**BOOTSTRAP**



Originally created by a designer and a developer at Twitter, Bootstrap has become one of the most popular front-end frameworks and open source projects in the world.

Bootstrap was created at Twitter in mid-2010 by [@mdo](https://twitter.com/mdo) and [@fat](https://twitter.com/fat). Prior to being an open-sourced framework, Bootstrap was known as *Twitter Blueprint*. A few months into development, Twitter held its [first Hack Week](https://blog.twitter.com/2010/hack-week) and the project exploded as developers of all skill levels jumped in without any external guidance. It served as the style guide for internal tools development at the company for over a year before its public release, and continues to do so today.

Originally [released](https://blog.twitter.com/2011/bootstrap-from-twitter) on August 19, 2011, we’ve since had over [twenty releases](https://github.com/twbs/bootstrap/releases), including two major rewrites with v2 and v3. With Bootstrap 2, we added responsive functionality to the entire framework as an optional stylesheet. Building on that with Bootstrap 3, we rewrote the library once more to make it responsive by default with a mobile first approach.

|  |  |
| --- | --- |
| **Bootstrap** | |
|  | |
| [**Original author(s)**](https://en.wikipedia.org/wiki/Programmer) | Mark Otto, Jacob Thornton |
| [**Developer(s)**](https://en.wikipedia.org/wiki/Programmer) | [Bootstrap Core Team](https://getbootstrap.com/docs/5.3/about/team/) |
| **Initial release** | August 19, 2011; 13 years ago |
| [**Stable release**](https://en.wikipedia.org/wiki/Software_release_life_cycle) | 5.3.3[[1]](https://en.wikipedia.org/wiki/Bootstrap_(front-end_framework)#cite_note-wikidata-cf5b4fcf88bc636c59a5e899862e8934f8d560b4-v14-1) [Edit this on Wikidata](https://www.wikidata.org/wiki/Q893195?uselang=en#P348) / 20 February 2024; 5 months ago |
| [**Repository**](https://en.wikipedia.org/wiki/Repository_(version_control)) | [Bootstrap Repository](https://github.com/twbs/bootstrap) |
| **Written in** | [HTML](https://en.wikipedia.org/wiki/HTML), [CSS](https://en.wikipedia.org/wiki/CSS), [Less](https://en.wikipedia.org/wiki/Less_(stylesheet_language)) (v3), [Sass](https://en.wikipedia.org/wiki/Sass_(stylesheet_language)) (v4) and [JavaScript](https://en.wikipedia.org/wiki/JavaScript) |
| [**Platform**](https://en.wikipedia.org/wiki/Computing_platform) | [Web platform](https://en.wikipedia.org/wiki/Web_platform) |
| [**License**](https://en.wikipedia.org/wiki/Software_license) | [MIT License](https://en.wikipedia.org/wiki/MIT_License)[[2]](https://en.wikipedia.org/wiki/Bootstrap_(front-end_framework)#cite_note-2) ([Apache License 2.0](https://en.wikipedia.org/wiki/Apache_License_2.0) prior to 3.1.0)[[3]](https://en.wikipedia.org/wiki/Bootstrap_(front-end_framework)#cite_note-3) |
| **Website** | [getbootstrap.com](https://getbootstrap.com/) |

**Bootstrap** (formerly **Twitter Bootstrap**) is a [free and open-source](https://en.wikipedia.org/wiki/Free_and_open-source) [CSS framework](https://en.wikipedia.org/wiki/CSS_framework) directed at responsive, [mobile-first](https://en.wikipedia.org/wiki/Responsive_web_design#Mobile_first,_unobtrusive_JavaScript,_and_progressive_enhancement) [front-end web development](https://en.wikipedia.org/wiki/Front-end_web_development). It contains [HTML](https://en.wikipedia.org/wiki/HTML), [CSS](https://en.wikipedia.org/wiki/CSS) and (optionally) [JavaScript](https://en.wikipedia.org/wiki/JavaScript)-based design templates for [typography](https://en.wikipedia.org/wiki/Web_design#Typography), [forms](https://en.wikipedia.org/wiki/Form_(HTML)), [buttons](https://en.wikipedia.org/wiki/Button_(computing)#HTML), [navigation](https://en.wikipedia.org/wiki/Web_navigation#Local_website_navigation), and other interface components.

