

# BOOTSTRAP

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## Adding Bootstrap to Your HTML

To include Bootstrap in your HTML, you need to link the CSS and JavaScript files. Below is the standard way to do this. You can also use the `defer` keyword for Bootstrap JS to include it inside the head to ensure it loads after the HTML document is parsed.

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <meta charset="UTF-8" />
    <meta name="viewport" content="width=device-width,
initial-scale=1.0" />
    <title>Portfolio Website</title>
    <!-- Bootstrap CSS -->
    <link
href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/css/bootstrap
.min.css" rel="stylesheet"
integrity="sha384-QWTKZyjpPEjISv5WaRU90FeRpok6YctnYmDr5pNlyT2bRjXh0JM
hjY6hW+ALEwIH" crossorigin="anonymous" />
  </head>
  <body>
    <script
src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/js/bootstrap.b
undle.min.js"
integrity="sha384-YvpcrYf0tY3lHB60NNkmXc5s9fDVZLESaAA55NDz0xhy9GkcIds
lK1eN7N6jIeHz" crossorigin="anonymous"></script>
  </body>
</html>
```

## Bootstrap Typography Classes

Bootstrap offers a variety of typography classes to style text. Here are some of the commonly used classes:

### Headings:

```
<h1 class="display-1">Display 1</h1>
<h2 class="display-2">Display 2</h2>
<h3 class="display-3">Display 3</h3>
<h4 class="display-4">Display 4</h4>
<h5 class="display-5">Display 5</h5>
<h6 class="display-6">Display 6</h6>
```

### Lead Paragraph:

```
<p class="lead">This is a lead paragraph. It stands out from
regular paragraphs.</p>
```

### Inline Text Elements:

```
<p>You can use the <mark>mark</mark> tag to highlight text.</p>
<p><del>This line of text is meant to be treated as deleted
text.</del></p>
<p><s>This line of text is meant to be treated as no longer
accurate.</s></p>
<p><ins>This line of text is meant to be treated as an addition to
the document.</ins></p>
<p><u>This line of text will render as underlined.</u></p>
<p><small>This line of text is meant to be treated as fine
print.</small></p>
<p><strong>This line rendered as bold text.</strong></p>
<p><em>This line rendered as italicized text.</em></p>
```

### Blockquotes:

```
<blockquote class="blockquote">
  <p class="mb-0">A well-known quote, contained in a blockquote
  element.</p>
  <footer class="blockquote-footer">Someone famous in <cite
```

```
title="Source Title">Source Title</cite></footer>
</blockquote>
```

## Lists:

```
<ul class="list-unstyled">
  <li>This is a list item</li>
  <li>Another list item</li>
  <li>Yet another list item</li>
</ul>

<ul class="list-inline">
  <li class="list-inline-item">Inline item 1</li>
  <li class="list-inline-item">Inline item 2</li>
  <li class="list-inline-item">Inline item 3</li>
</ul>
```

## Bootstrap Text and Color Utility Classes

Bootstrap provides a range of utility classes to style text and apply colors:

### Text Alignment:

```
<p class="text-start">Left aligned text.</p>
<p class="text-center">Center aligned text.</p>
<p class="text-end">Right aligned text.</p>
```

### Text Transform:

```
<p class="text-lowercase">Lowercased text.</p>
<p class="text-uppercase">Uppercased text.</p>
<p class="text-capitalize">Capitalized text.</p>
```

### Font Weight and Italics:

```
<p class="fw-bold">Bold text.</p>
<p class="fw-bolder">Bolder text (relative to parent).</p>
<p class="fw-normal">Normal weight text.</p>
<p class="fw-light">Light weight text.</p>
```

```
<p class="fst-italic">Italic text.</p>
<p class="fst-normal">Non-italic text.</p>
```

## Text Colors:

```
<p class="text-primary">Primary text.</p>
<p class="text-secondary">Secondary text.</p>
<p class="text-success">Success text.</p>
<p class="text-danger">Danger text.</p>
<p class="text-warning">Warning text.</p>
<p class="text-info">Info text.</p>
<p class="text-light bg-dark">Light text on dark background.</p>
<p class="text-dark">Dark text.</p>
<p class="text-muted">Muted text.</p>
<p class="text-white bg-dark">White text on dark background.</p>
```

## Background Colors:

