**Bootstrap**

**Introduction to Bootstrap**

Bootstrap is a popular front-end framework built with HTML, CSS, and JavaScript that provides pre-designed components (like buttons, navbars, cards) and a responsive grid system.

**Use of Bootstrap**

1. Easy to use: Anybody with just basic knowledge of HTML and CSS can start using Bootstrap.
2. Ready-Made Components: Buttons, modals, carousels, alerts, and many more.
3. Responsive features: Automatically adjusts layout for phones, tablets, and desktops.
4. Browser compatibility: Bootstrap 5 is compatible with all modern browsers (Chrome, Firefox, Edge, Safari, and Opera)
5. Fast Development: Speeds up building and prototyping with minimal custom CSS.

**Important Bootstrap Components**

1. Grid System: Bootstrap's grid system is built with flexbox and allows up to 12 columns across the page.
2. Container: .container and .container-fluid.
3. Colors: The classes for text colors are .text-muted, .text-primary, .text-success, .text-info, .text-warning, .text-danger, .text-secondary, .text-white, .text-dark and .text-light. The classes for background colors are .bg-primary, .bg-success, .bg-warning, .bg-danger, .bg-secondary, .bg-dark and .bg-light.
4. Alerts: Alerts are created with the .alert class, followed by one of the contextual classes .alert-success, .alert-info, .alert-warning, .alert-danger, .alert-primary, .alert-secondary, .alert-light or .alert-dark.
5. Buttons: btn, btn-primary, btn-success, etc. are standard clickable buttons.
6. Badges: Badges are used to add additional information like small count indicators to any content.
7. Cards: Combine image, text, and actions in a clean block.
8. Dropdown: Toggleable menus with options.
9. Navbar: Navigation menus and headers
10. Carousel: The Carousel is a slideshow for cycling through elements.
11. Modal: Pop-up window that appears over the page
12. Popovers: The Popover component is a pop-up box that appears when the user clicks on an element.
13. Spinners: Loading indicators
14. Toast: Notification popups
15. Form control: Clean inputs with .form-control

* **Difference between .container and .container-fluid**

| **Feature** | **.container** | **.container-fluid** |
| --- | --- | --- |
| **Width Behavior** | Fixed-width at each responsive breakpoint | Always 100% of the viewport width |
| **Responsive** | Yes – changes width based on screen size | No – remains full width on all screen sizes |
| **Horizontal Margin (Centering)** | Automatically centered (margin auto) | Not centered – stretches edge to edge |
| **Breakpoints** | Has max-width at sm, md, lg, xl, xxl | Ignores breakpoints – always full width |

* **Grid system**

The Bootstrap Grid System is a powerful layout tool that helps you build responsive, flexible page layouts using a system of rows and columns. It is based on a 12-column layout and uses flexbox under the hood.

* .container: Wraps content and centre’s it.
* .row: Groups columns, removes extra padding (adds negative margins).
* .col: Flexible column that takes up equal space unless specified.

Bootstrap supports 6 breakpoints:

| **Breakpoint** | **Class Prefix** | **Min Width** |
| --- | --- | --- |
| Extra small | col- | <576px |
| Small | col-sm- | ≥576px |
| Medium | col-md- | ≥768px |
| Large | col-lg- | ≥992px |
| Extra large | col-xl- | ≥1200px |
| Extra extra large | col-xxl- | ≥1400px |