As of May 2023, Bootstrap is the 17th most starred project (4th most starred library) on [GitHub](https://en.wikipedia.org/wiki/GitHub), with over 164,000 stars.[[4]](https://en.wikipedia.org/wiki/Bootstrap_(front-end_framework)#cite_note-most-starred-4) According to W3Techs, Bootstrap is used by 19.2% of all websites.[[5]](https://en.wikipedia.org/wiki/Bootstrap_(front-end_framework)#cite_note-5)

**History**

[[edit](https://en.wikipedia.org/w/index.php?title=Bootstrap_(front-end_framework)&action=edit&section=2)]

**Early beginnings**

[[edit](https://en.wikipedia.org/w/index.php?title=Bootstrap_(front-end_framework)&action=edit&section=3)]

Bootstrap, originally named Twitter Blueprint, was developed by Mark Otto and Jacob Thornton at [Twitter](https://en.wikipedia.org/wiki/Twitter) as a framework to encourage consistency across internal tools. Before Bootstrap, various libraries were used for interface development, which led to inconsistencies and a high maintenance burden. According to Otto:

A super small group of developers and I got together to design and build a new internal tool and saw an opportunity to do something more. Through that process, we saw ourselves build something much more substantial than another internal tool. Months later, we ended up with an early version of Bootstrap as a way to document and share common design patterns and assets within the company.[[7]](https://en.wikipedia.org/wiki/Bootstrap_(front-end_framework)#cite_note-bootstrap_a_list_apart-7)

After a few months of development by a small group, many developers at Twitter began to contribute to the project as a part of Hack Week, a [hackathon](https://en.wikipedia.org/wiki/Hackathon)-style week for the Twitter development team. It was renamed from Twitter Blueprint to Twitter Bootstrap and released as an open-source project on August 19, 2011.[[8]](https://en.wikipedia.org/wiki/Bootstrap_(front-end_framework)#cite_note-v1-release-8) It has continued to be maintained by Otto, Thornton, a small group of core developers, and a large community of contributors.[[9]](https://en.wikipedia.org/wiki/Bootstrap_(front-end_framework)#cite_note-about-9)

**Bootstrap 2**

[[edit](https://en.wikipedia.org/w/index.php?title=Bootstrap_(front-end_framework)&action=edit&section=4)]

On January 31, 2012, Bootstrap 2 was released, which added built-in support for Glyphicons, several new components, as well as changes to many of the existing components. This version supports [responsive web design](https://en.wikipedia.org/wiki/Responsive_web_design), meaning the layout of web pages adjusts dynamically, taking into account the characteristics of the device used (whether desktop, tablet, mobile phone).[[10]](https://en.wikipedia.org/wiki/Bootstrap_(front-end_framework)#cite_note-v2-release-10) Shortly before the release of Bootstrap 2.1.2, Otto and Thornton left Twitter, but committed to continue to work on Bootstrap as an independent project.[[11]](https://en.wikipedia.org/wiki/Bootstrap_(front-end_framework)#cite_note-11)

**Bootstrap 3**

[[edit](https://en.wikipedia.org/w/index.php?title=Bootstrap_(front-end_framework)&action=edit&section=5)]

