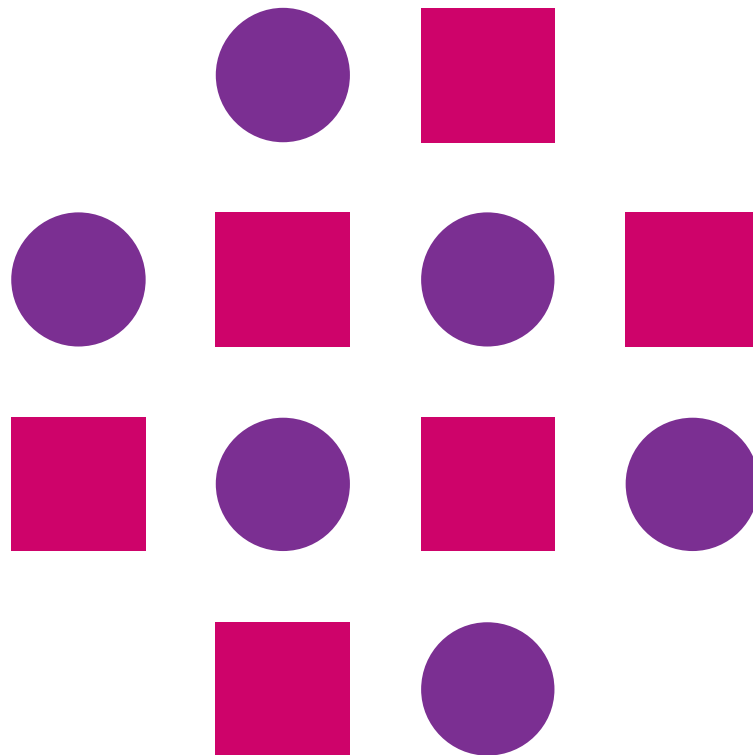


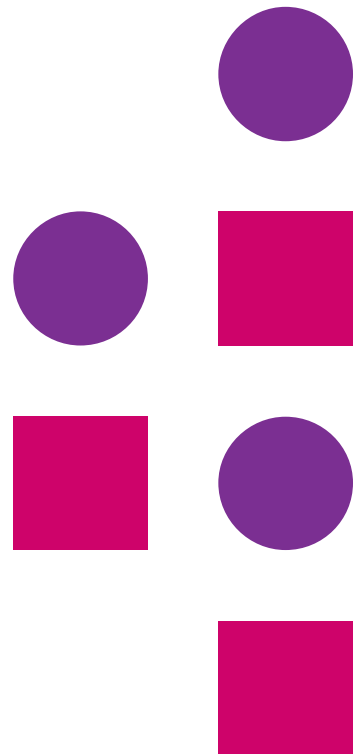
# Grid System

Bootstrap



# Table of Content

- Grid System



# Grid System

(Bootstrap)

# Bootstrap

## (Grid System)

- Bootstrap's grid system uses a series of containers, rows, and columns to layout and align content
- Bootstrap grid system is built with flexbox
- It allows up to 12 columns across the page
- The columns can also be grouped to create wider columns
- Bootstrap grid system is responsive
- Columns are re-arranged automatically based on screen size

# Bootstrap

## (Grid Classes)

Class Prefix	Target device	Screen width
.col-	Extra small	< 576px
.col-sm-	Small	>= 576px
.col-md-	Medium	>= 768px
.col-lg-	Large	>= 992px
.col-xl-	Extra Large	>= 1200px

**\*sm, md, lg or xl represents responsiveness breakpoints**

# Bootstrap

## (Grid - media query)

- Extra small devices (portrait phones, less than 576px)
  - No media query since this is the default in Bootstrap
- Small devices (landscape phones, 576px and up)
  - @media (min-width: 576px) { ... }
- Medium devices (tablets, 768px and up)
  - @media (min-width: 768px) { ... }

# Bootstrap

## (Grid Classes)

- Large devices (desktops, 992px and up)
  - @media (min-width: 992px) { ... }
- Extra large devices (large desktops, 1200px and up)
  - @media (min-width: 1200px) { ... }

# Bootstrap

## (Grid - Container)

- Containers provide a means to centre and horizontally pad your site's contents
- A container shall contain rows

