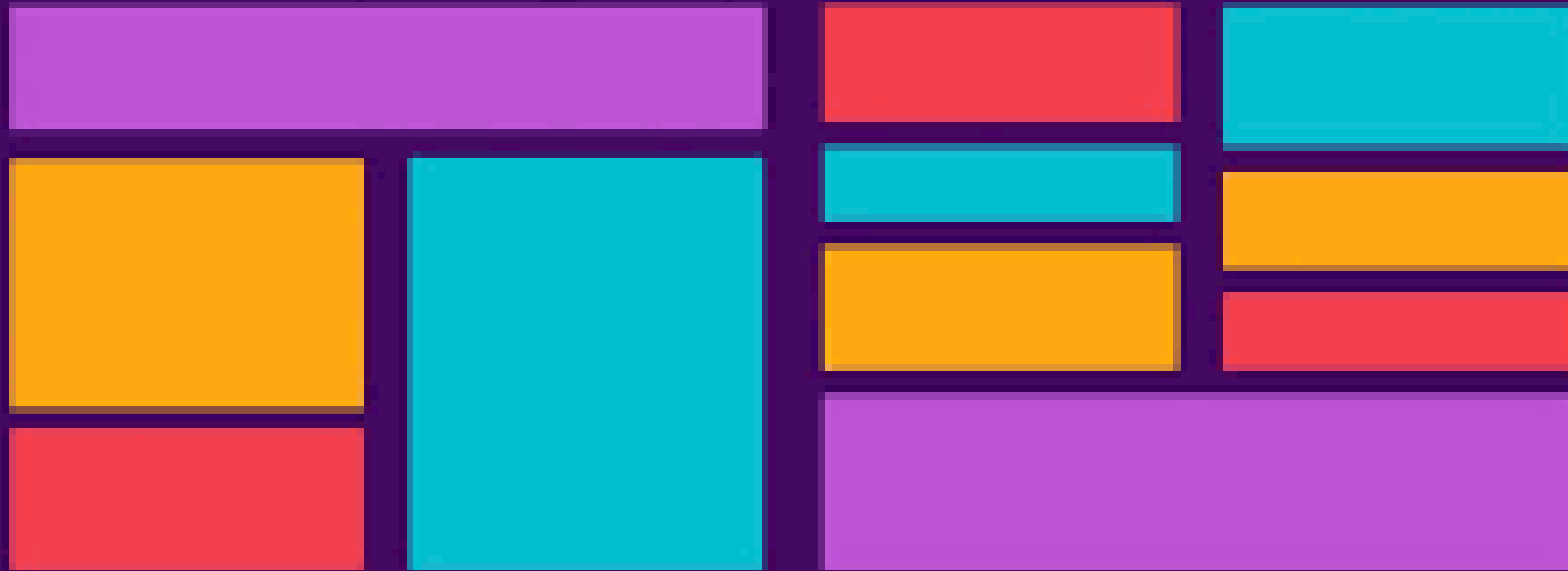




Lesson 8 : GRID

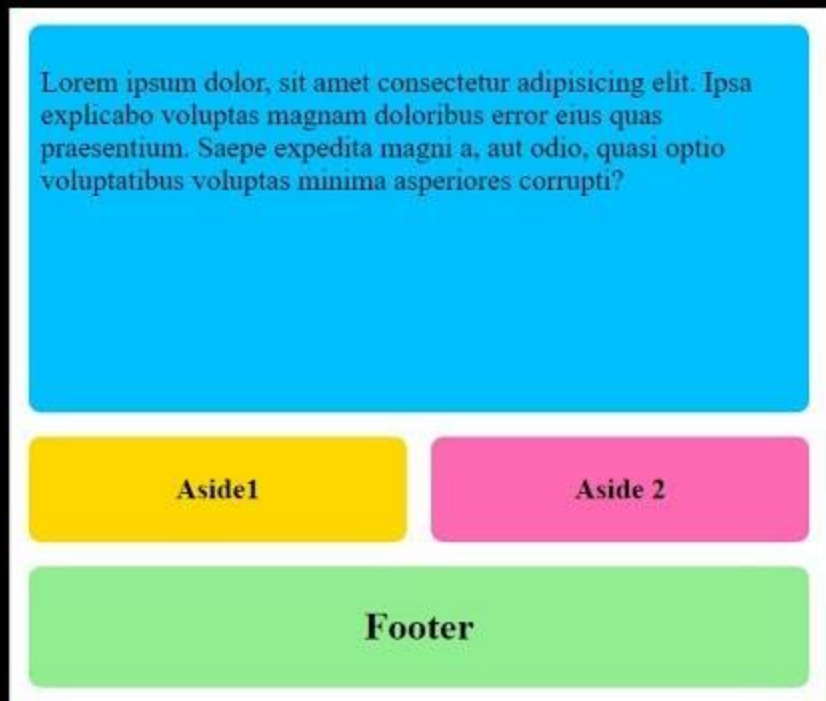


CSS FLEXBOX

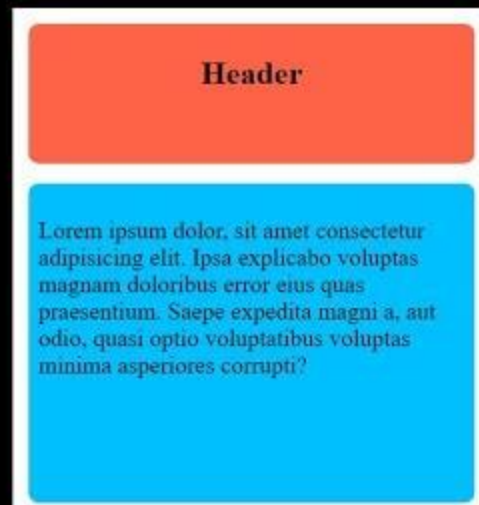
Responsive **LAYOUT** With Flexbox



DESKTOP



TABLET



MOBILE

FLEXBOX

CSS flexible box layout, commonly known as Flexbox, is a CSS3 web layout model

The flex layout allows responsive elements within a container to be automatically arranged depending upon screen size.

You should consider using flexbox when:

- You have a small design to implement.
- You need to align elements.
- You need a content-first design.



LEARNING OUTCOMES

1. Describe the function of CSS GRID
2. Create an HTML file with GRID
3. Differentiate GRID and FLEXBOX
4. Apply GRID

GRID

It is a technique in CSS that allows web developers to create complex responsive web design layouts more easily and consistently across browsers.

GRIDS are for 2D layout. It works with both rows and columns.

FLEXBOX works better in one dimension only (either rows or columns).

a

b

c

Two

Three

Four

Five

| Property | Grid | Flexbox |
|-----------------|--|--|
| Dimension | Two - Dimensional | One - Dimensional |
| Features | Can flex combination of items through space- occupying Features | Can push content element to extreme alignment |
| Support Type | Layout First | Content First |

CSS Grids helps you create the outer layout of the webpage. You can build complex as well responsive design with this. This is why it is called 'layout first

When not to use a grid?

If your site's layout ;

- > uses irregular column sizes
- > Has irregular margins or gutters
