

Bootstrap Grid System

- Bootstrap grid is a powerful system for building mobile-first layouts
- Bootstrap's grid system allows up to 12 columns across the page.

How it works

Grid supports [six responsive breakpoints](#). Breakpoints are based on `min-width` media queries, meaning they affect that breakpoint and all those above it (e.g., `.col-sm-4` applies to `sm`, `md`, `lg`, `xl`, and `xxl`). This means you can control container and column sizing and behavior by each breakpoint.

Grid System Rules

Some Bootstrap grid system rules:

- Rows must be placed within a `.container` (fixed-width) or `.container-fluid` (full-width) for proper alignment and padding
- Use rows to create horizontal groups of columns
- Content should be placed within columns, and only columns may be immediate children of rows
- Predefined classes like `.row` and `.col-sm-4` are available for quickly making grid layouts
- Columns create gutters (gaps between column content) via padding. That padding is offset in rows for the first and last column via negative margin on `.rows`
- Grid columns are created by specifying the number of 12 available columns you wish to span. For example, three equal columns would use three `.col-sm-4`
- Column widths are in percentage, so they are always fluid and sized relative to their parent element

Containers and Grid System Example

grid.html

```
<!doctype html>
<html lang="en">
  <head>
    <meta charset="utf-8">
    <meta name="viewport" content="width=device-width, initial-scale=1">
    <title>CSE482L</title>
    <link
href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/css/bootstrap.min.c
ss" rel="stylesheet"
integrity="sha384-QWTKZyjpPEjISv5WaRU90FeRpok6YctnYmDr5pNlyT2bRjXh0JMhjY6hW
+ALEwIH" crossorigin="anonymous">
  </head>
  <body>
    <div class="container-fluid">
      <p>Resize the browser window to see the effect.</p>
      <div class="row">
        <div class="col-sm-3"
style="background-color:lavender;">.col-sm-3</div>
        <div class="col-sm-6"
style="background-color:lavenderblush;">.col-sm-6</div>
        <div class="col-sm-3"
style="background-color:lavender;">.col-sm-3</div>
      </div>
    </div>

    <script
src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/js/bootstrap.bundle.
min.js"
integrity="sha384-YvpcrYf0tY3lHB60NNkmXc5s9fDVZLESaAA55NDz0xhy9GkcIdslK1eN7
N6jIeHz" crossorigin="anonymous"></script>
  </body>
</html>
```

Text Colors

Bootstrap 5 has some contextual classes that can be used to provide "meaning through colors".

- The classes for text colors are: `.text-muted`, `.text-primary`, `.text-success`, `.text-info`, `.text-warning`, `.text-danger`, `.text-secondary`, `.text-white`, `.text-dark`, `.text-body` (default body color/often black) and `.text-light`:
- You can also add 50% opacity for black or white text with the `.text-black-50` or `.text-white-50` classes:
- The `.bg-color` classes above does not work well with text, or at least then you have to specify a proper `.text-color` class to get the right text color for each background. However, you can use the `.text-bg-color` classes and Bootstrap will automatically handle the appropriate text color for each background color:

Color.html

```
<!doctype html>
<html lang="en">
  <head>
    <meta charset="utf-8">
    <meta name="viewport" content="width=device-width,
initial-scale=1">
    <title>CSE482L</title>
    <link
href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/css/bootst
rap.min.css" rel="stylesheet"
integrity="sha384-QWTKZyjpPEjISv5WaRU90FeRpok6YctnYmDr5pNlyT2bRjXh
0JMHjY6hW+ALEwIH" crossorigin="anonymous">
  </head>
  <body>

    <div class="container mt-3">
      <p class="text-primary">This text is important.</p>
      <p class="text-success">This text indicates success.</p>
```

```

    <p class="text-info">This text represents some
information.</p>
    <p class="text-warning">This text represents a warning.</p>
    <p class="text-danger">This text represents danger.</p>

    <p class="text-black-50">Black text with 50% opacity on
white background</p>
    <p class="text-white-50 bg-dark">White text with 50%
opacity on black background</p>

    <p class="text-bg-primary">This text is important.</p>
    <p class="text-bg-success">This text indicates success.</p>
    <p class="text-bg-warning">This text represents a
warning.</p>
  </div>

  <script
src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/js/bootstra
p.bundle.min.js"
integrity="sha384-YvpcrYf0tY3lHB60NNkmXc5s9fDVZLESaAA55NDz0xhy9Gkc
IdslK1eN7N6jIeHz" crossorigin="anonymous"></script>
  </body>
</html>