```
<p class="bg-primary text-white">Primary background.</p>
<p class="bg-secondary text-white">Secondary background.</p>
<p class="bg-success text-white">Success background.</p>
<p class="bg-danger text-white">Danger background.</p>
<p class="bg-warning text-dark">Warning background.</p>
<p class="bg-info text-white">Info background.</p>
<p class="bg-light text-dark">Light background.</p>
<p class="bg-dark text-white">Dark background.</p>
```

## Fluid and Responsive Container

Bootstrap provides two main types of containers to align your content:

### Fluid Container:

The `.container-fluid` class creates a full-width container that spans the entire width of the viewport. It's great for use when you need your content to occupy the entire screen width.

```
<div class="container-fluid">
  <!-- Your content here -->
</div>
```

## Responsive Container:

The `.container` class provides a responsive fixed-width container that adjusts its width based on the current viewport size. It ensures consistent margins on the sides.

```
<div class="container">
  <!-- Your content here -->
</div>
```

## Grid System

Bootstrap's grid system uses a series of containers, rows, and columns to layout and align content. It's built with a flexbox and allows up to 12 columns across the page.

Basic Structure:

```
<div class="container">
  <div class="row">
    <div class="col">Column 1</div>
    <div class="col">Column 2</div>
    <div class="col">Column 3</div>
  </div>
</div>
```

## Breakpoints and Containers

Bootstrap's grid system has five tiers of classes for building complex responsive layouts. These breakpoints are based on minimum viewport widths and allow you to adapt the layout to different screen sizes:

### Breakpoints:

- xs (extra small): <576px
- sm (small): ≥576px
- md (medium): ≥768px
- lg (large): ≥992px

- xl (extra large):  $\geq 1200\text{px}$
- xxl (extra extra large):  $\geq 1400\text{px}$

## Responsive Containers:

The `.container` class can be combined with breakpoint-specific classes to create containers that are responsive and change their width at different viewport sizes:

```
<div class="container-sm">
  <!-- Container for small and larger screens -->
</div>
<div class="container-md">
  <!-- Container for medium and larger screens -->
</div>
<div class="container-lg">
  <!-- Container for large and larger screens -->
</div>
<div class="container-xl">
  <!-- Container for extra large and larger screens -->
</div>
<div class="container-xxl">
  <!-- Container for extra extra large and larger screens -->
</div>
```

## Rows and Columns Classes

### Row:

The `.row` class is used to create horizontal groups of columns. Rows must be placed within a `.container` or `.container-fluid` for proper alignment and padding.

```
<div class="container">
  <div class="row">
    <!-- Columns go here -->
  </div>
</div>
```

## Columns:

Columns are created using the `.col` class or a combination of `.col-{breakpoint}-{number}` classes for more precise control over column width at different breakpoints.

```
<div class="row">
  <div class="col">1 of 2</div>
  <div class="col">2 of 2</div>
</div>

<div class="row">
  <div class="col-6">1 of 2</div>
  <div class="col-6">2 of 2</div>
</div>

<div class="row">
  <div class="col-sm-4">1 of 3</div>
  <div class="col-sm-4">2 of 3</div>
  <div class="col-sm-4">3 of 3</div>
</div>
```

## Column Widths:

You can specify the number of columns an element should span using `.col-{number}`, where {number} can range from 1 to 12.

```
<div class="row">
  <div class="col-4">1 of 3 (4 columns wide)</div>
  <div class="col-4">2 of 3 (4 columns wide)</div>
  <div class="col-4">3 of 3 (4 columns wide)</div>
</div>
```

## Responsive Columns:

Columns can also be made responsive by combining different column classes for various breakpoints:

```
<div class="row">
```

```
<div class="col-12 col-md-8">.col-12 .col-md-8</div>
<div class="col-6 col-md-4">.col-6 .col-md-4</div>
</div>

<div class="row">
  <div class="col-6 col-sm-4">.col-6 .col-sm-4</div>
  <div class="col-6 col-sm-4">.col-6 .col-sm-4</div>
  <div class="col-6 col-sm-4">.col-6 .col-sm-4</div>
</div>
```

## Nesting

You can nest rows inside columns to create complex layouts.