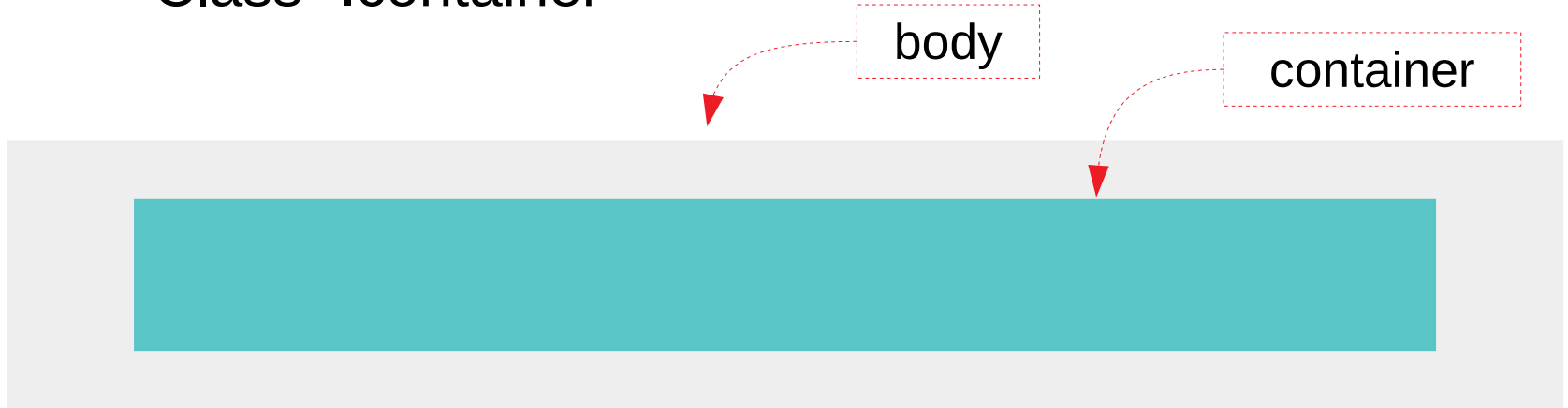
Class	Description
.container	For a responsive pixel width
.container-fluid	For 100% width across all viewport and device sizes



# Bootstrap

## (Grid - Fix width container)

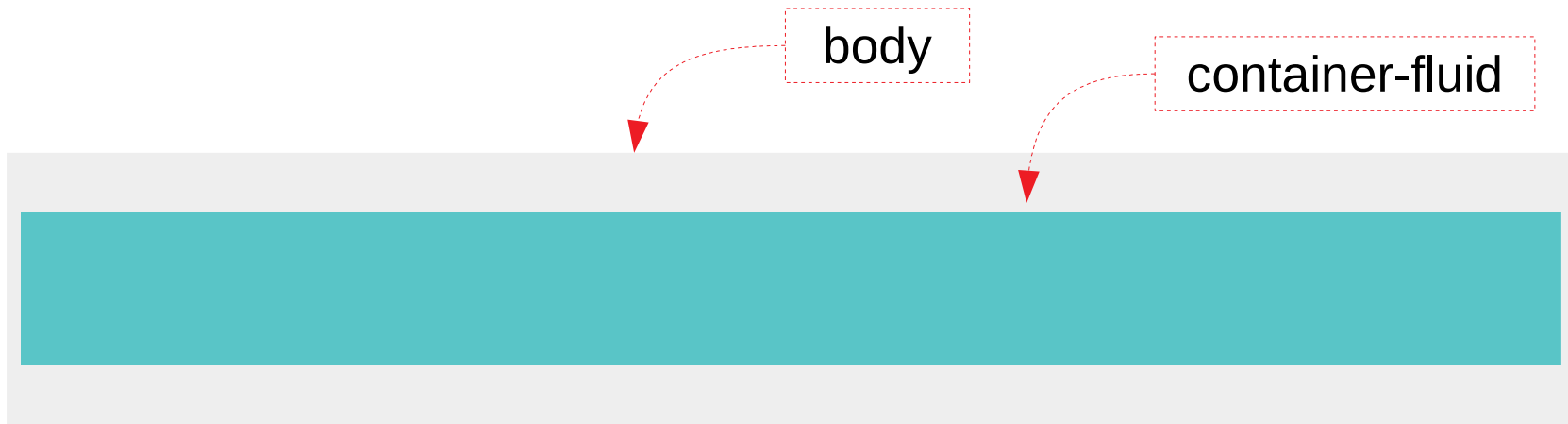
- Responsive, fixed-width container (meaning its max-width changes at each breakpoint)
  - Class “.container”



# Bootstrap

## (Grid - Fluid width container)

- Fluid-width (meaning it's 100% wide all the time)
  - Class “.container-fluid”



# Bootstrap

## (Grid - Row)

- Rows are wrappers to contain columns
- Padding (container) is counteracted on the rows with negative margins (in row)