```

Buttons

- Bootstrap 5 provides different styles of buttons:
- The button classes can be used on `<a>`, `<button>`, or `<input>` elements:
- Bootstrap 5 also provides eight outline/bordered buttons. Move the mouse over them to see an additional "hover" effect:

[Button.html](#)


```
<!doctype html>
<html lang="en">
  <head>
    <meta charset="utf-8">
    <meta name="viewport" content="width=device-width, initial-scale=1">
    <title>CSE482L</title>
    <link
href="https://cdn.jsdelivrivr.net/npm/bootstrap@5.3.3/dist/css/bootstrap.min.
css" rel="stylesheet"
integrity="sha384-QWTKZyjpPEjISv5WaRU90FeRpok6YctnYmDr5pNlyT2bRjXh0JMHjY6h
W+ALEwIH" crossorigin="anonymous">
  </head>
  <body>

    <div class="container mt-3">
      <h2>Button Outline</h2>
      <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-info">Info</button>
      <button type="button" class="btn
btn-outline-warning">Warning</button>
      <button type="button" class="btn
btn-outline-danger">Danger</button>
      <button type="button" class="btn btn-outline-dark">Dark</button>
      <button type="button" class="btn btn-outline-light
text-dark">Light</button>
    </div>

    <script
src="https://cdn.jsdelivrivr.net/npm/bootstrap@5.3.3/dist/js/bootstrap.bundle
.min.js"
integrity="sha384-YvpcrYf0tY3lHB60NNkmXc5s9fDVZLESaAA55NDzOxhy9GkcIdslK1eN
7N6jIeHz" crossorigin="anonymous"></script>
  </body>
</html>
```

Nav

- If you want to create a simple horizontal menu, add the `.nav` class to a `` element, followed by `.nav-item` for each `` and add the `.nav-link` class to their links:
- Add the `.justify-content-center` class to a `` element to center the nav, and the `.justify-content-end` class to right-align the nav.
- Add the `.flex-column` class to a `` element create a vertical nav:

```
<!doctype html>
<html lang="en">
  <head>
    <meta charset="utf-8">
    <meta name="viewport"
content="width=device-width, initial-scale=1">
    <title>CSE482L</title>
    <link
href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/d
ist/css/bootstrap.min.css" rel="stylesheet"
integrity="sha384-QWTKZyjpPEjISv5WaRU90FeRpok6YctnYm
Dr5pNlyT2bRjXh0JMHjY6hW+ALEwIH"
crossorigin="anonymous">
  </head>
  <body>

    <div class="container mt-3">
      <h2>Nav</h2>
```

```

    <p>Basic horizontal menu:</p>
    <ul class="nav">
      <li class="nav-item">
        <a class="nav-link" href="#">Link1</a>
      </li>
      <li class="nav-item">
        <a class="nav-link" href="#">Link2</a>
      </li>
      <li class="nav-item">
        <a class="nav-link disabled"
href="#">Disabled</a>
      </li>
    </ul>
  </div>

  <script
src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/js/bootstrap.bundle.min.js"
integrity="sha384-YvpcrYf0tY3lHB60NNkmXc5s9fDVZLESaA
A55NDz0xhy9GkcIdslK1eN7N6jIeHz"
crossorigin="anonymous"></script>
</body>
</html>

```

Navbar

- A navigation bar is a navigation header that is placed at the top of the page:
- With Bootstrap, a navigation bar can extend or collapse, depending on the screen size.