```
<div class="container">
  <div class="row">
    <div class="col-6">
      <div class="row">
        <div class="col-6">Nested 1</div>
        <div class="col-6">Nested 2</div>
      </div>
    </div>
    <div class="col-6">
      <div class="row">
        <div class="col-6">Nested 3</div>
        <div class="col-6">Nested 4</div>
      </div>
    </div>
  </div>
</div>
```

## Multiple Breakpoints

You can define different column sizes for various breakpoints.

```
<div class="row">
  <div class="col-6 col-lg-8 col-xl-7">Flexible column</div>
  <div class="col-6 col-lg-4 col-xl-5">Flexible column</div>
</div>
```

## Automatic Column Layout:

Using the .row-cols classes, you can create rows with a specific number of columns that will automatically size themselves evenly.



```
<div class="row row-cols-2">
  <div class="col">Column 1</div>
  <div class="col">Column 2</div>
  <div class="col">Column 3</div>
  <div class="col">Column 4</div>
</div>

<div class="row row-cols-1 row-cols-md-3">
  <div class="col">Column 1</div>
  <div class="col">Column 2</div>
  <div class="col">Column 3</div>
  <div class="col">Column 4</div>
  <div class="col">Column 5</div>
  <div class="col">Column 6</div>
</div>
```

## Spacing

Bootstrap provides utility classes for controlling the margin and padding of elements.

### Margin (m-):

```
<div class="m-0">No margin</div>
<div class="mt-1">Margin top 0.25rem</div>
<div class="mb-2">Margin bottom 0.5rem</div>
<div class="ms-3">Margin start (left) 1rem</div>
<div class="me-4">Margin end (right) 1.5rem</div>
<div class="mx-5">Margin left and right 3rem</div>
<div class="my-5">Margin top and bottom 3rem</div>
```

### Padding (p-):

```
<div class="p-0">No padding</div>
<div class="pt-1">Padding top 0.25rem</div>
<div class="pb-2">Padding bottom 0.5rem</div>
<div class="ps-3">Padding start (left) 1rem</div>
<div class="pe-4">Padding end (right) 1.5rem</div>
<div class="px-5">Padding left and right 3rem</div>
```

```
<div class="py-5">Padding top and bottom 3rem</div>
```

## Margin and Padding Size Classes:

These classes control spacing with a scale from 0 to 5.

```
<div class="m-1">Margin 0.25rem</div>
<div class="p-2">Padding 0.5rem</div>
<div class="mt-3">Margin top 1rem</div>
<div class="pb-4">Padding bottom 1.5rem</div>
```

## Auto Margin:

Use m-auto for auto margins.

```
<div class="m-auto">Auto margin</div>
```

## Display Properties

Bootstrap offers several utility classes for controlling the display property of an element.

## Display Classes:

```
<div class="d-inline">Inline element</div>
<div class="d-inline-block">Inline-block element</div>
<div class="d-block">Block element</div>
<div class="d-flex">Flex element</div>
<div class="d-grid">Grid element</div>
```

## Responsive Display Classes:

Use responsive classes to show or hide elements at specific breakpoints.

```
<div class="d-none d-sm-block">Hidden on all but small and larger screens</div>
<div class="d-none d-md-block d-lg-none">Hidden on medium and shown on large screens</div>
<div class="d-lg-none">Hidden on large screens and up</div>
<div class="d-xl-block d-xxl-none">Shown on extra-large screens and hidden on extra-extra-large screens</div>
```

## Display Flex:

Control flex properties with additional flex utilities.

```
<div class="d-flex justify-content-center">Centered flex  
content</div>  
<div class="d-flex justify-content-between">Space between flex  
content</div>  
<div class="d-flex align-items-center">Align items to center</div>
```

## Display Grid:

Control grid properties with grid utilities.