- > has a width that isn't divisible by a same number

Apply and Discuss CSS Grid

Exercise 1

```
<div class="main-container">
  <div class="main-content">
    <h1>Main Content</h1>
    <p>Lorem, ipsum dolor sit amet consectetur adipisicing elit. Ducimus, accusantium dignissimos? Velit nesciunt provident at quos, alias asperiores ea. Illo a animi nam aliquam autem earum officiis accusamus similique aperiam.</p>
    <p>Lorem, ipsum dolor sit amet consectetur adipisicing elit. Facilis porro nulla magni possimus consequuntur error dicta beatae voluptatum veritatis quae!</p>
    <p>Lorem ipsum dolor sit amet consectetur adipisicing elit. Tempore sed nobis iste quidem odit quo, earum vel nisi, optio architecto unde beatae sunt omnis distinctio veritatis a numquam soluta iure!</p>
  </div>
  <div class="left-sidebar">
    <h2>Left Sidebar</h2>
    <p>Lorem ipsum dolor sit amet consectetur adipisicing elit. Fuga molestias doloribus nihil, laborum quae reprehenderit.</p>
  </div>
  <div class="right-sidebar">
    <h2>Right Sidebar</h2>
    <p>Lorem ipsum, dolor sit amet consectetur adipisicing elit. Nam blanditiis aperiam nostrum enim quas commodi.</p>
  </div>
</div>
```

```
* {
  padding: 0;
  margin: 0;
  box-sizing: border-box;
}

body {
  font-family: Arial, Helvetica, sans-serif;
}

.main-container{
  height: 100vh;
  display: grid;
  grid-template-columns: 1fr 2fr 1fr;
  grid-auto-flow: dense;
}

.main-content{
  grid-column-start: 2;
  padding: 20px 40px;
}




.left-sidebar{
  grid-column-start: 1;
}

.right-sidebar{
  grid-column-start: 3;
}
```