- A standard navigation bar is created with the `.navbar` class, followed by a responsive collapsing class: `.navbar-expand-xxl|xl|lg|md|sm` (stacks the navbar vertically on xxlarge, extra large, large, medium or small screens).
- To add links inside the navbar, use either an `` element (or a `<div>`) with `class="navbar-nav"`. Then add `` elements with a `.nav-item` class followed by an `<a>` element with a `.nav-link` class:
- Remove the `.navbar-expand-*` class to create a navigation bar that will always be vertical:

```
<!doctype html>
<html lang="en">
  <head>
    <meta charset="utf-8">
    <meta name="viewport" content="width=device-width, initial-scale=1">
    <title>CSE482L</title>
    <link
href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/css/bootstrap.min
.css" rel="stylesheet"
integrity="sha384-QWTKZyjpPEjISv5WaRU90FeRpok6YctnYmDr5pNlyT2bRjXh0JMHjY6
hW+ALEwIH" crossorigin="anonymous">
  </head>
  <body>

    <nav class="navbar navbar-expand-sm">
      <div class="container-fluid">
        <ul class="navbar-nav">
          <li class="nav-item">
            <a class="nav-link" href="#">Link 1</a>
          </li>
          <li class="nav-item">
            <a class="nav-link" href="#">Link 2</a>
          </li>
          <li class="nav-item">
            <a class="nav-link" href="#">Link 3</a>
          </li>
        </ul>
      </div>
    </nav>

    <div class="container-fluid mt-3">
      <h3>Basic Navbar Example</h3>
```

```

    <p>A navigation bar is a navigation header that is placed at the
top of the page.</p>
    <p>The navbar-expand-xxl|xl|lg|md|sm class determines when the
navbar should stack vertically (on xlarge, extra large, large, medium or
small screens).</p>
  </div>

  <script
src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/js/bootstrap.bundle
e.min.js"
integrity="sha384-YvpcrYf0tY3lHB60NNkmXc5s9fDVZLESaAA55NDzOxhy9GkcIdslK1e
N7N6jIeHz" crossorigin="anonymous"></script>
</body>
</html>

```

Colored Navbar

- Add the `.justify-content-center` class to center the navigation bar:
- Use any of the `.bg-color` classes to change the background color of the navbar (`.bg-primary`, `.bg-success`, `.bg-info`, `.bg-warning`, `.bg-danger`, `.bg-secondary`, `.bg-dark` and `.bg-light`)
- Add a white text color to all links in the navbar with the `.navbar-dark` class, or use the `.navbar-light` class to add a black text color.
- The `.navbar-brand` class is used to highlight the brand/logo/project name of your page:
- Very often, especially on small screens, you want to hide the navigation links and replace them with a button that should reveal them when clicked on.
- To create a [collapsible navigation bar](#), use a button with `class="navbar-toggler"`, `data-bs-toggle="collapse"` and `data-bs-target="#thetarget"`. Then wrap the navbar content (links, etc) inside a `<div>` element with `class="collapse navbar-collapse"`, followed by an id that matches the `data-bs-target` of the button: `"thetarget"`.
- [Navbar With Dropdown](#)
- [Navbar Forms and Buttons](#)
- [Sticky Navbar](#)

Pagination

- If you have a website with lots of pages, you may wish to add some sort of pagination to each page.
- To create a basic pagination, add the `.pagination` class to an `` element. Then add the `.page-item` to each `` element and a `.page-link` class to each link inside ``:
- The `.active` class is used to "highlight" the current page
- The `.disabled` class is used for un-clickable links:
- Pagination blocks can also be sized to a larger or a smaller size: Add class `.pagination-lg` for larger blocks or `.pagination-sm` for smaller blocks:
- Use utility classes to change the alignment of the pagination:

```
<!doctype html>
<html lang="en">
  <head>
    <meta charset="utf-8">
    <meta name="viewport" content="width=device-width, initial-scale=1">
    <title>CSE482L</title>
    <link
href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/css/bootstrap.min.c
ss" rel="stylesheet"
integrity="sha384-QWTKZyjpPEjISv5WaRU90FeRpok6YctnYmDr5pNlyT2bRjXh0JMhjY6hW
+ALEwIH" crossorigin="anonymous">
  </head>
  <body>

    <div class="container mt-3">
      <h2>Pagination</h2>
      <p>To create a basic pagination, add the .pagination class to an ul
element. Then add the .page-item to each li element and a .page-link class
to each link inside li:</p>
      <ul class="pagination pagination-sm justify-content-center"
style="margin:20px 0">
        <li class="page-item disabled"><a class="page-link"
href="#">Previous</a></li>
        <li class="page-item active"><a class="page-link"
href="#">1</a></li>
        <li class="page-item"><a class="page-link" href="#">2</a></li>
        <li class="page-item"><a class="page-link" href="#">3</a></li>
```

```

        <li class="page-item"><a class="page-link" href="#">Next</a></li>
    </ul>
</div>
<script
src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/js/bootstrap.bundle.
min.js"
integrity="sha384-YvpcrYf0tY3lHB60NNkmXc5s9fDVZLESaAA55NDz0xhy9GkcIdslK1eN7
N6jIeHz" crossorigin="anonymous"></script>
</body>
</html>