```
<div class="d-grid gap-3">Grid with 3rem gap between items</div>  
<div class="d-grid gap-2 d-md-block">Responsive grid that switches  
to block layout on medium screens</div>
```

## Buttons

Bootstrap provides a wide variety of button styles and options to create interactive and responsive buttons.

### Basic Button Styles:

```
<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-link">Link</button>
```

### Outline Buttons:

```
<button type="button" class="btn  
btn-outline-primary">Primary</button>
```

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

## Button Sizes:

```
<button type="button" class="btn btn-primary btn-lg">Large
button</button>
<button type="button" class="btn btn-secondary btn-lg">Large
button</button>
<button type="button" class="btn btn-primary btn-sm">Small
button</button>
<button type="button" class="btn btn-secondary btn-sm">Small
button</button>
```

## Button States:

```
<button type="button" class="btn btn-primary" disabled>Disabled
button</button>
<button type="button" class="btn btn-primary" tabindex="-1"
aria-disabled="true">Disabled link</button>
```

## Block-Level Buttons:

```
<button type="button" class="btn btn-primary btn-lg btn-block">Block level button</button>
```

## Button Groups:

```
<div class="btn-group" role="group" aria-label="Basic example">
  <button type="button" class="btn btn-secondary">Left</button>
  <button type="button" class="btn
btn-secondary">Middle</button>
  <button type="button" class="btn btn-secondary">Right</button>
</div>
```

## Alerts

Bootstrap provides a range of alert messages to convey various types of information to the user.

### Basic Alerts:

```
<div class="alert alert-primary" role="alert">
  A simple primary alert--check it out!
</div>
<div class="alert alert-secondary" role="alert">
  A simple secondary alert--check it out!
</div>
<div class="alert alert-success" role="alert">
  A simple success alert--check it out!
</div>
<div class="alert alert-danger" role="alert">
  A simple danger alert--check it out!
</div>
<div class="alert alert-warning" role="alert">
  A simple warning alert--check it out!
</div>
<div class="alert alert-info" role="alert">
  A simple info alert--check it out!
</div>
<div class="alert alert-light" role="alert">
  A simple light alert--check it out!
</div>
<div class="alert alert-dark" role="alert">
  A simple dark alert--check it out!
```

```
</div>
```

## Dismissible Alerts:

```
<div class="alert alert-warning alert-dismissible fade show"
role="alert">
  <strong>Holy guacamole!</strong> You should check in on some
of those fields below.
  <button type="button" class="btn-close"
data-bs-dismiss="alert" aria-label="Close"></button>
</div>
```

## Alerts with Additional Content:

```
<div class="alert alert-success" role="alert">
  <h4 class="alert-heading">Well done!</h4>
  <p>Aww yeah, you successfully read this important alert
message. This example text is going to run a bit longer so that
you can see how spacing within an alert works with this kind of
content.</p>
  <hr>
  <p class="mb-0">Whenever you need to, be sure to use margin
utilities to keep things nice and tidy.</p>
</div>
```

## Alerts with Icons:

You can use SVG icons along with alerts for better visual representation.

```
<div class="alert alert-warning d-flex align-items-center"
role="alert">
  <svg class="bi flex-shrink-0 me-2" width="24" height="24"
role="img" aria-label="Warning:">
    <use xlink:href="#exclamation-triangle-fill"/>
  </svg>
  <div>
    An example warning alert with an icon
  </div>
</div>
```

## Cards

Bootstrap cards provide a flexible and extensible content container with multiple variants and options.

### Basic Card:

```
<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 to build on
the card title and make up the bulk of the card's content.</p>
    <a href="#" class="btn btn-primary">Go somewhere</a>
  </div>
</div>
```

### Card with Header and Footer:

```
<div class="card">
  <div class="card-header">
    Featured
  </div>
  <div class="card-body">
    <h5 class="card-title">Special title treatment</h5>
    <p class="card-text">With supporting text below as a
natural lead-in to additional content.</p>
    <a href="#" class="btn btn-primary">Go somewhere</a>
  </div>
  <div class="card-footer text-muted">
    2 days ago
  </div>
</div>
```

### Card with List Group:

```
<div class="card" style="width: 18rem;">
  <ul class="list-group list-group-flush">
    <li class="list-group-item">An item</li>
```

```
<li class="list-group-item">A second item</li>
<li class="list-group-item">A third item</li>
</ul>
</div>
```

## Card with Navigation:

