

Viewport

```
<meta name="viewport" content="width=device-width,  
initial-scale=1, shrink-to-fit=no">
```

- The *viewport* meta tag:
 - Ensures that the screen width is set to the device width and the content is rendered with this width in mind
 - Designing the websites to be responsive to the size of the viewport
 - Bootstrap grid system

<http://getbootstrap.com/docs/4.0/layout/grid/>

Bootstrap Grid

- Designed to be:
 - Responsive
 - Mobile first
 - Fluid

CSS Flexbox Layout

- Simpler and flexible layout options in CSS
- Can easily handle dynamic/unknown size of content containers
- Direction-agnostic layout

Why Flexbox for Bootstrap?

- Easy vertical alignment of content within a parent element
- Easy reordering of content across devices and screen resolutions with the help of media queries
- Easy CSS-only equal height columns for your grid-based layouts

Bootstrap Grid

```
<div class="container">
```

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

1

2

3

4

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11

12

Bootstrap Grid

- Bootstrap makes available five classes
 - default targets all screen sizes from extra small to extra large,
 - *sm* for small,
 - *md* for medium,
 - *lg* for large, and
 - *xl* for extra large screen sizes
- Each row in Bootstrap grid system is divided into 12 columns
- Use the classes `.col-*`, `.col-sm-*`, `.col-md-*`, and `.col-lg-*` for defining the layouts for the various screen sizes
- Specify how many columns each piece of content will occupy within a row, all adding up to 12 or a multiple thereof

Bootstrap Grid

```
<div class="container">
```

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

```
<div class="col-sm-5">
```

```
<div class="col-sm-7">
```

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Auto-layout Columns

```
<div class="container">
```

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

<div class="col-sm">

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

<div class="col-sm">

<div class="col-sm">

```
<div class="col-sm-6">
```

<div class="col-sm">

Bootstrap Grid Details

	Extra small <576px	Small ≥576px	Medium ≥768px	Large ≥992px	Extra large ≥1200px
Grid behavior	Horizontal at all times	Collapsed to start, horizontal above breakpoints			
Max container width	None (auto)	540px	720px	960px	1140px
Class prefix	.col-	.col-sm-	.col-md-	.col-lg-	.col-xl-
# of columns	12				
Gutter width	30px (15px on each side of a column)				
Nestable	Yes				
Offsets	Yes				

Using Column classes

Extra Small Screens

```
<div class="col-12 col-sm-5">
```

```
<div class="col-12 col-sm-7">
```

Small, Medium, Large and Extra Large Screens

```
<div class="col-12 col-sm-5">
```

```
<div class="col-12 col-sm-7">
```

Reordering Content

Extra Small Screens

```
<div class="col-sm-5 order-sm-last">
```

```
<div class="col-sm-7 order-sm-first">
```

Small, Medium and Large Screens

```
<div class="col-sm-7 order-sm-first">
```

```
<div class="col-sm-5 order-sm-last">
```

```
<div class="container">
```

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

```
<div class="col-5">
```

```
<div class="col-7">
```

1

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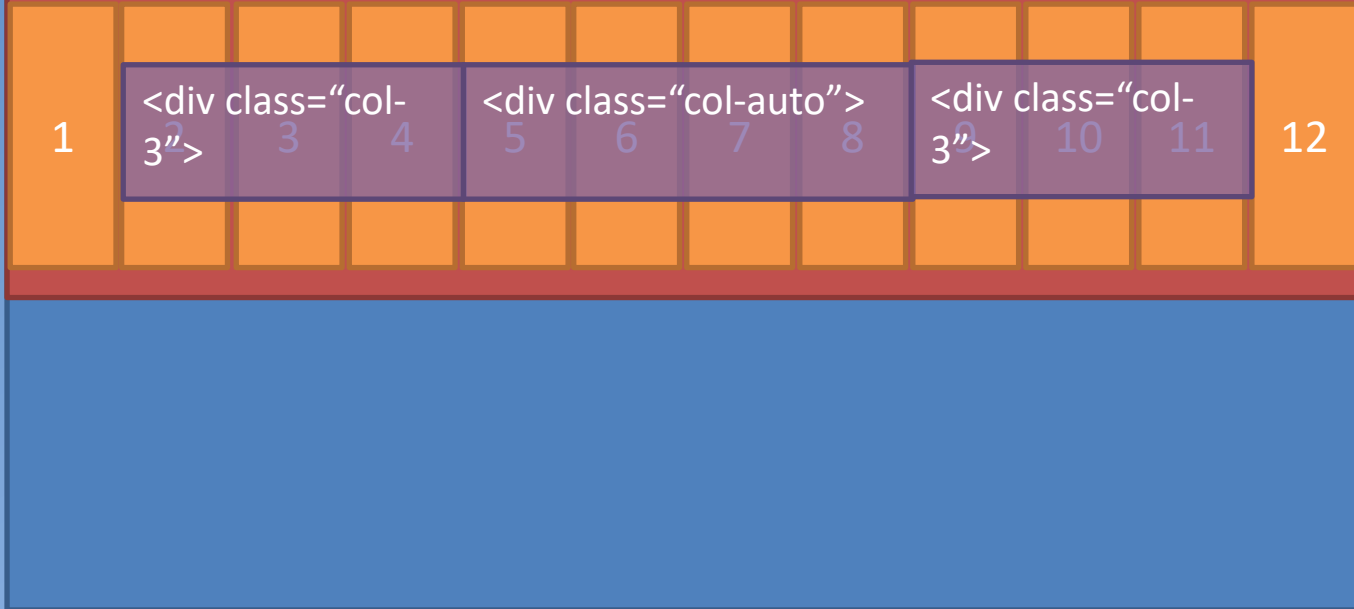
11

12

Horizontal Alignment

```
<div class="container">
```

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



Column Offsets

```
<div class="container">
```

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

1

```
<div class="col-sm-4  
offset-sm-1">
```

```
<div class="col-sm-7">
```

2

3

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11

12

Exercise: Responsive Design and Bootstrap Grid System

- Create responsive websites using the Bootstrap grid system
- Customize the CSS classes through your own additions in a separate CSS file