Exercise 2

```
<div class="box-container">  
  <div class="box-1">CONTENT 1</div>  
  <div class="box-2">CONTENT 2</div>  
  <div class="box-3">CONTENT 3</div>  
</div>
```

```
.box-container{  
  height: 100vh;  
  display: grid;  
  grid-template-columns: 1fr 1fr 1fr;  
  grid-template-rows: 1fr 1fr;  
  grid-template-areas: "box1 box1 box3"  
    "box2 box2 box3";  
  padding: 20px 40px;  
}
```

```
.box-1{  
  background:  rgb(173, 250, 237);  
  grid-area: box1;  
}  
  
.box-2{  
  background:  teal;  
  grid-area: box2;  
}  
  
.box-3{  
  background:  rgb(156, 165, 247);  
  grid-area: box3;  
}
```




LEARNING OUTCOMES

1. Describe the function of CSS BOOTSTRAP
2. Create an HTML file using BOOTSTRAP GRID
3. Explore Bootstrap

What is a responsive website?

A website is called responsive website which can automatically adjust itself to look good on all devices, from smartphones to desktops etc.

- Bootstrap is the most popular HTML, CSS and JavaScript framework for developing a responsive and mobile friendly website.
- Created by **Mark Otto** and **Jacob Thornton** at Twitter.
- Officially released in 2011.
- It is absolutely free to download and use.
- It is a front-end framework used for easier and faster web development.
- It includes HTML and CSS based design templates for typography, forms, buttons, tables, navigation, modals, image carousels and many others.

WHY BOOTSTRAP?

- Helps you design **websites faster and easier**
- You don't have to create code from scratch
- Great grid system
- Consistent in majority of browsers

Get started with Bootstrap

1. LOCAL - OFFLINE

(no need for internet)

Go to getbootstrap.com > Download > Compiled CSS and JS.
Click the Download button. Move the **css and js folders** inside your project.

Then, add this tag to the <head> of your code:

```
<link rel="stylesheet" href="css/bootstrap.css">
```

This tag before the </body>:

```
<script src="js/bootstrap.bundle.js"></script>
```

Get started with Bootstrap

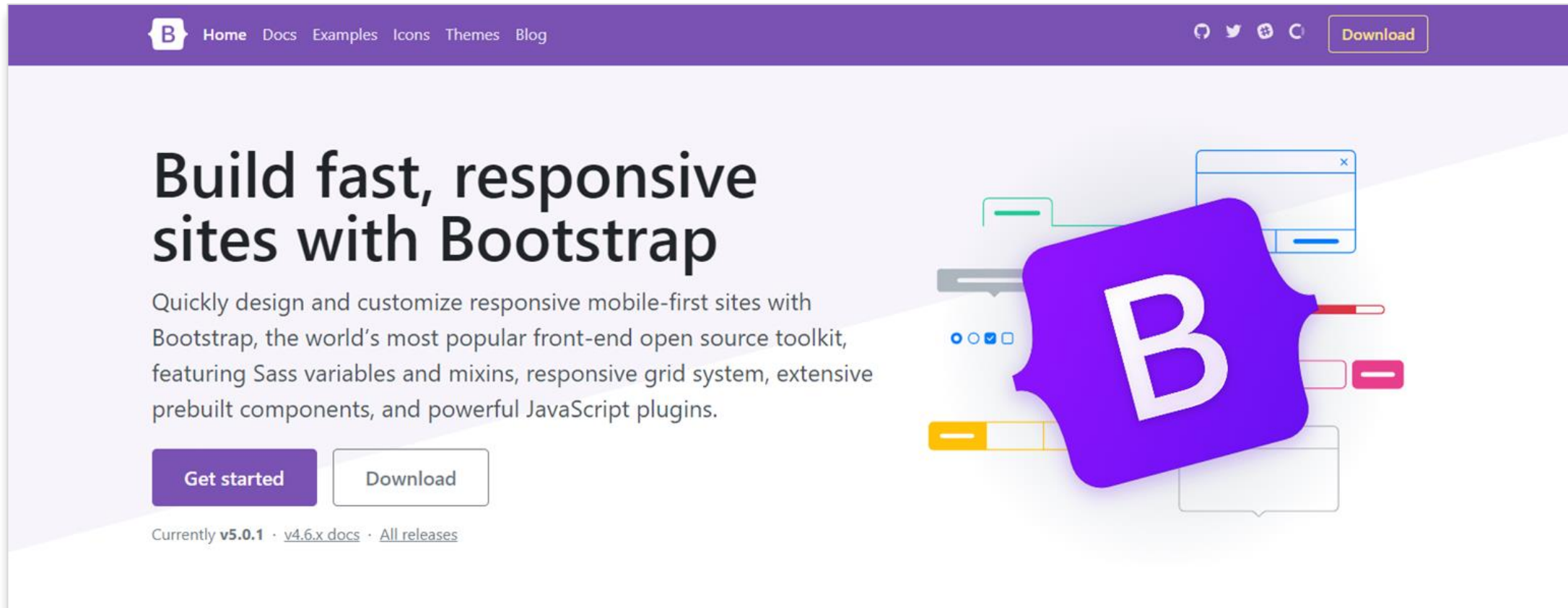
2. **CDN** (content delivery network) – **ONLINE** (internet dependent)

