primary</button>

<button class="btn btn-outline-secondary me-2 mb-2">Outline Secondary</button>

<button class="btn btn-outline-success me-2 mb-2">Outline Success</button>

<button class="btn btn-outline-danger me-2 mb-2">Outline Danger</button>

<button class="btn btn-outline-warning me-2 mb-2">Outline Warning</button>

<button class="btn btn-outline-info me-2 mb-2">Outline Info</button>

<button class="btn btn-outline-light me-2 mb-2">Outline Light</button>

<button class="btn btn-outline-dark me-2 mb-2">Outline Dark</button>

</div>

<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/js/bootstrap.bundle.min.js"></script>

</body>

</html>

**Exercise 9.2:**

**Add button groups using btn-group, and create toggle buttons with checkboxes**

**Solution:**

<html lang="en">

<head>

<title>Button Groups & Toggle</title>

<link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/css/bootstrap.min.css" rel="stylesheet" />

</head>

<body>

<div class="container mt-4">

<!-- Button group -->

<div class="btn-group mb-3" role="group" aria-label="Basic button group">

<button type="button" class="btn btn-primary">Left</button>

<button type="button" class="btn btn-primary">Middle</button>

<button type="button" class="btn btn-primary">Right</button>

</div>

<!-- Toggle buttons with checkboxes -->

<div class="btn-group" role="group" aria-label="Toggle button group">

<input type="checkbox" class="btn-check" id="btncheck1" autocomplete="off" />

<label class="btn btn-outline-primary" for="btncheck1">Checkbox 1</label>

<input type="checkbox" class="btn-check" id="btncheck2" autocomplete="off" />

<label class="btn btn-outline-primary" for="btncheck2">Checkbox 2</label>

<input type="checkbox" class="btn-check" id="btncheck3" autocomplete="off" />

<label class="btn btn-outline-primary" for="btncheck3">Checkbox 3</label>

</div>

</div>

<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/js/bootstrap.bundle.min.js"></script>

</body>

</html>

**10. Navbars and Navigation**

**Exercise 10.1:**

**Create a responsive navbar with logo, navigation links, and a search form.**

**Solution:**

<html lang="en">

<head>

<title>Responsive Navbar</title>

<link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/css/bootstrap.min.css" rel="stylesheet" />

</head>

<body>

<nav class="navbar navbar-expand-md navbar-light bg-light">

<div class="container">

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

<img src="https://getbootstrap.com/docs/5.3/assets/brand/bootstrap-logo.svg" alt="Logo" width="30" height="24" class="d-inline-block align-text-top">

Bootstrap

</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 me-auto mb-2 mb-md-0">

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

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

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

</ul>

<form class="d-flex" role="search">

<input class="form-control me-2" type="search" placeholder="Search" aria-label="Search" />

<button class="btn btn-outline-primary" type="submit">Search</button>

</form>

</div>

</div>

</nav>

<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/js/bootstrap.bundle.min.js"></script>

</body>

</html>

**Exercise 10.2:**

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

**Solution:**

<html lang="en">

<head>

<title>Tabbed Navigation</title>

<link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/css/bootstrap.min.css" rel="stylesheet" />

</head>

<body>

<div class="container mt-4">

<!-- Nav tabs -->

<ul class="nav nav-tabs mb-3" id="myTab" role="tablist">

<li class="nav-item" role="presentation">

<button class="nav-link active" id="home-tab" data-bs-toggle="tab" data-bs-target="#home" type="button" role="tab" aria-controls="home" aria-selected="true">

Home

</button>

</li>

<li class="nav-item" role="presentation">

<button class="nav-link" id="profile-tab" data-bs-toggle="tab" data-bs-target="#profile" type="button" role="tab" aria-controls="profile" aria-selected="false">

Profile

</button>

</li>

<li class="nav-item" role="presentation">

<button class="nav-link" id="contact-tab" data-bs-toggle="tab" data-bs-target="#contact" type="button" role="tab" aria-controls="contact" aria-selected="false">

Contact

</button>

</li>

</ul>

<div class="tab-content" id="myTabContent">

<div class="tab-pane fade show active" id="home" role="tabpanel" aria-labelledby="home-tab">

Home tab content goes here.

</div>

<div class="tab-pane fade" id="profile" role="tabpanel" aria-labelledby="profile-tab">

Profile tab content goes here.

</div>

<div class="tab-pane fade" id="contact" role="tabpanel" aria-labelledby="contact-tab">

Contact tab content goes here.