```
<div class="card text-center">
  <div class="card-header">
    <ul class="nav nav-tabs card-header-tabs">
      <li class="nav-item">
        <a class="nav-link active" href="#">Active</a>
      </li>
      <li class="nav-item">
        <a class="nav-link" href="#">Link</a>
      </li>
      <li class="nav-item">
        <a class="nav-link disabled" href="#"
tabindex="-1" aria-disabled="true">Disabled</a>
      </li>
    </ul>
  </div>
  <div class="card-body">
    <h5 class="card-title">Special title treatment</h5>
    <p class="card-text">With supporting text below as a
natural lead-in to additional content.</p>
    <a href="#" class="btn btn-primary">Go somewhere</a>
  </div>
</div>
```

## Card Groups and Decks:

```
<div class="card-group">
  <div class="card">
    
    <div class="card-body">
      <h5 class="card-title">Card title</h5>
      <p class="card-text">This is a wider card with
supporting text below as a natural lead-in to additional content.
    </div>
  </div>
</div>
```



```
This content is a little bit longer.</p>
    <p class="card-text"><small class="text-muted">Last
updated 3 mins ago</small></p>
  </div>
</div>
<div class="card">
  
  <div class="card-body">
    <h5 class="card-title">Card title</h5>
    <p class="card-text">This card has supporting text
below as a natural lead-in to additional content.</p>
    <p class="card-text"><small class="text-muted">Last
updated 3 mins ago</small></p>
  </div>
</div>
<div class="card">
  
  <div class="card-body">
    <h5 class="card-title">Card title</h5>
    <p class="card-text">This is a wider card with
supporting text below as a natural lead-in to additional content.
This card has even longer content than the first to show that
equal height action.</p>
    <p class="card-text"><small class="text-muted">Last
updated 3 mins ago</small></p>
  </div>
</div>
</div>
```

## Modals

Bootstrap modals provide a flexible dialog prompt with various options for customisation.

### Basic Modal:

```
<div class="modal fade" id="exampleModal" tabindex="-1"
aria-labelledby="exampleModalLabel" aria-hidden="true">
  <div class="modal-dialog">
    <div class="modal-content">
      <div class="modal-header">
```

```
        <h5 class="modal-title"
id="exampleModalLabel">Modal title</h5>
        <button type="button" class="btn-close"
data-bs-dismiss="modal" aria-label="Close"></button>
    </div>
    <div class="modal-body">
        ...
    </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>
```

## Triggering a Modal with a Button:

```
<!-- Button trigger modal -->
<button type="button" class="btn btn-primary"
data-bs-toggle="modal" data-bs-target="#exampleModal">
    Launch demo modal
</button>
```

## Scrolling Modal:

```
<div class="modal fade" id="exampleModal" tabindex="-1"
aria-labelledby="exampleModalLabel" aria-hidden="true">
    <div class="modal-dialog modal-dialog-scrollable">
        <div class="modal-content">
            <div class="modal-header">
                <h5 class="modal-title"
id="exampleModalLabel">Modal title</h5>
                <button type="button" class="btn-close"
data-bs-dismiss="modal" aria-label="Close"></button>
            </div>
```

```
        <div class="modal-body">
            <!-- Add enough content to make the modal
scrollable -->
            <p>Content...</p>
        </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>
```

## Vertically Centered Modal:

```
<div class="modal fade" id="exampleModalCenter" tabindex="-1"
aria-labelledby="exampleModalCenterTitle" aria-hidden="true">
    <div class="modal-dialog modal-dialog-centered">
        <div class="modal-content">
            <div class="modal-header">
                <h5 class="modal-title"
id="exampleModalCenterTitle">Modal title</h5>
                <button type="button" class="btn-close"
data-bs-dismiss="modal" aria-label="Close"></button>
            </div>
            <div class="modal-body">
                ...
            </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>
```

## Large and Small Modals:

```
<!-- Large modal -->
<div class="modal fade" id="largeModal" tabindex="-1"
aria-labelledby="exampleModalLabel" aria-hidden="true">
  <div class="modal-dialog modal-lg">
    <div class="modal-content">
      <div class="modal-header">
        <h5 class="modal-title"
id="exampleModalLabel">Large modal</h5>
        <button type="button" class="btn-close"
data-bs-dismiss="modal" aria-label="Close"></button>
      </div>
      <div class="modal-body">
        ...
      </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>

