Tables in HTML:

Tables are used to display data in a structured grid format consisting of rows and columns.

They are created using the element along with several other elements to define the structure, content, and formatting of the table.

To create tables in HTML:

Table Structure (): The **<**table> element is used to define a table.

Table Row (): Each row in the table is defined using the > element.

Table Header (): Table headers are defined using the element. They typically appear at the beginning of each row or column and are commonly used to represent column headers. By default, text in elements is bold and centered.

Table Data (**>**): Table data cells are defined using the **>** element. They contain the actual data or content of the table.

Here's an example of a simple HTML table with two rows and two columns:

```
Heading 1
Heading 2

Data 1
```

Table Attributes:

border: Specifies the width of the border around the table. This attribute is deprecated in HTML5, and it's recommended to use CSS for styling instead.

Example:

cellspacing and cellpadding: These attributes control the spacing between cells (cellspacing) and the padding within cells (cellpadding), respectively.

Example:

width and height: These attributes set the width and height of the table, respectively. They can be specified in pixels or as a percentage of the available space.

Example:

align: Specifies the horizontal alignment of the table relative to its containing element. Common values include left, center, and right.

Example:

Links in HTML:

Links are used to navigate between different web pages or to specific sections within the same page.

They are created using the <a> (anchor) element in HTML.

The basic structure of a link in HTML is:

```
<a href="URL">Link Text</a>
```

href: Specifies the URL of the page the link goes to. It can be an absolute URL (starting with http:// or https://) or a relative URL (relative to the current page).

Link Text: The text that appears on the page and serves as the clickable link.

Example of a link:

```
<a href="https://www.google.com">Visit Example</a>
```

Additional Link Attributes:

target: Specifies where to open the linked document. Common values include _blank (opens the linked document in a new tab/window) and _self (opens the linked document in the same frame or tab as the current document).

Example:

```
<a href="https://www.google.com" target="_blank">Visit Example</a>
```

rel: Specifies the relationship between the current document and the linked document. Common values include nofollow, noopener, and noreferrer, which affect search engine behavior and security.

Example:

Visit Example

Forms in HTML:

Forms provide a way to collect user input and send it to a server for processing.

They allow users to input various types of data such as text, numbers, selections, checkboxes, and more.

Here's a basic overview of how to create a form in HTML:

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Sample Form</title>
</head>
<body>
<h2>Sample Form</h2>
<form action="/submit-form" method="post">
  <!-- Text Input -->
  <label for="name">Name:</label><br>
  <input type="text" id="name" name="name"><br><br>
  <!-- Email Input -->
  <label for="email">Email:</label><br>
  <input type="email" id="email" name="email"><br><br>
  <!-- Password Input -->
  <label for="password">Password:</label><br>
  <input type="password" id="password" name="password"><br><br>
  <!-- Radio Buttons -->
  <label for="gender">Gender:</label><br>
  <input type="radio" id="male" name="gender" value="male">
  <a href="male">Male</a></abel><br>
  <input type="radio" id="female" name="gender" value="female">
  <!-- Checkbox -->
  <input type="checkbox" id="subscribe" name="subscribe">
  <label for="subscribe">Subscribe to newsletter</label><br><br><br</r>
  <!-- Dropdown Select -->
  <label for="country">Country:</label><br>
  <select id="country" name="country">
    <option value="USA">United States
```

```
<option value="UK">United Kingdom</option>
<option value="Canada">Canada</option>
</select><br></br>
```

```
<!-- Textarea -->
<label for="message">Message: </label><br>
<textarea id="message" name="message" rows="4" cols="50"></textarea><br>
<!-- Submit Button -->
```