On August 19, 2013, Bootstrap 3 was released. It redesigned components to use [flat design](https://en.wikipedia.org/wiki/Flat_design) and a [mobile first](https://en.wikipedia.org/wiki/Responsive_web_design#Mobile_first,_unobtrusive_JavaScript,_and_progressive_enhancement) approach.[[12]](https://en.wikipedia.org/wiki/Bootstrap_(front-end_framework)#cite_note-12) Bootstrap 3 features new plugin system with [namespaced](https://en.wikipedia.org/wiki/Namespace" \o "Namespace) events. Bootstrap 3 dropped Internet Explorer 7 and Firefox 3.6 support, but there is an optional [polyfill](https://en.wikipedia.org/wiki/Polyfill_(programming)" \o "Polyfill (programming)) for these browsers.[[13]](https://en.wikipedia.org/wiki/Bootstrap_(front-end_framework)#cite_note-v3-release-13) Bootstrap 3 was also the first version released under the twbs organization on GitHub instead of the Twitter one.[[14]](https://en.wikipedia.org/wiki/Bootstrap_(front-end_framework)#cite_note-14)

**Bootstrap 4**

[[edit](https://en.wikipedia.org/w/index.php?title=Bootstrap_(front-end_framework)&action=edit&section=6)]

Otto announced Bootstrap 4 on October 29, 2014.[[15]](https://en.wikipedia.org/wiki/Bootstrap_(front-end_framework)#cite_note-v3.3.0-release-15) The first alpha version of Bootstrap 4 was released on August 19, 2015.[[16]](https://en.wikipedia.org/wiki/Bootstrap_(front-end_framework)#cite_note-v4.0.0-alpha-release-16) The first beta version was released on August 10, 2017.[[17]](https://en.wikipedia.org/wiki/Bootstrap_(front-end_framework)#cite_note-v4.0.0-beta-release-17) Otto suspended work on Bootstrap 3 on September 6, 2016, to free up time to work on Bootstrap 4. Bootstrap 4 was finalized on January 18, 2018.[[18]](https://en.wikipedia.org/wiki/Bootstrap_(front-end_framework)#cite_note-18)

Significant changes include:

* Major rewrite of the code
* Replacing [Less](https://en.wikipedia.org/wiki/Less_(stylesheet_language)) with [Sass](https://en.wikipedia.org/wiki/Sass_(stylesheet_language))
* Addition of Reboot, a collection of element-specific CSS changes in a single file, based on Normalize
* Dropping support for [IE8](https://en.wikipedia.org/wiki/Internet_Explorer_8), [IE9](https://en.wikipedia.org/wiki/Internet_Explorer_9), and [iOS 6](https://en.wikipedia.org/wiki/IOS_6)
* [CSS Flexible Box](https://en.wikipedia.org/wiki/CSS_Flexible_Box_Layout) support
* Adding navigation customization options
* Adding responsive spacing and sizing utilities
* Switching from the [pixels](https://en.wikipedia.org/wiki/Pixel) unit in CSS to [root ems](https://en.wikipedia.org/wiki/Root_em)
* Increasing global font size from 14px to 16px for enhanced readability
* Dropping the panel, thumbnail, pager, and well components
* Dropping the Glyphicons icon font
* Huge number[[*quantify*](https://en.wikipedia.org/wiki/Wikipedia:Manual_of_Style/Dates_and_numbers)] of utility classes
* Improved form styling, buttons, drop-down menus, media objects and image classes

Bootstrap 4 supports the latest versions of [Google Chrome](https://en.wikipedia.org/wiki/Google_Chrome), [Firefox](https://en.wikipedia.org/wiki/Firefox), [Internet Explorer](https://en.wikipedia.org/wiki/Internet_Explorer), [Opera](https://en.wikipedia.org/wiki/Opera_(web_browser)), and [Safari](https://en.wikipedia.org/wiki/Safari_(web_browser)) (except on Windows). It additionally supports back to [IE10](https://en.wikipedia.org/wiki/Internet_Explorer_10) and the latest [Firefox](https://en.wikipedia.org/wiki/Firefox) Extended Support Release (ESR).[[19]](https://en.wikipedia.org/wiki/Bootstrap_(front-end_framework)#cite_note-supported-browsers-19)

**Bootstrap 5**

[[edit](https://en.wikipedia.org/w/index.php?title=Bootstrap_(front-end_framework)&action=edit&section=7)]