```

Modals

- The Modal component is a dialog box/popup window that is displayed on top of the current page:
- Change the size of the modal by adding the `.modal-sm` class for small modals (max-width 300px), `.modal-lg` class for large modals (max-width 800px), or `.modal-xl` for extra large modals (max-width 1140px). Default is 500px max-width.
- Add the size class to the `<div>` element with class `.modal-dialog`:
- If you want the modal to span the whole width and height of the page, use the `.modal-fullscreen` class:
- You can also control when the modal should be in fullscreen, with the `.modal-fullscreen-*` classes: `.modal-fullscreen-sm-down`, `.modal-fullscreen-md-down`, `.modal-fullscreen-lg-down`, `.modal-fullscreen-xl-down`, `.modal-fullscreen-xxl-down`
- Center the modal vertically and horizontally within the page, with the `.modal-dialog-centered` class:
- it is possible to only scroll inside the modal, instead of the page itself, by adding `.modal-dialog-scrollable` to `.modal-dialog`:

```

<!doctype html>
<html lang="en">
<head>
  <meta charset="utf-8">
  <meta name="viewport" content="width=device-width, initial-scale=1">
  <title>CSE482L</title>
  <link

```

```

href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/css/bootstrap.min.css" rel="stylesheet"
integrity="sha384-QWTKZyjpPEjISv5WaRU90FeRpok6YctnYmDr5pNlyT2bRjXh0JMhY6hW+ALEwIH" crossorigin="anonymous">
  <script
src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/js/bootstrap.bundle.min.js"
integrity="sha384-YvpcrYf0tY3lHB60NNkmXc5s9fDVZLESaAA55NDz0xhy9GkcIdslK1eN7N6jIeHz" crossorigin="anonymous"></script>
</head>
<body>

  <div class="container mt-3">
    <!-- Button trigger modal -->
    <button type="button" class="btn btn-primary"
data-bs-toggle="modal" data-bs-target="#exampleModal">
      Click
    </button>

    <!-- 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">
            <h1 class="modal-title fs-5"
id="exampleModalLabel">Hello From Modal!</h1>
            <button type="button" class="btn-close"
data-bs-dismiss="modal" aria-label="Close"></button>
          </div>
          <div class="modal-body">
            Hello from CSE482L
          </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</button>
          </div>
        </div>
      </div>
    </div>
  </div>

```

```
        </div>

    </div>

</body>
</html>
```

Tooltip

- The Tooltip component is small pop-up box that appears when the user moves the mouse pointer over an element:
- By default, the tooltip will appear on top of the element.
- Use the `data-bs-placement` attribute to set the position of the tooltip on top, bottom, left or the right side of the element:

```
<!doctype html>
<html lang="en">
  <head>
    <meta charset="utf-8">
    <meta name="viewport" content="width=device-width,
initial-scale=1">
    <title>CSE482L</title>
    <link
href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/css/bootst
rap.min.css" rel="stylesheet"
integrity="sha384-QWTKZyjpPEjISv5WaRU90FeRpok6YctnYmDr5pNlyT2bRjXh
0JMhY6hW+ALEwIH" crossorigin="anonymous">
    <script
src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/js/bootstra
p.bundle.min.js"
integrity="sha384-YvpcrYf0tY3lHB60NNkmXc5s9fDVZLESaAA55NDz0xhy9Gkc
IdslK1eN7N6jIeHz" crossorigin="anonymous"></script>
```

```
</head>
<body>

  <div class="container mt-3">
    <h3>Tooltip Positioning</h3>
    <p>The data-bs-placement attribute specifies the tooltip
position.</p>
    <a href="#" data-bs-toggle="tooltip"
data-bs-placement="top" title="Hooray!">Top</a>
    <a href="#" data-bs-toggle="tooltip"
data-bs-placement="bottom" title="Hooray!">Bottom</a>
    <a href="#" data-bs-toggle="tooltip"
data-bs-placement="left" title="Hooray!">Left</a>
    <a href="#" data-bs-toggle="tooltip"
data-bs-placement="right" title="Hooray!">Right</a>
  </div>

  <script>
    var tooltipTriggerList =
[ ].slice.call(document.querySelectorAll('[data-bs-toggle="tooltip"
]'))
    var tooltipList = tooltipTriggerList.map(function
(tooltipTriggerEl) {
      return new bootstrap.Tooltip(tooltipTriggerEl)
    })
  </script>

</body>
</html>
```