```
<!-- Submit Button -->
<input type="submit" value="Submit">
</form>
```

</body> </html>

The key components of this form:

<form>: Defines the start and end of the form. It contains all the input elements.

action: Specifies the URL where the form data should be sent upon submission.

method: Specifies the HTTP method to be used when submitting the form (e.g., "post" or "get").

Within the <form> element, various input elements are used to collect different types of data:

<input type="text">: For single-line text input.

<input type="email">: For email input, with built-in validation.

<input type="password">: For password input, with obscured characters.

<input type="radio">: For selecting one option from multiple choices.

<input type="checkbox">: For selecting multiple options from a list.

<select>: Creates a dropdown list from which users can select an option.

<textarea>: For multi-line text input.

<input type="submit">: Creates a submit button to send the form data.

Each input element has attributes like id, name, and value that are used to uniquely identify and process the data.

Additionally, labels (<label>) are provided for each input element to improve accessibility and user experience.

When the form is submitted, the data is sent to the server specified in the action attribute, using the HTTP method specified in the method attribute (usually "post" for sending data securely). The server then processes the data and responds accordingly.

CSS stands for Cascading Style Sheets. It's a style sheet language used to describe the presentation of a document written in HTML or XML, including colors, layouts, and fonts.

Importance of CSS:

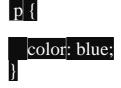
- **1. Separation of Concerns:** CSS separates the structure of a document (HTML) from its presentation, enhancing maintainability and making it easier to update styles across multiple pages.
- 2. **Consistency:** CSS allows you to apply consistent styling across a website, ensuring uniformity in design and layout.
- 3. **Flexibility:** CSS provides a high degree of control over the visual appearance of web pages, enabling developers to create custom designs and responsive layouts.
- 4. **Accessibility:** Properly structured and styled HTML with CSS enhances accessibility by providing clear visual cues and readable content.

CSS Selectors:

CSS selectors are patterns used to select and style elements in an HTML document. They allow you to target specific elements or groups of elements to apply styles. Here are some common CSS selectors:

1. **Element Selector**: Targets HTML elements by their tag name.

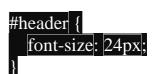
Example:



This example targets all elements and sets their text color to blue.

2. ID Selector: Targets elements with a specific ID attribute.

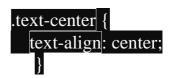
Example:



This targets an element with the ID "header" and sets its font size to 24 pixels.

3. Class Selector: Targets elements with a specific class attribute.

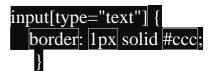
Example:



This targets all elements with the class "text-center" and sets their text alignment to center.

4. **Attribute Selector**: Targets elements based on their attribute values

Example:



This targets all <input> elements with the attribute type="text" and sets their border to a 1-pixel solid color #ccc.

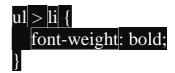
5. **Descendant Selector:** Targets elements that are descendants of a specific parent.

Example:



This targets all elements that are descendants of elements and sets their list style to square.

6. Child Selector: Targets elements that are direct children of a specific parent. Example:



This targets all elements that are direct children of elements and sets their font weight to bold.

7. Universal Selector: Targets all elements in the document.

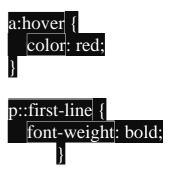
Example:



This targets all elements and sets their margin and padding to zero.

8. **Pseudo-classes and Pseudo-elements:** Targets elements based on their state or position in the document.

Example:



This targets hyperlinks (<a>) when hovered over and changes their color to red. It also targets the first line of every element and sets its font weight to bold.

These are just some of the basic CSS selectors. CSS offers many more selectors and features for styling elements, allowing developers to create visually appealing and responsive web pages.

CSS Properties:

Fonts:

1. **font-family**: Specifies the font family for text. It can be a specific font name or a generic font family.

Example:

```
body {

font-family: "Helvetica", sans-serif;
}
```

2. **font-size**: Sets the size of the font.

Example:



3. **font-weight:** Sets the weight (boldness) of the font.

Example:



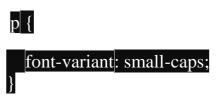
4. font-style: Sets the style (italic or normal) of the font.

Example:



5. font-variant: Controls the usage of small caps for lowercase characters.

Example:



Text Effects:

1. **color:** Sets the color of text.

Example:

```
.primary-text {
    color: #333;
```

2. text-shadow: Adds a shadow to text.

Example:

