**Bootstrap Notes (Basic to Advanced)**

**1. Introduction to Bootstrap**

* **Bootstrap is an HTML, CSS, and JavaScript framework** for developing responsive and mobile-first websites.
* **Open-source project**: Hosted on GitHub and freely available for use.
* **Bootstrap provides responsiveness** out of the box with its grid system and flexible components.
* **SPA (Single Page Application) support**: Helps in building modern web applications efficiently.
* **Extensive documentation and customization options** for easy integration and modification.

**2. Setting Up Bootstrap**

* **CDN Method**:
* <link rel="stylesheet" href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.0/dist/css/bootstrap.min.css">
* <script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.0/dist/js/bootstrap.bundle.min.js"></script>
* **Download & Include**: Download Bootstrap files and link them locally.
* **Package Managers**: Install via npm, yarn, or composer.

**3. Bootstrap Grid System**

* Uses **12-column layout** based on flexbox.
* **Container types**:
  + .container: Fixed-width container.
  + .container-fluid: Full-width container.
* **Row & Column classes**: .row, .col-sm-6, .col-md-4, etc.
* **Breakpoints**:
  + xs (extra small), sm (small), md (medium), lg (large), xl (extra large)

**4. Bootstrap Components**

* **Breadcrumbs**: Navigation aid that indicates the user’s location.
* <nav aria-label="breadcrumb">
* <ol class="breadcrumb">
* <li class="breadcrumb-item"><a href="#">Home</a></li>
* <li class="breadcrumb-item active" aria-current="page">Library</li>
* </ol>
* </nav>
* **Alerts**: Display important messages.
* <div class="alert alert-warning" role="alert">
* This is a warning alert!
* </div>
* **Badges**: Small count indicators.
* <span class="badge bg-primary">New</span>
* **Buttons & Button Groups**: Styled buttons and grouped buttons.
* <button class="btn btn-primary">Click Me</button>
* <div class="btn-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>
* **Cards**: Used for displaying content in a structured manner.
* <div class="card" style="width: 18rem;">
* <div class="card-body">
* <h5 class="card-title">Card Title</h5>
* <p class="card-text">Some quick example text.</p>
* </div>
* </div>
* **Dropdowns**: Interactive dropdown menus.
* <div class="dropdown">
* <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>

**5. Bootstrap Forms**

* **Form controls**: .form-control, .form-check, .form-select.
* **Floating labels**: <div class="form-floating">.
* **Validation states**: .is-valid, .is-invalid for feedback.

**6. Bootstrap Utilities**

* **Spacing**: m-3, p-4 for margins and padding.
* **Text utilities**: text-center, fw-bold, fst-italic.
* **Display helpers**: d-flex, d-none, d-block.
* **Background colors**: bg-primary, bg-success, bg-danger.
* **Borders & Shadows**: border, border-0, shadow-lg.

**7. Bootstrap JavaScript Components**

* **Modals**: Pop-up dialogs.
* **Carousels**: Slideshow components.
* **Tooltips & Popovers**: Small info pop-ups.
* **Offcanvas**: Sidebar navigation.

**8. Customizing Bootstrap**

* **Using SASS variables** for customization.
* **Overriding default styles with custom CSS.**
* **Theming options available in Bootstrap.**