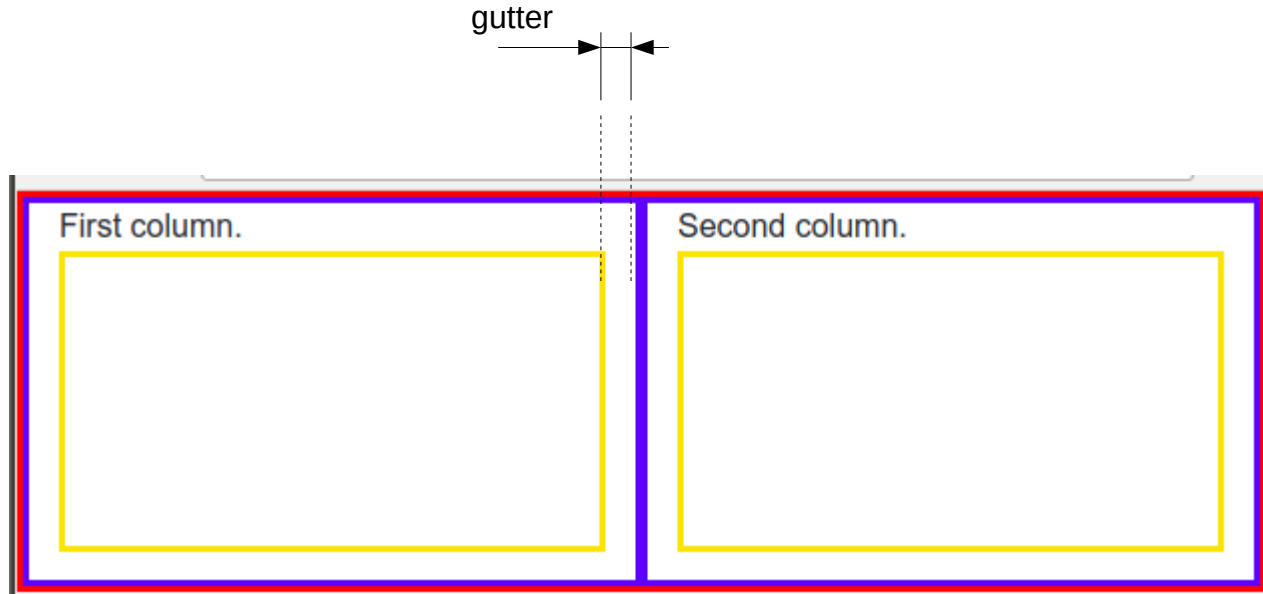
# Bootstrap

## (Grid - Column)

- Column widths are set in percentages, so they're always fluid and sized relative to their parent element
- Each column has horizontal padding (called a gutter) for controlling the space between them
- This way, all the content in columns is visually aligned down the left side
- You can remove the margin from rows and padding from columns with `.no-gutters` on row