Copy the **css and js links** and paste them on the project.

```
<!doctype html>
<html lang="en">
  <head>
    <meta charset="utf-8">
    <meta name="viewport" content="width=device-width, initial-scale=1">
    <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.0.1/dist/css/bootstrap.min.css" rel="stylesheet"
    integrity="sha384-+0n0xVW2eSR5OomGNYDnhzAbDsOXxcvSN1TPprVMTNDbiYZCxYbOO17+AMvyTG2x" crossorigin="anonymous">
    <title>Hello, world!</title>
  </head>
  <body>
    <h1>Hello, world!</h1>
    <script src="https://cdn.jsdelivr.net/npm/bootstrap@5.0.1/dist/js/bootstrap.bundle.min.js" integrity="sha384-gtEjrD/
    SeCtmISkJKNUaakMoLD0//ElJ19smozuHV6z3Iehds+3U1b9Bn9Plx0x4" crossorigin="anonymous"></script>
  </body>
</html>
```

Get started with Bootstrap

1. Go to getbootstrap.com
2. Click the Get Started button



Get started with Bootstrap

3. Paste the css link in the <head> before other stylesheets. If you need the JavaScript, paste js link before </body>.



Include via CDN

When you only need to include Bootstrap's compiled CSS or JS, you can use [jsDelivr](#). See it in action with our simple [quick start](#), or [browse the examples](#) to jumpstart your next project. You can also choose to include Popper and our JS [separately](#).

```
<!-- CSS only -->  
<link href="https://cdn.jsdelivr.net/npm/bootstrap@5.2.2/dist/css
```



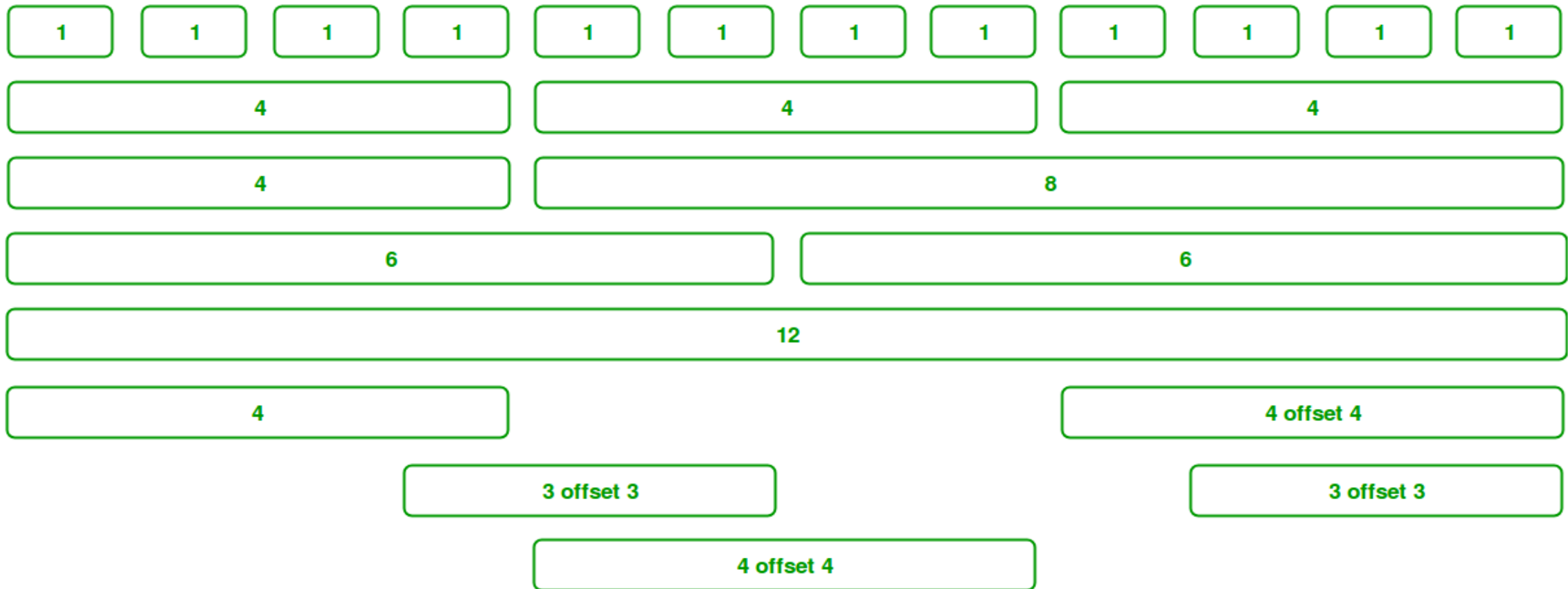
```
<!-- JavaScript Bundle with Popper -->  
<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.2.2/dist/js
```