```
h2 { | text-shadow: 2px 2px 4px rgba(0, 0, 0, 0.5); }
```

3. **text-decoration**: Adds decorations like underline, overline, or line-through to text.

Example:

```
.underline-text {
    text-decoration: underline;
}

.line-through-text {
    text-decoration: line-through;
}
```

4. letter-spacing: Sets the spacing between characters.

Example:

```
.spaced-text {
    letter-spacing: 2px;
}
```

5. **word-spacing:** Sets the spacing between words.

Example:

```
.wide-spacing {
word-spacing: 5px;
```

Borders:

1. border: Shorthand property for setting the border width, style, and color.

Example:

```
.bordered-element {
    border: | 1px | solid #000;
```

2. **border-width:** Sets the width of the border.

Example:

```
.thick-border { border-width: 3px; }
```

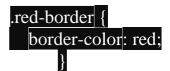
3. **border-style:** Sets the style of the border (e.g., solid, dashed, dotted).

Example:

```
.dashed-border {
border-style: dashed;
}
```

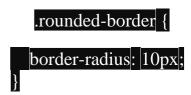
4. border-color: Sets the color of the border.

Example:



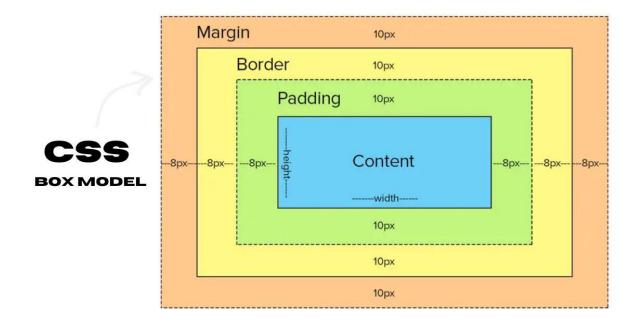
5. border-radius: Rounds the corners of the border.

Example:



These CSS properties provide extensive control over the appearance of fonts, text effects, and borders in your web pages. By leveraging these properties effectively, you can create visually appealing designs and enhance the user experience of your website.

Box Model and its effects



1. Content:

The content area is where the actual content of the element, such as text, images, or other media, is displayed.

It's defined by the width and height properties.

The size of the content area does not include padding, border, or margin.

2. Padding:

Padding is the space between the content area and the border of the element.

It's specified using the padding property and can have different values for each side (top, right, bottom, left).

Padding helps create space around the content, improving readability and aesthetics.

It can be set in various units such as pixels, ems, or percentages.

3. Border:

The border surrounds the padding and content of the element.

It's defined by properties such as border-width, border-style, and border-color.

Borders can be solid, dashed, dotted, double, etc., and can have different thicknesses and colors.

Borders provide visual distinction between elements and help define their boundaries.

4. Margin:

Margin is the space outside the border of an element.

It creates a gap between the element and its neighboring elements.

The margin property controls the margin space, and like padding, it can have different values for each side.

Margins are transparent areas that do not have a background color or content.

They help create spacing between elements and control the layout of the webpage.

Interaction and Calculation:

The total width and height of an element are calculated by adding the content width and height to the padding, border, and margin.

For example, total width = width + padding-left + padding-right + border-left + border-right + margin-left + margin-right.

The same calculation applies to the height of the element.

The box-sizing property allows developers to control how the total dimensions of an element are calculated. The default value is content-box, where only the content dimensions are considered. Setting it to border-box includes padding and border in the calculation.

Types of CSS?

CSS separates the content (HTML) from its visual representation, making it easier to maintain and update the design of a website.

Types of CSS

- 1. Inline CSS
- 2. Internal CSS
- 3. External CSS

1. Inline CSS:

Definition: Inline CSS involves applying styles directly to individual HTML elements using the style attribute.

Example:

```
This is a blue text with 16px font
size.
```

This is a blue text with 16px font size.

Use Case: Inline CSS is useful for making quick style changes to individual elements but is not recommended for large-scale styling because it mixes HTML content with style information.

2. Internal (Embedded) CSS:

Definition: Internal CSS is placed within the <style> tag in the HTML document's <head> section. It applies styles to elements on the current web page.

Example:

Use Case: Internal CSS is suitable for styling a single web page. It keeps the style information separate from the HTML content.

3. External CSS:

Definition: External CSS involves storing CSS code in a separate .css file and linking it to the HTML document using the link> element. This file can be reused across multiple web pages.

Example:

```
<head>
  k rel="stylesheet" type="text/css" href="styles.css">
  </head>
```

Use Case: External CSS is the most efficient and maintainable way to style multiple web pages. It promotes the separation of content and design, making it easier to update styles globally.

What is Bootstrap?

Bootstrap is a widely-used, open-source front-end framework for building responsive and visually appealing web applications and websites.

Key Features:

Responsive Design:

Bootstrap follows a mobile-first approach, ensuring your web content looks great and functions well on a variety of devices, from mobile phones to desktop computers.

Grid System:

Bootstrap includes a powerful grid system that allows you to create flexible and responsive layouts easily. It's based on a 12-column grid, making it simple to structure your content.

Pre-Designed Components:

Bootstrap provides a rich library of pre-designed UI components such as buttons, forms, navigation bars, and more. These components are customizable and help streamline development.

CSS Reset:

Bootstrap includes a CSS reset, known as "Reboot," which ensures a consistent baseline style across different browsers, helping to avoid cross-browser compatibility issues.

Customization:

You can customize Bootstrap to match your project's branding by modifying its default variables, such as colors, typography, and spacing.

How to Get Started:

Download Bootstrap:

You can download the Bootstrap framework from the official website (<u>getbootstrap.com</u>) or include it via a content delivery network (CDN).

Include Bootstrap in Your Project:

Add Bootstrap's CSS and JavaScript files to your HTML documents using <link> and <script> tags.

```
<link
href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.1/dist/css/bootstrap.min.c
ss" rel="stylesheet" integrity="sha384-
4bw+/aepP/YC94hEpVNVgiZdgIC5+VKNBQNGCHeKRQN+PtmoHDEXuppvnDJzQIu9"
crossorigin="anonymous">
```

Benefits of Using Bootstrap:

Rapid Development: Bootstrap simplifies and accelerates the web development process by providing ready-made components and a responsive grid system.

Consistency: Bootstrap promotes a consistent look and feel across your project, making it easier to maintain a unified design.

Cross-Browser Compatibility: Bootstrap handles many cross-browser issues, reducing the need for extensive testing and adjustments.

Community and Documentation: Bootstrap has a large and active community, along with comprehensive documentation and numerous online resources for support.

Using Bootstrap Helper classes and responsive utilities

1.Color and background

Set a background color with contrasting foreground color. Color and background helpers combine the power of our .text-* utilities and .bg-* utilities in one class.

```
<div class="text-bg-primary p-3">Primary with contrasting color</div>
<div class="text-bg-secondary p-3">Secondary with contrasting color</div>
<div class="text-bg-success p-3">Success with contrasting color</div>
<div class="text-bg-danger p-3">Danger with contrasting color</div>
<div class="text-bg-warning p-3">Warning with contrasting color</div>
<div class="text-bg-info p-3">Info with contrasting color</div>
<div class="text-bg-light p-3">Light with contrasting color</div>
<div class="text-bg-dark p-3">Dark with contrasting color</div></div class="text-bg-dark p-3">Dark with contrasting color</div></div</tr>
```