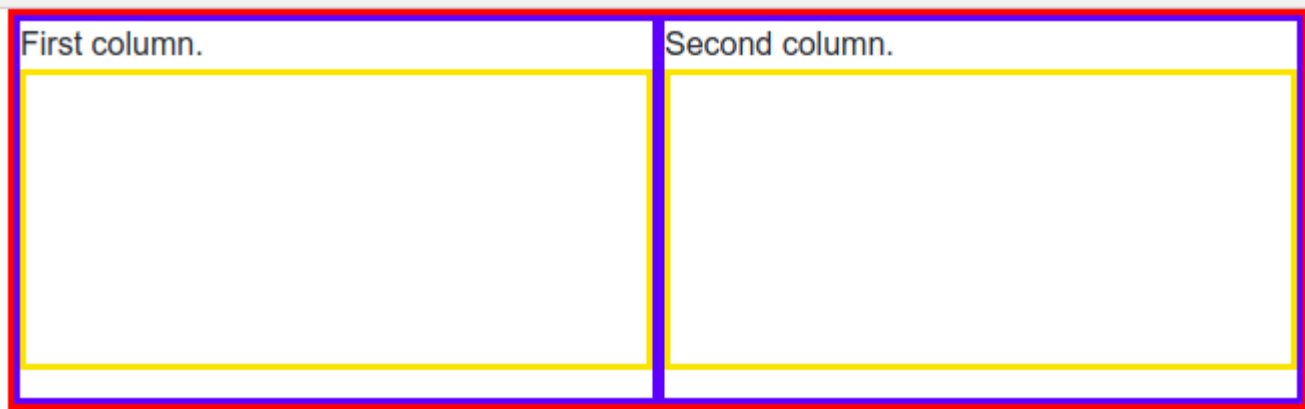
# Bootstrap

## (Grid – Column with gutter)

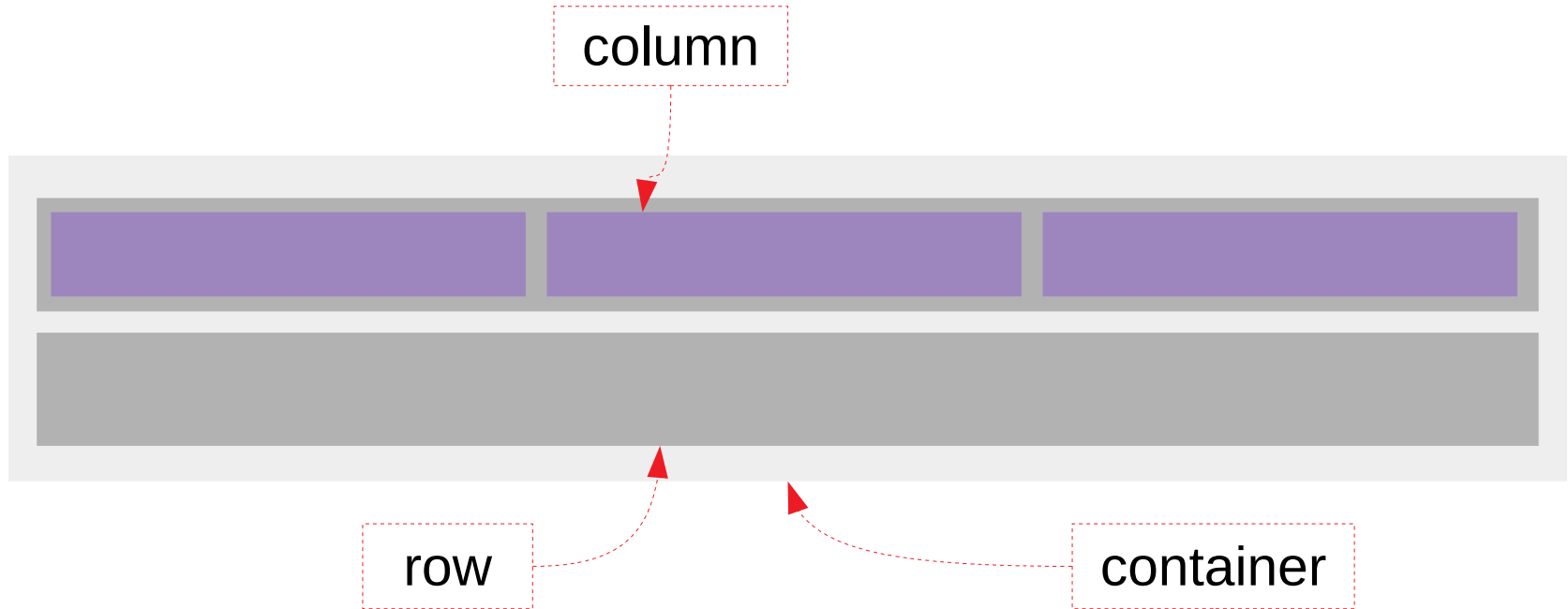


# Bootstrap

(Grid – Column with no gutter)



# Bootstrap (Grid)



# Bootstrap

## (Grid – column classes)

Class	Description
col	Classes to create equal size all devices horizontal columns
col-auto	Classes to create columns with natural width of their content
col-{number}	Classes to create equal/unequal size all devices horizontal columns
col-{breakpoint}	Classes to create equal size stackable columns
col-{breakpoint}-{number}	Classes to create equal/unequal size stackable columns
col-{breakpoint}-auto	Classes to create stackable columns with natural width of their content



# Bootstrap

## (Grid - Breakpoints)

- There are five grid breakpoints, one for each responsive breakpoint
  - All breakpoints (extra small)
  - Small
  - Medium
  - Large
  - Extra large

# Bootstrap

## (Grid - Breakpoints)

- Grid breakpoints are based on minimum width media queries
- They apply to that one breakpoint and all those above
- Example : `.col-sm-4` applies to small, medium, large, and extra large devices, but not the first xs device

# Bootstrap

## (Grid – All breakpoints)

- `.col` or `.col-{number}` classes :
  - Number range 1 ~ 12
  - For grids that are the same from the smallest of devices to the largest

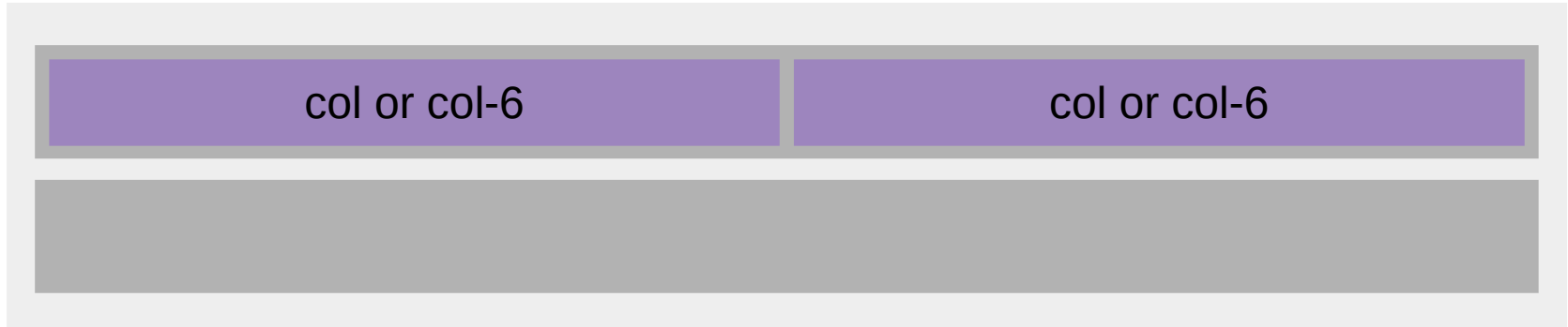
### **Example :**

```
<div class="col"> </div>  
<div class="col-4"> </div>
```