<!-- Small modal -->
<div class="modal fade" id="smallModal" tabindex="-1"
aria-labelledby="exampleModalLabel" aria-hidden="true">
  <div class="modal-dialog modal-sm">
    <div class="modal-content">
      <div class="modal-header">
        <h5 class="modal-title"
id="exampleModalLabel">Small modal</h5>
        <button type="button" class="btn-close"
data-bs-dismiss="modal" aria-label="Close"></button>
      </div>
      <div class="modal-body">
        ...
      </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>
```

## Forms

### Basic Form:

```
<form>
  <div class="mb-3">
    <label for="exampleInputEmail1" class="form-label">Email
address</label>
    <input type="email" class="form-control"
id="exampleInputEmail1" aria-describedby="emailHelp">
    <div id="emailHelp" class="form-text">We'll never share
your email with anyone else.</div>
  </div>
  <div class="mb-3">
    <label for="exampleInputPassword1"
class="form-label">Password</label>
    <input type="password" class="form-control"
id="exampleInputPassword1">
  </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>
</form>
```

### Form Controls:

```
<div class="mb-3">
  <label for="exampleFormControlInput1" class="form-label">Email
```

```
address</label>
  <input type="email" class="form-control"
id="exampleFormControlInput1" 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>
```

## Select Menu:

```
<div class="mb-3">
  <label 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>
```

## File Input:

```
<div class="mb-3">
  <label for="formFile" class="form-label">Default file input
example</label>
  <input class="form-control" type="file" id="formFile">
</div>
```

## Checkboxes and Radios:

```
<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>
<div class="form-check">
  <input class="form-check-input" type="radio"
name="exampleRadios" id="exampleRadios1" value="option1" checked>
  <label class="form-check-label" for="exampleRadios1">
    Default radio
  </label>
</div>
<div class="form-check">
  <input class="form-check-input" type="radio"
name="exampleRadios" id="exampleRadios2" value="option2">
  <label class="form-check-label" for="exampleRadios2">
    Second default radio
  </label>
</div>
```

## Range Input:

```
<div class="mb-3">
  <label for="customRange1" class="form-label">Example
range</label>
  <input type="range" class="form-range" id="customRange1">
</div>
```

## Floating Labels:

```
<div class="form-floating mb-3">
  <input type="email" class="form-control" id="floatingInput"
placeholder="name@example.com">
  <label for="floatingInput">Email address</label>
</div>
<div class="form-floating">
  <input type="password" class="form-control"
id="floatingPassword" placeholder="Password">
  <label for="floatingPassword">Password</label>
</div>
```

## Inline Forms:

```
<form class="row g-3">
  <div class="col-auto">
    <label for="staticEmail2"
class="visually-hidden">Email</label>
    <input type="text" readonly class="form-control-plaintext"
id="staticEmail2" value="email@example.com">
  </div>
  <div class="col-auto">
    <label for="inputPassword2"
class="visually-hidden">Password</label>
    <input type="password" class="form-control"
id="inputPassword2" placeholder="Password">
  </div>
  <div class="col-auto">
    <button type="submit" class="btn btn-primary mb-3">Confirm
identity</button>
  </div>
</form>
```

## Form Validation:

```
<form class="needs-validation" novalidate>
  <div class="mb-3">
    <label for="validationCustom01" class="form-label">First
name</label>
    <input type="text" class="form-control"
id="validationCustom01" value="Mark" required>
    <div class="valid-feedback">
      Looks good!
    </div>
  </div>
  <div class="mb-3">
    <label for="validationCustom02" class="form-label">Last
name</label>
    <input type="text" class="form-control"
id="validationCustom02" value="Otto" required>
    <div class="valid-feedback">
      Looks good!
    </div>
  </div>
</form>
```



```
        </div>
    </div>
    <div class="mb-3">
        <label for="validationCustomUsername"
class="form-label">Username</label>
        <div class="input-group has-validation">
            <span class="input-group-text"
id="inputGroupPrepend">@</span>
            <input type="text" class="form-control"
id="validationCustomUsername" aria-describedby="inputGroupPrepend"
required>
                <div class="invalid-feedback">
                    Please choose a username.
                </div>
            </div>
        </div>
    <div class="mb-3">
        <label for="validationCustom03"
class="form-label">City</label>
        <input type="text" class="form-control"
id="validationCustom03" required>
            <div class="invalid-feedback">
                Please provide a valid city.
            </div>
        </div>
    <div class="mb-3">
        <label for="validationCustom04"
class="form-label">State</label>
        <select class="form-select" id="validationCustom04"
required>
            <option selected disabled value="">Choose...</option>
            <option>...</option>
        </select>
        <div class="invalid-feedback">
            Please select a valid state.
        </div>
    </div>
    <div class="mb-3">
        <label for="validationCustom05"
class="form-label">Zip</label>
        <input type="text" class="form-control"
id="validationCustom05" required>
```