</div>

</div>

<hr />

<!-- Nav pills -->

<ul class="nav nav-pills" id="pills-tab" role="tablist">

<li class="nav-item" role="presentation">

<button class="nav-link active" id="pills-home-tab" data-bs-toggle="pill" data-bs-target="#pills-home" type="button" role="tab" aria-controls="pills-home" aria-selected="true">

Home

</button>

</li>

<li class="nav-item" role="presentation">

<button class="nav-link" id="pills-profile-tab" data-bs-toggle="pill" data-bs-target="#pills-profile" type="button" role="tab" aria-controls="pills-profile" aria-selected="false">

Profile

</button>

</li>

<li class="nav-item" role="presentation">

<button class="nav-link" id="pills-contact-tab" data-bs-toggle="pill" data-bs-target="#pills-contact" type="button" role="tab" aria-controls="pills-contact" aria-selected="false">

Contact

</button>

</li>

</ul>

<div class="tab-content mt-3" id="pills-tabContent">

<div class="tab-pane fade show active" id="pills-home" role="tabpanel" aria-labelledby="pills-home-tab">

Home pill content here.

</div>

<div class="tab-pane fade" id="pills-profile" role="tabpanel" aria-labelledby="pills-profile-tab">

Profile pill content here.

</div>

<div class="tab-pane fade" id="pills-contact" role="tabpanel" aria-labelledby="pills-contact-tab">

Contact pill content here.

</div>

</div>

</div>

<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/js/bootstrap.bundle.min.js"></script>

</body>

</html>

**11. Cards and Media Objects**

**Exercise 11.1:**

**Create a profile card using card, card-body, card-title, and card-img-top.**

**Solution:**

<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="UTF-8" />

<meta name="viewport" content="width=device-width, initial-scale=1" />

<title>Profile Card</title>

<link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/css/bootstrap.min.css" rel="stylesheet" />

</head>

<body>

<div class="container mt-4" style="max-width: 300px;">

<div class="card">

<img src="https://randomuser.me/api/portraits/men/75.jpg" class="card-img-top" alt="Profile Image" />

<div class="card-body">

<h5 class="card-title">John Doe</h5>

<p class="card-text">Web Developer from San Francisco, passionate about modern UI design and frontend technologies.</p>

<a href="#" class="btn btn-primary">Follow</a>

</div>

</div>

</div>

<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/js/bootstrap.bundle.min.js"></script>

</body>

</html>

**Exercise 11.2:**

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

**Solution:**

<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="UTF-8" />

<meta name="viewport" content="width=device-width, initial-scale=1" />

<title>Media Object</title>

<link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/css/bootstrap.min.css" rel="stylesheet" />

</head>

<body>

<div class="container mt-4" style="max-width: 600px;">

<div class="d-flex align-items-start">

<img src="https://randomuser.me/api/portraits/women/65.jpg" class="me-3 rounded" alt="Profile" width="64" height="64" />

<div>

<h5>Jane Smith</h5>

<p>This is a simple media object example with the image aligned to the left and content on the right.</p>

</div>

</div>

</div>

<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/js/bootstrap.bundle.min.js"></script>

</body>

</html>

**12. Spacing Utilities**

**Exercise 12.1:**

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

**Solution:**

<html lang="en">

<head>

<title>Spacing Utilities</title>

<link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/css/bootstrap.min.css" rel="stylesheet" />

</head>

<body>

<div class="container mt-4">

<div class="bg-primary text-white m-3 p-2">

<h4>Box with margin 3 (m-3) and padding 2 (p-2)</h4>

<p>This box has margin all around and small padding inside.</p>

</div>

<div class="bg-success text-white mt-4 py-5 px-3">

<h4>Box with margin top 4 (mt-4), padding y-axis 5 (py-5), and padding x-axis 3 (px-3)</h4>

<p>This box has extra vertical padding and margin top space.</p>

</div>

</div>

<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/js/bootstrap.bundle.min.js"></script>

</body>

</html>

**Exercise 12.2:**

**Build a pricing section where spacing improves the layout.**

**Solution:**

<html lang="en">

<head>

<title>Pricing Section</title>

<link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/css/bootstrap.min.css" rel="stylesheet" />