```
Primary with contrasting color

Secondary with contrasting color

Success with contrasting color

Danger with contrasting color

Warning with contrasting color

Info with contrasting color

Light with contrasting color

Dark with contrasting color
```

2. Position

Use these helpers for quickly configuring the position of an element.

Fixed top

Position an element at the top of the viewport, from edge to edge. Be sure you understand the ramifications of fixed position in your project; you may need to add additional CSS.

<div class="fixed-top">...</div>

Fixed bottom

Position an element at the bottom of the viewport, from edge to edge. Be sure you understand the ramifications of fixed position in your project; you may need to add additional CSS.

<div class="fixed-bottom">...</div>

Sticky top

Position an element at the top of the viewport, from edge to edge, but only after you scroll past it. <div class="sticky-top">...</div>

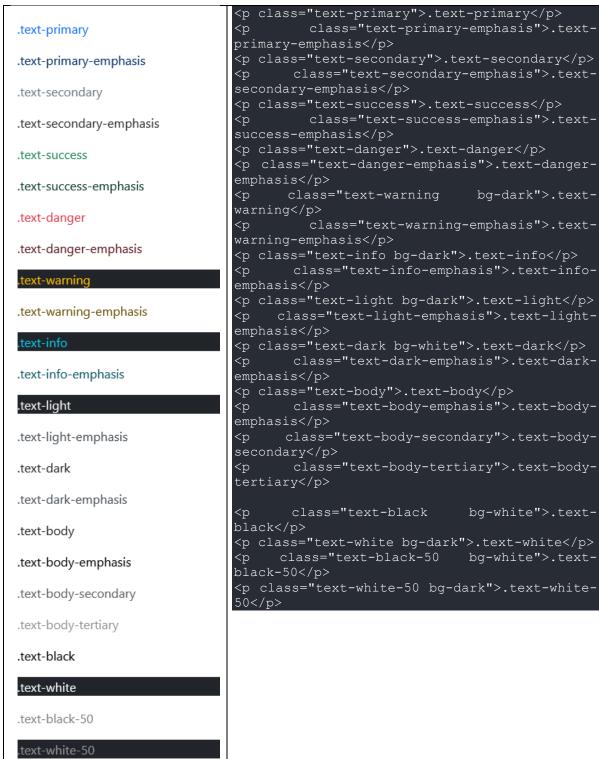
Sticky bottom

Position an element at the bottom of the viewport, from edge to edge, but only after you scroll past it

<div class="sticky-bottom">...</div>

3. Colors

Colorize text with color utilities. If you want to colorize links, you can use the .link-* helper classes which have :hover and :focus states.



4. Flex

To quickly manage the layout, alignment, and sizing of grid columns, navigation, components, and more with a full suite of responsive flexbox utilities. For more complex implementations, custom CSS may be necessary.

```
Flex item 1 Flex item 2 Flex item 3 Flex item 3 Flex item 3 Flex item 1
```

Use . ${\tt flex-column}\ to\ set\ a\ vertical\ direction,\ or\ . \\ {\tt flex-column-reverse}\ to\ start\ the\ vertical\ direction\ from\ the\ opposite\ side.$

```
Flex item 1
Flex item 2
Flex item 3
Flex item 3
Flex item 2
Flex item 1
```

5. Navbar

- Navbars require a wrapping .navbar with .navbar-expand{-sm|-md|-lg|-xl|-xxl} for responsive collapsing and color scheme classes.
- Navbars and their contents are fluid by default. Change the container to limit their horizontal width in different ways.
- Use our spacing and flex utility classes for controlling spacing and alignment within navbars.

• Navbars are responsive by default, but you can easily modify them to change that. Responsive behavior depends on our Collapse JavaScript plugin.

Supported content

Navbars come with built-in support for a handful of sub-components. Choose from the following as needed:

- .navbar-brand for your company, product, or project name.
- .navbar-nav for a full-height and lightweight navigation (including support for dropdowns).
- .navbar-toggler for use with our collapse plugin and other navigation toggling behaviors.
- Flex and spacing utilities for any form controls and actions.
- .navbar-text for adding vertically centered strings of text.
- .collapse.navbar-collapse for grouping and hiding navbar contents by a parent breakpoint.
- Add an optional .navbar-scroll to set a max-height and scroll expanded navbar content.