```
<div class="invalid-feedback">
    Please provide a valid zip.
</div>
</div>
<div class="mb-3 form-check">
    <input class="form-check-input" type="checkbox" value=""
id="invalidCheck" required>
    <label class="form-check-label" for="invalidCheck">
        Agree to terms and conditions
    </label>
    <div class="invalid-feedback">
        You must agree before submitting.
    </div>
</div>
<button class="btn btn-primary" type="submit">Submit
form</button>
</form>
```

## Form Validation with Bootstrap

```
<form class="row g-3 needs-validation" novalidate>
    <div class="col-md-4">
        <label for="validationCustom01" class="form-label">First
name</label>
        <input type="text" class="form-control is-valid"
id="validationCustom01" value="Mark" required>
        <div class="valid-feedback">
            Looks good!
        </div>
    </div>
    <div class="col-md-4">
        <label for="validationCustom02" class="form-label">Last
name</label>
        <input type="text" class="form-control is-invalid"
id="validationCustom02" required>
        <div class="invalid-feedback">
            Please provide a last name.
        </div>
    </div>
    <div class="col-md-4">
        <label for="validationCustomUsername">
```

```
class="form-label">Username</label>
    <div class="input-group has-validation">
        <span class="input-group-text"
id="inputGroupPrepend">@</span>
        <input type="text" class="form-control"
id="validationCustomUsername" aria-describedby="inputGroupPrepend"
required>
        <div class="valid-feedback">
            Username available!
        </div>
        <div class="invalid-feedback">
            Please choose a username.
        </div>
    </div>
</div>
<div class="col-md-6">
    <label for="validationCustom03"
class="form-label">City</label>
    <input type="text" class="form-control is-valid"
id="validationCustom03" required>
    <div class="valid-feedback">
        Looks good!
    </div>
</div>
<div class="col-md-6">
    <label for="validationCustom04"
class="form-label">State</label>
    <select class="form-select is-invalid"
id="validationCustom04" required>
        <option selected disabled value="">Choose...</option>
        <option>...</option>
    </select>
    <div class="invalid-feedback">
        Please select a valid state.
    </div>
</div>
<div class="col-12">
    <div class="form-check">
        <input class="form-check-input" type="checkbox"
value="" id="invalidCheck" required>
        <label class="form-check-label" for="invalidCheck">
            Agree to terms and conditions
```

```
        </label>
        <div class="invalid-feedback">
            You must agree before submitting.
        </div>
    </div>
</div>
<div class="col-12">
    <button class="btn btn-primary" type="submit">Submit
form</button>
</div>
</form>
```

Explanation:

- is-valid: Applied to inputs that pass validation criteria.
- is-invalid: Applied to inputs that fail validation criteria.
- Feedback messages (valid-feedback and invalid-feedback) appear based on the input's validation state.

## Navs

Bootstrap offers versatile navigation components to create navigation bars, tabs, and pills for navigating around web pages.

### Navbars

Navbars are responsive and versatile navigation bars that adapt to different screen sizes.

#### Basic Navbar:

```
<nav class="navbar navbar-expand-lg navbar-light bg-light">
  <div class="container-fluid">
    <a class="navbar-brand" href="#">Navbar</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">
```

```
        <li class="nav-item">
            <a class="nav-link active" aria-current="page"
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>
        <li class="nav-item">
            <a class="nav-link disabled" href="#"
tabindex="-1" aria-disabled="true">Disabled</a>
        </li>
    </ul>
</div>
</div>
</nav>
```

### Navbar with Form and Button:

```
<nav class="navbar navbar-expand-lg navbar-light bg-light">
    <div class="container-fluid">
        <a class="navbar-brand" href="#">Navbar</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-lg-0">
                <li class="nav-item">
                    <a class="nav-link active" aria-current="page"
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>
        </div>
    </div>
</nav>
```