Bootstrap 5 was officially released on May 5, 2021.[[20]](https://en.wikipedia.org/wiki/Bootstrap_(front-end_framework)#cite_note-20)[[21]](https://en.wikipedia.org/wiki/Bootstrap_(front-end_framework)#cite_note-21)

**Major changes include:**[[22]](https://en.wikipedia.org/wiki/Bootstrap_(front-end_framework)#cite_note-22)

* New offcanvas menu component
* Removing dependence on [jQuery](https://en.wikipedia.org/wiki/JQuery) in favor of vanilla JavaScript
* Rewriting the grid to support responsive gutters and columns placed outside of rows
* Migrating the documentation from [Jekyll](https://en.wikipedia.org/wiki/Jekyll_(software)) to [Hugo](https://en.wikipedia.org/wiki/Hugo_(software))
* Dropping support for [Internet Explorer](https://en.wikipedia.org/wiki/Internet_Explorer)[[23]](https://en.wikipedia.org/wiki/Bootstrap_(front-end_framework)#cite_note-23)
* Moving testing infrastructure from [QUnit](https://en.wikipedia.org/wiki/QUnit" \o "QUnit) to [Jasmine](https://en.wikipedia.org/wiki/Jasmine_(JavaScript_testing_framework))
* Adding custom set of SVG icons[[24]](https://en.wikipedia.org/wiki/Bootstrap_(front-end_framework)#cite_note-24)
* Adding CSS custom properties
* Improved API
* Enhanced grid system
* Improved customizing docs
* Updated forms
* RTL support
* Built in darkmode support

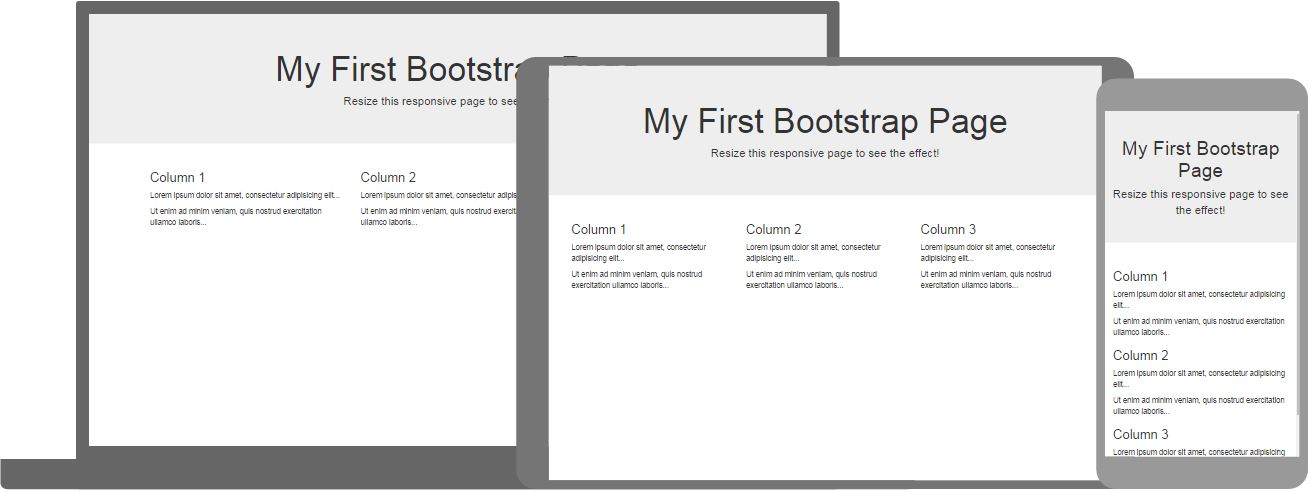
**What is Bootstrap?**



**-Bootstrap** is the most popular **CSS Framework** for developing responsive and mobile-first websites.

**-Bootstrap 5** is the newest version of Bootstrap

Bootstrap Quickstart



**What is Bootstrap?**

-Bootstrap 5 is the newest version of Bootstrap.

-Bootstrap 5 supports all major browsers except Internet Explorer 11 and down.