Bootstrap Layout

BOOTSTRAP GRID

The Bootstrap Grid System allows up to 12 columns across the page. You can use all 12 columns individually or you can group the columns together to create wider columns.



Containers

Containers are a fundamental building block of Bootstrap that contain, pad, and align your content within a given device or viewport.

Row

Rows create horizontal groups of columns.

Columns

Bootstrap's grid system allows up to 12 columns across the page.

Grid System vs HTML

```
<div class="container">  
  <div class="row">  
    <div class="col">Content here</div>  
    <div class="col">Content here</div>  
    <div class="col">Content here</div>  
  </div>  
</div>
```

```
<table>  
  <tr>  
    <td>Content here</td>  
    <td>Content here</td>  
    <td>Content here</td>
```

Bootstrap containers

| | Extra small <576px | Small ≥576px | Medium ≥768px | Large ≥992px | X-Large ≥1200px | XX-Large ≥1400px |
|-------------------------------|-----------------------|-----------------|------------------|-----------------|--------------------|---------------------|
| <code>.container</code> | 100% | 540px | 720px | 960px | 1140px | 1320px |
| <code>.container-sm</code> | 100% | 540px | 720px | 960px | 1140px | 1320px |
| <code>.container-md</code> | 100% | 100% | 720px | 960px | 1140px | 1320px |
| <code>.container-lg</code> | 100% | 100% | 100% | 960px | 1140px | 1320px |
| <code>.container-xl</code> | 100% | 100% | 100% | 100% | 1140px | 1320px |
| <code>.container-xxl</code> | 100% | 100% | 100% | 100% | 100% | 1320px |
| <code>.container-fluid</code> | 100% | 100% | 100% | 100% | 100% | 100% |

Containers are the most basic **layout element** in Bootstrap and are **required** when using the default grid system.

Bootstrap comes with three different containers:

- `.container`, which has a max-width at each responsive breakpoint.
- `.container-fluid`, which has 100% width at all breakpoints.
- `.container-{breakpoint}`, which has 100% width until the specified breakpoint.

Equal-width

```
<div class="container">  
  <div class="row">  
    <div class="col bg-primary">COL</div>  
    <div class="col bg-danger">COL</div>  
    <div class="col bg-secondary">COL</div>  
  </div>  
</div>
```