# Bootstrap

## (Grid – two equal width columns)

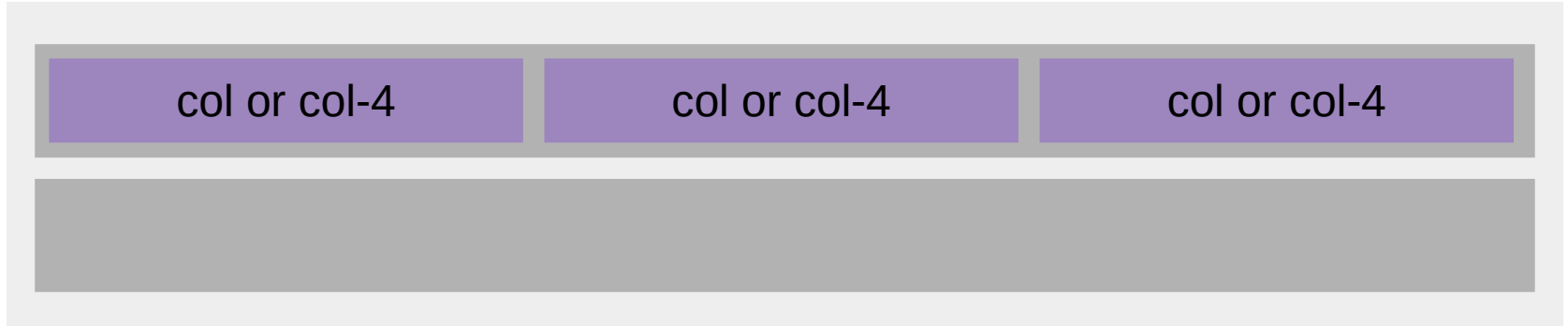
- Column classes indicate the number of columns you'd like to use out of the possible 12 columns per row
- “.col” or “.col-6” can be used for two equal-width columns



# Bootstrap

## (Grid – three equal width columns)

- Column classes indicate the number of columns you'd like to use out of the possible 12 columns per row
- “.col” or “.col-4” can be used for three equal-width columns



# Bootstrap

## (Grid – Auto-layout columns - Stackable)

- `.col-{breakpoint}` classes
  - Create a basic grid system that starts out stacked before becoming horizontal with at the breakpoint

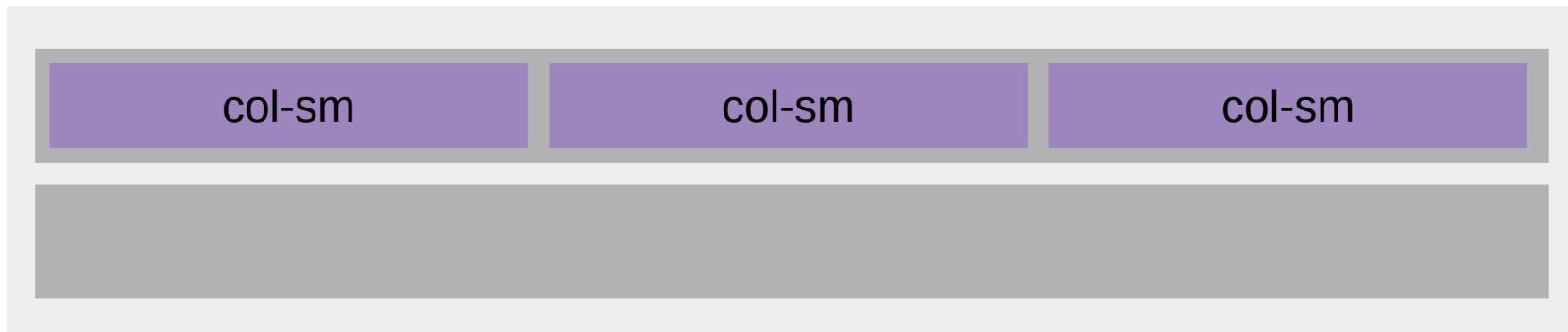
### **Example :**

```
<div class="col-sm"> </div>
```

# Bootstrap

(Grid – three equal width stackable columns)

- Add any number of unit-less classes for each breakpoint you need and every column will be the same width
- On mobile phones or screens that are less than 576px wide, the columns will automatically stack on top of each other



# Bootstrap

## (Grid – Stackable columns)

- `.col-{breakpoint}-{number}` classes
  - Number could be 1 ~ 12
  - Create a basic grid system that starts out stacked before becoming horizontal with at the breakpoint