* Bootstrap is a free front-end framework for faster and easier web development
* Bootstrap includes HTML and CSS based design templates for typography, forms, buttons, tables, navigation, modals, image carousels and many other, as well as optional JavaScript plugins
* Bootstrap also gives you the ability to easily create responsive designs

It provides a collection of CSS and JavaScript components, such as grids, forms, buttons, navigation bars, and more, which can be easily implemented and customized to create responsive and visually appealing web interfaces.

-With Bootstrap, developers can save time and effort by utilizing pre-designed components, as well as the grid system for creating responsive layouts. It also provides numerous styling options and utilities to enhance the overall appearance and functionality of websites. Bootstrap is widely used by web developers to streamline the web development process and create consistent and visually appealing user interfaces.

**What is Responsive Web Design?**  
  
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 is a popular open-source front-end framework that is used to create responsive and mobile-first websites and web applications.

**Bootstrap Versions**

Bootstrap 5 (released 2021) is the newest version of [Bootstrap](https://www.w3schools.com/bootstrap/default.asp) (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.

**Why Use Bootstrap?**

Advantages of Bootstrap:

* **Easy to use:** Anybody with just basic knowledge of HTML and CSS can start using Bootstrap
* **Responsive features:** Bootstrap's responsive CSS adjusts to phones, tablets, and desktops
* **Mobile-first approach:** In Bootstrap, mobile-first styles are part of the core framework
* **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.

**History of Bootstrap**

*Mark Otto* and *Jacob Thornton* developed the Bootstrap, at *Twitter*. In *August 2011*, Bootstrap was released as an open source product, on GitHub.

Key points in Bootstrap 5 and later versions

There are several new features and changes in Bootstrap 5 compared to Bootstrap 4. Some of the notable ones include:

1. **Smaller file size**: Bootstrap 5.\* is designed to be more lightweight, with the removal of jQuery and other dependencies. It has switched to Vanilla JavaScript. This leads to faster load times.
2. **Improved grid system**: The grid system in Bootstrap 5.\* comes with a new, more flexible layout. It introduces a new gap utility and no longer relies on floats.
3. **Updated default colors and theming**: Bootstrap 5.\* introduces a new default color palette and theme. The new colors are more modern and visually appealing.
4. **Improved form controls**: The form controls in Bootstrap 5.\* have been enhanced with new styles and options. There are new styles for checkboxes and radio buttons, as well as improved custom select menus.
5. **New helpers and utilities**: Bootstrap 5.\* introduces new utility classes and helpers, such as vertical centering, stretched link utility, and more.
6. **Improved documentation and accessibility**: The [documentation](https://getbootstrap.com/docs) for Bootstrap 5 has been updated and improved, making it easier to use and understand. Additionally, Bootstrap 5 focuses more on accessibility, with better ARIA support and improved keyboard navigation.

Bootstrap - advantages

**There are several benefits of using Bootstrap:**

1. **Responsive design**: Bootstrap is built with a mobile-first approach, meaning it is designed to be responsive and adapt to different screen sizes. This ensures that your mobile application looks good and functions well on various devices, including smartphones and tablets.
2. **Time-saving**: Bootstrap provides a wide range of predefined and customizable CSS and JavaScript components, such as grids, buttons, navigation bars, and modals. These ready-to-use components help developers save time and effort by eliminating the need to code everything from scratch.
3. **Consistent appearance**: With Bootstrap, you can achieve a consistent and professional-looking design across your mobile application. It offers a set of predefined styles and themes that can be easily customized to match your brand's identity.
4. **Cross-browser compatibility**: Bootstrap is designed to work well across different web browsers, ensuring that your mobile application functions consistently for users, regardless of the browser they prefer to use.
5. **Community and support**: Bootstrap has a large and active community of developers who contribute to its improvement and provide support through forums and online resources. This can be helpful if you encounter any challenges or have questions during the development of your mobile application.
6. **Accessibility**: Bootstrap follows modern web development standards and best practices, including accessibility guidelines. This ensures that your mobile application is accessible to users with disabilities, enhancing its usability and reach.
7. **Continuous updates and enhancements**: Bootstrap is regularly updated and improved with new features, bug fixes, and performance enhancements. By using Bootstrap, you can take advantage of these updates to keep your mobile application up-to-date and optimized.