</head>

<body>

<div class="container my-5">

<h2 class="text-center mb-5">Our Pricing Plans</h2>

<div class="row g-4">

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

<div class="border rounded p-4 h-100 d-flex flex-column">

<h3 class="mb-3">Basic</h3>

<p class="flex-grow-1">Essential features for personal use.</p>

<h4 class="my-3">$9 / month</h4>

<button class="btn btn-primary mt-auto">Choose Plan</button>

</div>

</div>

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

<div class="border rounded p-4 h-100 d-flex flex-column">

<h3 class="mb-3">Standard</h3>

<p class="flex-grow-1">Better for small teams and projects.</p>

<h4 class="my-3">$29 / month</h4>

<button class="btn btn-primary mt-auto">Choose Plan</button>

</div>

</div>

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

<div class="border rounded p-4 h-100 d-flex flex-column">

<h3 class="mb-3">Premium</h3>

<p class="flex-grow-1">Full access to all features and priority support.</p>

<h4 class="my-3">$59 / month</h4>

<button class="btn btn-primary mt-auto">Choose Plan</button>

</div>

</div>

</div>

</div>

<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/js/bootstrap.bundle.min.js"></script>

</body>

</html>

**13. Colors and Backgrounds**

**Exercise 13.1:**

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

**Solution:**

<html lang="en">

<head>

<title>Dashboard with Contextual Backgrounds</title>

<link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/css/bootstrap.min.css" rel="stylesheet" />

</head>

<body>

<div class="container mt-4">

<h2 class="mb-4">Dashboard</h2>

<div class="row g-3">

<div class="col-md-4 p-3 bg-primary text-white rounded">

<h4>Users</h4>

<p class="fw-bold">1,234</p>

</div>

<div class="col-md-4 p-3 bg-warning text-dark rounded">

<h4>Pending Orders</h4>

<p class="fw-bold">56</p>

</div>

<div class="col-md-4 p-3 bg-success text-white rounded">

<h4>Completed Sales</h4>

<p class="fw-bold">$12,345</p>

</div>

<div class="col-md-4 p-3 bg-danger text-white rounded">

<h4>Errors</h4>

<p class="fw-bold">3</p>

</div>

<div class="col-md-4 p-3 bg-info text-white rounded">

<h4>Notifications</h4>

<p class="fw-bold">24</p>

</div>

<div class="col-md-4 p-3 bg-secondary text-white rounded">

<h4>Visitors</h4>

<p class="fw-bold">789</p>

</div>

</div>

</div>

<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/js/bootstrap.bundle.min.js"></script>

</body>

</html>

**Exercise 13.2:**

**Use bg-gradient with bg-dark and white text.**

**Solution:**

<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="UTF-8" />

<meta name="viewport" content="width=device-width, initial-scale=1" />

<title>Background Gradient Example</title>

<link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/css/bootstrap.min.css" rel="stylesheet" />

</head>

<body>

<div class="container mt-5 p-5 rounded bg-dark bg-gradient text-white text-center">

<h1>Welcome to the Dark Gradient Section</h1>

<p>This section uses <code>bg-dark</code> combined with <code>bg-gradient</code> for a smooth gradient background.</p>

</div>

<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/js/bootstrap.bundle.min.js"></script>

</body>

</html>

**14. Display and Visibility**

**Exercise 14.1:**

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

**Solution:**

<html lang="en">

<head>

<title>Display and Visibility</title>

<link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/css/bootstrap.min.css" rel="stylesheet" />

</head>

<body>

<div class="container mt-4">

<div class="bg-primary text-white p-3 mb-3 d-none d-md-block">

<h4>This box is hidden on xs/sm and visible as block on md and above</h4>

</div>

<div class="bg-success text-white p-3 mb-3 d-none d-lg-flex justify-content-center">

<h4>This box is hidden below lg and shown as flex on lg and above</h4>

</div>

<div class="bg-warning text-dark p-3 mb-3">

<h4>This box is always visible</h4>

</div>

</div>

<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/js/bootstrap.bundle.min.js"></script>

</body>

</html>

**Exercise 14.2:**

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

**Solution:**

<html lang="en">

<head>

<title>Responsive Sidebar</title>

<link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/css/bootstrap.min.css" rel="stylesheet" />

</head>

<body>

<div class="container mt-4">

<div class="row">

<!-- Sidebar visible only md and larger -->

<div class="col-md-3 d-none d-md-block bg-light border">

<h5 class="p-3">Sidebar Menu</h5>

<ul class="nav flex-column p-3">

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

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

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

</ul>

</div>

<div class="col-12 col-md-9">

<h3>Main Content Area</h3>

<p>This content adjusts width based on sidebar visibility.</p>

</div>

</div>

</div>

<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/js/bootstrap.bundle.min.js"></script>

</body>

</html>

**15. Borders, Shadows, and Rounded Corners**

**Exercise 15.1:**

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

**Solution:**

<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="UTF-8" />

<meta name="viewport" content="width=device-width, initial-scale=1" />

<title>Image Borders and Rounded Circle</title>

<link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/css/bootstrap.min.css" rel="stylesheet" />