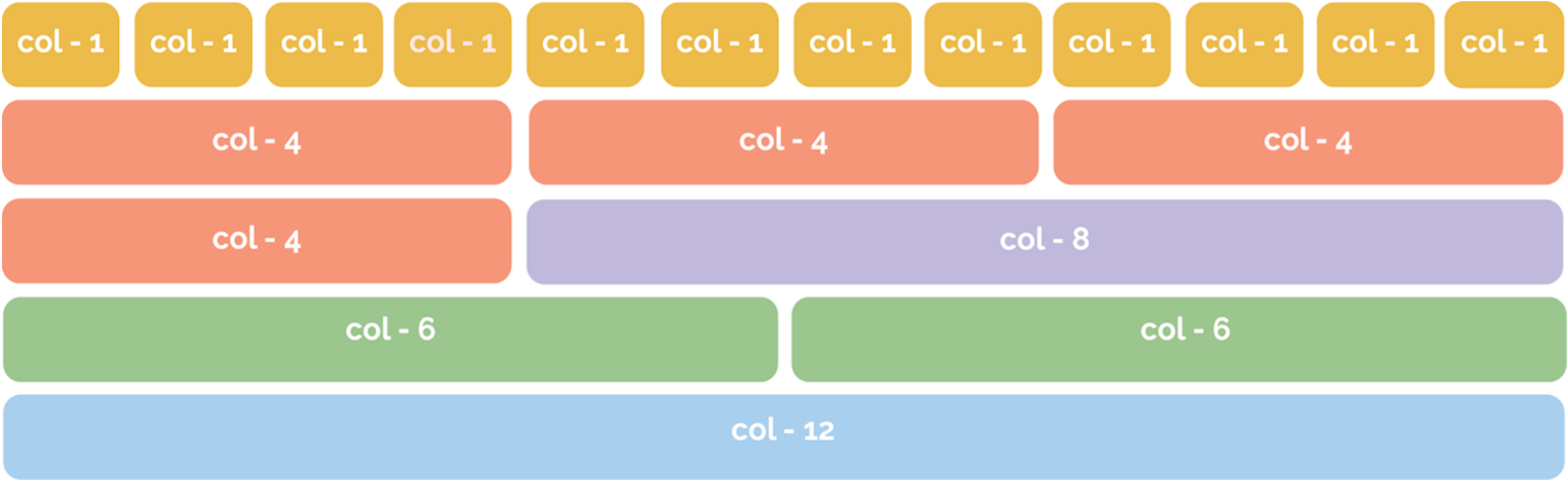


Setting column width

```
<div class="container">  
  <div class="row">  
    <div class="col-2 bg-primary">COL</div>  
    <div class="col-1 bg-danger">COL</div>  
    <div class="col-5 bg-secondary">COL</div>  
    <div class="col-4 bg-info">COL</div>  
  </div>  
</div>
```



Grid System



```
<div class="container">
  <div class="row">
    <div class="col-1">.col-1</div>
    <div class="col-1">.col-1</div>
    <div class="col-1">.col-1</div>
    <div class="col-1">.col-1</div>
    <div class="col-1">.col-1</div>
    <div class="col-1">.col-1</div>
    <div class="col-1">.col-1</div>
    <div class="col-1">.col-1</div>
    <div class="col-1">.col-1</div>
    <div class="col-1">.col-1</div>
    <div class="col-1">.col-1</div>
  </div>
  <div class="row">
    <div class="col-4">.col-4</div>
    <div class="col-4">.col-4</div>
    <div class="col-4">.col-4</div>
  </div>
```

```
    <div class="row">
      <div class="col-4">.col-4</div>
      <div class="col-8">.col-8</div>
    </div>
    <div class="row">
      <div class="col-6">.col-6</div>
      <div class="col-6">.col-6</div>
    </div>
    <div class="row">
      <div class="col-12">.col-12</div>
    </div>
  </div><!-- closing container -->
```

Example 1

| | | | |
|--------|-----|--------|-----|
| (A) | (B) | .col-3 | (C) |
| .col-6 | | (D) | |

Example 1

| | | | |
|--------|-----|--------|-----|
| (A) | (B) | .col-3 | (C) |
| .col-6 | | (D) | |

```
<div class="container-fluid">
  <div class="row">
    <div class="col-3 bg-secondary">(A)</div>
    <div class="col-3 bg-success">(B)</div>
    <div class="col-3 bg-secondary">.col-3</div>
    <div class="col-3 bg-success">(C)</div>
  </div>
  <div class="row">
    <div class="col-6 bg-primary">.col-6</div>
    <div class="col-6 bg-info">(D)</div>
  </div>
```

Example 2

| | | | |
|--------|--------|--------|-----|
| (A) | .col-2 | .col-5 | |
| .col-3 | (B) | (C) | (D) |

Example 2

| | | | | |
|--------|--------|--------|-----|--|
| (A) | .col-2 | .col-5 | | |
| .col-3 | (B) | (C) | (D) | |

```
<div class="container-fluid">
  <div class="row">
    <div class="col-5 bg-primary">(A)</div>
    <div class="col-2 bg-secondary">col-2</div>
    <div class="col-5 bg-success">.col-5</div>
  </div>
  <div class="row">
    <div class="col-3 bg-secondary">.col-3</div>
    <div class="col-4 bg-success">(B)</div>
    <div class="col bg-primary">(C)</div>
    <div class="col bg-secondary">(D)</div>
  </div>
```