```
        </li>
        <li class="nav-item">
            <a class="nav-link disabled" href="#"
tabindex="-1" aria-disabled="true">Disabled</a>
        </li>
    </ul>
    <form class="d-flex">
        <input class="form-control me-2" type="search"
placeholder="Search" aria-label="Search">
        <button class="btn btn-outline-success"
type="submit">Search</button>
    </form>
</div>
</div>
</nav>
```

## Nav Tabs

Nav tabs allow switching between different content panels.

### Basic Nav Tabs:

```
<ul class="nav nav-tabs">
    <li class="nav-item">
        <a class="nav-link active" aria-current="page"
href="#">Active</a>
    </li>
    <li class="nav-item">
        <a class="nav-link" href="#">Link</a>
    </li>
    <li class="nav-item">
        <a class="nav-link" href="#">Another link</a>
    </li>
    <li class="nav-item">
        <a class="nav-link disabled" href="#" tabindex="-1"
aria-disabled="true">Disabled</a>
    </li>
</ul>
```

## Nav Pills

Nav pills provide a similar interface to nav tabs but in a pill-shaped style.

## Basic Nav Pills:

```
<ul class="nav nav-pills">
  <li class="nav-item">
    <a class="nav-link active" aria-current="page"
href="#">Active</a>
  </li>
  <li class="nav-item">
    <a class="nav-link" href="#">Link</a>
  </li>
  <li class="nav-item">
    <a class="nav-link" href="#">Another link</a>
  </li>
  <li class="nav-item">
    <a class="nav-link disabled" href="#" tabindex="-1"
aria-disabled="true">Disabled</a>
  </li>
</ul>
```

## Vertical Nav

Vertical navigation allows for a sidebar-like navigation style.

### Basic Vertical Nav:

```
<div class="nav flex-column nav-pills" id="v-pills-tab"
role="tablist" aria-orientation="vertical">
  <a class="nav-link active" id="v-pills-home-tab"
data-bs-toggle="pill" href="#v-pills-home" role="tab"
aria-controls="v-pills-home" aria-selected="true">Home</a>
  <a class="nav-link" id="v-pills-profile-tab"
data-bs-toggle="pill" href="#v-pills-profile" role="tab"
aria-controls="v-pills-profile" aria-selected="false">Profile</a>
  <a class="nav-link" id="v-pills-messages-tab"
data-bs-toggle="pill" href="#v-pills-messages" role="tab"
aria-controls="v-pills-messages"
aria-selected="false">Messages</a>
  <a class="nav-link" id="v-pills-settings-tab"
data-bs-toggle="pill" href="#v-pills-settings" role="tab"
aria-controls="v-pills-settings"
aria-selected="false">Settings</a>
</div>
```

## Navbar Variants

Bootstrap provides variants for navbars to suit different design needs.

### Dark Navbar:

```
<nav class="navbar navbar-dark bg-dark">
  <div class="container-fluid">
    <a class="navbar-brand" href="#">Navbar</a>
  </div>
</nav>
```

### Transparent Navbar:

```
<nav class="navbar navbar-light" style="background-color:
rgba(255, 255, 255, 0.5);">
  <div class="container-fluid">
    <a class="navbar-brand" href="#">Navbar</a>
  </div>
</nav>
```

## Conclusion

Bootstrap version 5 stands out as a versatile and comprehensive front-end framework that equips developers with powerful tools for building modern web applications. Its modular and responsive design approach not only speeds up development but also ensures consistency across different devices and screen sizes. Key features such as the fluid container, grid system, and responsive utilities provide granular control over layout and content placement, enhancing the user experience.

Moreover, Bootstrap's extensive component library—from typography and forms to navigation bars, cards, and modals—offers ready-made solutions for common UI elements, reducing development time and effort. The framework's adherence to best practices in accessibility and usability ensures that websites built with Bootstrap are accessible to all users.



With its customizable themes, support for Sass, and robust documentation, Bootstrap 5 empowers developers to create visually appealing, responsive, and functional websites that meet modern design standards. Whether you're a beginner or an experienced developer, Bootstrap remains a valuable tool for building scalable and responsive web projects efficiently.

## References

- <https://getbootstrap.com/docs/5.3/getting-started/introduction/>