### **Example :**

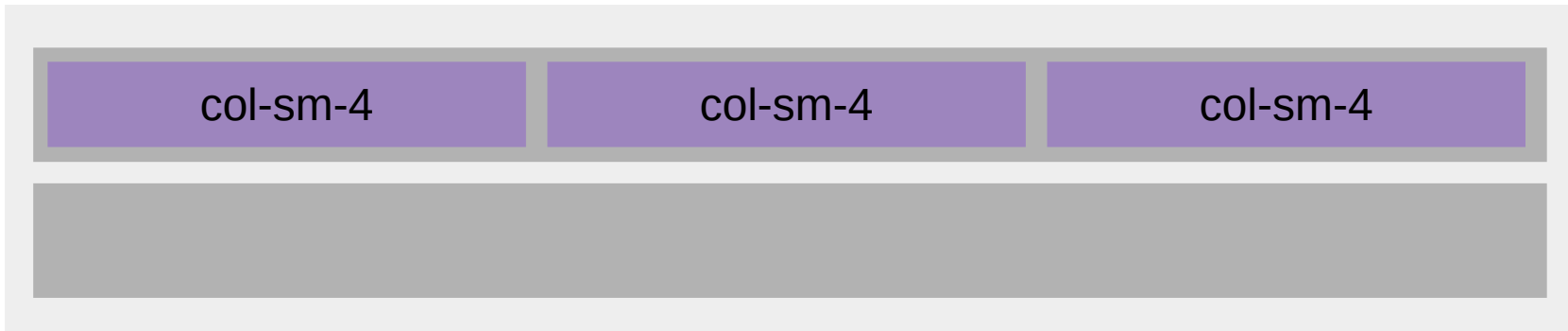
```
<div class="col-sm-4"> </div>
```



# Bootstrap

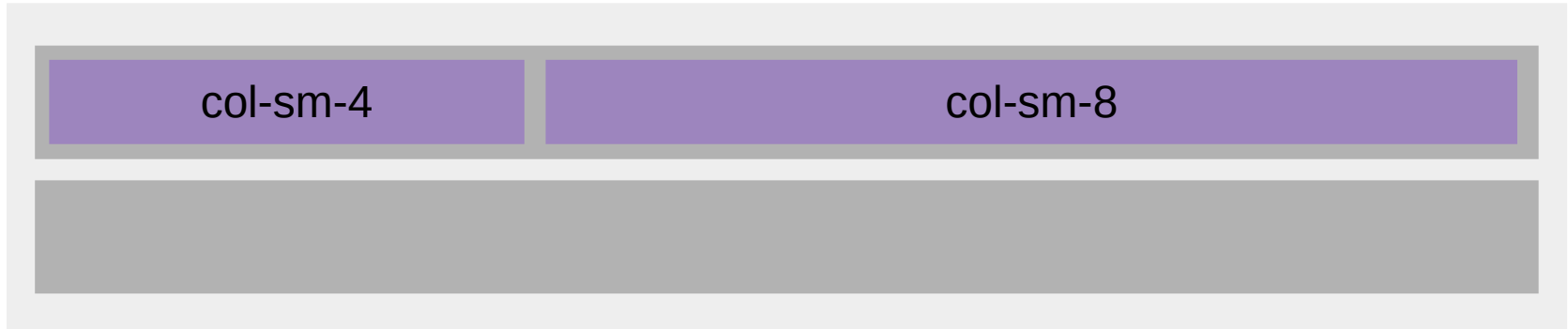
(Grid – three equal columns with breakpoint)

- On mobile phones or screens that are less than 576px wide, the columns will automatically stack on top of each other



# Bootstrap

(Grid – two unequal columns with breakpoint)



# Bootstrap

## (Grid – Variable width content)

- col-{breakpoint}-auto classes :
  - To size columns based on the natural width of their content

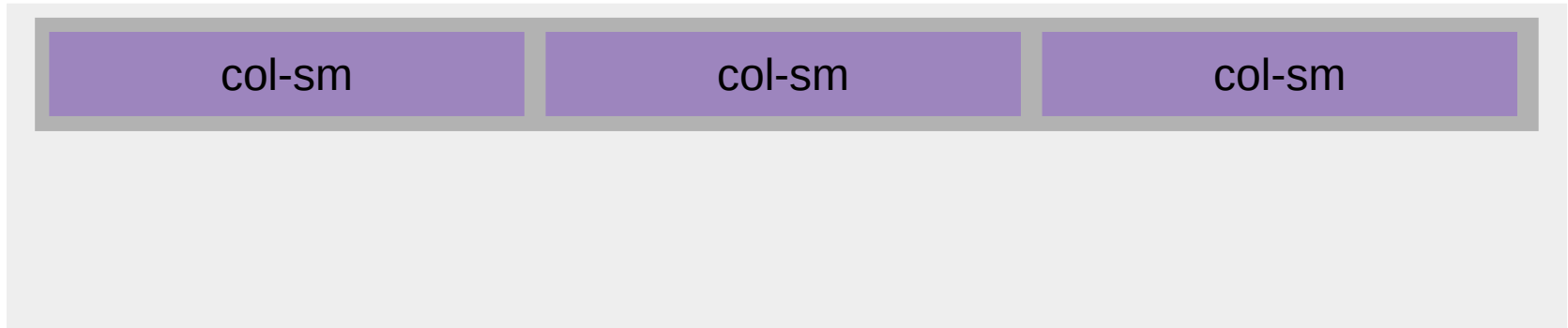
### **Example :**

```
<div class="col-md-auto"> </div>
```