Bootstrap Code Challenge



GridAct2_Nickname.html

```
<h1>Hello!</h1>
```

Hello!

col-8

col-5

Bootstrap Grid System

```
<h2>Bootstrap Grid System</h2>
```

Grid System

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.

| | xs <576px | sm ≥576px | md ≥768px | lg ≥992px | xl ≥1200px | xxl ≥1400px |
|---|-----------------------------------|-------------------------|-------------------------|-------------------------|-------------------------|--------------------------|
| Container <small>max-width</small> | None (auto) | 540px | 720px | 960px | 1140px | 1320px |
| Class prefix | <small>.col-</small> | <small>.col-sm-</small> | <small>.col-md-</small> | <small>.col-lg-</small> | <small>.col-xl-</small> | <small>.col-xxl-</small> |
| # of columns | 12 | | | | | |
| Gutter width | 1.5rem (.75rem on left and right) | | | | | |

- BS Grid System supports **6 breakpoints** for **responsive** design.
- 1 row can contain up to 12 columns.
- Each column has horizontal padding called a *gutter*.

Grid options

Bootstrap's grid system can adapt across all six default breakpoints, and any breakpoints you customize. The six default grid tiers are as follow:

- Extra small (xs)
- Small (sm)
- Medium (md)
- Large (lg)
- Extra large (xl)
- Extra extra large (xxl)








Column: col-{screen size(optional)}-{ # of columns}

Screen size

- > Extra small (less than 768px); xs
- > Small (greater than or equal to 768px): sm
- > Medium (greater than or equal to 992 px: md
- > Large (greater than or equal to 1200px): lg
- > Extra large (greater than or equal to 1400px); xl



| | | |
|-----------|------------------------|---|
| xs | Extra small <576px |  portrait mobile |
| sm | Small ≥576px |  landscape mobile |
| md | Medium ≥768px |  portrait tablets <i>navbar collapse</i> |
| lg | Large ≥992px |  landscape tablets |
| xl | Extra large ≥1200px |  laptops, desktops, TVs |

Lorem ipsum dolor sit amet, consectetur adipisicing elit. Et a odit amet nihil assumenda aut dolores ducimus ipsam eius minus?

Lorem ipsum dolor sit amet, consectetur adipisicing elit. Neque quos facere consectetur asperiores repellat animi vel perspiciatis debitis blanditiis ipsum!

Lorem, ipsum dolor sit amet consectetur adipisicing elit. Itaque maiores facilis corporis dolorem culpa fuga ipsum repellendus cum eos modi!

md screen size

.col-md-4 means that the **column** will occupy **4 spaces** if the screen size is **MD** or wider (LG, XL, XXL)

```
<div class="container">
  <div class="row">
    <div class="col-md-4 bg-warning">Lorem ipsum dolor sit amet,
    consectetur adipisicing elit. Et a odit amet nihil assumenda aut
    dolores ducimus ipsam eius minus?</div>
    <div class="col-md-4">Lorem ipsum dolor sit amet, consectetur
    adipisicing elit. Neque quos facere consectetur asperiores repellat
    animi vel perspiciatis debitis blanditiis ipsum!</div>
    <div class="col-md-4 bg-warning">Lorem, ipsum dolor sit amet
    consectetur adipisicing elit. Itaque maiores facilis
    corporis dolorem culpa fuga ipsum repellendus cum eos modi!</div>
  </div>
</div>
```

Lorem ipsum dolor sit amet, consectetur adipisicing elit. Et a odit amet nihil assumenda aut dolores ducimus ipsam eius minus?

Lorem ipsum dolor sit amet, consectetur adipisicing elit. Neque quos facere consectetur asperiores repellat animi vel perspiciatis debitis blanditiis ipsum!