</head>

<body>

<div class="container mt-4 text-center">

<img

src="https://randomuser.me/api/portraits/women/44.jpg"

alt="Profile"

class="border border-primary border-3 rounded-circle"

width="150" height="150"

/>

</div>

<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/js/bootstrap.bundle.min.js"></script>

</body>

</html>

**Exercise 15.2:**

**Use shadow, shadow-lg and rounded-pill in a card.**

**Solution:**

<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="UTF-8" />

<meta name="viewport" content="width=device-width, initial-scale=1" />

<title>Card with Shadow and Rounded Pill</title>

<link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/css/bootstrap.min.css" rel="stylesheet" />

</head>

<body>

<div class="container mt-4 d-flex justify-content-center">

<div class="card shadow-lg rounded-pill p-4" style="width: 300px;">

<h4 class="card-title text-center mb-3">Special Card</h4>

<p class="card-text text-center">This card uses <code>shadow-lg</code> for a bigger shadow and <code>rounded-pill</code> for pill-shaped corners.</p>

<button class="btn btn-primary d-block mx-auto">Action</button>

</div>

</div>

<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/js/bootstrap.bundle.min.js"></script>

</body>

</html>

**16. Positioning Utilities**

**Exercise 16.1:**

**Create a fixed footer using position-fixed bottom-0.**

**Solution:**

<html lang="en">

<head>

<title>Fixed Footer</title>

<link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/css/bootstrap.min.css" rel="stylesheet" />

<style>

body {

margin-bottom: 60px; /\* Space for fixed footer \*/

}

</style>

</head>

<body>

<div class="container mt-5">

<h2>Page Content</h2>

<p>This page has a fixed footer at the bottom of the viewport.</p>

</div>

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

Fixed Footer © 2025

</footer>

<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/js/bootstrap.bundle.min.js"></script>

</body>

</html>

**Exercise 16.2:**

**Use position-relative and position-absolute to overlay a badge over an image.**

**Solution:**

<html lang="en">

<head>

<title>Badge Overlay on Image</title>

<link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/css/bootstrap.min.css" rel="stylesheet" />

</head>

<body>

<div class="container mt-5">

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

<img

src="https://randomuser.me/api/portraits/men/32.jpg"

alt="User"

class="rounded"

width="200"

height="200"

/>

<span class="position-absolute top-0 start-100 translate-middle badge rounded-pill bg-danger">

99+

<span class="visually-hidden">unread messages</span>

</span>

</div>

</div>

<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/js/bootstrap.bundle.min.js"></script>

</body>

</html>

**17. Icons with Bootstrap Icons**

**Exercise 17.1:**

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

**Solution:**

<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="UTF-8" />

<meta name="viewport" content="width=device-width, initial-scale=1" />

<title>Footer with Social Icons</title>

<link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/css/bootstrap.min.css" rel="stylesheet" />

<link href="https://cdn.jsdelivr.net/npm/bootstrap-icons@1.10.5/font/bootstrap-icons.css" rel="stylesheet" />

</head>

<body>

<footer class="bg-dark text-white py-3 mt-5">

<div class="container text-center">

<a href="#" class="text-white mx-3 fs-4"><i class="bi bi-facebook"></i></a>

<a href="#" class="text-white mx-3 fs-4"><i class="bi bi-twitter"></i></a>

<a href="#" class="text-white mx-3 fs-4"><i class="bi bi-instagram"></i></a>

<a href="#" class="text-white mx-3 fs-4"><i class="bi bi-linkedin"></i></a>

</div>

</footer>

<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/js/bootstrap.bundle.min.js"></script>

</body>

</html>

**Exercise 17.2:**

**Replace text buttons with icon-only buttons using Bootstrap Icons.**

**Solution:**

<html lang="en">

<head>

<title>Icon-Only Buttons</title>

<link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/css/bootstrap.min.css" rel="stylesheet" />

<link href="https://cdn.jsdelivr.net/npm/bootstrap-icons@1.10.5/font/bootstrap-icons.css" rel="stylesheet" />

</head>

<body>

<div class="container mt-5 text-center">

<button class="btn btn-primary mx-2" aria-label="Search">

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

</button>

<button class="btn btn-success mx-2" aria-label="Save">

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

</button>

<button class="btn btn-danger mx-2" aria-label="Delete">

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

</button>

<button class="btn btn-warning mx-2" aria-label="Edit">

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

</button>

</div>

<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/js/bootstrap.bundle.min.js"></script>