```
<nav class="navbar navbar-expand-lq bq-body-tertiary">
 <div class="container-fluid">
   <a class="navbar-brand" href="#">Navbar</a>
   <button class="navbar-toggler" type="button" data-bs-toggle="collapse"</pre>
data-bs-target="#navbarSupportedContent"
                                                           aria-
controls="navbarSupportedContent" aria-expanded="false" aria-label="Toggle
navigation">
     <span class="navbar-toggler-icon"></span>
   </button>
   <div class="collapse navbar-collapse" id="navbarSupportedContent">
     <a class="nav-link active" aria-current="page" href="#">Home</a>
      <a class="nav-link" href="#">Link</a>
      <a class="nav-link dropdown-toggle" href="#" role="button" data-</pre>
bs-toggle="dropdown" aria-expanded="false">
         Dropdown
        </a>
        <a class="dropdown-item" href="#">Action</a>
          <a class="dropdown-item" href="#">Another action</a>
          <hr class="dropdown-divider">
          <a
                  class="dropdown-item"
                                       href="#">Something
                                                            else
here</a>
        <a class="nav-link disabled" aria-disabled="true">Disabled</a>
      <form class="d-flex" role="search">
      <input class="form-control me-2" type="search" placeholder="Search"</pre>
aria-label="Search">
                         class="btn
                                             btn-outline-success"
type="submit">Search</button>
    </form>
   </div>
 </div>
```

</nav>

Navbar Home Link Dropdown ▼ Disabled Search Search

Typography

Display headings

Traditional heading elements are designed to work best in the meat of your page content. When you need a heading to stand out, consider using a **display heading**—a larger, slightly more opinionated heading style.

```
<h1 class="display-1">Display 1</h1>
<h1 class="display-2">Display 2</h1>
<h1 class="display-3">Display 3</h1>
<h1 class="display-4">Display 4</h1>
<h1 class="display-5">Display 4</h1>
<h1 class="display-5">Display 5</h1>
<h1 class="display-6">Display 6</h1>
```

Display 1

Display 2

Display 3

Display 4

Display 5

Display 6

Do visit for more details on typography https://getbootstrap.com/docs/5.3/content/typography/

List group

List groups are a flexible and powerful component for displaying a series of content. Modify and extend them to support just about any content within.

Basic example

The most basic list group is an unordered list with list items and the proper classes. Build upon it with the options that follow, or with your own CSS as needed.

```
    An item
    A second item
    A third item
    class="list-group-item">A fourth item
    class="list-group-item">And a fifth one
```

```
An item

A second item

A third item

A fourth item

And a fifth one
```

Do visit for more details on typography https://getbootstrap.com/docs/5.3/components/list-group/

Grid system

Use grid system for powerful mobile-first flexbox grid to build layouts of all shapes and sizes thanks to a twelve column system, six default responsive tiers, mixins, and dozens of predefined classes.

Example

Bootstrap's grid system uses a series of containers, rows, and columns to layout and align content. It's built with flexbox and is fully responsive. Below is an example and an in-depth explanation for how the grid system comes together.

```
Column
</div>
</div>
</div>
```

Column	Column	Column

Do visit for more details on typography https://getbootstrap.com/docs/5.3/layout/grid/

Tables

Bootstrap provides classes to style HTML tables, making them more visually appealing.

The table class applies Bootstrap styling to the table.



Refer: https://getbootstrap.com/docs/5.3/content/tables/

Forms

Form Controls

Bootstrap 5 offers a wide range of form control styles and components to help streamline the process of creating forms in web development.

Basic Form Controls:

Bootstrap provides styles for various basic form controls such as input fields, checkboxes, radio buttons, textareas, and selects.

```
<form>
 <div class="mb-3">
              for="exampleFormControlInput1" class="form-label">Email
   <label
address</label>
   <input type="email" class="form-control" id="exampleFormControlInput1"</pre>
placeholder="name@example.com">
 </div>
 <div class="mb-3">
   <label for="exampleFormControlTextarea1" class="form-label">Example
textarea</label>
   <textarea
                class="form-control" id="exampleFormControlTextarea1"
rows="3"></textarea>
 <div class="mb-3">
           for="exampleFormControlSelect1"
                                                class="form-label">Example
select</label>
   <select class="form-select" id="exampleFormControlSelect1">
     <option>1</option>
     <option>2</option>
     <option>3</option>
     <option>4</option>
     <option>5</option>
   </select>
 </div>
 <div class="mb-3 form-check">
   <input type="checkbox" class="form-check-input" id="exampleCheck1">
   <label class="form-check-label" for="exampleCheck1">Check me out</label>
 </div>
 <button type="submit" class="btn btn-primary">Submit</button>
```

Validation States:

Bootstrap provides styles for form controls with different validation states like valid and invalid.