**Bootstrap - Environment Setup**

-It is very easy to setup and start using Bootstrap.

## Where to Get Bootstrap 5?

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

You can:

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

## Bootstrap 5 CDN

If you don't want to download and host Bootstrap 5 yourself, you can include it from a CDN (Content Delivery Network).

jsDelivr provides CDN support for Bootstrap's CSS and JavaScript:

### **MaxCDN:**

<!-- Latest compiled and minified CSS -->  
<link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/css/bootstrap.min.css" rel="stylesheet">  
  
<!-- Latest compiled JavaScript -->  
<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/js/bootstrap.bundle.min.js"></script>

**One advantage of using the Bootstrap 5 CDN:**  
Many users already have downloaded Bootstrap 5 from jsDelivr when visiting another site. As a result, it will be loaded from cache when they visit your site, which leads to faster loading time. Also, most CDN's will make sure that once a user requests a file from it, it will be served from the server closest to them, which also leads to faster loading time.  
  
**JavaScript?**  
Bootstrap 5 uses JavaScript for different components (like modals, tooltips, popovers etc). However, if you just use the CSS part of Bootstrap, you don't need them.

## Downloading Bootstrap 5

If you want to download and host Bootstrap 5 yourself, go to <https://getbootstrap.com/>, and follow the instructions there.

**Bootstrap - Breakpoint**

Basic concepts

* Breakpoints in Bootstrap are used to create responsive designs. You may adjust them at a particular viewport or device size.
* CSS media queries allow us to customize styling based on browsers and operating sytem parameters. Media queries in Boostrap mostly use **min-width** to control the breakpoints.
* Bootstrap's goal is mobile-first, responsive designs. Bootstrap creates mobile-friendly layouts with minimal styles, adding layers for larger devices. It improves rendering time and gives users a better viewing experience.

**Types of breakpoints**

Bootstrap provides six default breakpoints referred to as *grid tiers*. These can be customized if we use Boostrap's source Sass files.

|  |  |  |
| --- | --- | --- |
| Breakpoint | Class Infix | Dimensions |
| Extra small | None | <576px |
| Small | sm | ≥576px |
| Medium | md | ≥768px |
| Large | lg | ≥992px |
| Extra large | xl | ≥1200px |
| Extra extra large | xxl | ≥1400px |

These breakpoints cover common device sizes and viewport dimensions. These bootstrap breakpoints can be changed using Sass, as shown below:

Grid Classes

The Bootstrap 5 grid system has six classes:

* .col- (extra small devices - screen width less than 576px)
* .col-sm- (small devices - screen width equal to or greater than 576px)
* .col-md- (medium devices - screen width equal to or greater than 768px)
* .col-lg- (large devices - screen width equal to or greater than 992px)
* .col-xl- (xlarge devices - screen width equal to or greater than 1200px)
* .col-xxl- (xxlarge devices - screen width equal to or greater than 1400px)

The classes above can be combined to create more dynamic and flexible layouts.

**Tip:** Each class scales up, so if you want to set the same widths for sm and md, you only need to specify sm.

**COMPONENT**

-Bootstrap components are pre-styled UI elements like buttons, forms, navbars, and more, built with HTML, CSS, and JavaScript. They provide a consistent and responsive design framework, facilitating rapid development of web applications with minimal customization required.