# Bootstrap

## (Grid – Vertical Alignment)

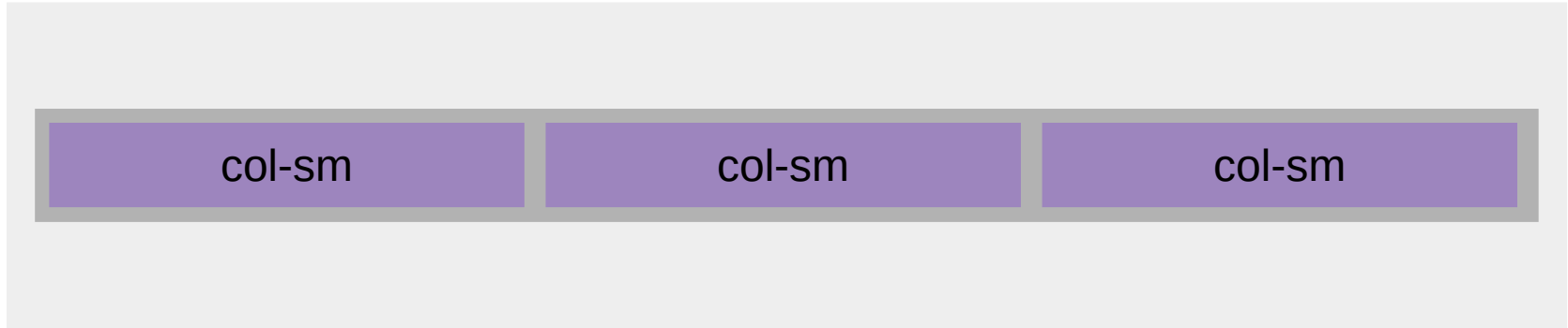
- Use flexbox alignment utilities to vertically and horizontally align columns
- `<div class="row align-items-start">`



# Bootstrap

## (Grid – Vertical Alignment)

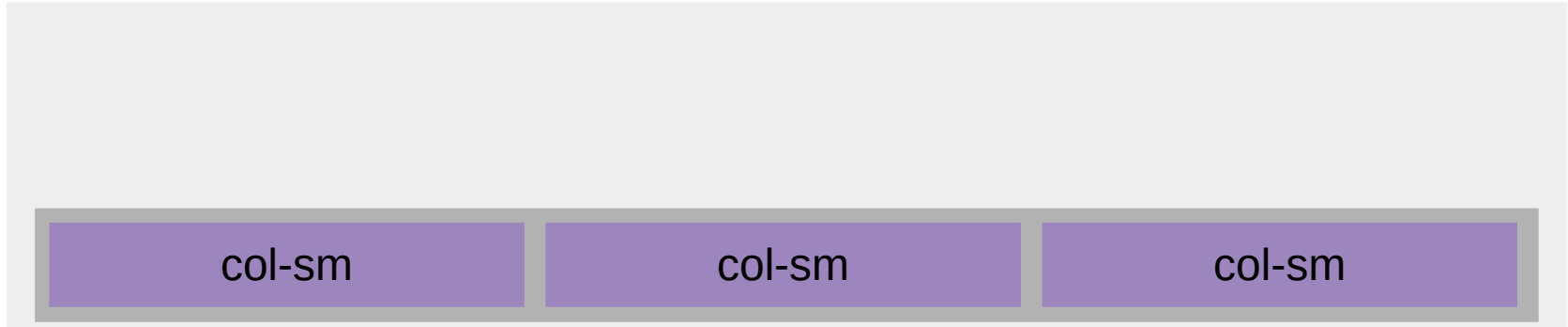
- `<div class="row align-items-center">`