</body>

</html>

**18. Bootstrap 5 JavaScript Plugins**

**Exercise 18.1:**

**Add a modal popup triggered by a button.**

**Solution:**

<html lang="en">

<head>

<title>Bootstrap Modal Example</title>

<link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/css/bootstrap.min.css" rel="stylesheet" />

</head>

<body>

<div class="container mt-5 text-center">

<button type="button" class="btn btn-primary" data-bs-toggle="modal" data-bs-target="#exampleModal">

Open Modal

</button>

</div>

<!-- Modal -->

<div class="modal fade" id="exampleModal" tabindex="-1" aria-labelledby="modalLabel" aria-hidden="true">

<div class="modal-dialog">

<div class="modal-content">

<div class="modal-header">

<h5 class="modal-title" id="modalLabel">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 inside the modal popup.

</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>

<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/js/bootstrap.bundle.min.js"></script>

</body>

</html>

**Exercise 18.2:**

**Create a collapsible accordion using accordion and Bootstrap JavaScript behavior.**

**Solution:**

<html lang="en">

<head>

<title>Bootstrap Accordion Example</title>

<link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/css/bootstrap.min.css" rel="stylesheet" />

</head>

<body>

<div class="container mt-5">

<div class="accordion" id="accordionExample">

<div class="accordion-item">

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

<button

class="accordion-button"

type="button"

data-bs-toggle="collapse"

data-bs-target="#collapseOne"

aria-expanded="true"

aria-controls="collapseOne"

>

Accordion Item #1

</button>

</h2>

<div

id="collapseOne"

class="accordion-collapse collapse show"

aria-labelledby="headingOne"

data-bs-parent="#accordionExample"

>

<div class="accordion-body">

Content for accordion item #1.

</div>

</div>

</div>

<div class="accordion-item">

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

<button

class="accordion-button collapsed"

type="button"

data-bs-toggle="collapse"

data-bs-target="#collapseTwo"

aria-expanded="false"

aria-controls="collapseTwo"

>

Accordion Item #2

</button>

</h2>

<div

id="collapseTwo"

class="accordion-collapse collapse"

aria-labelledby="headingTwo"

data-bs-parent="#accordionExample"

>

<div class="accordion-body">

Content for accordion item #2.

</div>

</div>

</div>

<div class="accordion-item">

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

<button

class="accordion-button collapsed"

type="button"

data-bs-toggle="collapse"

data-bs-target="#collapseThree"

aria-expanded="false"

aria-controls="collapseThree"

>

Accordion Item #3

</button>

</h2>

<div

id="collapseThree"

class="accordion-collapse collapse"

aria-labelledby="headingThree"

data-bs-parent="#accordionExample"

>

<div class="accordion-body">

Content for accordion item #3.

</div>

</div>

</div>

</div>

</div>

<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/js/bootstrap.bundle.min.js"></script>

</body>

</html>

**19. Customization with Sass**

**Exercise 19.1:**

**Set up a Bootstrap 5 project with Sass using npm.**

**Solution:**

1. **Initialize npm project** (in your project folder):

npm init -y

1. **Install Bootstrap and Sass**:

npm install bootstrap@5 sass

1. **Create your Sass entry file** (e.g., custom.scss):

// Import Bootstrap's functions and variables first

@import "node\_modules/bootstrap/scss/functions";

@import "node\_modules/bootstrap/scss/variables";

// You can override variables here, e.g.:

// $primary: #ff5733;

// Then import the rest of Bootstrap

@import "node\_modules/bootstrap/scss/bootstrap";

1. **Compile Sass to CSS**:

Add this script to your package.json under "scripts":

"build-css": "sass custom.scss custom.css --no-source-map"

Run:

npm run build-css

This generates custom.css which you can link in your HTML instead of the CDN CSS.

**Exercise 19.2:**

**Customize primary colors and border radius via \_variables.scss and recompile Bootstrap.**

**Solution:**

To customize, create a \_variables.scss file to override Bootstrap defaults:

// \_variables.scss

// Override primary color and border radius before importing Bootstrap

$primary: #ff5733 !default;

$border-radius: 1rem !default;

Modify your custom.scss to import \_variables.scss before Bootstrap:

@import "variables"; // Your overrides

@import "node\_modules/bootstrap/scss/functions";

@import "node\_modules/bootstrap/scss/variables";

@import "node\_modules/bootstrap/scss/bootstrap";

Make sure \_variables.scss is in the same folder as custom.scss or adjust path accordingly.