Lorem, ipsum dolor sit amet consectetur adipisicing elit. Itaque maiores facilis corporis dolorem culpa fuga ipsum repellendus cum eos modi!

sm and xs screen size

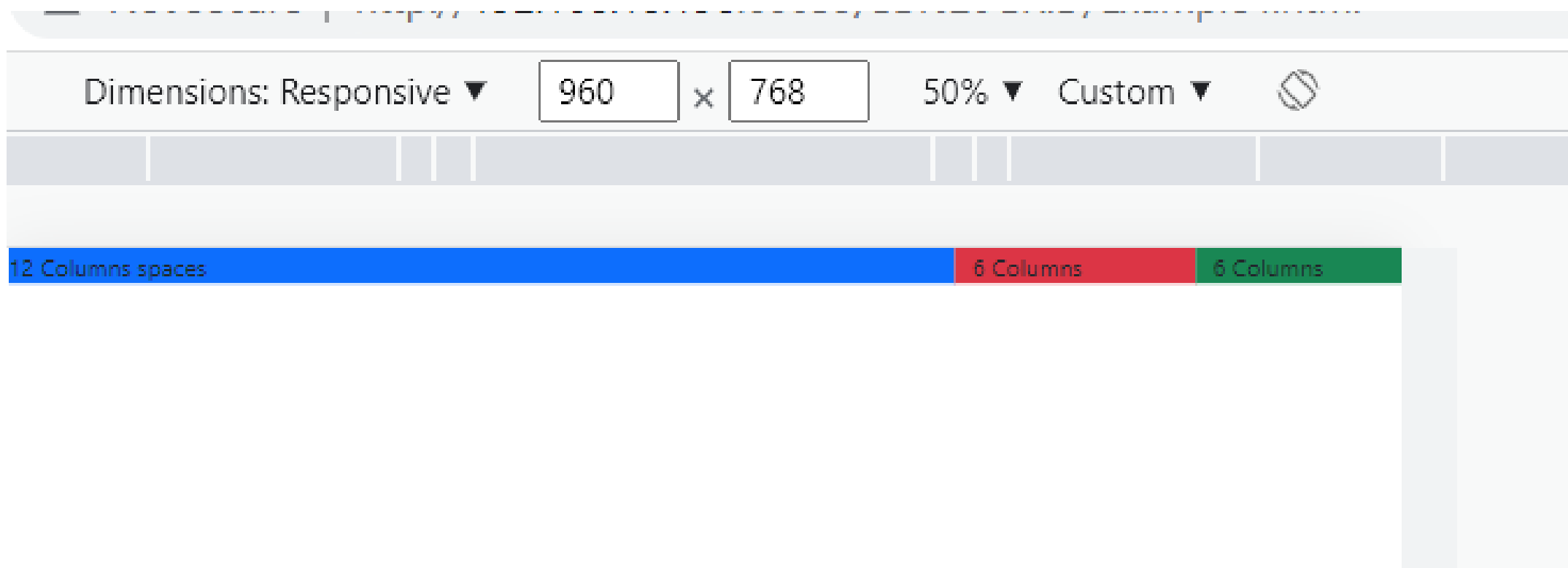
| | | | | | | | | | | | |
|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| .col-md-1 | .col-md-1 | .col-md-1 | .col-md-1 | .col-md-1 | .col-md-1 | .col-md-1 | .col-md-1 | .col-md-1 | .col-md-1 | .col-md-1 | .col-md-1 |
|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|

| | |
|-----------|-----------|
| .col-md-8 | .col-md-4 |
|-----------|-----------|

| | | |
|-----------|-----------|-----------|
| .col-md-4 | .col-md-4 | .col-md-4 |
|-----------|-----------|-----------|

| | |
|-----------|-----------|
| .col-md-6 | .col-md-6 |
|-----------|-----------|

Example



Dimensions: Responsive ▼

959



x

768

68% ▼

Custom ▼



12 Columns spaces

6 Columns

6 Columns

Background

primary : blue

secondary : gray (600)

light : light gray (100)

dark : dark gray (900)

info : cyan

success : green

warning : yellow

danger : red

Background

```
<div class="container bg-primary / secondary / success / info / warning / danger  
/ light / white / dark / transparent"></div>
```

Background gradient

```
<div class="container bg-primary bg-gradient"></div>
```

Try this!

```
<div class="container1"></div>
<div class="row justify-content-center">
|   <!-- <div class="row justify-content-end"> -->
<div class="col-2 order-2 bg-primary">Column 1</div>

<div class="col-6 order-1 bg-danger">Column 2</div>

<div class="col-2 order-0 bg-success">Column 3</div>
</div>
</div>
```

Column 3

Column 2

Column 1

Text

```
<p class="text-primary / secondary / success / danger  
/ warning / info / light / dark / body / muted / white  
/ black-50 / white-50"></p>
```

text-black-50 → `rgba(0, 0, 0, .5)`

text-white-50 → `rgba(255, 255, 255, .5)`

text-muted → same with secondary

Thank you!