# Bootstrap

## (Grid – Vertical Alignment)

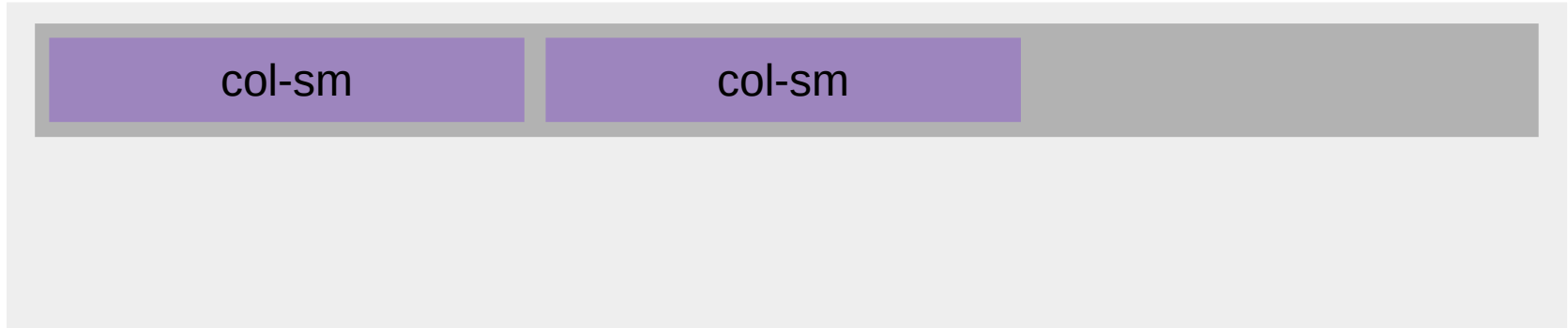
- `<div class="row align-items-end">`



# Bootstrap

## (Grid – Horizontal Alignment)

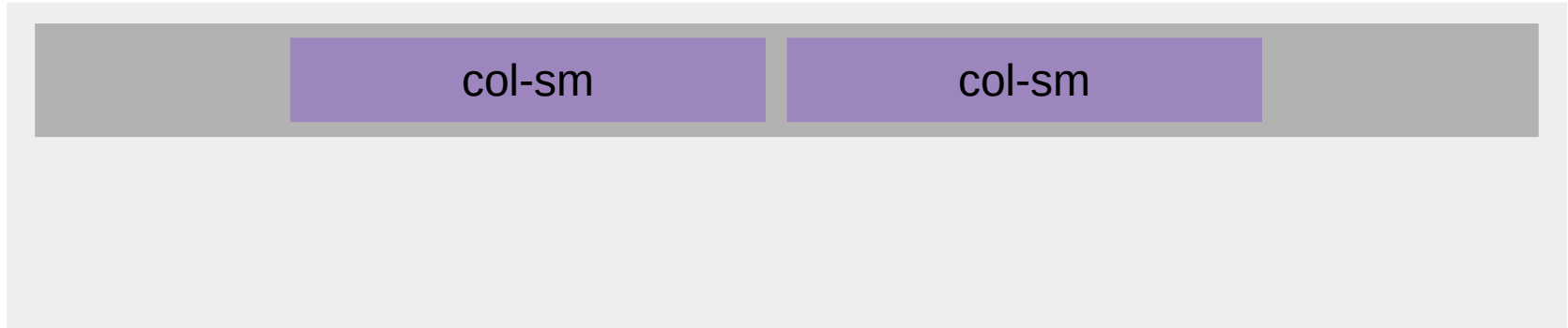
- `<div class="row justify-content-start">`



# Bootstrap

## (Grid – Horizontal Alignment)

- `<div class="row justify-content-centre">`

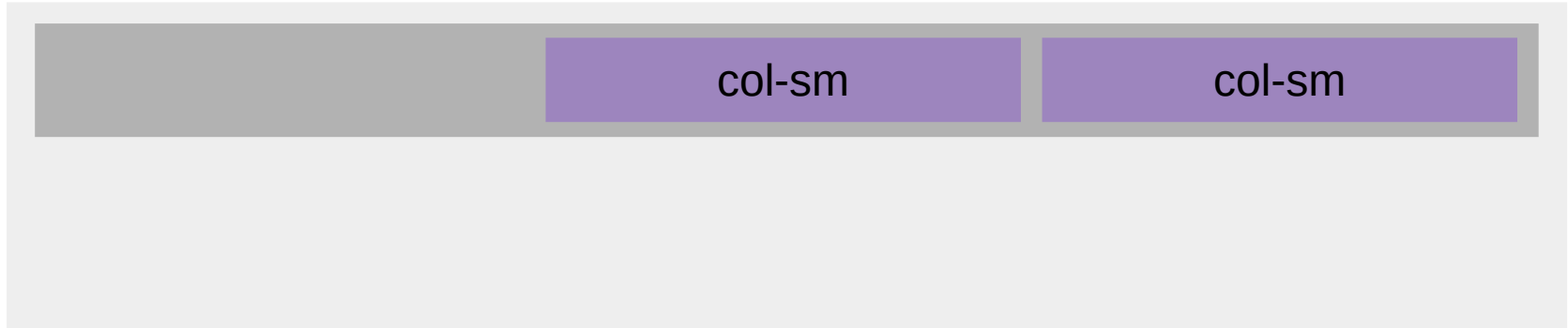




# Bootstrap

## (Grid – Horizontal Alignment)

- `<div class="row justify-content-end">`



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*Thank  
you*