|  |  |
| --- | --- |
| **S.No.** | **Methods & Description** |
| 1 | [**Alerts**](https://www.tutorialspoint.com/bootstrap4/bootstrap4_alerts.htm)  The alert component specifies the predefined message for user actions. |
| 2 | [**Badges**](https://www.tutorialspoint.com/bootstrap4/bootstrap4_badges.htm)  Badges are used to highlight the additional information to the content. |
| 3 | [**Breadcrumb**](https://www.tutorialspoint.com/bootstrap4/bootstrap4_breadcrumb.htm)  It is used to show hierarchy-based information for a site. |
| 4 | [**Buttons**](https://www.tutorialspoint.com/bootstrap4/bootstrap4_buttons.htm)  Bootstrap provides clickable button to put content such as text and images. |
| 5 | [**Button group**](https://www.tutorialspoint.com/bootstrap4/bootstrap4_button_group.htm)  Button groups allow multiple buttons to be stacked together on a single line. |
| 6 | [**Cards**](https://www.tutorialspoint.com/bootstrap4/bootstrap4_cards.htm)  Card is a content container which displays a bordered box with some padding around it. |
| 7 | [**Carousel**](https://www.tutorialspoint.com/bootstrap4/bootstrap4_carousel.htm)  Carousel is a flexible, responsive way to add a slider to your site. |
| 8 | [**Collapse**](https://www.tutorialspoint.com/bootstrap4/bootstrap4_collapse.htm)  It is used to show or hide the content. |
| 9 | [**Dropdowns**](https://www.tutorialspoint.com/bootstrap4/bootstrap4_dropdowns.htm)  Dropdown menus can be used for displaying links in a list format. |
| 10 | [**Forms**](https://www.tutorialspoint.com/bootstrap4/bootstrap4_forms.htm)  The form element is used to collect input from user. |
| 11 | [**Input group**](https://www.tutorialspoint.com/bootstrap4/bootstrap4_input_group.htm)  Using input groups you can easily prepend and append text or buttons to the text-based inputs. |
| 12 | [**Jumbotron**](https://www.tutorialspoint.com/bootstrap4/bootstrap4_jumbotron.htm)  It increases the size of headings and adds a lot of margin for landing page content. |
| 13 | [**Modal**](https://www.tutorialspoint.com/bootstrap4/bootstrap4_modal.htm)  Modal is a child window that is layered over its parent window. |
| 14 | [**Navs**](https://www.tutorialspoint.com/bootstrap4/bootstrap4_navs.htm)  Bootstrap provides navigation items for your site in a horizontal menu. |
| 15 | [**Navbar**](https://www.tutorialspoint.com/bootstrap4/bootstrap4_navbar.htm)  Navbar provides navigation headers for your application or site. |
| 16 | [**Pagination**](https://www.tutorialspoint.com/bootstrap4/bootstrap4_pagination.htm)  Pagination is used to divide the related content across multiple pages. |
| 17 | [**Popovers**](https://www.tutorialspoint.com/bootstrap4/bootstrap4_popovers.htm)  Popover is similar to tooltip, offering an extended view complete with a heading. |
| 18 | [**Progress**](https://www.tutorialspoint.com/bootstrap4/bootstrap4_progress.htm)  Progress bar shows progress of a process with stacked bars, animated backgrounds, and text labels. |
| 19 | [**Scrollspy**](https://www.tutorialspoint.com/bootstrap4/bootstrap4_scrollspy.htm)  Scrollspy is used to indicate currently active link in the menu based on scroll position. |
| 20 | [**Tooltips**](https://www.tutorialspoint.com/bootstrap4/bootstrap4_tooltips.htm)  Tooltips are useful when you need to describe a link. |
| 21 | [**Spinner**](https://www.geeksforgeeks.org/bootstrap-4-spinners/)  Displays the loading state of websites or projects. Built with HTML and CSS, doesn’t require JavaScript. |
| 22 | [**List group**](https://www.geeksforgeeks.org/bootstrap-4-list-groups/)  Displays an unordered series of content in a proper way. |
| 23 | [**Toast**](https://www.geeksforgeeks.org/bootstrap-4-toast/)  Displays a message for a small amount of time, usually a few seconds. Alert messages designed to imitate push notifications popular in desktop and mobile systems |
| 24 | [**Media Object**](https://www.geeksforgeeks.org/bootstrap-4-media-objects/)  Used for repetitive and complex components like tweets or blogs. Images or videos are |