```
<div class="mb-3">
    <label for="validationExample" class="form-label">Example select</label>
    <select class="form-select" id="validationExample" required>
        <option value="">Open this select menu</option>
        <option value="1">One</option>
        <option value="2">Two</option>
        <option value="3">Three</option>
        <option value="3">Three</option>
        </div class="invalid-feedback">
        Please select a valid option.
        </div>
```

Do visit for more details on form controls https://getbootstrap.com/docs/5.3/forms/form-control/

Buttons

Base class

Bootstrap has a base .btn class that sets up basic styles such as padding and content alignment. By default, .btn controls have a transparent border and background color, and lack any explicit focus and hover styles.

```
<button type="button" class="btn">Base class</button>
```

Base class

Variants

Bootstrap includes several button variants, each serving its own semantic purpose, with a few extras thrown in for more control.

```
<button type="button" class="btn btn-primary">Primary</button>
<button type="button" class="btn btn-secondary">Secondary</button>
<button type="button" class="btn btn-success">Success</button>
<button type="button" class="btn btn-danger">Danger</button>
<button type="button" class="btn btn-warning">Warning</button>
<button type="button" class="btn btn-info">Info</button>
<button type="button" class="btn btn-light">Light</button>
<button type="button" class="btn btn-dark">Dark</button>
<button type="button" class="btn btn-dark">Dark</button>
<button type="button" class="btn btn-link">Link</button></button>
```



Do visit for more details on buttons https://getbootstrap.com/docs/5.3/components/buttons/

Button group

Group a series of buttons together on a single line or stack them in a vertical column.

Basic example

Wrap a series of buttons with .btn in .btn-group.



Do visit for more details on buttongroups https://getbootstrap.com/docs/5.3/components/button-group/

Modal

Use Bootstrap's JavaScript modal plugin to add dialogs to your site for lightboxes, user notifications, or completely custom content.

How it works

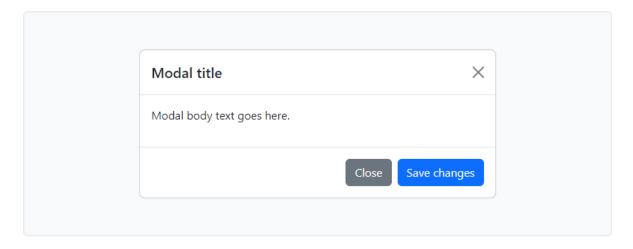
Before getting started with Bootstrap's modal component, be sure to read the following as our menu options have recently changed.

- Modals are built with HTML, CSS, and JavaScript. They're positioned over everything else in the document and remove scroll from the <body> so that modal content scrolls instead.
- Clicking on the modal "backdrop" will automatically close the modal.
- Bootstrap only supports one modal window at a time. Nested modals aren't supported as we believe them to be poor user experiences.
- Modals use position: fixed, which can sometimes be a bit particular about its rendering.
 Whenever possible, place your modal HTML in a top-level position to avoid potential interference from other elements. You'll likely run into issues when nesting a .modal within another fixed element.
- Once again, due to position: fixed, there are some caveats with using modals on mobile devices.
- Due to how HTML5 defines its semantics, the autofocus HTML attribute has no effect in Bootstrap modals. To achieve the same effect, use some custom JavaScript:

```
const myModal = document.getElementById('myModal')
const myInput = document.getElementById('myInput')

myModal.addEventListener('shown.bs.modal', () => {
   myInput.focus()
})
```

Below is a *static* modal example (meaning its position and display have been overridden). Included are the modal header, modal body (required for padding), and modal footer (optional). We ask that you include modal headers with dismiss actions whenever possible, or provide another explicit dismiss action.



Do visit for more details on modals https://getbootstrap.com/docs/5.3/components/modal/